Cancer Trends Progress Report

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National Cancer Institute, NIH, DHHS, Bethesda, MD, January 2017, http://progressreport.cancer.gov.
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The Cancer Trends Progress Report, first issued in 2001, summarizes our nation's advances against cancer in relation to <u>Healthy People</u> targets set forth by the Department of Health and Human Services. The report, intended for policy makers, researchers, and public health professionals, includes key measures of progress along the cancer control continuum and uses national trend data to illustrate where improvements have been made.

Read our <u>Introduction</u> and <u>Director's Message</u> to learn more about the report.

Home

Prevention

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

Early Detection

Breast, cervical, colorectal cancer screening

Diagnosis

Incidence, Stage at diagnosis

Treatment

Trends in cancer treatment

Life After Cancer

Financial burden of cancer care, Cancer survivorship

End of Life

Mortality, Person - years of life lost

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

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Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2015, <u>http://progressreport.cancer.gov(http://progressreport.cancer.gov)</u>.

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About the Report

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

- Introduction
- Director's Message
- Frequently Asked Questions
- Acknowledgements
- Fact Sheet (PDF)

- Introduction
- Director's Message
- Frequently Asked Questions

Introduction

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

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

- Cancer remains the second most common cause of death in the United States, exceeded only by heart disease, accounting for nearly one in every four deaths.
- The incidence of some cancers, including kidney, thyroid, pancreas, liver, uterus, melanoma of the skin, myeloma (cancer of plasma cells), and non-Hodgkin lymphoma, 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 in its seventh iteration in a series of reports that describe the nation's progress against cancer through research and related efforts. The report is based on the most recent data at the time of analysis from the National Cancer Institute, the Centers for Disease Control and Prevention, other federal agencies, professional groups, and cancer researchers.

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

What's in the Report

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

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

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

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

How Data Were Selected

In selecting measures that would be meaningful to readers of this report, we relied largely on long-term national - rather than state or local - data collection efforts. (State and local data are available online at State Cancer Profiles(http://statecancerprofiles.cancer.gov/)). The report includes more measures for prevention than for other segments of the continuum, because preventive measures hold so much potential in positively impacting national progress to reduce the burden of cancer. A substantial proportion of cancers could be prevented by behavioral choices, making prevention a key focus of the report. Most recent additions to the report include new measures of cancer survivors' physical activity and excess body weight and obesity, in addition to its examination of cancer survivors' smoking status. As the number of cancer survivors grows and expected survival time increases, the health behaviors of these individuals is becoming an important focus of attention. Adoption or maintenance of healthy lifestyles after cancer has the potential to reduce both cancer- and non-cancer related morbidity. Tracking these behaviors permits evaluation of how well cancer control efforts are working to reduce unnecessary disability and death among those with a history of cancer.

Additionally, HPV immunization trends are being tracked in this report for the first time. Like most other measures in the report, HPV has a Healthy People target for its measure as well as national trend data to track progress over time.

Four environmental measures were also added this report cycle, and specific criteria for their inclusion is cited within the chapters.

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

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Cancer Trends Progress Report

National Cancer Institute, NIH, DHHS, Bethesda, MD, March 2015, http://progressreport.cancer.gov(http://progressreport.cancer.gov).

Director's Message

One of the important responsibilities of the National Cancer Institute is communicating our nation's progress against cancer to the public. The *Cancer Trends Progress Report* is a significant part of that dissemination process. This web-based report provides up-to-date information on a range of cancer control topics—from disease prevention to the impact of deaths from cancer—and data that track the successful application of selected areas of cancer research into practice.

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

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

This steady improvement reflects progress in diagnosing certain cancers at an earlier stage through screening and improvements in treatment. In the area of tobacco control, since the early 1990s, the rate of secondhand smoke exposure has decreased significantly as the proportion of smoke-free homes and persons covered by indoor worksite policies prohibiting smoking has risen.

Despite these improvements, the nation is losing ground in other important areas that demand attention. While there has been a significant decline in the use of traditional cigarettes among youth over the past decade, research has shown that the use of other tobacco products continues to climb. This report, for the first time, includes the use of e-cigarettes and will track this use over time.

A substantial proportion of cancers could be prevented by behavioral choices, making prevention a key focus of the report. Up to one-third of cancer cases in the United States are related to excess weight or obesity, physical inactivity, and/or poor nutrition, and thus could be prevented. Cancers caused by cigarette smoking and heavy use of alcohol are largely preventable. Certain cancers related to infectious agents, such as oncogenic types of the human papillomavirus (HPV), the hepatitis B and C viruses, and the human immunodeficiency virus, could be prevented through behavioral changes or the use of protective vaccinations or antiviral treatments. For example, HPV vaccines prevent persistent infection by the most common types of HPV that cause cancer. Even so, not enough children in the United States are being properly vaccinated against HPV. Only 42 percent of girls and 28 percent of boys aged 13-17 years received the recommended three-dose HPV vaccine series in 2015.

This report also tracks exposure to carcinogens that exist as pollutants in our air, food, water, and soil, including arsenic, benzene, cadmium, and nitrate. Beginning this year, the report examines exposure to radon, a radioactive gas that is the second leading cause of lung cancer after tobacco smoke.

To help advance improvements in cancer prevention, diagnosis, and treatment, a Blue Ribbon Panel of scientific experts, cancer leaders, and patient advocates was convened as a working group of the National Cancer Advisory Board to inform the scientific direction and goals of Vice President Joe Biden's National Cancer Moonshot initiative. The panel provided recommendations on how to fast track efforts to develop cancer vaccines, highly sensitive approaches to early detection, enhanced data sharing, and culturally appropriate, effective intervention programs for targeted populations, among other areas. The *Cancer Trends Progress Report* can be used by researchers and cancer control professionals to elicit research ideas and set priorities for cancer control program planning to advance cancer control progress.

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. This update of the *Cancer Trends Progress Report* expands the topic of cancer survivors' physical activity by examining not only the percentage of adults who report leisure-time physical activity but also those who meet current federal guidelines for aerobic physical activity and muscle-strengthening activity. Finally, the economic burden of cancer is considerable and important to monitor. As the U.S. population ages and newer technologies and treatments become available, national expenditures for cancer will continue to rise. National and state cancer control strategies should be informed by evidence concerning economic burden and statistical models of the impact of interventions.

We at NCI, along with our *Cancer Trends Progress Report* partners, hope that you will find this report to be a valuable reference tool and a stimulus for action. We must not forget that the numbers in this report reflect the lives and struggles of millions of our fellow citizens. NCI remains committed to advancing scientific progress and facilitating its application on behalf of each of them.

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

Frequently Asked Questions

What is the *Cancer Trends Progress Report*?

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

Why is the report important?

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

What is the main message of the report?

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

What is in the report?

The report includes key measures in the areas of prevention, diagnosis, screening, treatment, end of life, and life after cancer. Progress is tracked over time and determined by the availability of the data. This progress is measured against certain cancer-related targets of Healthy People 2020(http://www.healthypeople.gov/2020/default.aspx).

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

How is the information displayed and explained?

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

Where did the data come from?

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

How were data selected?

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

What data are not in the report?

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

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

This report cites data at the national level. For cancer data at the state or county level or behavioral risk factor data at the state level, go to NCI's State Cancer Profiles Web site(http://statecancerprofiles.cancer.gov).

Who can use the report?

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

How often will the report be updated?

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

What is the rationale for the report?

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

How can I get a copy of the report?

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

Where can more information on cancer be found?

- http://www.cancer.gov(http://www.cancer.gov)
- 1-800-4-CANCER (1-800-422-6237)

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

Send questions to Progress Report Help.

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- National Institute of Environmental Health Sciences
- 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
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CTPR Working Group

- Rocky Feuer, Ph.D., Working Group Chair
  Branch Chief, Statistical Methods and Modeling, Surveillance Research Program, DCCPS
- Catherine Alfano, Ph.D., M.S.
  American Cancer Society
- Sean Altekruse, Ph.D.
  Epidemiologist, Informatics Branch, Surveillance Research Program, DCCPS
- Nancy Breen, Ph.D.
  Economist, Health Systems/ Intervention Research, Health Delivery Research Program, DCCPS
- Laurie Cynkin, M.H.S.
  Public Health Advisor, Implementation Science, Office of the Director, DCCPS
- Janet de Moor, Ph.D., MPH
  Program Director, Healthcare Monitoring Research Branch, Health Delivery Research Program, DCCPS
- Gary L. Ellison, Ph.D., M.P.H.
  Acting Branch Chief, Environmental Epidemiology Branch, Epidemiology and Genetics Research Program, DCCPS
- Linda C. Harlan, Ph.D.
  Acting Branch Chief, Healthcare Monitoring Research Branch, Health Delivery Research Program, DCCPS
- Anne Hartman, M.S.
  Statistician, Tobacco Control Research Branch, Behavioral Research Program, DCCPS
- Annette Kaufman, Ph.D., M.P.H.
  Health Scientist, Tobacco Control Research Branch, Behavioral Research Program, DCCPS
- Carrie Klabunde, Ph.D.
  Epidemiologist, Office of Disease Prevention, National Institutes of Health
- Angela Mariotto, Ph.D.
  Acting Branch Chief, Informatics, Surveillance Research Program, DCCPS
- Gila Neta, Ph.D., MPP
  Program Officer, Implementation Science, Office of the Director, DCCPS
- Jill Reedy, Ph.D., M.P.H., R.D.
  Nutritionist, Risk Factor Assessment Branch, Epidemiology and Genetics Research Program, DCCPS
- Richard Troiano, Ph.D.
  Epidemiologist, Risk Factor Assessment Branch, Epidemiology and Genetics Research Program, DCCPS
- Robin Yabroff, Ph.D.
  Epidemiologist, Healthcare Monitoring Research Branch, Health Delivery Research Program, DCCPS

NCI Executive Committee

- Rocky Feuer, Ph.D., Committee Chair
  Chief, Statistical Methods and Modeling, Surveillance Research Program, DCCPS
- Michael Alavanja, Dr.P.H.
  Senior Investigator, Occupational and Environmental Epidemiology Branch, DCEG
- Rachel Ballard-Barbash, Ph.D.
  Office of Disease Prevention, National Institutes of Health
- Laurie Cynkin, M.H.S.
  Public Health Advisor, Office of the Director, DCCPS
- Brenda K. Edwards, Ph.D.
  Senior Advisor, Office of the Director, DCCPS
- Bradford W. Hesse, Ph.D.
  Branch Chief, Health Communication & Informatics Research Branch, Behavioral Research Program, DCCPS
- Sue Krebs-Smith, Ph.D.
  Acting Branch Chief, Risk Factor Assessment, Epidemiology and Genetics Research Program, DCCPS
- Julia H. Rowland, Ph.D.
  Director, Office of Cancer Survivorship, DCCPS
- Nita L. Seibel, M.D.
  Pediatric Solid Tumor Protocols, Cancer Therapy Evaluation Program
- Shobha Srinivasan, Ph.D.
  Health Disparities Research Coordinator, Office of the Director, DCCPS
- Debbie Winn, Ph.D.
  Deputy Director, Office of the Director, DCCPS

External Review Committee

- Victoria Champion, DNS, Associate Dean for Research, Indiana University School of Nursing

- Gary Chow, M.P.H., Regional Community Mission Director, American Cancer Society, California Division
- Robert A. Hiatt, M.D., Ph.D., Professor and Chair, Epidemiology and Biostatistics, Director of Population Sciences, UCSF Helen Diller Family Comprehensive Cancer Center
- Patricia Hoge, R.N., Ph.D., Chief Mission Officer, American Cancer Society, Mid-Atlantic Division
- David Huang, PhD, MPH, Associate Service Fellow, Centers for Disease Prevention and Control, National Center for Health Statistics
- Ahmedin Jemal, D.V.M., Ph.D., Strategic Director, Cancer Occurrence, American Cancer Society
- Suzanne C. O'Neill, Ph.D., Assistant Professor, Cancer Control Program, Lombardi Cancer Center, Georgetown University
- Terry F. Pechacek, Ph.D., Associate Director for Science, Office on Smoking and Health, Centers for Disease Control and Prevention
- Marcus Plescia, M.D., M.P.H., Director, Division of Cancer Prevention and Control, Centers for Disease Prevention and Control
- Catherine Poole, Founder and President, Melanoma International Foundation
- Randy Schwartz, M.S.P.H., Senior Vice President for Strategic Health Initiatives, American Cancer Society, New England Division
- Kurt Snipes, M.S., Ph.D., Chief, Cancer Surveillance and Research Branch, California Department of Public Health
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Data Resources

Included in this section is an explanation of the statistical methodology used in this report, the sources of National data used to inform trends presented, and the incidence and US death rates from NCI's Surveillance, Epidemiology, and End Results (SEER) Program for the cancers presented in this report.

- Methodology for Characterizing Trends
- Data Sources
- Incidence and Mortality Tables

Methodology for Characterizing Trends

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

The Joinpoint software uses statistical criteria to determine:

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

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

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

- Changing less than or equal to 0.5% per year ($-0.5 \leq APC \leq 0.5$), 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 the trends across disparate measures. However, statistical significance in addition to the absolute value of change for incidence and mortality trends were used to ensure consistency with all major publications on national cancer trends.

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

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

In addition to the annual percent change (APC) estimates, this report also presents the average annual percent change(http://surveillance.cancer.gov/joinpoint/webhelp/Joinpoint.htm#Executing_the_Joinpoint_Parameters/Statistical_Notes/Statistics_Related_to_the_k-joinpoint_Model/Average_Annual_Percent_Change.htm) (AAPC), a measure which uses the underlying joinpoint model to compute a summary measure of the trend over a fixed pre-specified interval The AAPC is useful for comparing the most recent trend across different groups (e.g., racial groups or gender) when the final joinpoint segments are not directly comparable because they are of different lengths. Regardless of where the joinpoints occur for the different series, the AAPC can be computed over the same fixed interval for all the series (e.g., 2007–2011 to characterize the most recent trend). The AAPC is computed as a weighted average of the APC's from the joinpoint model, with the weights equal to the length of the APC intervals included. When there are seven or fewer data points, the AAPC was computed based on the connected data points, rather than an underlying joinpoint model. The derivation of the AAPC and its standard error based on a series of connected points is presented in a technical report(http://surveillance.cancer.gov/reports/tech2009.02.pdf) from the Surveillance Research Program(http://surveillance.cancer.gov/).

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)(http://seer.cancer.gov/seerstat/tutorials/aarates/definition.html). Whenever possible, age-adjustment for measures was done using the age-adjustment groups specified for the Healthy People objective(http://www.healthypeople.gov/2020/topicsobjectives2020/default) that corresponds to the data series.

Data Sources

Alcohol Epidemiologic Data System(http://www.pharmacy.umaryland.edu/programs/seow/PDF_2013/DS_AEDS_20121221.pdf)
The Alcohol Epidemiologic Data Directory is a current listing of surveys and other relevant data suitable for epidemiologic research on alcohol.
Measures: Alcohol consumption.

Americans for Nonsmokers' Rights Foundation(http://www.no-smoke.org/)
Americans for Nonsmokers' Rights is the leading national lobbying organization (501 (c) 4), dedicated to nonsmokers' rights, taking on the tobacco industry at all levels of government, protecting nonsmokers from exposure to secondhand smoke, and preventing tobacco addiction among youth. ANR pursues an action-oriented program of policy and legislation.
Measures: Secondhand smoke.

Berkeley Mortality Database(http://www.demog.berkeley.edu)
This database contains life tables for national populations and, whenever available, the raw data used in constructing these tables. The raw data generally consist of birth and death counts from vital statistics, plus population counts from periodic censuses.
Measures: Financial burden of cancer care.

Continuing Survey of Food Intakes by Individuals(http://www.ars.usda.gov/Services/docs.htm?docid=14392)
A part of the National Nutrition Monitoring System which was the first nationwide dietary intake survey designed to be conducted annually.
Measures: Fruit and vegetable consumption, Red meat consumption, Fat consumption.

Federal Trade Commission Cigarette Report for 2011
This report is the latest in a series on cigarette sales, advertising, and promotion that the Federal Trade Commission has prepared since 1967.
Measures: Tobacco company marketing expenditures.

Morbidity and Mortality Weekly Report 2008; 57(5): 117-122(http://www.cdc.gov/mmwr/)
Often called "the voice of CDC," the MMWR series is the agency's primary vehicle for scientific publication of timely, reliable, authoritative, accurate, objective, and useful public health information and recommendations./p>
Measures: Medicaid coverage of tobacco dependence treatments.

National Center for Health Statistics (NCHS) Life-Tables(http://www.cdc.gov/nchs/data/nvsr/nvsr47/nvs47_28.pdf)
The life tables in this report are current life tables for the United States based on age-specific death rates in 1997.
Measures: Person-years of life lost (PYLL).

National Health and Nutrition Examination Survey
The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews and physical examinations.
Measures: Fruit and vegetable consumption, Red meat consumption, Fat consumption, Weight, Secondhand smoke.

National Health Interview Survey Cancer Control Topical Module(http://healthcaredelivery.cancer.gov/nhis/)
The National Health Interview Survey (NHIS) is an annual nationwide survey of 36,000 households conducted by the National Center for Health Statistics and administered by the U.S. Census Bureau.
Measures: Adult smoking, Quitting smoking, Physical activity, Sun protection, Breast cancer screening, Cervical cancer screening, Colorectal cancer screening, Cancer survivors and smoking.

National Report on Human Exposure to Environmental Chemicals(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)
The National Report on Human Exposure to Environmental Chemicals (National Exposure Report) is a series of ongoing assessments of the U.S. population's exposure to environmental chemicals.
Measures: Arsenic, Benzene, Cadmium, Nitrate.

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

National Vital Statistics System(http://www.cdc.gov/nchs/nvss.htm)
These data are provided through contracts between NCHS and vital registration systems operated in the various jurisdictions legally responsible for the registration of vital events – births, deaths, marriages, divorces, and fetal deaths.
Measures: Financial burden of cancer care.

Surveillance, Epidemiology, and End Results (SEER)(http://seer.cancer.gov/)
The Surveillance, Epidemiology and End Results (SEER) Program collects information on incidence, prevalence and survival from specific geographic areas representing 26 percent of the US population and compile reports on all of these plus cancer mortality for the entire country.
Measures: Incidence, Stage at diagnosis, Breast cancer treatment, Kidney cancer treatment, Survival.

SEER-Medicare Linked Database(http://healthcaredelivery.cancer.gov/seermedicare/)
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(http://seer.cancer.gov/archive/studies/endresults/study23.html)
The SEER Patterns of Care (POC) studies provide important information on cancer treatments as documented in hospital records.
Measures: Bladder cancer treatment, Breast cancer treatment, Colorectal cancer treatment, Lung cancer treatment, Ovarian cancer treatment, Prostate cancer treatment.

Tobacco Use Supplement to the Current Population Survey(http://appliedresearch.cancer.gov/tus-cps/)
The Tobacco Use Supplement to the Current Population Survey (TUS-CPS) is an NCI-sponsored survey of tobacco use that has been administered as part of the U.S. Census Bureau's Current Population Survey. The TUS-CPS is a key source of national and state level data on smoking and other tobacco use in the U.S. household population. These data can be used by researchers to monitor progress in the control of tobacco use, conduct tobacco-related research, and evaluate tobacco control programs.
Measures: Clinician's advice to quit smoking, Secondhand smoke.

U.S. Census Bureau Population Projections(http://www.census.gov/population/projections/)
The population projections associated with this release were produced by the Population Division as an interim product to meet the immediate needs of our user community for national projections that incorporate the results of Census 2000. The population projections associated with this release were produced by the Population Division as an interim product to meet the immediate needs of our user community for national projections that incorporate the results of Census 2000.
Measures: Financial burden of cancer care.

U.S. EPA. An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the U.S.(http://cfpub.epa.gov/si/si_public_record_Report.cfm?
dirEntryId=159286&CFID=14067860&CFTOKEN=55461248&jsessionid=5a309e440d23f96f9f41265a291d31655465)
In November 2006, EPA released the report: An inventory of sources and environmental releases of dioxin-like compounds in the United States for the years 1987, 1995 and 2000. The report presented an evaluation of sources and emissions of dioxins (CDDs), dibenzofurans (CDFs) and coplanar PCBs to the air, land and water of the U.S.
Measures: Information to come.

Youth Risk Behavior Surveillance System(http://www.cdc.gov/healthyyouth/data/yrbs/index.htm)
The Youth Risk Behavior Surveillance System (YRBSS) monitors priority health-risk behaviors and the prevalence of obesity and asthma among youth and young adults.
Measures: Youth smoking.

Incidence and Mortality Tables

Last Updated:
January 2017

The following tables depict the 2009-2013 SEER incidence and U.S. death rates for the cancers included in the Cancer Trends Progress Report. Click on the cancer name to view more detailed data for that particular cancer. For cancers not included in the tables, please visit the SEER Cancer Statistics Review, 1975-2013(http://seer.cancer.gov/csr/1975_2013/) .

Delay-adjusted incidence rates, 2009-2013

Cancer Site	All Races Both Sexes	Male	Female	White Both Sexes	Male	Female	Black Both Sexes	Male	Female
All sites(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_02_all_sites.pdf)	446.5	498.7	410.6	457.6	506.5	424.3	488.3	591.2	417.4
Brain and other nervous system(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_03_brain_ons.pdf)	6.3	7.5	5.4	7.1	8.3	6.0	4.3	5.0	3.7
Female breast(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_04_breast.pdf)	127.1	-	127.1	130.6	-	130.6	130.6	-	130.6
Cervix uteri(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_05_cervix_uteri.pdf)	7.1	-	7.1	7.1	-	7.1	8.1	-	8.1
Colon and rectum(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_06_colon_rectum.pdf)	39.9	45.8	35.1	38.6	44.1	34.1	50.5	58.9	44.7
Corpus and uterus, NOS(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_07_corpus_uteri.pdf)	26.8	-	26.8	27.6	-	27.6	26.4	-	26.4
Esophagus(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_08_esophagus.pdf)	4.2	7.2	1.7	4.5	7.8	1.8	4.0	6.5	2.3
Hodgkin lymphoma(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_09_hodgkins.pdf)	2.6	3.0	2.3	2.9	3.2	2.5	2.7	3.2	2.3
Kidney and renal pelvis(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_11_kidney_pelvis.pdf)	15.1	20.9	10.2	15.5	21.2	10.5	18.6	26.5	12.5
Larynx(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_12_larynx.pdf)	2.8	5.1	0.9	2.9	5.2	1.0	4.2	7.9	1.6
Leukemia(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_13_leukemia.pdf)	14.7	18.9	11.3	15.9	20.4	12.2	12.2	15.8	9.7
Liver and bile duct(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_14_liver_bile.pdf)	9.1	14.0	4.9	7.8	11.8	4.1	11.4	18.9	5.6
Lung and bronchus(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_15_lung_bronchus.pdf)	52.5	61.5	45.8	53.2	60.8	47.6	65.4	84.5	52.6
Melanoma of the skin(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_16_melanoma_skin.pdf)	21.3	27.6	16.7	26.8	34.1	21.5	1.0	1.2	0.9
Myeloma(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_18_myeloma.pdf)	6.9	8.7	5.4	6.4	8.3	4.9	14.6	18.0	12.4
Non-Hodgkin lymphoma(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_19_nhl.pdf)	20.2	24.6	16.6	21.4	26.0	17.6	15.9	19.1	13.3
Oral cavity and pharynx(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_20_oral_cavity_pharynx.pdf)	10.8	16.1	6.2	11.3	16.8	6.4	9.4	14.5	5.4
Ovary(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_21_ovary.pdf)	12.4	-	12.4	13.2	-	13.2	10.1	-	10.1
Pancreas(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_22_pancreas.pdf)	12.6	14.2	11.2	12.5	14.2	11.0	16.2	17.9	14.9
Prostate(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_23_prostate.pdf)	131.0	131.0	-	126.8	126.8	-	210.7	210.7	-
Stomach(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_24_stomach.pdf)	7.9	10.6	5.7	6.8	9.3	4.7	11.0	14.7	8.5
Testis(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_25_testis.pdf)	5.8	5.8	-	7.0	7.0	-	1.6	1.6	-
Thyroid(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_26_thyroid.pdf)	14.2	7.1	21.1	15.0	7.6	22.4	9.1	3.8	13.5
Urinary bladder(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_27_urinary_bladder.pdf)	19.7	34.8	8.4	22.1	38.7	9.2	13.4	23.0	7.1

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 13 areas(http://seer.cancer.gov/registries/terms.html) . Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
- Statistic not available for sex-specific cancer sites. Delay-adjusted incidence not calculated for Blacks due to low annual case counts.

U.S. death rates, 2009-2013

Cancer Site	All Races Both Sexes	Male	Female	White Both Sexes	Male	Female	Black Both Sexes	Male	Female
All sites(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_02_all_sites.pdf)	168.5	204.0	143.4	168.4	202.9	143.6	197.9	254.2	163.8
Brain and other nervous system(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_03_brain_ons.pdf)	4.3	5.3	3.5	4.7	5.7	3.8	2.5	3.1	2.1
Female breast(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_04_breast.pdf)	12.0	0.3	21.5	11.6	0.3	21.0	17.4	0.5	29.6
Cervix uteri(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_05_cervix_uteri.pdf)	1.2	-	2.3	1.1	-	2.1	2.2	-	3.9
Colon and rectum(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_06_colon_rectum.pdf)	15.1	18.1	12.7	14.7	17.6	12.3	20.7	26.1	17.1
Corpus and uterus, NOS(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_07_corpus_uteri.pdf)	2.5	-	4.5	2.3	-	4.1	4.7	-	7.9
Esophagus(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_08_esophagus.pdf)	4.1	7.4	1.5	4.3	7.7	1.5	3.8	6.6	1.9

Cancer Site									
Hodgkin lymphoma(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_09_hodgkins.pdf)	0.4	0.5	0.3	0.4	0.5	0.3	0.3	0.4	0.3
Kidney and renal pelvis(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_11_kidney_pelvis.pdf)	3.9	5.7	2.5	4.0	5.8	2.5	3.7	5.5	2.5
Larynx(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_12_larynx.pdf)	1.1	1.9	0.4	1.0	1.8	0.4	1.8	3.5	0.6
Leukemia(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_13_leukemia.pdf)	6.9	9.3	5.2	7.1	9.6	5.3	5.8	7.7	4.6
Liver and bile duct(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_14_liver_bile.pdf)	6.1	9.1	3.6	5.7	8.3	3.4	8.1	12.8	4.4
Lung and bronchus(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_15_lung_bronchus.pdf)	46.0	57.8	37.0	46.7	57.7	38.3	49.4	70.6	35.3
Melanoma of the skin(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_16_melanoma_skin.pdf)	2.7	4.1	1.7	3.1	4.6	2.0	0.4	0.5	0.4
Myeloma(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_18_myeloma.pdf)	3.3	4.2	2.7	3.1	4.0	2.4	6.2	7.5	5.4
Non-Hodgkin lymphoma(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_19_nhl.pdf)	6.0	7.7	4.7	6.3	8.1	4.9	4.4	5.7	3.5
Oral cavity and pharynx(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_20_oral_cavity_pharynx.pdf)	2.4	3.8	1.3	2.4	3.7	1.3	2.9	5.0	1.3
Ovary(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_21_ovary.pdf)	4.2	-	7.5	4.3	-	7.8	3.8	-	6.5
Pancreas(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_22_pancreas.pdf)	10.9	12.5	9.5	10.8	12.5	9.4	13.5	15.0	12.2
Prostate(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_23_prostate.pdf)	8.2	20.7	-	7.7	19.1	-	15.9	44.2	-
Stomach(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_24_stomach.pdf)	3.3	4.5	2.4	2.9	3.9	2.1	6.1	8.8	4.2
Testis(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_25_testis.pdf)	0.1	0.3	-	0.1	0.3	-	0.0	0.1	-
Thyroid(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_26_thyroid.pdf)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.6
Urinary bladder(http://seer.cancer.gov/csr/1975_2013/results_merged/sect_27_urinary_bladder.pdf)	4.4	7.7	2.2	4.6	8.1	2.2	3.6	5.4	2.5

Source: US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
- Statistic not available for sex-specific cancer sites.

Report Highlights

Making Progress

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

Prevention

- Cigarette smoking prevalence among adults declined slowly between 1991 and 2011 and then more rapidly between 2011 and 2015.
- Smoking prevalence (excluding e-cigarette use) among adolescents has declined since the late 1990's.
- Initiation of the use of cigarettes among children and adolescents ages 12-17 has been falling more rapidly since 2010 and, in 2013, reached the Healthy People 2020 goal of 4.3%.
- The percentage of success in recent smoking cessation among adult smokers has risen since 2003. In 2015, 7.3 percent of former smokers had quit 6-12 months ago or had initiated smoking at least 2 years ago and quit anytime during the last 12 months.
- Medicaid enrollees have a higher smoking prevalence than the general population. The 2010 Patient Protection and Affordable Care Act requires all state Medicaid programs to provide 1) tobacco cessation services (both counseling and pharmacotherapy) to pregnant women (section 4107) and 2) coverage of cessation medications approved by the U.S. Food and Drug Administration for all enrollees (section 2502). In 2000, 34 states provided Medicaid coverage of smoking cessation aids. Under the 2010 Patient Protection and Affordable Care Act, all states are required to provide coverage.
- The rate of secondhand smoke exposure has decreased significantly for all population subgroups since the early 1990s, and the proportion of adults reporting a smoke-free home has risen. The proportion of adults reporting a smoke-free work environment has also risen.
- Adult sun protective behaviors (e.g., using sunscreen, wearing protective clothing, seeking shade) rose from 2005 to 2010 and have been stable since then, though young adults, especially young men, show much lower levels of these behaviors.
- Female teen indoor tanning has decreased significantly among high school students since 2009. Many states have enacted policies to control the indoor tanning industry, and some are restricting minors' access to indoor tanning facilities. Still, more than one in ten female teens and adult young women has engaged in indoor tanning within the past 12 months.
- Radon control is a new measure added to this report. The percentage of homes in high radon areas with installed radon mitigation systems is increasing.

Diagnosis

- Colorectal cancer incidence rates have decreased steadily, with slight exceptions, since the mid-1980s, and these declines have accelerated in recent years. 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.
- Lung cancer incidence rates in men have continued to fall since 1982 and, for women, since 2006.
- Prostate cancer incidence rates have been declining since 2000, with a large drop in 2012, the same year that the U.S. Preventive Services Task Force recommended against population-based prostate specific antigen (PSA) screening for prostate cancer.
- Recent trends in the incidence of Hodgkin lymphoma, esophageal squamous cell, larynx, stomach, and ovarian cancers have been declining.

Life after Cancer

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

End of Life

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

Areas of Concern

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

Prevention

- Although the percentage of smokers attempting to quit smoking each year has recently risen and is now at 53.5 percent, successful quitting percentages have been low (6.9% in 2012) and recently have shown only slight improvement.
- Although progress has been made in reducing exposure to secondhand smoke among all populations, nonsmokers age 3 and older living below the poverty level and black non-Hispanics are more likely to be living in homes where someone smokes regularly.
- The 2016 Surgeon General's Report on E-cigarette Use Among Youth and Young Adults highlights the concern about the growing use of e-cigarettes by young people. E-cigarette aerosols contain nicotine, ultrafine particles, and other harmful and potentially harmful constituents. The Cancer Trends Progress Report includes e-cigarette use for the first time and, based on the Youth Risk Behavior Surveillance System (YRBSS), indicates that in 2015 the use of e-cigarettes among high school students in the past month exceeded the use of conventional cigarettes.
- As of June 2015, only nine states provided coverage of nine evidence-based cessation treatments (medications, individual and group counseling) for all Medicaid enrollees.
- Tobacco advertising and promotion are causally related to increased tobacco use. The U.S. Federal Trade Commission reports cigarette and smokeless tobacco advertising and promotion expenditures. In 2013, the adjusted combined annual expenditure for cigarette advertising and promotion was $8.9 billion, representing a decline in expenditures in recent years but, a still high rate of expenditures overall. In 2013, the five parent companies of the major manufacturers of smokeless tobacco products in the United States spent $503.2 million on advertising and promotion.
- Excess weight or obesity, physical inactivity, and poor nutrition are preventable conditions that are associated with elevated cancer risk. Despite modest increases over time, fewer than 25% of adults report meeting federal guidelines for aerobic and muscle-strengthening physical activity. In 2015, 24.9% of men met the federal guidelines for aerobic and muscle-strengthening physical activity (which exceeded the Healthy People goal

20.1%), but only 17.9% of women met the guidelines.

- Alcohol consumption, which can increase the risk of some cancers, has risen slightly since the mid-1990s.
- More progress is needed to reach Healthy People 2020 targets for cancer screening tests that can identify breast, cervical, and colorectal cancer at early stages. Recent trends in screening rates have been flat or declining for these three cancers. In 2015, the breast cancer screening rate was 71.6 percent (below the Healthy People 2020 target of 81.1 percent); the rate of cervical cancer screening was 78.7 percent (below the target of 93.0 percent); and the rate of colorectal cancer screening was 62.9 percent (below the target of 70.5 percent).
- In 2012, the US Preventive Services Task Force (USPSTF) recommended Pap testing every 3 years; women ages 30+ who want to test less often were also offered the alternative of Pap/HPV co-testing every 5 years. While we have been tracking triennial Pap testing for some time, this report (for the first time) added PAP/HPV co-testing every 5 years. In 2015, 81 percent of women reported being compliant with at least one of the two screening regimens. Trends in triennial Pap testing have been falling slightly since 2000, and this decline has not been compensated for by the addition of women having the newer PAP/HPV co-testing regimen.
- Most cervical cancer can be prevented through HPV vaccination and effective screening. Although this report shows the HPV vaccination trend is rising for both girls and boys ages 13-17, these levels are still low. Only 42 percent of girls and 28 percent of boys aged 13-17 years received the three-dose HPV vaccine series in 2015.

Diagnosis

- Unexplained cancer-related disparities remain among population subgroups. For example, although there have been improvements in overall 5-year survival for both black and white women, a disparity of almost 10 percentage points has persisted. The 5-year relative survival for women diagnosed with cancer in 2008 was 80.9 percent for blacks and 89.2% for whites.
- The incidence of some cancers, including thyroid cancer, myeloma, and leukemia, has been increasing at more than 1.5 percent per year, whereas the incidence of other cancers, including breast, testicular, and oral cancers and melanoma and non-Hodgkin lymphoma, is increasing at less than 1.5 per year. For some cancers, e.g. thyroid cancer, the increase is associated with the earlier detection of thyroid tumors, some of which may prove to be relatively indolent.

Life after Cancer

- Estimates of national expenditures for cancer care in 2016 for the top 5 cancer sites were $18.9, $15.9, $14.3, $14.0, and $13.6 billion for female breast, colorectal, prostate, lymphoma, and lung, respectively. Even for patients with health insurance, out-of-pocket costs for cancer care often pose a significant financial burden. As the U.S. population ages and newer technologies and treatments become available, national expenditures for cancer will continue to rise, and cancer costs may increase at a faster rate than overall medical expenditures.
- A growing proportion of cancer survivors age 20 and older are obese. Efforts are needed to help cancer survivors adopt or maintain a healthy lifestyle after cancer, which has the potential to reduce both cancer- and non-cancer-related morbidity.
- Cancer survivors ages 18-44 are more likely to be current smokers than both older cancer survivors and adults ages 18-44 without a cancer history.

End of Life

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

Trends at a Glance

Last Updated:

January 2017

The Trends-at-a-Glance offers an overview of trend direction measure by measure. Trends noted as stable or NSC (non-significant change) are not changing significantly. The difference between "stable" and "NSC" 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. A light green background indicates that the recent trend is moving in the desired direction. A light red background indicates that the recent trend is not moving in the desired direction. 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 Trend in the "Recent Trend" column to read more about the measure. For a more complete summary of the measures, including their progress compared with the Healthy People 2020 target (where one exists), see the Summary Tables by topic.

Cancer Trends Progress Report - Trends at a Glance

Measure	Desired Direction	Recent Trend	Recent Trend Time Period
Prevention			
Tobacco Use Initiation **(Ages 12-17)**			
All tobacco products	Falling	Falling	2009-2013
Cigarettes	Falling	Falling	2009-2013
Smokeless tobacco	Falling	Falling	2009-2013
Cigars	Falling	Falling	2009-2013
Youth Tobacco Use			
Cigarettes, Cigars and Smokeless Tobacco	Falling	Falling	2011-2015
Cigarettes	Falling	Falling	2011-2015
Smokeless tobacco	Falling	Stable	2011-2015
Cigars	Falling	Falling	2011-2015
Adult Tobacco Use			
Cigarettes	Falling	Falling	2011-2015
Smokeless Tobacco	Falling	Stable	2010-2015
Cigars	Falling	Falling	2010-2015
Quitting Smoking			
Attempted to quit smoking	Rising	Rising	2011-2015
Successfully quit smoking	Rising	Rising	2011-2015
Clinicians' Advice to Quit Smoking			
Physicians' advice to quit smoking	Rising	Stable	2006-2011
Dentists' advice to quit smoking	Rising	Falling	2006-2011
Medicaid Coverage of Tobacco Dependency Treatments	Rising	Rising	2006-2010
Fruit and Vegetable Consumption			
Fruit and Vegetables	Rising	Non-Significant Change	2007-2012
Fruit	Rising	Stable	2007-2012
Vegetables	Rising	Stable	2007-2012
Red Meat Consumption	Falling	Stable	2007-2012
Fat Consumption **(Saturated fat)**	Falling	Stable	2007-2012
Alcohol Consumption	Falling	Rising	2010-2014
Physical Activity			
No physical activity in leisure time	Falling	Non-Significant Change	2011-2015
Meet physical activity guidelines	Rising	Non-Significant Change	2011-2015
Weight			
Healthy Weight	Rising	Falling	2009-2014
Overweight	Falling	Stable	2009-2014
Obese	Falling	Rising	2009-2014
Sun-Protective Behavior			
Use sun protective measures	Rising	Stable	2010-2015

Use sunscreen (SPF 15+)	Rising	Rising	2010-2015
Wear protective clothing	Rising	Falling	2010-2015
Seek shade	Rising	Rising	2010-2015
Indoor Tanning			
Adolescents	Falling	Falling	2011-2015
Adults	Falling	Falling	2010-2015
Sunburn	Falling	Falling	2010-2015
Secondhand Smoke Exposure	Falling	Falling	2007-2012
Smoke-free Home Rules	Rising	Non-Significant Change	2006-2011
Smoke-free Workplace Rules and Laws			
Smoke-free workplace	Rising	Rising	2006-2011
Indoor air laws for workplaces	Rising	Rising	2011-2015
Indoor air laws for restaurants	Rising	Non-Significant Change	2011-2015
Indoor air laws for bars	Rising	Non-Significant Change	2011-2015
Tobacco Company Marketing Expenditures			
Cigarettes	Falling	Non-Significant Change	2009-2013
Smokeless tobacco	Falling	Non-Significant Change	2009-2013
HPV Immunization **(Have received 3+ doses of vaccination)**			
Females, Ages 13-15	Rising	Rising	2011-2015
Males, Ages 13-15	Rising	Rising	2012-2015
Arsenic **Exposure**	Falling	Non-Significant Change	2007-2012
Benzene **Exposure**	Falling	Non-Significant Change	2001-2006
Cadmium **Exposure**	Falling	Non-Significant Change	2007-2012
Nitrate **Exposure**	Falling	Non-Significant Change	2007-2012
Radon	Rising	Rising	2009-2013
Early Detection			
Breast Cancer Screening	Rising	Stable	2010-2015
Cervical Cancer Screening	Rising	Falling	2010-2015
Colorectal Cancer Screening			
Guideline screening	Rising	Non-Significant Change	2010-2015
Home FOBT	Indeterminate[1]	Falling	2010-2015
Sigmoidoscopy/colonoscopy	Rising	Non-Significant Change	2010-2015
Diagnosis			
Incidence			
All cancer sites combined	Falling	Falling	2009-2013
Colon and rectum	Falling	Falling	2009-2013
Lung and bronchus	Falling	Falling	2009-2013
Female breast	Indeterminate[1]	Rising	2009-2013
Prostate	Falling	Falling	2009-2013
Cervix uteri	Falling	Falling	2009-2013
Stage at Diagnosis			
Late stage breast cancer	Falling	Falling	2009-2013
Late stage lung cancer	Falling	Falling	2009-2013
Distant stage colon cancer	Falling	Falling	2009-2013
Distant stage rectum cancer	Falling	Falling	2009-2013
Distant stage cervix cancer	Falling	Rising	2009-2013
Distant stage prostate cancer	Falling	Non-Significant Change	2009-2013
Treatment			
Bladder Cancer Treatment **(Intravesical therapy for disease Ta G1-2)**	Rising	Non-Significant Change	2003-2009
Breast Cancer Treatment			

Breast Cancer Treatment (Breast conserving surgery with radiation)	Indeterminate[1]	Stable	2009-2013
Colorectal Cancer Treatment (Guideline therapy)	Rising	Rising	2005-2010
Kidney Cancer Treatment (Partial nephrectomy)	Rising	Rising	2009-2013
Lung Cancer Treatment (Chemotherapy)	Rising	Stable	2005-2010
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	2004-2008
Colon and rectum	Rising	Stable	2004-2008
Lung and bronchus	Rising	Rising	2004-2008
Female breast	Rising	Rising	2004-2008
Prostate	Rising	Stable	2004-2008
Cancer Survivors and Smoking	Falling	Non-Significant Change	2011-2015
Cancer Survivors and Physical Activity	Falling	Non-Significant Change	2011-2015
Cancer Survivors and Obesity	Falling	Rising	2011-2015
End of Life			
Mortality			
All cancer sites combined	Falling	Falling	2009-2013
Colon and rectum	Falling	Falling	2009-2013
Lung and bronchus	Falling	Falling	2009-2013
Female breast	Falling	Falling	2009-2013
Prostate	Falling	Falling	2009-2013
Cervix uteri	Falling	Falling	2009-2013
Oral cavity and pharynx	Falling	Stable	2009-2013
Melanoma of the skin	Falling	Stable	2009-2013

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

Recent Updates and Archive

On This Page:

- Recent Updates
- Revision History
- Previous Releases

Recent Updates

For each measure in the report, the table below highlights the most recent year of data available for the measure and the date which the measure page in this report was updated. For a summary of corrections that may have been made to the individual measure pages, please see the Revision History.
Recent Updates to the Cancer Trends Progress Report

Measure	Year of Most Recent Estimate	Page Last Updated
Prevention		
Tobacco Use Initiation	2011	January 2017
Youth Tobacco Use	2011	January 2017
Adult Tobacco Use	2012	January 2017
Quitting Smoking	2012	January 2017
Clinicians' Advice to Quit Smoking	2011	March 2015
Medicaid Coverage of Tobacco Dependency Treatments	2015	January 2017
Fruit and Vegetable Consumption	2010	January 2017
Red Meat Consumption	2010	January 2017
Fat Consumption	2010	January 2017
Alcohol Consumption	2013	January 2017
Physical Activity	2012	January 2017
Weight	2012	January 2017
Sun Protective Behavior	2015	January 2017
Indoor tanning	2015	January 2017
Sunburn	2015	January 2017
Secondhand Smoke Exposure	2012	January 2017
Smoke-free Home Rules	2011	March 2015
Smoke-free Workplace Rules and Laws		
Smoke-free Workplace Rules	2011	March 2015
Indoor Air Laws	2015	January 2017
Tobacco Company Marketing Expenditures	2013	January 2017
HPV Immunization	2015	January 2017
Arsenic **Exposure**	2012	November 2015
Benzene **Exposure**	2006	November 2015
Cadmium **Exposure**	2012	November 2015
Nitrate **Exposure**	2012	November 2015
Radon **Exposure**	2013	January 2017
Early Detection		
Breast Cancer Screening	2015	January 2017
Cervical Cancer Screening	2015	January 2017
Colorectal Cancer Screening	2015	January 2017
Diagnosis		
Incidence	2013	January 2017
Stage at Diagnosis	2013	January 2017
Treatment		
Bladder Cancer Treatment	2009	March 2015
Breast Cancer Treatment	2013	January 2017
Colorectal Cancer Treatment	2010	March 2015
Kidney Cancer Treatment	2013	January 2017
Lung Cancer Treatment	2010	March 2015

Ovarian Cancer Treatment	2011	January 2017
Prostate Cancer Treatment	2008	March 2015
Life After Cancer		
Financial Burden of Cancer Care	2016	January 2017
Survival	2008	January 2017
Cancer Survivors and Smoking	2015	January 2017
Cancer Survivors and Physical Activity	2015	January 2017
Cancer Survivors and Obesity	2015	January 2017
End of Life		
Mortality	2013	January 2017
Person-Years of Life Lost	2013	January 2017

Revision History

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

Date	Revision
1/18/2017	The January 2017 Update to the Cancer Trends Progress Report was released. All measure pages with new available data have been updated. Please consult the table above for a full list.
11/4/2015	• The Incidence, Stage at Diagnosis, and Survival measures were updated to include the SEER November 2014 release. • The Mortality and Person-Years of Life Lost measures were updated to include U.S. mortality estimates through 2012. • Graphs highlighting additional by-groups were added for the Arsenic, Benzene, Cadmium and Nitrate measures. • The cost of cancer care graphs in the Financial Burden of Cancer Care measure were updated to 2015. • The Alcohol Consumption measure was updated to include estimates through 2013.
11/4/2015	The desired direction for complete nephrectomy was switched from rising to falling in all Kidney Cancer Treatment graphs.
3/18/2015	The Cancer Trends Progress Report was updated with a new website design and updated estimates for all measures.

Previous Releases

The following PDFs are collected reports of previous Cancer Trends Progress Report releases.
- Cancer Trends Progress Report - November 2015 Update (PDF, 17.6MB)
- Cancer Trends Progress Report - March 2015 Update (PDF, 8.1MB)
- Cancer Trends Progress Report - 2011/2012 Update (PDF, 2.3MB)
- Cancer Trends Progress Report - 2009/2010 Update (PDF, 2.1MB)
- Cancer Trends Progress Report - 2007 Update (PDF, 2.2MB)
- Cancer Trends Progress Report - 2005 Update (PDF, 811KB)
- Cancer Trends Progress Report - 2003 Update (PDF, 10.6MB)
- Cancer Trends Progress Report - 2001 Update (PDF, 2.1 MB)

Prevention

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

Behavioral Factors

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

Tobacco Use

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

- Tobacco Use Initiation
- Youth Tobacco Use
- Adult Tobacco Use

Smoking Cessation

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

- Quitting Smoking
- Clinicians' Advice to Quit Smoking

Diet, Physical Activity, and Weight

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

- Fruit and Vegetable Consumption
- Red Meat Consumption
- Fat Consumption

- Alcohol Consumption
- Physical Activity
- Weight

UV Exposure and Sun Protective Practices

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

- Sun-Protective Behavior
- Indoor Tanning
- Sunburn

Tobacco Policy/Regulatory Factors

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

- Tobacco Company Marketing Expenditures
- Medicaid Coverage of Tobacco Dependence Treatments

HPV Immunization

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

- HPV Immunization

Environmental Factors

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

Secondhand Smoke

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

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

Chemical and Environmental Exposures

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

- Arsenic
- Benzene
- Cadmium

- Nitrate

- [Radon](#)

Tobacco Use

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

- Tobacco Use Initiation
- Youth Tobacco Use
- Adult Tobacco Use

Tobacco Use Initiation

Last Updated:
January 2017

Introduction

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

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

Measure

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

Healthy People 2020 Target

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

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

Data Source

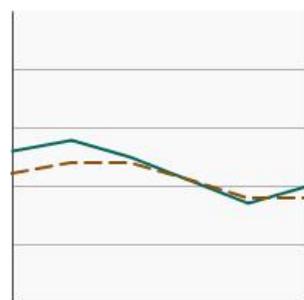Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health, 2002 - 2011.

Ages 12-17

Initiation of the use of tobacco products among children and adolescents aged 12-17 years by type of tobacco product, 2002-2013
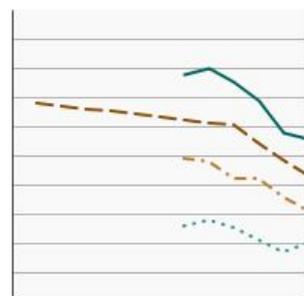
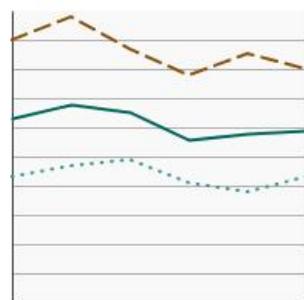| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All tobacco products	5.6	(5.2 - 6.0)
	Cigarettes	4.3	(3.9 - 4.7)
	Smokeless tobacco	2.0	(1.7 - 2.3)
	Cigars	3.1	(2.8 - 3.4)

Initiation of the use of tobacco products among children and
adolescents aged 12-17 years by type of tobacco product, 2002-2013
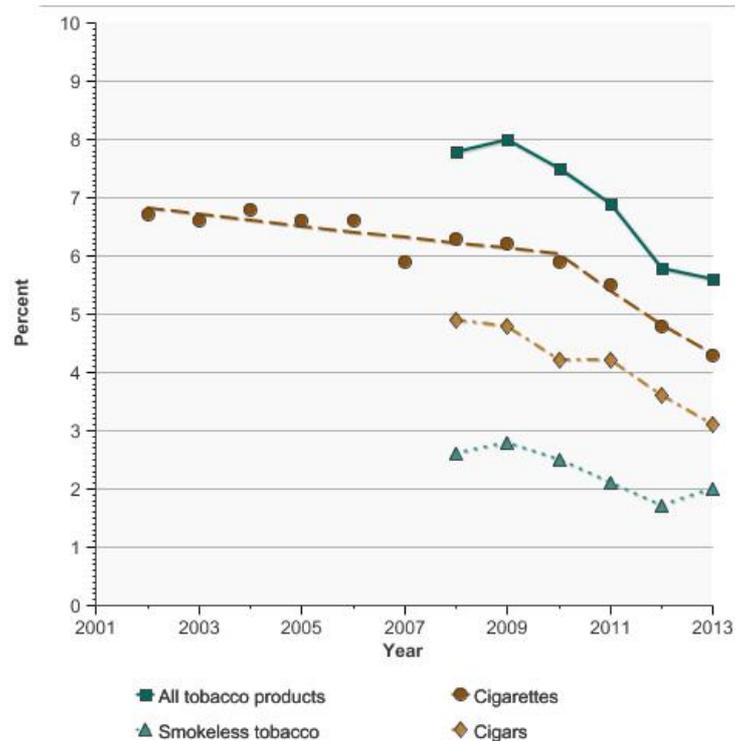
Source: Substance Abuse and Mental Health Services Administration, National Household
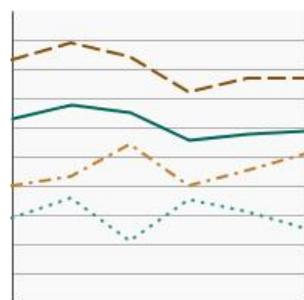Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25

Initiation of the use of tobacco products among young adults aged 18-25 years by type of tobacco product, 2002-2013
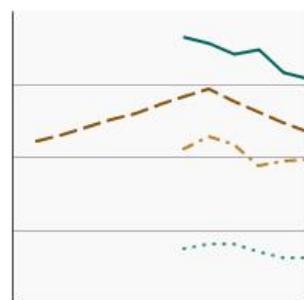
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All tobacco products	9.2	(8.3 - 10.1)
	Cigarettes	6.6	(5.9 - 7.3)
	Smokeless tobacco	1.8	(1.5 - 2.1)
	Cigars	5.9	(5.4 - 6.4)

Initiation of the use of tobacco products among young adults aged 18-25 years by type of tobacco product, 2002-2013
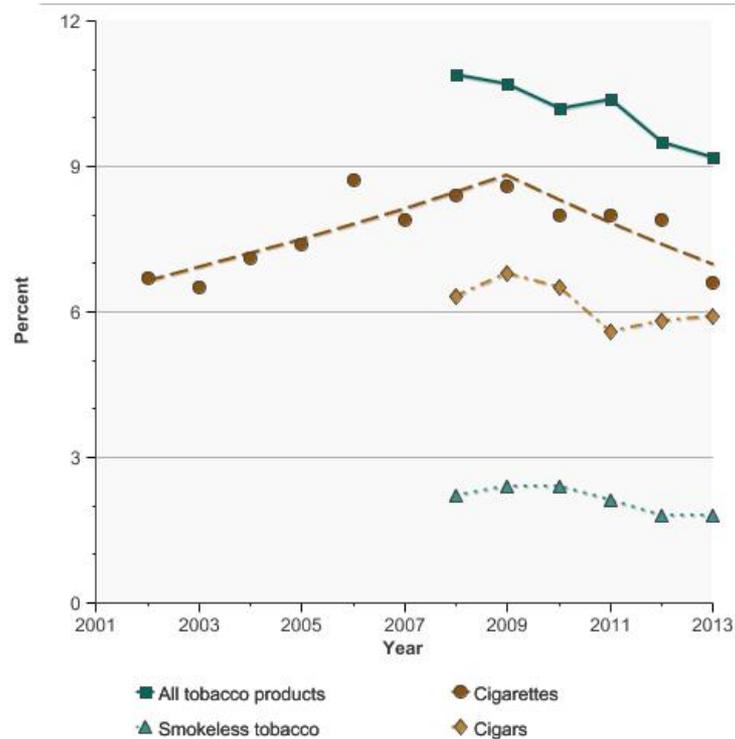
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

All Tobacco Products

Ages 12-17 by Sex

Initiation of the use of any tobacco product among children and adolescents aged 12-17 years by sex, 2008-2013
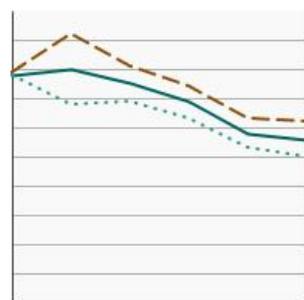
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	5.6	(5.2 - 6.0)
	Male	6.2	(5.5 - 6.9)
	Female	5.0	(4.5 - 5.5)

Initiation of the use of any tobacco product among children and adolescents aged 12-17 years by sex, 2008-2013
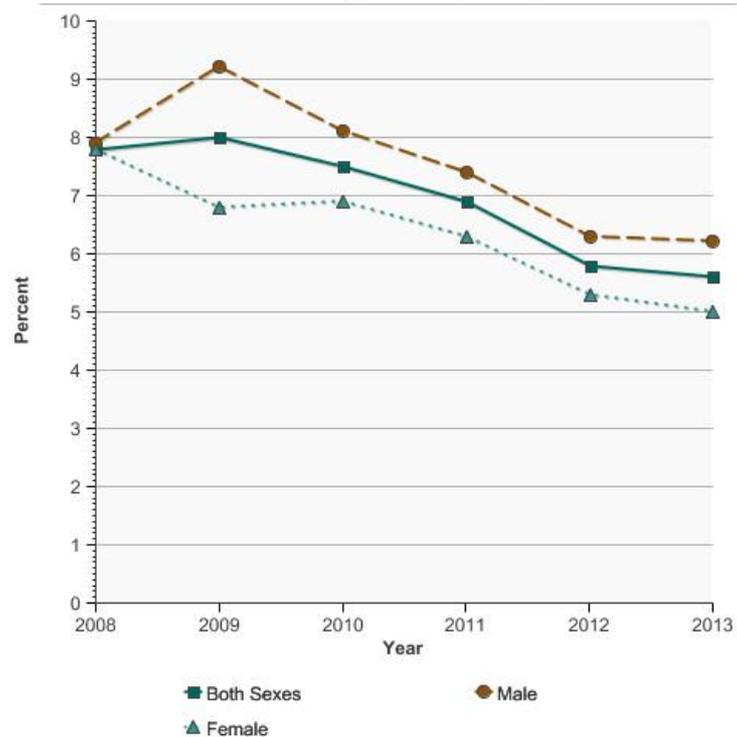
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25 by Sex

Initiation of the use of any tobacco product among young adults aged 18-25 years by sex, 2008-2013
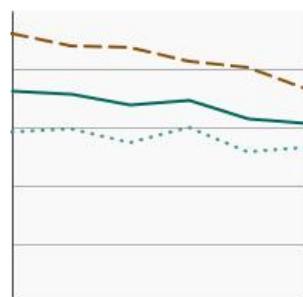
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	9.2	(8.3 - 10.1)
	Male	11.0	(9.6 - 12.4)
	Female	8.0	(7.0 - 9.0)

Initiation of the use of any tobacco product among young adults aged 18-25 years by sex, 2008-2013

Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 12-17 by Race/Ethnicity

Initiation of the use of any tobacco product among children and adolescents aged 12-17 years by race/ethnicity, 2008-2013
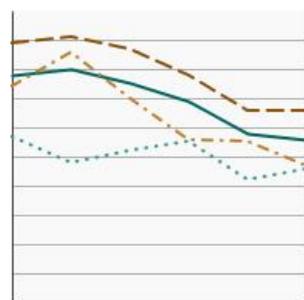
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	5.6	(5.2 - 6.0)
	Non-Hispanic White	6.6	(6.0 - 7.2)
	Non-Hispanic Black	4.6	(3.6 - 5.6)
	Hispanic	4.7	(3.8 - 5.6)

Initiation of the use of any tobacco product among children and adolescents aged 12-17 years by race/ethnicity, 2008-2013

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

National Cancer Institute | Cancer Trends Progress Report | http://progressreport.cancer.gov | 18 January 2017

Ages 18-25 by Race/Ethnicity

Initiation of the use of any tobacco product among young adults aged 18-25 years by race/ethnicity, 2008-2013
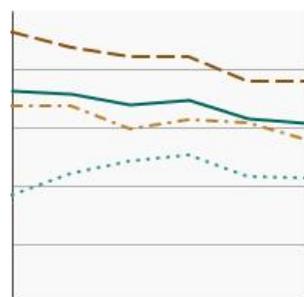
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	9.2	(8.3 - 10.1)
	Non-Hispanic White	11.4	(10.1 - 12.7)
	Non-Hispanic Black	6.4	(4.8 - 8.0)
	Hispanic	8.4	(6.5 - 10.3)

Initiation of the use of any tobacco product among young adults aged 18-25 years by race/ethnicity, 2008-2013

Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

By Age

Initiation of the use of any tobacco products among children, adolescents and young adults by age at initiation, 2008-2013
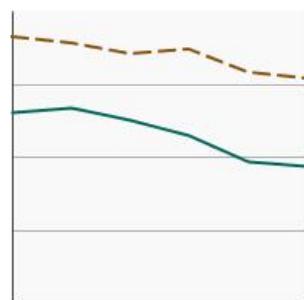
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Ages 12-17	5.6	(5.2 - 6.0)
	Ages 18-25	9.2	(8.3 - 10.1)

Initiation of the use of any tobacco products among children, adolescents and young adults by age at initiation, 2008-2013
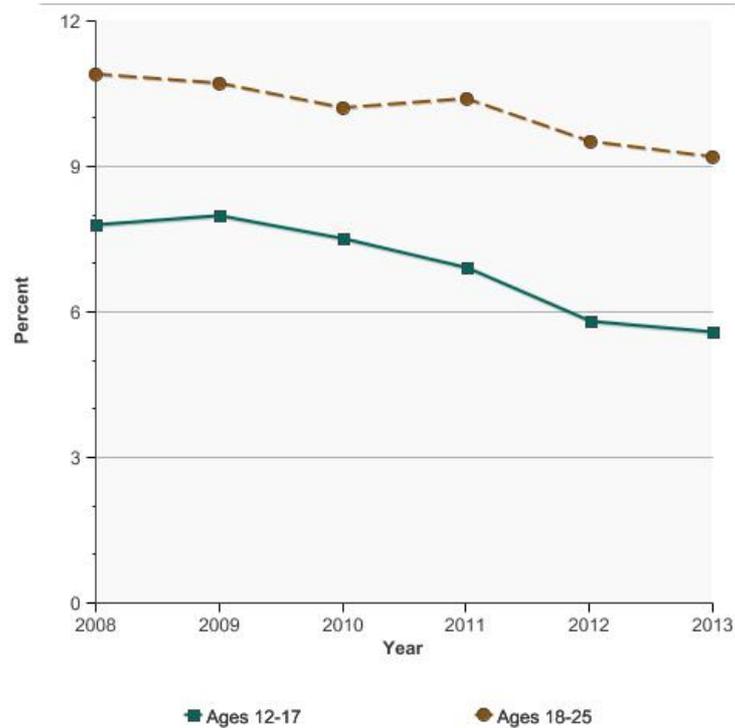
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Cigarettes

Ages 12-17 by Sex

Initiation of the use of cigarettes among children and adolescents aged 12-17 years by sex, 2002-2013
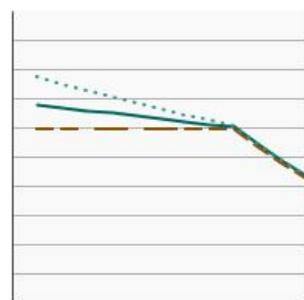
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	4.3	(3.9 - 4.7)
	Male	4.2	(3.7 - 4.7)
	Female	4.3	(3.8 - 4.8)

Initiation of the use of cigarettes among children and adolescents aged 12-17 years by sex, 2002-2013
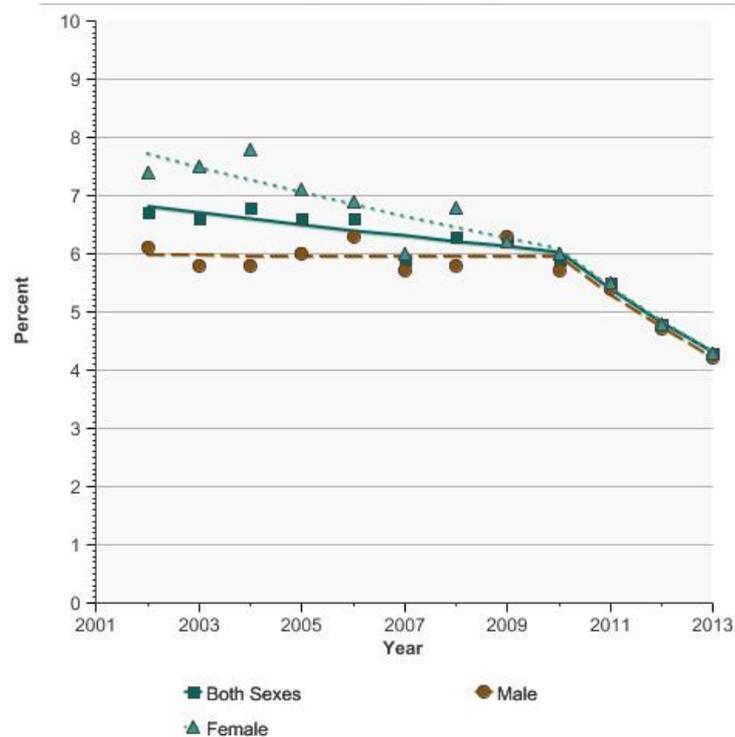
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25 by Sex

Initiation of the use of cigarettes among young adults aged 18-25 years by sex, 2002-2013
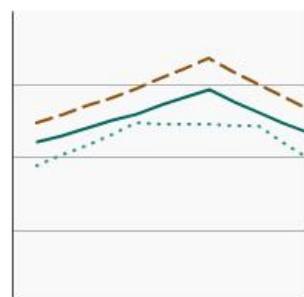
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	6.6	(5.9 - 7.3)
	Male	7.4	(6.4 - 8.4)
	Female	5.9	(5.0 - 6.8)

Initiation of the use of cigarettes among
young adults aged 18-25 years by sex, 2002-2013
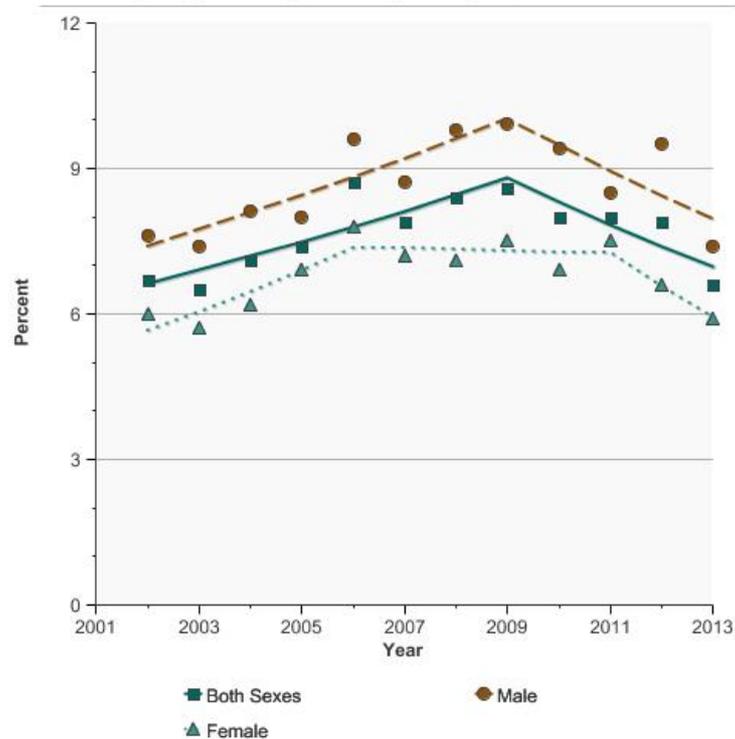
Legend: ■ Both Sexes ● Male ▲ Female

Source: Substance Abuse and Mental Health Services Administration, National Household
Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 12-17 by Race/Ethnicity

Initiation of the use of cigarettes among children and adolescents aged 12-17 years by race/ethnicity, 2008-2013
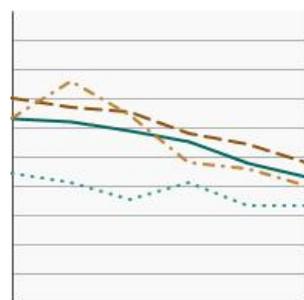
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	4.3	(3.9 - 4.7)
	Non-Hispanic White	4.8	(4.3 - 5.3)
	Non-Hispanic Black	3.3	(2.4 - 4.2)
	Hispanic	4.0	(3.2 - 4.8)

Initiation of the use of cigarettes among children and adolescents aged 12-17 years by race/ethnicity, 2008-2013
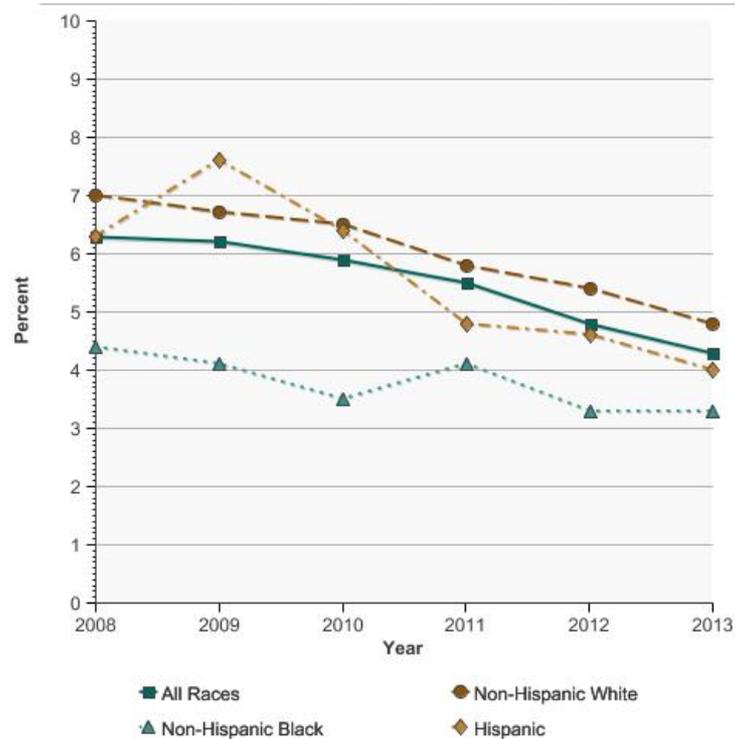
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25 by Race/Ethnicity

Initiation of the use of cigarettes among young adults aged 18-25 years by race/ethnicity, 2008-2013
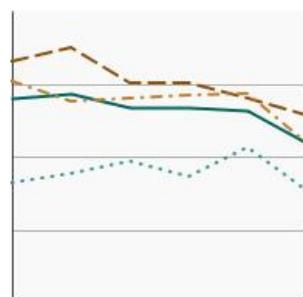
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	6.6	(5.9 - 7.3)
	Non-Hispanic White	7.7	(6.6 - 8.8)
	Non-Hispanic Black	4.6	(3.3 - 5.9)
	Hispanic	6.6	(5.0 - 8.2)

Initiation of the use of cigarettes among young adults aged 18-25 years by race/ethnicity, 2008-2013
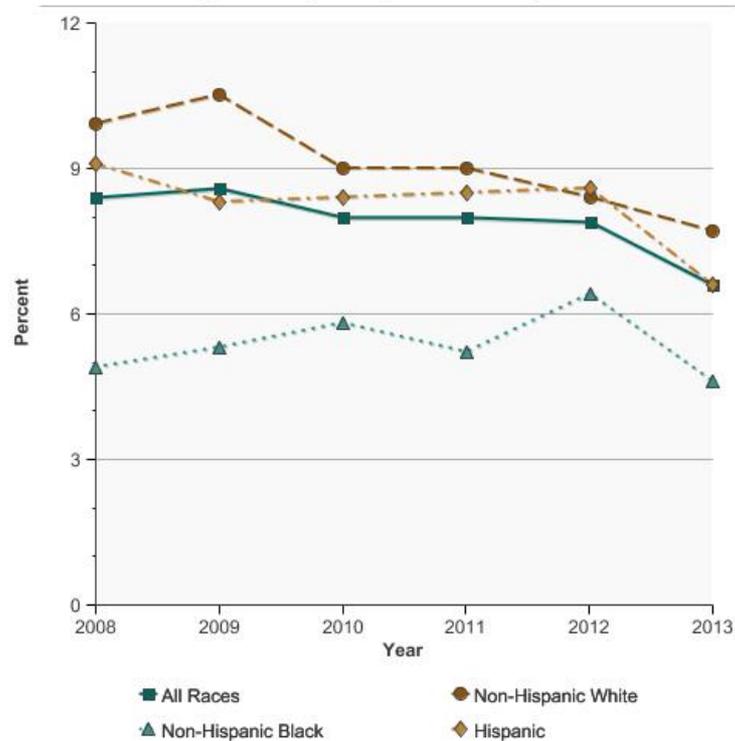
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

By Age

Initiation of the use of cigarettes among children, adolescents and young adults by age at initiation, 2002-2013
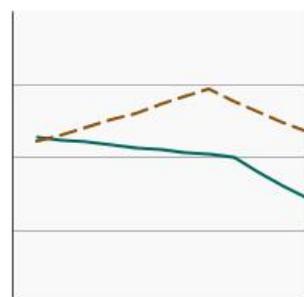
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Ages 12-17	4.3	(3.9 - 4.7)
	Ages 18-25	6.6	(5.9 - 7.3)

Initiation of the use of cigarettes among children, adolescents and young adults by age at initiation, 2002-2013

Ages 12-17   Ages 18-25
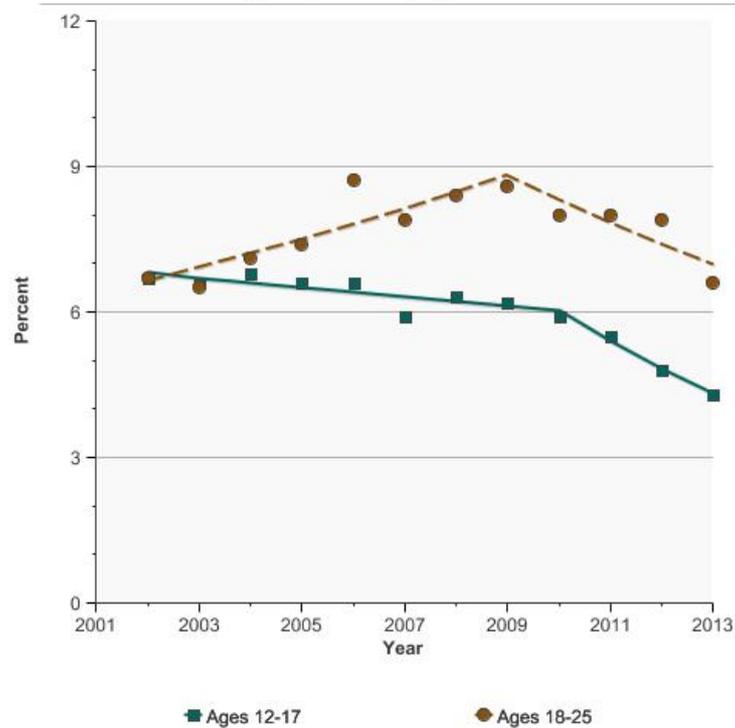
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Smokeless Tobacco

Ages 12-17 by Sex

Initiation of the use of smokeless tobacco among children and adolescents aged 12-17 years by sex, 2008-2013
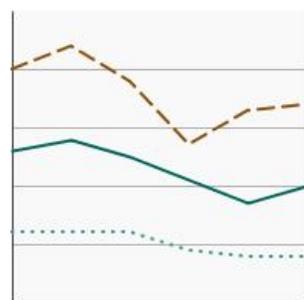
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	2.0	(1.7 - 2.3)
	Male	3.4	(2.9 - 3.9)
	Female	0.8	(0.6 - 1.0)

Initiation of the use of smokeless tobacco among children and adolescents aged 12-17 years by sex, 2008-2013
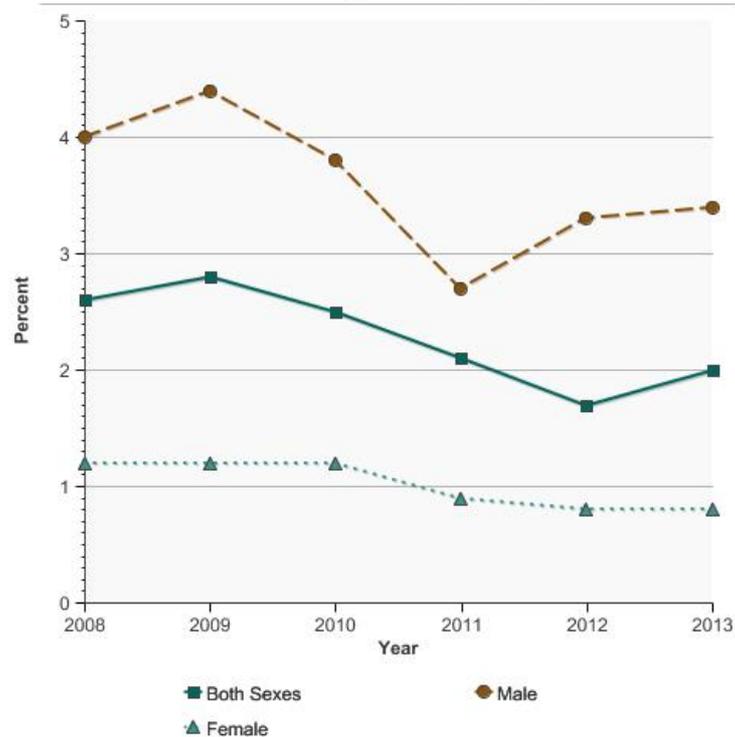
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25 by Sex

Initiation of the use of smokeless tobacco among young adults aged 18-25 years by sex, 2008-2013
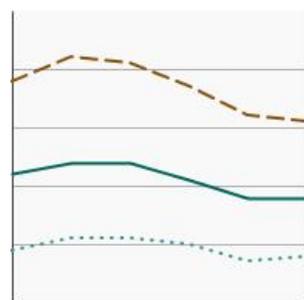
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	1.8	(1.5 - 2.1)
	Male	3.1	(2.5 - 3.7)
	Female	0.8	(0.6 - 1.0)

Initiation of the use of smokeless tobacco among young adults aged 18-25 years by sex, 2008-2013

Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 12-17 by Race/Ethnicity

Initiation of the use of smokeless tobacco among children and adolescents aged 12-17 years by race/ethnicity, 2008-2013
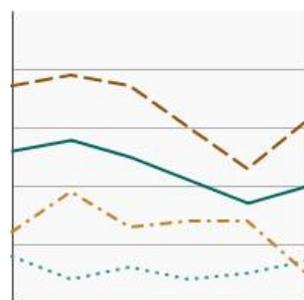
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	2.0	(1.7 - 2.3)
	Non-Hispanic White	3.1	(2.6 - 3.6)
	Non-Hispanic Black	0.7	(0.3 - 1.1)
	Hispanic	0.5	(0.3 - 0.7)

Initiation of the use of smokeless tobacco among children and adolescents aged 12-17 years by race/ethnicity, 2008-2013

Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25 by Race/Ethnicity

Initiation of the use of smokeless tobacco among young adults aged 18-25 years by race/ethnicity, 2008-2013
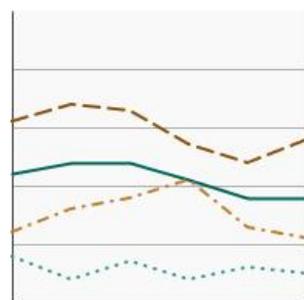
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	1.8	(1.5 - 2.1)
	Non-Hispanic White	2.8	(2.3 - 3.3)
	Non-Hispanic Black	0.5	(0.2 - 0.8)
	Hispanic	1.1	(0.5 - 1.7)

Initiation of the use of smokeless tobacco among young adults aged 18-25 years by race/ethnicity, 2008-2013

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

By Age

Initiation of the use of smokeless tobacco among children, adolescents and young adults by age at initiation, 2008-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Ages 12-17	2.0	(1.7 - 2.3)
	Ages 18-25	1.8	(1.5 - 2.1)

Initiation of the use of smokeless tobacco among children, adolescents and young adults by age at initiation, 2008-2013
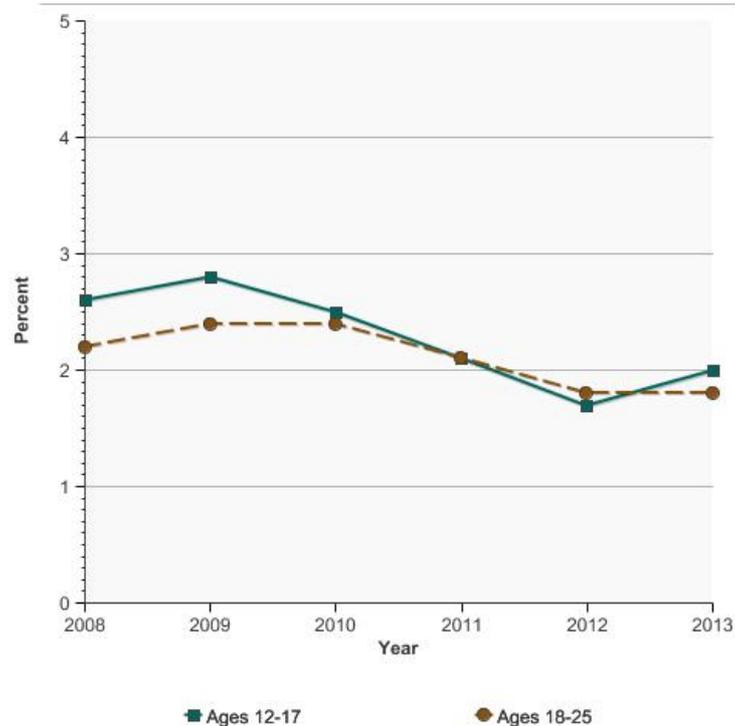
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Cigars

Ages 12-17 by Sex

Initiation of the use of cigars among children and adolescents aged 12-17 years by sex, 2008-2013
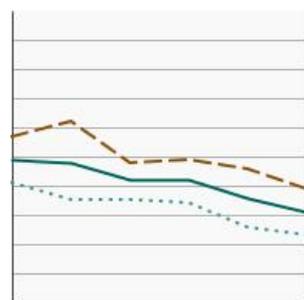
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	3.1	(2.8 - 3.4)
	Male	3.9	(3.4 - 4.4)
	Female	2.3	(2.0 - 2.6)

Initiation of the use of cigars among children and adolescents aged 12-17 years by sex, 2008-2013
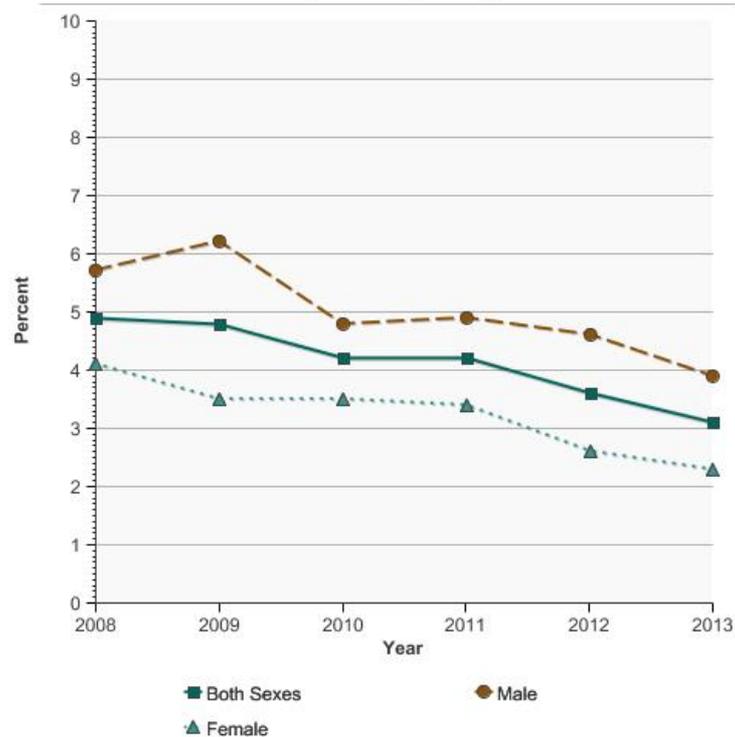
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25 by Sex

Initiation of the use of cigars among young adults aged 18-25 years by sex, 2008-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Both Sexes	5.9	(5.4 - 6.4)
	Male	8.0	(7.0 - 9.0)
	Female	4.3	(3.7 - 4.9)

Initiation of the use of cigars among young adults aged 18-25 years by sex, 2008-2013
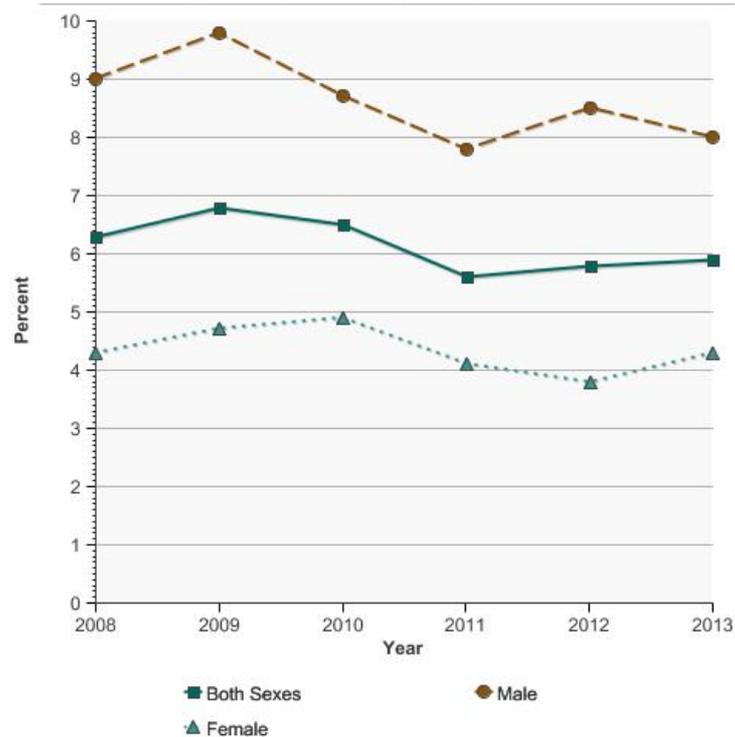
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 12-17 by Race/Ethnicity

Initiation of the use of cigars among children and adolescents aged 12-17 years by race/ethnicity, 2008-2013
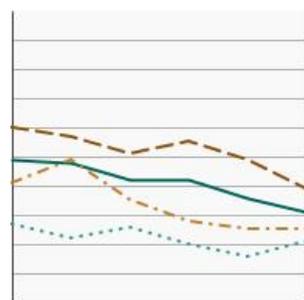
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	3.1	(2.8 - 3.4)
	Non-Hispanic White	3.9	(3.5 - 4.3)
	Non-Hispanic Black	2.1	(1.4 - 2.8)
	Hispanic	2.5	(1.8 - 3.2)

Initiation of the use of cigars among children and
adolescents aged 12-17 years by race/ethnicity, 2008-2013

- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic
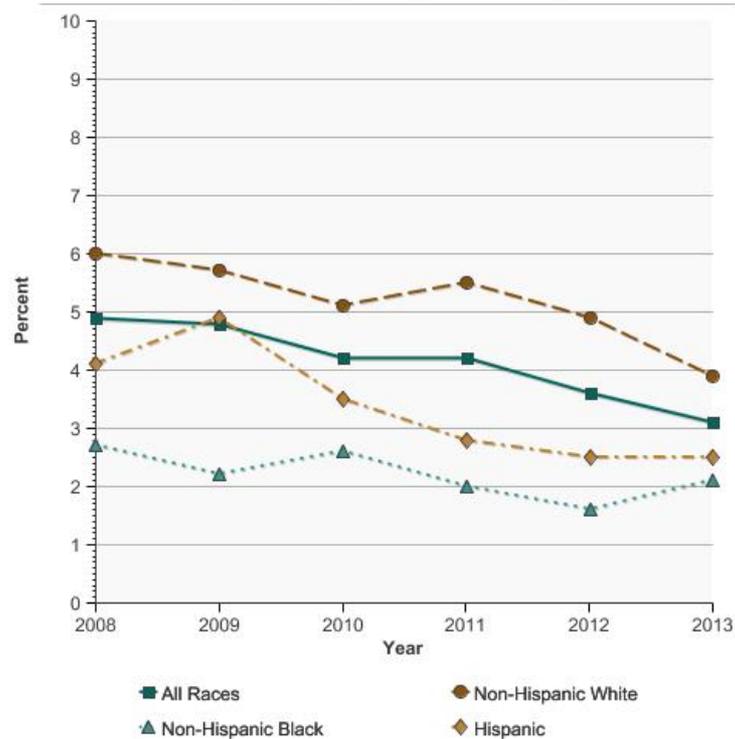
Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

Ages 18-25 by Race/Ethnicity

Initiation of the use of cigars among young adults aged 18-25 years by race/ethnicity, 2008-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	All Races	5.9	(5.4 - 6.4)
	Non-Hispanic White	7.7	(6.9 - 8.5)
	Non-Hispanic Black	2.5	(1.7 - 3.3)
	Hispanic	5.1	(4.0 - 6.2)

Initiation of the use of cigars among young adults aged 18-25 years by race/ethnicity, 2008-2013

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Substance Abuse and Mental Health Services Administration, National Household Survey on Drug Use and Health.
Data are not age-adjusted.

By Age

Initiation of the use of cigars among children, adolescents and young adults by age at initiation, 2008-2013
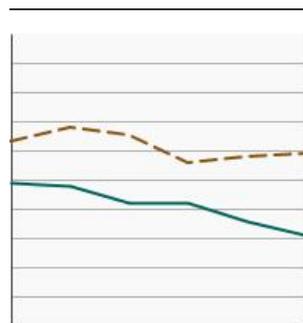
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent	Confidence Interval
	Ages 12-17	3.1	(2.8 - 3.4)
	Ages 18-25	5.9	(5.4 - 6.4)

Initiation of the use of cigars among children,
adolescents and young adults by age at initiation, 2008-2013
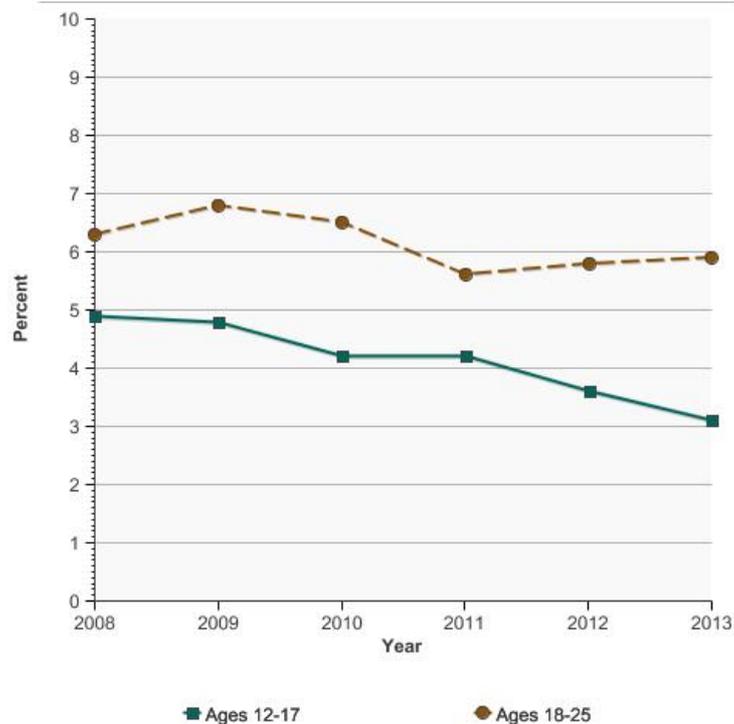
Source: Substance Abuse and Mental Health Services Administration, National Household
Survey on Drug Use and Health.
Data are not age-adjusted.

Cancers Related to Tobacco Use Initiation

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

- Anal Cancer(http://seer.cancer.gov/statfacts/html/anus.html)
- Cervix Uteri(http://seer.cancer.gov/statfacts/html/cervix.html)
- Colon and Rectum(http://seer.cancer.gov/statfacts/html/colorect.html)
- Esophagus(http://seer.cancer.gov/statfacts/html/esoph.html)
- Kidney and Renal Pelvis(http://seer.cancer.gov/statfacts/html/kidrp.html)

- Larynx(http://seer.cancer.gov/statfacts/html/laryn.html)
- Lung and Bronchus(http://seer.cancer.gov/statfacts/html/lungb.html)
- Oral Cavity and Pharynx(http://seer.cancer.gov/statfacts/html/oralcav.html)
- Pancreas(http://seer.cancer.gov/statfacts/html/pancreas.html)
- Stomach(http://seer.cancer.gov/statfacts/html/stomach.html)

Additional Information on Tobacco Use Initiation
For the public

- Child and Teen Tobacco Use(http://www.cancer.org/cancer/cancercauses/tobaccocancer/childandteentobaccouse/index). American Cancer Society.
- Youth Tobacco Prevention(http://www.cdc.gov/tobacco/basic_information/youth/index.htm). Centers for Disease Control and Prevention.

- 50 Years of Progress: A Report of the Surgeon General, 2014(http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html). U.S. Department of Health and Human Services.
- Surgeon General.gov. Initiatives – Tobacco(http://surgeongeneral.gov/tobacco/). U.S. Department of Health and Human Services.
- Youth & Tobacco(http://www.fda.gov/TobaccoProducts/PublicHealthEducation/ProtectingKidsfromTobacco/default.htm). U.S. Food and Drug Administration.

For health professionals

- Best Practices for Comprehensive Tobacco Control Programs—2014(http://www.cdc.gov/tobacco/stateandcommunity/best_practices). Centers for Disease Control and Prevention.

Scientific reports

- 2014 Surgeon General's Report - The Health Consequences of Smoking: 50 Years of Progress(http://www.surgeongeneral.gov/library/reports/50-years-of-progress/). SurgeonGeneral.gov.
- 2012 Surgeon General's Report—Preventing Tobacco Use Among Youth and Young Adults(http://www.cdc.gov/tobacco/data_statistics/sgr/2012/). Centers for Disease Control and Prevention.
- CDC Grand Rounds: Current Opportunities in Tobacco Control(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5916a3.htm). Centers for Disease Control and Prevention. MMWR 2010;59(16):487–492.
- Cigarette use among high school students – United States, 1991–2009(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5926a1.htm). Centers for Disease Control and Prevention. MMWR 2010;59(26):797–801.
- Tobacco product use among middle and high school students – United States, 2011–2012(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6245a2.htm). Centers for Disease Control and Prevention. MMWR 2013;62(45): 893-897.
- Smoking initiation associated with specific periods in the life course from birth to young adulthood: data from the National Longitudinal Survey of Youth 1997(http://www.ncbi.nlm.nih.gov/pubmed/24328611). Chen X, Jacques-Tiura AJ. Am J Public Health 2014;104(2):e119–26.
- Early initiation of tobacco use in adolescent girls: key sociostructural influences(http://www.ncbi.nlm.nih.gov/pubmed/19427575). DiNapoli PP. Appl Nurs Res 2009;22(2):126–32.
- Individual- and community-level correlates of cigarette-smoking trajectories from age 13 to 32 in a U.S. population-based sample(http://www.ncbi.nlm.nih.gov/pubmed/23499056). Fuemmeler B, Lee CT, Ranby KW, Clark T, et al. Drug Alcohol Depend. 2013;132(1–2):301–8.
- Smoking and Tobacco Control Monographs. Monograph 14: Changing Adolescent Smoking Prevalence. National Cancer Institute.
- Smoking and Tobacco Control Monographs. Monograph 19: The Role of the Media in Promoting and Reducing Tobacco Use(http://cancercontrol.cancer.gov/brp/tcrb/monographs/19/index.html). National Cancer Institute.
- Predictors of the transition from experimental to daily smoking among adolescents in the United States(http://www.ncbi.nlm.nih.gov/pubmed/19356204). Park S, Weaver TE, Romer D. J Spec Pediatr Nurs. 2009;14(2):102–11.
- Risk factors for adolescent smoking: parental smoking and the mediating role of nicotine dependence(http://www.ncbi.nlm.nih.gov/pubmed/22365898). Selya AS, Dierker LC, Rose JS, Hedeker D, Mermelstein RJ. Drug Alcohol Depend. 2012;124(3):311–8.
- Preventing Tobacco Use Among Youth and Young Adults, 2012(http://www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/full-report.pdf). U.S Department of Health and Human Services, Public Health Service, Office of the Surgeon General.

Statistics

- Healthy People 2020, 2020 Topics and Objectives – Tobacco Use.
- Results from the 2008 National Survey on Drug Use and Health – National Findings. 2009(http://archive.samhsa.gov/data/NSDUH/2k8nsduh/2k8results.pdf). Substance Abuse and Mental Health Services Administration.
- Results from the 2012 National Survey on Drug Use and Health – Summary of National Findings and Detailed Tables. 2012(http://www.samhsa.gov/data/NSDUH/2012SummNatFindDetTables/Index.aspx). Substance Abuse and Mental Health Services Administration.

For smokers

- Guide to Quitting Smoking(http://www.cancer.org/healthy/stayawayfromtobacco/guidetoquittingsmoking/guide-to-quitting-smoking-toc). American Cancer Society.
- Free Help to Quit Smoking(http://www.cancer.gov/cancertopics/tobacco/smoking). National Cancer Institute.
- Smokefree.gov(http://smokefree.gov). National Cancer Institute.
- North American Quitline Consortium(http://www.naquitline.org/).

Youth Tobacco Use

Last Updated:
January 2017

Introduction

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

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

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

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

Measure

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

Healthy People 2020 Target

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

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

Data Source

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

Trends and Most Recent Estimates
By Type of Tobacco Product

Percentage of high school students (grades 9-12) who used cigarettes, cigars, or smokeless tobacco in the last month by type of tobacco product, 1999-2015
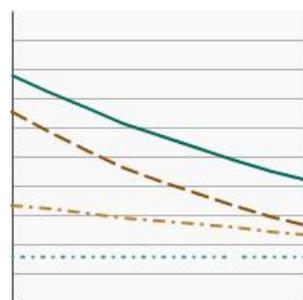
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	Cigarettes, Cigars and Smokeless Tobacco	18.6	(16.5 - 20.6)
	Cigarettes	10.8	(9.3 - 12.3)
	Smokeless tobacco	7.3	(6.1 - 8.5)
	Cigars	10.3	(9.0 - 11.7)
	E-cigarettes	24.1	(22.1 - 26.2)

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

Legend:
- Cigarettes, Cigars and Smokeless Tobacco
- Cigarettes
- Smokeless tobacco
- Cigars
- E-cigarettes
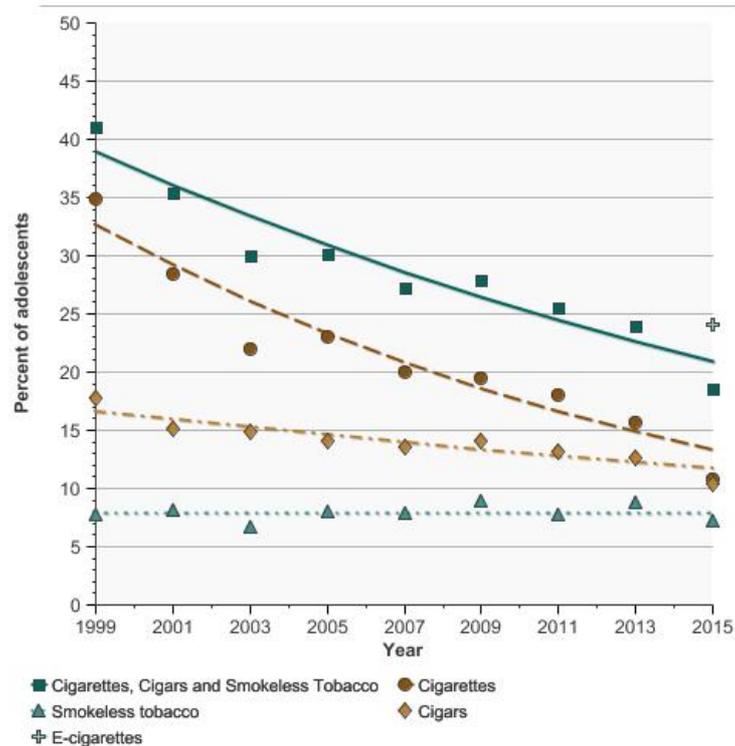
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
E-cigarettes series includes e-cigarettes, e-cigars, e-pipes, vape pipes, vaping pens, e-hookahs, and hookah pens.
Data are not age-adjusted.

Cigarettes, Cigars and Smokeless Tobacco

By Sex

Percentage of high school students (grades 9-12) who were current users of cigarettes, cigars, or smokeless tobacco by sex, 1999-2015
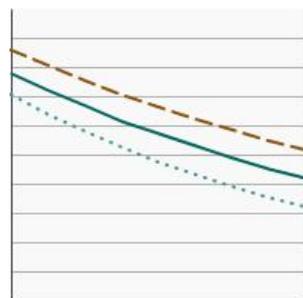
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	Both Sexes	18.6	(16.5 - 20.6)
	Male	23.3	(21.0 - 25.7)
	Female	13.4	(11.1 - 15.8)

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

Legend: Both Sexes, Male, Female

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
Data are not age-adjusted.

By Race/Ethnicity

Percentage of high school students (grades 9-12) who were current users of cigarettes, cigars, or smokeless tobacco by race/ethnicity, 1999-2015
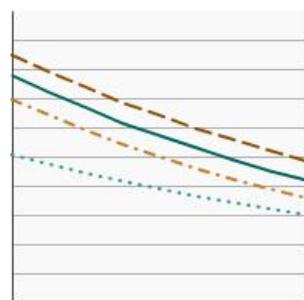
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	All Races	18.6	(16.5 - 20.6)
	Non-Hispanic White	21.2	(17.7 - 24.6)
	Non-Hispanic Black	14.9	(12.0 - 17.8)
	Hispanic	14.2	(11.7 - 16.7)

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

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic
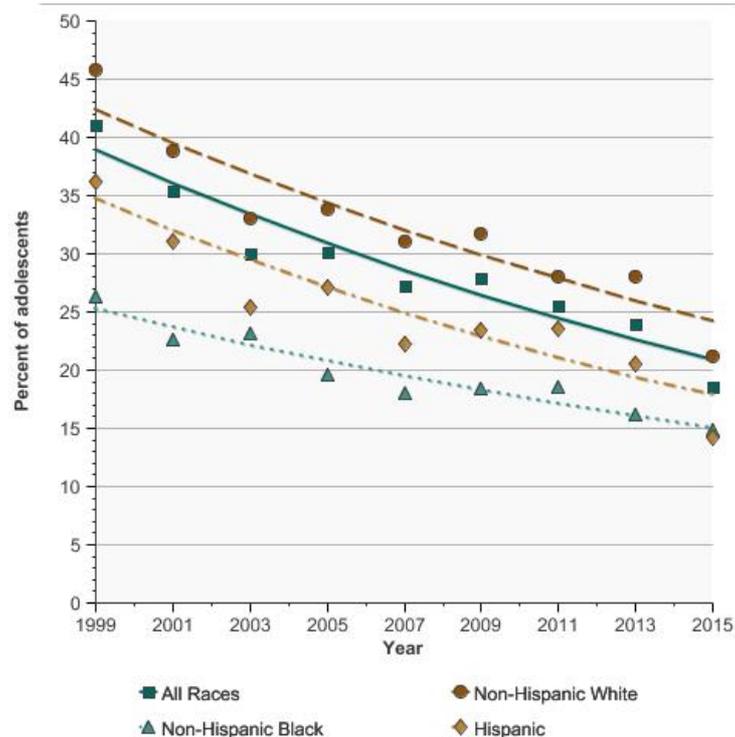
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System. Data are not age-adjusted.

Cigarettes

By Sex

Percentage of high school students (grades 9-12) who smoked cigarettes in the past month by sex, 1999-2015
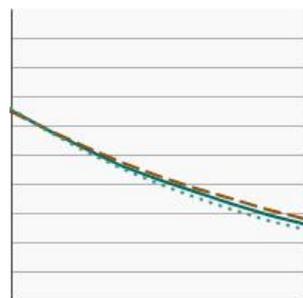
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	Both Sexes	10.8	(9.3 - 12.3)
	Male	11.8	(10.4 - 13.2)
	Female	9.8	(8.0 - 11.5)

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

Legend: Both Sexes, Male, Female

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
Data are not age-adjusted.

By Race/Ethnicity

Percentage of high school students (grades 9-12) who smoked cigarettes in the past month by race/ethnicity, 1999-2015
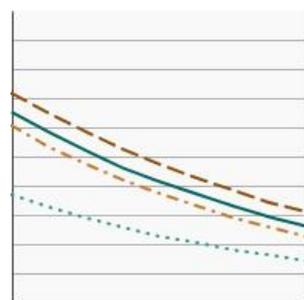
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	All Races	10.8	(9.3 - 12.3)
	Non-Hispanic White	12.4	(9.9 - 14.9)
	Non-Hispanic Black	6.5	(4.6 - 8.4)
	Hispanic	9.2	(7.9 - 10.6)

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

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System. Data are not age-adjusted.

Smokeless Tobacco

By Sex

Percentage of high school students (grades 9-12) who used smokeless tobacco in the past month by sex, 1999-2015
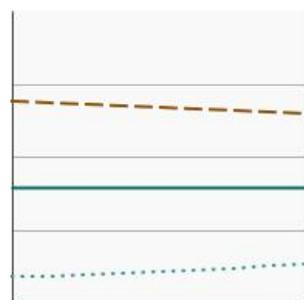
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	Both Sexes	7.3	(6.1 - 8.5)
	Male	11.8	(9.9 - 13.8)
	Female	2.3	(1.6 - 3.0)

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

Legend: Both Sexes, Male, Female

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
Data are not age-adjusted.

By Race/Ethnicity

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	All Races	7.3	(6.1 - 8.5)
	Non-Hispanic White	9.3	(7.4 - 11.1)
	Non-Hispanic Black	3.7	(2.2 - 5.1)
	Hispanic	4.5	(3.1 - 5.9)

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

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic
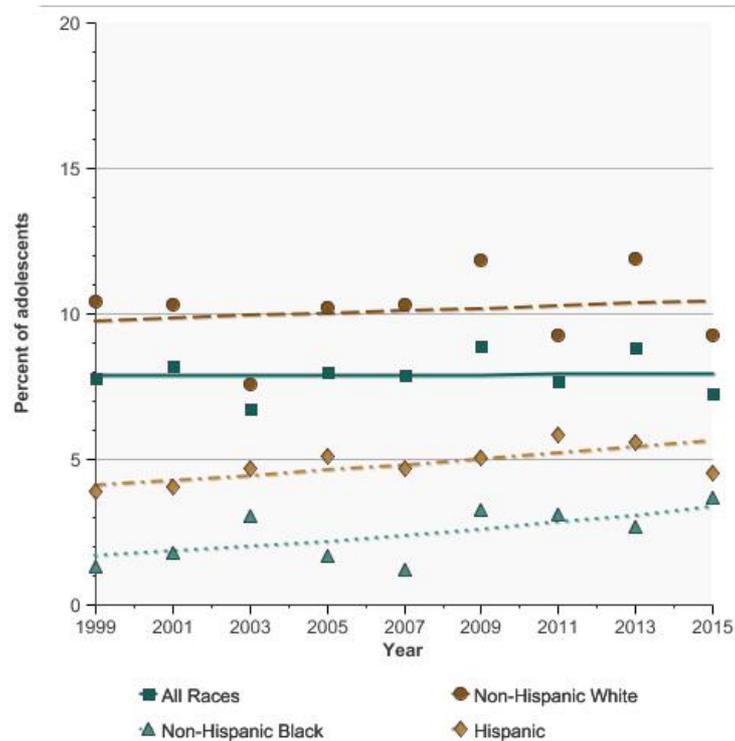
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
Data are not age-adjusted.

Cigars

By Sex

Percentage of high school students (grades 9-12) who smoked cigars in the past month by sex, 1999-2015
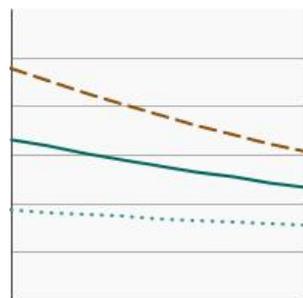
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	Both Sexes	10.3	(9.0 - 11.7)
	Male	14.0	(12.3 - 15.7)
	Female	6.3	(5.0 - 7.7)

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

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
Data are not age-adjusted.

By Race/Ethnicity

Percentage of high school students (grades 9-12) who smoked cigars in the past month by race/ethnicity, 1999-2015
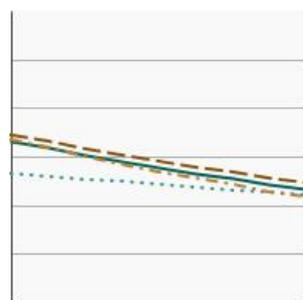
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	All Races	10.3	(9.0 - 11.7)
	Non-Hispanic White	10.4	(8.6 - 12.3)
	Non-Hispanic Black	11.0	(8.2 - 13.9)
	Hispanic	9.5	(7.6 - 11.4)

Percentage of high school students (grades 9-12) who smoked cigars in the past month by race/ethnicity, 1999-2015
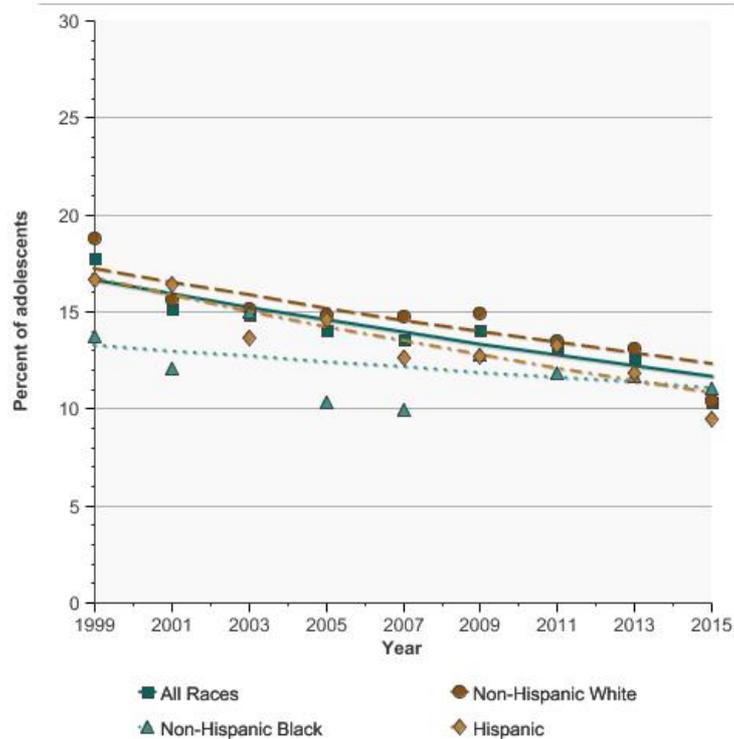
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System. Data are not age-adjusted.

E-cigarettes

By Sex

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

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

Percentage of high school students (grades 9-12) who used electronic cigarettes in the past month by sex, 2015
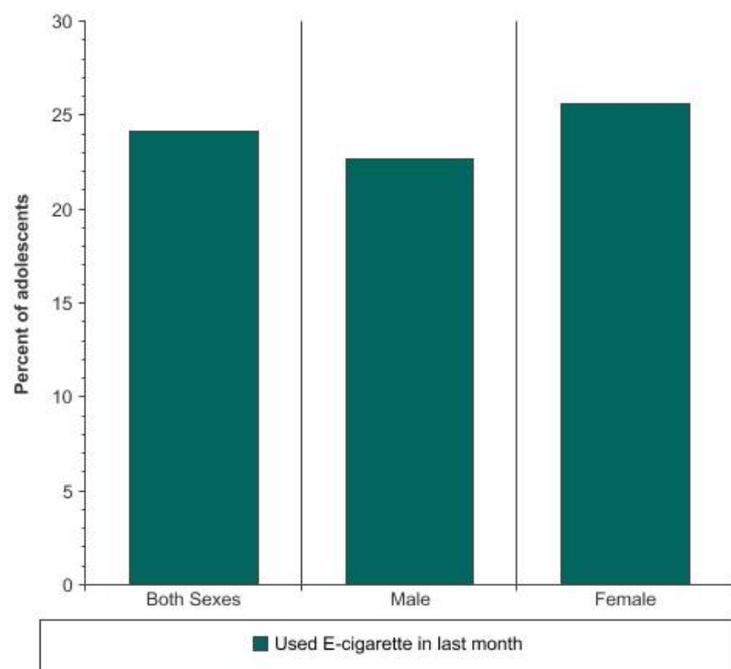
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
Data are not age-adjusted.
Measure includes e-cigarettes, e-cigars, e-pipes, vape pipes, vaping pens, e-hookahs, and hookah pens.

By Race/Ethnicity

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

Overview graph	Race	Used E-cigarette in last month	
		Percent of adolescents	Confidence Interval
	All Races	24.1	(22.1 - 26.2)
	Non-Hispanic White	25.2	(22.2 - 28.5)
	Non-Hispanic Black	18.0	(14.9 - 21.7)
	Hispanic	26.3	(23.6 - 29.1)
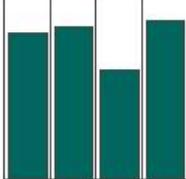
Percentage of high school students (grades 9-12) who used electronic cigarettes in the past month by race/ethnicity, 2015
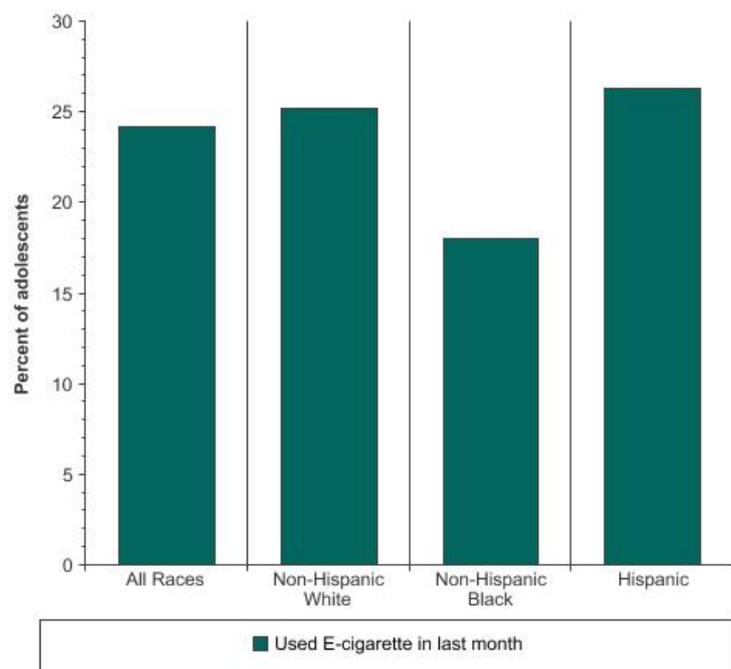
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
Data are not age-adjusted.
Measure includes e-cigarettes, e-cigars, e-pipes, vape pipes, vaping pens, e-hookahs, and hookah pens.

Cancers Related to Youth Tobacco Use

Youth tobacco use can lead to long term adult tobacco use, responsible for a number of smoking related cancers.
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Anal Cancer(http://seer.cancer.gov/statfacts/html/anus.html)
- Cervix Uteri(http://seer.cancer.gov/statfacts/html/cervix.html)
- Colon and Rectum(http://seer.cancer.gov/statfacts/html/colorect.html)
- Esophagus(http://seer.cancer.gov/statfacts/html/esoph.html)
- Kidney and Renal Pelvis(http://seer.cancer.gov/statfacts/html/kidrp.html)

- Larynx(http://seer.cancer.gov/statfacts/html/laryn.html)
- Lung and Bronchus(http://seer.cancer.gov/statfacts/html/lungb.html)
- Oral Cavity and Pharynx(http://seer.cancer.gov/statfacts/html/oralcav.html)
- Pancreas(http://seer.cancer.gov/statfacts/html/pancreas.html)
- Stomach(http://seer.cancer.gov/statfacts/html/stomach.html)

Additional Information on Youth Tobacco Use
For smokers

- Guide to Quitting Smoking(http://www.cancer.org/healthy/stayawayfromtobacco/guidetoquittingsmoking/guide-to-quitting-smoking-toc). American Cancer Society.
- Free Help to Quit Smoking(http://www.cancer.gov/cancertopics/tobacco/smoking). National Cancer Institute.
- Smokefree.gov(http://smokefree.gov). National Cancer Institute.
- North American Quitline Consortium(http://www.naquitline.org/).

For the public

- Child and Teen Tobacco Use(http://www.cancer.org/cancer/cancercauses/tobaccocancer/childandteentobaccouse/index). American Cancer Society.
- The Path to Smoking Addiction Starts at Very Young Ages (2009)(http://www.tobaccofreekids.org/research/factsheets/pdf/0127.pdf). Campaign for Tobacco-Free Kids.
- 2012 Surgeon General's Report—Preventing Tobacco Use Among Youth and Young Adults(http://www.cdc.gov/tobacco/data_statistics/sgr/2012/).Centers for Disease Control and Prevention.
- Youth Tobacco Prevention(http://www.cdc.gov/tobacco/basic_information/youth/index.htm). Centers for Disease Control and Prevention.
- Smokefreeteen.gov(http://teen.smokefree.gov/). National Cancer Institute.
- SmokefreeTXT(http://smokefree.gov/smokefreetxt). National Cancer Institute.
- 50 Years of Progress: A Report of the Surgeon General, 2014(http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html). U.S. Department of Health and Human Services.
- Surgeon General.gov. Initiatives – Tobacco(http://surgeongeneral.gov/tobacco/). U.S. Department of Health and Human Services.
- Youth & Tobacco(http://www.fda.gov/TobaccoProducts/PublicHealthEducation/ProtectingKidsfromTobacco/default.htm). U.S. Food and Drug Administration.

For health professionals

- Best Practices for Comprehensive Tobacco Control Programs—2014(http://www.cdc.gov/tobacco/stateandcommunity/best_practices). Centers for Disease Control and Prevention.
- 21 CFR Part 1140 – Regulations restricting the sale and distribution of cigarettes and smokeless tobacco to protect children and adolescents(http://www.gpo.gov/fdsys/pkg/FR-2010-03-19/pdf/2010-6087.pdf). Department of Health and Human Sources, Food and Drug Administration. Federal Register 2010;75(53):13225–13232.

Scientific reports

- Quantifying the effect of changes in state-level adult smoking rates on youth smoking(http://www.ncbi.nlm.nih.gov/pubmed/23760306). Farrelly MC, Arnold KY, Juster HR, Allen JA. J Public Health Manag Pract 2014 Mar-Apr; 20 (2):E1-6.
- 2012 Surgeon General's Report—Preventing Tobacco Use Among Youth and Young Adults(http://www.cdc.gov/tobacco/data_statistics/sgr/2012/). Centers for Disease Control and Prevention.
- Tobacco product use among middle and high school students – United States, 2011 and 2012(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6245a2.htm?s_cid=%20mm6245a2.htm_w). Centers for Disease Control and Prevention. MMWR 2013;62(45):893–897.
- Smoking initiation associated with specific periods in the life course from birth to young adulthood: data from the National Longitudinal Survey of Youth 1997(http://www.ncbi.nlm.nih.gov/pubmed/24328611). Chen X, Jacques-Tiura AJ. Am J Public Health 2014;104(2):e119–26.
- Early initiation of tobacco use in adolescent girls: key sociostructural influences(http://www.ncbi.nlm.nih.gov/pubmed/19427575). DiNapoli PP. Appl Nurs Res 2009;22(2):126–32.
- Individual- and community-level correlates of cigarette-smoking trajectories from age 13 to 32 in a U.S. population-based sample(http://www.ncbi.nlm.nih.gov/pubmed/23499056). Fuemmeler B, Lee CT, Ranby KW, Clark T, et al. Drug Alcohol Depend. 2013;132(1–2):301–8.
- Monitoring the Future: National Results on Adolescent Drug Use, Overview of Key Findings, 2013(http://www.monitoringthefuture.org/pressreleases/13cigpr_complete.pdf). Johnston LD, O'Malley PM, Bachman PM, and Schulenberg JE.
- Monitoring the Future: National Survey Results on Drug Use, 1975–2013: 39–44(http://www.monitoringthefuture.org//pubs/monographs/mtf-overview2013.pdf). Johnston LD, O'Malley PM, Miech RA, et al.
- Smoking and Tobacco Control Monographs. Monograph 14: Changing Adolescent Smoking Prevalence. National Cancer Institute.
- Monograph 19: The Role of the Media in Promoting and Reducing Tobacco Use(http://cancercontrol.cancer.gov/brp/tcrb/monographs/19/index.html). National Cancer Institute. Smoking and Tobacco Control Monographs.
- Predictors of the transition from experimental to daily smoking among adolescents in the United States(http://www.ncbi.nlm.nih.gov/pubmed/19356204). Park S, Weaver TE, Romer D. J Spec Pediatr Nurs. 2009;14(2):102–11.
- Risk factors for adolescent smoking: parental smoking and the mediating role of nicotine dependence(http://www.ncbi.nlm.nih.gov/pubmed/22365898). Selya AS, Dierker LC, Rose JS, Hedeker D, Mermelstein RJ. Drug Alcohol Depend. 2012;124(3):311–8.

Statistics

- Healthy People 2020, 2020 Topics and Objectives – Tobacco Use(http://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use).
- Results from the 2008 National Survey on Drug Use and Health – National Findings(http://archive.samhsa.gov/data/NSDUH/2k8nsduh/2k8results.pdf). Substance Abuse and Mental Health Services Administration. 2009.

Adult Tobacco Use

Last Updated:
January 2017

Introduction

Cigarette smoking is the leading preventable cause of death in the United States. It increases the risk of cancers of the lung, larynx, mouth, esophagus, pharynx, bladder, pancreas, kidney, cervix, stomach, and acute myeloid leukemia. Altogether it causes approximately 30 percent of all U.S. cancer deaths each year. The prevalence of adult cigarette smoking in the United States has dropped over 50% since the first Surgeon General Report on the harms of tobacco in 1964, when it was 42%. Yet, the rates have only slowly fallen since 1991 with an estimated 36.5 million adults still smoking cigarettes. The American Cancer Society estimates that in 2015, almost 171,000 of the estimated 589,430 cancer-related deaths will be caused by tobacco.

Tobacco use does not end with cigarettes. Other forms of tobacco use are common. In 2013, the National Survey on Drug Use and Health, a survey by the US Substance Abuse and Mental Health Service Administration, reported that 13.4 million people smoked cigars and 9 million people used smokeless tobacco.

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

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

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

Chewing tobacco and snuff contain at least 28 cancer-causing agents. Use of smokeless tobacco causes oral, esophageal, and pancreatic cancer. Smokeless tobacco also causes serious oral health problems, including gum disease, other non-cancerous oral lesions, tooth loss, and increase the risk of heart disease.

Measure

Cigarettes: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigarette smokers.
Smokeless tobacco: Percentage of adults aged 18 years and older who, at the time of the interview, were smokeless tobacco users.
Cigars: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigar smokers.

Healthy People 2020 Target

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

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1990–2012.

Trends and Most Recent Estimates
By Type of Tobacco Product
Percentage of adults aged 18 years and older who were current tobacco users by type of tobacco product used, 1991-2015
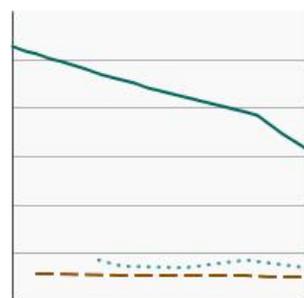
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Cigarettes	15.3	(14.7 - 15.9)
	Smokeless Tobacco	2.3	(2.0 - 2.6)
	Cigars	3.5	(3.2 - 3.8)

Percentage of adults aged 18 years and older who were current tobacco users by type of tobacco product used, 1991-2015
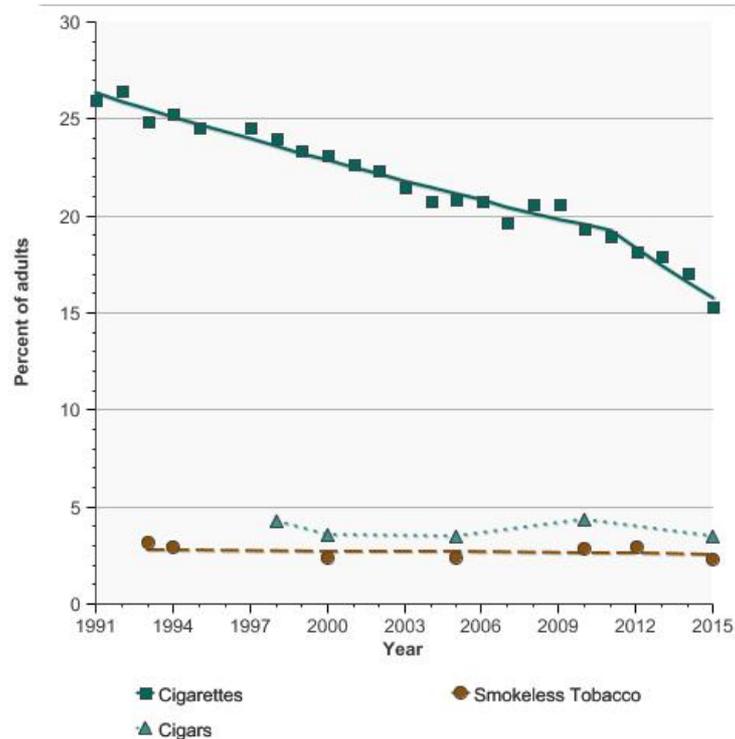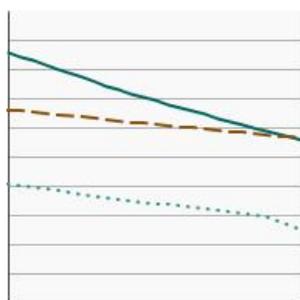
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

Cigarettes

By Sex

Percentage of adults aged 18 years and older who were current cigarette smokers by sex, 1991-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	15.3	(14.7 - 15.9)
	Male	16.8	(16.0 - 17.7)
	Female	13.8	(13.2 - 14.5)
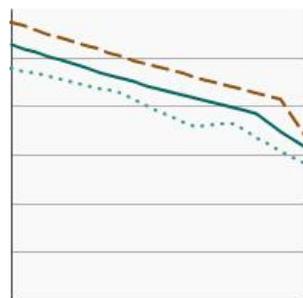
Percentage of adults aged 18 years and older who were current cigarette smokers by sex, 1991-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
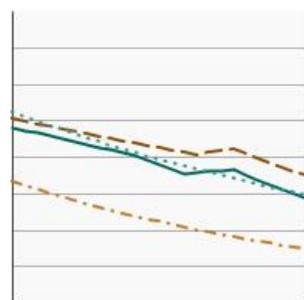
By Race/Ethnicity

Percentage of adults aged 18 years and older who were current cigarette smokers by race/ethnicity, 1991-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	15.3	(14.7 - 15.9)
	Non-Hispanic White	17.4	(16.6 - 18.2)
	Non-Hispanic Black	16.7	(15.2 - 18.2)
	Hispanic	9.9	(9.0 - 10.9)

Percentage of adults aged 18 years and older who were current cigarette smokers by race/ethnicity, 1991-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic
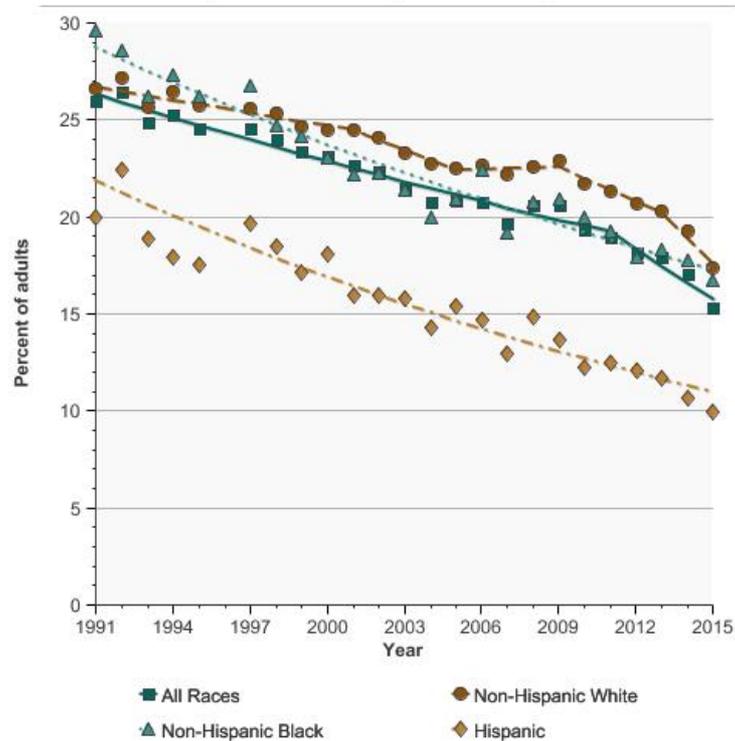
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34,
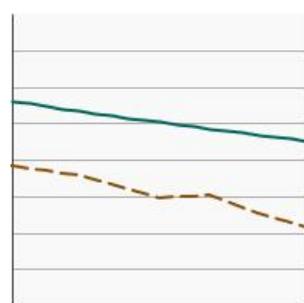35-44, 45-64, 65+.

By Age

Percentage of adults aged 18 years and older who were current cigarette smokers by age, 1991-2015
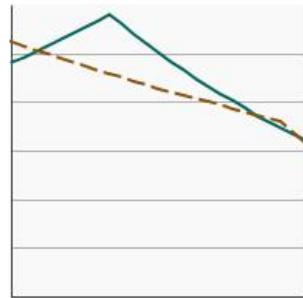
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	Ages 18-24	12.8	(11.1 - 14.5)
	Ages 25+	15.6	(15.0 - 16.2)

Percentage of adults aged 18 years and older who were current cigarette smokers by age, 1991-2015

■ Ages 18-24   ● Ages 25+

By Poverty Income Level

Percentage of adults aged 18 years and older who were current cigarette smokers by poverty income level, 1997-2015
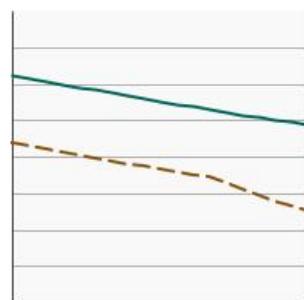
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	23.2	(22.2 - 24.2)
	>=200% of federal poverty level	11.9	(11.2 - 12.7)

Percentage of adults aged 18 years and older who were current cigarette smokers by poverty income level, 1997-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
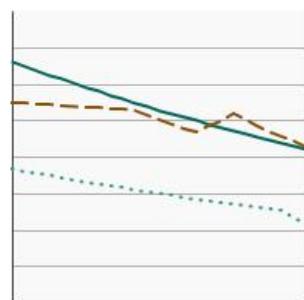
By Education Level

Percentage of adults aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2015
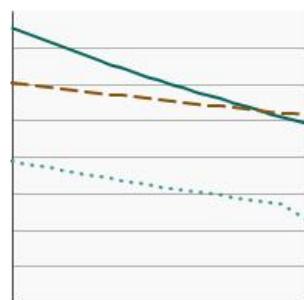
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	25.6	(23.7 - 27.6)
	High School	22.9	(21.5 - 24.3)
	Greater than High School	11.3	(10.7 - 12.0)

Percentage of adults aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2015

- Less than High School
- High School
- Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

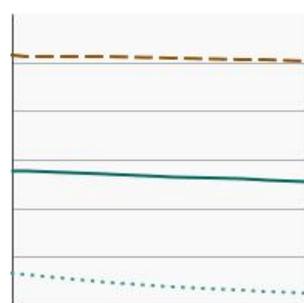## Males Ages 18-24 by Race/Ethnicity

Percentage of males aged 18-24 years who were current cigarette smokers by race/ethnicity, 1991-2015
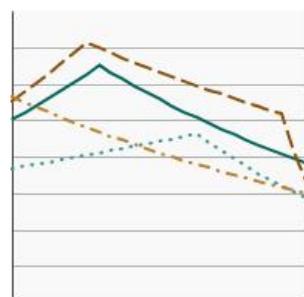
| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	14.8	(12.4 - 17.3)
	Non-Hispanic White	16.3	(12.6 - 20.0)
	Non-Hispanic Black	15.5	(8.8 - 22.2)
	Hispanic	12.2	(8.2 - 16.3)

Percentage of males aged 18-24 years who were current cigarette smokers by race/ethnicity, 1991-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Males Ages 18-24 by Poverty Income Level

Percentage of males aged 18-24 years who were current cigarette smokers by poverty income level, 1997-2015
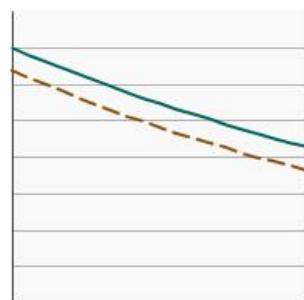
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	19.1	(15.2 - 23.0)
	>=200% of federal poverty level	11.7	(8.1 - 15.2)

Percentage of males aged 18-24 years who were current cigarette smokers by poverty income level, 1997-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

**Females Ages 18-24 by Race/Ethnicity**

Percentage of females aged 18-24 years who were current cigarette smokers by race/ethnicity, 1991-2015
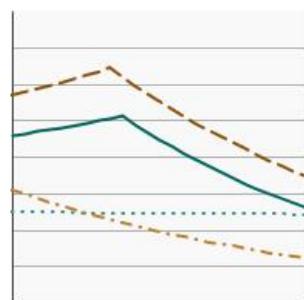
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	10.7	(8.5 - 12.9)
	Non-Hispanic White	13.3	(10.0 - 16.6)
	Non-Hispanic Black	8.6	(4.3 - 12.8)
	Hispanic	4.5	(2.5 - 6.5)

Percentage of females aged 18-24 years who were current cigarette smokers by race/ethnicity, 1991-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Females Ages 18-24 by Poverty Income Level

Percentage of females aged 18-24 years who were current cigarette smokers by poverty income level, 1997-2015
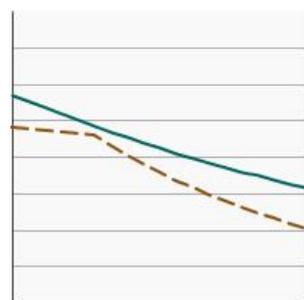
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	12.8	(9.8 - 15.8)
	>=200% of federal poverty level	8.8	(5.9 - 11.8)

Percentage of females aged 18-24 years who were current cigarette smokers by poverty income level, 1997-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Males Ages 25 and Older by Race/Ethnicity

Percentage of males aged 25 years and older who were current cigarette smokers by race/ethnicity, 1991-2015
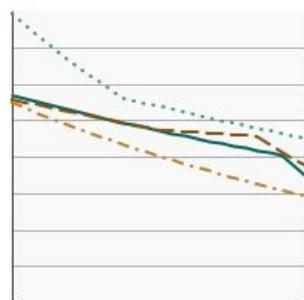
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	17.1	(16.2 - 18.0)
	Non-Hispanic White	18.1	(16.9 - 19.4)
	Non-Hispanic Black	21.4	(18.7 - 24.0)
	Hispanic	12.9	(11.1 - 14.6)

Percentage of males aged 25 years and older who were
current cigarette smokers by race/ethnicity, 1991-2015

- ■ All Races
- ● Non-Hispanic White
- ▲ Non-Hispanic Black
- ◆ Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44,
45-64, 65+.

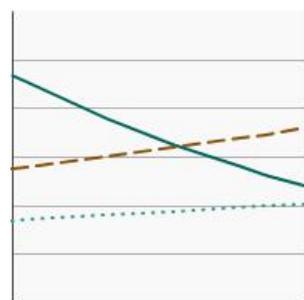## Males Ages 25 and Older by Poverty Income Level

Percentage of males aged 25 years and older who were current cigarette smokers by poverty income level, 1997-2015
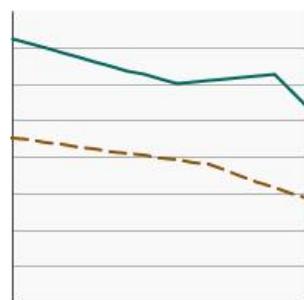
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	<200% of federal poverty level	26.9	(25.0 - 28.8)
	>=200% of federal poverty level	13.6	(12.6 - 14.7)

Percentage of males aged 25 years and older who were current cigarette smokers by poverty income level, 1997-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
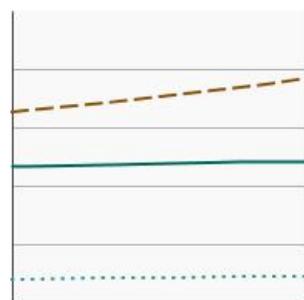Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Males Ages 25 and Older by Education Level

Percentage of males aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	28.6	(25.6 - 31.7)
	High School	24.3	(22.4 - 26.3)
	Greater than High School	12.0	(11.1 - 13.0)

Percentage of males aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2015

Legend:
- Less than High School
- High School
- Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.
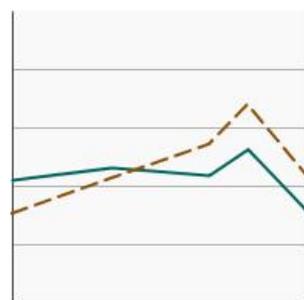
Females Ages 25 and Older by Race/Ethnicity

Percentage of females aged 25 years and older who were current cigarette smokers by race/ethnicity, 1991-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	14.3	(13.5 - 15.0)
	Non-Hispanic White	17.3	(16.2 - 18.5)
	Non-Hispanic Black	14.2	(12.3 - 16.1)
	Hispanic	7.5	(6.5 - 8.6)

Percentage of females aged 25 years and older who were current cigarette smokers by race/ethnicity, 1991-2015

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
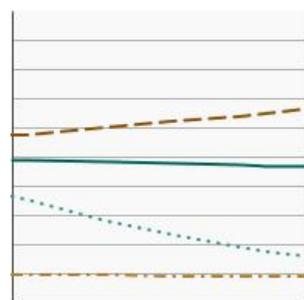Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Females Ages 25 and Older by Poverty Income Level

Percentage of females aged 25 years and older who were current cigarette smokers by poverty income level, 1997-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	22.2	(20.8 - 23.7)
	>=200% of federal poverty level	10.6	(9.7 - 11.5)

Percentage of females aged 25 years and older who were current cigarette smokers by poverty income level, 1997-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44,
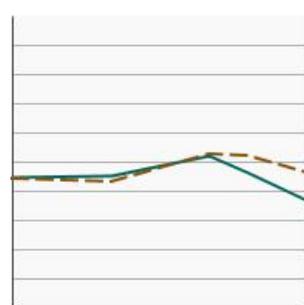45-64, 65+.

Females Ages 25 and Older by Education Level

Percentage of females aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	22.6	(20.2 - 24.9)
	High School	21.2	(19.2 - 23.3)
	Greater than High School	10.7	(9.9 - 11.6)

Percentage of females aged 25 years and older who were current cigarette smokers by highest level of education obtained, 1991-2015

- Less than High School
- High School
- Greater than High School
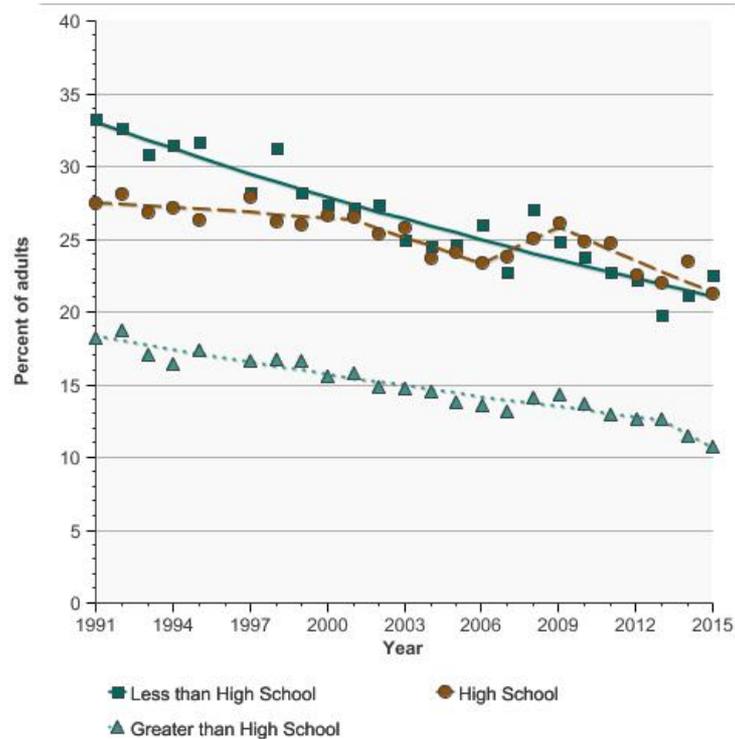
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.
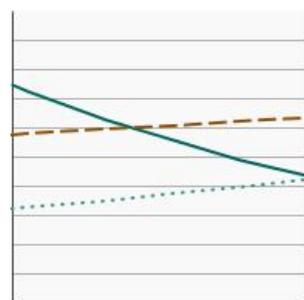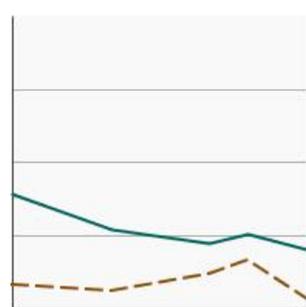
Smokeless Tobacco

By Sex

Percentage of adults aged 18 years and older who were current smokeless tobacco users by sex, 1993-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	2.3	(2.0 - 2.6)
	Male	4.5	(4.0 - 5.1)
	Female	0.2	(0.1 - 0.3)

Percentage of adults aged 18 years and older who were current smokeless tobacco users by sex, 1993-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adults aged 18 years and older who were current smokeless tobacco users by race/ethnicity, 1993-2015
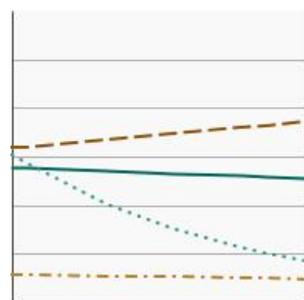
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	2.3	(2.0 - 2.6)
	Non-Hispanic White	3.5	(3.0 - 3.9)
	Non-Hispanic Black	0.7	(0.4 - 0.9)
	Hispanic	0.3	(0.1 - 0.5)

Percentage of adults aged 18 years and older who were current smokeless tobacco users by race/ethnicity, 1993-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic
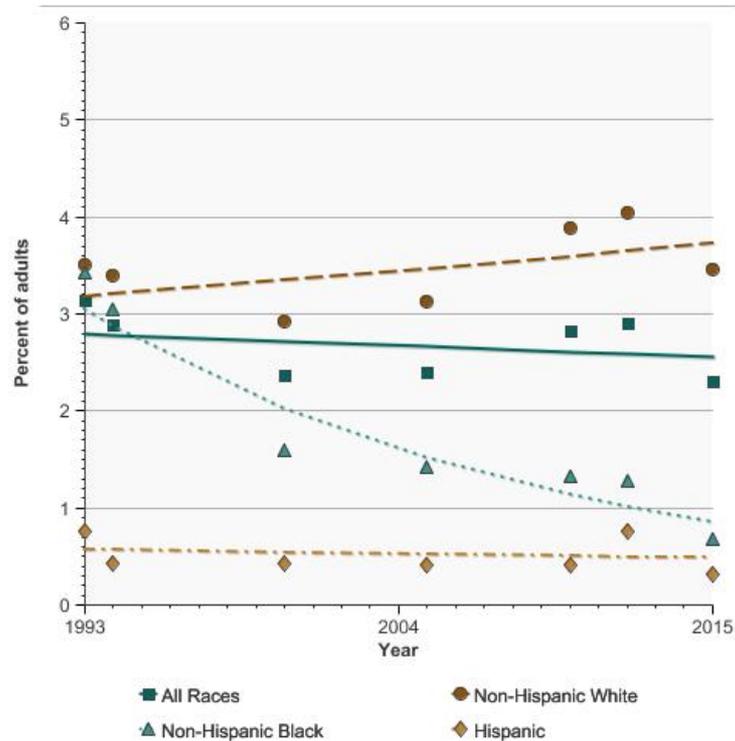
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
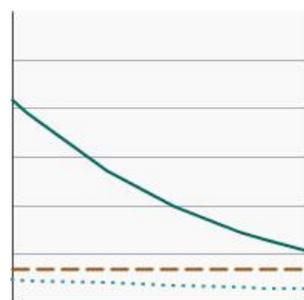
By Age

Percentage of adults aged 18 years and older who were current smokeless tobacco users by age, 1993-2015
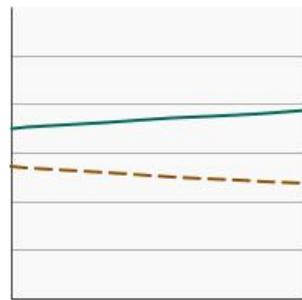
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	3.1	(2.2 - 4.1)
	Ages 25+	2.2	(1.9 - 2.5)

Percentage of adults aged 18 years and older who were current smokeless tobacco users by age, 1993-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

Percentage of adults aged 18 years and older who were current smokeless tobacco users by poverty income level, 2000-2015
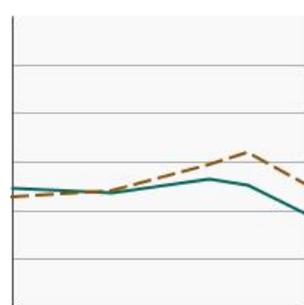
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	1.9	(1.5 - 2.4)
	>=200% of federal poverty level	2.5	(2.2 - 2.9)

Percentage of adults aged 18 years and older who were
current smokeless tobacco users by poverty income level, 2000-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34,
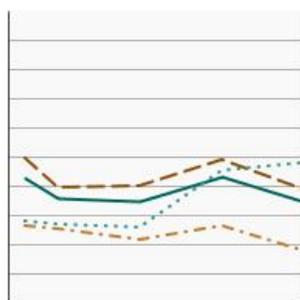35-44, 45-64, 65+.

By Education Level

Percentage of adults aged 25+ years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	2.9	(2.1 - 3.7)
	High School	3.1	(2.4 - 3.9)
	Greater than High School	1.7	(1.4 - 2.1)

Percentage of adults aged 25+ years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2015

Legend:
- Less than High School
- High School
- Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Males Ages 18-24 by Race/Ethnicity

Percentage of males aged 18-24 years who were current smokeless tobacco users by race/ethnicity, 1993-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	5.8	(4.0 - 7.6)
	Non-Hispanic White	9.8	(6.7 - 12.9)
	Hispanic	0.5	(-0.0 - 1.0)

Percentage of males aged 18-24 years who were current smokeless tobacco users by race/ethnicity, 1993-2015

Legend:
- ■ All Races
- ● Non-Hispanic White
- ▲ Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Males Ages 18-24 by Poverty Income Level

Percentage of males aged 18-24 years who were current smokeless tobacco users by poverty income level, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	<200% of federal poverty level	4.8	(2.0 - 7.5)
	>=200% of federal poverty level	6.5	(3.8 - 9.2)

Percentage of males aged 18-24 years who were current smokeless tobacco users by poverty income level, 2000-2015

- ■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Males Ages 25 and Older by Race/Ethnicity

Percentage of males aged 25 years and older who were current smokeless tobacco users by race/ethnicity, 1993-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	4.3	(3.8 - 4.9)
	Non-Hispanic White	6.4	(5.5 - 7.2)
	Non-Hispanic Black	0.8	(0.3 - 1.4)
	Hispanic	0.6	(0.2 - 1.1)

Percentage of males aged 25 years and older who were current smokeless tobacco users by race/ethnicity, 1993-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
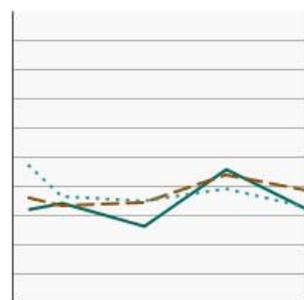Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Males Ages 25 and Older by Poverty Income Level

Percentage of males aged 25 years and older who were current smokeless tobacco users by poverty income level, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	3.7	(2.7 - 4.7)
	>=200% of federal poverty level	4.6	(3.9 - 5.3)

Percentage of males aged 25 years and older who were
current smokeless tobacco users by poverty income level, 2000-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44,
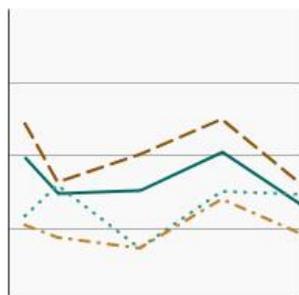45-64, 65+.

Males Ages 25 and Older by Education Level

Percentage of males aged 25 years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	5.2	(3.6 - 6.7)
	High School	5.8	(4.4 - 7.1)
	Greater than High School	3.6	(3.0 - 4.3)

Percentage of males aged 25 years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2015

Legend:
- ■ Less than High School
- ● High School
- ▲ Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
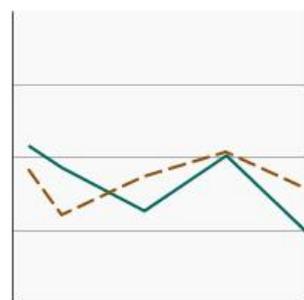Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Females Ages 25 and Older by Poverty Income Level

Percentage of females aged 25 years and older who were current smokeless tobacco users by poverty income level, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	0.4	(0.2 - 0.6)
	>=200% of federal poverty level	0.1	(0.0 - 0.1)

Percentage of females aged 25 years and older who were current smokeless tobacco users by poverty income level, 2000-2015

■ <200% of federal poverty level ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Females Ages 25 and Older by Education Level

Percentage of females aged 25 years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	0.6	(0.2 - 1.0)
	High School	0.2	(0.0 - 0.3)
	Greater than High School	0.1	(0.0 - 0.1)

Percentage of females aged 25 years and older who were current smokeless tobacco users by highest level of education obtained, 1993-2015

Legend:
- ■ Less than High School
- ● High School
- ▲ Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Cigars

By Sex

Percentage of adults aged 18 years and older who were current cigar smokers by sex, 1998-2015
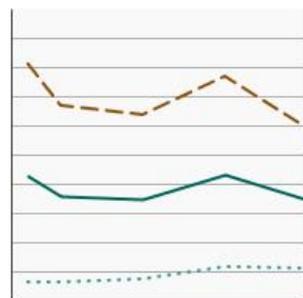
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	3.5	(3.2 - 3.8)
	Male	5.9	(5.4 - 6.5)
	Female	1.1	(0.9 - 1.4)

Percentage of adults aged 18 years and older
who were current cigar smokers by sex, 1998-2015

Both Sexes Male Female

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
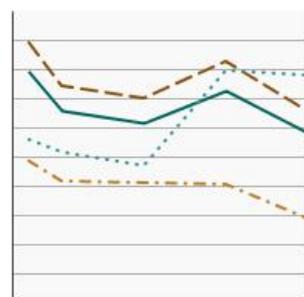Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34,
35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adults aged 18 years and older who were current cigar smokers by race/ethnicity, 1998-2015

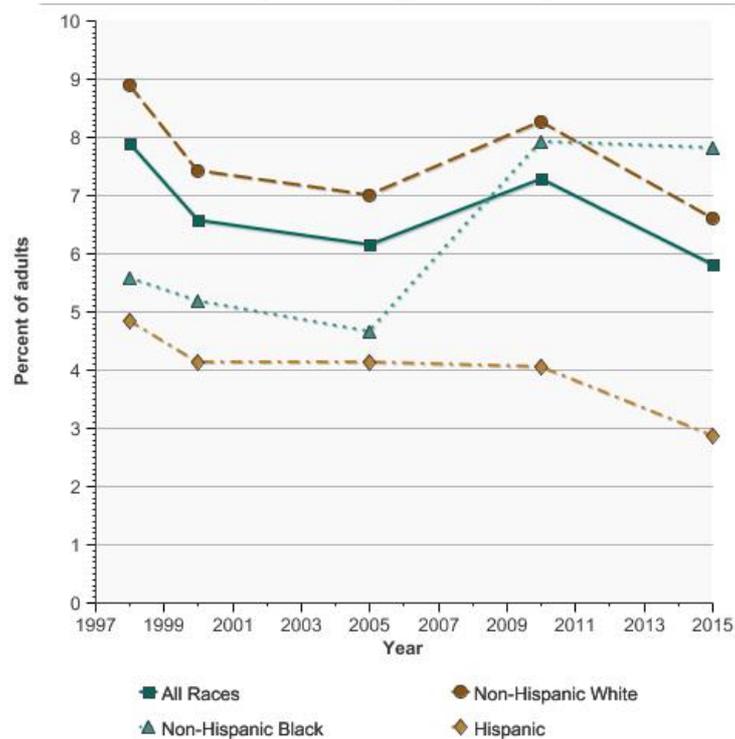| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	3.5	(3.2 - 3.8)
	Non-Hispanic White	3.9	(3.5 - 4.3)
	Non-Hispanic Black	4.8	(4.0 - 5.6)
	Hispanic	1.8	(1.3 - 2.2)

Percentage of adults aged 18 years and older who were current cigar smokers by race/ethnicity, 1998-2015
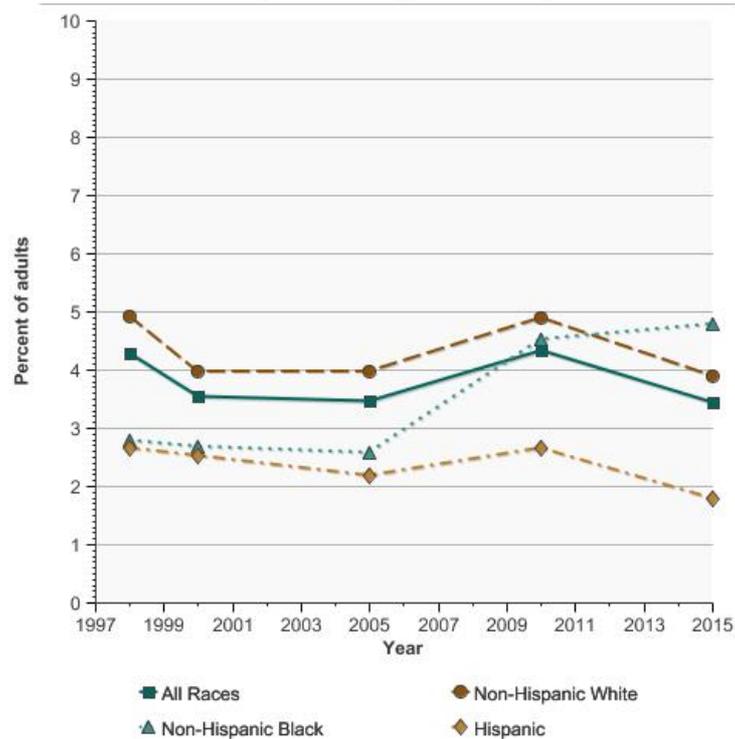
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
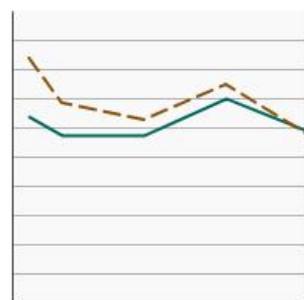
By Age

Percentage of adults aged 18 years and older who were current cigar smokers by age, 1998-2015
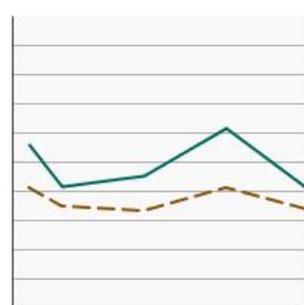
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	4.1	(3.1 - 5.1)
	Ages 25+	3.3	(3.0 - 3.7)

Percentage of adults aged 18 years and older
who were current cigar smokers by age, 1998-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted
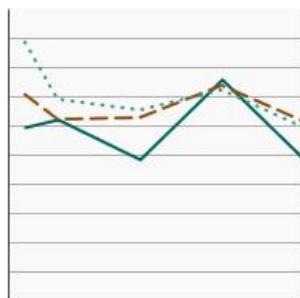using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-
44, 45-64, 65+.

By Poverty Income Level

Percentage of adults aged 18 years and older who were current cigar smokers by poverty income level, 1998-2015
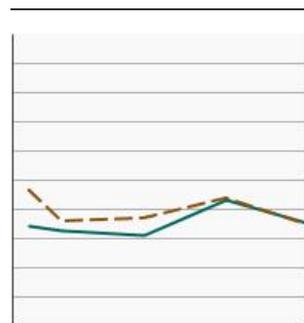
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	3.5	(3.0 - 4.0)
	>=200% of federal poverty level	3.5	(3.1 - 3.9)

Percentage of adults aged 18 years and older who were current cigar smokers by poverty income level, 1998-2015

■— <200% of federal poverty level   ●— >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

Percentage of adults aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2015
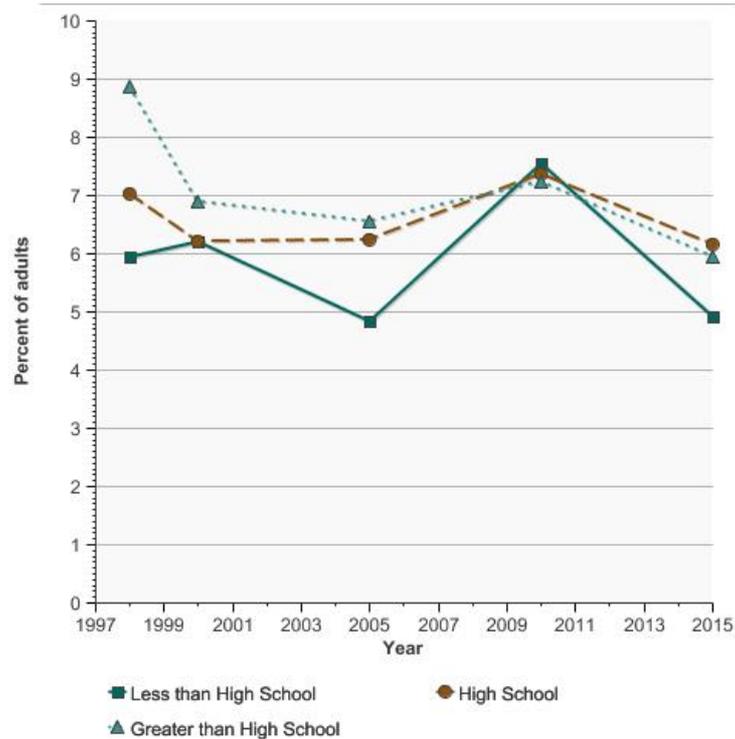
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	3.2	(2.2 - 4.1)
	High School	3.9	(3.2 - 4.6)
	Greater than High School	3.3	(2.9 - 3.6)

Percentage of adults aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2015

Legend:
- Less than High School
- High School
- Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
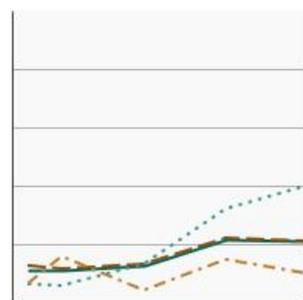Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Males Ages 18-24 by Race/Ethnicity

Percentage of males aged 18-24 years who were current cigar smokers by race/ethnicity, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	6.5	(4.8 - 8.3)
	Non-Hispanic White	7.9	(5.2 - 10.6)
	Non-Hispanic Black	7.3	(2.3 - 12.2)
	Hispanic	4.5	(1.8 - 7.1)

Percentage of males aged 18-24 years who were current cigar smokers by race/ethnicity, 1998-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Males Ages 18-24 by Poverty Income Level

Percentage of males aged 18-24 years who were current cigar smokers by poverty income level, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	4.8	(2.9 - 6.8)
	>=200% of federal poverty level	7.8	(5.0 - 10.5)

Percentage of males aged 18-24 years who were current cigar smokers by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
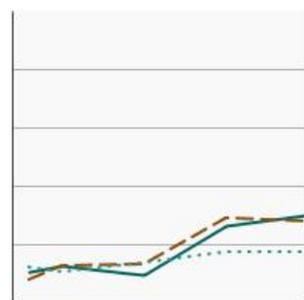Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Females Ages 18-24 by Race/Ethnicity

Percentage of females aged 18-24 years who were current cigar smokers by race/ethnicity, 1998-2015
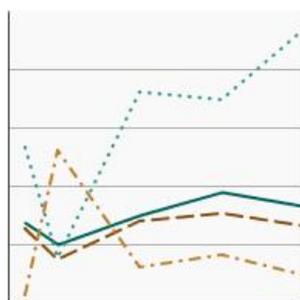
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	1.6	(0.9 - 2.4)
	Non-Hispanic White	1.3	(0.2 - 2.4)
	Non-Hispanic Black	4.7	(1.8 - 7.5)
	Hispanic	0.5	(-0.1 - 1.0)

Percentage of females aged 18-24 years who were current cigar smokers by race/ethnicity, 1998-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Females Ages 18-24 by Poverty Income Level

Percentage of females aged 18-24 years who were current cigar smokers by poverty income level, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	2.4	(1.0 - 3.9)
	>=200% of federal poverty level	0.9	(0.2 - 1.7)

Percentage of females aged 18-24 years who were current cigar smokers by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-19, 20-24.

Males Ages 25 and Older by Race/Ethnicity

Percentage of males aged 25 years and older who were current cigar smokers by race/ethnicity, 1998-2015

| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	5.8	(5.2 - 6.4)
	Non-Hispanic White	6.6	(5.8 - 7.4)
	Non-Hispanic Black	7.8	(6.1 - 9.5)
	Hispanic	2.9	(2.0 - 3.8)

Percentage of males aged 25 years and older who were current cigar smokers by race/ethnicity, 1998-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
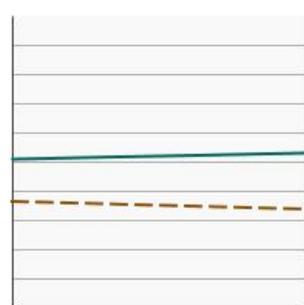Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Males Ages 25 and Older by Poverty Income Level

Percentage of males aged 25 years and older who were current cigar smokers by poverty income level, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	5.9	(4.9 - 6.9)
	>=200% of federal poverty level	5.8	(5.1 - 6.6)

Percentage of males aged 25 years and older who were current cigar smokers by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44,
45-64, 65+.

Males Ages 25 and Older by Education Level

Percentage of males aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	4.9	(3.2 - 6.6)
	High School	6.2	(5.0 - 7.4)
	Greater than High School	5.9	(5.2 - 6.7)

Percentage of males aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2015

Legend:
- Less than High School
- High School
- Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Females Ages 25 and Older by Race/Ethnicity

Percentage of females aged 25 years and older who were current cigar smokers by race/ethnicity, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	1.0	(0.8 - 1.3)
	Non-Hispanic White	1.1	(0.7 - 1.4)
	Non-Hispanic Black	2.0	(1.2 - 2.8)
	Hispanic	0.5	(0.2 - 0.8)

Percentage of females aged 25 years and older who were current cigar smokers by race/ethnicity, 1998-2015

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Females Ages 25 and Older by Poverty Income Level

Percentage of females aged 25 years and older who were current cigar smokers by poverty income level, 1998-2015
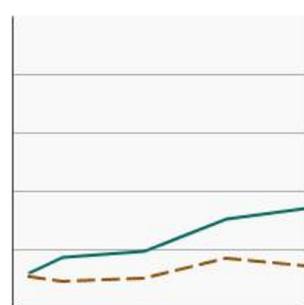
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	1.7	(1.1 - 2.3)
	>=200% of federal poverty level	0.7	(0.5 - 1.0)

Percentage of females aged 25 years and older who were current cigar smokers by poverty income level, 1998-2015

- ■ <200% of federal poverty level
- ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Females Ages 25 and Older by Education Level

Percentage of females aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	1.5	(0.6 - 2.4)
	High School	1.4	(0.8 - 2.0)
	Greater than High School	0.9	(0.6 - 1.2)

Percentage of females aged 25 years and older who were current cigar smokers by highest level of education obtained, 1998-2015

- Less than High School
- High School
- Greater than High School
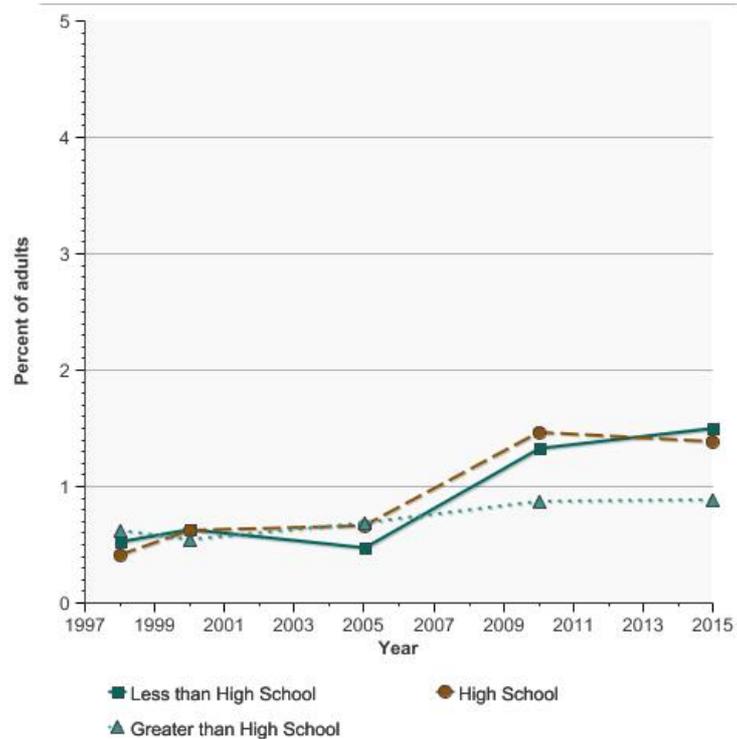
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

E-Cigarettes

By Sex

Percentage of adults aged 18 years and older who were current e-cigarette users by sex, 2014-2015
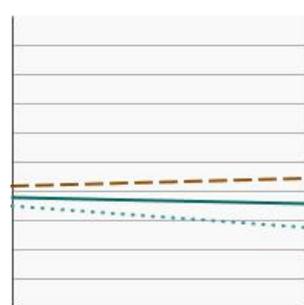
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	3.6	(3.3 - 3.9)
	Male	4.4	(4.0 - 4.9)
	Female	2.8	(2.4 - 3.1)

Percentage of adults aged 18 years and older who were current e-cigarette users by sex, 2014-2015
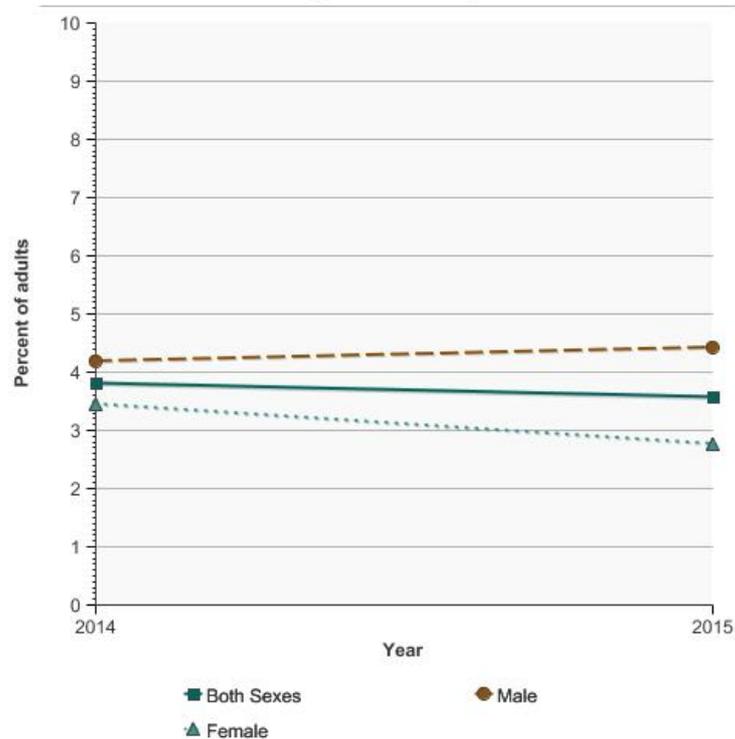
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adults aged 18 years and older who were current e-cigarette users by race/ethnicity, 2014-2015
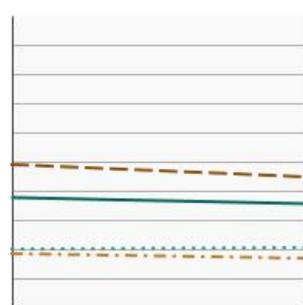
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	3.6	(3.3 - 3.9)
	Non-Hispanic White	4.5	(4.0 - 5.0)
	Non-Hispanic Black	2.1	(1.5 - 2.6)
	Hispanic	1.7	(1.3 - 2.1)

Percentage of adults aged 18 years and older who were current e-cigarette users by race/ethnicity, 2014-2015
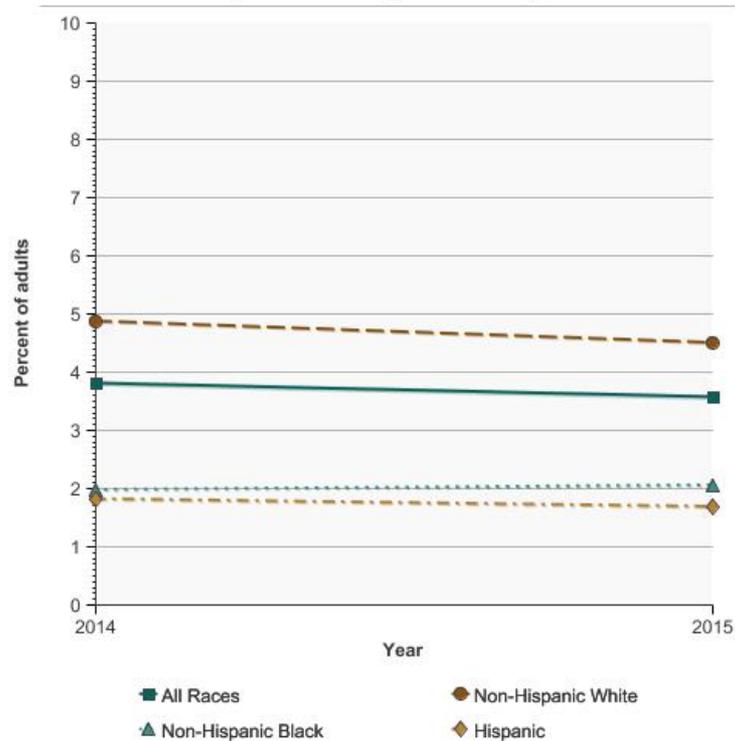
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Age

Percentage of adults aged 18 years and older who were current e-cigarette users by age, 2014-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	5.3	(4.3 - 6.3)
	Ages 25+	3.3	(3.0 - 3.7)

Percentage of adults aged 18 years and older who were current e-cigarette users by age, 2014-2015

■ Ages 18-24   ● Ages 25+

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

Percentage of adults aged 18 years and older who were current e-cigarette users by sex and age, 2014-2015
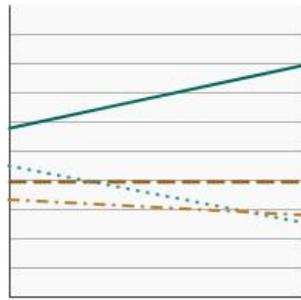
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Males, Ages 18-24	7.9	(6.0 - 9.9)
	Males, Ages 25+	3.9	(3.4 - 4.4)
	Females, Ages 18-24	2.5	(1.7 - 3.4)
	Females, Ages 25+	2.8	(2.4 - 3.2)

Percentage of adults aged 18 years and older who were current e-cigarette users by sex and age, 2014-2015

Legend:
- Males, Ages 18-24
- Males, Ages 25+
- Females, Ages 18-24
- Females, Ages 25+
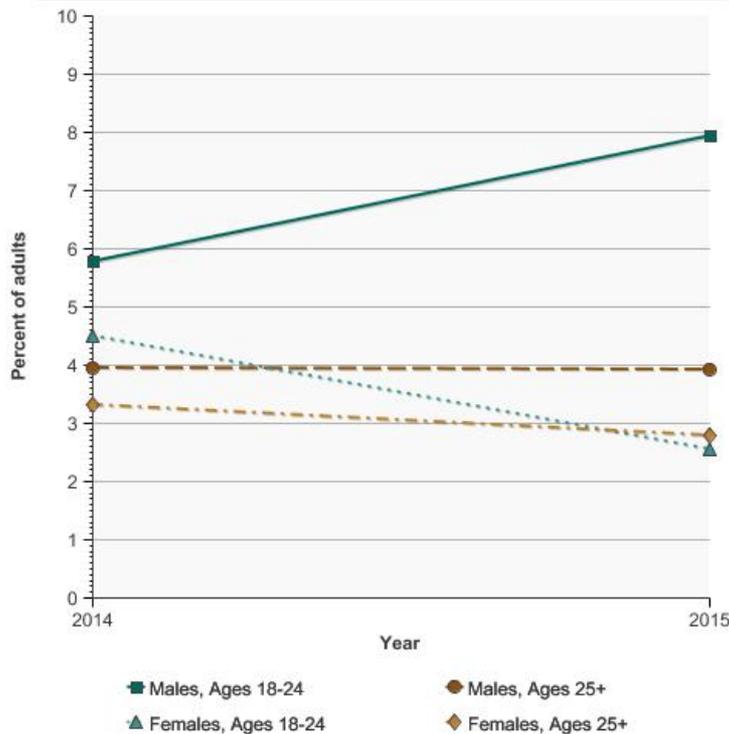
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

Cancers Related to Adult Tobacco Use

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

- Anal Cancer(http://seer.cancer.gov/statfacts/html/anus.html)
- Cervix Uteri(http://seer.cancer.gov/statfacts/html/cervix.html)
- Colon and Rectum(http://seer.cancer.gov/statfacts/html/colorect.html)
- Esophagus(http://seer.cancer.gov/statfacts/html/esoph.html)
- Kidney and Renal Pelvis(http://seer.cancer.gov/statfacts/html/kidrp.html)

- Larynx(http://seer.cancer.gov/statfacts/html/laryn.html)
- Lung and Bronchus(http://seer.cancer.gov/statfacts/html/lungb.html)
- Oral Cavity and Pharynx(http://seer.cancer.gov/statfacts/html/oralcav.html)
- Pancreas(http://seer.cancer.gov/statfacts/html/pancreas.html)
- Stomach(http://seer.cancer.gov/statfacts/html/stomach.html)

Additional Information on Adult Tobacco Use
For the public

- Tobacco & Cancer(http://www.cancer.org/cancer/cancercauses/tobaccocancer/index). American Cancer Society.
- Surgeon General's Reports on Smoking and Tobacco Use(http://www.cdc.gov/tobacco/data_statistics/sgr). Centers for Disease Control and Prevention.

- 50 Years of Progress: A Report of the Surgeon General, 2014(http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html). U.S. Department of Health and Human Services.
- Tobacco Products(http://www.fda.gov/TobaccoProducts/default.htm). U.S. Food and Drug Administration.

Scientific reports

- Current cigarette smoking among adults – United States 2005–2012(http://www.ncbi.nlm.nih.gov/pubmed/24430098). Agaku IT, King BA, Dube SR, Centers for Disease Control and Prevention. MMWR Morb Mortal Wkly Rep. 2014;63(2):29–34.
- How far we have come in the last 50 years in smoking attitudes and actions(http://www.ncbi.nlm.nih.gov/pubmed/24575990). Burns D. Ann Am Thorac Soc 2014;11(2):224–6.
- Tobacco control and the reduction in smoking-related premature deaths in the United States, 1964–2012(http://www.ncbi.nlm.nih.gov/pubmed/24399555). Holford TR, Mesa R, Warner KE, Meernik C, Jeon J, Moolgavkar SH, Levy DT. JAMA 2014;311(2):164–71.
- Cigarette smoking, desire to quit, and tobacco-related counseling among patients at adult health centers(http://www.ncbi.nlm.nih.gov/pubmed/24625147). Lebrun-Harris LA, Fiore MC, Tomoyasu N, Ngo-Metzger Q. Am J Public Health 2014.
- Multiple tobacco product use among adults in the United States: cigarettes, cigars, electronic cigarettes, hookah, smokeless tobacco, and snus(http://www.ncbi.nlm.nih.gov/pubmed/24440684). Lee YO, Hebert CJ, Nonnemaker JM, Kim AE. Prev Med 2014;62C:14–19.
- Quit interest, quit attempt and recent cigarette smoking cessation in the U.S. working population, 2010(http://www.ncbi.nlm.nih.gov/pubmed/24497440). Yong LC, Luckhaupt SE, Li J, Calvert GM. Occup Environ Med 2014.

Statistics

- Cancer Facts & Figures 2014(http://www.cancer.org/acs/groups/content/@research/documents/webcontent/acspc-042151.pdf). American Cancer Society.
- Tobacco-Related Cancers Fact Sheet(http://www.cancer.org/cancer/cancercauses/tobaccocancer/tobacco-related-cancer-fact-sheet). American Cancer Society.
- NCI sponsored Tobacco Use Supplement to the Current Population 2010-2011(http://appliedresearch.cancer.gov/tus-cps/). U.S. Dept. of Commerce, Census Bureau 2012-2013.
- Adult Cigarette Smoking in the United States: Current Estimates(http://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking). Centers for Disease Control and Prevention.
- Behavioral Risk Factor Surveillance System Prevalence and Trends Data, 2012(http://www.cdc.gov/brfss/data_tools.htm). Centers for Disease Control and Prevention.
- Adult Tobacco Use Information(http://www.cdc.gov/nchs/nhis/tobacco/tobacco_statistics.htm). Centers for Disease Control and Prevention. National Health Interview Survey.
- 2020 Topics & Objectives – Tobacco Use. Healthy People 2020.
- State Cancer Profiles(http://statecancerprofiles.cancer.gov/). National Cancer Institute.
- Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings and Detailed Tables(http://www.samhsa.gov/data/NSDUH/2012SummNatFindDetTables/Index.aspx). Substance Abuse and Mental Health Services Administration.

For smokers

- Guide to Quitting Smoking(http://www.cancer.org/healthy/stayawayfromtobacco/guidetoquittingsmoking/guide-to-quitting-smoking-toc). American Cancer Society.
- Free Help to Quit Smoking(http://www.cancer.gov/cancertopics/tobacco/smoking). National Cancer Institute.
- Smokefree.gov(http://smokefree.gov). National Cancer Institute.

Smoking Cessation

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

- Quitting Smoking
- Clinicians' Advice to Quit Smoking

Quitting Smoking

Last Updated:
January 2017

Introduction

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

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

Measure

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

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

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

Healthy People 2020 Target

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

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 1998-2015.

Trends and Most Recent Estimates
Attempted to Quit Smoking

By Sex

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by sex, 1998-2015
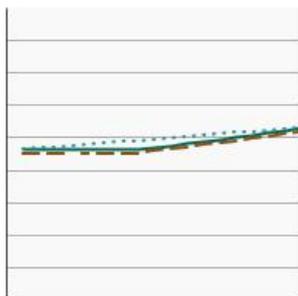
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Both Sexes	53.5	(51.5 - 55.5)
	Male	52.9	(50.1 - 55.7)
	Female	54.3	(51.8 - 56.8)

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by sex, 1998-2015

Legend: Both Sexes, Male, Female

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by race/ethnicity, 1998-2015
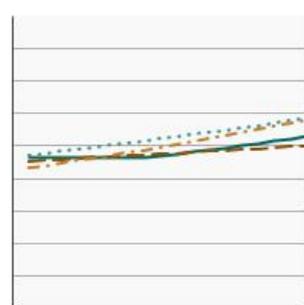
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	All Races	53.5	(51.5 - 55.5)
	Non-Hispanic White	51.8	(49.3 - 54.3)
	Non-Hispanic Black	62.1	(57.7 - 66.5)
	Hispanic	55.2	(50.5 - 59.8)

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by race/ethnicity, 1998-2015

Legend:
- ■ All Races
- ▲ Non-Hispanic Black
- ● Non-Hispanic White
- ◆ Hispanic
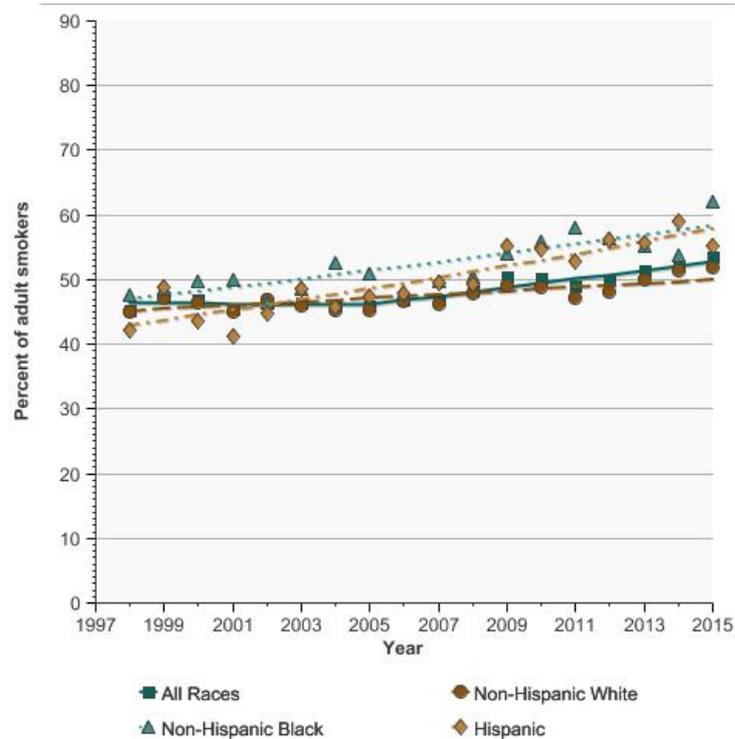
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Age

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by age, 1998-2015
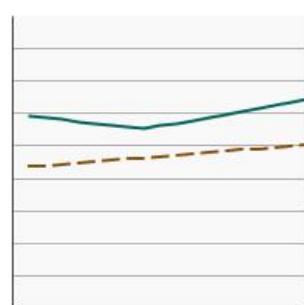
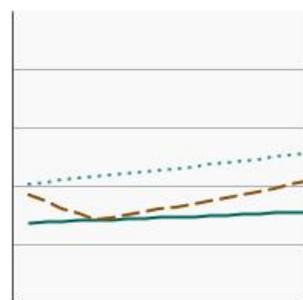| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Ages 18-24	66.9	(60.5 - 73.4)
	Ages 25 and older	51.8	(49.7 - 53.8)

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by age, 1998-2015

- Ages 18-24
- Ages 25 and older

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by age and sex, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Males, Ages 18-24	62.9	(53.2 - 72.7)
	Males, Ages 25+	51.5	(48.6 - 54.4)
	Females, Ages 18-24	73.8	(66.4 - 81.1)
	Females, Ages 25+	52.1	(49.5 - 54.7)

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by age and sex, 1998-2015

Legend:
- Males, Ages 18-24
- Males, Ages 25+
- Females, Ages 18-24
- Females, Ages 25+

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by poverty income level, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	**Confidence Interval**
	<200% of federal poverty level	54.6	(52.1 - 57.0)
	>=200% of federal poverty level	52.8	(50.0 - 55.5)

Percentage of adult smokers aged 18 years and older who attempted to stop smoking for one day or longer in the past year by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

Percentage of adult smokers aged 25 years and older who attempted to stop smoking for one day or longer in the past year by highest level of education obtained, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Less than High School	49.8	(45.5 - 54.2)
	High School	48.8	(45.1 - 52.5)
	Greater than High School	54.7	(51.6 - 57.7)

Percentage of adult smokers aged 25 years and older who attempted to stop smoking for
one day or longer in the past year by highest level of education obtained, 1998-2015

Legend:
- Less than High School
- High School
- Greater than High School
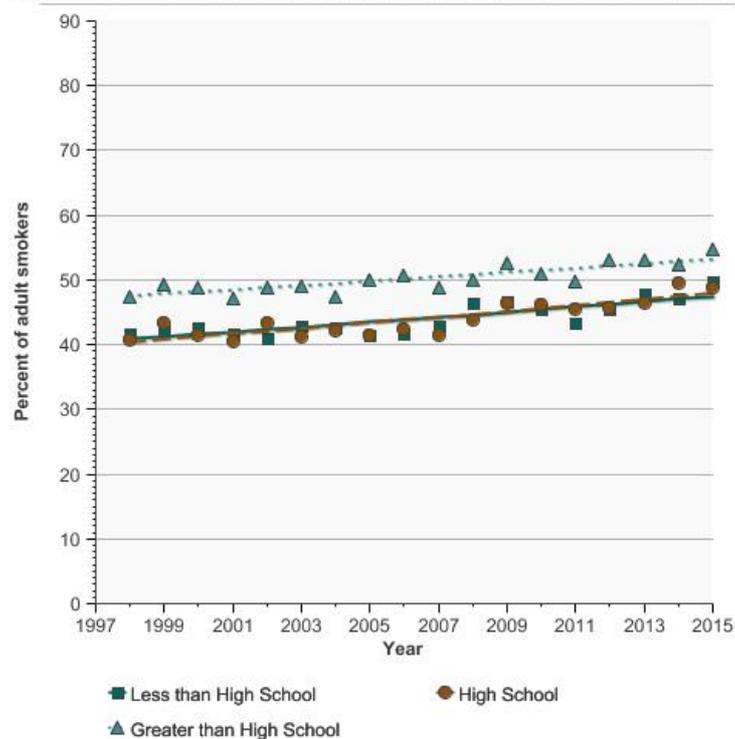
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Successfully Quit Smoking

By Sex

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by sex, 1998-2015
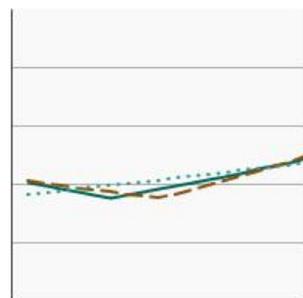
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Both Sexes	7.3	(6.4 - 8.2)
	Male	7.0	(5.7 - 8.2)
	Female	7.6	(6.2 - 9.0)

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by sex, 1998-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Cessation success means having stopped smoking completely for 6-12 months at the time of the NHIS interview. Current smokers a year ago assumes that all current smokers at time of interview were smoking one year ago and those former smokers who completely quit smoking less than 12 months ago were smokers 12 months ago.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by race/ethnicity, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	All Races	7.3	(6.4 - 8.2)
	Non-Hispanic White	7.1	(6.0 - 8.2)
	Non-Hispanic Black	6.2	(3.6 - 8.7)
	Hispanic	7.6	(5.2 - 10.0)

Percentage of recent smoking cessation success among adult
smokers aged 18 years and older by race/ethnicity, 1998-2015

- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Cessation success means having stopped smoking completely for 6-12 months at the time of the NHIS interview. Current smokers a year ago assumes that all current smokers at time of interview were smoking one year ago and those former smokers who completely quit smoking less than 12 months ago were smokers 12 months ago.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Age

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by age, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Ages 18-24	10.7	(5.2 - 16.2)
	Ages 25 and older	6.9	(6.0 - 7.8)

Percentage of recent smoking cessation success among
adult smokers aged 18 years and older by age, 1998-2015

- Ages 18-24   ● Ages 25 and older

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health
Interview Survey.
Successfully quitting means having stopped smoking completely for 6-12 months at the time of the NHIS
interview. Current smokers a year ago assumes that all current smokers at time of interview were smoking
one year ago and those former smokers who completely quit smoking less than 12 months ago were
smokers 12 months ago.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age
groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by age and sex, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Males, Ages 18-24	13.0	(5.1 - 21.0)
	Males, Ages 25+	6.4	(5.2 - 7.6)
	Females, Ages 18-24	6.6	(3.0 - 10.2)
	Females, Ages 25+	7.4	(6.0 - 8.8)

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by age and sex, 1998-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

Percentage of recent smoking cessation success among adult smokers aged 18 years and older by poverty income level, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	<200% of federal poverty level	5.4	(4.3 - 6.5)
	>=200% of federal poverty level	8.9	(7.5 - 10.4)

Percentage of recent smoking cessation success among adult
smokers aged 18 years and older by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health
Interview Survey.
Cessation success means having stopped smoking completely for 6-12 months at the time of the NHIS
interview. Current smokers a year ago assumes that all current smokers at time of interview were smoking
one year ago and those former smokers who completely quit smoking less than 12 months ago were
smokers 12 months ago.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64,
65+.

By Education Level

Percentage of recent smoking cessation success among adult smokers aged 25 years and older by highest level of education obtained, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adult smokers	Confidence Interval
	Less than High School	4.0	(2.5 - 5.6)
	High School	6.3	(4.6 - 7.9)
	Greater than High School	8.5	(7.1 - 9.9)

Percentage of recent smoking cessation success among adult smokers aged 25 years and older by highest level of education obtained, 1998-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Successfully quitting means having stopped smoking completely for 6-12 months at the time of the NHIS interview. Current smokers a year ago assumes that all current smokers at time of interview were smoking one year ago and those former smokers who completely quit smoking less than 12 months ago were smokers 12 months ago.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Additional Information on Quitting Smoking
For smokers

- Guide to Quitting Smoking(http://www.cancer.org/healthy/stayawayfromtobacco/guidetoquittingsmoking/guide-to-quitting-smoking-toc). American Cancer Society.
- Free Help to Quit Smoking(http://www.cancer.gov/cancertopics/tobacco/smoking). National Cancer Institute.
- Smokefree.gov(http://smokefree.gov). National Cancer Institute.
- North American Quitline Consortium(http://www.naquitline.org/).

For the public

- Tobacco & Cancer(http://www.cancer.org/cancer/cancercauses/tobaccocancer/index). American Cancer Society.
- Surgeon General's Reports on Smoking and Tobacco Use(http://www.cdc.gov/tobacco/data_statistics/sgr). Centers for Disease Control and Prevention.
- 2000 Surgeon General's Report – Reducing Tobacco Use(http://www.cdc.gov/tobacco/data_statistics/sgr/2000/index.htm). Centers for Disease Control and Prevention.
- Surgeon General.gov. 50 Years of Progress: A Report of the Surgeon General, 2014(http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html). U.S. Department of Health and Human Services.
- Surgeon General.gov. Initiatives – Tobacco(http://surgeongeneral.gov/tobacco/). U.S. Department of Health and Human Services.
- Tobacco Products(http://www.fda.gov/TobaccoProducts/default.htm). U.S. Food and Drug Administration.

For health professionals

- Best Practices for Comprehensive Tobacco Control Programs – 2014(http://www.cdc.gov/tobacco/stateandcommunity/best_practices/index.htm). Centers for Disease Control and Prevention.
- Counseling and Interventions to Prevent Tobacco Use and Tobacco-Caused Disease in Adults and Pregnant Women. April 2009(http://www.uspreventiveservicestaskforce.org/uspstf09/tobacco/tobaccors2.htm). U.S. Preventive Services Task Force.
- Clinical Practice Guideline, Treating Tobacco Use and Dependence: 2008 Update(http://bphc.hrsa.gov/buckets/treatingtobacco.pdf). U.S. Public Health Service.

Scientific reports

- Socioeconomic disparity in provider-delivered assistance to quit smoking(http://www.ncbi.nlm.nih.gov/pubmed/18188745). Browning KK, Ferketich AK, Salsberry PJ, Wewers ME. Nicotine Tob Res. 2008;10(1):55–61.
- Use of tobacco cessation treatments among young adult smokers: 2005 National Health Interview Survey(http://www.ncbi.nlm.nih.gov/pubmed/17600243). Curry SJ, Sporer AK, Pugatch O, Campbell RT, Emery S. Am J Public Health 2007;97:1464–69.
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- Dispelling myths about gender differences in smoking cessation: population data from the USA, Canada and Britain(http://www.ncbi.nlm.nih.gov/pubmed/22649182). Jarvis MJ, Cohen JE, Delnevo CD, Giovino GA. Tob Control 2013 Sep;22(5):356-60.
- Quitting smoking among adults – United States, 2001–2010(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6044a2.htm). Malarcher A, Dube S, Shaw L, Babb S, Kaufmann R. MMWR 2011;60(44):1513–19.
- Home matters: work and household predictors of smoking and cessation among blue-collar workers(http://www.ncbi.nlm.nih.gov/pubmed/23262360). Okechukwu CA, Dutra LM, Bacic J, El Ayadi A, Emmons KM. Prev Med 2013 Feb;56(2):130-4.
- Group-randomized trial of a proactive, personalized telephone counseling intervention for adolescent smoking cessation(http://jnci.oxfordjournals.org/content/101/20/1378.full.pdf). Peterson Jr. AV, Kealey KA, Mann SL, et al. J Natl Cancer Inst 2009;101:1378–1392.
- Are quit attempts among U.S. female nurses who smoke different from female smokers in the general population? An analysis of the 2006/2007 tobacco use supplement to the current population survey(http://www.biomedcentral.com/1472-6874/12/4). Sarna L, Bialous SA, Nandy K, Yang Q. BMC Womens Health 2012;12:4.
- Use of smoking-cessation treatments in the United States(http://www.ncbi.nlm.nih.gov/pubmed/18201639). Shiffman S, Brockwell SE, Pillitteri JL, Gitchell JG. Am J Prev Med 2008 Feb;34(2):102-11.
- Efficacy of smoking-cessation interventions for young adults: a meta-analysis(http://www.ncbi.nlm.nih.gov/pubmed/22608385). Suls JM, Luger TM, Curry SJ, Mermelstein RJ, Sporer AK, An LC. Am J Prev Med. 2012;42(6):655–62.
- Monograph 12: Population Based Smoking Cessation Proceedings of a Conference on What Works to Influence Cessation in the General Population. U.S. Public Health Service and the National Cancer Institute.
- Interventions to increase smoking cessation at the population level: how much progress has been made in the last two decades?(http://scholar.google.com/citations?view_op=view_citation&hl=en&user=qcTNv8QAAAAJ&cstart=20&citation_for_view=qcTNv8QAAAAJ:D03iK_w7-QYC) SH Zhu, M Lee, YL Zhuang, A Gamst, T Wolfson. Tobacco Control 2012; 21(2):110-118.

Statistics

- Healthy People 2020, 2020 Topics & Objectives – Tobacco Use.
- The Tobacco Use Supplement to the Current Population Survey(http://appliedresearch.cancer.gov/tus-cps/). National Cancer Institute.
- Tobacco Use Supplement – What Are the Current and Past TUS Survey Findings?(http://appliedresearch.cancer.gov/tus-cps/results.html) National Cancer Institute.

Clinicians' Advice to Quit Smoking

Last Updated:
March 2015

Introduction

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

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

Measure

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

Healthy People 2020 Target

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

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

HP2020 targets for clinicians' advice to quit smoking in substance abuse care settings are still in development.

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

Data Source

The Tobacco Use Supplement to the Current Population Survey, National Cancer Institute, 1992–2011.
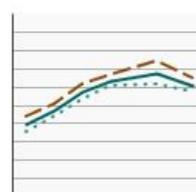
By Sex
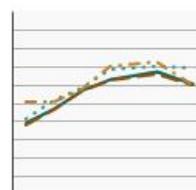
Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by sex, 1992-2011

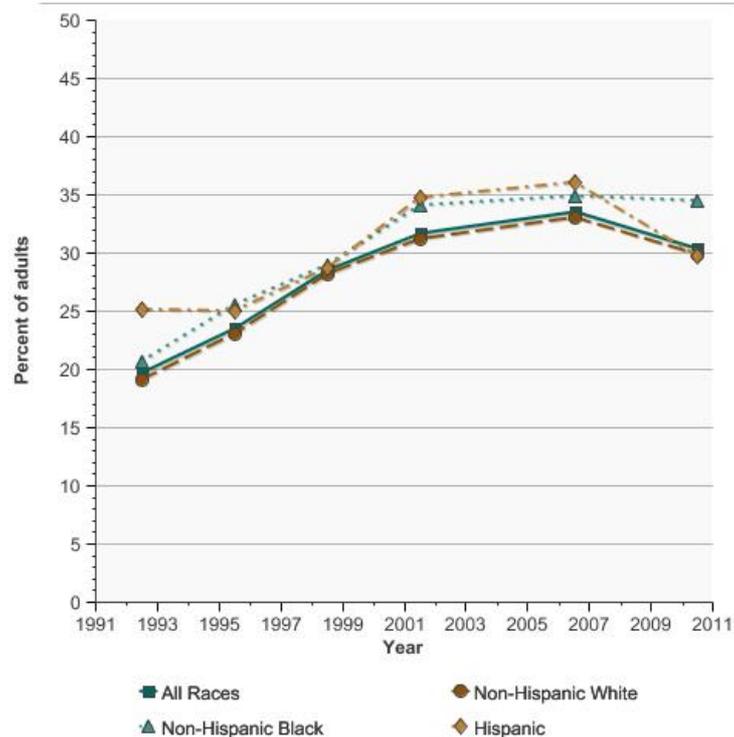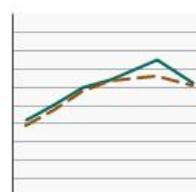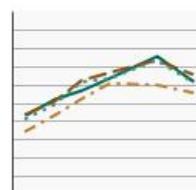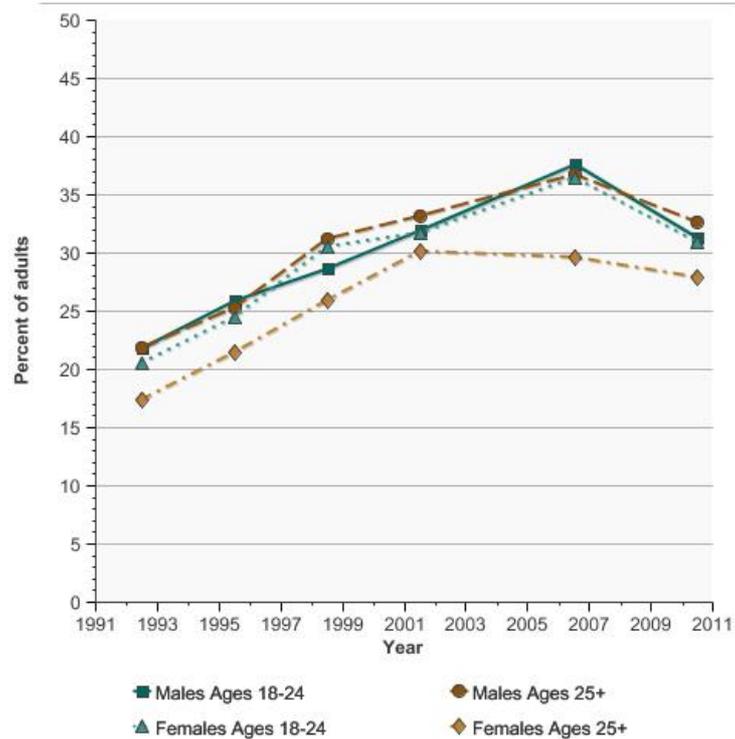| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Both Sexes	64.4	(63.4 - 65.3)
	Male	62.7	(61.3 - 64.0)
	Female	65.8	(64.6 - 66.9)

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

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by race/ethnicity, 1992-2011
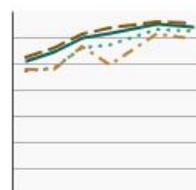
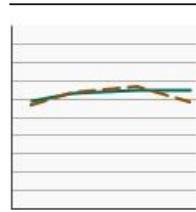| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	All Races	64.4	(63.4 - 65.3)
	Non-Hispanic White	65.1	(64.0 - 66.2)
	Non-Hispanic Black	62.1	(58.8 - 65.4)
	Hispanic	59.3	(55.6 - 63.0)

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

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Age

Percentage of smokers aged 18 years and older who have seen a physician in the past year and were advised to quit smoking by age, 1992-2011
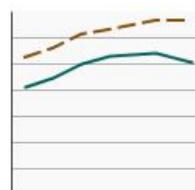
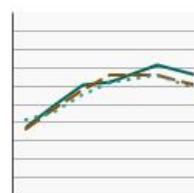| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Ages 18-24	50.3	(46.8 - 53.9)
	Ages 25+	66.2	(65.3 - 67.2)

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

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Males Ages 18-24	43.9	(38.2 - 49.5)
	Males Ages 25+	65.3	(64.0 - 66.7)
	Females Ages 18-24	55.6	(51.1 - 60.1)
	Females Ages 25+	67.0	(65.9 - 68.2)

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

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	<200% of federal poverty level	64.6	(63.0 - 66.2)
	>=200% of federal poverty level	64.4	(63.1 - 65.7)

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

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

Percentage of smokers aged 25 years and older who have seen a physician in the past year and were advised to quit smoking by highest level of education obtained, 1992-2011
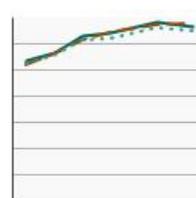
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Less than High School	66.5	(64.1 - 68.9)
	High School	67.6	(66.0 - 69.1)
	Greater than High School	65.0	(63.7 - 66.3)

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

Legend: Less than High School; High School; Greater than High School
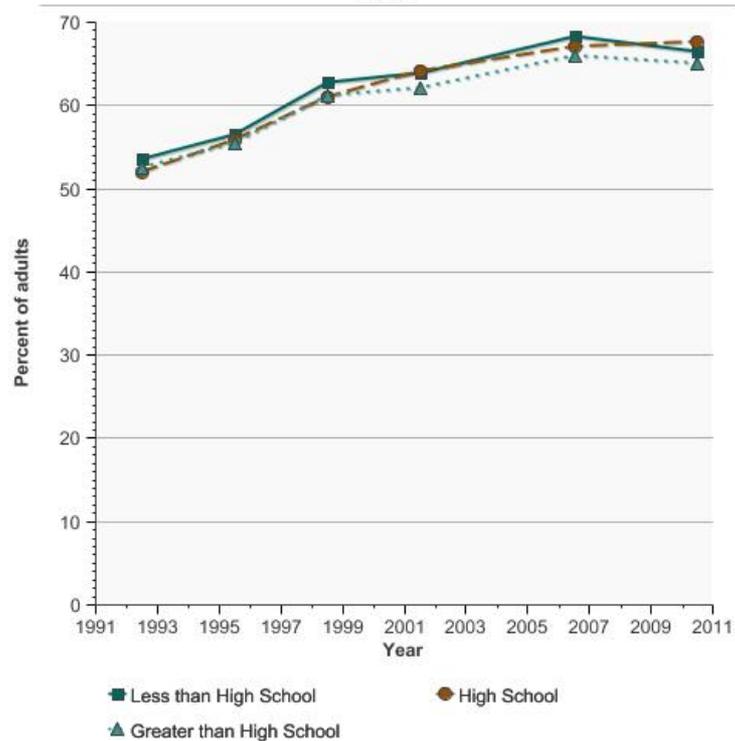
Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Dentists' Advice to Quit Smoking

By Sex

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

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

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

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

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

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

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

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Age

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

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

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

■ Ages 18-24   ● Ages 25+

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the
National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted
using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-
44, 45-64, 65+.

By Sex and Age

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

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

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

Legend:
- Males Ages 18-24
- Males Ages 25+
- Females Ages 18-24
- Females Ages 25+

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	<200% of federal poverty level	32.4	(30.5 - 34.3)
	>=200% of federal poverty level	29.0	(27.5 - 30.5)

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

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	95% Confidence Interval
	Less than High School	33.3	(29.3 - 37.3)
	High School	30.3	(28.4 - 32.2)
	Greater than High School	29.6	(28.0 - 31.1)

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

Less than High School   High School   Greater than High School
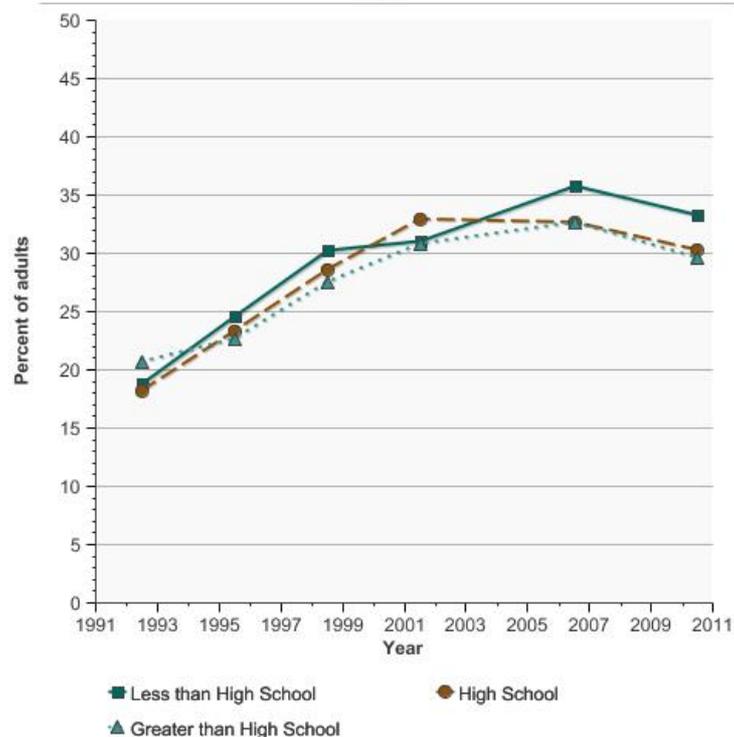
Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Additional Information on Clinicians' Advice to Quit Smoking
For smokers

- Guide to Quitting Smoking(http://www.cancer.org/healthy/stayawayfromtobacco/guidetoquittingsmoking/guide-to-quitting-smoking-toc). American Cancer Society.
- Free Help to Quit Smoking(http://www.cancer.gov/about-cancer/causes-prevention/risk/tobacco). National Cancer Institute.
- Smokefree.gov(http://smokefree.gov). National Cancer Institute.
- North American Quitline Consortium(http://www.naquitline.org/).

For the public

- Tobacco & Cancer(http://www.cancer.org/cancer/cancercauses/tobaccocancer/index). American Cancer Society.
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- 2000 Surgeon General's Report – Reducing Tobacco Use(http://www.cdc.gov/tobacco/data_statistics/sgr/2000/index.htm). Centers for Disease Control and Prevention.
- 50 Years of Progress: A Report of the Surgeon General, 2014(http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html). U.S. Department of Health and Human Services.
- Surgeon General.gov. Initiatives – Tobacco(http://www.surgeongeneral.gov/tobacco/). U.S. Department of Health and Human Services.
- Tobacco Products(http://www.fda.gov/TobaccoProducts/default.htm). U.S. Food and Drug Administration.

For health professionals

- Tobacco-Free Pharmacy Laws and Trends in Tobacco Retailer Density in California and

Massachusetts(http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2015.303040). American Public Health Association (04/01/2016) Vol. 106, No. 4, P. 679 Jin, Yue; Lu, Bo; Klein, Elizabeth G.; et al.

- Best Practices for Comprehensive Tobacco Control Programs – 2014(http://www.cdc.gov/tobacco/stateandcommunity/best_practices/index.htm). Centers for Disease Control and Prevention.
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- Clinical Practice Guideline, Treating Tobacco Use and Dependence: 2008 Update(http://bphc.hrsa.gov/buckets/treatingtobacco.pdf). U.S. Public Health Service.

Scientific reports

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- Socioeconomic disparity in provider-delivered assistance to quit smoking(http://www.ncbi.nlm.nih.gov/pubmed/18188745). Browning KK, Ferketich AK, Salsberry PJ, Wewers ME. Nicotine Tob Res. 2008;10(1):55–61.
- Use of tobacco cessation treatments among young adult smokers: 2005 National Health Interview Survey(http://www.ncbi.nlm.nih.gov/pubmed/17600243). Curry SJ, Sporer AK, Pugatch O, Campbell RT, Emery S. Am J Public Health 2007;97:1464–69.
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- Efficacy of smoking-cessation interventions for young adults: a meta-analysis(http://www.ncbi.nlm.nih.gov/pubmed/22608385). Suls JM, Luger TM, Curry SJ, Mermelstein RJ, Sporer AK, An LC. Am J Prev Med. 2012;42(6):655–62.
- Monograph 12: Population Based Smoking Cessation Proceedings of a Conference on What Works to Influence Cessation in the General Population(http://cancercontrol.cancer.gov/brp/tcrb/monographs/12/index.html). U.S. Public Health Service and the National Cancer Institute.

Statistics

- Healthy People 2020, 2020 Topics & Objectives – Tobacco Use(http://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use/objectives).
- The Tobacco Use Supplement to the Current Population Survey(http://appliedresearch.cancer.gov/tus-cps/). National Cancer Institute.
- Tobacco Use Supplement – New, Updated, & Modified Files(http://appliedresearch.cancer.gov/tus-cps/new-mod.html). National Cancer Institute.

Diet, Physical Activity, and Weight

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

- Fruit and Vegetable Consumption
- Red Meat Consumption
- Fat Consumption

- Alcohol Consumption
- Physical Activity
- Weight

Fruit and Vegetable Consumption

Last Updated:
January 2017

Introduction

People whose diets are rich in plant foods such as fruits and vegetables have a lower risk of getting cancers of the mouth, pharynx, larynx, esophagus, stomach, and lung, and some evidence suggests that maintaining a diet rich in plant foods also lowers the risk of cancers of the colon, pancreas, and prostate. This diet also reduces the risk of diabetes, heart disease, and hypertension, helps to reduce calorie intake, and may help to control weight.

To help prevent the aforementioned cancers and other chronic diseases, experts recommend the daily consumption of 2 to 6.5 cups of fruits and vegetables, depending on one's energy needs. This includes 1 to 2.5 cups of fruits and 1 to 4 cups of vegetables, with special emphasis on dark green and orange vegetables and legumes. There is no evidence that the popular white potato protects against cancer.

Measure

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

Healthy People 2020 Target

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

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

Data Source

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

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1994–2012.

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, 1994-2012
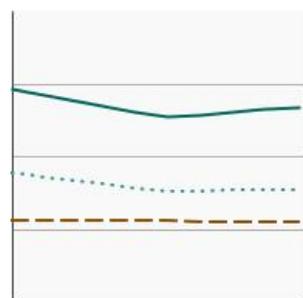
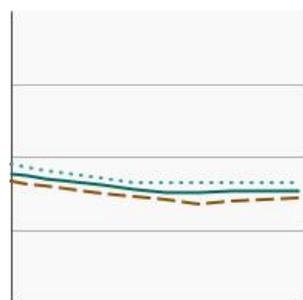| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	Fruit and Vegetables	1.3	(1.2 - 1.4)
	Fruit	0.5	(0.5 - 0.6)
	Vegetables	0.8	(0.7 - 0.8)

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older, 1994-2012
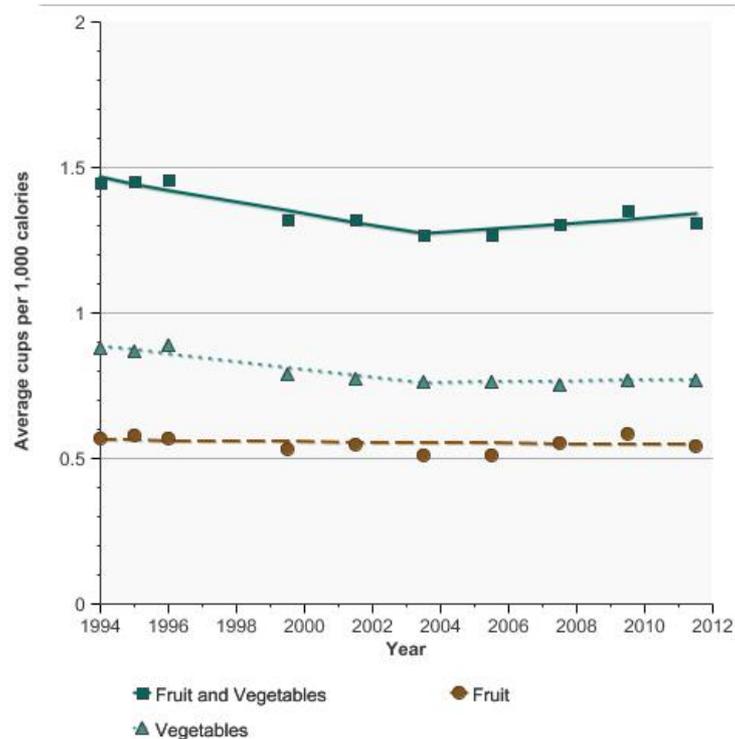
Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.
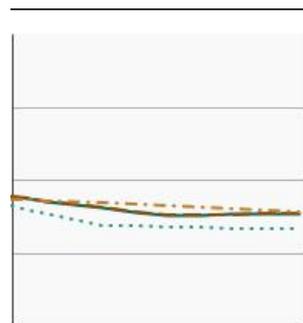
Fruit and Vegetables Combined

By Sex

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2012
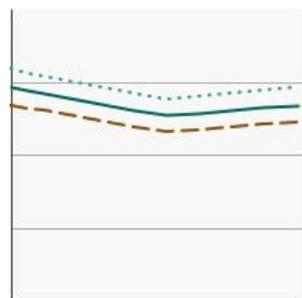
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	Both Sexes	1.3	(1.2 - 1.4)
	Male	1.2	(1.2 - 1.3)
	Female	1.4	(1.3 - 1.5)

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2012

Legend:
- ■ Both Sexes
- ● Male
- ▲ Female

Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Race/Ethnicity

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2012
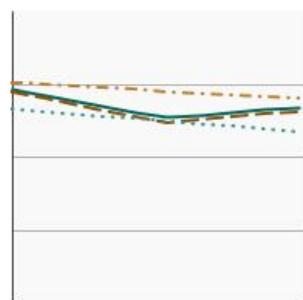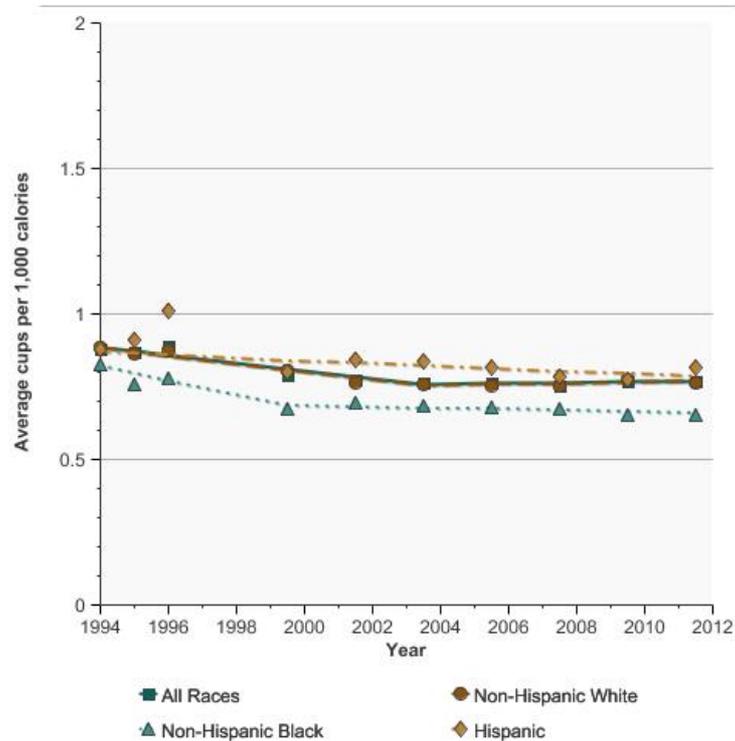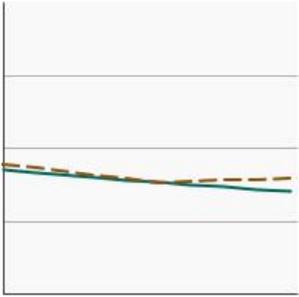
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	All Races	1.3	(1.2 - 1.4)
	Non-Hispanic White	1.3	(1.2 - 1.4)
	Non-Hispanic Black	1.2	(1.1 - 1.2)
	Hispanic	1.4	(1.3 - 1.5)

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2012

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	<200% of federal poverty level	1.2	(1.1 - 1.3)
	>=200% of federal poverty level	1.4	(1.3 - 1.5)

Average cups of fruit and vegetables consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012

Legend:
- <200% of federal poverty level
- >=200% of federal poverty level
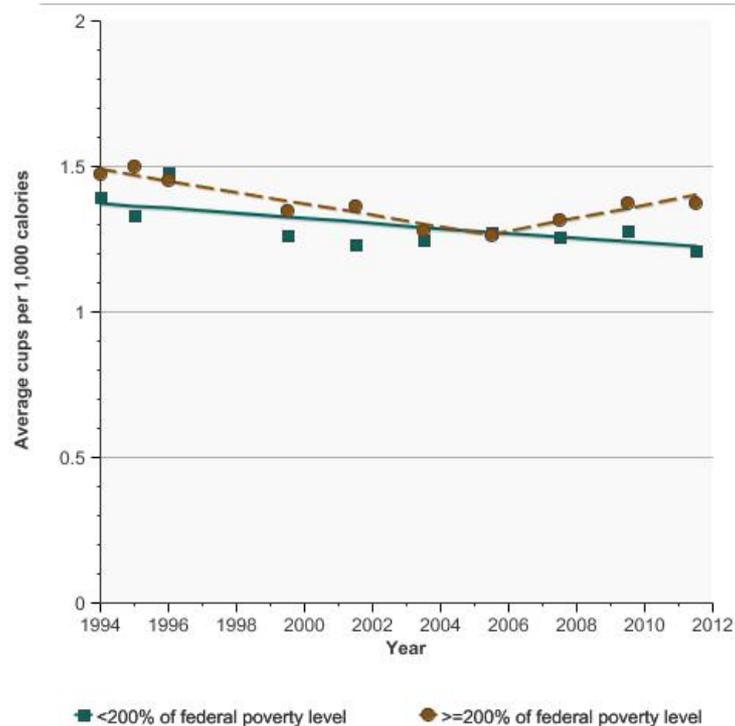
Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

Fruit

By Sex

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2012
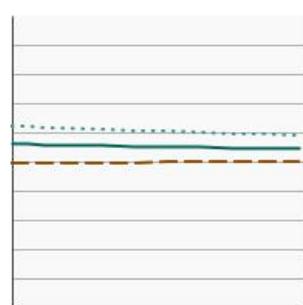
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	Both Sexes	0.5	(0.5 - 0.6)
	Male	0.5	(0.5 - 0.5)
	Female	0.6	(0.5 - 0.6)

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2012

Legend: ■ Both Sexes ● Male ▲ Female

Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Race/Ethnicity

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	All Races	0.5	(0.5 - 0.6)
	Non-Hispanic White	0.5	(0.5 - 0.6)
	Non-Hispanic Black	0.5	(0.5 - 0.6)
	Hispanic	0.6	(0.5 - 0.6)

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2012

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	<200% of federal poverty level	0.5	(0.5 - 0.5)
	>=200% of federal poverty level	0.6	(0.5 - 0.6)

Average cups of fruit consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012

■ <200% of federal poverty level   ● >=200% of federal poverty level
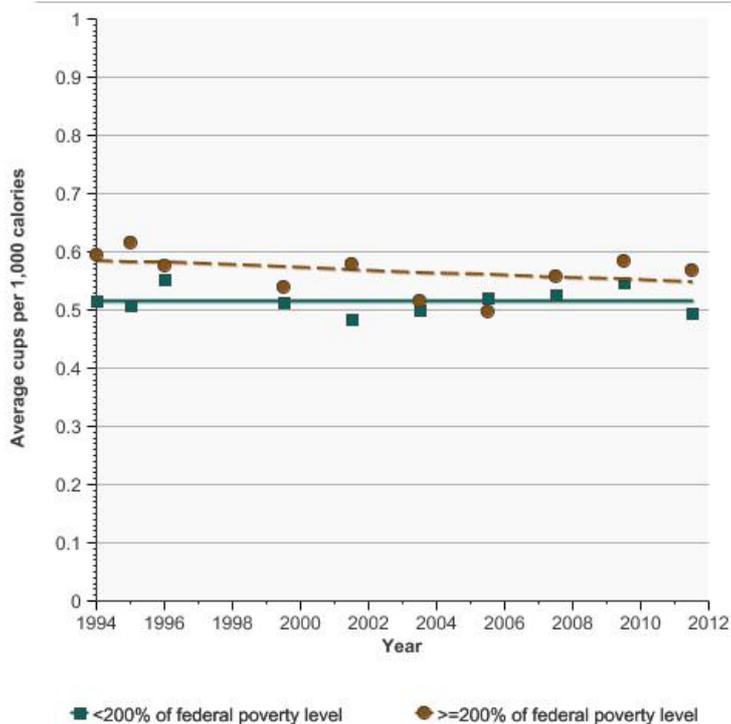
Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

**Vegetables**

By Sex

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	Both Sexes	0.8	(0.7 - 0.8)
	Male	0.7	(0.7 - 0.8)
	Female	0.8	(0.8 - 0.9)

Average cups of vegetables consumed per 1,000 calories
by individuals aged 2 years and older by sex, 1994-2012

Legend:
- Both Sexes
- Male
- Female

Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Race/Ethnicity

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	All Races	0.8	(0.7 - 0.8)
	Non-Hispanic White	0.8	(0.7 - 0.8)
	Non-Hispanic Black	0.7	(0.6 - 0.7)
	Hispanic	0.8	(0.8 - 0.9)

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2012

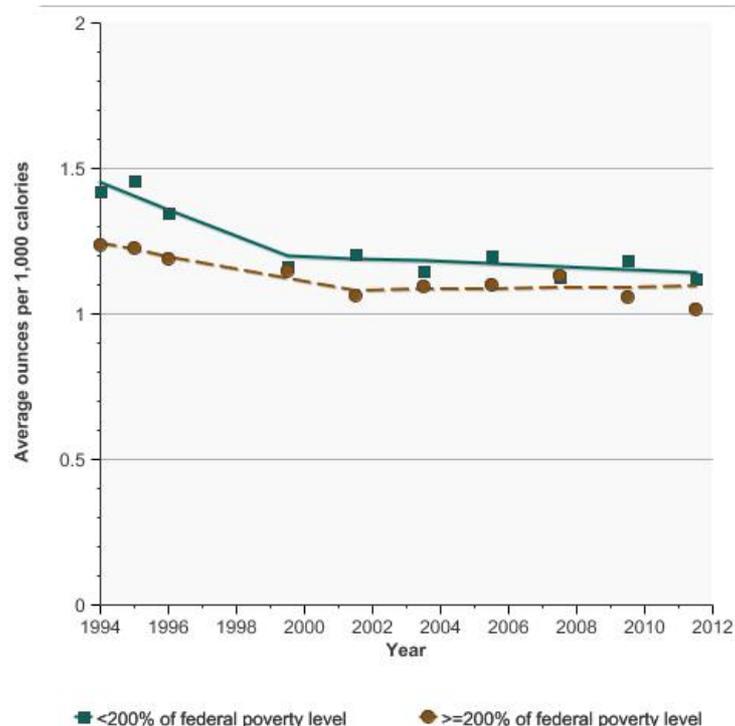Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average cups per 1,000 calories	Confidence Interval
	<200% of federal poverty level	0.7	(0.7 - 0.8)
	>=200% of federal poverty level	0.8	(0.8 - 0.8)

Average cups of vegetables consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012

■ <200% of federal poverty level   ● >=200% of federal poverty level
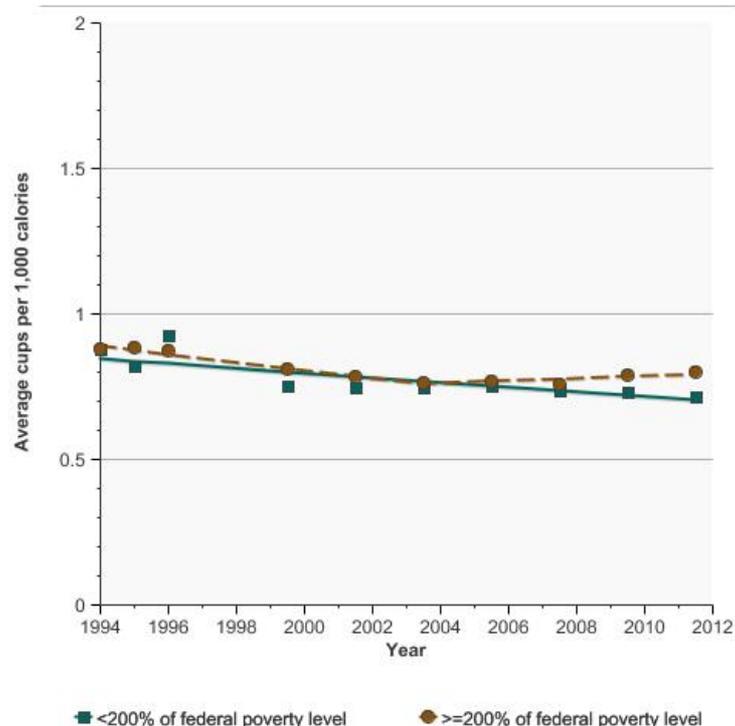
Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

Cancers Related to Fruit and Vegetable Consumption
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Endometrial Cancer(http://seer.cancer.gov/statfacts/html/corp.html)
- Esophagus(http://seer.cancer.gov/statfacts/html/esoph.html)
- Stomach(http://seer.cancer.gov/statfacts/html/stomach.html)

Additional Information on Fruit and Vegetable Consumption
For the public

- 2015-2020 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention. American Cancer Society.
- Diet and Physical Activity: What's the Cancer Connection. American Cancer Society.
- Cancer Prevention and Control. Centers for Disease Control and Prevention.
- Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective.(http://www.dietandcancerreport.org) World Cancer Research Fund, and the American Institute for Cancer Research.

For health professionals

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

- 2015-2020 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.

Statistics

- Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey.
- Healthy People 2020, 2020 Topics & Objectives – Nutrition and Weight Status.
- Usual Dietary Intakes: Food Intakes, U.S. Population, 2007–10. National Cancer Institute.
- What We Eat in America. U.S. Department of Agriculture.

Red Meat Consumption

Last Updated:
January 2017

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

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

Healthy People 2020 Target

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

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

Data Source
U.S. Department of Agriculture. What We Eat in America.

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1994–2012.

Trends and Most Recent Estimates

By Sex

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by sex, 1994-2012
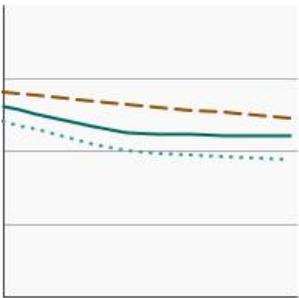
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average ounces per 1,000 calories	Confidence Interval
	Both Sexes	1.1	(1.0 - 1.1)
	Male	1.2	(1.1 - 1.3)
	Female	0.9	(0.8 - 1.0)

Average ounces of red meat consumed per 1,000 calories
by individuals aged 2 years and older by sex, 1994-2012

- Both Sexes
- Male
- Female
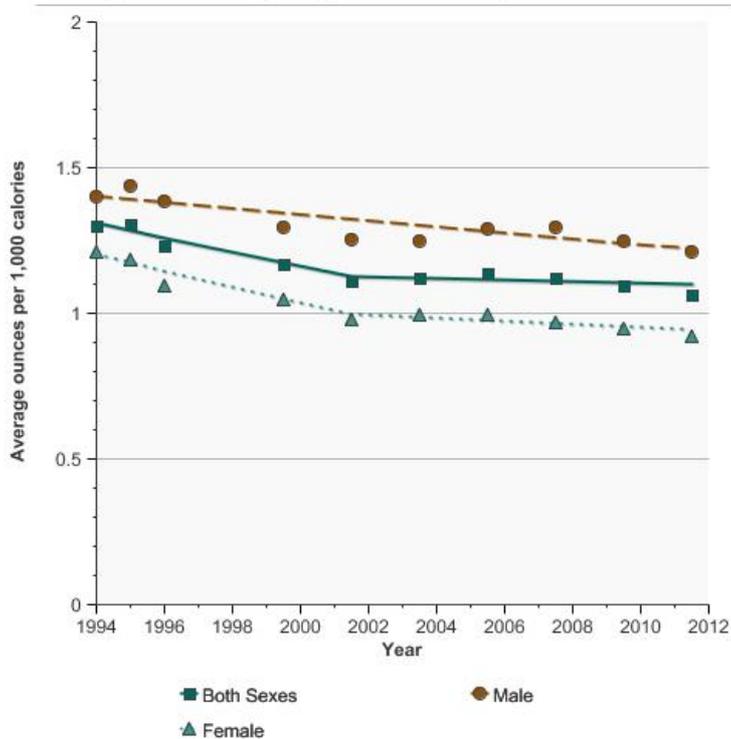
Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Race/Ethnicity

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by race/ethnicity, 1994-2012
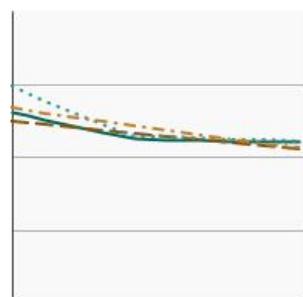
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average ounces per 1,000 calories	Confidence Interval
	All Races	1.1	(1.0 - 1.1)
	Non-Hispanic White	1.0	(0.9 - 1.2)
	Non-Hispanic Black	1.1	(1.0 - 1.2)
	Hispanic	1.2	(1.0 - 1.3)

Average ounces of red meat consumed per 1,000 calories by
individuals aged 2 years and older by race/ethnicity, 1994-2012

- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic
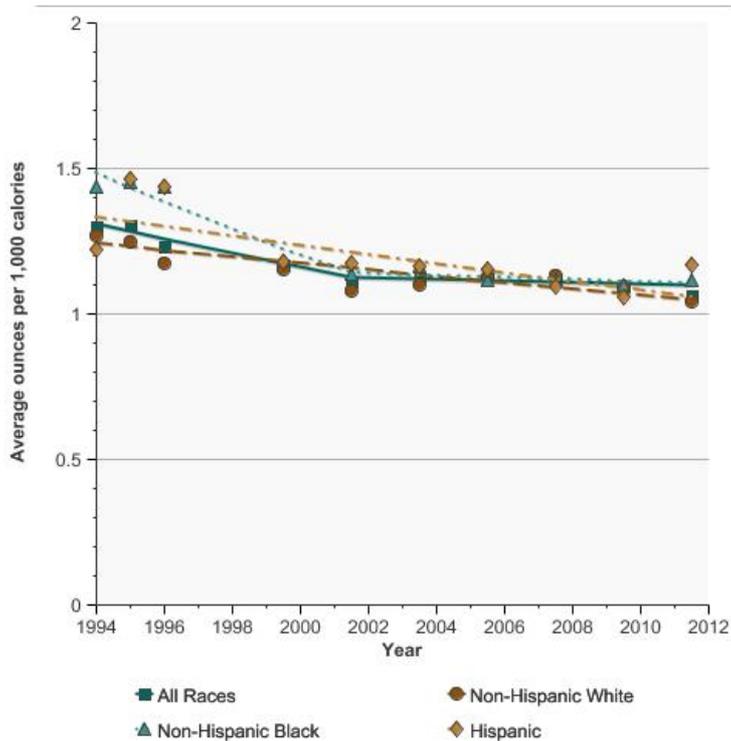
Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012
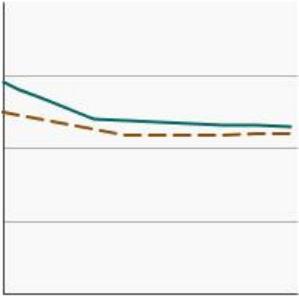
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Average ounces per 1,000 calories	Confidence Interval
	<200% of federal poverty level	1.1	(1.0 - 1.2)
	>=200% of federal poverty level	1.0	(0.9 - 1.1)

Average ounces of red meat consumed per 1,000 calories by individuals aged 2 years and older by poverty income level, 1994-2012

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.
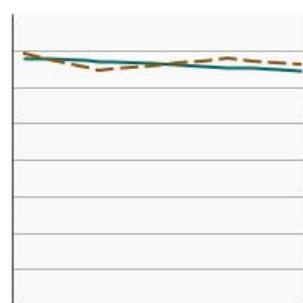
Cancers Related to Red Meat Consumption
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Endometrial Cancer(http://seer.cancer.gov/statfacts/html/corp.html)
- Esophagus(http://seer.cancer.gov/statfacts/html/esoph.html)
- Non-Hodgkin Lymphoma(http://seer.cancer.gov/statfacts/html/nhl.html)
- Stomach(http://seer.cancer.gov/statfacts/html/stomach.html)

Additional Information on Red Meat Consumption
For the public

- ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention. American Cancer Society.
- Diet and Physical Activity: What's the Cancer Connection. American Cancer Society.
- Cancer Prevention and Control. Centers for Disease Control and Prevention.
- Nutrition, Physical Activity, and Obesity. Centers for Disease Control and Prevention.
- Q&A on the Carcinogenicity of the Consumption of Red Meat and Processed Meat.(http://www.iarc.fr/en/media-centre/iarcnews/pdf/Monographs-Q&A_Vol114.pdf) International Agency for Research on Cancer (IARC).
- Carcinogenicity of Consumption of Red and Processed Meat.(http://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045%2815%2900444-1.pdf) The Lancet Oncology.
- 2015-2020 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.

- Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective.(http://www.dietandcancerreport.org) World Cancer Research Fund, and the American Institute for Cancer Research.

For health professionals

- Nutrition, Physical Activity, and Obesity. Centers for Disease Control and Prevention. State, Tribal, Local, and Territorial Public Health Professionals Gateway.
- 2015-2020 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.

Scientific reports

- A large prospective study of meat consumption and colorectal cancer risk: an investigation of potential mechanisms underlying this association.(http://cancerres.aacrjournals.org/content/70/6/2406.short) Cross AJ, Ferrucci LM, Risch A. Cancer Res 2010;70:2406.
- Diet, nutrition and the prevention of chronic diseases.(http://www.who.int/dietphysicalactivity/publications/trs916/download/en/) World Health Organization. 2003.

Statistics

- Centers for Disease Control and Prevention, National Cancer Statistics, National Health Interview Survey.
- Healthy People 2020, 2020 Topics & Objectives – Nutrition and Weight Status.
- Usual Dietary Intakes: Food Intakes, U.S. Population, 2007–10. National Cancer Institute.
- What We Eat in America. U.S. Department of Agriculture.

Fat Consumption

Last Updated:
January 2017

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

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

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

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

Healthy People 2020 Target

- Reduce to 16.7 percent the mean percentage of total daily calorie intake from solid fats for the population aged 2 years and older.
- Reduce to 9.5 percent the mean percentage of total daily calorie intake from saturated fat for the population aged 2 years and older.

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

Data Source
U.S. Department of Agriculture, Continuing Survey of Food Intakes by Individuals, 1989-1998.

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1999–2012.

Trends and Most Recent Estimates
Fat Intake Comparison
Fat intake as a percentage of total calories, 1989-2012
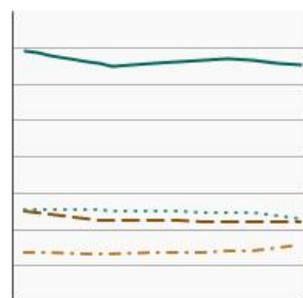
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	Total	32.9	(32.5 - 33.3)
	Saturated fat	10.8	(10.6 - 11.0)
	Monounsaturated fat	11.6	(11.4 - 11.8)
	Polyunsaturated fat	7.8	(7.7 - 7.9)

Fat intake as a percentage of total calories, 1989-2012
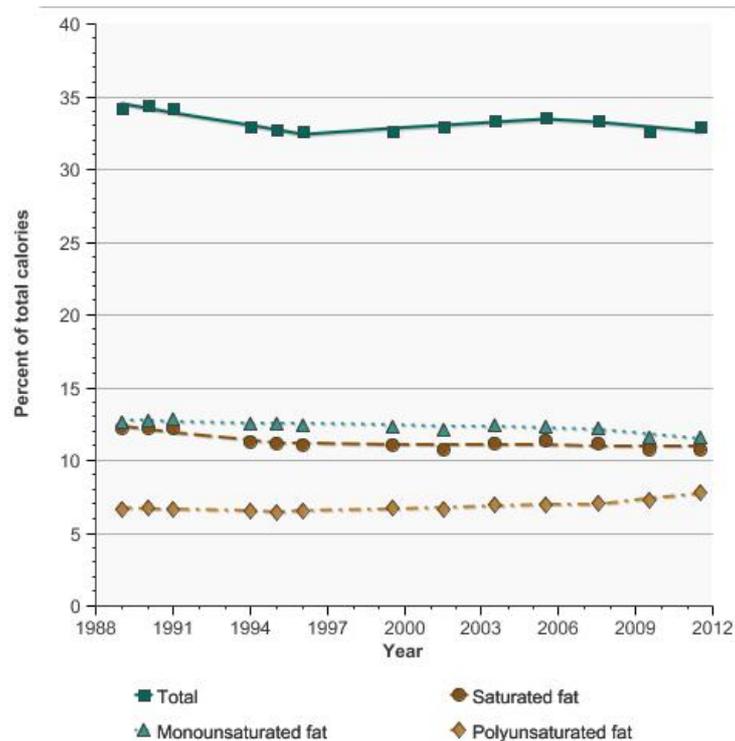
Legend:
- Total
- Saturated fat
- Monounsaturated fat
- Polyunsaturated fat

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.
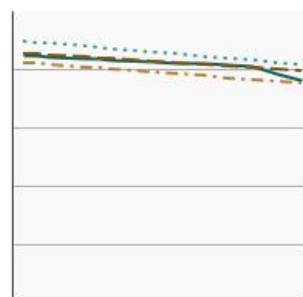
Total Fat Intake

By Sex

Total fat intake as a percentage of total calories by sex, 1989-2012
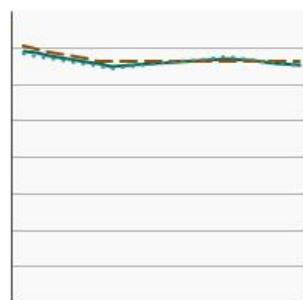
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	Both Sexes	32.9	(32.5 - 33.3)
	Male	33.0	(32.6 - 33.4)
	Female	32.9	(32.3 - 33.4)

Total fat intake as a percentage
of total calories by sex, 1989-2012
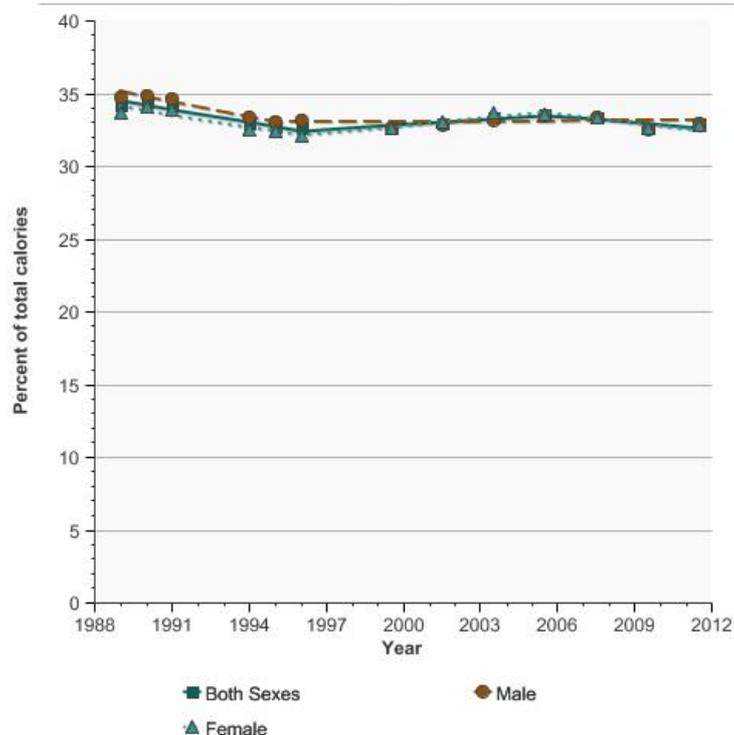
■ Both Sexes ● Male ▲ Female

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.
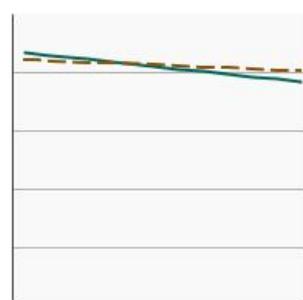
By Race/Ethnicity

Total fat intake as a percentage of total calories by race/ethnicity, 1989-2012
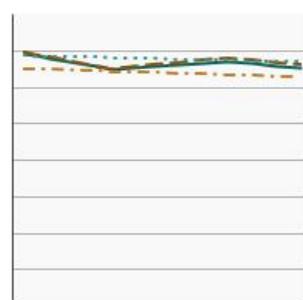
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	All Races	32.9	(32.5 - 33.3)
	Non-Hispanic White	33.1	(32.5 - 33.7)
	Non-Hispanic Black	33.6	(33.1 - 34.1)
	Hispanic	32.0	(31.5 - 32.6)

Total fat intake as a percentage of
total calories by race/ethnicity, 1989-2012
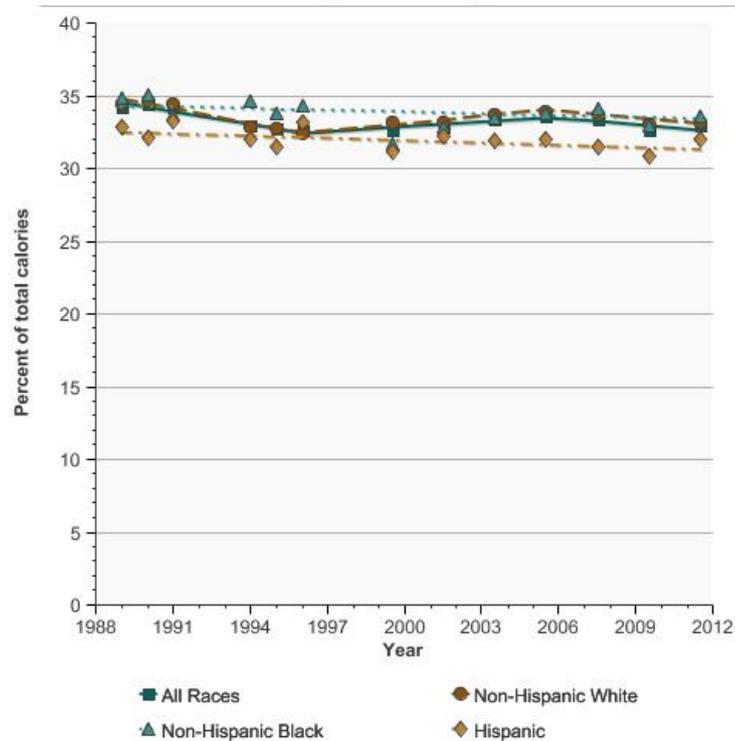
Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes
by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition
Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-
13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Total fat intake as a percentage of total calories by poverty income level, 1989-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	<200% of federal poverty level	32.5	(32.2 - 32.9)
	>=200% of federal poverty level	33.2	(32.6 - 33.9)

Total fat intake as a percentage of total calories by poverty income level, 1989-2012
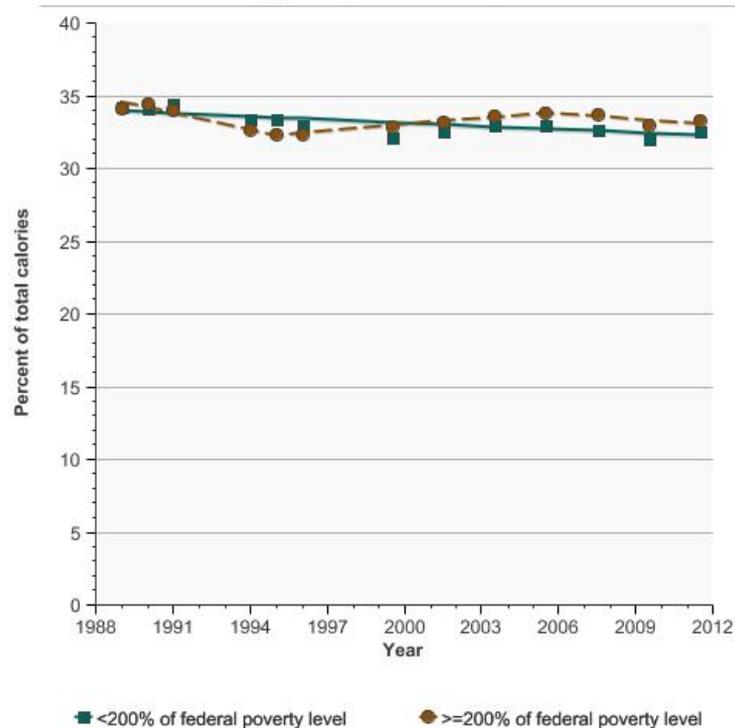
■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.
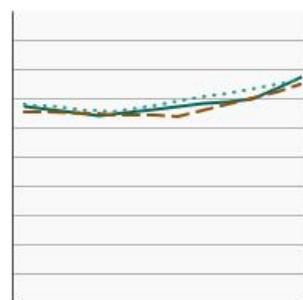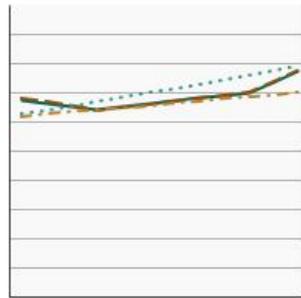
Saturated Fat Intake

By Sex

Saturated fat intake as a percentage of total calories by sex, 1989-2012
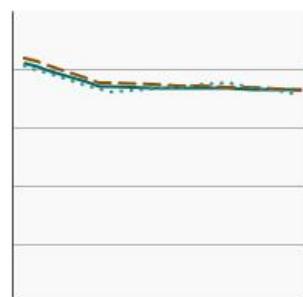
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	Both Sexes	10.8	(10.6 - 11.0)
	Male	10.8	(10.6 - 11.0)
	Female	10.8	(10.5 - 11.0)

Saturated fat intake as a percentage of total calories by sex, 1989-2012
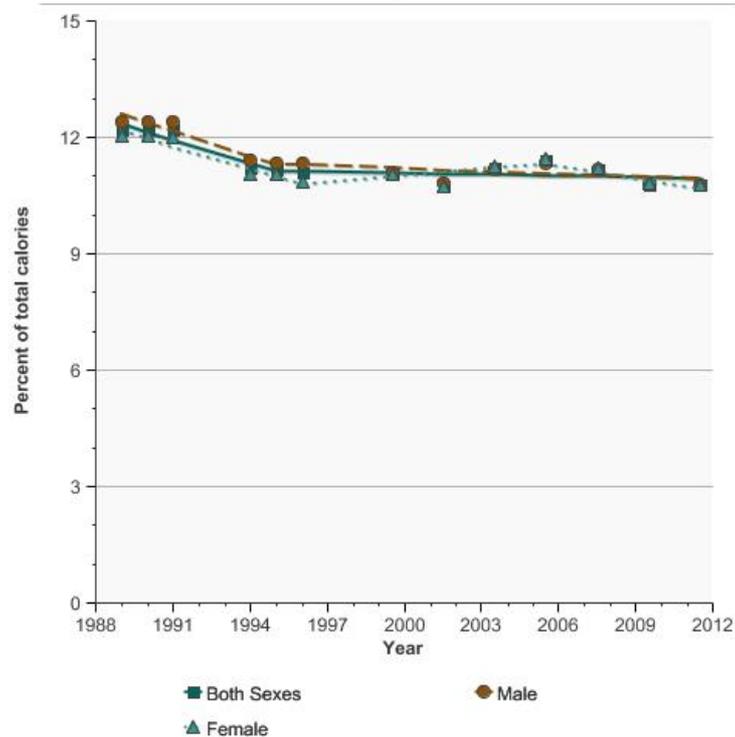
- Both Sexes
- Male
- Female

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Race/Ethnicity

Saturated fat intake as a percentage of total calories by race/ethnicity, 1989-2012
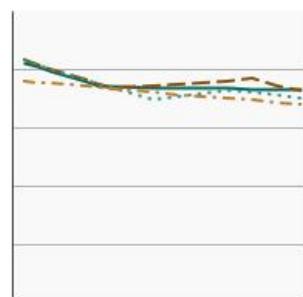
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	All Races	10.8	(10.6 - 11.0)
	Non-Hispanic White	11.0	(10.7 - 11.3)
	Non-Hispanic Black	10.5	(10.3 - 10.7)
	Hispanic	10.5	(10.3 - 10.7)

Saturated fat intake as a percentage of
total calories by race/ethnicity, 1989-2012
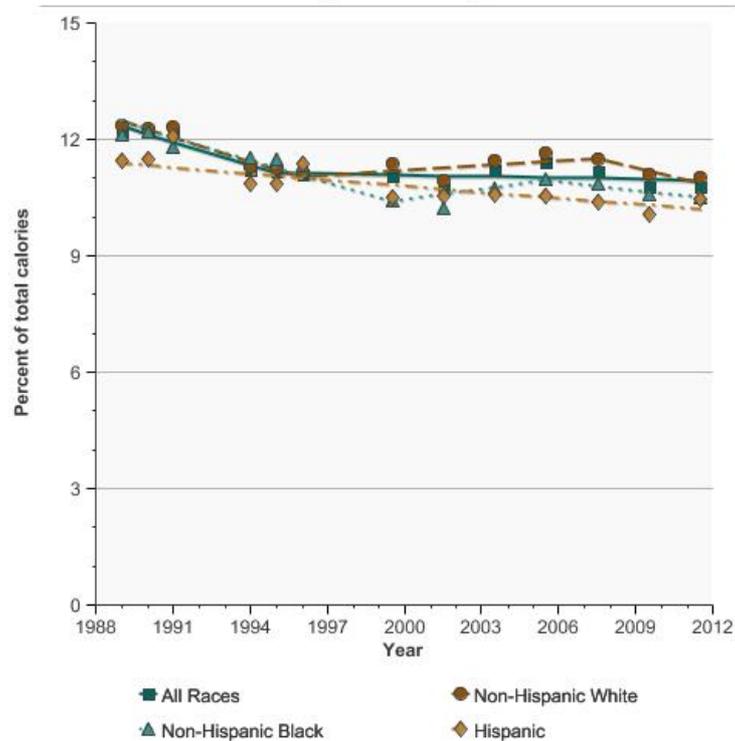
- All Races
- Non-Hispanic White
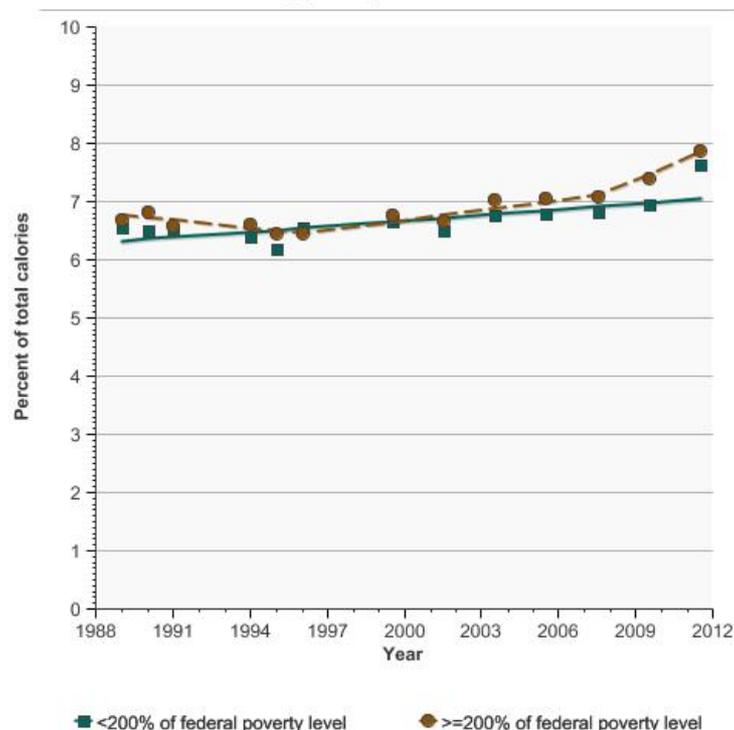- Non-Hispanic Black
- Hispanic

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes
by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition
Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-
13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Saturated fat intake as a percentage of total calories by poverty income level, 1989-2012
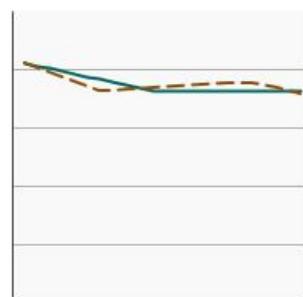
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	<200% of federal poverty level	10.8	(10.5 - 11.0)
	>=200% of federal poverty level	10.9	(10.6 - 11.1)

Saturated fat intake as a percentage of
total calories by poverty income level, 1989-2012
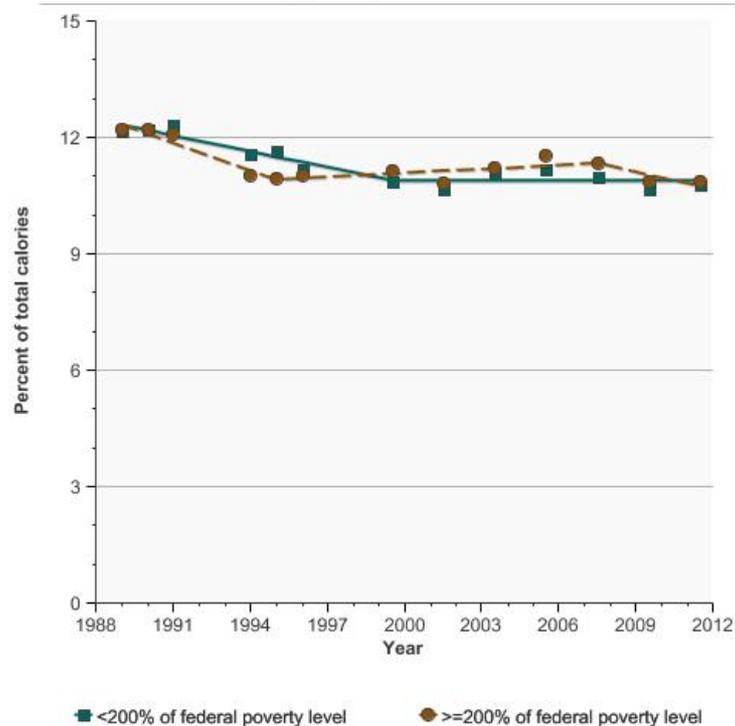
■- <200% of federal poverty level   ●- >=200% of federal poverty level

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes
by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition
Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-
13, 14-18, 19-30, 31-50, 51-70, 70+.

Monosaturated Fat Intake

By Sex

Monosaturated fat intake as a percentage of total calories by sex, 1989-2012
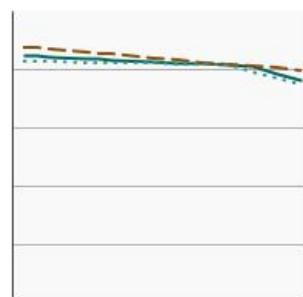
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	Both Sexes	11.6	(11.4 - 11.8)
	Male	11.8	(11.6 - 12.0)
	Female	11.5	(11.3 - 11.7)

Monosaturated fat intake as a
percentage of total calories by sex, 1989-2012
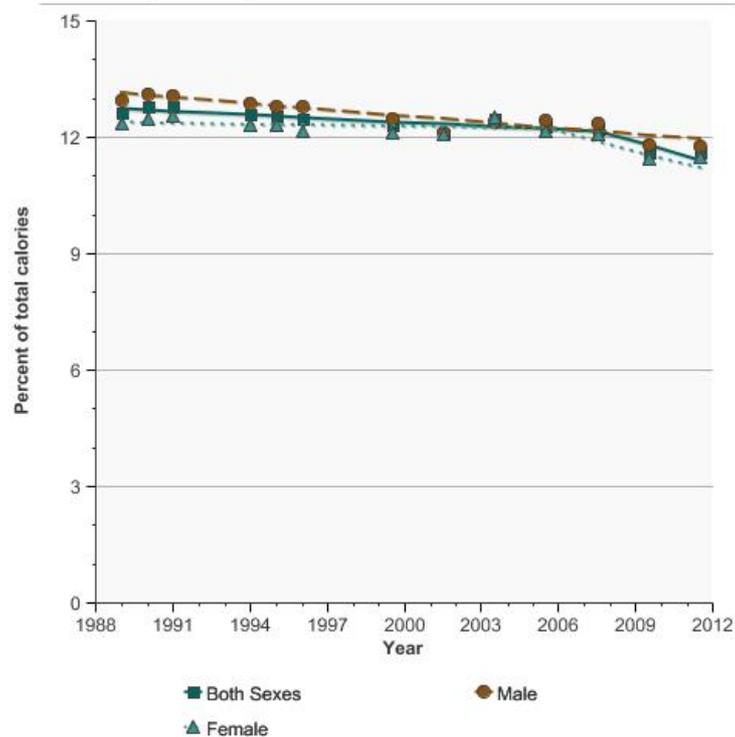
■ Both Sexes   ● Male
▲ Female

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes
by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition
Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-
13, 14-18, 19-30, 31-50, 51-70, 70+.

By Race/Ethnicity

Monosaturated fat intake as a percentage of total calories by race/ethnicity, 1989-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	All Races	11.6	(11.4 - 11.8)
	Non-Hispanic White	11.6	(11.4 - 11.9)
	Non-Hispanic Black	12.0	(11.8 - 12.3)
	Hispanic	11.4	(11.1 - 11.7)

Monosaturated fat intake as a percentage of total calories by race/ethnicity, 1989-2012
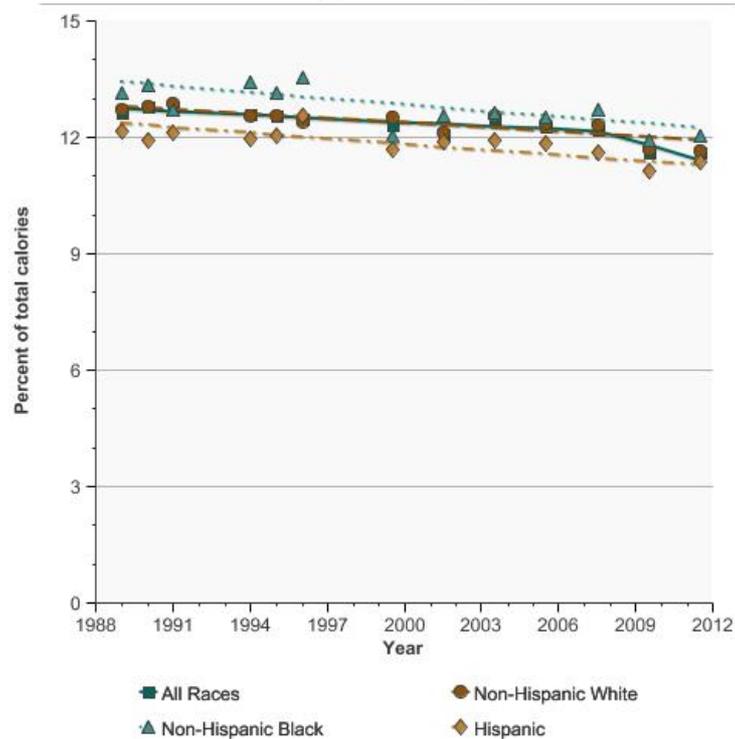
Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Monosaturated fat intake as a percentage of total calories by poverty income level, 1989-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	<200% of federal poverty level	11.4	(11.3 - 11.6)
	>=200% of federal poverty level	11.8	(11.5 - 12.0)

Monosaturated fat intake as a percentage of total calories by poverty income level, 1989-2012

■ <200% of federal poverty level   ● >=200% of federal poverty level
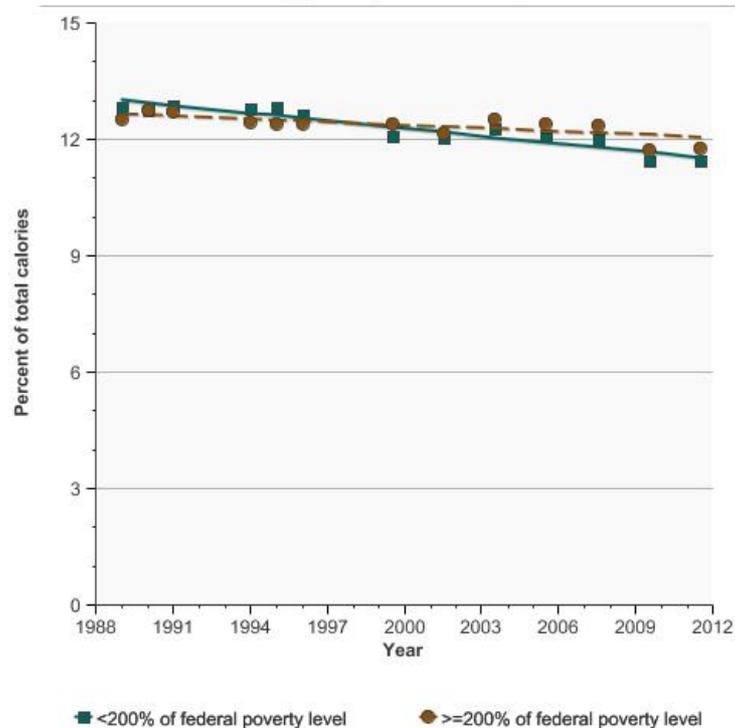
Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

Polyunsaturated Fat Intake

By Sex

Polyunsaturated fat intake as a percentage of total calories by sex, 1989-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	Both Sexes	7.8	(7.7 - 7.9)
	Male	7.7	(7.5 - 7.9)
	Female	7.9	(7.7 - 8.1)

Polyunsaturated fat intake as a
percentage of total calories by sex, 1989-2012
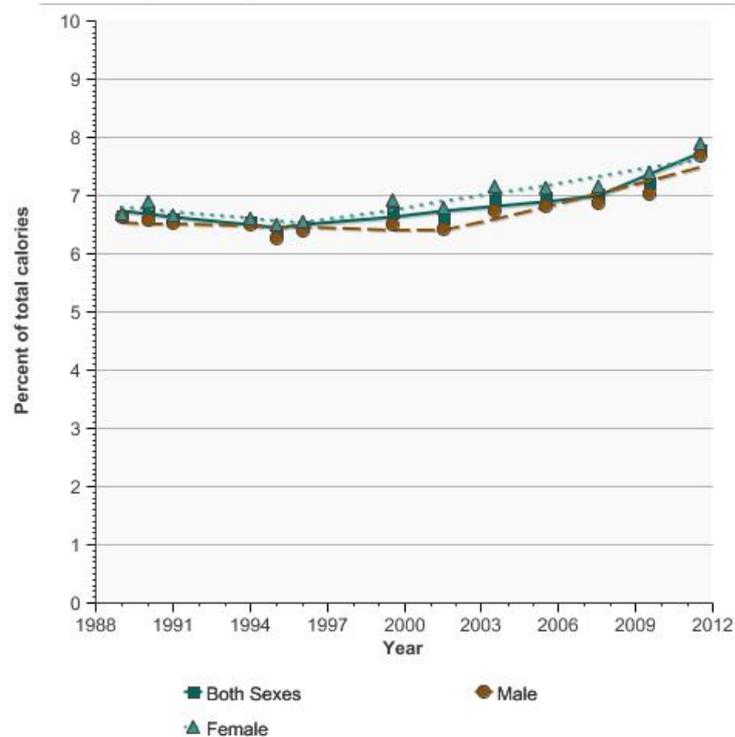
Both Sexes   Male
Female

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes
by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition
Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-
13, 14-18, 19-30, 31-50, 51-70, 70+.

By Race/Ethnicity

Polyunsaturated fat intake as a percentage of total calories by race/ethnicity, 1989-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	All Races	7.8	(7.7 - 7.9)
	Non-Hispanic White	7.7	(7.6 - 7.9)
	Non-Hispanic Black	8.3	(8.1 - 8.5)
	Hispanic	7.5	(7.2 - 7.7)

Polyunsaturated fat intake as a percentage of total calories by race/ethnicity, 1989-2012
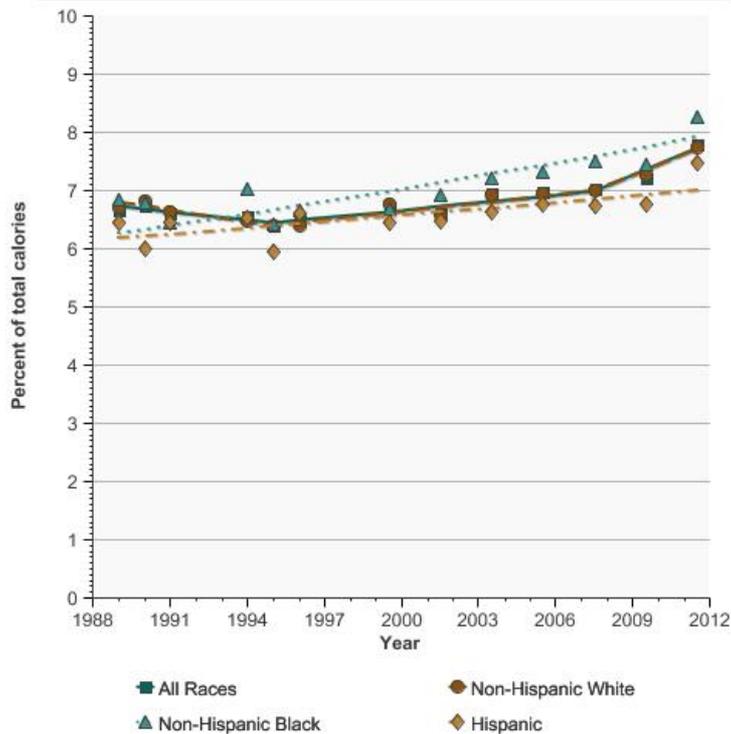
- ■ All Races
- ▲ Non-Hispanic Black
- ● Non-Hispanic White
- ♦ Hispanic

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

By Poverty Income Level

Polyunsaturated fat intake as a percentage of total calories by poverty income level, 1989-2012
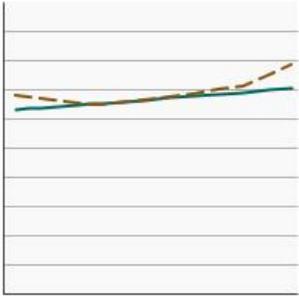
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of total calories	Confidence Interval
	<200% of federal poverty level	7.6	(7.4 - 7.8)
	>=200% of federal poverty level	7.9	(7.7 - 8.0)

Polyunsaturated fat intake as a percentage of total calories by poverty income level, 1989-2012

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: (1988-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.

Cancers Related to Fat Consumption
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Endometrial Cancer(http://seer.cancer.gov/statfacts/html/corp.html)
- Esophagus(http://seer.cancer.gov/statfacts/html/esoph.html)
- Non-Hodgkin Lymphoma(http://seer.cancer.gov/statfacts/html/nhl.html)
- Small Intestine(http://seer.cancer.gov/statfacts/html/smint.html)
- Stomach(http://seer.cancer.gov/statfacts/html/stomach.html)

Additional Information on Fat Consumption
For the public

- Living a Healthy Lifestyle.(http://www.ahrq.gov/patients-consumers/prevention/lifestyle/index.html) Agency for Healthcare Research and Quality.
- ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention. American Cancer Society.
- Diet and Physical Activity: What's the Cancer Connection. American Cancer Society.
- Cancer Prevention and Control. Centers for Disease Control and Prevention.
- Nutrition, Physical Activity, and Obesity. Centers for Disease Control and Prevention.
- 2015-2020 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.
- Continuing Survey of Food Intakes by Individuals 1994-96, 1998.(http://sodapop.pop.psu.edu/csfii_page1.html) U.S. Department of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group (Beltsville, MD).

- What We Eat in America, NHANES. U.S. Department of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group (Beltsville, MD) and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics (Hyattsville, MD).
- Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective.(http://www.dietandcancerreport.org) World Cancer Research Fund, and the American Institute for Cancer Research.

For health professionals

- Nutrition, Physical Activity, and Obesity. Centers for Disease Control and Prevention. State, Tribal, Local, and Territorial Public Health Professionals Gateway.
- 2015-2020 Dietary Guidelines for Americans. U.S. Department of Agriculture, and U.S. Department of Health and Human Services.

Scientific reports

- American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity. Kushi LH, Doyle C, McCullough M, et al. CA Cancer J Clin. 2012;62(1):30–67.
- Food, nutrition, physical activity, and the prevention of cancer: a global perspective. Wiseman M. The second World Cancer Research Fund/American Institute for Cancer Research expert report. Proc Nutr Soc. 2008;67(3):253–6.
- Diet, nutrition and the prevention of chronic diseases.(http://www.who.int/dietphysicalactivity/publications/trs916/download/en/) World Health Organization. 2003.

Statistics

- Centers for Disease Control and Prevention, National Cancer Statistics, National Health Interview Survey.
- Healthy People 2020, 2020 Topics & Objectives – Nutrition and Weight Status.
- Usual Dietary Intakes: Food Intakes, U.S. Population, 2007–10. National Cancer Institute.
- What We Eat in America. U.S. Department of Agriculture.

Alcohol Consumption

Last Updated:
January 2017

Introduction

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

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

Measure

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

Healthy People 2020 Target

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

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

Data Source

National Institute on Alcohol Abuse and Alcoholism. Surveillance report #104 – Apparent per capita alcohol consumption: national, state, and regional trends, 1977–2014.(http://pubs.niaaa.nih.gov/publications/surveillance104/CONS14.htm) March 2016.

Trends and Most Recent Estimates

Alcohol Consumption

Annual per capita alcohol consumption in gallons by individuals aged 14 years and older, 1990-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2014)	
		Dependent Variable	**Confidence Interval**
	All Types of Alcoholic Beverages	2.3	Not available
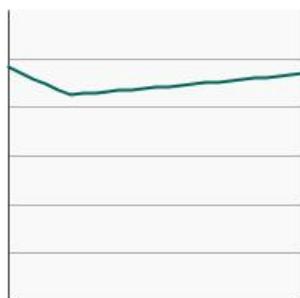
Annual per capita alcohol consumption in gallons by individuals aged 14 years and older, 1990-2014
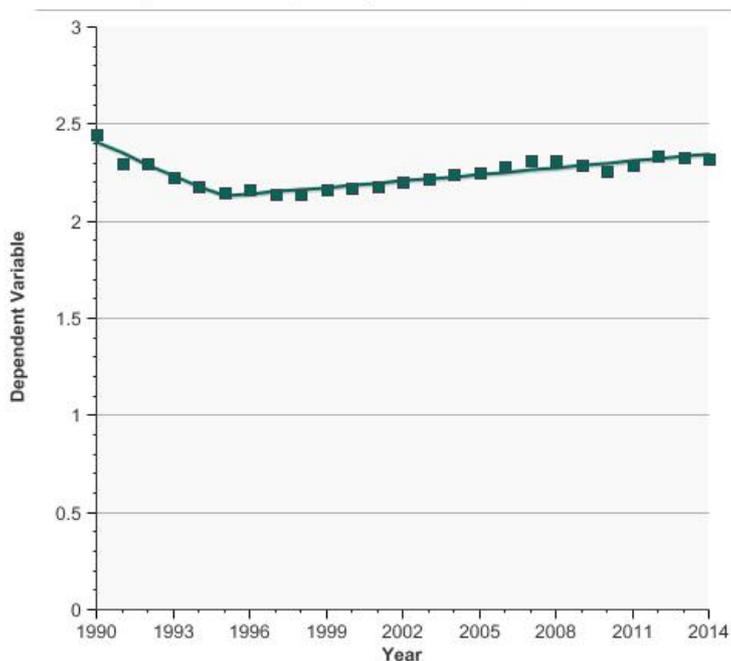
Source: Haughwout, Sarah P., Lavalle, Robin A.; Castle, I-Jen P. Surveillance Report #104: Apparent Per Capita Alcohol Consumption: National, State, and Regional Trends, 1977-2014. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism, Division of Epidemiology and Prevention Research (March 2016).
Data are not age-adjusted.

Cancers Related to Alcohol Consumption

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

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

- Oral Cavity and Pharynx(http://seer.cancer.gov/statfacts/html/oralcav.html)

Additional Information on Alcohol Consumption
For the public

- Alcohol Use and Cancer. (http://www.cancer.org/Cancer/CancerCauses/DietandPhysicalActivity/alcohol-use-and-cancer) American Cancer Society.
- Publications – NIAAA resources on alcohol consumption and alcohol-related problems. (http://www.niaaa.nih.gov/publications)National Institute on Alcohol Abuse and Alcoholism.
- Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective.(http://www.dietandcancerreport.org) World Cancer Research Fund, American Institute for Cancer Research.

For health professionals

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

Scientific reports

- What is Moderate Drinking? Defining "Drinks" and Drinking Levels.(http://www.ncbi.nlm.nih.gov/pubmed/10890793) Dufour, MC. Alcohol Res Health 1999;23(1):5–14.
- Alcohol abuse in cancer patients: a shadow side in the oncological field and research.(http://www.ncbi.nlm.nih.gov/pubmed/24368516) Glasdam S, Oye C. Med Health Care Philos. 2013.
- Alcohol abuse predicts progression of disease and death in patients with lung cancer.(http://www.ncbi.nlm.nih.gov/pubmed/16122481) Paull DE, Updyke GM, Baumann MA, Chin HW, Little AG, Adebonojo SA. Ann Thorac Surg. 2005;80(3):1033–9.
- Alcohol abuse and the risk of pancreatic cancer.(http://www.ncbi.nlm.nih.gov/pubmed/12117886) Ye W, Lagergren J, Weiderpass E, Nyren O, Adami HO, Ekbom A. Gut 2002;51(2):236–9.

Statistics

- Healthy People 2020, 2020 Topics & Objectives – Substance Abuse (http://www.healthypeople.gov/2020/topics-objectives/topic/substance-abuse)
- Surveillance Report #97 – Apparent per capita alcohol consumption: national, state, and regional trends 1977–2011.(http://pubs.niaaa.nih.gov/publications/surveillance97/CONS11.htm) National Institute on Alcohol Abuse and Alcoholism. July 2013.
- Food Intakes, U.S. Population, 2001–04: Usual Intake of Alcohol. (http://epi.grants.cancer.gov/diet/usualintakes/pop/2001-04/alcohol.html?&url=/diet/usualintakes/pop/2001-04/alcohol.html)National Cancer Institute.

Physical Activity

Last Updated:
January 2017

Introduction

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

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

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

Measure

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

Healthy People 2020 Target

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

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey 1992–2012.

Trends and Most Recent Estimates
No Leisure Time Physical Activty

By Sex

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	30.0	(29.2 - 30.9)
	Male	28.5	(27.5 - 29.6)
	Female	31.4	(30.4 - 32.4)

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2015

Legend: Both Sexes, Male, Female

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by race/ethnicity, 1997-2015
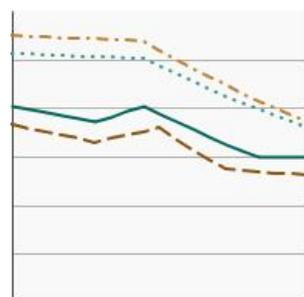
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	30.0	(29.2 - 30.9)
	Non-Hispanic White	26.6	(25.6 - 27.7)
	Non-Hispanic Black	37.8	(35.8 - 39.8)
	Hispanic	38.6	(36.7 - 40.6)

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by race/ethnicity, 1997-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by poverty income level, 1997-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	42.7	(41.4 - 44.1)
	>=200% of federal poverty level	24.7	(23.8 - 25.6)

Percentage of adults aged 18 years and older reporting no physical activity in their leisure time by poverty income level, 1997-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

Percentage of adults aged 25 years and older reporting no physical activity in their leisure time by highest level of education obtained, 1997-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	50.5	(48.3 - 52.8)
	High School	40.2	(38.4 - 41.9)
	Greater than High School	23.4	(22.5 - 24.4)

Percentage of adults aged 25 years and older reporting no physical activity in their leisure time by highest level of education obtained, 1997-2015

- Less than High School
- High School
- Greater than High School
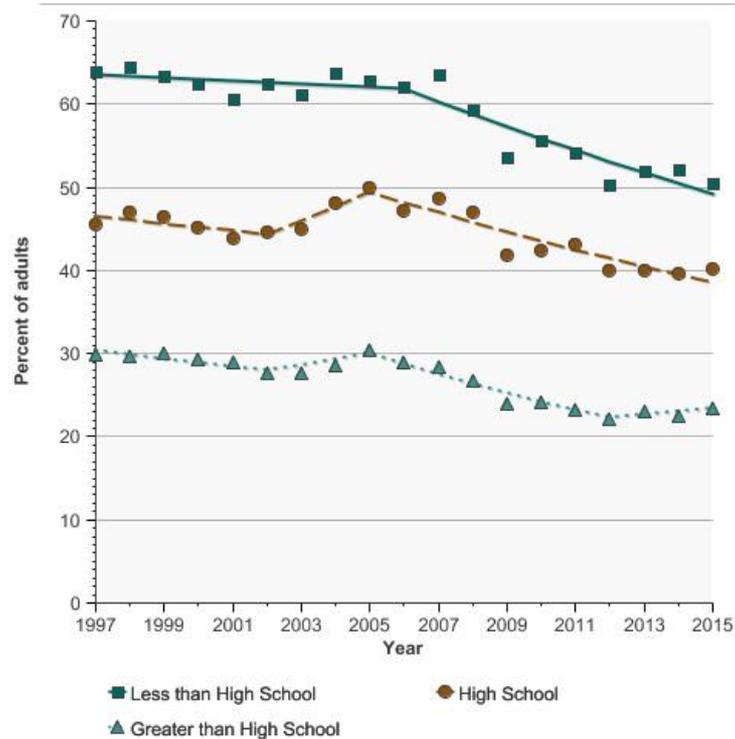
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Meet Federal Guidelines

By Sex

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by sex, 1997-2015
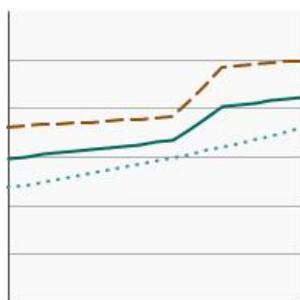
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	21.3	(20.6 - 21.9)
	Male	24.9	(24.0 - 25.9)
	Female	17.7	(16.9 - 18.5)

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by sex, 1997-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
Estimate includes adults who report light or moderate physical activity for at least 150 minutes per week or who report vigorous physical activity 75 minutes per week or an equivalent combination of moderate and vigorous-intensity activity and report doing physical activities specifically designed to strengthen muscles at least twice per week

By Race/Ethnicity

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by race/ethnicity, 1997-2015
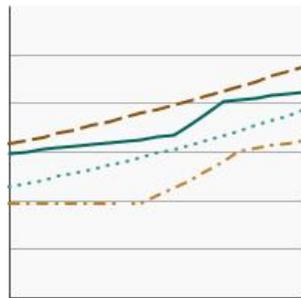
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	21.3	(20.6 - 21.9)
	Non-Hispanic White	23.1	(22.2 - 23.9)
	Non-Hispanic Black	19.7	(18.1 - 21.3)
	Hispanic	16.4	(15.2 - 17.7)

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by race/ethnicity, 1997-2015

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
Estimate includes adults who report light or moderate physical activity for at least 150 minutes per week or who report vigorous physical activity 75 minutes per week or an equivalent combination of moderate and vigorous-intensity activity and report doing physical activities specifically designed to strengthen muscles at least twice per week

By Poverty Income Level

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by poverty income level, 1997-2015
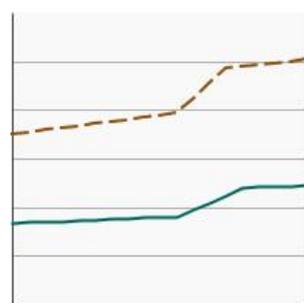
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	12.0	(11.1 - 12.8)
	>=200% of federal poverty level	25.4	(24.6 - 26.1)

Percentage of adults aged 18 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by poverty income level, 1997-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
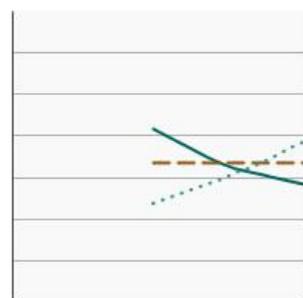Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
Estimate includes adults who report light or moderate physical activity for at least 150 minutes per week or who report vigorous physical activity 75 minutes per week or an equivalent combination of moderate and vigorous-intensity activity and report doing physical activities specifically designed to strengthen muscles at least twice per week

By Education Level

Percentage of adults aged 25 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by highest level of education obtained, 1997-2015
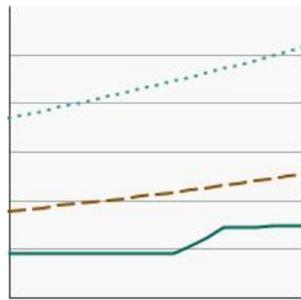
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	7.8	(6.6 - 9.0)
	High School	13.0	(11.7 - 14.2)
	Greater than High School	25.1	(24.3 - 25.9)

Percentage of adults aged 25 years and older who meet current Federal guidelines for aerobic and muscle-strengthening physical activity by highest level of education obtained, 1997-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.
Estimate includes adults who report light or moderate physical activity for at least 150 minutes per week or who report vigorous physical activity 75 minutes per week or an equivalent combination of moderate and vigorous-intensity activity and report doing physical activities specifically designed to strengthen muscles at least twice per week

Cancers Related to Physical Activity

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

- Breast Cancer(http://seer.cancer.gov/statfacts/html/breast.html)
- Colon and Rectum(http://seer.cancer.gov/statfacts/html/colorect.html)
- Endometrial cancer(http://seer.cancer.gov/statfacts/html/corp.html)

Additional Information on Physical Activity
For the public

- ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention.(http://www.cancer.org/healthy/eathealthygetactive/acsguidelinesonnutritionphysicalactivityforcancerprevention/index) American Cancer Society.
- Cancer Prevention and Control. Centers for Disease Control and Prevention.
- Nutrition, Physical Activity, and Obesity. Centers for Disease Control and Prevention.
- Physical Activity. Centers for Disease Control and Prevention.
- Physical Activity for a Healthy Weight. Centers for Disease Control and Prevention.
- Physical Activity Guidelines for Americans.U.S. Department of Health & Human Services.

Scientific reports

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

Statistics

- FastStats – Exercise or Physical Activity. Centers for Disease Control and Prevention.
- Centers for Disease Control and Prevention, National Cancer Statistics, National Health Interview Survey.
- Healthy People 2020, 2020 Topics & Objectives – Physical Activity.

Weight

Last Updated:
January 2017

Introduction
Compelling 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), and pancreatic cancers.

Research has also identified an association between obesity and worse prognosis(http://www.cancer.gov/dictionary?CdrID=45849) and outcomes(http://www.cancer.gov/dictionary?CdrID=467853) among some cancer patients, particularly those with breast, prostate, and colon cancer. Excess body weight is thought to contribute to as many as one in five cancer-related deaths in the United States.

While there is still much to be learned about the link between excess weight and cancer, people who are overweight or obese are encouraged to lose weight and maintain a healthy lifestyle. Doing so has the potential to reduce both cancer- and non-cancer-related morbidity.

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

Healthy People 2020 Target

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

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

Data Source
Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1971–2014.

Trends and Most Recent Estimates
Body Weight Comparison
Percent of adults aged 20 years and older who were at a healthy weight, overweight, or obese, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	Healthy Weight	28.2	(26.5 - 29.8)
	Overweight	32.8	(31.4 - 34.2)
	Obese	37.6	(35.8 - 39.5)

Percent of adults aged 20 years and older who were at a healthy weight, overweight, or obese, 1971-2014
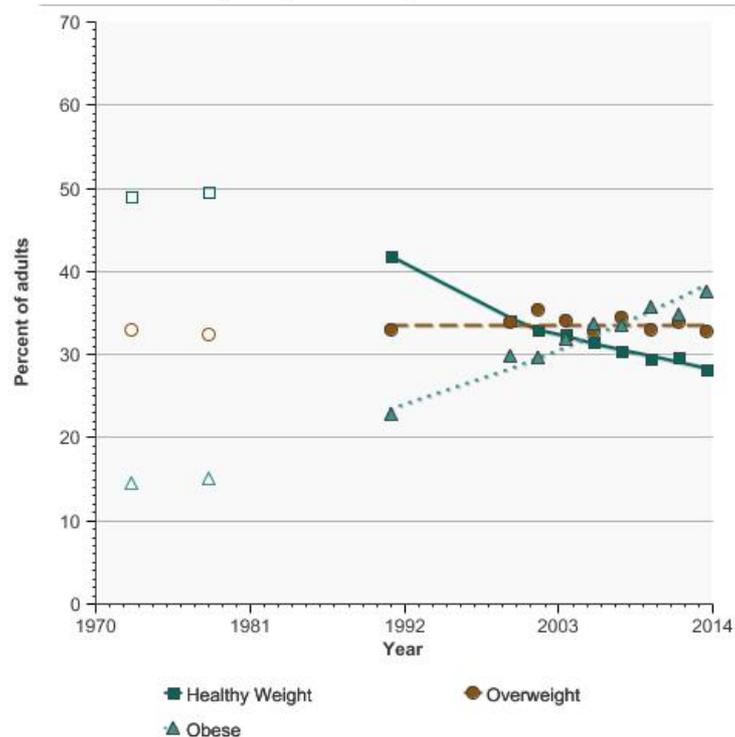
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
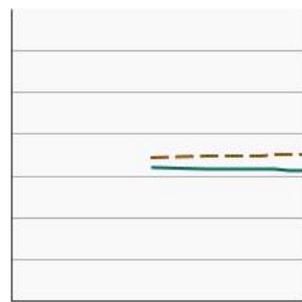
Healthy Weight

By Sex

Percent of adults aged 20 years and older who were at a healthy weight by sex, 1971-2014
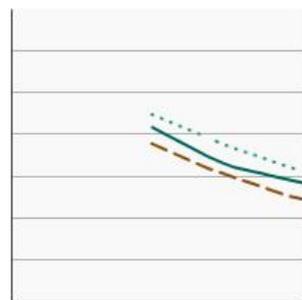
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	Both Sexes	28.2	(26.5 - 29.8)
	Male	24.6	(22.7 - 26.6)
	Female	31.5	(29.1 - 33.9)

Percent of adults aged 20 years and older
who were at a healthy weight by sex, 1971-2014

Legend: ■ Both Sexes   ● Male   ▲ Female

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
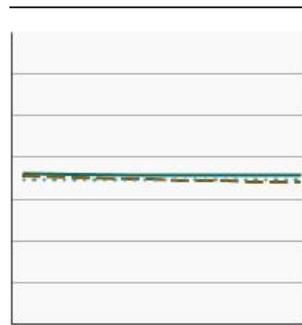
By Race/Ethnicity

Percent of adults aged 20 years and older who were at a healthy weight by race/ethnicity, 1971-2014
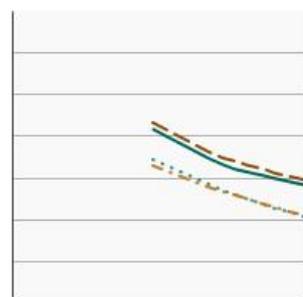
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	All Races	28.2	(26.5 - 29.8)
	Non-Hispanic White	29.2	(27.4 - 31.0)
	Non-Hispanic Black	22.0	(18.9 - 25.1)
	Hispanic	20.9	(17.7 - 24.1)

Percent of adults aged 20 years and older who were at a healthy weight by race/ethnicity, 1971-2014

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

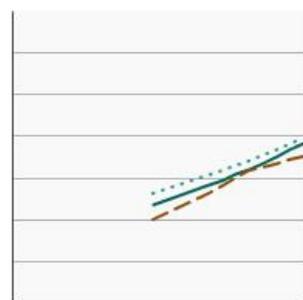## By Poverty Income Level

Percent of adults aged 20 years and older who were at a healthy weight by poverty status, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	24.7	(22.7 - 26.7)
	>=200% of federal poverty level	30.3	(28.0 - 32.5)

Percent of adults aged 20 years and older who were at a healthy weight by poverty status, 1971-2014

■ <200% of federal poverty level ● >=200% of federal poverty level

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
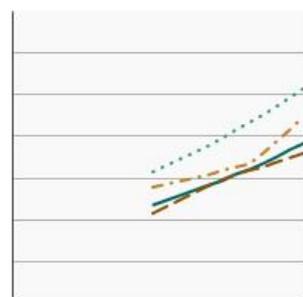
By Education Level

Percent of adults aged 25 years and older who were at a healthy weight by highest level of education obtained, 1991-2014
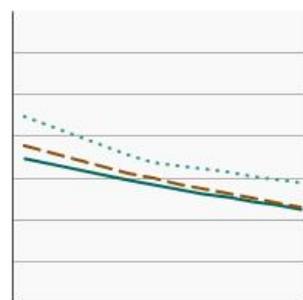
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	Less than High School	22.1	(19.5 - 24.8)
	High School	21.7	(18.7 - 24.8)
	Greater than High School	28.7	(26.7 - 30.6)

Percent of adults aged 25 years and older who were at a healthy weight by highest level of education obtained, 1991-2014
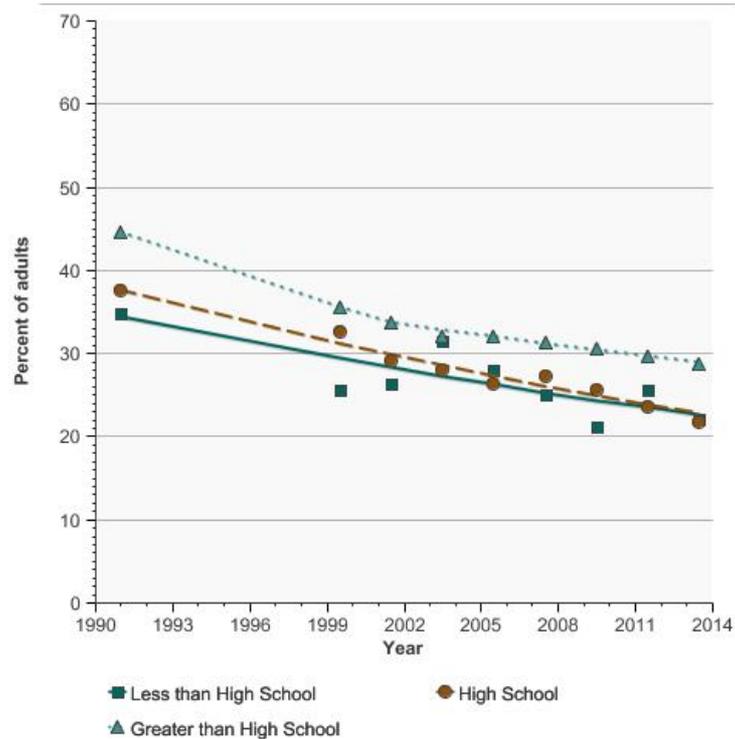
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups 25-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

Overweight

By Sex

Percent of adults aged 20 years and older who were overweight by sex, 1971-2014
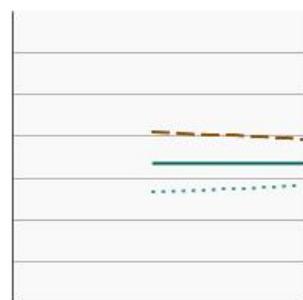
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	**Confidence Interval**
	Both Sexes	32.8	(31.4 - 34.2)
	Male	39.0	(36.9 - 41.1)
	Female	26.8	(25.3 - 28.4)

Percent of adults aged 20 years and older who were overweight by sex, 1971-2014

Both Sexes   Male   Female

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
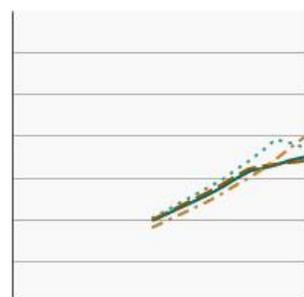
By Race/Ethnicity

Percent of adults aged 20 years and older who were overweight by race/ethnicity, 1971-2014
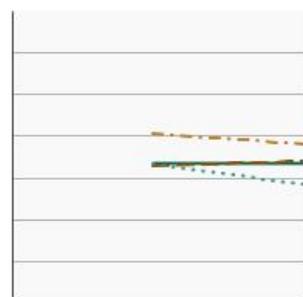
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	**Confidence Interval**
	All Races	32.8	(31.4 - 34.2)
	Non-Hispanic White	33.3	(31.4 - 35.2)
	Non-Hispanic Black	28.4	(25.5 - 31.4)
	Hispanic	35.7	(32.0 - 39.4)

Percent of adults aged 20 years and older who were overweight by race/ethnicity, 1971-2014
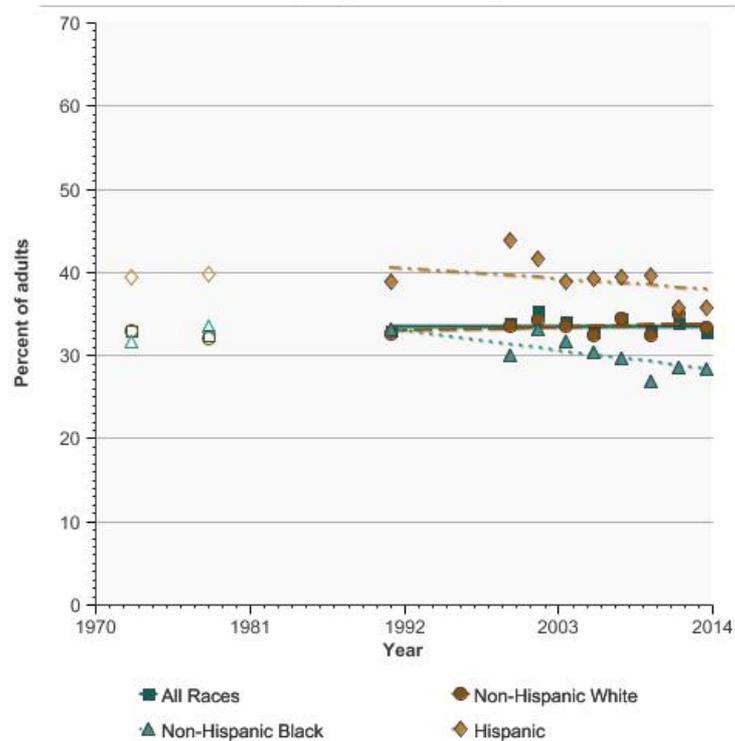
Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
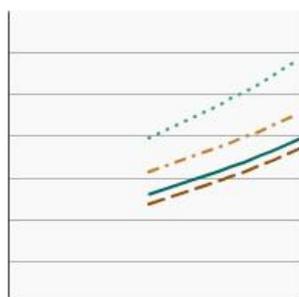
By Poverty Income Level

Percent of adults aged 20 years and older who were overweight by poverty status, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	30.6	(28.6 - 32.6)
	>=200% of federal poverty level	33.7	(31.4 - 36.0)

Percent of adults aged 20 years and older who were overweight by poverty status, 1971-2014
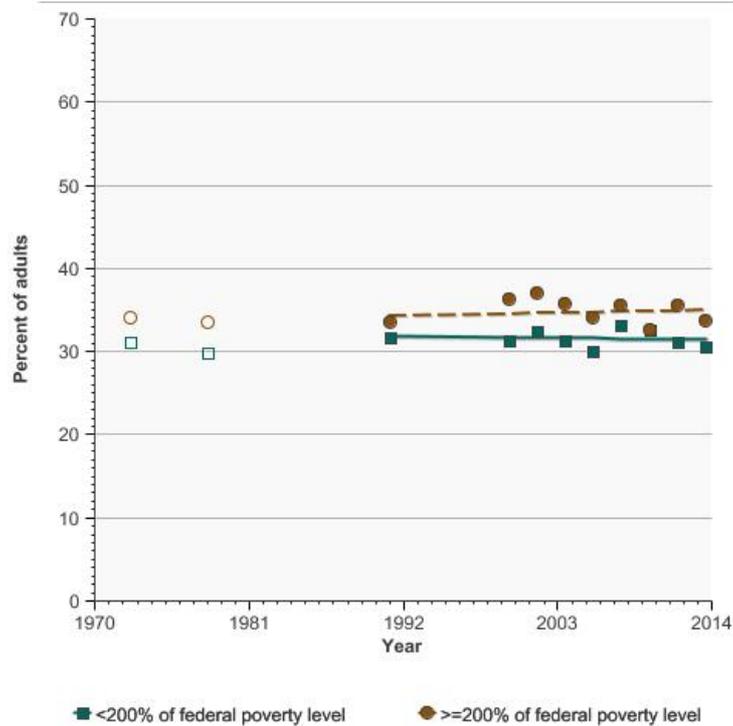
■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
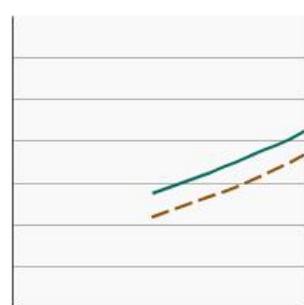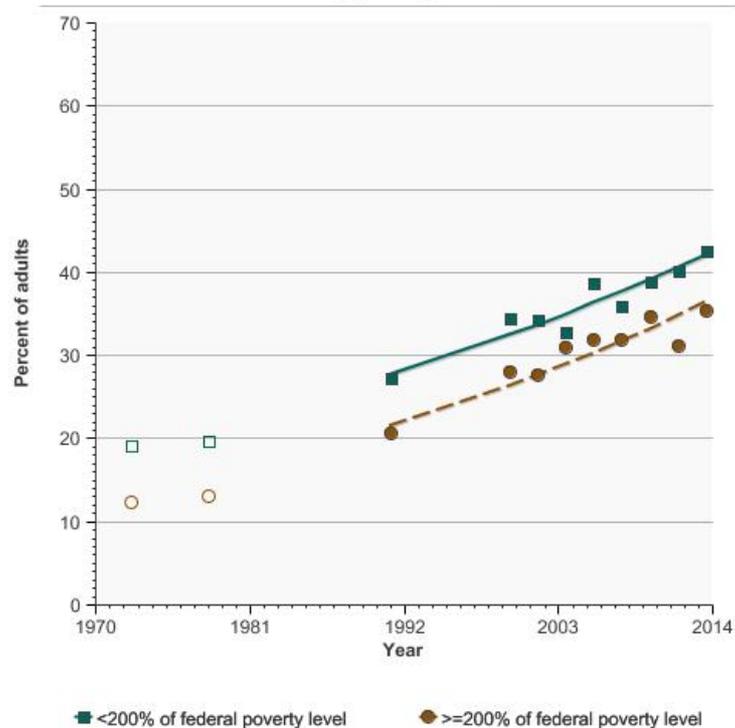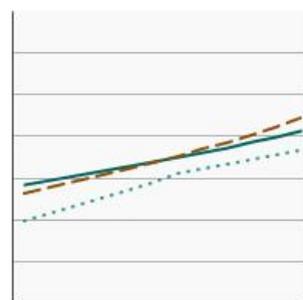
By Education Level

Percent of adults aged 25 years and older who were overweight by highest level of education obtained, 1991-2014

| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	Less than High School	34.5	(31.3 - 37.8)
	High School	33.6	(30.2 - 36.9)
	Greater than High School	33.6	(31.4 - 35.9)

Percent of adults aged 25 years and older who were overweight by highest level of education obtained, 1991-2014
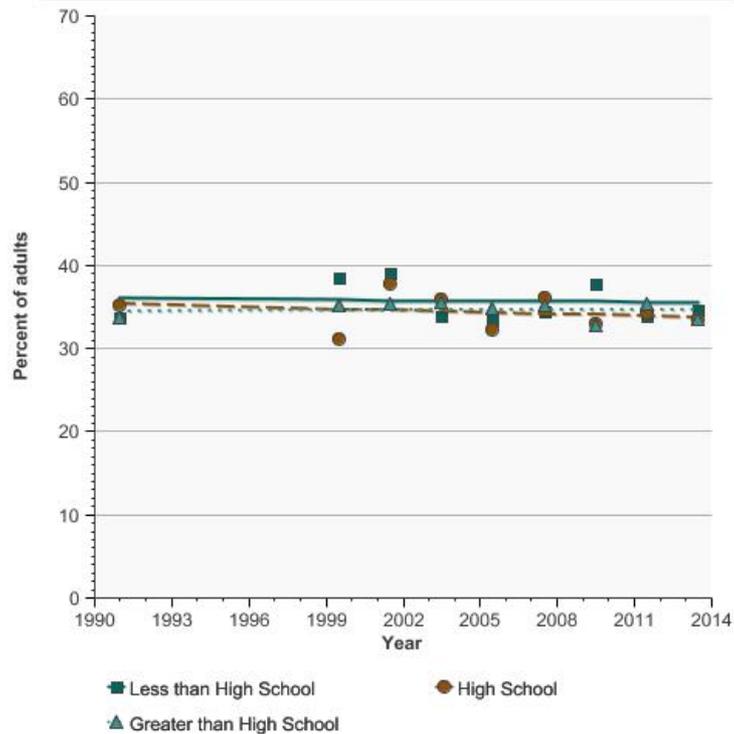
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups 25-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

Obese

By Sex

Percent of adults aged 20 years and older who were obese by sex, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	Both Sexes	37.6	(35.8 - 39.5)
	Male	35.1	(33.1 - 37.1)
	Female	40.1	(37.5 - 42.8)

Percent of adults aged 20 years and older who were obese by sex, 1971-2014

Legend: Both Sexes, Male, Female

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

By Race/Ethnicity

Percent of adults aged 20 years and older who were obese by race/ethnicity, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	All Races	37.6	(35.8 - 39.5)
	Non-Hispanic White	36.3	(33.8 - 38.8)
	Non-Hispanic Black	48.1	(44.3 - 51.9)
	Hispanic	42.9	(38.5 - 47.3)

Percent of adults aged 20 years and older
who were obese by race/ethnicity, 1971-2014
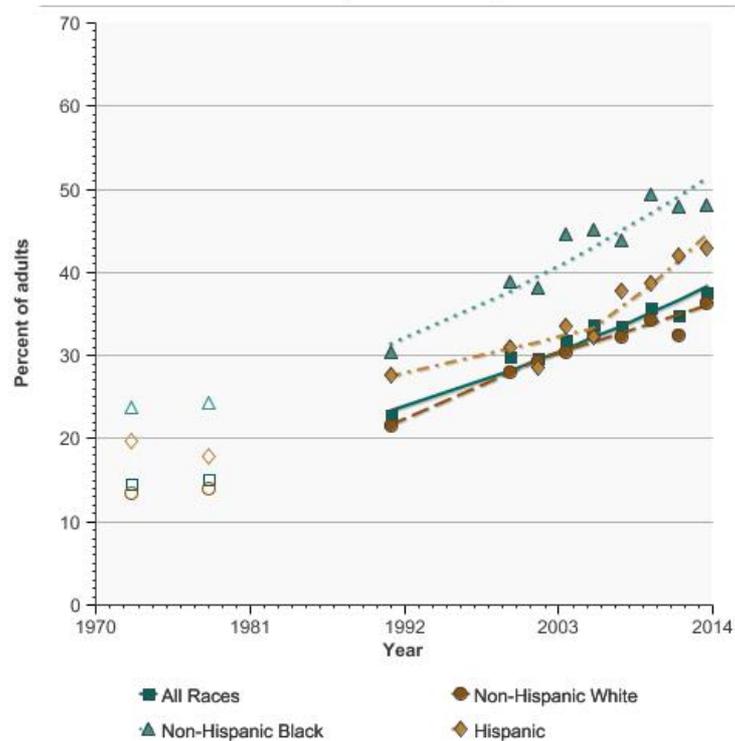
Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

Males by Race/Ethnicity

Percent of males aged 20 years and older who were obese by race/ethnicity, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	**Confidence Interval**
	All Races	35.1	(33.1 - 37.1)
	Non-Hispanic White	34.9	(31.8 - 38.1)
	Non-Hispanic Black	37.9	(33.0 - 42.8)
	Hispanic	38.2	(32.9 - 43.6)

Percent of males aged 20 years and older
who were obese by race/ethnicity, 1971-2014
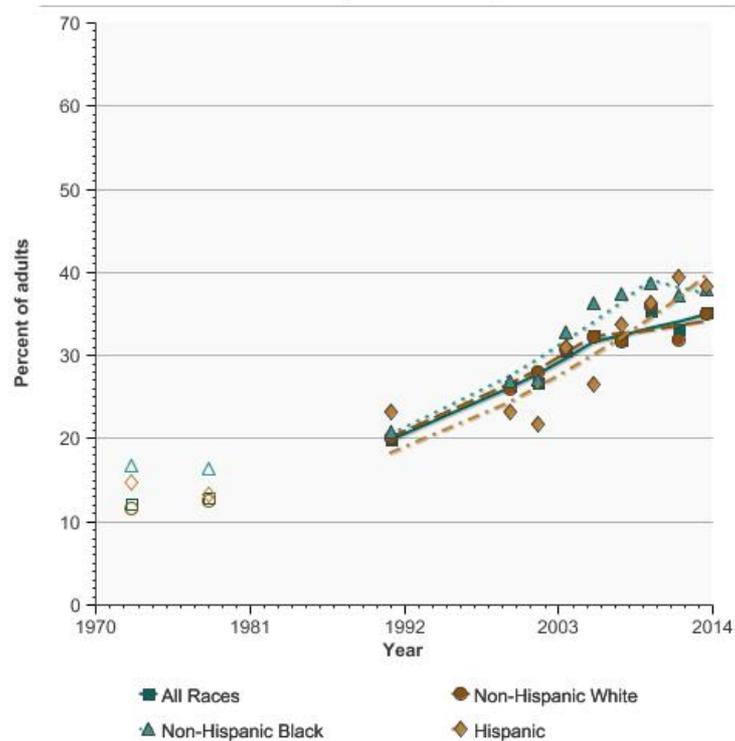
Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

Females by Race/Ethnicity

Percent of females aged 20 years and older who were obese by race/ethnicity, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	All Races	40.1	(37.5 - 42.8)
	Non-Hispanic White	37.7	(34.3 - 41.0)
	Non-Hispanic Black	56.7	(53.5 - 59.8)
	Hispanic	46.9	(41.4 - 52.3)

Percent of females aged 20 years and older
who were obese by race/ethnicity, 1971-2014
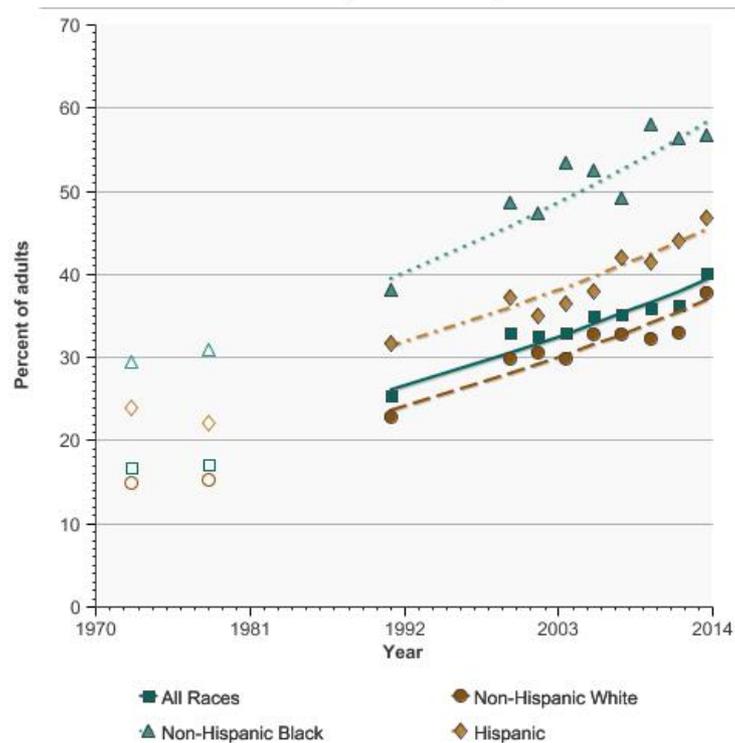
Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

By Poverty Income Level

Percent of adults aged 20 years and older who were obese by poverty status, 1971-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	42.5	(40.3 - 44.8)
	>=200% of federal poverty level	35.3	(32.4 - 38.2)

Percent of adults aged 20 years and older
who were obese by poverty status, 1971-2014

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
The open data symbols represent ages 20-74 from the NHANES 1 and NHANES 2 surveys.
Data are age-adjusted to the 2000 US standard population using age groups 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

By Education Level

Percent of adults aged 25 years and older who were obese by highest level of education obtained, 1991-2014

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013 to 2014)	
		Percent of adults	Confidence Interval
	Less than High School	42.3	(38.6 - 46.0)
	High School	43.8	(39.6 - 47.9)
	Greater than High School	36.6	(34.4 - 38.9)

Percent of adults aged 25 years and older who were obese by highest level of education obtained, 1991-2014

Legend:
- Less than High School
- High School
- Greater than High School
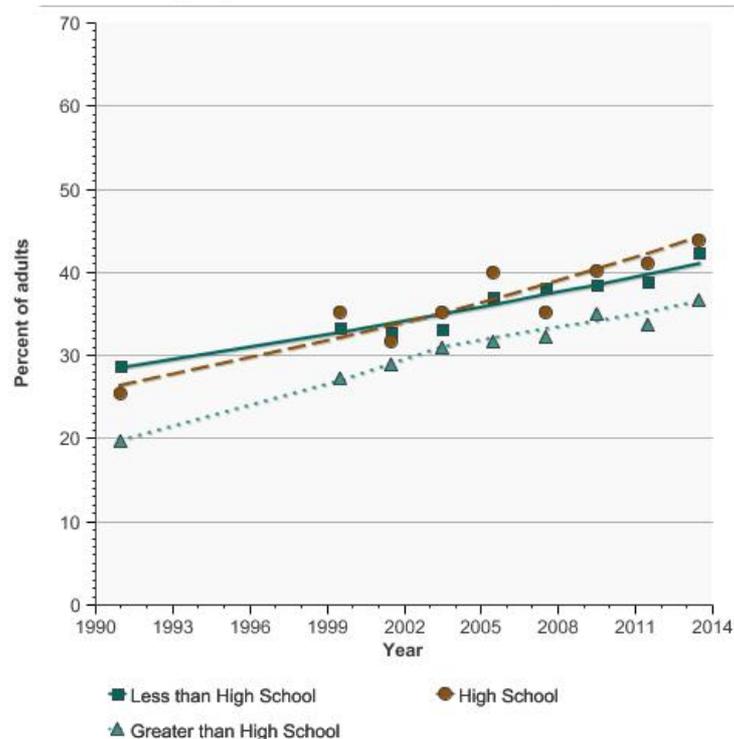
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups 25-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

Cancers Related to Weight

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

- Breast Cancer(http://seer.cancer.gov/statfacts/html/breast.html)
- Colon and Rectum(http://seer.cancer.gov/statfacts/html/colorect.html)
- Endometrial Cancer(http://seer.cancer.gov/statfacts/html/corp.html)
- Ovary(http://seer.cancer.gov/statfacts/html/ovary.html)
- Pancreas(http://seer.cancer.gov/statfacts/html/pancreas.html)

Additional Information on Weight
For the public

- Living a Healthy Lifestyle(http://www.ahrq.gov/patients-consumers/prevention/lifestyle/index.html). Agency for Healthcare Research and Quality.
- ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention(http://www.cancer.org/healthy/eathealthygetactive/acsguidelinesonnutritionphysicalactivityforcancerprevention/index). American Cancer Society.
- Take Control of Your Weight(http://www.cancer.org/healthy/eathealthygetactive/takecontrolofyourweight). American Cancer Society.
- Cancer Prevention and Control(http://www.cdc.gov/cancer/dcpc/prevention/other.htm). Centers for Disease Control and Prevention.
- Nutrition, Physical Activity, and Obesity(http://www.cdc.gov/nccdphp/dnpao/index.html). Centers for Disease Control and Prevention.
- Overweight and Obesity(http://www.cdc.gov/obesity/index.html). Centers for Disease Control and Prevention.

- Physical Activity for a Healthy Weight(http://www.cdc.gov/healthyweight/physical_activity/index.html). Centers for Disease Control and Prevention.
- Body Mass Index Table(http://www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm). National Heart, Lung, and Blood Institute.

For health professionals

- Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults(http://www.ncbi.nlm.nih.gov/books/NBK2003/). National Heart, Lung, and Blood Institute.
- Screening for and Management of Obesity in Adults (June 2012)(http://www.uspreventiveservicestaskforce.org/uspstf/uspsobes.htm). U.S. Preventive Services Task Force.
- Screening for Obesity in Children and Adolescents (January 2010)(http://www.uspreventiveservicestaskforce.org/uspstf/uspschobes.htm). U.S. Preventive Services Task Force.

Scientific reports

- Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999–2010(http://www.ncbi.nlm.nih.gov/pubmed/22253363). Flegal KM, Carroll MD, Kit BK, and Ogden CL. JAMA 2012;307(5):491–7.
- American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity(http://www.ncbi.nlm.nih.gov/pubmed/22237782). Kushi LH, Doyle C, McCullough M, et al. CA Cancer J Clin. 2012;62(1):30–67.
- Prevalence of obesity and trends in body mass index among U.S. children and adolescents, 1999–2010(http://www.ncbi.nlm.nih.gov/pubmed/22253364). Ogden CL, Carroll MD, Kit BK, and Flegal KM. JAMA 2012;307(5):483–90.
- Nutrition and physical activity cancer prevention guidelines, cancer risk, and mortality in the women's health initiative(http://www.ncbi.nlm.nih.gov/pubmed/24403289). Thomson CA, McCullough ML, Wertheim BC, et al. Cancer Prev Res (Phila) 2014;1:42–53.
- Food, nutrition, physical activity, and the prevention of cancer: a global perspective(http://www.ncbi.nlm.nih.gov/pubmed/18452640). Wiseman M. The second World Cancer Research Fund/American Institute for Cancer Research expert report. Proc Nutr Soc. 2008;67(3):253–6.

Statistics

- FastStats – Obesity and Overweight(http://www.cdc.gov/nchs/fastats/overwt.htm). Centers for Disease Control and Prevention.
- Centers for Disease Control and Prevention, National Cancer Statistics, National Health Interview Survey(http://www.cdc.gov/nchs/nhis.htm).
- Healthy People 2020, 2020 Topics & Objectives – Nutrition and Weight Status(http://www.healthypeople.gov/2020/topics-objectives/topic/nutrition-and-weight-status).

UV Exposure and Sun Protective Practices

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

- Sun Protective Practices
- Indoor Tanning
- Sunburn

Sun-Protective Behavior

Last Updated:
January 2017

Introduction

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

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

Measure

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

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

In certain sections of this report, the protective clothing and sunscreen measures were defined according to the Healthy People 2020 (HP2020) objectives with data available since 2005, allowing for only short-term trends. HP2020 defines use of protective clothing as wearing one or more of the following -- a wide-brimmed hat that shades the face, ears, and neck, long sleeves, and long pants or long skirt. HP2020 guidelines for sunscreen use refer to sunscreens with a sun protective factor (SPF) of 15 or higher.

Healthy People 2020 Target

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

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

Data Source

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

Trends and Most Recent Estimates
Sun Protection Methods

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	Total	70.8	(69.9 - 71.6)
	Sunscreen (SPF 15+)	33.7	(32.8 - 34.5)
	Protective clothing	38.4	(37.6 - 39.2)
	Seek Shade	39.1	(38.3 - 40.0)
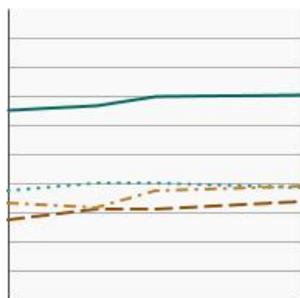
Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by type of protective measure, 2005-2015
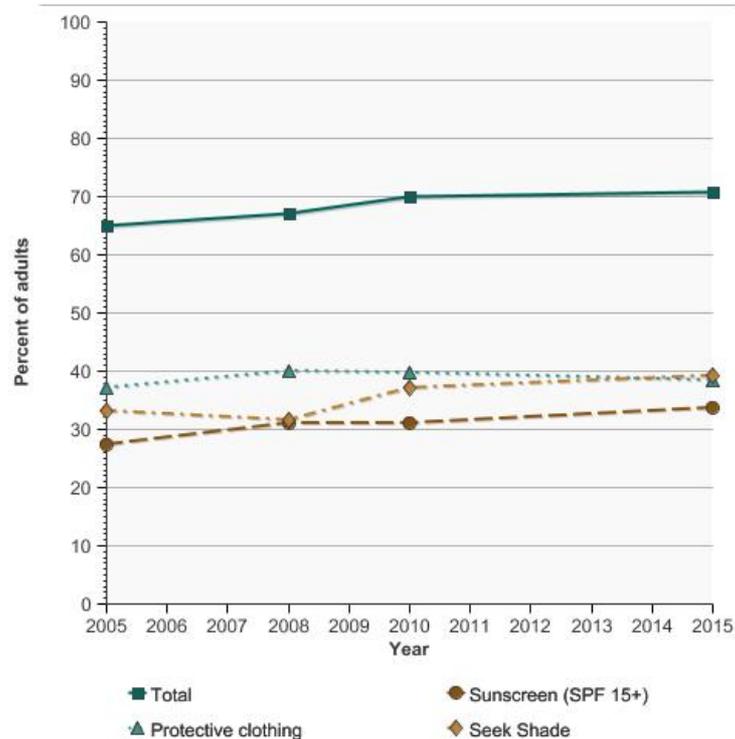
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
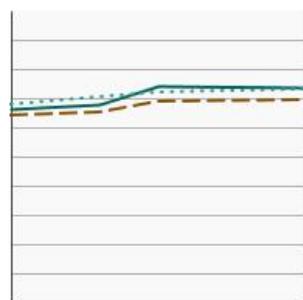
Use Some Type of Protection

By Sex

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by sex, 2005-2015
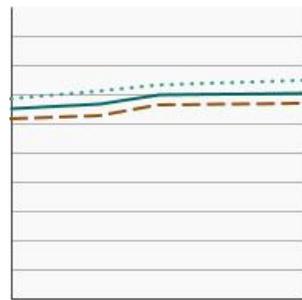
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	70.8	(69.9 - 71.6)
	Male	66.7	(65.6 - 67.8)
	Female	74.8	(73.8 - 75.7)

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by sex, 2005-2015
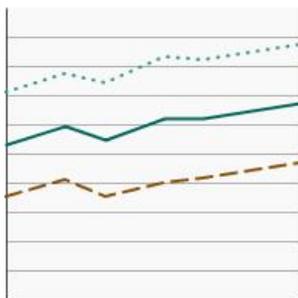
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by race/ethnicity, 2005-2015
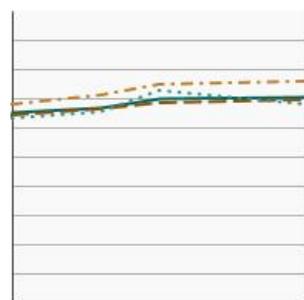
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	70.8	(69.9 - 71.6)
	Non-Hispanic White	69.6	(68.6 - 70.7)
	Non-Hispanic Black	67.7	(65.5 - 69.9)
	Hispanic	75.7	(74.0 - 77.3)

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

Legend:
- All Races
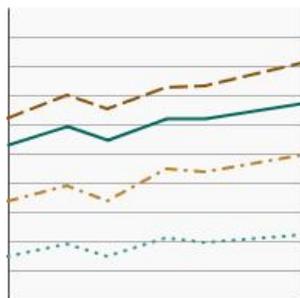- Non-Hispanic Black
- Non-Hispanic White
- Hispanic
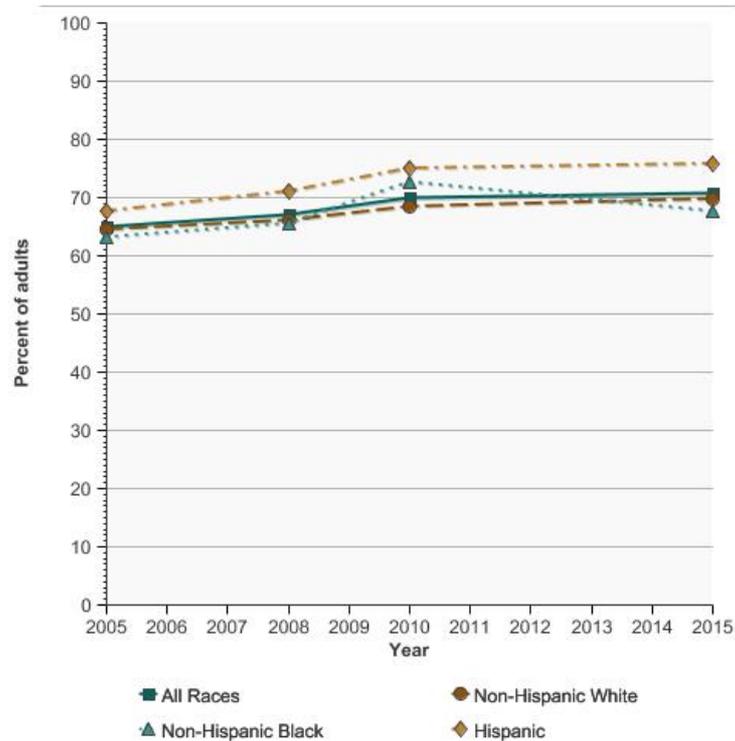
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Age

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by age, 2005-2015
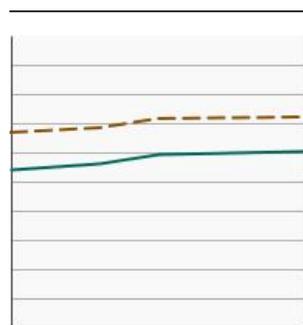
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	60.6	(57.8 - 63.5)
	Ages 25+	72.3	(71.4 - 73.1)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by sex and age, 2005-2015
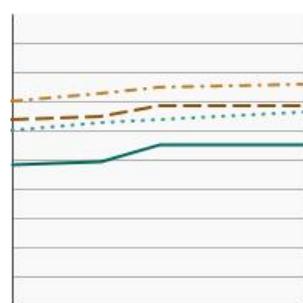
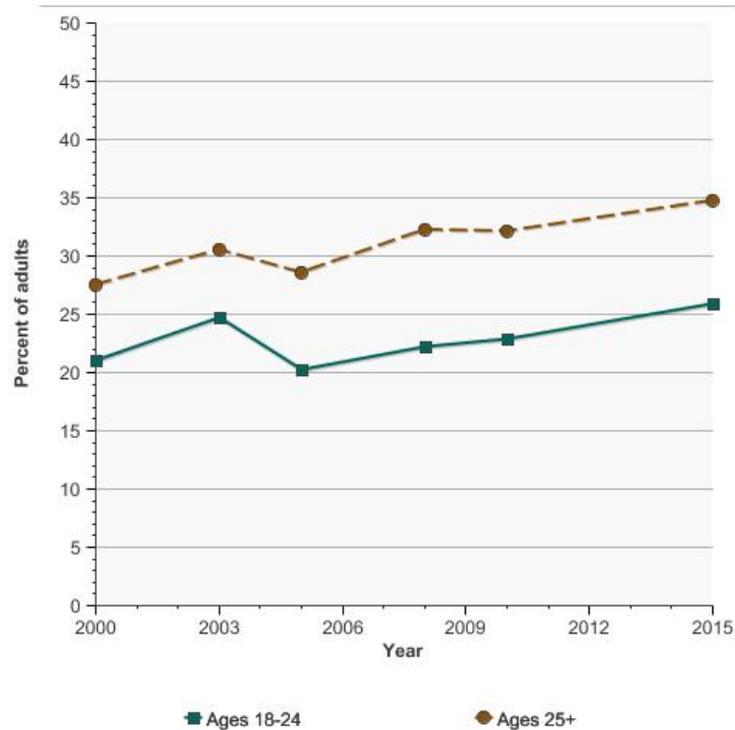| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Males, Ages 18-24	55.4	(51.6 - 59.2)
	Males, Ages 25+	68.3	(67.2 - 69.5)
	Females, Ages 18-24	66.2	(62.6 - 69.7)
	Females, Ages 25+	76.0	(75.1 - 77.0)

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

- Males, Ages 18-24
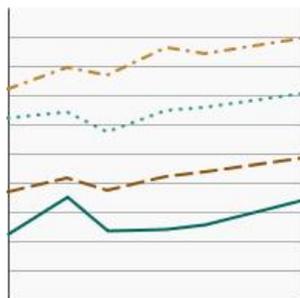- Males, Ages 25+
- Females, Ages 18-24
- Females, Ages 25+

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	71.5	(70.3 - 72.7)
	>=200% of federal poverty level	70.5	(69.4 - 71.5)

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

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	73.6	(71.6 - 75.6)
	High School	69.3	(67.8 - 70.9)
	Greater than High School	72.9	(71.9 - 73.9)

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

Legend:
- Less than High School
- High School
- Greater than High School
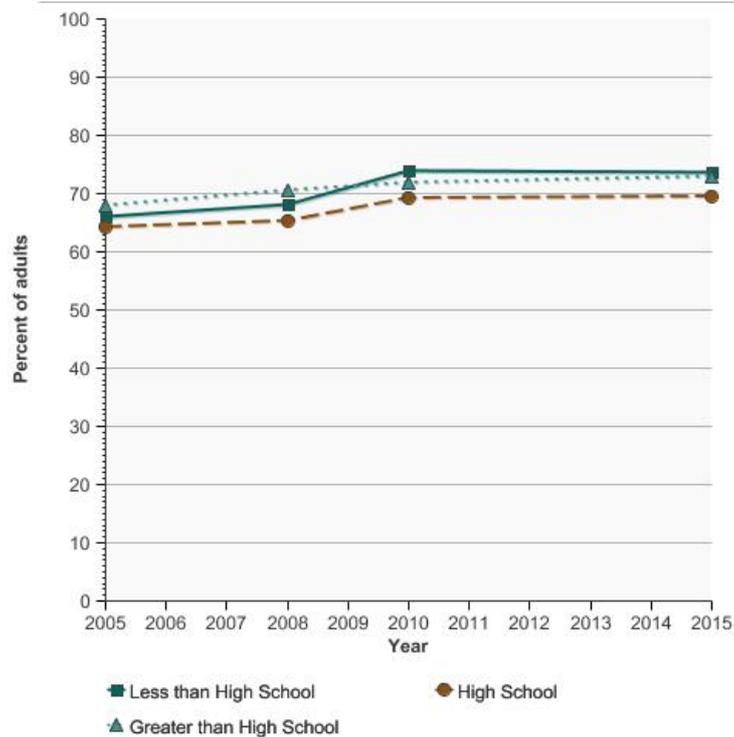
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Use Sunscreen

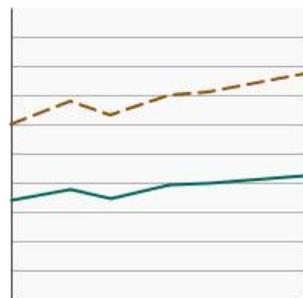**By Sex**

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

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

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
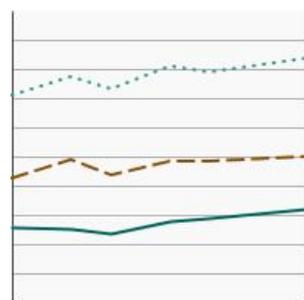
By Race/Ethnicity

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

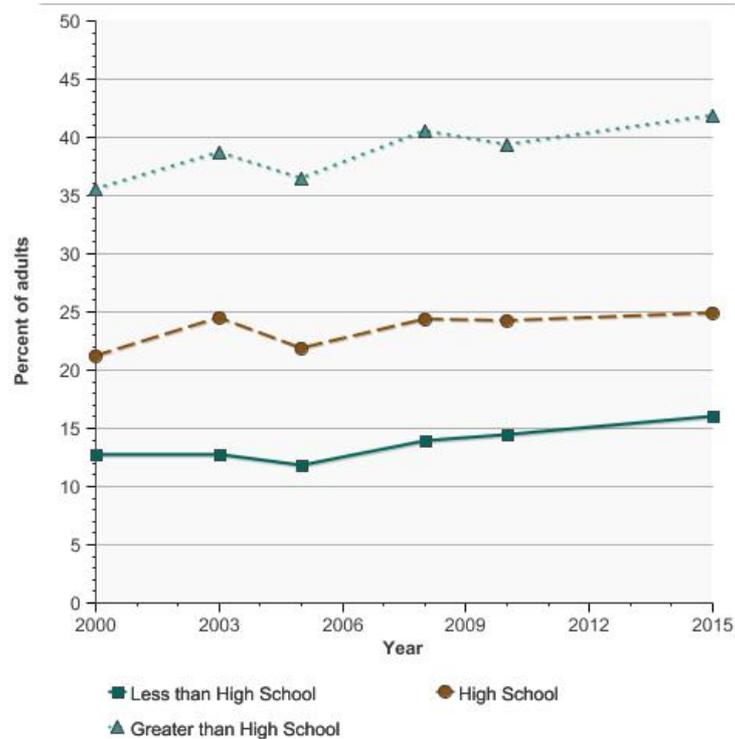| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	33.7	(32.8 - 34.5)
	Non-Hispanic White	40.4	(39.3 - 41.5)
	Non-Hispanic Black	10.9	(9.7 - 12.2)
	Hispanic	24.7	(23.1 - 26.3)

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

- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic
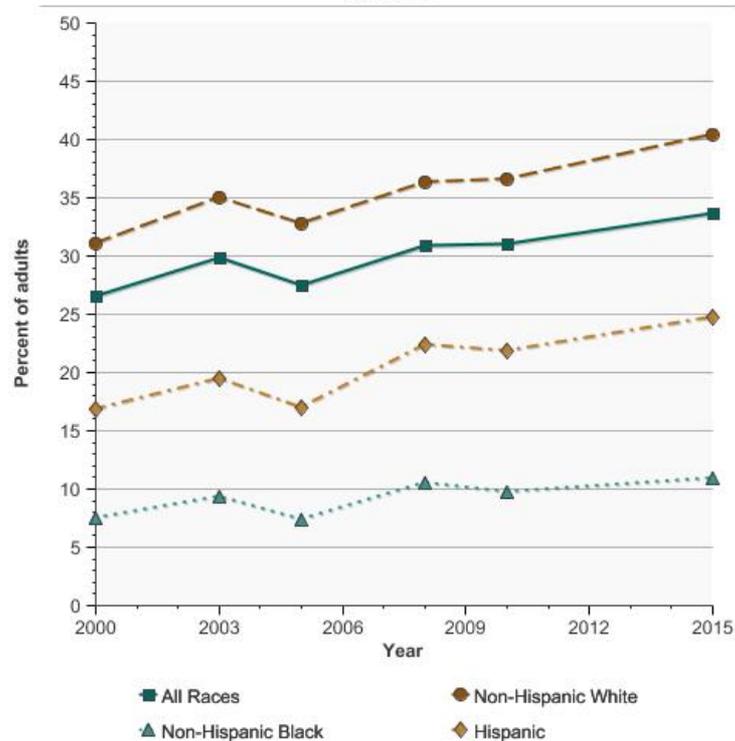
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
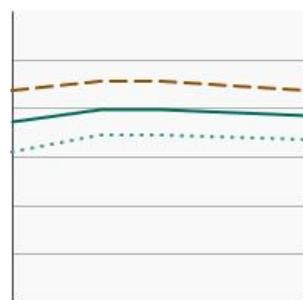
By Age

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by using SPF 15 or higher sunscreen by age, 2000-2015
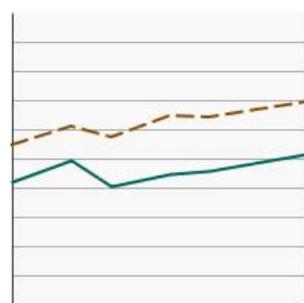
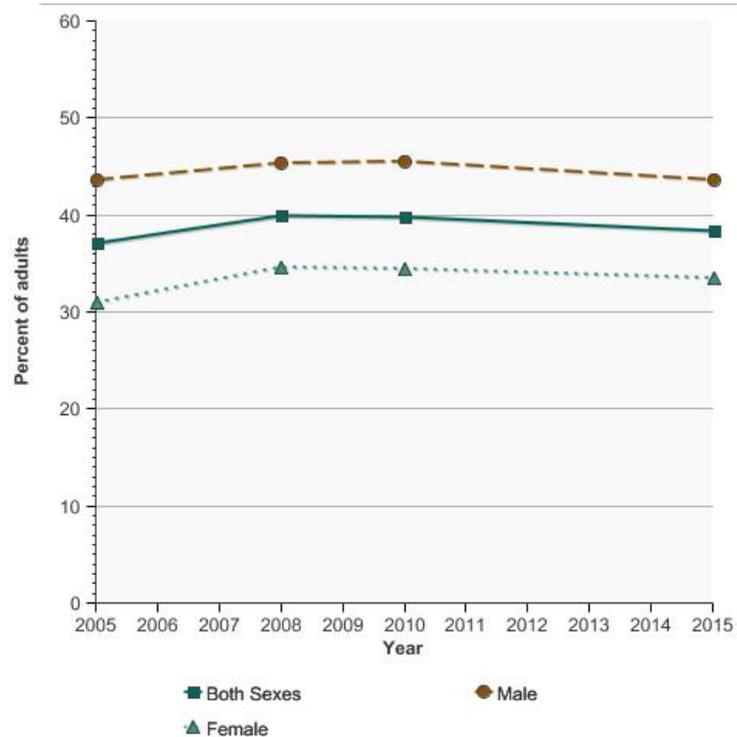| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	25.9	(23.1 - 28.7)
	Ages 25+	34.8	(33.9 - 35.7)

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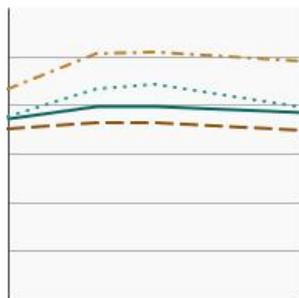

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	Males, Ages 18-24	17.0	(13.8 - 20.1)
	Males, Ages 25+	24.3	(23.2 - 25.5)
	Females, Ages 18-24	35.3	(31.3 - 39.2)
	Females, Ages 25+	44.8	(43.6 - 46.0)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	21.4	(20.3 - 22.6)
	>=200% of federal poverty level	38.7	(37.6 - 39.7)

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

- <200% of federal poverty level
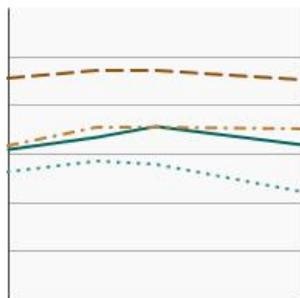- >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	16.0	(14.2 - 17.9)
	High School	24.9	(23.3 - 26.5)
	Greater than High School	41.8	(40.7 - 42.9)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Wear Protective Clothing

By Sex

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

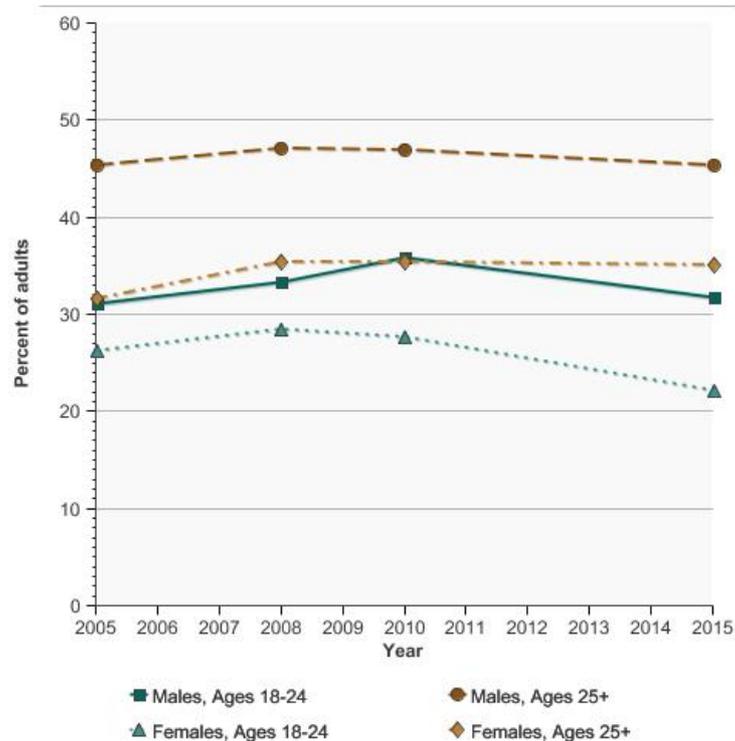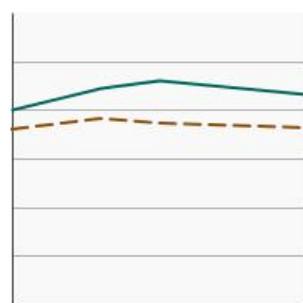| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	38.4	(37.6 - 39.2)
	Male	43.6	(42.4 - 44.8)
	Female	33.4	(32.4 - 34.4)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

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

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

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by wearing protective clothing by race/ethnicity, 2005-2015
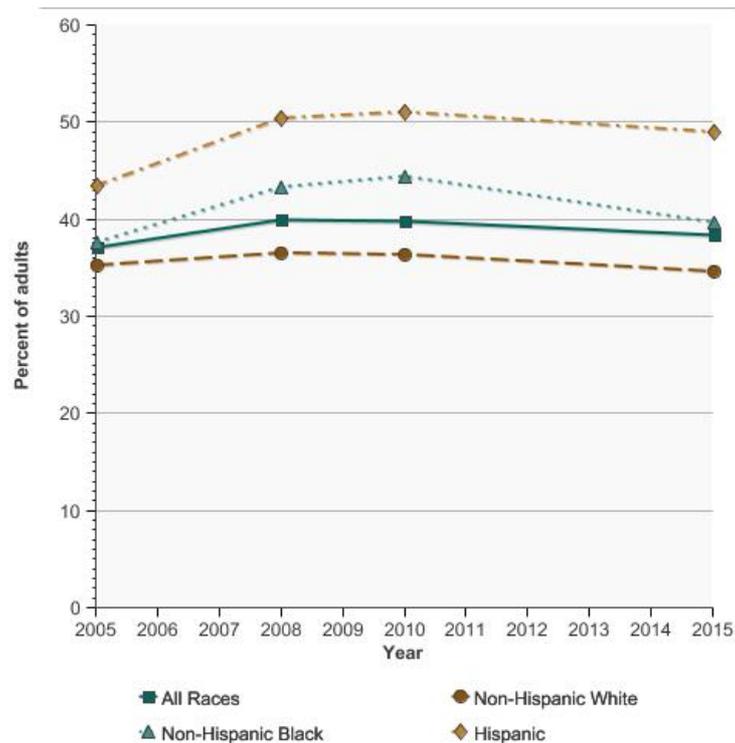
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
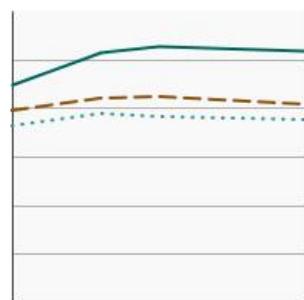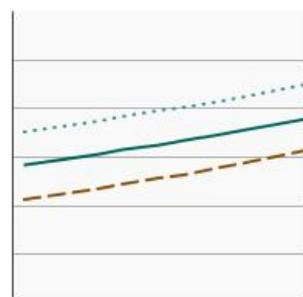
By Age

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by wearing protective clothing by age, 2005-2015
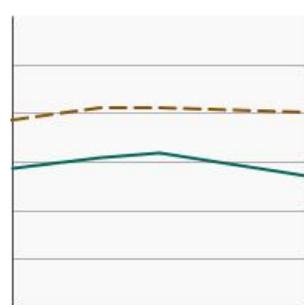
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	Ages 18-24	27.1	(24.5 - 29.6)
	Ages 25+	40.1	(39.2 - 41.0)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

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

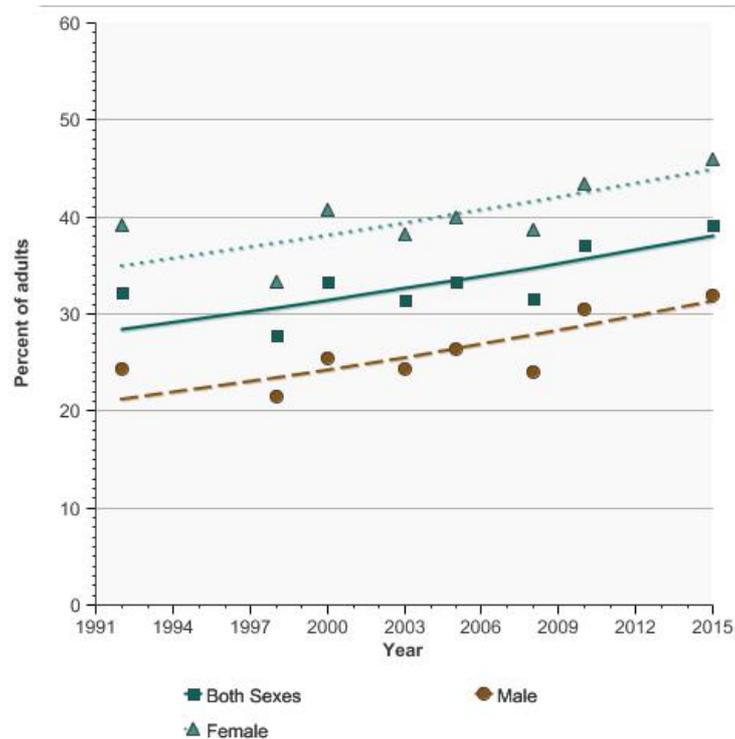| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Males, Ages 18-24	31.8	(28.0 - 35.6)
	Males, Ages 25+	45.3	(44.0 - 46.6)
	Females, Ages 18-24	22.1	(18.9 - 25.3)
	Females, Ages 25+	35.0	(34.0 - 36.1)

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

Legend:
- Males, Ages 18-24
- Males, Ages 25+
- Females, Ages 18-24
- Females, Ages 25+

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<u><200% of federal poverty level</u>	43.4	(42.0 - 44.8)
	<u>>=200% of federal poverty level</u>	36.2	(35.2 - 37.2)

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

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	51.7	(49.3 - 54.1)
	High School	40.8	(39.1 - 42.5)
	Greater than High School	37.7	(36.6 - 38.8)

Percentage of adults aged 25 years and older who usually or always protect themselves from the sun by highest level of education obtained, 2005-2015
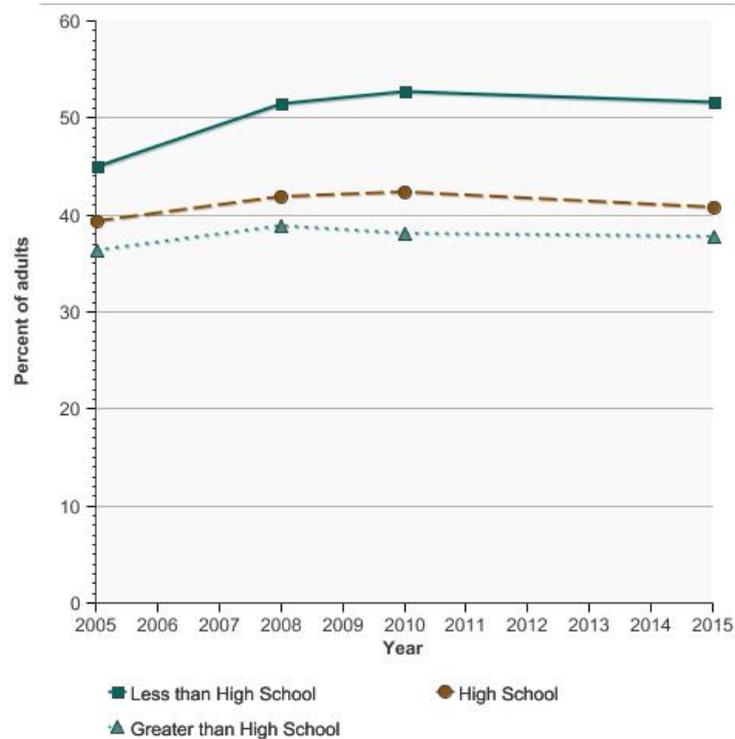
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Seek Shade

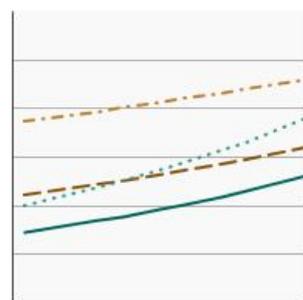**By Sex**

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by seeking shade by sex, 1992-2015
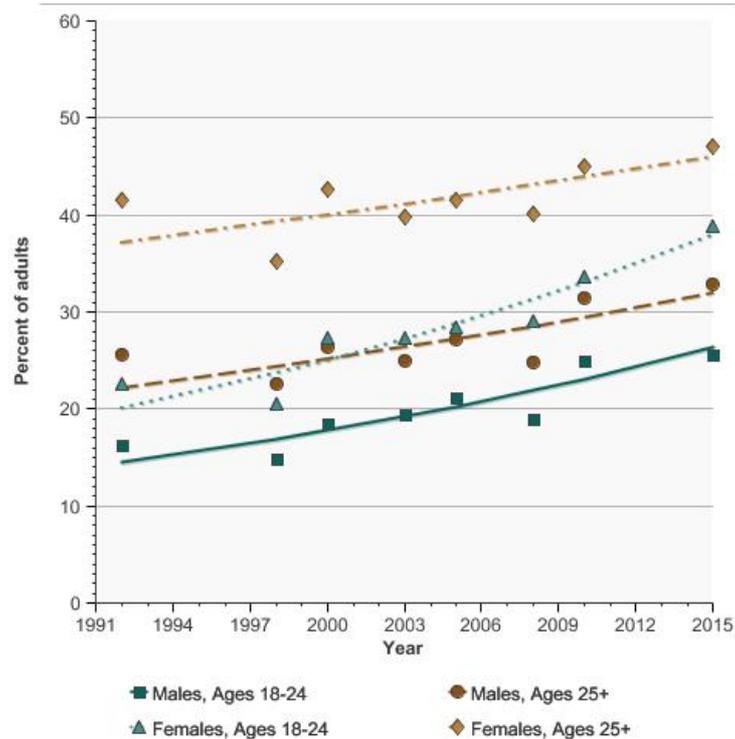
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	39.1	(38.3 - 40.0)
	Male	31.9	(30.8 - 33.1)
	Female	46.0	(45.0 - 47.1)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
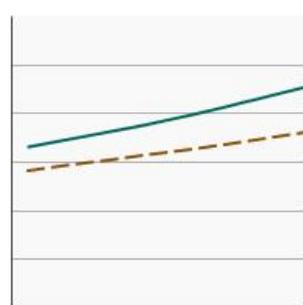Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by seeking shade by race/ethnicity, 1992-2015
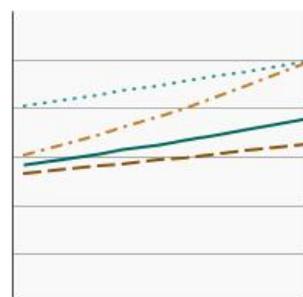
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	39.1	(38.3 - 40.0)
	Non-Hispanic White	34.1	(33.1 - 35.1)
	Non-Hispanic Black	48.7	(46.5 - 50.9)
	Hispanic	49.1	(47.2 - 50.9)

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by seeking shade by race/ethnicity, 1992-2015
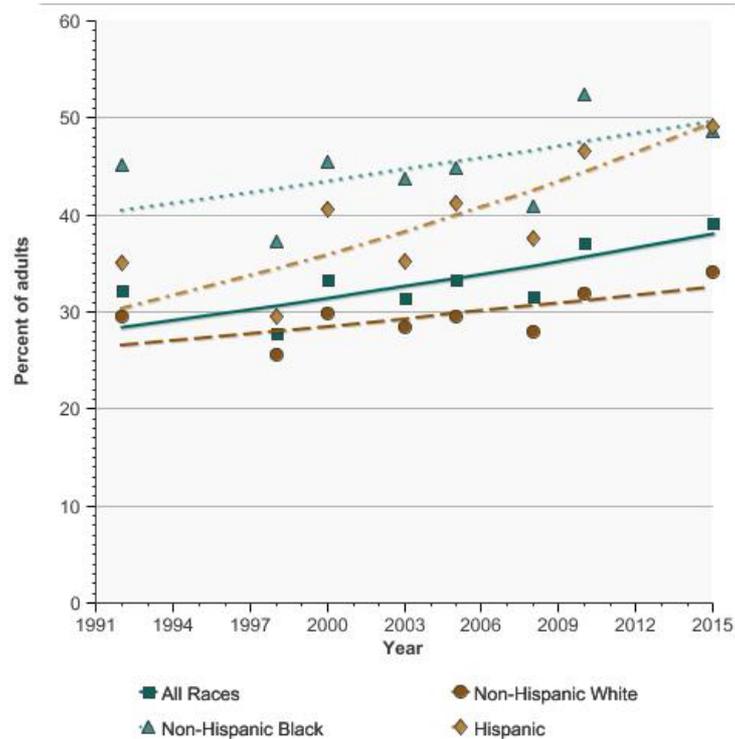
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
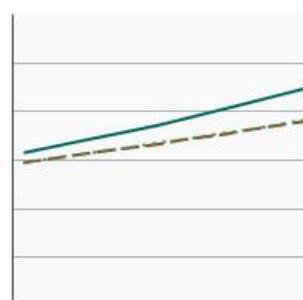
By Age

Percentage of adults aged 18 years and older who usually or always protect themselves from the sun by seeking shade by age, 1992-2015
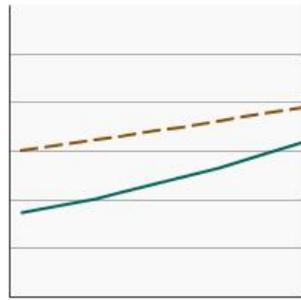
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	32.0	(29.5 - 34.5)
	Ages 25+	40.2	(39.3 - 41.1)

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

■ Ages 18-24　　● Ages 25+

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Males, Ages 18-24	25.5	(22.3 - 28.7)
	Males, Ages 25+	32.9	(31.6 - 34.2)
	Females, Ages 18-24	38.8	(35.2 - 42.3)
	Females, Ages 25+	47.1	(46.1 - 48.1)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	45.6	(44.3 - 47.0)
	>=200% of federal poverty level	36.3	(35.3 - 37.4)

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

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	46.0	(43.6 - 48.4)
	High School	39.9	(38.0 - 41.7)
	Greater than High School	39.0	(37.9 - 40.1)

Percentage of adults aged 25 years and older who usually or always protect themselves from the sun by highest level of education obtained, 1992-2015
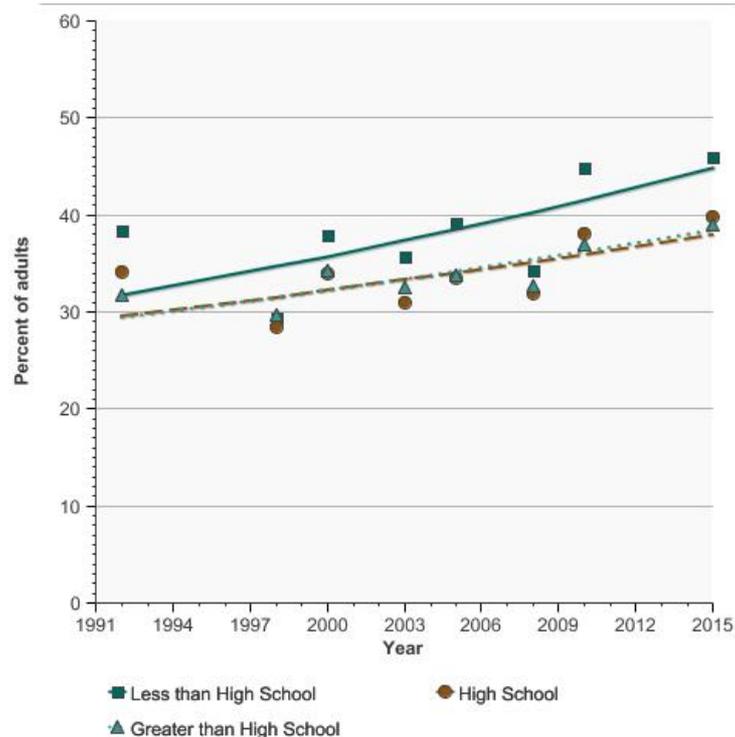
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Cancers Related to Sun-Protective Behavior

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

- Melanoma of the Skin(http://seer.cancer.gov/statfacts/html/melan.html)
- Oral Cavity and Pharynx (http://seer.cancer.gov/statfacts/html/oralcav.html)

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

- Skin Cancer(http://www.cancer.org/cancer/skincancer). American Cancer Society.
- Skin Cancer(http://www.cancer.gov/cancertopics/types/skin). National Cancer Institute.
- Indoor Tanning Restrictions for Minors – A State-by-State Comparison (April 2014)(http://www.ncsl.org/research/health/indoor-tanning-restrictions.aspx). National Conference of State Legislatures.
- National Council on Skin Cancer Prevention(http://www.skincancerprevention.org/).
- Sunscreen drug products for over-the-counter human use, 2011(http://www.gpo.gov/fdsys/pkg/FR-2011-06-17/pdf/2011-14766.pdf). U.S. Food and Drug Administration, U.S. Department of Health and Human Services.
- Code of Federal Regulations Title 21, Volume 76, Number 117, Parts 201, 310, and 352(http://www.gpo.gov/). (June 17, 2011). Fed Regist. 2011.
- Sunburn protection factor (SPF)(http://www.fda.gov/aboutfda/centersoffices/officeofmedicalproductsandtobacco/cder/ucm106351.htm). U.S. Food and Drug Administration.

For health professionals

- Vitamin D and Calcium: A Systematic Review of Health Outcomes (Update)(http://effectivehealthcare.ahrq.gov/ehc/products/537/1953/vitamin-d-calcium-report-140902.pdf). AHRQ Publication No. 14-E004-EF September 2014. Evidence Report/Technology Assessment Number 217.
- The Community Guide: what works to promote health(http://www.thecommunityguide.org/index.html). Community Preventive Services Task Force.
- Preventing skin cancer: multicomponent community-wide interventions (abbreviated)(http://www.thecommunityguide.org/cancer/skin/community-wide/multicomponent.html). Community Preventive Services Task Force.
- Indoor Tanning Association settles FTC charge that it deceived customers about skin cancer risks from tanning(http://www.ftc.gov/opa/2010/01/tanning.shtm). Federal Trade Commission.
- Melanoma Treatment (PDQ®)(http://www.cancer.gov/cancertopics/pdq/treatment/melanoma/HealthProfessional). National Cancer Institute.
- Skin Cancer Treatment (PDQ®)(http://www.cancer.gov/cancertopics/pdq/treatment/skin/HealthProfessional). National Cancer Institute.
- Stratosphere: UV index(http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/index.html). National Weather Service: Climate Prediction Center.
- The Surgeon General's Call to Action to Prevent Skin Cancer(http://www.surgeongeneral.gov). U.S. Department of Health and Human Services. Washington, DC: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2014.
- UV index(http://www.epa.gov/sunwise/uvindex.html). U.S. Environmental Protection Agency, SunWise Program.
- Sunlamp products and ultraviolet lamps intended for use in sunlamp products(http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?FR=1040.20). U.S. Food and Drug Administration. Title 21. Food and drugs. CFR 1040.20. Fed Regist. 2013.
- FDA news release: FDA to require warnings on sunlamp products(http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm399222.htm). U.S. Food and Drug Administration.
- General and plastic surgery devices: reclassification of ultraviolet lamps for tanning, henceforth to be known as sunlamp products and ultraviolet lamps intended for use in sunlamp products. U.S. Food and Drug Administration. Rule. Fed Regist. 2014;79:31205-31214.
- False and Misleading Health Information Provided to Teens by the Indoor Tanning Industry. U.S. House of Representatives Committee on Energy and Commerce-Minority Staff. Investigative Report. Prepared for Rep. Henry A. Waxman, Rep. Diana DeGette, Rep. Frank Pallone, Jr., Rep. Rosa L. DeLauro, and Rep. Carolyn Maloney; 2012.
- Behavioral counseling to prevent skin cancer(http://www.uspreventiveservicestaskforce.org/uspstf11/skincancouns/skincancounsrs.htm). U.S. Preventive Services Task Force.
- Sun Protection in Schools: an Educational Package to Protect Children from Ultraviolet Radiation(http://www.who.int/uv/publications/en/sunprotschools.pdf). World Health Organization. Geneva, Switzerland: World Health Organization; 2003.

Scientific reports

- Surgeon General Call to Action to Prevent Skin Cancer, 2014(http://www.surgeongeneral.gov/library/calls/prevent-skin-cancer/).
- FDA Indoor tanning: The risks of ultraviolet rays(http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm186687.htm).
- Buying indoor tanning with university debit cards(http://www.ncbi.nlm.nih.gov/pubmed/24947697). Boyers L, Karimkhani C, Crane LA, Asdigian N, Hollonds A, Dellavalle RP. J Am Acad Dermatol. 2014;71(1):199-201.
- VITamin D and OmegA-3 TriaL (VITAL Study)(http://www.vitalstudy.org/index.html). Brigham and Women's Hospital.
- Prevalence of sunburn, sun protection, and indoor tanning behaviors among Americans: review from national surveys and case studies of 3 states(http://www.ncbi.nlm.nih.gov/pubmed/22018060). Buller DB, Cokkinides V, Hall HI, et al. J Am Acad Dermatol. 2011;65(5):S114–S123.
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- Correlates of intentional tanning among adolescents in the United States: a systematic review of the literature. Holman DM, Watson M. J Adolesc Health. 2013;52(5 suppl):S52-S59.
- History and culture of tanning in the United States. Hunt Y, Auguston E, Rutten L, Moser R. In: Heckman CJ, Manne EL, eds. Shedding Light on Indoor Tanning. New York, NY: Springer; 2012:5-30.
- Solar and ultraviolet radiation(http://monographs.iarc.fr/ENG/Monographs/vol100D/mono100D-6.pdf). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2012;100D:36–102.
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- Adverse effects of ultraviolet radiation from the use of indoor tanning equipment: time to ban the tan(http://www.ncbi.nlm.nih.gov/pubmed/21295374). Lim HW, James WD, Rigel DS, et al. J Am Acad Dermatol. 2011;64(4):e51–60.
- Behavioral counseling to prevent skin cancer: a systematic review for the U.S. Preventive Service Task Force(http://www.ncbi.nlm.nih.gov/pubmed/21282699). Lin JS, Eder M, Weinmann S. Ann Intern Med. 2011;154:190–201.
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Indoor Tanning

Last Updated:
January 2017

Introduction

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

Measure

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

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

Healthy People 2020 Target

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

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

Data Source

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

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

Trends and Most Recent Estimates
Adolescents

By Sex

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by sex, 2009-2015
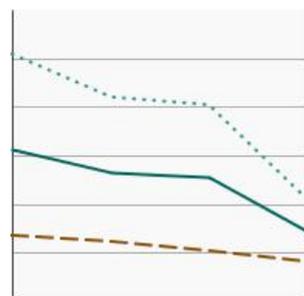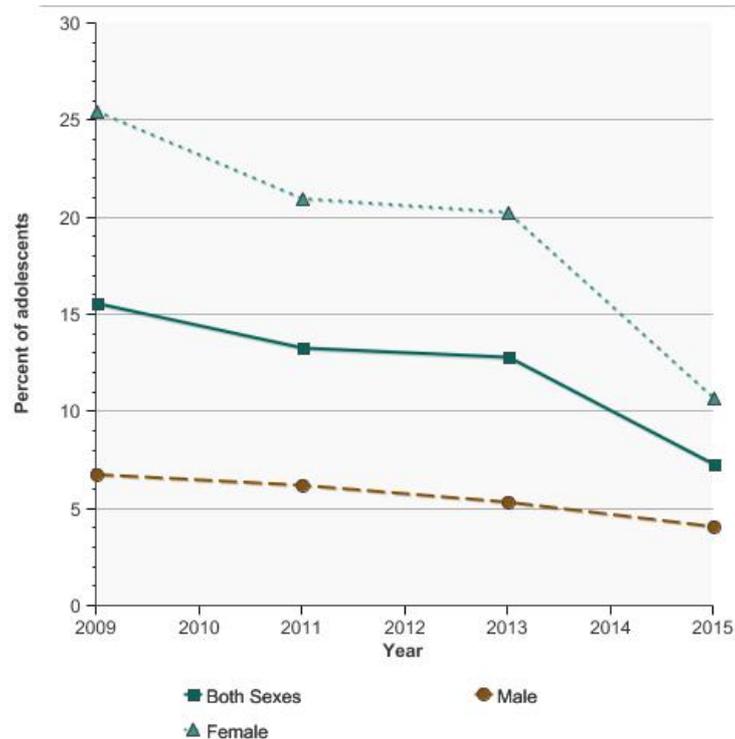
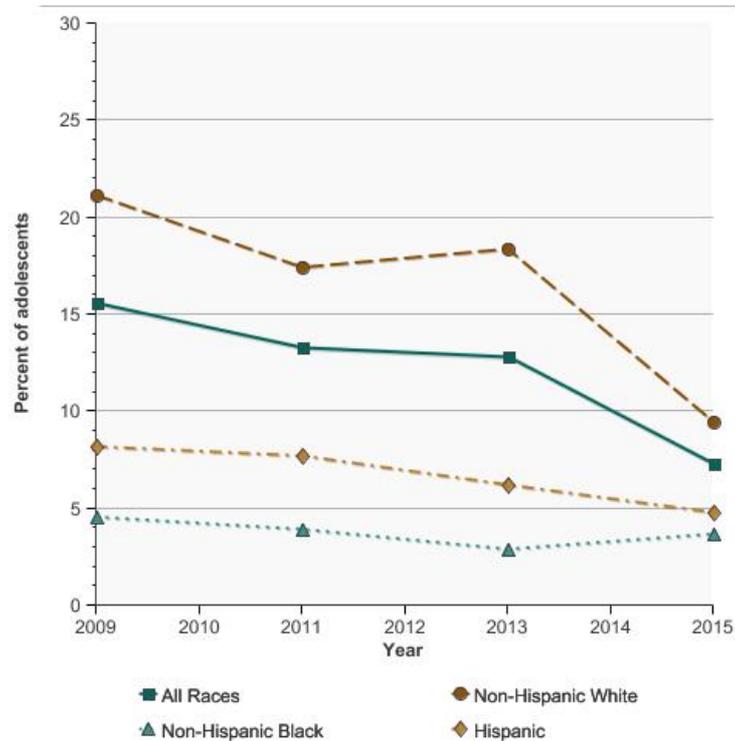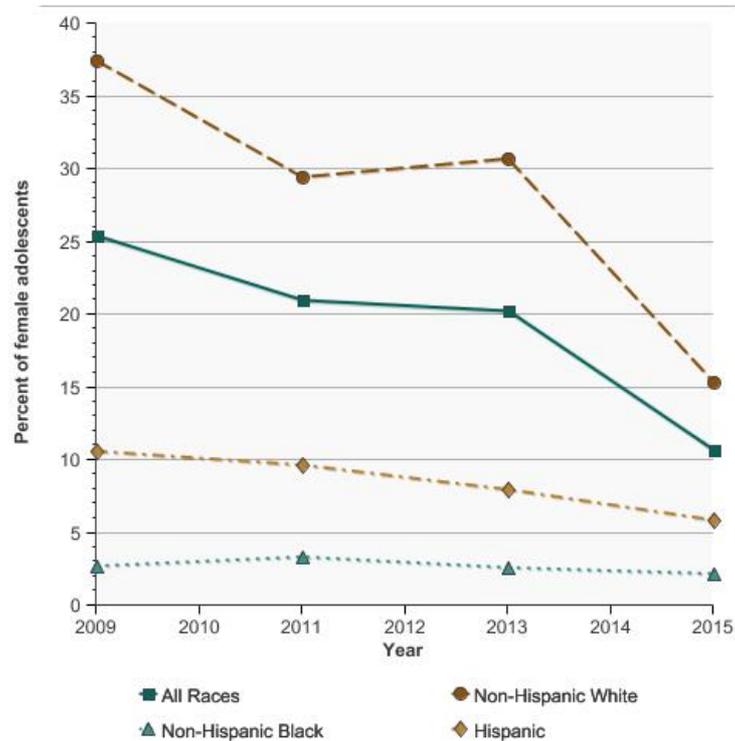| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	Both Sexes	7.3	(5.9 - 8.7)
	Male	4.0	(3.4 - 4.6)
	Female	10.6	(8.2 - 13.1)

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

Source: Centers for Disease Control and Prevention (CDC). 1991-2015 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on 08-09-2016.
Data are not age-adjusted.

By Race/Ethnicity

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by race/ethnicity, 2009-2015
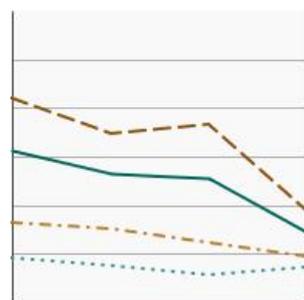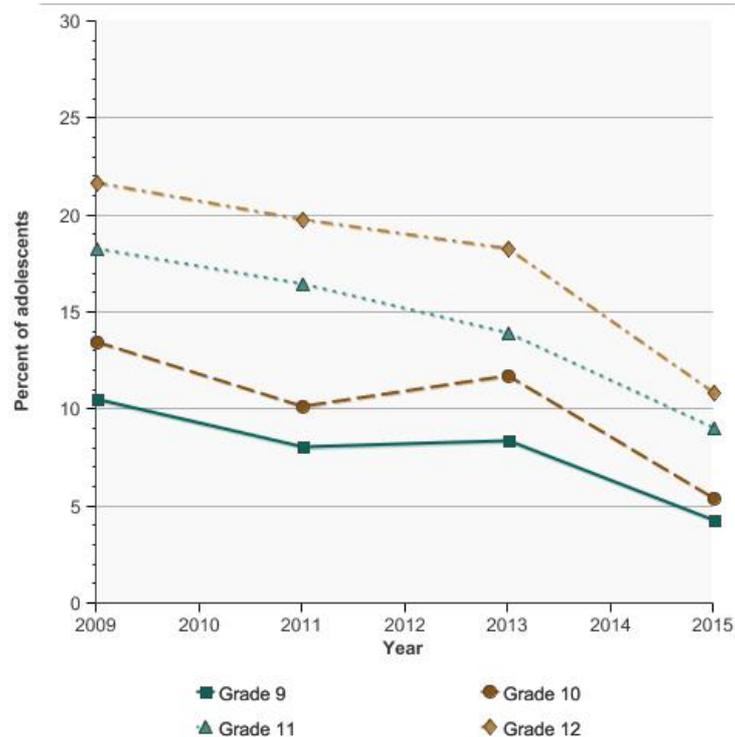
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	All Races	7.3	(5.9 - 8.7)
	Non-Hispanic White	9.4	(7.4 - 11.4)
	Non-Hispanic Black	3.7	(2.3 - 5.1)
	Hispanic	4.7	(3.3 - 6.1)

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

Source: Centers for Disease Control and Prevention (CDC). 1991-2015 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on 08-09-2016.
Data are not age-adjusted.

Females by Race/Ethnicity

Percentage of female adolescents in grades 9 through 12 who used an indoor tanning device in the past year by race/ethnicity, 2009-2015
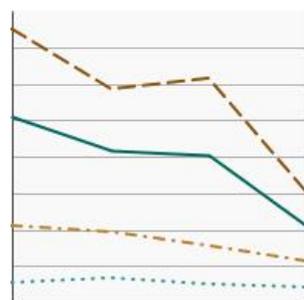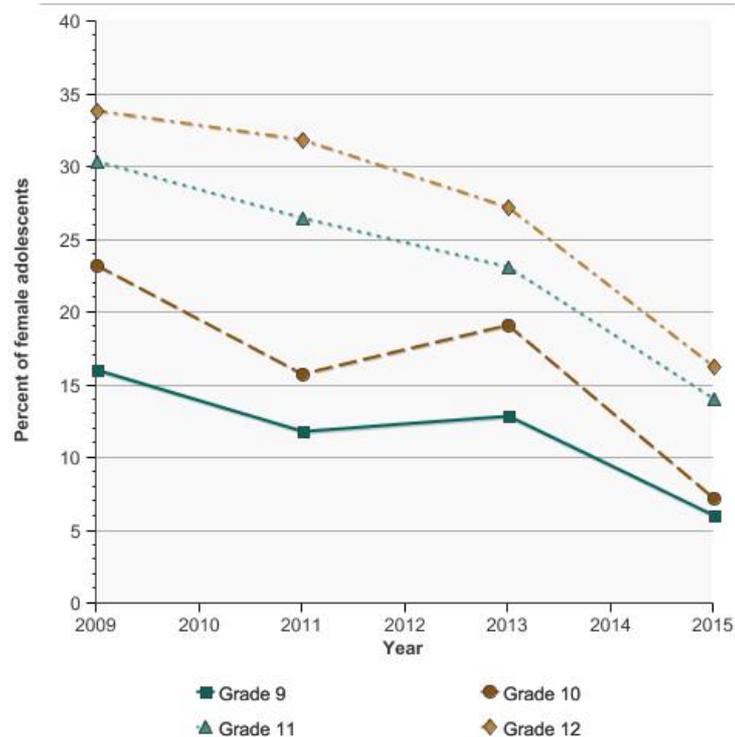
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of female adolescents	Confidence Interval
	All Races	10.6	(8.2 - 13.1)
	Non-Hispanic White	15.2	(11.5 - 19.0)
	Non-Hispanic Black	2.1	(0.9 - 3.3)
	Hispanic	5.8	(3.6 - 8.0)

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

Source: Centers for Disease Control and Prevention (CDC). 1991-2015 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on 08-09-2016.
Data are not age-adjusted.

By High School Grade

Percentage of adolescents in grades 9 through 12 who used an indoor tanning device in the past year by grade level, 2009-2015
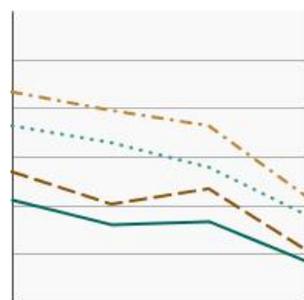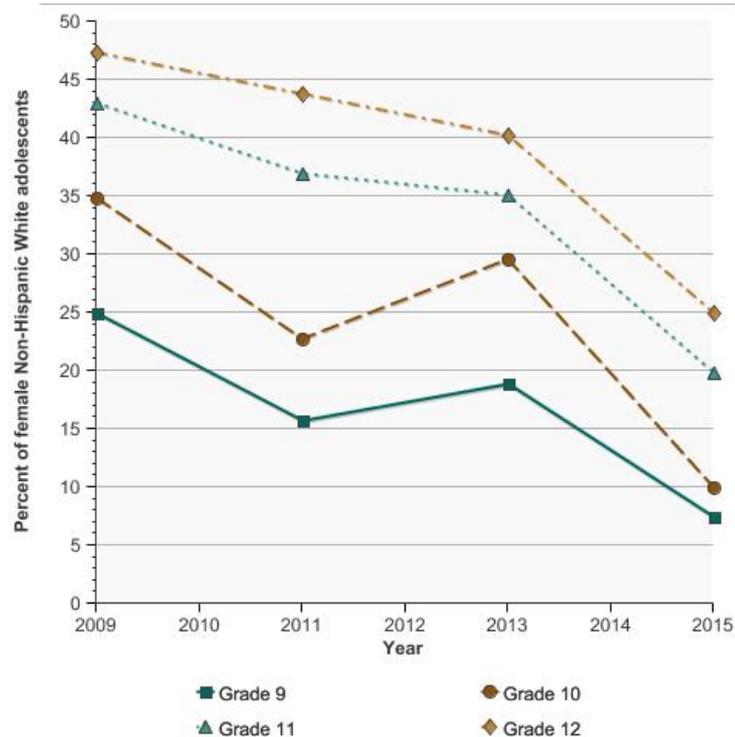
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adolescents	Confidence Interval
	Grade 9	4.2	(3.2 - 5.3)
	Grade 10	5.3	(3.5 - 7.2)
	Grade 11	9.0	(6.3 - 11.6)
	Grade 12	10.8	(8.5 - 13.2)

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

Source: Centers for Disease Control and Prevention (CDC). 1991-2015 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on 08-09-2016.
Data are not age-adjusted.

Females by High School Grade

Percentage of female adolescents in grades 9 through 12 who used an indoor tanning device in the past year by grade level, 2009-2015
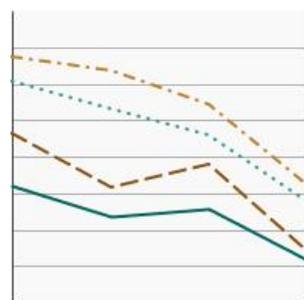
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of female adolescents	Confidence Interval
	Grade 9	6.0	(4.4 - 7.6)
	Grade 10	7.1	(3.9 - 10.4)
	Grade 11	14.0	(9.4 - 18.5)
	Grade 12	16.2	(12.1 - 20.2)

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

Source: Centers for Disease Control and Prevention (CDC). 1991-2015 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on 08-09-2016.
Data are not age-adjusted.

Non-Hispanic White Female by High School Grade

Percentage of Non-Hispanic White female adolescents in grades 9 through 12 who used an indoor tanning device in the past year by grade level, 2009-2015
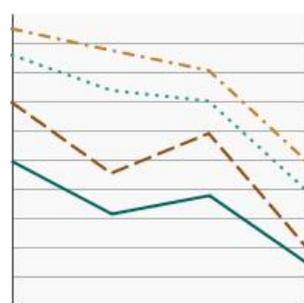
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of female Non-Hispanic White adolescents	Confidence Interval
	Grade 9	7.4	(4.7 - 10.1)
	Grade 10	9.9	(4.5 - 15.2)
	Grade 11	19.7	(12.8 - 26.6)
	Grade 12	24.8	(19.4 - 30.2)

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

Source: Centers for Disease Control and Prevention (CDC). 1991-2015 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on 08-09-2016.
Data are not age-adjusted.

Adults

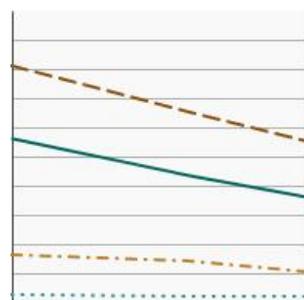**By Sex**

Percentage of adults aged 18 years and older who used an indoor tanning device in the past year by sex, 2010-2015
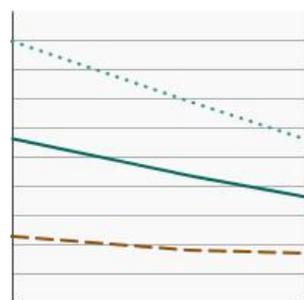
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	3.6	(3.3 - 4.0)
	Male	1.7	(1.4 - 2.0)
	Female	5.6	(5.0 - 6.1)

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

Legend: ■ Both Sexes ● Male ▲ Female
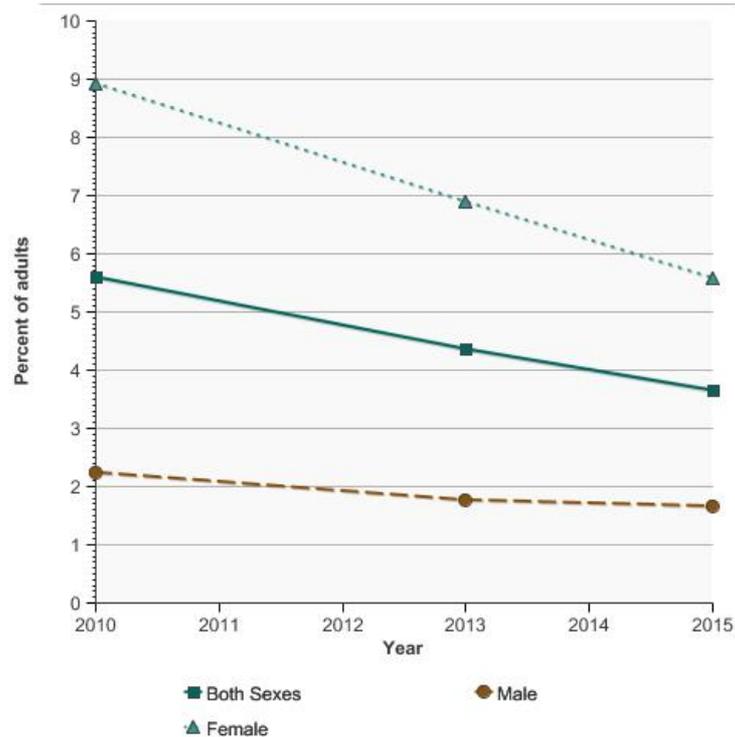
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
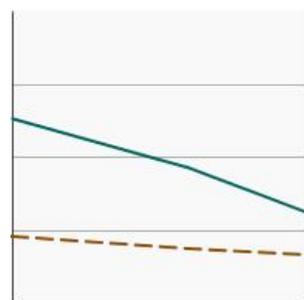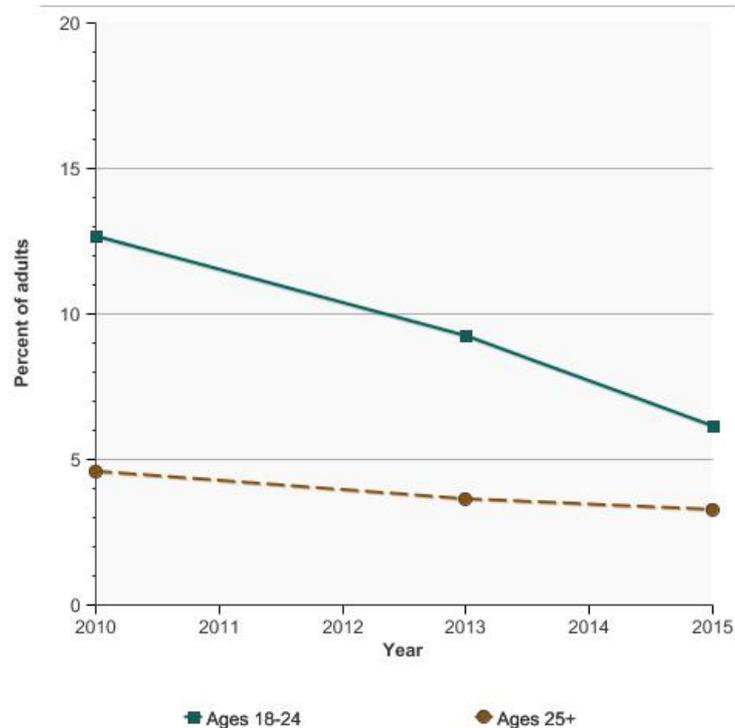
By Race/Ethnicity

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	3.6	(3.3 - 4.0)
	Non-Hispanic White	5.5	(5.0 - 6.1)
	Non-Hispanic Black	0.2	(0.0 - 0.3)
	Hispanic	1.0	(0.7 - 1.3)

Percentage of adults aged 18 years and older who used an indoor tanning device in the past year by race/ethnicity, 2010-2015
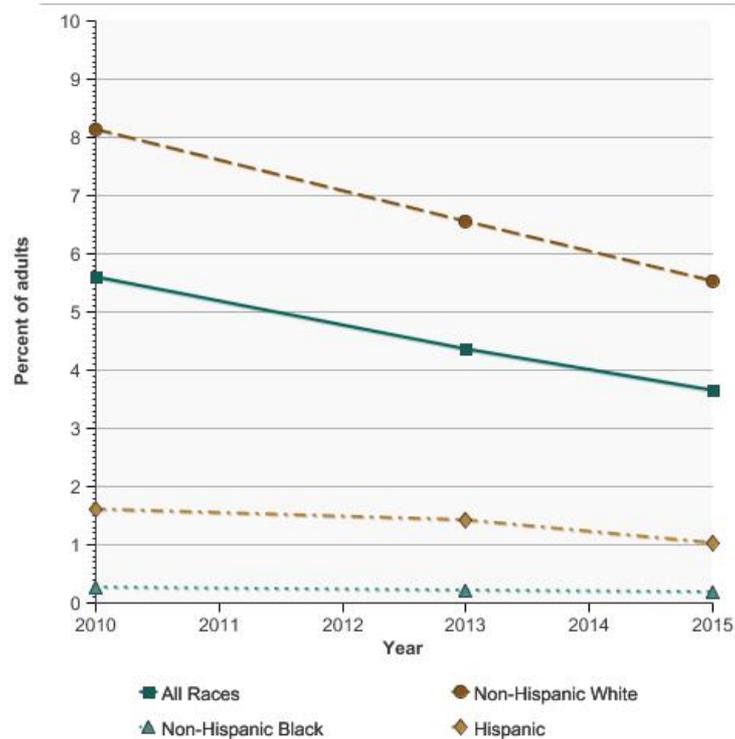
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

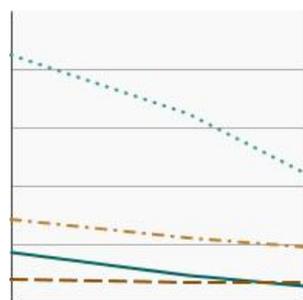## By Age

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

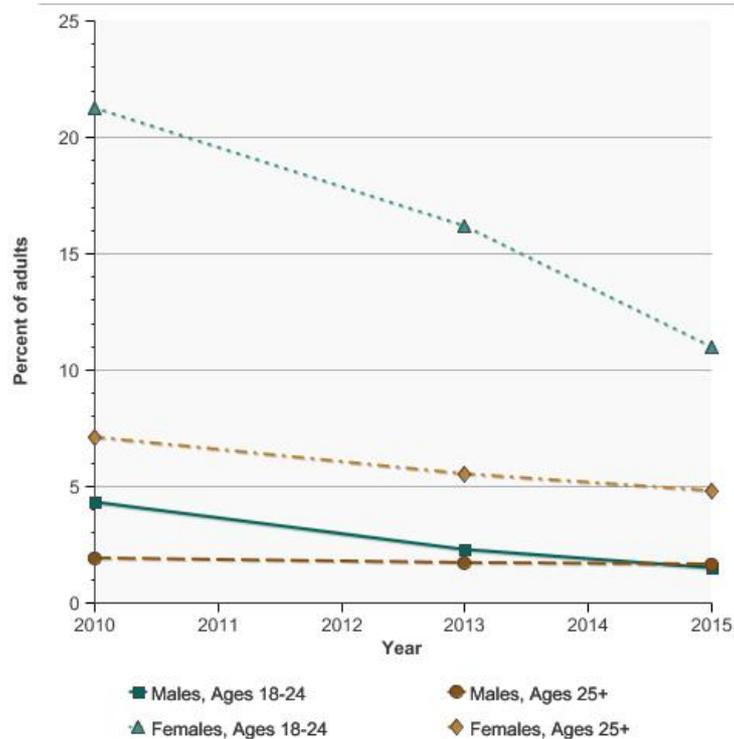| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	6.2	(5.0 - 7.4)
	Ages 25+	3.3	(2.9 - 3.6)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.
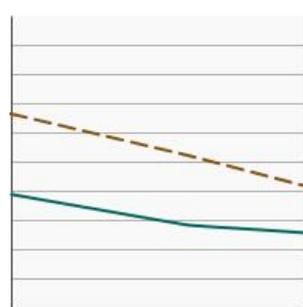
By Sex and Age

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Males, Ages 18-24	1.5	(0.7 - 2.3)
	Males, Ages 25+	1.7	(1.3 - 2.0)
	Females, Ages 18-24	11.0	(8.8 - 13.2)
	Females, Ages 25+	4.8	(4.3 - 5.3)

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

Legend:
- Males, Ages 18-24
- Males, Ages 25+
- Females, Ages 18-24
- Females, Ages 25+

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.
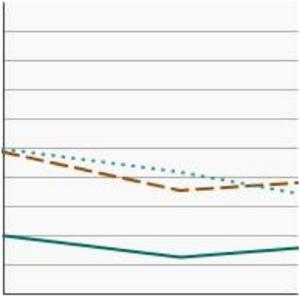
By Poverty Income Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	2.6	(2.2 - 3.0)
	>=200% of federal poverty level	4.2	(3.7 - 4.6)

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

■ <200% of federal poverty level　　● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	1.6	(1.0 - 2.1)
	High School	3.8	(3.1 - 4.5)
	Greater than High School	3.4	(3.0 - 3.8)

Percentage of adults aged 25 years and older who used an indoor tanning device in the past year by highest level of education obtained, 2010-2015
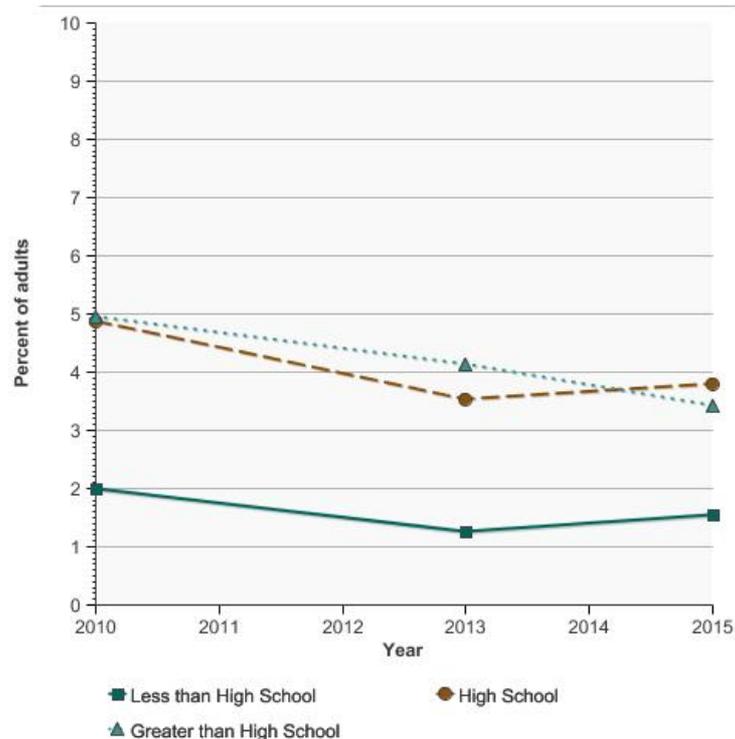
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Cancers Related to Indoor Tanning

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

- Melanoma of the Skin(http://seer.cancer.gov/statfacts/html/melan.html)
- Oral Cavity and Pharynx (http://seer.cancer.gov/statfacts/html/oralcav.html)

Additional Information on Indoor Tanning
For the public

- Skin Cancer(http://www.cancer.org/cancer/skincancer). American Cancer Society.
- Skin Cancer(http://www.cancer.gov/cancertopics/types/skin). National Cancer Institute.
- Indoor Tanning Restrictions for Minors – A State-by-State Comparison (April 2014)(http://www.ncsl.org/research/health/indoor-tanning-restrictions.aspx). National Conference of State Legislatures.
- National Council on Skin Cancer Prevention(http://www.skincancerprevention.org/).
- Sunscreen drug products for over-the-counter human use, 2011(http://www.gpo.gov/fdsys/pkg/FR-2011-06-17/pdf/2011-14766.pdf). U.S. Food and Drug Administration, U.S. Department of Health and Human Services.
- Code of Federal Regulations Title 21, Volume 76, Number 117, Parts 201, 310, and 352(http://www.gpo.gov/). (June 17, 2011). Fed Regist. 2011.
- Sunburn protection factor (SPF)(http://www.fda.gov/aboutfda/centersoffices/officeofmedicalproductsandtobacco/cder/ucm106351.htm). U.S. Food and Drug Administration.

For health professionals

- Vitamin D and Calcium: A Systematic Review of Health Outcomes (Update)(http://effectivehealthcare.ahrq.gov/ehc/products/537/1953/vitamin-d-calcium-report-140902.pdf). AHRQ Publication No. 14-E004-EF September 2014. Evidence Report/Technology Assessment Number 217.
- The Community Guide: what works to promote health(http://www.thecommunityguide.org/index.html). Community Preventive Services Task Force.
- Preventing skin cancer: multicomponent community-wide interventions (abbreviated)(http://www.thecommunityguide.org/cancer/skin/community-wide/multicomponent.html). Community Preventive Services Task Force.
- Indoor Tanning Association settles FTC charge that it deceived customers about skin cancer risks from tanning(http://www.ftc.gov/opa/2010/01/tanning.shtm). Federal Trade Commission.
- Dietary Reference Intakes for Calcium and Vitamin D (2010)(http://www.iom.edu/Reports/2010/Dietary-Reference-Intakes-for-Calcium-and-Vitamin-D.aspx). Institute of Medicine.
- Melanoma Treatment (PDQ®)(http://www.cancer.gov/cancertopics/pdq/treatment/melanoma/HealthProfessional). National Cancer Institute.
- Skin Cancer Treatment (PDQ®)(http://www.cancer.gov/cancertopics/pdq/treatment/skin/HealthProfessional). National Cancer Institute.
- Stratosphere: UV index(http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/index.html). National Weather Service: Climate Prediction Center.
- The Surgeon General's Call to Action to Prevent Skin Cancer(http://www.surgeongeneral.gov). U.S. Department of Health and Human Services. Washington, DC: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2014.
- UV index(http://www.epa.gov/sunwise/uvindex.html). U.S. Environmental Protection Agency, SunWise Program.
- Consumer updates: the FDA sheds light on sunscreens(http://www.fda.gov/forconsumers/consumerupdates/ucm258416.htm). U.S. Food and Drug Administration.
- Sunlamp products and ultraviolet lamps intended for use in sunlamp products(http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?FR=1040.20). U.S. Food and Drug Administration. Title 21. Food and drugs. CFR 1040.20. Fed Regist. 2013.
- FDA news release: FDA to require warnings on sunlamp products(http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm399222.htm). U.S. Food and Drug Administration.
- General and plastic surgery devices: reclassification of ultraviolet lamps for tanning, henceforth to be known as sunlamp products and ultraviolet lamps intended for use in sunlamp products. U.S. Food and Drug Administration. Rule. Fed Regist. 2014;79:31205-31214.
- False and Misleading Health Information Provided to Teens by the Indoor Tanning Industry(http://www.medicine.uiowa.edu/uploadedFiles/Departments/Dermatology/Content/About_Us/Investigative%20report.pdf). U.S. House of Representatives Committee on Energy and Commerce-Minority Staff. Investigative Report. Prepared for Rep. Henry A. Waxman, Rep. Diana DeGette, Rep. Frank Pallone, Jr., Rep. Rosa L. DeLauro, and Rep. Carolyn Maloney; 2012.
- Behavioral counseling to prevent skin cancer(http://www.uspreventiveservicestaskforce.org/uspstf11/skincancouns/skincancounsrs.htm). U.S. Preventive Services Task Force.
- Sun Protection in Schools: an Educational Package to Protect Children from Ultraviolet Radiation(http://www.who.int/uv/publications/en/sunprotschools.pdf). World Health Organization. Geneva, Switzerland: World Health Organization; 2003.

Scientific reports

- Surgeon General Call to Action to Prevent Skin Cancer, 2014(http://www.surgeongeneral.gov/library/calls/prevent-skin-cancer/).
- FDA Indoor tanning: The risks of ultraviolet rays(http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm186687.htm).
- Buying indoor tanning with university debit cards(http://www.ncbi.nlm.nih.gov/pubmed/24947697). Boyers L, Karimkhani C, Crane LA, Asdigian N, Hollonds A, Dellavalle RP. J Am Acad Dermatol. 2014;71(1):199-201.
- VITamin D and OmegA-3 TriaL (VITAL Study)(http://www.vitalstudy.org/index.html). Brigham and Women's Hospital.
- Prevalence of sunburn, sun protection, and indoor tanning behaviors among Americans: review from national surveys and case studies of 3 states(http://www.ncbi.nlm.nih.gov/pubmed/22018060). Buller DB, Cokkinides V, Hall HI, et al. J Am Acad Dermatol. 2011;65(5):S114–S123.
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- Use of indoor tanning devices by adults – United States, 2010(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6118a2.htm). Centers for Disease Control and Prevention. MMWR 2012;61(18):323–326.
- Reduced melanoma after regular sunscreen use: randomized trial follow-up(http://www.ncbi.nlm.nih.gov/pubmed/21135266). Green A, Williams GM, Logan V, and Strutton GM. J Clin Oncol. 2011;29(3):257–263.
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Sunburn

Last Updated:
January 2017

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

Measure
The percentage of high school students (grades 9-12) who reported having been sunburned in the past 12 months.
The percentage of adults aged 18 years and older who reported having been sunburned in the past 12 months.

Healthy People 2020 Target

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

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

Data Source
Adolescents: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Youth Risk Behavior Surveillance System (YRBSS), 2015.
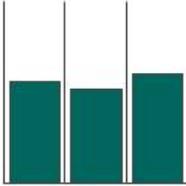**Adults:** Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey NCI and CDC co-sponsored Cancer Control Supplement, 2000-2010, 2010-2015.

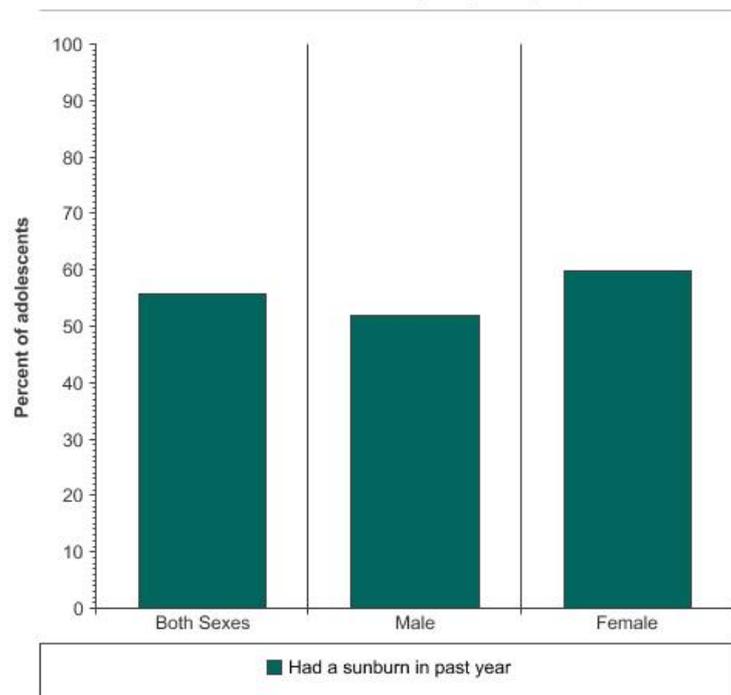**Trends and Most Recent Estimates**
Adolescents

By Sex

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

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

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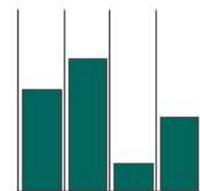who were sunburned in the past year by sex, 2015

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease
Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
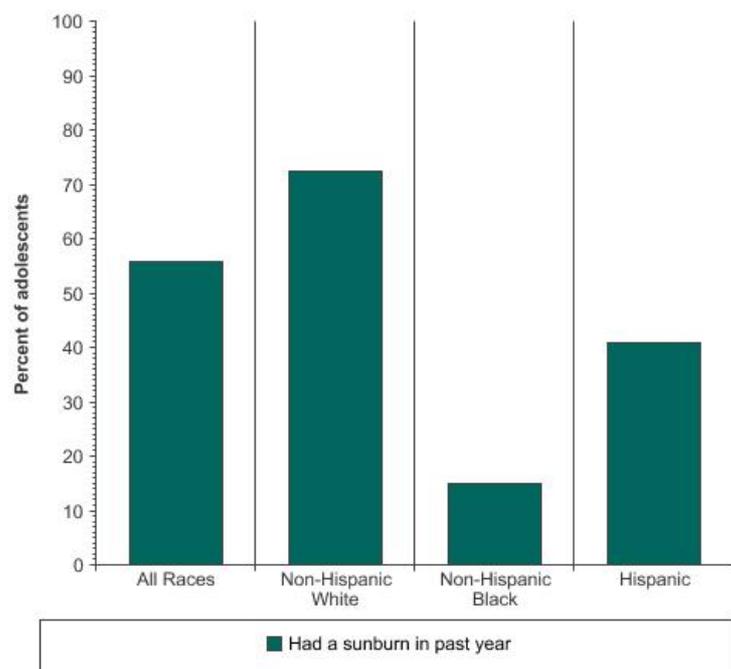Data are not age-adjusted.

By Race/Ethnicity

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

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

Percentage of high school students (grades 9-12) who were sunburned in the past year by race/ethnicity, 2015
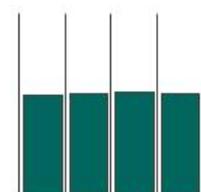
Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
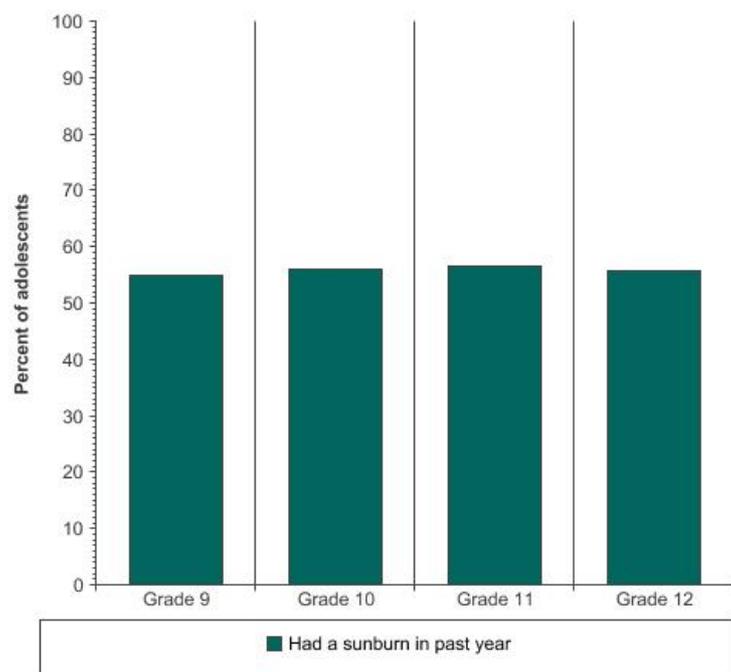Data are not age-adjusted.

By High School Grade

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

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

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

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Youth Risk Behavior Surveillance System.
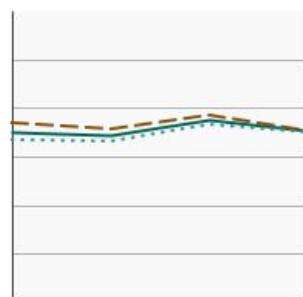Data are not age-adjusted.

Adults

By Sex

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

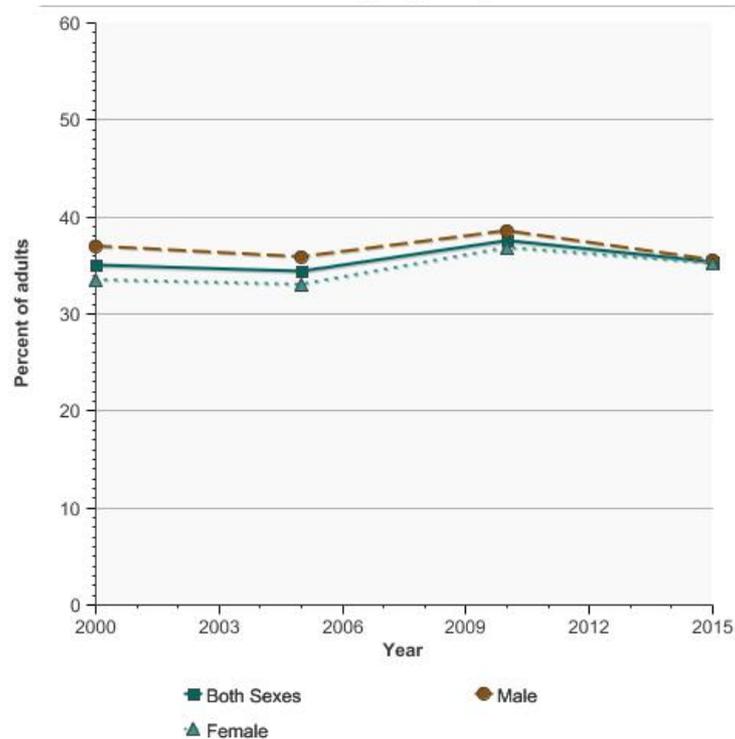| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	35.3	(34.4 - 36.2)
	Male	35.5	(34.2 - 36.7)
	Female	35.2	(34.1 - 36.3)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34,
35-44, 45-64, 65+.

By Race/Ethnicity

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	35.3	(34.4 - 36.2)
	Non-Hispanic White	46.3	(45.1 - 47.5)
	Non-Hispanic Black	9.9	(8.7 - 11.0)
	Hispanic	22.4	(20.8 - 24.0)

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

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.
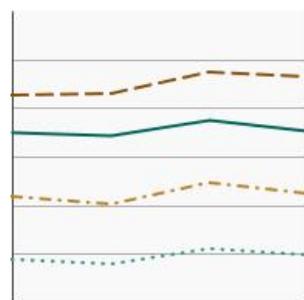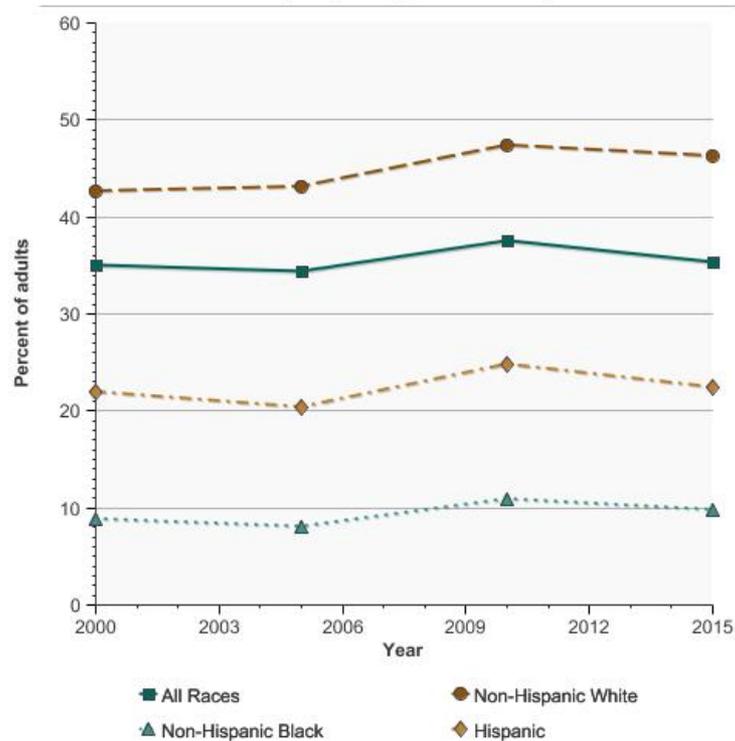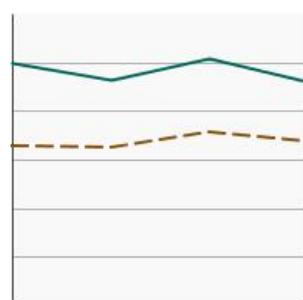
By Age

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Ages 18-24	46.0	(43.1 - 48.9)
	Ages 25+	33.7	(32.8 - 34.5)

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

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

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

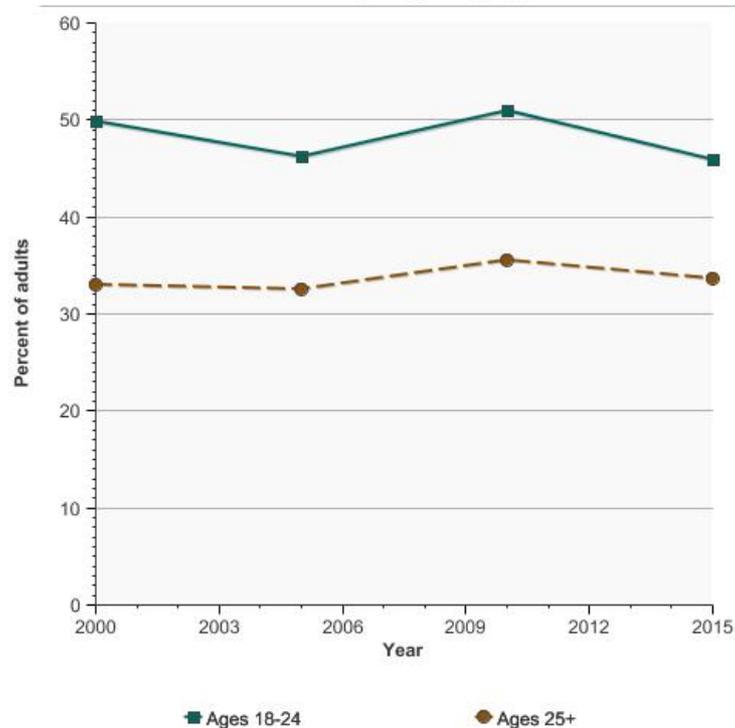| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Males, Ages 18-24	43.6	(39.7 - 47.4)
	Males, Ages 25+	34.3	(33.0 - 35.5)
	Females, Ages 18-24	48.4	(44.2 - 52.7)
	Females, Ages 25+	33.2	(32.1 - 34.2)

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

- Males, Ages 18-24
- Males, Ages 25+
- Females, Ages 18-24
- Females, Ages 25+

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.
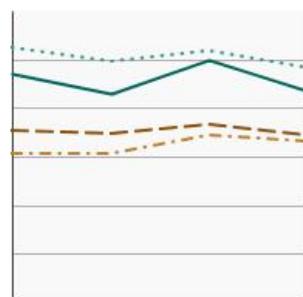
By Poverty Income Level
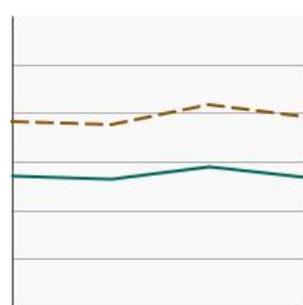
Percentage of adults aged 18 years and older who were sunburned in the past year by poverty income level, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	26.7	(25.4 - 28.1)
	>=200% of federal poverty level	39.2	(38.2 - 40.3)

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

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

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

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	19.7	(18.0 - 21.5)
	High School	30.8	(29.1 - 32.4)
	Greater than High School	37.2	(36.3 - 38.2)

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

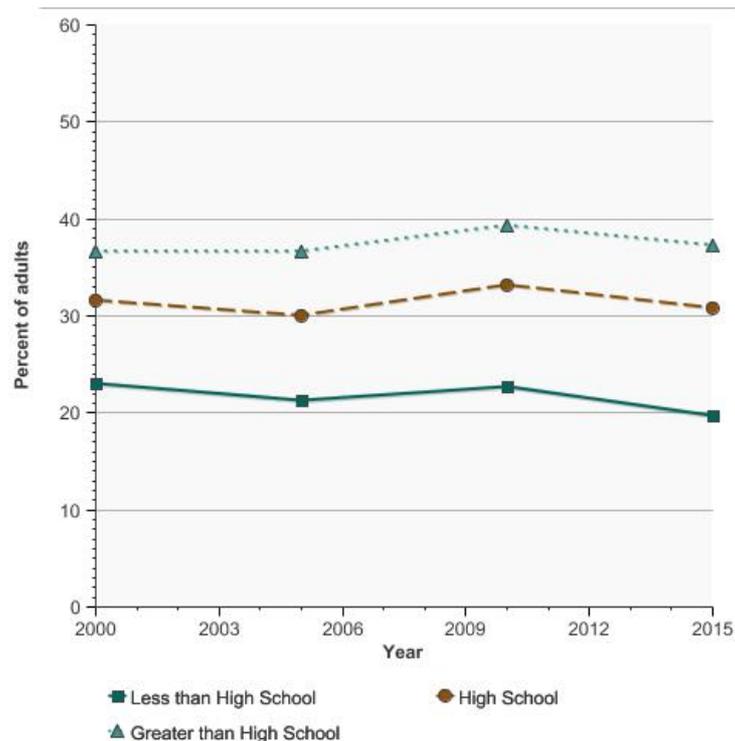- ■ Less than High School
- ● High School
- ▲ Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Cancers Related to Sunburn

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

- Melanoma of the Skin(http://seer.cancer.gov/statfacts/html/melan.html)
- Oral Cavity and Pharynx (http://seer.cancer.gov/statfacts/html/oralcav.html)

Additional Information on Sunburn
For the public

- Skin Cancer(http://www.cancer.org/cancer/skincancer). American Cancer Society.
- Skin Cancer(http://www.cancer.gov/cancertopics/types/skin). National Cancer Institute.
- Indoor Tanning Restrictions for Minors – A State-by-State Comparison (April 2014)(http://www.ncsl.org/research/health/indoor-tanning-restrictions.aspx). National Conference of State Legislatures.
- National Council on Skin Cancer Prevention(http://www.skincancerprevention.org/).
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- Code of Federal Regulations Title 21, Volume 76, Number 117, Parts 201, 310, and 352(http://www.gpo.gov/). (June 17, 2011). Fed Regist. 2011.
- Sunburn protection factor (SPF)(http://www.fda.gov/aboutfda/centersoffices/officeofmedicalproductsandtobacco/cder/ucm106351.htm). U.S. Food and Drug Administration.

For health professionals

- Vitamin D and Calcium: A Systematic Review of Health Outcomes (Update)(http://effectivehealthcare.ahrq.gov/ehc/products/537/1953/vitamin-d-calcium-report-140902.pdf). AHRQ Publication No. 14-E004-EF September 2014. Evidence Report/Technology Assessment Number 217.
- The Community Guide: what works to promote health(http://www.thecommunityguide.org/index.html). Community Preventive Services Task Force.
- Preventing skin cancer: multicomponent community-wide interventions (abbreviated)(http://www.thecommunityguide.org/cancer/skin/community-wide/multicomponent.html). Community Preventive Services Task Force.
- Indoor Tanning Association settles FTC charge that it deceived customers about skin cancer risks from tanning(http://www.ftc.gov/opa/2010/01/tanning.shtm). Federal Trade Commission.
- Dietary Reference Intakes for Calcium and Vitamin D (2010)(http://www.iom.edu/Reports/2010/Dietary-Reference-Intakes-for-Calcium-and-Vitamin-D.aspx). Institute of Medicine.
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- Skin Cancer Treatment (PDQ®)(http://www.cancer.gov/cancertopics/pdq/treatment/skin/HealthProfessional). National Cancer Institute.
- Stratosphere: UV index(http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/index.html). National Weather Service: Climate Prediction Center.
- The Surgeon General's Call to Action to Prevent Skin Cancer(http://www.surgeongeneral.gov). U.S. Department of Health and Human Services. Washington, DC: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2014.
- UV index(http://www.epa.gov/sunwise/uvindex.html). U.S. Environmental Protection Agency, SunWise Program.
- Consumer updates: the FDA sheds light on sunscreens(http://www.fda.gov/forconsumers/consumerupdates/ucm258416.htm). U.S. Food and Drug Administration.
- Sunlamp products and ultraviolet lamps intended for use in sunlamp products(http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?FR=1040.20). U.S. Food and Drug Administration. Title 21. Food and drugs. CFR 1040.20. Fed Regist. 2013.
- FDA news release: FDA to require warnings on sunlamp products(http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm399222.htm). U.S. Food and Drug Administration.
- General and plastic surgery devices: reclassification of ultraviolet lamps for tanning, henceforth to be known as sunlamp products and ultraviolet lamps intended for use in sunlamp products. U.S. Food and Drug Administration. Rule. Fed Regist. 2014;79:31205-31214.
- False and Misleading Health Information Provided to Teens by the Indoor Tanning Industry(http://www.medicine.uiowa.edu/uploadedFiles/Departments/Dermatology/Content/About_Us/Investigative%20report.pdf). U.S. House of Representatives Committee on Energy and Commerce-Minority Staff. Investigative Report. Prepared for Rep. Henry A. Waxman, Rep. Diana DeGette, Rep. Frank Pallone, Jr., Rep. Rosa L. DeLauro, and Rep. Carolyn Maloney; 2012.
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- Sun Protection in Schools: an Educational Package to Protect Children from Ultraviolet Radiation(http://www.who.int/uv/publications/en/sunprotschools.pdf). World Health Organization. Geneva, Switzerland: World Health Organization; 2003.

Scientific reports

- Surgeon General Call to Action to Prevent Skin Cancer, 2014(http://www.surgeongeneral.gov/library/calls/prevent-skin-cancer/).
- FDA Indoor tanning: The risks of ultraviolet rays(http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm186687.htm).
- Buying indoor tanning with university debit cards(http://www.ncbi.nlm.nih.gov/pubmed/24947697). Boyers L, Karimkhani C, Crane LA, Asdigian N, Hollonds A, Dellavalle RP. J Am Acad Dermatol. 2014;71(1):199-201.
- VITamin D and OmegA-3 TriaL (VITAL Study)(http://www.vitalstudy.org/index.html). Brigham and Women's Hospital.
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- SEER Cancer Statistics Review, 1975–2009, National Cancer Institute(http://seer.cancer.gov/csr/1975_2009_pops09/index.html).

Tobacco Policy/Regulatory Factors

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

- Tobacco Company Marketing Expenditures
- Medicaid Coverage of Tobacco Dependence Treatments

- Tobacco Company Marketing Expenditures
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Tobacco Company Marketing Expenditures

Last Updated:
January 2017

Introduction

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

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

Measure

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

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

Healthy People 2020 Target

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

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

Data Source

Federal Trade Commission Cigarette Report for 2013.
Federal Trade Commission Smokeless Tobacco Report for 2013.

Trends and Most Recent Estimates

Cigarettes

Domestic cigarette advertising and promotional expenditures by U.S. tobacco companies adjusted to 2013 dollars, 1970-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Dollars spent (in billions)	Confidence Interval
	Total Marketing Expenditures	8.9	Not available

Domestic cigarette advertising and promotional expenditures by U.S. tobacco companies adjusted to 2013 dollars, 1970-2013

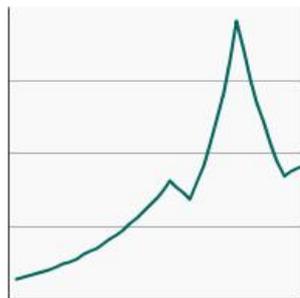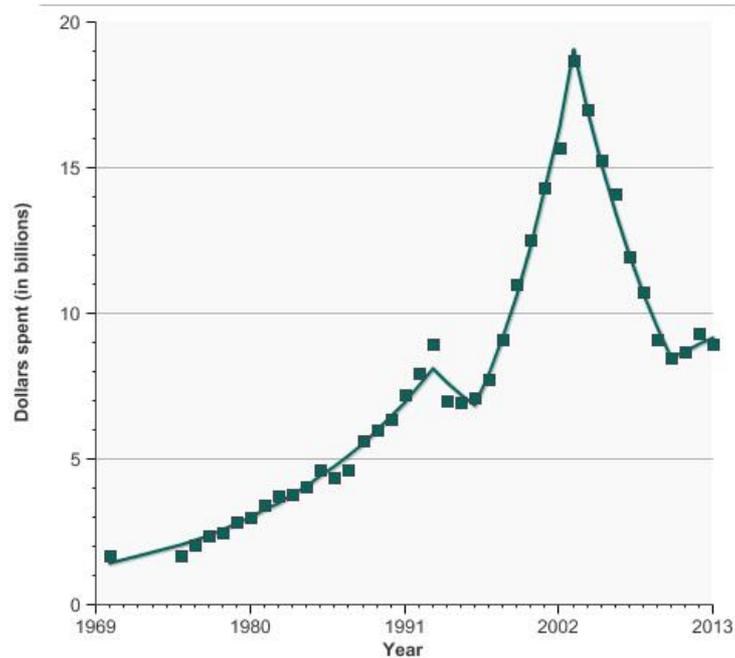Source: Federal Trade Commission Cigarette Report for 2013.
Estimates are adjusted to 2013 dollars using the Gross Domestic Product: Implicit Price Deflator (https://research.stlouisfed.org/fred2/series/GDPDEF#).

Smokeless Tobacco

Domestic smokeless tobacco advertising and promotional expenditures by U.S. tobacco companies adjusted to 2013 dollars, 1985-2013
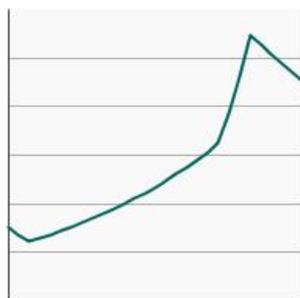
| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Dollars spent (in millions)	Confidence Interval
	Total Marketing Expenditures	503.2	Not available

Domestic smokeless tobacco advertising and promotional expenditures by U.S. tobacco companies adjusted to 2013 dollars, 1985-2013

Source: Federal Trade Commission Smokeless Tobacco Report for 2013.
Estimates are adjusted to 2013 dollars using the Gross Domestic Product: Implicit Price Deflator (https://research.stlouisfed.org/fred2/series/GDPDEF#).
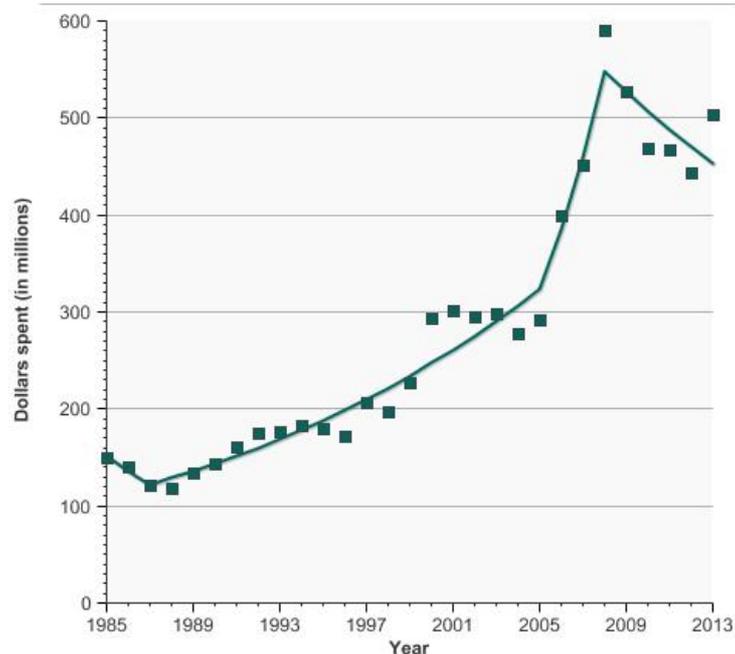
Additional Information on Tobacco Company Marketing Expenditures
For the public

- Federal Trade Commission Cigarette Report for 2013.
- Federal Trade Commission Smokeless Tobacco Report for 2013.
- Smoking in Movies and TV(http://www.tobaccofree.org/films.htm). TobaccoFree.org.
- Smoke Free Movies(http://smokefreemovies.ucsf.edu/). UCSF Center for Tobacco Control Research and Education.
- Overview of the Family Smoking Prevention and Tobacco Control Act: Consumer Fact Sheet. U.S. Food and Drug Administration.
- Litigation Against Tobacco Companies. U.S. Department of Justice, Consumer Protection Branch.

Scientific reports

- 2012 Surgeon General's Report—Preventing Tobacco Use Among Youth and Young Adults. Centers for Disease Control and Prevention.
- Does watching smoking in movies promote teenage smoking? Heatherton TF, Sargent JD. Curr Dir Psychol Sci. 2009;18(2):63–67.
- The effectiveness of tobacco marketing regulations on reducing smokers' exposure to advertising and promotion: findings from the international tobacco control four country survey. Kasza KA, Hyland AJ, Brown A. Int J Environ Res Public Health 2011;8(2):321–340.
- Smoking in the movies: a new Centers for Disease Control and Prevention core surveillance indicator. McAfee T, Tynan M.
- Implementation and research priorities for FCTC Articles 13 and 16: tobacco advertising, promotion, and sponsorship and sales to and by minors. Nagler RH, Viswanath K. Nicotine Tob Res 2013;15(4):832–846.
- Reducing Environmental Cancer Risk: What We Can Do Now. National Cancer Institute. President's Cancer Panel, 2008–2009 Annual Report. April

2010.

- Monograph 19: The Role of the Media in Promoting and Reducing Tobacco Use. National Cancer Institute. Smoking and Tobacco Control Monographs.
- Exposure to Advertisements and Electronic Cigarette Use among US Middle and High School Students. Singh et al. (2016).
- Tobacco company efforts to influence the Food and Drug Administration-commissioned Institute of Medicine report Clearing the Smoke: an analysis of documents released through litigation. Tan CE, Kyriss T, and Glantz SA. PLoS Med 2013;10(5):e1001450.

Statistics

- Smoking in the Movies. Centers for Disease Control and Prevention.
- Healthy People 2020, 2020 Topics and Objectives – Tobacco Use.

For tobacco users

- Guide to Quitting Smoking.(http://www.cancer.org/healthy/stayawayfromtobacco/guidetoquittingsmoking/index) American Cancer Society.
- Free Help to Quit Smoking. National Cancer Institute.
- Smokefree.gov. National Cancer Institute.

Medicaid Coverage of Tobacco Dependency Treatments

Last Updated:

January 2017

Introduction

Medicaid enrollees have a higher smoking prevalence than the general population. Smoking-related diseases are a major contributor to Medicaid costs. Providing tobacco users access to evidence-based tobacco dependence treatments can reduce morbidity and mortality from cancers and other tobacco-related diseases and reduce Medicaid costs (Source: https://www.cdc.gov/coordinatedchronic/pdf/tobacco_cessation_factsheet_508_compliant.pdf).

All state Medicaid programs must provide tobacco cessation services (both counseling and pharmacotherapy) for pregnant women under section 4107 of the 2010 Patient Protection and Affordable Care Act (ACA). Additionally, effective January 2014, section 2502 of the ACA barred state Medicaid programs from excluding coverage for cessation medications approved by the U.S. Food and Drug Administration. However, coverage still varies widely by state. As of June 2015, only nine states cover nine evidence-based cessation treatments (seven medications, individual, and group counseling) for all Medicaid enrollees. Expansion of treatment coverage and eligibility while reducing barriers to treatment access (e.g. copays, duration limits on treatment) are still needed.

Measure

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

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

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

Healthy People 2020 Target

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

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

Data Source

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

Trends and Most Recent Estimates

Medicaid Coverage of Smoking Cessation Aids

Medicaid coverage of smoking cessation aids in the 50 states and DC, 1990-2016

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2016)	
		Number of states	**Confidence Interval**
	Medicaid Coverage of Cessation Aids	51.0	Not available

Medicaid coverage of smoking cessation aids in the 50 states and DC, 1990-2016
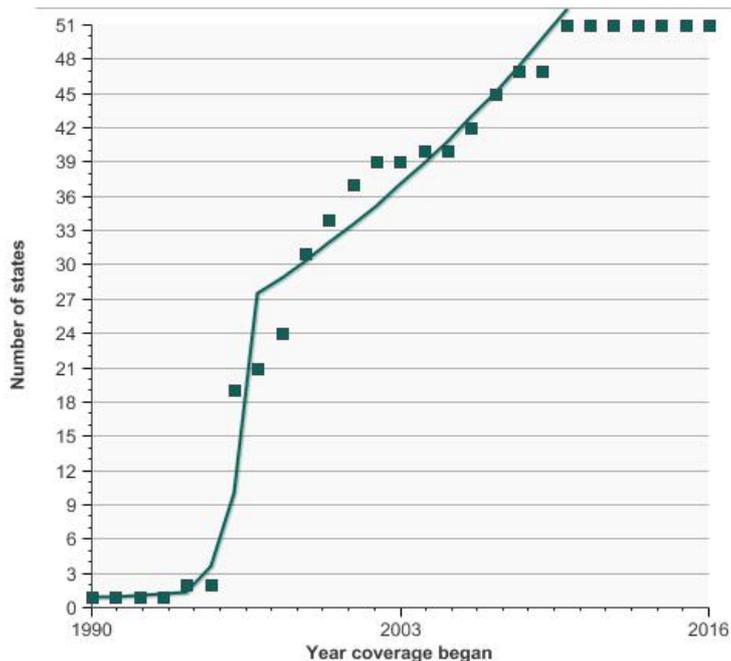
Source: McMenamin SB, Haplin HA, Ingram M, Rosenthal A. State Medicaid coverage for tobacco-dependence treatments - United States, 2009. Morbidity and Mortality Weekly Report October 22, 2010;59(41);1340-1343.

Medicaid Coverage of Cessation Counseling

Breakdown of state Medicaid coverage for tobacco cessation counseling, 2014-2015

Overview graph	Counseling Type	Number of States (2015)			
		Yes	Pregnant women only	Varies by plan	No
	Individual	31	6	9	4
	Group	10	3	15	22
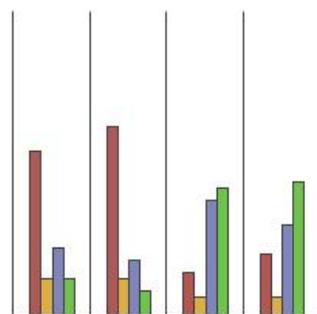
Breakdown of state Medicaid coverage for tobacco cessation counseling, 2014-2015
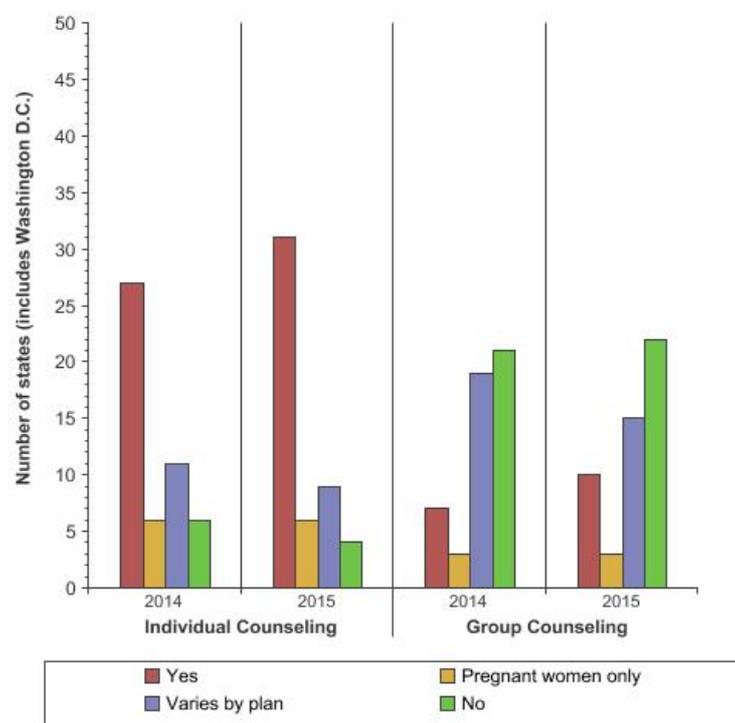
Source: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6442a3.htm
2014 data was not available for South Dakota.
2015 data was not available for Washington D.C.

Medicaid Coverage of Smoking Cessation Medications

Breakdown of state Medicaid coverage for tobacco cessation medications, 2014-2015

Overview graph	Medication	Number of States (2015)			
		Yes	Pregnant women only	Varies by plan	No
	Nicotine Patch	45	1	4	0
	Nicotine Gum	43	1	6	0
	Nicotine Lozenge	38	1	9	2
	Nicotine Nasal Spray	32	0	12	6
	Nicotine Inhaler	33	0	11	6
	Bupropion	43	0	7	0
	Varenicline	42	0	7	1

Breakdown of state Medicaid coverage for tobacco cessation medications, 2014-2015

Source: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6442a3.htm
Counts may not sum to 51 if information was not available for all states.

Additional Information on Medicaid Coverage of Tobacco Dependency Treatments

For the public

Tobacco & Cancer(http://www.cancer.org/cancer/cancercauses/tobaccocancer/index). American Cancer Society.

Surgeon General's Reports on Smoking and Tobacco Use. Centers for Disease Control and Prevention.

Tobacco Cessation. Medicaid.gov.

Tobacco Products. U.S. Food and Drug Administration.

For health professionals

Treating Tobacco Use and Dependence: 2008 Update. Agency for Healthcare Research and Quality.

Scientific reports

State-level Medicaid expenditures attributable to smoking(http://www.cdc.gov/pcd/issues/2009/jul/08_0153.htm). Armour BS, Finkelstein EA, Fiebelkorn IC. Prev Chronic Dis 2009;6:A84.

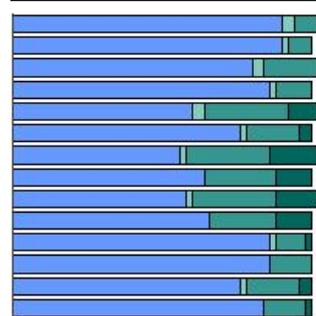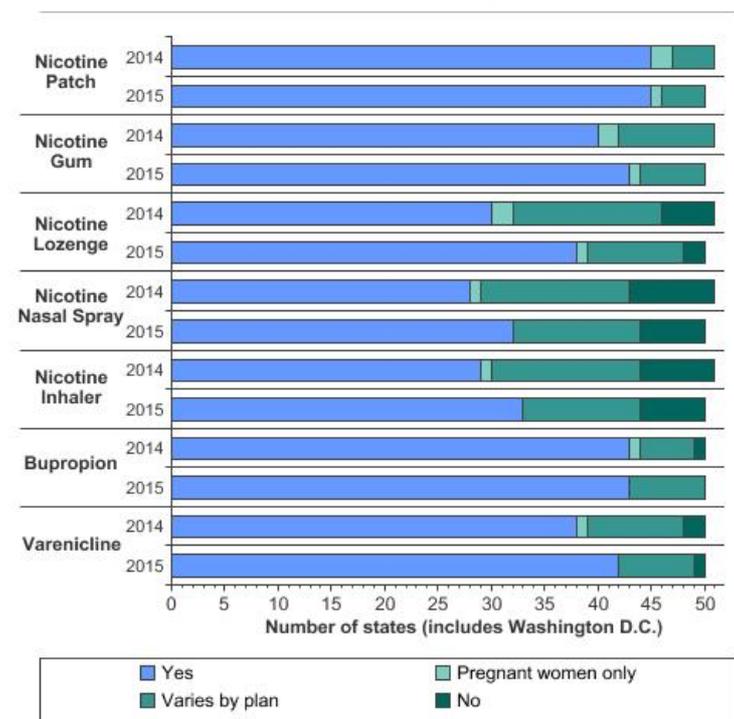State Medicaid coverage for tobacco-cessation treatments and barriers to coverage – United States, 2008–2014. Centers for Disease Control and Prevention. MMWR 2014;63(12):264–269.

State Medicaid coverage for tobacco-dependence treatments – United States, 2009. Centers for Disease Control and Prevention. MMWR 2010;59(41):1340–1343.

Cigarette smoking, desire to quit, and tobacco-related counseling among patients at adult health centers. Lebrun-Harris LA, Fiore MC, Tomoyasu N, Ngo-Metzger Q. Am J Public Health 2014.

Helping smokers quit—opportunities created by the Affordable Care Act. McAfee T, Babb S, McNabb S, Fiore MC. N Engl J Med 2015;372:5–7.

Annual healthcare spending attributable to cigarette smoking: an update. Xu X, Bishop EE, Kennedy SM, Simpson SA, Pechacek TF. Am J Prev Med

2015;48:326–33.

Quit interest, quit attempt and recent cigarette smoking cessation in the U.S. working population, 2010. Yong LC, Luckhaupt SE, Li J, Calvert GM. Occup Environ Med 2014.

Statistics

Adult Cigarette Smoking in the United States: Current Estimates. Centers for Disease Control and Prevention.

Adult Tobacco Use Information. Centers for Disease Control and Prevention. National Health Interview Survey.

Healthy People 2020, 2020 Topics & Objectives – Tobacco Use.

Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings . Substance Abuse and Mental Health Services Administration.

For Tobacco Users

Guide to Quitting Smoking(http://www.cancer.org/healthy/stayawayfromtobacco/guidetoquittingsmoking/guide-to-quitting-smoking-toc). American Cancer Society.

Free Help to Quit Smoking. National Cancer Institute.

Smokefree.gov. National Cancer Institute.

HPV Immunization

Last Updated:
January 2017

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

HPV vaccines work like other immunizations (a technique used to cause an immune response that results in resistance to a specific disease) that guard against viral infections. HPV vaccines prevent the most common types of HPV that cause cancer and genital warts.

The U.S. Food and Drug Administration has approved two HPV vaccines, Gardasil® and Cervarix®, which are both designed to be given to people in two doses. Children ages 11-12 are recommended to receive two doses of HPV vaccine at least six months apart rather than the previously recommended three doses. Teens and young adults who start the series later, at ages 15-26 years, will continue to need three doses of the HPV vaccine. Gardasil is approved for use in males and females aged 9 to 26 years. Cervarix is approved for use in females aged 9 to 25 years. Both vaccines are highly effective in preventing infections with HPV types 16 and 18. Gardasil also prevents infection with HPV types 6 and 11.

Both Gardasil and Cervarix are proven to be effective only if given before infection with HPV, so it is recommended that they be given before an individual is sexually active. The Advisory Committee on Immunization Practices recommends that the vaccinations (both for females, and only Gardasil for males) be given routinely at ages 11 or 12.

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

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

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

Healthy People 2020 Target

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

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

Data Source
Centers for Disease Control and Prevention, The National Immunization Surveys (NIS), 2008-2015.

Trends and Most Recent Estimates
Females

Ages 13-15

Percent of females aged 13-15 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2008-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent	Confidence Interval
	1+ doses	60.2	(57.8 - 62.5)
	2+ doses	48.3	(46.0 - 50.7)
	3+ doses	37.1	(34.8 - 39.4)

Percent of females aged 13-15 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2008-2015

Source: Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases. National Immunization Survey.
Data are not age-adjusted.
Estimates for 2014+ are not directly comparable to estimates from prior years due to a change in the underlying definition. Detailed information can be found in the 'Measure' section of this page.
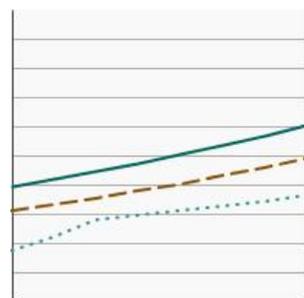
Ages 13-17

Percent of females aged 13-17 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2008-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent	Confidence Interval
	1+ doses	62.8	(61.0 - 64.6)
	2+ doses	52.2	(50.3 - 54.0)
	3+ doses	41.9	(40.1 - 43.7)

Percent of females aged 13-17 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2008-2015

Source: Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases. National Immunization Survey.
Data are not age-adjusted.
Estimates for 2014+ are not directly comparable to estimates from prior years due to a change in the underlying definition. Detailed information can be found in the 'Measure' section of this page.
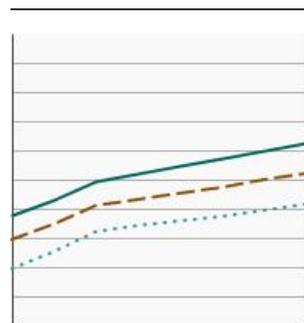
Males

Ages 13-15

Percent of males aged 13-15 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2012-2015
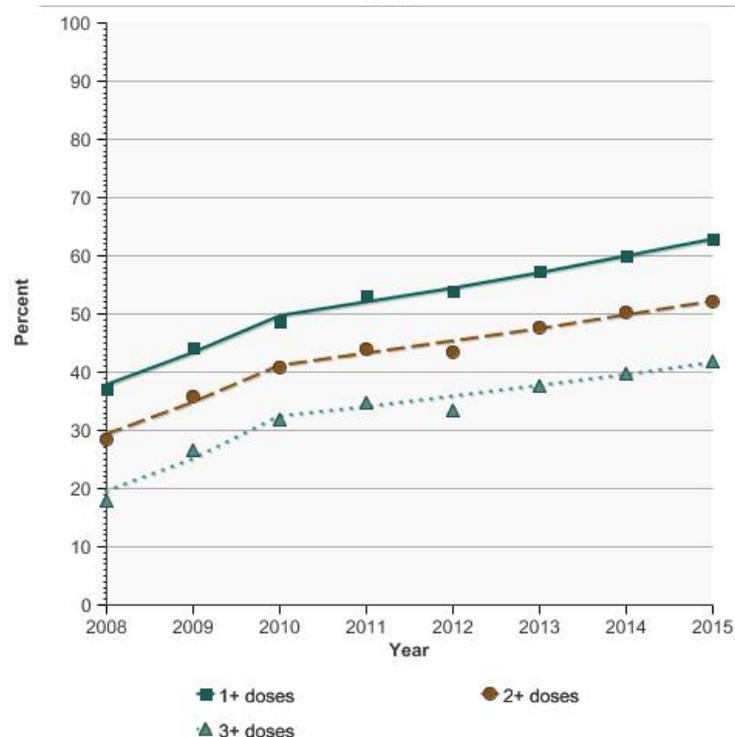
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent	**Confidence Interval**
	1+ doses	49.0	(46.7 - 51.4)
	2+ doses	38.6	(36.3 - 40.8)
	3+ doses	27.1	(25.0 - 29.1)

Percent of males aged 13-15 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2012-2015

Legend: ■ 1+ doses   ● 2+ doses   ▲ 3+ doses

Source: Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases. National Immunization Survey.
Data are not age-adjusted.
Estimates for 2014+ are not directly comparable to estimates from prior years due to a change in the underlying definition. Detailed information can be found in the 'Measure' section of this page.
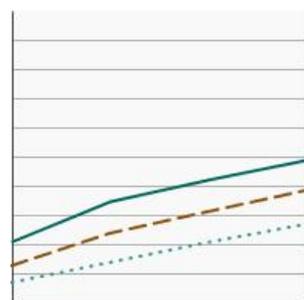
Ages 13-17

Percent of males aged 13-17 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2012-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent	Confidence Interval
	1+ doses	49.8	(48.0 - 51.6)
	2+ doses	39.0	(37.3 - 40.7)
	3+ doses	28.1	(26.5 - 29.7)

Percent of males aged 13-17 years who had received the human papillomavirus (HPV) vaccine by the number of vaccination dosages received, 2012-2015
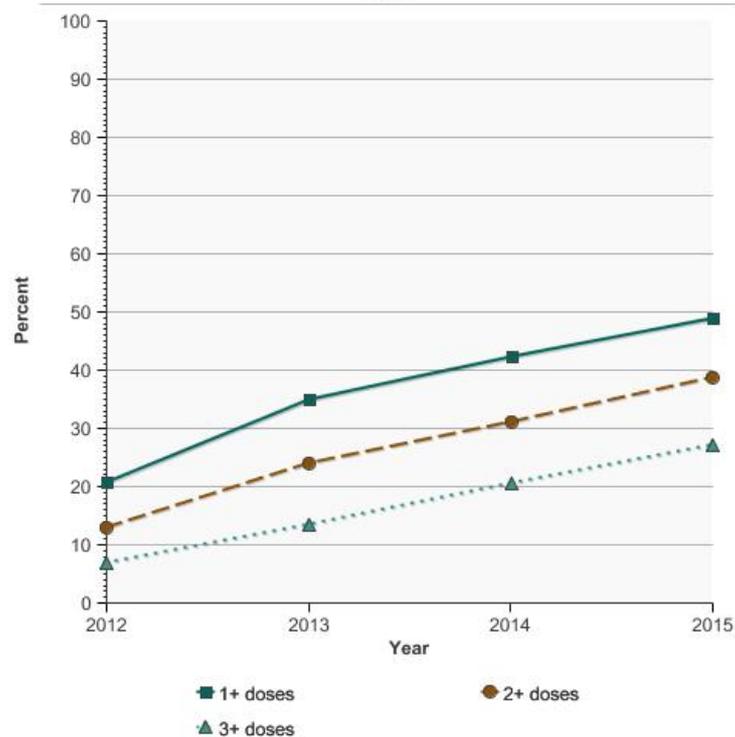

■ 1+ doses   ● 2+ doses
▲ 3+ doses

Source: Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases. National Immunization Survey.
Data are not age-adjusted.
Estimates for 2014+ are not directly comparable to estimates from prior years due to a change in the underlying definition. Detailed information can be found in the 'Measure' section of this page.
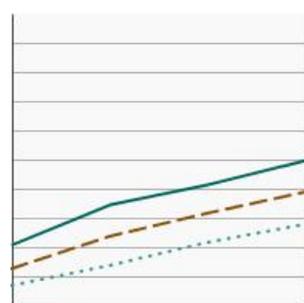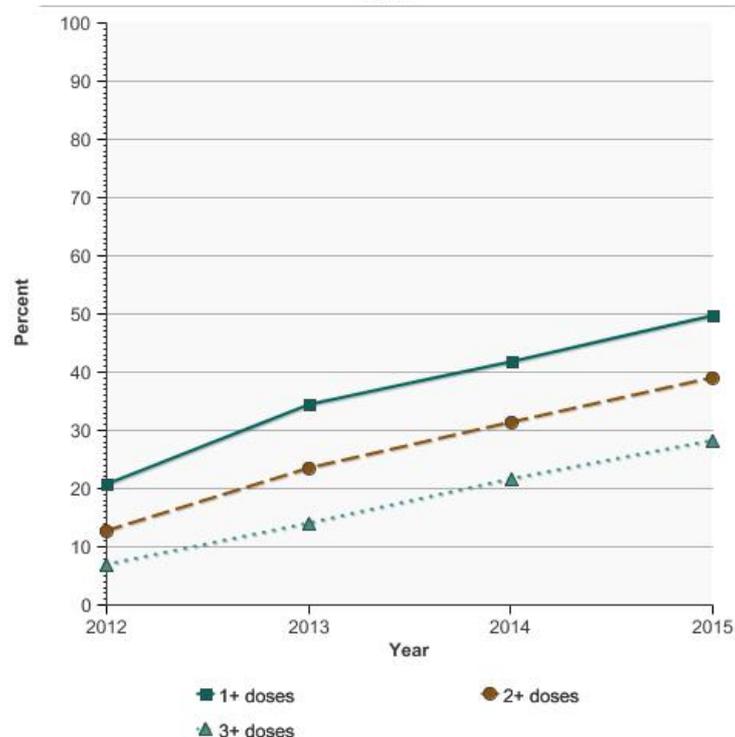
Cancers Related to HPV Immunization
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Cervix Uteri(http://seer.cancer.gov/statfacts/html/cervix.html)

Additional Information on HPV Immunization
For the public

- HPV vaccines(http://www.cancer.org/cancer/cancercauses/othercarcinogens/infectiousagents/hpv/humanpapillomavirusandhpvvaccinesfaq/index). American Cancer Society.
- The HPV vaccine: 3 shots of prevention(http://www.cancer.org/cancer/news/expertvoices/post/2011/07/26/the-hpv-vaccine-3-shots-of-prevention.aspx). American Cancer Society.
- HPV Vaccination(http://www.cdc.gov/vaccines/vpd-vac/hpv). Centers for Disease Control and Prevention.
- Fact Sheet – HPV and Cancer(http://www.cancer.gov/cancertopics/factsheet/Risk/HPV). National Cancer Institute.
- Fact Sheet – Human Papillomavirus (HPV) Vaccines(http://www.cancer.gov/cancertopics/factsheet/prevention/HPV-vaccine). National Cancer Institute.

For health professionals

- The Guide to Community Preventive Services – Increasing Appropriate Vaccination(http://www.thecommunityguide.org/about/What%20Works_Vaccines%20INSERT%20508.pdf). Centers for Disease Control and Prevention.
- Cervical Cancer Prevention (PDQ®)(http://www.cancer.gov/cancertopics/pdq/prevention/cervical/HealthProfessional). National Cancer Institute.

- Guideline Summary – Advisory Committee on Immunization Practices recommended immunization schedule for adults aged 19 years or older: United States, 2014(http://www.guideline.gov/content.aspx?id=47787). U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.

Scientific reports

- Applying a gender lens on human papillomavirus infection: cervical cancer screening, HPV DNA testing, and HPV vaccination(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3598235/).Brankovic I, Verdonk P, and Klinge I. Int J Equity Health 2013;12:14.
- FDA licensure of bivalent human papillomavirus vaccine (HPV2, Cervarix) for use in females and updated HPV vaccination recommendations from the Advisory Committee on Immunization Practices(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5920a4.htm). Centers for Disease Control and Prevention. MMWR 2010;59(20):626–629.
- National and state vaccination coverage among adolescents aged 13–17 years – United States, 2011(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6134a3.htm). Centers for Disease Control and Prevention. MMWR 2012;61(34):671–677.
- Recommendations on the use of quadrivalent human papillomavirus vaccine in males — Advisory Committee on Immunization Practices, 2011(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a3.htm). Centers for Disease Control and Prevention. MMWR 2011;60(50):1705–1708.
- Quadrivalent vaccine against human papillomavirus to prevent high-grade cervical lesions(http://www.ncbi.nlm.nih.gov/pubmed/17494925). Future II Study Group. N Engl J Med. 2007;356(19):1915–27.
- Prevalence of genital human papillomavirus among females in the United States, the National Health and Nutrition Examination Survey, 2003–2006(http://www.ncbi.nlm.nih.gov/pubmed/21791659).Hariri S, Unger ER, Sternberg M, et al. J Infect Dis 2011;204(4):566–73.
- Efficacy of a bivalent HPV 16/18 vaccine against anal HPV 16/18 infection among young women: a nested analysis within the Costa Rica Vaccine Trial(http://www.ncbi.nlm.nih.gov/pubmed/21865087). Kreimer AR, Gonzalez P, Katki HA, et al. Lancet Oncol. 2011;12(9):862–70.
- Efficacy of human papillomavirus (HPV)-16/18 AS04-adjuvanted vaccine against cervical infection and precancer caused by oncogenic HPV types (PATRICIA): final analysis of a double-blind, randomised study in young women(http://www.ncbi.nlm.nih.gov/pubmed/19586656). Paavonen J, Naud P, Salmerón J, et al. Lancet 2009;374(9686):301–14.
- Long term protection against cervical infection with the human papillomavirus: review of currently available vaccines(http://www.ncbi.nlm.nih.gov/pubmed/21307652). Romanowkski B. Hum Vaccin. 2011;7(2):161–9.
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- Adolescent vaccination-coverage levels in the United States: 2006–2009(http://pediatrics.aappublications.org/content/128/6/1078.abstract). Sokley S, Cohn A, Dorell C, et al. Pediatrics 2011;128(6):1078–1086.
- The potential of human papillomavirus vaccines(http://www.ncbi.nlm.nih.gov/pubmed/16540608). Steinbrook R. N Engl J Med. 2006;354(11):1109–12.

Statistics

- Behavioral Risk Factor Surveillance System: Prevalence Data & Data Analysis Tools(http://www.cdc.gov/brfss/data_tools.htm). Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey(http://www.cdc.gov/nchs/nhis.htm).
- Healthy People 2020, 2020 Topics & Objectives – Immunization and Infectious Diseases(http://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases).
- Health Information National Trends Survey(http://hints.cancer.gov/). National Cancer Institute.

Secondhand Smoke

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

Conclusive scientific evidence documents that SHS causes premature death and disease in children and adults who do not smoke. Exposure to SHS by adults has immediate adverse effects on the cardiovascular system, and long-term exposure to SHS causes coronary heart disease and lung cancer. Children exposed to SHS are at increased risk for sudden infant death syndrome, acute respiratory infections, middle ear disease, more severe asthma, respiratory symptoms, and slowed lung growth. At present there is little known about the impact of secondhand aerosol from e-cigarettes. However, some preliminary studies have found the presence of nicotine and some other constituents in the aerosol. Current and future research will reveal the impact of second-hand aerosol from e-cigarettes as well as the direct effects on the user.

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

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

Secondhand Smoke Exposure

Last Updated:

January 2017

Introduction

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

There is no risk-free level of exposure to SHS, and only eliminating smoking in indoor spaces fully protects nonsmokers from exposure to SHS. Exposure to secondhand smoke among non-tobacco users can be assessed by measurement of serum cotinine, a metabolite of nicotine. While serum cotinine levels may vary by individual due to the speed of nicotine metabolism and cotinine clearance, detection of serum cotinine above a minimum threshold is a validated measure of exposure to SHS in non-tobacco users.

Measure

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

Healthy People 2020 Target

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

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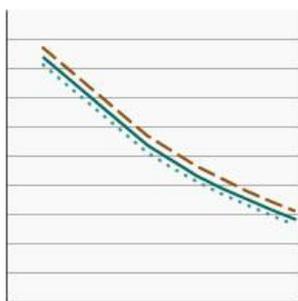
Data Source

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

Trends and Most Recent Estimates

By Sex

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by sex, 1988-2012

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

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by sex, 1988-2012

Both Sexes   Male   Female

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
[1]The 1988-1994 estimate is for ages 4 and older.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data are age-adjusted to the 2000 US standard population using age groups: 3-11, 12-17, 18-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

By Race/Ethnicity

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by race/ethnicity, 1988-2012
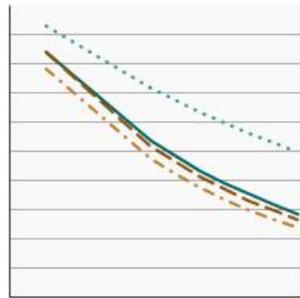
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	Confidence Interval
	All Races	26.2	(23.8 - 28.6)
	Non-Hispanic White	23.6	(21.0 - 26.3)
	Non-Hispanic Black	45.4	(39.0 - 51.9)
	Hispanic	22.6	(18.1 - 27.0)

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by race/ethnicity, 1988-2012

Legend:
- All Races
- Non-Hispanic Black
- Non-Hispanic White
- Hispanic
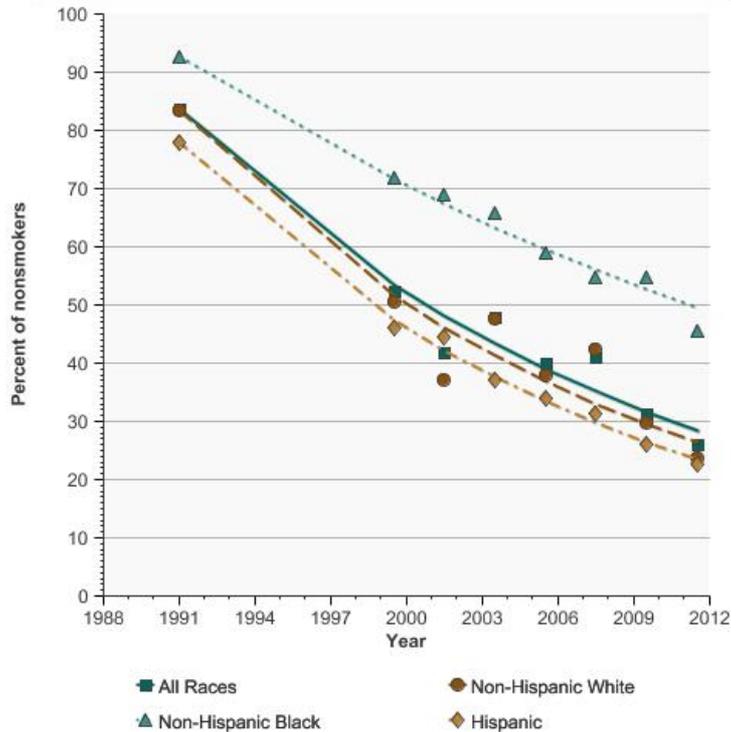
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
[1]The 1988-1994 estimate is for ages 4 and older.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data are age-adjusted to the 2000 US standard population using age groups: 3-11, 12-17, 18-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

By Age

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by age, 1988-2012

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

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by age, 1988-2012

■ Ages 3-11   ● Ages 12-17   ▲ Ages 18+

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
[1]The 1988-1994 estimate for ages 3-11 is for ages 4-11.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data for ages 3-11 and 12-17 are not age-adjusted. Data for ages 18+ are age-adjusted to the 2000 US standard population using age groups: 18-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
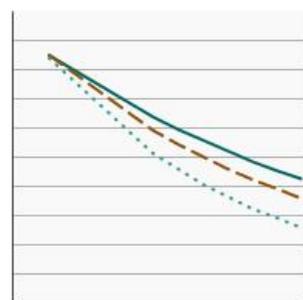
By Sex and Age

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by sex and age, 1988-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	Confidence Interval
	Males, Ages 3-11	40.2	(33.0 - 47.4)
	Females, Ages 3-11	41.0	(34.9 - 47.1)
	Males, Ages 12-17	31.5	(24.8 - 38.3)
	Females, Ages 12-17	30.9	(24.2 - 37.6)
	Males, Ages 18+	26.1	(23.5 - 28.7)
	Females, Ages 18+	20.6	(17.7 - 23.5)

Percentage of nonsmokers aged 3 years and older[1]
exposed to secondhand smoke[2] by sex and age, 1988-2012

Legend:
- Males, Ages 3-11
- Males, Ages 12-17
- Males, Ages 18+
- Females, Ages 3-11
- Females, Ages 12-17
- Females, Ages 18+

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
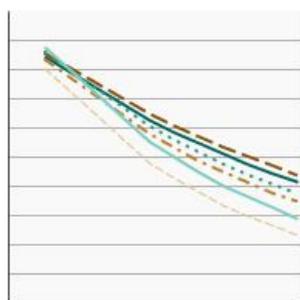[1]The 1988-1994 estimate for ages 3-11 is for ages 4-11.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data for ages 3-11 and 12-17 are not age-adjusted. Data for ages 18+ are age-adjusted to the 2000 US standard population using age groups: 18-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

Adults by Age

Percentage of nonsmokers aged 18 years and older exposed to secondhand smoke[1] by age, 1988-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	Confidence Interval
	Ages 18-29	37.2	(31.7 - 42.8)
	Ages 30+	19.2	(17.4 - 20.9)

Percentage of nonsmokers aged 18 years and older exposed to secondhand smoke[1] by age, 1988-2012

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
[1]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data for ages 18-29 are not age-adjusted. Data for ages 30+ are age-adjusted to the 2000 US standard population using age groups: 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

By Sex and Age

Percentage of nonsmokers aged 18 years and older exposed to secondhand smoke[1] by sex and age, 1988-2012
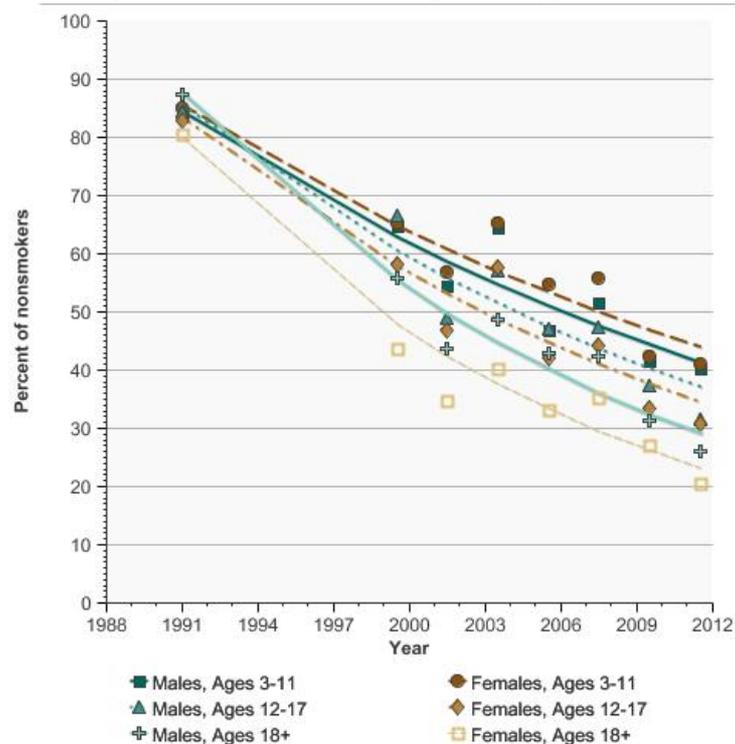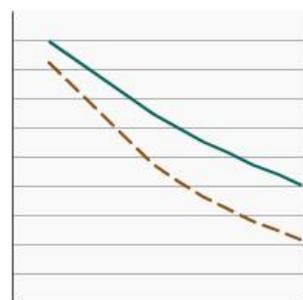
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	Confidence Interval
	Males, Ages 18-29	45.7	(38.3 - 53.1)
	Females, Ages 18-29	30.3	(23.7 - 36.9)
	Males, Ages 30+	20.7	(18.5 - 22.9)
	Females, Ages 30+	18.0	(15.7 - 20.2)

Percentage of nonsmokers aged 18 years and older exposed to secondhand smoke[1] by sex and age, 1988-2012

Males, Ages 18-29   Females, Ages 18-29
Males, Ages 30+   Females, Ages 30+

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
[1]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data for ages 18-29 are not age-adjusted. Data for ages 30+ are age-adjusted to the 2000 US standard population using age groups: 30-39, 40-49, 50-59, 60-69, 70-79, 80+.
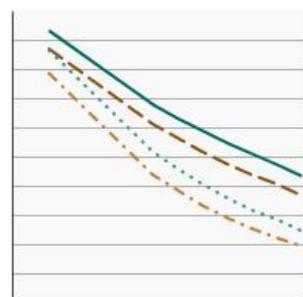
By Poverty Income Level

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by poverty income level, 1988-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	Confidence Interval
	<200% of federal poverty level	35.7	(31.7 - 39.7)
	>=200% of federal poverty level	19.2	(16.6 - 21.7)

Percentage of nonsmokers aged 3 years and older[1] exposed to secondhand smoke[2] by poverty income level, 1988-2012

- <200% of federal poverty level
- >=200% of federal poverty level

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
[1]The 1988-1994 estimate is for ages 4 and older.
[2]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data are age-adjusted to the 2000 US standard population using age groups: 3-11, 12-17, 18-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

By Education Level

Percentage of nonsmokers aged 25 years and older exposed to secondhand smoke[1] by highest level of education obtained, 1988-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Percent of nonsmokers	Confidence Interval
	Less than High School	30.7	(26.2 - 35.2)
	High School	30.3	(24.5 - 36.1)
	Greater than High School	15.9	(14.2 - 17.7)

Percentage of nonsmokers aged 25 years and older exposed to secondhand smoke[1] by highest level of education obtained, 1988-2012

- ■ Less than High School
- ● High School
- ▲ Greater than High School

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
[1]As measured by a serum cotinine level of greater than 0.05 ng/ml and less than or equal to 10 ng/ml.
Data are age-adjusted to the 2000 US standard population using age groups: 25-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+.

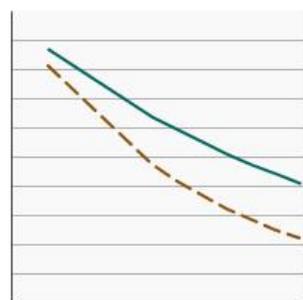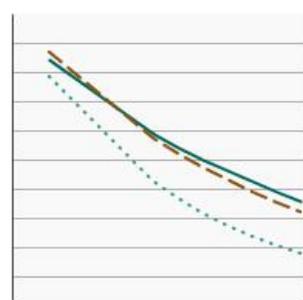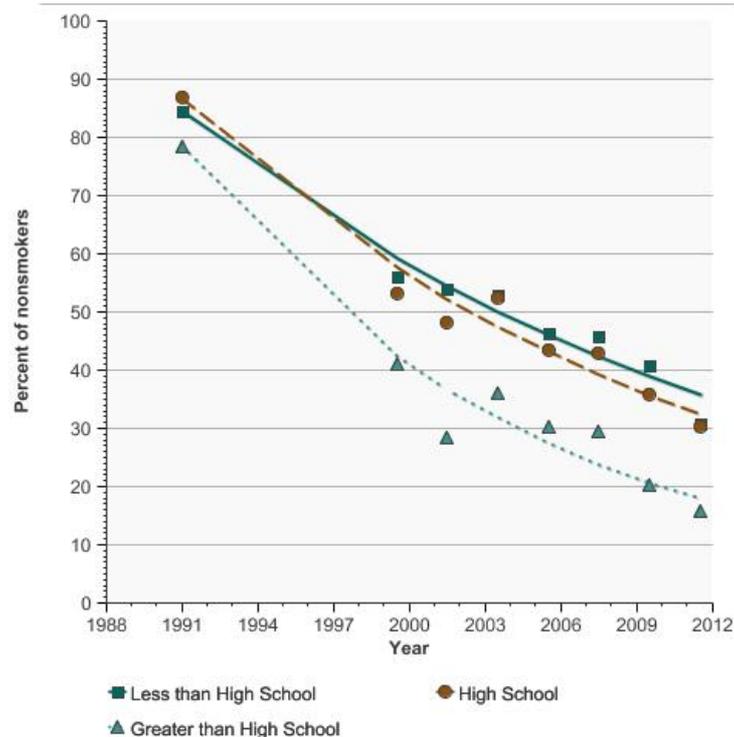**Cancers Related to Secondhand Smoke**
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Lung and Bronchus(http://seer.cancer.gov/statfacts/html/lungb.html)

Additional Information on Secondhand Smoke
For the public

- Secondhand Smoke(http://www.cancer.org/cancer/cancercauses/tobaccocancer/secondhand-smoke). American Cancer Society.
- Americans for Nonsmokers' Rights(http://www.no-smoke.org/).
- Overview List – How many smokefree laws?(http://www.no-smoke.org/pdf/mediaordlist.pdf) American Nonsmokers' Rights Foundation.
- Summary of 100% Smokefree State Laws and Protected by 100% U.S. Smokefree Laws(http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf). American Nonsmokers' Rights Foundation.
- U.S. 100% Smokefree Laws in Non-Hospitality Workplaces, Restaurants, and Bars(http://www.anr.no-smoke.org/pdf/WRBLawsMap.pdf). American Nonsmokers' Rights Foundation.
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- Research Topics: Secondhand Smoke. National Cancer Institute, Behavioral Research, Cancer Control and Population Sciences.
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- Vital signs: nonsmokers' exposure to secondhand smoke – United States, 1999–2008(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5935a4.htm). Centers for Disease Control and Prevention. MMWR 2010;59(35):1141–6.
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- Secondhand smoke exposure and cardiovascular effects: making sense of the evidence(http://iom.nationalacademies.org/Reports/2009/ Secondhand-Smoke-Exposure-and-Cardiovascular-Effects-Making-Sense-of-the-Evidence.aspx). Institute of Medicine of the National Academies. October 2009.
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Statistics

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Smoke-free Home Rules

Last Updated:
January 2017

Introduction

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

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

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

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

Measure

The percentage of respondents reporting a smoke-free home.

Healthy People 2020 Target

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

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

Data Source

National Cancer Institute. Tobacco Use Supplement to the Current Population Supplement for "home smoke-free policies" measures(http://appliedresearch.cancer.gov/tus-cps/).

Trends and Most Recent Estimates

By Sex

Percentage of adults aged 18 years and older reporting a smoke-free home environment by sex, 1992-2011
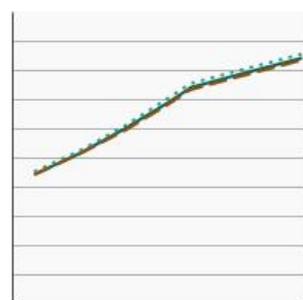
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	Confidence Interval
	Both Sexes	84.2	(83.8 - 84.5)
	Male	83.1	(82.6 - 83.5)
	Female	85.2	(84.9 - 85.5)

Percentage of adults aged 18 years and older
reporting a smoke-free home environment by sex, 1992-2011

- ■ Both Sexes
- ● Male
- ▲ Female

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of adults aged 18 years and older reporting a smoke-free home environment by race/ethnicity, 1992-2011
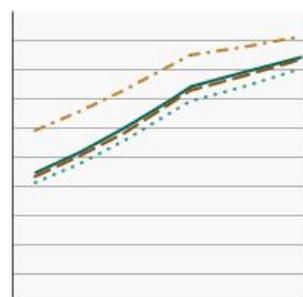
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	Confidence Interval
	All Races	84.2	(83.8 - 84.5)
	Non-Hispanic White	83.1	(82.7 - 83.4)
	Non-Hispanic Black	79.3	(78.4 - 80.2)
	Hispanic	90.8	(90.2 - 91.5)

Percentage of adults aged 18 years and older reporting a
smoke-free home environment by race/ethnicity, 1992-2011

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the
National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34,
35-44, 45-64, 65+.

By Age

Percentage of adults aged 18 years and older reporting a smoke-free home environment by age, 1992-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	Confidence Interval
	Ages 18-24	82.4	(81.6 - 83.3)
	Ages 25+	84.4	(84.1 - 84.8)

Percentage of adults aged 18 years and older
reporting a smoke-free home environment by age, 1992-2011

Ages 18-24   Ages 25+

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the
National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted
using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-
44, 45-64, 65+.

By Sex and Age

Percentage of adults aged 18 years and older reporting a smoke-free home environment by sex and age, 1992-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	Confidence Interval
	Males, ages 18-24	81.5	(80.3 - 82.8)
	Males, ages 25+	83.3	(82.9 - 83.7)
	Females, ages 18-24	83.3	(82.2 - 84.3)
	Females, ages 25+	85.5	(85.1 - 85.8)

Percentage of adults aged 18 years and older reporting
a smoke-free home environment by sex and age, 1992-2011

- Males, ages 18-24
- Males, ages 25+
- Females, ages 18-24
- Females, ages 25+

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

Percentage of adults aged 18 years and older reporting a smoke-free home environment by poverty income level, 1998-2011
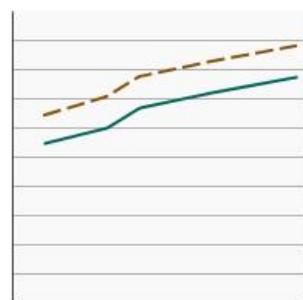
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	Confidence Interval
	< 200% of the federal poverty level	77.3	(76.7 - 77.9)
	>= 200% of the federal poverty level	88.0	(87.6 - 88.3)

Percentage of adults aged 18 years and older reporting a
smoke-free home environment by poverty income level, 1998-2011

< 200% of the federal poverty level   >= 200% of the federal poverty level

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the
National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34,
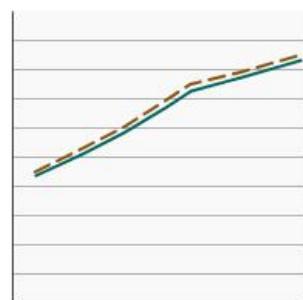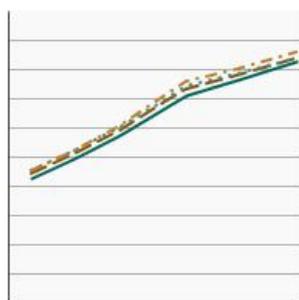35-44, 45-64, 65+.

By Education Level

Percentage of adults aged 25 years and older reporting a smoke-free home environment by highest level of education obtained, 1992-2011
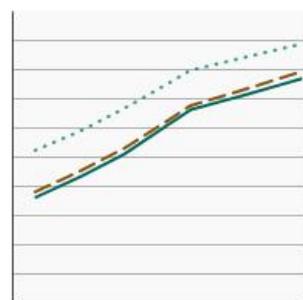
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of adults	Confidence Interval
	Less than High School	76.9	(76.0 - 77.8)
	High School	78.8	(78.2 - 79.5)
	Greater than High School	88.4	(88.1 - 88.7)

Percentage of adults aged 25 years and older reporting a smoke-free home environment by highest level of education obtained, 1992-2011
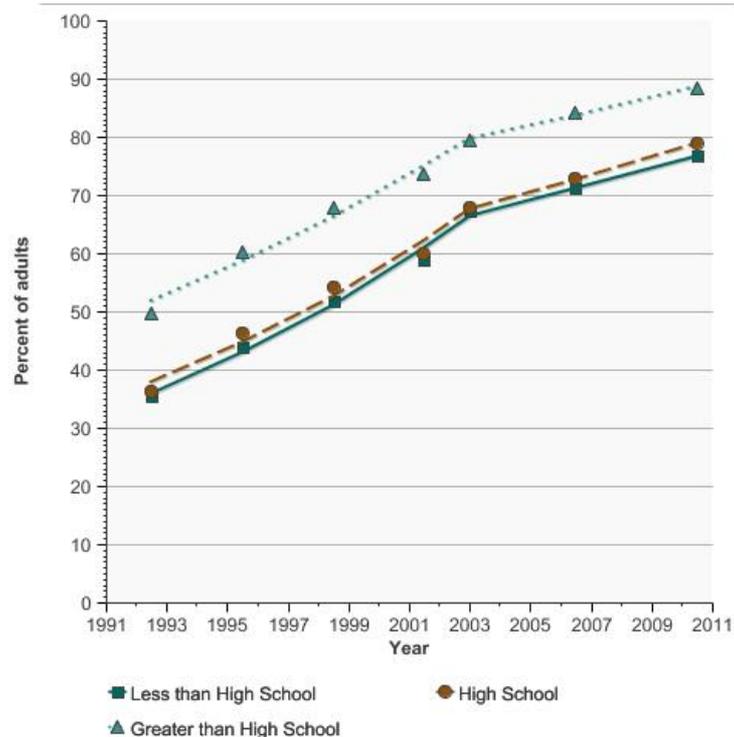
Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Cancers Related to Smoke-free Home Rules
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Lung and Bronchus(http://seer.cancer.gov/statfacts/html/lungb.html)

Additional Information on Smoke-free Home Rules
For the public

- Secondhand Smoke(http://www.cancer.org/cancer/cancercauses/tobaccocancer/secondhand-smoke). American Cancer Society.
- Americans for Nonsmokers' Rights(http://www.no-smoke.org/).
- Overview List – How many smokefree laws?(http://www.no-smoke.org/pdf/mediaordlist.pdf) American Nonsmokers' Rights Foundation.
- Summary of 100% Smokefree State Laws and Protected by 100% U.S. Smokefree Laws(http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf). American Nonsmokers' Rights Foundation.
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- Increasing prevalence of smoke-free homes and decreasing rates of sudden infant death syndrome in the United States: an ecological association study(http://www.ncbi.nlm.nih.gov/pubmed/21474502). Behm I, Kabir Z, Connolly GN, Alpert HR. Tob Control 2012;21(1):6–11.
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- State smoke-free laws for worksites, restaurants, and bars – United States, 2000–2010(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6015a2.htm). Centers for Disease Control and Prevention. MMWR 2011;60(15):472–475.
- Vital signs: nonsmokers' exposure to secondhand smoke – United States, 1999–2008(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5935a4.htm). Centers for Disease Control and Prevention. MMWR 2010;59(35):1141–6.
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- Occupation and workplace policies predict smoking behaviors: analysis of national data from the current population survey(http://www.ncbi.nlm.nih.gov/pubmed/21988795). Ham DC, Przybeck T, Strickland JR, et al. J Occup Environ Med 2011;53(11):1337–45.
- Parental home smoking policies: the protective effect of having a young child in the household(http://www.ncbi.nlm.nih.gov/pubmed/21679724). Hawkins SS, Berkman L. Prev Med 2011;53(1–2):61–3.
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- Environmental Tobacco Smoke(http://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Tobacco/determinants). Healthy People 2020.
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- The Tobacco Use Supplement to the Current Population Survey(http://appliedresearch.cancer.gov/tus-cps/). National Cancer Institute.

Smoke-free Workplace Rules and Laws

Last Updated:
January 2017

Introduction

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

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

Numerous states, cities, and jurisdictions have implemented comprehensive smoke-free policies to protect employees and the public from the dangers of exposure to secondhand smoke. The non-profit organization, Americans for Non-Smokers' Rights, tracks the status of smoke-free policies at both the state and local level. As of July 1, 2016, 25 states and over 800 municipalities have adopted comprehensive smoke-free policies for workplaces, restaurants, and bars.

Electronic nicotine delivery systems (ENDS), including e-cigarettes, are battery-powered devices designed to heat a liquid, typically containing nicotine, to produce an aerosol for inhalation by the user. Secondhand aerosol contains nicotine, fine and ultrafine particles, metals, and other toxicants. At least 430 cities and several states prohibit the use of ENDS products in places that prohibit smoking of cigarettes and other tobacco products.

Measure

The percentage of indoor workers reporting a smoke-free work environment.

The percentage of the population protected by local and state smoke-free indoor air laws covering workplaces, restaurants, and bars. This measure draws on data collected and analyzed by the Americans for Nonsmokers' Rights Foundation. Use of this information allows the National Cancer Institute (NCI) to include both local and state laws in its assessments.

Healthy People 2020 Target

- Increase the proportion of persons covered by indoor worksite policies that prohibit smoking to 100 percent.
- Increase the number of jurisdictions (states and Washington, D.C.) with smoke-free indoor air laws that prohibit smoking in public places and worksites to 51.

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

Data Source

National Cancer Institute. Tobacco Use Supplement to the Current Population Supplement for "work place smoke-free policies" measures(http://appliedresearch.cancer.gov/tus-cps/).

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

Trends and Most Recent Estimates
Smoke-free Workplace Rules

By Sex

Percentage of workers aged 18 years and older reporting a smoke-free work environment by sex, 1992-2011
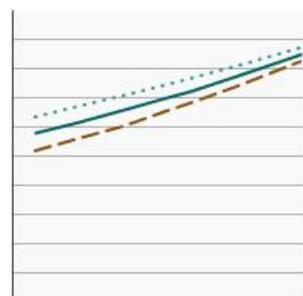
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of workers	Confidence Interval
	Both Sexes	82.5	(82.1 - 82.9)
	Male	79.7	(79.0 - 80.4)
	Female	85.0	(84.5 - 85.5)

Percentage of workers aged 18 years and older
reporting a smoke-free work environment by sex, 1992-2011
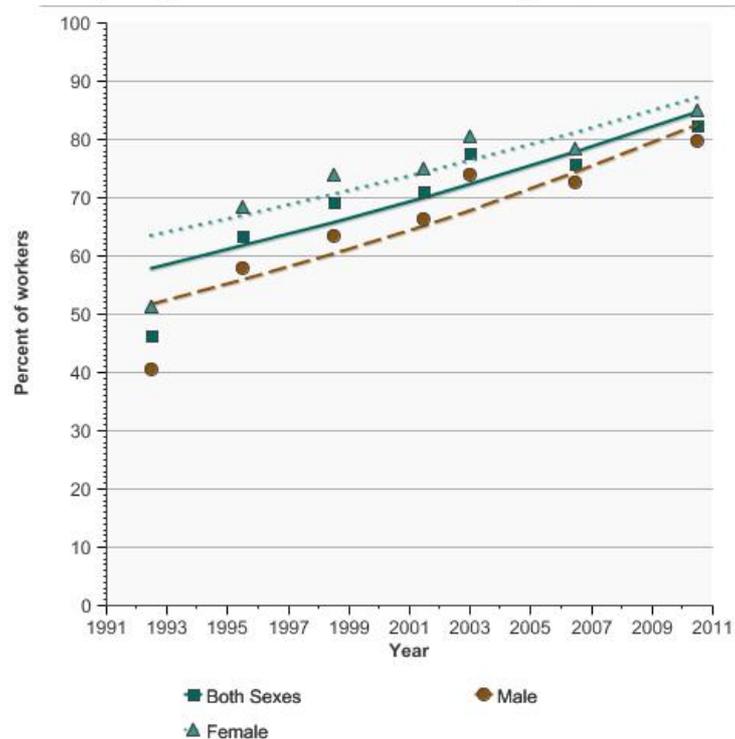
Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the
National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34,
35-44, 45-64, 65+.

By Race/Ethnicity

Percentage of workers aged 18 years and older reporting a smoke-free work environment by race/ethnicity, 1992-2011
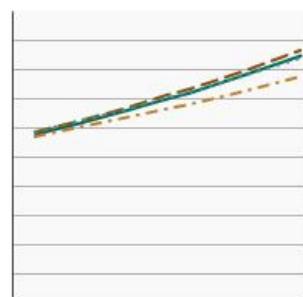
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of workers	Confidence Interval
	All Races	82.5	(82.1 - 82.9)
	Non-Hispanic White	84.2	(83.7 - 84.7)
	Non-Hispanic Black	81.1	(79.7 - 82.5)
	Hispanic	75.8	(74.3 - 77.3)

Percentage of workers aged 18 years and older reporting a smoke-free work environment by race/ethnicity, 1992-2011

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Age

Percentage of workers aged 18 years and older reporting a smoke-free work environment by age, 1992-2011
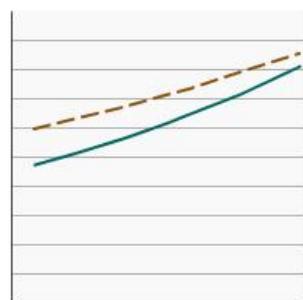
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of workers	Confidence Interval
	Ages 18-24	78.2	(76.9 - 79.5)
	Ages 25+	83.1	(82.6 - 83.5)

Percentage of workers aged 18 years and older reporting a smoke-free work environment by age, 1992-2011

Ages 18-24   Ages 25+

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Sex and Age

Percentage of workers aged 18 years and older reporting a smoke-free work environment by sex and age, 1992-2011
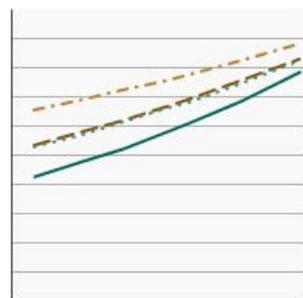
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of workers	Confidence Interval
	Males, ages 18-24	75.4	(73.5 - 77.4)
	Males, ages 25+	80.3	(79.6 - 81.0)
	Females, ages 18-24	80.6	(79.1 - 82.2)
	Females, ages 25+	85.6	(85.0 - 86.1)

Percentage of workers aged 18 years and older reporting a smoke-free work environment by sex and age, 1992-2011

Legend:
- Males, ages 18-24
- Males, ages 25+
- Females, ages 18-24
- Females, ages 25+

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population. Ages 18-24 are age-adjusted using age groups: 18-19, 20-24. Ages 25+ are age-adjusted using age groups: 25-34, 35-44, 45-64, 65+.

By Poverty Income Level

Percentage of workers aged 18 years and older reporting a smoke-free work environment by poverty income level, 1998-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of workers	Confidence Interval
	< 200% of the federal poverty level	78.1	(77.1 - 79.2)
	>= 200% of the federal poverty level	83.5	(83.0 - 84.1)

Percentage of workers aged 18 years and older reporting a smoke-free work environment by poverty income level, 1998-2011

■ < 200% of the federal poverty level   ● >= 200% of the federal poverty level

Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+.

By Education Level

Percentage of workers aged 25 years and older reporting a smoke-free work environment by highest level of education obtained, 1992-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010 to 2011)	
		Percent of workers	Confidence Interval
	Less than High School	72.4	(70.5 - 74.3)
	High School	80.3	(79.4 - 81.2)
	Greater than High School	85.0	(84.5 - 85.5)

Percentage of workers aged 25 years and older reporting a smoke-free work environment by highest level of education obtained, 1992-2011

Legend:
- Less than High School
- High School
- Greater than High School
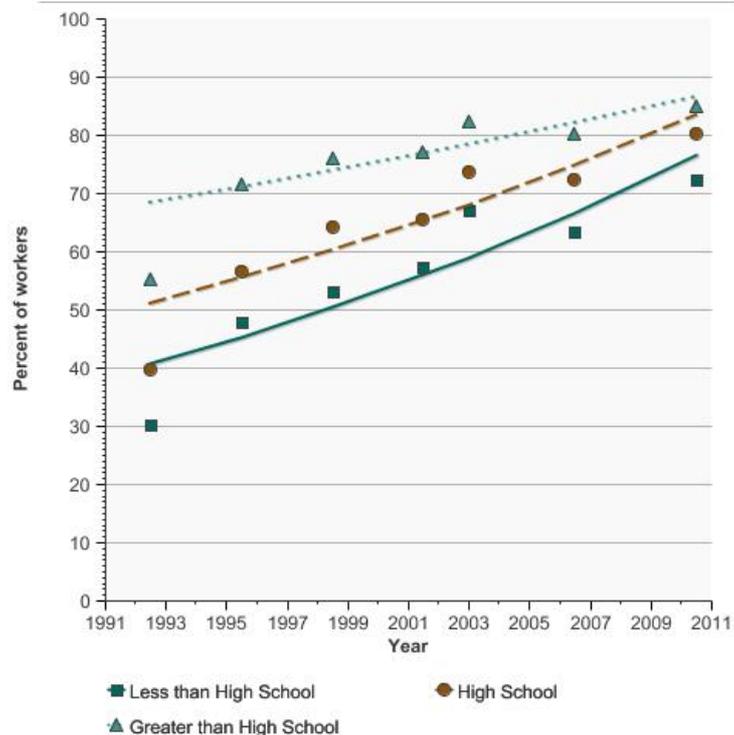
Source: Tobacco Use Supplement to the Current Population Survey, sponsored by the National Cancer Institute.
Data are age-adjusted to the 2000 US standard population using age groups: 25-34, 35-44, 45-64, 65+.

Indoor Air Laws

Percentage of population protected by local and state 100% smoke-free indoor air laws, 1990-2015
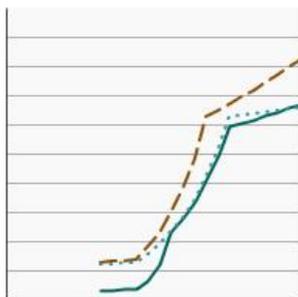
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of population	Confidence Interval
	Workplaces	65.4	Not available
	Restaurants	77.6	Not available
	Bars	65.6	Not available

Percentage of population protected by local and state 100% smoke-free indoor air laws, 1990-2015
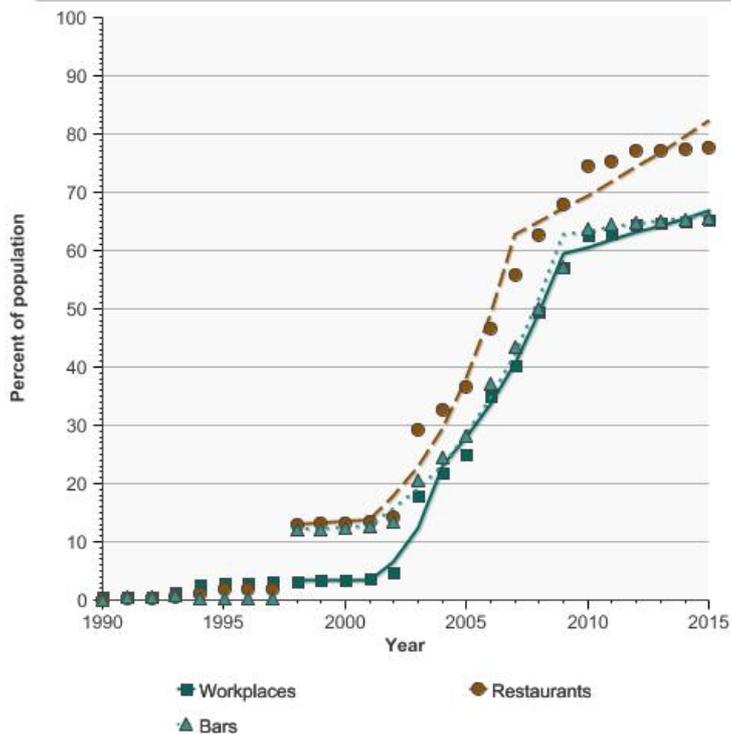
Source: Americans for Nonsmokers' Rights Foundation (www.no-smoke.org). Underlying population estimates are from the United States Census 2000. 2015 estimates are based on the January 1, 2016 reports.
Data are not age-adjusted.
Regression lines are calculated for 1998+ estimates because of very low coverage prior to this date.

Cancers Related to Smoke-free Workplace Rules and Laws
Statistical summaries from NCI's SEER Cancer Stat Fact Sheets:

- Lung and Bronchus(http://seer.cancer.gov/statfacts/html/lungb.html)

Additional Information on Smoke-free Workplace Rules and Laws
For the public

- Secondhand Smoke(http://www.cancer.org/cancer/cancercauses/tobaccocancer/secondhand-smoke). American Cancer Society.
- Americans for Nonsmokers' Rights(http://www.no-smoke.org/).
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- Summary of 100% Smokefree State Laws and Protected by 100% U.S. Smokefree Laws(http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf). American Nonsmokers' Rights Foundation.
- U.S. 100% Smokefree Laws in Non-Hospitality Workplaces, Restaurants, and Bars(http://www.anr.no-smoke.org/pdf/WRBLawsMap.pdf). American Nonsmokers' Rights Foundation.
- Ending the Tobacco Problem: Resources for Local Action(http://sites.nationalacademies.org/Tobacco/index.htm). Institute of Medicine of the National Academies.
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- 50 Years of Progress: A Report of the Surgeon General, 2014(http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-by-section.html). U.S. Department of Health and Human Services.
- The health consequences of involuntary exposure to tobacco smoke: A report of the Surgeon General. 2006(http://www.surgeongeneral.gov/library/reports/secondhandsmoke/fullreport.pdf). U.S. Department of Health and Human Services.

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- Increasing prevalence of smoke-free homes and decreasing rates of sudden infant death syndrome in the United States: an ecological association study(http://www.ncbi.nlm.nih.gov/pubmed/21474502). Behm I, Kabir Z, Connolly GN, Alpert HR. Tob Control 2012;21(1):6–11.
- Smoking restrictions in bars and bartender smoking in the United States, 1992–2007(http://www.ncbi.nlm.nih.gov/pubmed/21059605). Bitler MP, Carpenter C, Zavodny M. Tob Control 2011;20(3):196–200.
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- Secondhand smoke exposure and cardiovascular effects: making sense of the evidence(http://iom.nationalacademies.org/Reports/2009/ Secondhand-Smoke-Exposure-and-Cardiovascular-Effects-Making-Sense-of-the-Evidence.aspx). Institute of Medicine of the National Academies. October 2009.
- National and state estimates of secondhand smoke infiltration among U.S. multiunit housing residents(http://www.ncbi.nlm.nih.gov/pubmed/23248030). King BA, Babb SD, Tynan MA, Gerzoff RB. Nicotine Tob Res 2013 Jul;15(7):1316-21.
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- Americans for Non-Smokers Right Foundation(http://www.anr.no-smoke.org/pdf/SummaryUSPopList.pdf).
- National Health and Nutrition Examination Survey(http://www.cdc.gov/nchs/nhanes.htm). Centers for Disease Control and Prevention, National Center for Health Statistics.
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- Environmental Tobacco Smoke(http://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Tobacco/determinants). Healthy People 2020.
- Outdoor Air Quality(http://www.healthypeople.gov/2020/topics-objectives/topic/environmental-health/objectives). Healthy People 2020.
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- The Tobacco Use Supplement to the Current Population Survey(http://appliedresearch.cancer.gov/tus-cps/). National Cancer Institute.

Chemical 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

Methodology

The R function "svyquantile" from the R Package "survey" was used to estimate the percentiles and their confidence limits. The "betaWald" interval option was chosen, which was computed by adapting the method proposed by Wooddruff (1952) and the method proposed by Korn & Graubard (1998). The R function "svyranktest" from the same package was used to test whether there is statistically significant difference between the estimated percentiles obtained from different survey years. For more details on the R functions used, see https://cran.r-project.org/web/packages/survey/survey.pdf. The R functions were chosen in order to perform the desired significance tests.

References

- Korn EL, Graubard BI. (1998). Confidence Intervals For Proportions With Small Expected Number of Positive Counts Estimated From Survey Data. Survey Methodology, 23, 193-201.
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Arsenic

Last Updated:

November 2015

Introduction

Arsenic is a tasteless, odorless element in the environment that can be found naturally in rocks and soil, water, air, and in plants and animals. It can also be released into the environment from some agricultural and industrial sources.

Arsenic is usually part of chemical compounds, including inorganic compounds (combined with oxygen, iron, chlorine, and sulfur), and organic compounds (combined with carbon and other atoms).

Inorganic arsenic compounds are found in industry, in building products (in some "pressure-treated" woods), and in arsenic-contaminated water. Soil and water contamination also can occur as a result of mining and smelting activities. Past use of arsenic-containing herbicides has resulted in soil contamination and some food crops grown in these soils take up the arsenic. Inorganic arsenic compounds are more toxic than organic arsenic compounds, and inorganic arsenic has been linked to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate.

We typically take in small amounts of inorganic arsenic in the food we eat (in particular, rice and fish), the water we drink, and the air we breathe. Arsenic also is present in tobacco smoke. People may be exposed to higher levels of arsenic at work in certain industries, but such exposures are now rare in the United States. People may also be exposed to greater amounts of arsenic if they live near current or former industrial or agricultural sources of arsenic, live in areas where arsenic is naturally high in drinking water, or eat a lot of seafood (although the organic form predominantly found in seafood is likely to be much less harmful). A major dietary source of inorganic arsenic includes rice and rice products.

Both short- and long-term exposure to arsenic can cause health problems. Breathing in high levels of arsenic may cause a sore throat and irritated lungs. Swallowing high levels of arsenic can be fatal. Exposure to lower levels of arsenic over longer periods of time can result in liver and kidney damage. Moreover, arsenic and cigarette smoking exposure act synergistically to increase the incidence of lung cancer.

Examination of arsenic is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population.

[Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [Methodology]

Healthy People 2020 Target

Level of urinary total arsenic (creatinine corrected) for 95 percent of the population aged 6 years and older to below 35.28 μg/g of creatinine.

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

Data Source

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

Trends and Most Recent Estimates

By Sex

95th percentile for urinary (creatinine corrected) concentrations (μg/g of creatinine) of total arsenic among persons aged 6 years and older by sex, 2003-2012
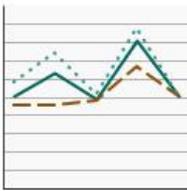
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/gram creatinine (μg/g)	95% Confidence Interval
	Both Sexes	50.3	(43.2 - 60.1)
	Male	50.2	(33.7 - 68.6)
	Female	50.5	(43.5 - 72.6)

95th percentile for urinary (creatinine corrected) concentrations (μg/g of creatinine) of total arsenic among persons aged 6 years and older by sex, 2003-2012
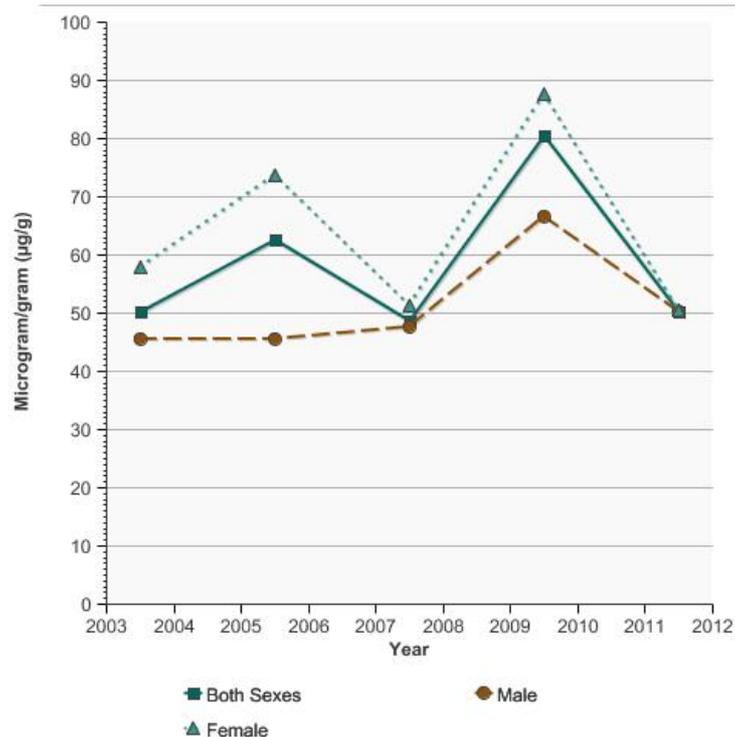
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Race/Ethnicity

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 6 years and older by race/ethnicity, 2003-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/gram creatinine (µg/g)	95% Confidence Interval
	All Races	50.3	(43.2 - 60.1)
	Non-Hispanic White	46.1	(36.1 - 53.3)
	Non-Hispanic Black	54.7	(36.2-73.8)
	Hispanic	37.2	(28.3-47.2)

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 6 years and older by race/ethnicity, 2003-2012
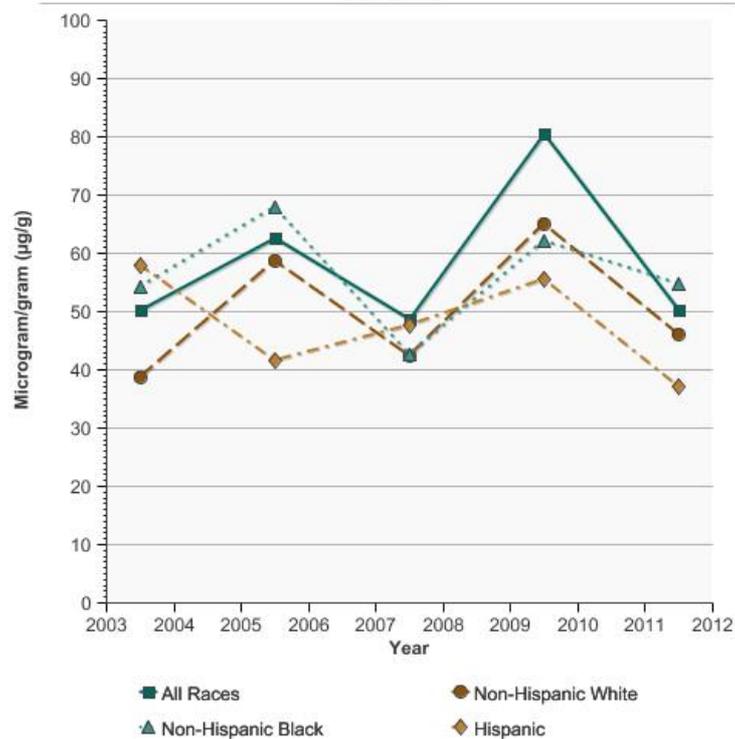
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Age

95th percentile for urinary (creatinine corrected) concentrations (μg/g of creatinine) of total arsenic among persons aged 6 years and older by age, 2003-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/gram creatinine (μg/g)	95% Confidence Interval
	Ages 6-11	86.7	(27.7 - 118.9)
	Ages 12-19	34.7	(21.1 - 137.5)
	Ages 20+	49.2	(43.5 - 58.5)

95th percentile for urinary (creatinine corrected) concentrations (μg/g of creatinine) of total arsenic among persons aged 6 years and older by age, 2003-2012
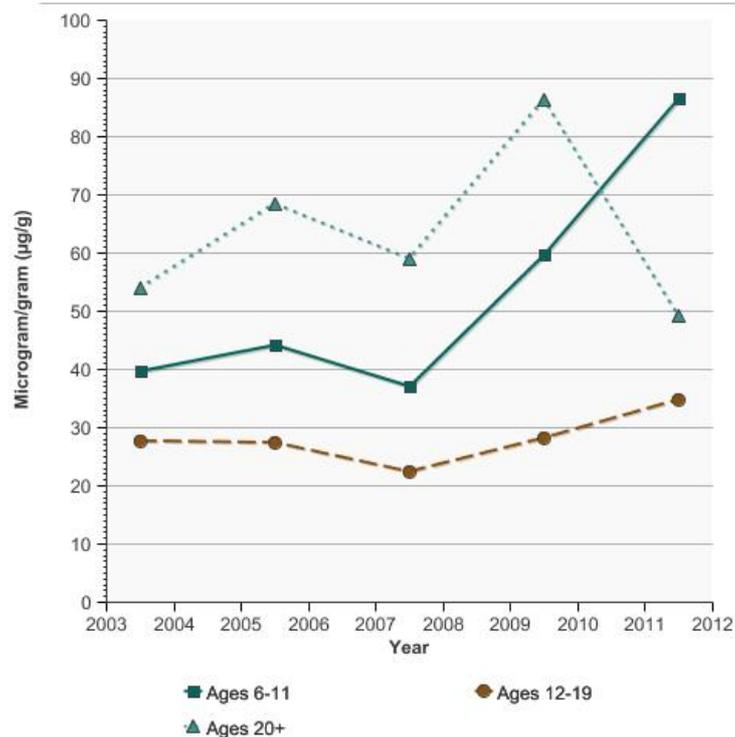
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Poverty Income Level

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 6 years and older by poverty income level, 2003-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/gram creatinine (µg/g)	95% Confidence Interval
	< 200% of the federal poverty level	38.9	(32.1 - 48.0)
	>= 200% of the federal poverty level	53.1	(43.7 - 79.2)

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 6 years and older by poverty income level, 2003-2012

■ < 200% of the federal poverty level   ● >= 200% of the federal poverty level

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Education Level
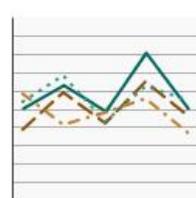
95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 20 years and older by highest level of education obtained, 2003-2012
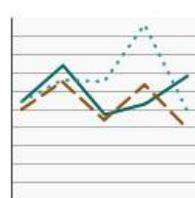
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/gram creatinine (µg/g)	95% Confidence Interval
	Less than High School	68.4	(36.6 - 94.4)
	High School	39.8	(36.1 - 53.1)
	Greater than High School	49.8	(43.4 - 63.9)

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 20 years and older by highest level of education..
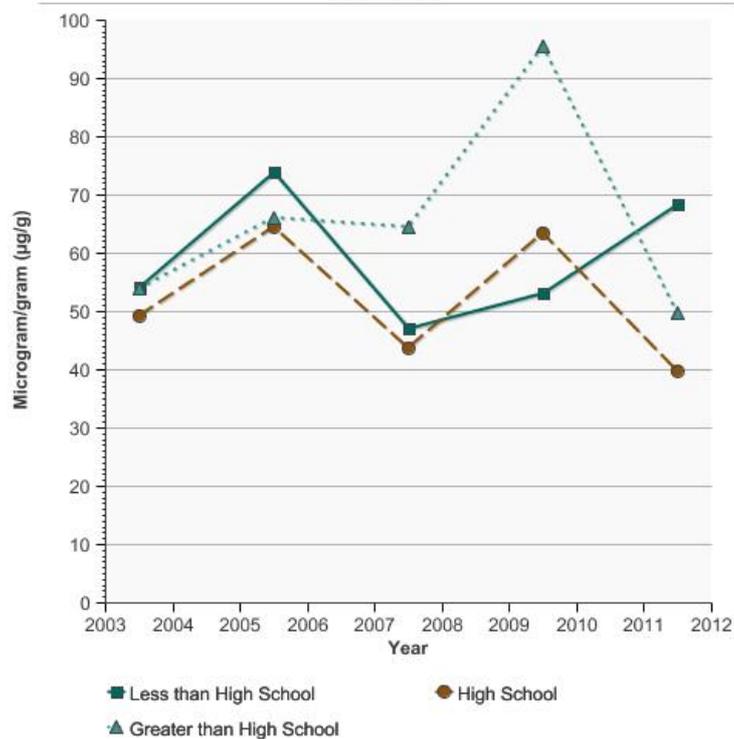
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Smoking Status

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 20 years and older by smoking status, 2003-2012
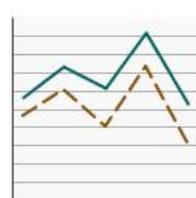
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/gram creatinine (µg/g)	95% Confidence Interval
	Non-Smoker	52.6	(45.8 - 68.8)
	Smoker	30.7	(24.7 - 43.2)

95th percentile for urinary (creatinine corrected) concentrations (µg/g of creatinine) of total arsenic among persons aged 20 years and older by smoking status, 2003-2012
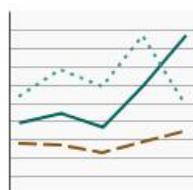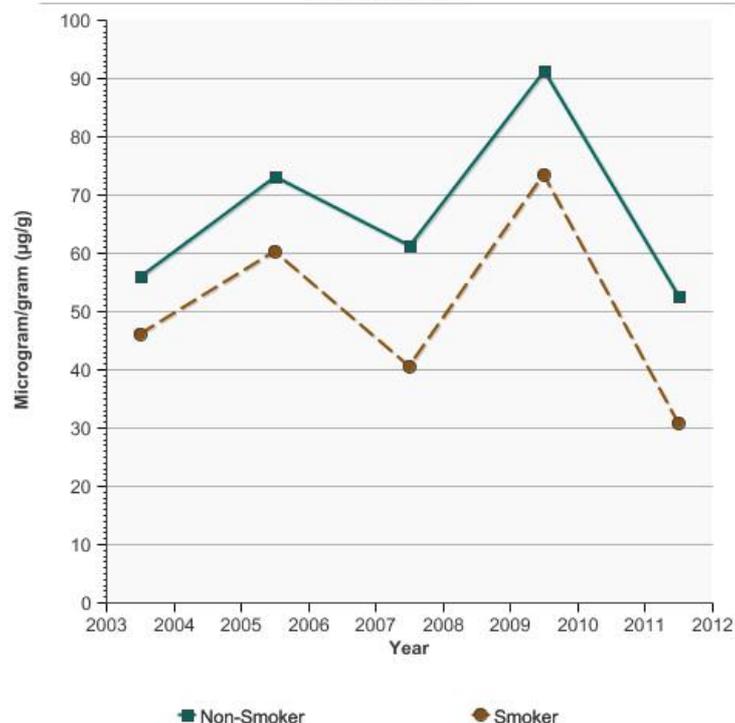
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
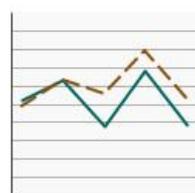Data are not age-adjusted.

Additional Information on Arsenic
**For the public**

- Fact Sheet – CCA-Treated Wood(http://www.atsdr.cdc.gov/toxfaqs/FS.asp?id=1202&tid=3). Agency for Toxic Substances & Disease Registry.
- Public Health Statement for Arsenic(http://www.atsdr.cdc.gov/phs/phs.asp?id=18&tid=3). Agency for Toxic Substances & Disease Registry.
- ToxFAQs for Arsenic(http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=19&tid=3). Agency for Toxic Substances and Disease Registry.
- Arsenic(http://www.cancer.org/cancer/cancercauses/othercarcinogens/intheworkplace/arsenic). American Cancer Society.
- Known and Probable Human Carcinogens(http://www.cancer.org/cancer/cancercauses/othercarcinogens/generalinformationaboutcarcinogens/known-and-probable-human-carcinogens). American Cancer Society.
- Fourth National Report on Human Exposure to Environmental Chemicals (2009)(http://www.cdc.gov/exposurereport/pdf/FourthReport.pdf). Centers for Disease Control and Prevention.
- Occupational Cancer(http://www.cdc.gov/niosh/topics/cancer/). Centers for Disease Control and Prevention.
- Arsenic in Drinking Water(http://water.epa.gov/lawsregs/rulesregs/sdwa/arsenic/index.cfm). Environmental Protection Agency.
- Arsenic in groundwater of the United States(http://water.usgs.gov/nawqa/trace/arsenic/). U.S. Geological Survey, National Water-Quality Assessment Program, Trace Elements National Synthesis Project.

For health professionals

- Environmental Health and Medicine Education – Arsenic Toxicity(http://www.atsdr.cdc.gov/csem/csem.asp?csem=1&po=0). Agency for Toxic Substances & Disease Registry.
- Interaction Profiles for Toxic Substances: Arsenic, Cadmium, Chromium, Lead(http://www.atsdr.cdc.gov/interactionprofiles/ip04.html). Agency for Toxic Substances & Disease Registry.
- Toxic Substances Portal – Arsenic(http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=3). Agency for Toxic Substances & Disease Registry.

- Toxicological Profile for Arsenic(http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=22&tid=3). Agency for Toxic Substances & Disease Registry. Toxic Substances Portal – Arsenic.

Scientific reports

- Bladder cancer mortality and private well use in New England: an ecological study(http://nh.water.usgs.gov/Publications/2006/JECH168.pdf). Ayotte JD, Baris D, Cantor KP, et al. J Epidemiol Community Health 2006;60:168–172.
- Ingested arsenic, cigarette smoking, and lung cancer risk: a follow-up study in arseniosis-endemic areas in Taiwan(http://www.ncbi.nlm.nih.gov/pubmed/15613666). Chen CL, Hsu LI, Chiou HY, et al. JAMA 2004;292:2984–90.
- Dietary sources of methylated arsenic species in urine of the United States population, NHANES 2003-2010(http://www.ncbi.nlm.nih.gov/pubmed/25251890). deCastro BR, Caldwell KL, Jones RL, Blount BC, Pan Y, Ward C, Mortensen ME. PLoS One. 2014 Sep 24;9(9):e108098.
- Arsenic and Arsenic Compounds(http://monographs.iarc.fr/ENG/Monographs/vol100C/mono100C-6.pdf). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2012;100(c):41–93.
- Some Drinking-water Disinfectants and Contaminants, Including Arsenic(http://monographs.iarc.fr/ENG/Monographs/vol84/mono84-6.pdf). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2004;84:41–267.
- New England Bladder Cancer Study(http://dceg.cancer.gov/research/cancer-types/bladder/bladder-new-england). National Cancer Institute, Division of Cancer Epidemiology & Genetics.
- Exogenous factors in the origin and cause of cancer: interactions of genes and/or genetic polymorphisms with exogenous and/or endogenous factors(http://fundedresearch.cancer.gov/nciportfolio). National Cancer Institute. NCI Funded Research Portfolio. 2009.
- Estimating water supply arsenic levels in the New England bladder cancer study(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3230387/). Nuckols JR, Freeman LEB, Lubin JH, et al. Environ Health Perspect 2011;119(9):1279–1285.
- The Chemical Components of Tobacco and Tobacco Smoke(http://pubs.acs.org/doi/abs/10.1021/cr60252a002). Rodgman A., Perfetti T.A. CRC Press; Boca Raton, FL, USA: 2009.
- Arsenic and Inorganic Arsenic Compounds(http://ntp.niehs.nih.gov/ntp/roc/twelfth/profiles/arsenic.pdf). U.S. Department of Health and Human Services, National Toxicology Program. Report on Carcinogens, Twelfth Edition 2011:50–53.

Benzene

Last Updated:
November 2015

Introduction

Benzene is an organic chemical that is colorless and has a sweet odor. It is highly flammable, and evaporates quickly when exposed to air. Benzene is formed through natural processes, such as volcanoes and forest fires, and is present in crude oil, gasoline, and cigarette smoke. Most exposure to benzene results from human activities. Benzene use in materials and to adjust fuel octane levels has been minimized, resulting in reduced benzene exposure among non-smokers. Cigarette smoking has been shown to be the primary exposure source of benzene blood levels in the U.S., with some benzene exposure in non-smokers attributable to secondhand smoke exposure.The chemical also is widely used as a component of plastics, rubber, resins, and synthetic fabrics, as well as an additive in motor fuels and as a solvent in printing, paints, and dry cleaning, and for other purposes. Benzene is also used in the manufacture of detergents, explosives, pharmaceuticals, and dyestuffs.

Benzene is known to cause cancer and has toxic effects on the blood and the bone marrow (the soft, inner parts of bones where new blood cells are made). The link between benzene and cancer has largely focused on leukemia and cancers of other blood cells.

The main way people are exposed is by breathing in air containing benzene—in emissions from burning coal and oil, motor vehicle exhaust, and evaporation from gasoline service stations and in industrial solvents. It is estimated that about half of the exposure to benzene in the United States results from smoking tobacco or from exposure to tobacco smoke. It can also be absorbed through the skin during contact with a source such as gasoline, but because liquid benzene evaporates quickly, this is less common.

Examination of benzene is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population.
[Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [Methodology]

Healthy People 2020 Target

There are no Healthy People 2020 targets regarding benzene.

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

Data Source

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

Trends and Most Recent Estimates

By Sex

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by sex, 2001-2006
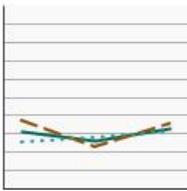
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	95% Confidence Interval
	Both Sexes	0.33	(0.30 - 0.36)
	Male	0.35	(0.30 - 0.40)
	Female	0.31	(0.26 - 0.36)
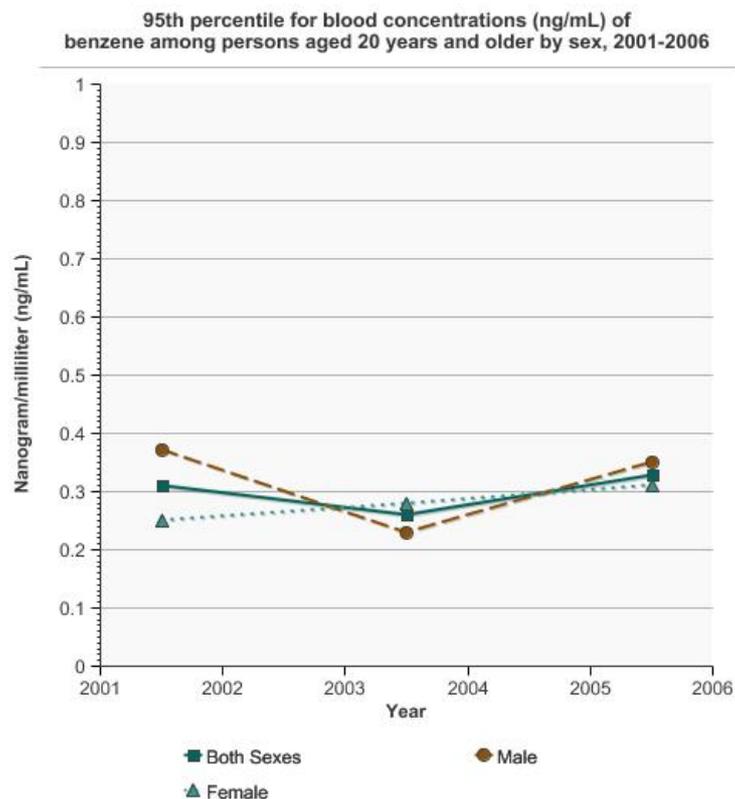
95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by sex, 2001-2006

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Race/Ethnicity

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by race/ethnicity, 2001-2006

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	95% Confidence Interval
	All Races	0.33	(0.30 - 0.36)
	Non-Hispanic White	0.36	(0.31 - 0.39)
	Non-Hispanic Black	0.31	(0.22 - 0.41)
	Hispanic	0.09	(0.08 - 0.14)

95th percentile for blood concentrations (ng/mL) of benzene
among persons aged 20 years and older by race/ethnicity, 2001-2006

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic
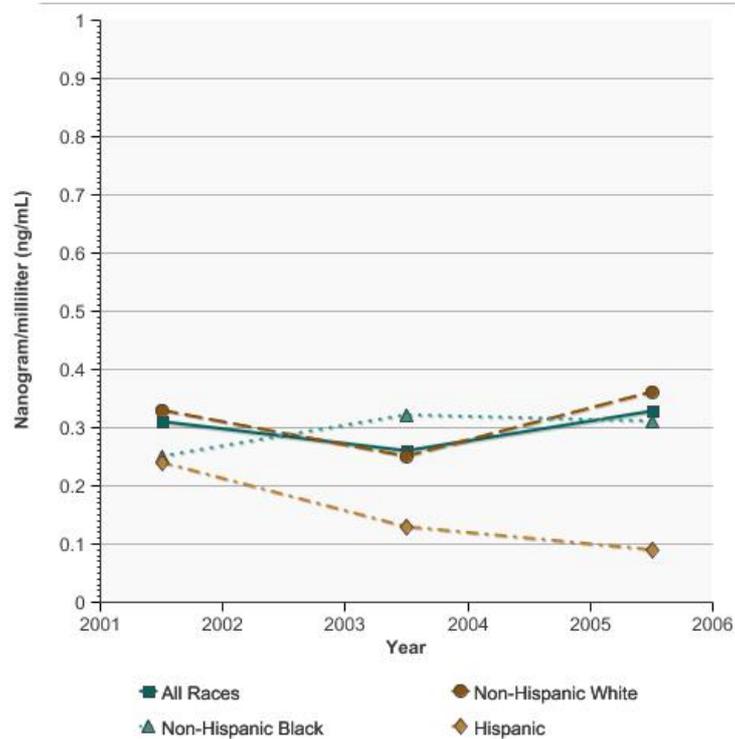
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Poverty Income Level

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by poverty income level, 2001-2006
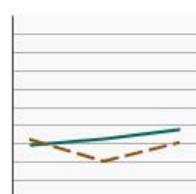
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	95% Confidence Interval
	< 200% of the federal poverty level	0.38	(0.33 - 0.45)
	>= 200% of the federal poverty level	0.30	(0.26 - 0.33)

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by poverty income level, 2001-2006
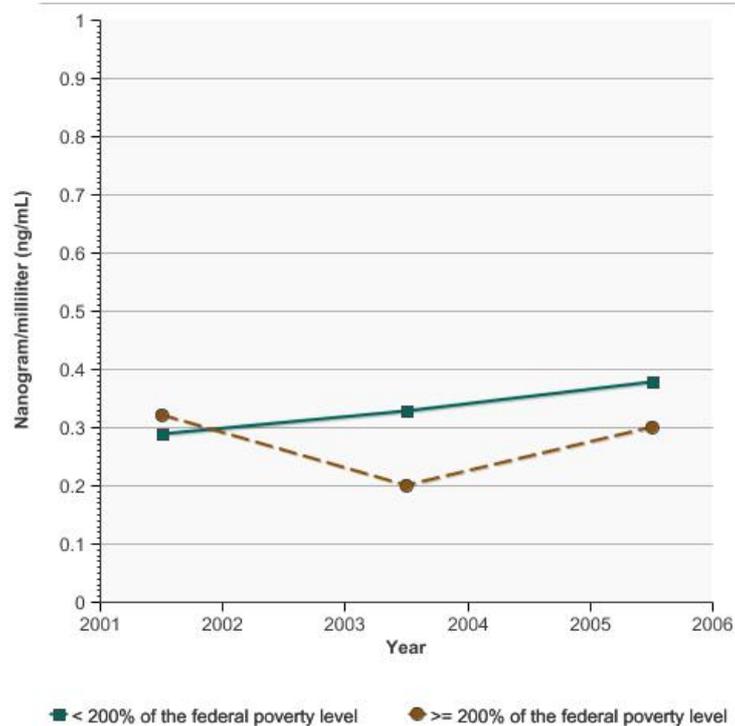
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Education Level

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by highest level of education obtained, 2001-2006
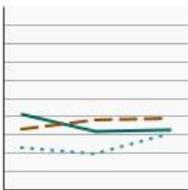
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	95% Confidence Interval
	Less than High School	0.33	(0.29 - 0.38)
	High School	0.39	(0.31 - 0.55)
	Greater than High School	0.30	(0.25 - 0.34)

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by highest level of education obtained, 2001-2006
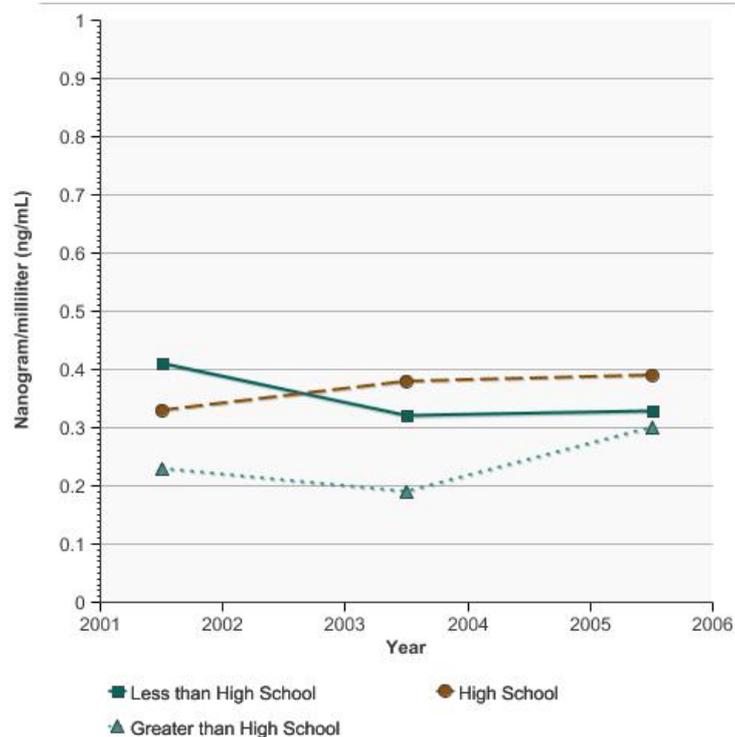
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Smoking Status

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by smoking status, 2001-2006
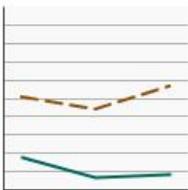
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2005 to 2006)	
		Nanogram/milliliter (ng/mL)	95% Confidence Interval
	Non-Smoker	0.08	(0.07 - 0.10)
	Smoker	0.56	(0.47 - 0.66)

95th percentile for blood concentrations (ng/mL) of benzene among persons aged 20 years and older by smoking status, 2001-2006
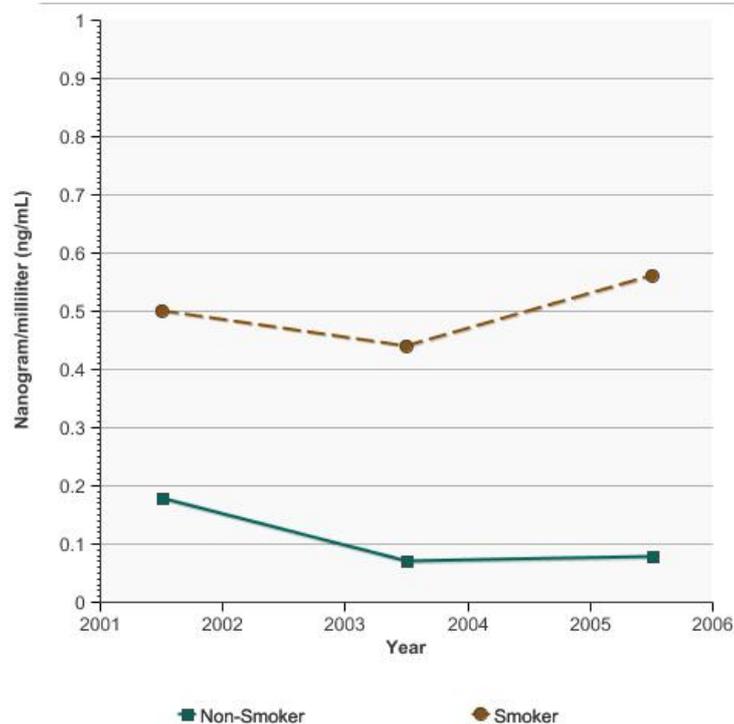
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
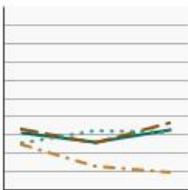Data are not age-adjusted.

Additional Information on Benzene
For the public

- Toxic Substances Portal – Benzene(http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=40&tid=14). Agency for Toxic Substances & Disease Registry.
- Benzene(http://www.cancer.org/cancer/cancercauses/othercarcinogens/intheworkplace/benzene). American Cancer Society.
- Known and Probable Human Carcinogens(http://www.cancer.org/cancer/cancercauses/othercarcinogens/generalinformationaboutcarcinogens/known-and-probable-human-carcinogens). American Cancer Society.
- Facts about benzene(http://emergency.cdc.gov/agent/benzene/basics/facts.asp). Centers for Disease Control and Prevention.
- Fourth National Report on Human Exposure to Environmental Chemicals (2009)(http://www.cdc.gov/exposurereport/pdf/FourthReport.pdf). Centers for Disease Control and Prevention.
- Basic information about benzene in drinking water(http://water.epa.gov/drink/contaminants/basicinformation/benzene.cfm). Environmental Protection Agency.
- Benzene. Environmental Protection Agency.
- Benzene(http://toxtown.nlm.nih.gov/text_version/chemicals.php?id=5). National Library of Medicine.
- Benzene(http://www.osha.gov/SLTC/benzene/). U.S. Department of Labor, Occupational Safety & Health Administration.

Scientific reports

- Toxicological Profile for Benzene. 2007(http://www.atsdr.cdc.gov/toxprofiles/tp3.pdf). Agency for Toxic Substances & Disease Registry.
- Impact of Cigarette Smoking on Volatile Organic Compound (VOC) Blood Levels in the U.S. Population: NHANES 2003-2004(http://www.ncbi.nlm.nih.gov/pubmed/21703688). Chambers D, Ocariz JM, McGuirk M, Blount BC. Environ Int. 2011 Nov;37(8):1321-8.
- NCI's epidemiologic research on benzene contributes to new EPA rule(http://dceg.cancer.gov/research/public-health-impact/benzene-exposures-toxicity-carcinogenicity). Fraumeni JF. NCI Cancer Bulletin 2007;4(9).
- Hematotoxicity in workers exposed to low levels of benzene(http://www.ncbi.nlm.nih.gov/pubmed/15576619). Lan Q, Zhang L, Li G, et al. Science

2004;306(5702):1,774–6.

- Benzene-associated hematoxity and carcinogenicity(http://dceg.cancer.gov/research/public-health-impact/benzene-exposures-toxicity-carcinogenicity). National Cancer Institute, Division of Cancer Epidemiology & Genetics.
- Benzene-exposed workers in China(http://dceg.cancer.gov/research/what-we-study/environment/benzene-exposed-workers-china). National Cancer Institute, Occupational and Environmental Epidemiology Branch.

Cadmium

Last Updated:
November 2015

Introduction

Cadmium is an element found in low concentrations in the earth's crust. It is usually found as a mineral combined with other elements such as oxygen (cadmium oxide), chlorine (cadmium chloride), or sulfur (cadmium sulfate, cadmium sulfide).

All soils and rocks, including coal and mineral fertilizers, contain some cadmium. Most cadmium used in the United States is extracted during the production of other metals like zinc, lead, and copper. Cadmium has many uses, including in the production of batteries, pigments, metal coatings, and plastics.

Cadmium and its compounds are highly toxic and exposure is known to cause cancer. It is primarily associated with human lung, prostate, and kidney cancers, and recently pancreatic cancer. It has also been associated with cancers of the breast and urinary bladder.

The general population may be exposed to small amounts of cadmium daily through food, tobacco smoke (as active or secondhand smoke), drinking water, and air. Cadmium is introduced to the food chain through agricultural soils, which may naturally contain cadmium, or from anthropogenic (human) sources, from cadmium-based pigments, and stabilizers used in certain plastics. While dietary sources can be sporadic, intake from tobacco occurs with each cigarette smoked and can proceed for decades resulting in accumulation of metals like cadmium in the body. Cadmium levels are expected to be low in drinking water and ambient air except in the vicinity of cadmium-emitting industries or incinerators.

Occupational exposure to cadmium primarily occurs in operations involving heating cadmium-containing products. Occupations with the highest potential for exposure include alloy production, battery production, pigment production and use, plastics production, and smelting and refining. Although levels vary widely among the different industries, occupational exposures generally have decreased since the 1970s.

Examination of cadmium is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population.

[Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [Methodology]

Healthy People 2020 Target

Level of cadmium in blood samples for 95 percent of the population aged 1 year and older to below 1.12 μg/L.

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

Data Source

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

Trends and Most Recent Estimates

By Sex

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by sex, 1999-2012
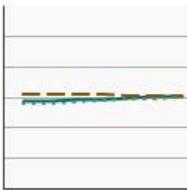
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/liter (µg/L)	95% Confidence Interval
	Both Sexes	1.50	(1.39 - 1.63)
	Male	1.48	(1.30 - 1.65)
	Female	1.53	(1.32 - 1.70)
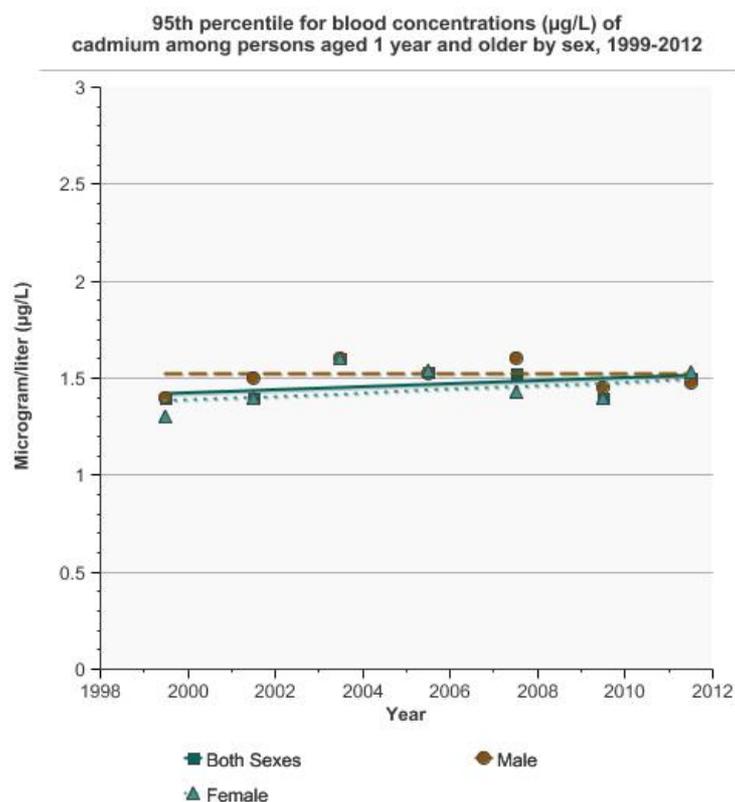
95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by sex, 1999-2012

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Race/Ethnicity

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by race/ethnicity, 1999-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/liter (µg/L)	95% Confidence Interval
	All Races	1.50	(1.39 - 1.63)
	Non-Hispanic White	1.65	(1.44 - 1.80)
	Non-Hispanic Black	1.50	(1.39 - 1.60)
	Hispanic	0.90	(0.79 - 0.99)

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by race/ethnicity, 1999-2012

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Age

95th percentile for blood concentrations (μg/L) of cadmium among persons aged 1 year and older by age, 1999-2012

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/liter (μg/L)	95% Confidence Interval
	Ages 1-5	0.21	(0.20 - 0.22)
	Ages 6-11	0.24	(0.23 - 0.25)
	Ages 12-19	0.64	(0.47 - 0.84)
	Ages 20+	1.70	(1.50 - 1.62)

95th percentile for blood concentrations (μg/L) of cadmium among persons aged 1 year and older by age, 1999-2012

Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Poverty Income Level

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by poverty income level, 1999-2012
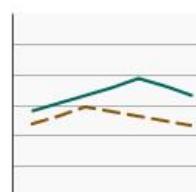
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/liter (µg/L)	95% Confidence Interval
	< 200% of the federal poverty level	1.70	(1.51 - 1.80)
	>= 200% of the federal poverty level	1.24	(1.14 - 1.42)

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 1 year and older by poverty income level, 1999-2012

■ < 200% of the federal poverty level   ● >= 200% of the federal poverty level
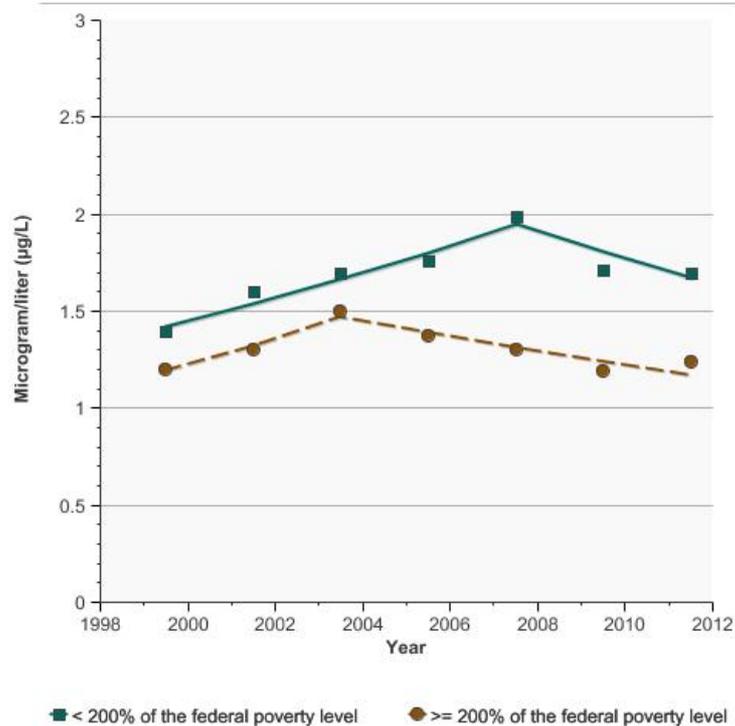
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Education Level

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 20 years and older by highest level of education obtained, 1999-2012
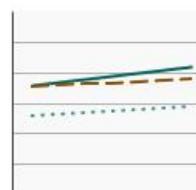
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/liter (µg/L)	95% Confidence Interval
	Less than High School	1.91	(1.70 - 2.20)
	High School	1.80	(1.65 - 2.05)
	Greater than High School	1.45	(1.28 - 1.63)

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 20 years and older by highest level of education obtained, 1999-2012
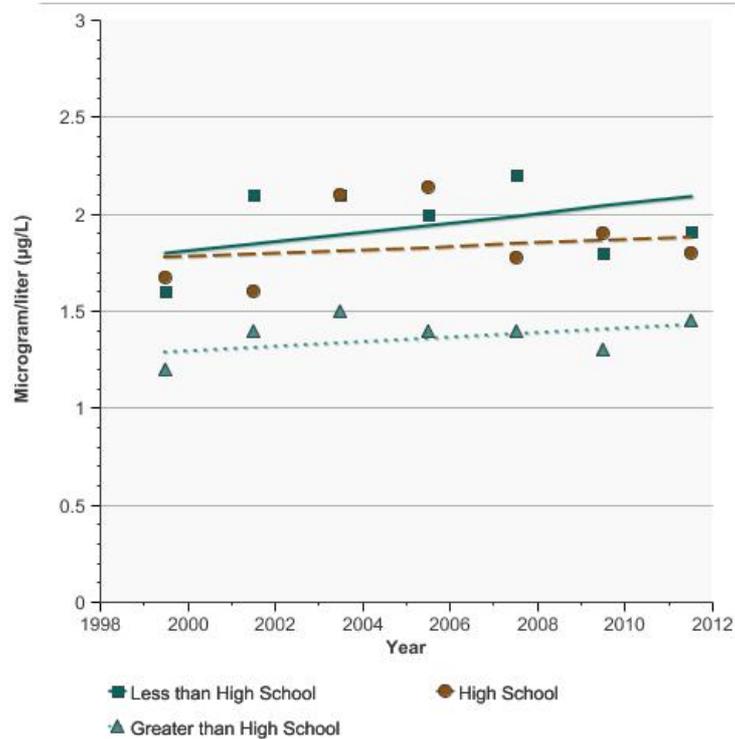
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Smoking Status

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 20 years and older by smoking status, 1999-2012
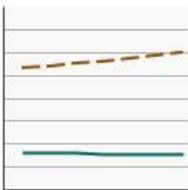
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Microgram/liter (µg/L)	95% Confidence Interval
	Non-Smoker	0.77	(0.73 - 0.81)
	Smoker	3.23	(2.90 - 3.67)

95th percentile for blood concentrations (µg/L) of cadmium among persons aged 20 years and older by smoking status, 1999-2012
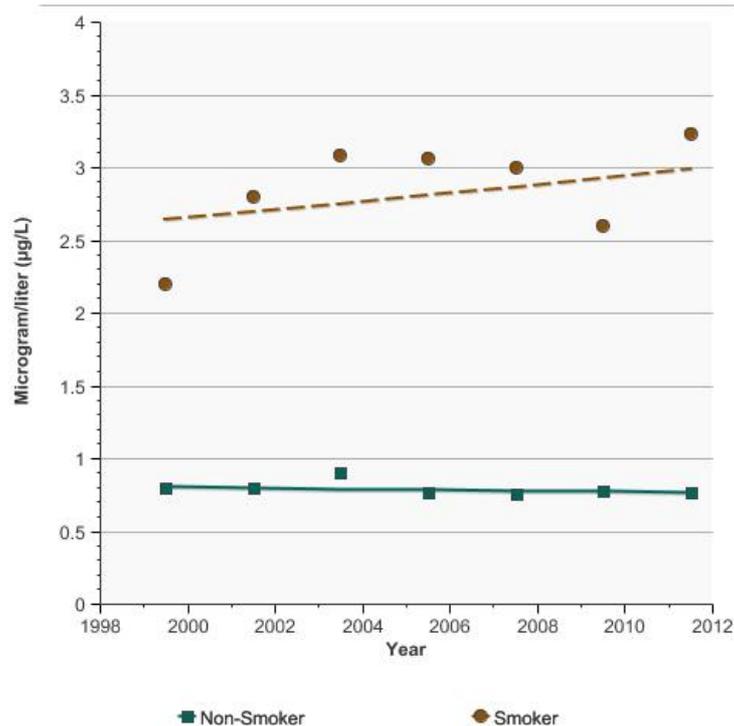
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
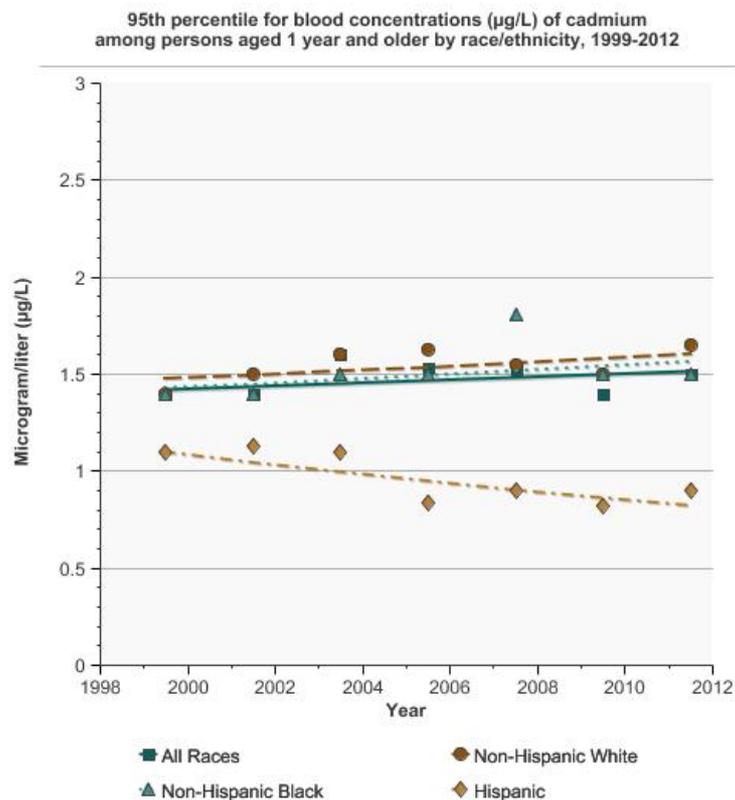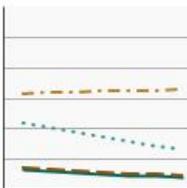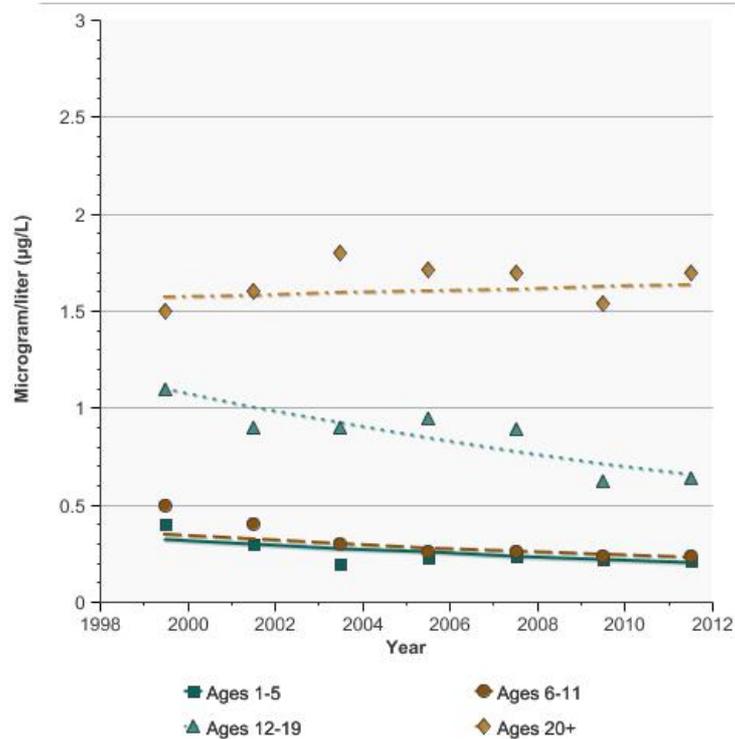Data are not age-adjusted.

Additional Information on Cadmium
For the public

- Toxic Substances Portal – Cadmium(http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=15). Agency for Toxic Substances & Disease Registry.
- Workplace Safety & Health Topics – Cadmium(http://www.cdc.gov/niosh/topics/cadmium/). Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health.
- Basic Information About Cadmium in Drinking Water(http://water.epa.gov/drink/contaminants/basicinformation/cadmium.cfm). Environmental Protection Agency.
- Cadmium Compounds. Environmental Protection Agency, Technology Transfer Network – Air Toxics Web Site.
- Fact Sheet – Cadmium. Environmental Protection Agency.
- Cadmium(http://www.osha.gov/SLTC/cadmium/). U.S. Department of Labor, Occupational Safety & Health Administration.

For health professionals

- Interaction Profiles for Toxic Substances: Arsenic, Cadmium, Chromium, Lead(http://www.atsdr.cdc.gov/interactionprofiles/ip04.html). Agency for Toxic Substances & Disease Registry.
- Minimal Risk Levels List(http://www.atsdr.cdc.gov/mrls/mrllist.asp#15tag). Agency for Toxic Substances & Disease Registry.
- ToxGuide™ for Cadmium(http://www.atsdr.cdc.gov/toxguides/toxguide-5.pdf). Agency for Toxic Substances & Disease Registry.
- Integrated Risk Information System: Cadmium(http://www.epa.gov/iris/subst/0141.htm). Environmental Protection Agency.

Scientific reports

- Cadmium exposure and cancer mortality in a prospective cohort: the strong heart study(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3984227/). Garcia-Esquinas E, Pollan M, Tellez-Plaza M, et al. Environ Health Perspect 2014;122(4):363–370.

- Cadmium-induced cancers in animals and in humans(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3399253/). Huff J, Lunn RM, Waalkes MP, et al. Int J Occup Environ Health 2007;13(2):202–12.
- Beryllium, Cadmium, Mercury, and Exposures in the Glass Manufacturing Industry(http://monographs.iarc.fr/ENG/Monographs/vol100C/mono100C-8.pdf). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 1997;100c:121–145.
- Cadmium-induced pathologies: where is the oxidative balance lost (or not)?(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3634456/) Nair AR, DeGheselle O, Smeets K, et al. Int J Mol Sci 2013;14(3):6116–6143.
- Exogenous factors in the origin and cause of cancer: interactions of genes and/or genetic polymorphisms with exogenous and/or endogenous factors(http://fundedresearch.cancer.gov/nciportfolio). National Cancer Institute. NCI Funded Research Portfolio. 2009.
- Cadmium exposure in the population: from health risks to strategies of prevention(http://www.ncbi.nlm.nih.gov/pubmed/20517707). Nawrot TS, Staessen JA, Roels HA, et al. Biometals 2010;23(5):769–82.
- Tobacco smoke exposure and levels of urinary metals in the U.S. youth and adult population: The National Health and Nutrition Examination Survey (NHANES) 1999–2004(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2738890/). Richter PA, Bishop EE, Wang J, et al. Int J Environ Res Public Health 2009;6(7):1930-1946.
- Cadmium exposure and incident peripheral arterial disease(http://www.ncbi.nlm.nih.gov/pubmed/24255048). Tellez-Plaza M, Guallar E, Fabsitz RR, et al. Circ Cardiovasc Qual Outcomes 2013;6(6):626–33.
- Cadmium exposure and incident cardiovascular disease(http://www.ncbi.nlm.nih.gov/pubmed/23514838). Tellez-Plaza M, Guallar E, Howard BV, et al. Epidemiology 2013;24(3):421–9.
- Arsenic and Inorganic Arsenic Compounds(http://ntp.niehs.nih.gov/ntp/roc/twelfth/roc12.pdf). U.S. Department of Health and Human Services, National Toxicology Program. Report on Carcinogens, Twelfth Edition 2011:80–83.

Nitrate

Last Updated:
November 2015

Introduction

Nitrates and nitrites are nitrogen-oxygen chemical units that naturally occur in soil, water, and some foods. When taken into the body by drinking water and through other dietary sources, nitrate and nitrite can react with amines and amides to form N-nitroso compounds (NOC), which are known to cause cancer in animals and may cause cancer in humans. Excessive nitrate or nitrate exposure can also result in acute acquired methemoglobinemia, a blood abnormality that causes blood to lose its ability to carry oxygen to tissues (anoxia). This is especially dangerous in infants younger than 4 months of age.

Most studies assessing connections between nitrate and cancer in humans have focused on excess exposure to nitrate in areas containing nitrogen-based fertilizers. Some of the highest levels of nitrate are found in shallow wells and surface water supplies that contain high levels due to runoff from nitrogen fertilizers, as well as from leaking septic tanks and sewage, erosion of natural deposits, and confined animal feedlot operations and resulting excrement. When drinking water or eating food from areas containing nitrogen fertilizers, people could be exposed to high levels of nitrate. In addition, workers who manufacture these fertilizers can have high exposures to dusts that contain nitrate. Oral tobacco also may contribute to nitrate intake, but is minor compared to diet or contaminated drinking water.

Studies have shown increased risks of colon, kidney, and stomach cancer among people with higher ingestion of water nitrate and higher meat intake compared with low intakes of both, a dietary pattern that results in increased NOC formation. Other studies have shown modest evidence that higher nitrate intake can increase the risk of thyroid cancer and ovarian cancer among women, and elevate the risk of pancreatic cancer among men and women. Examination of nitrate is new to the Cancer Trends Progress Report this year.

Measure

We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population.

[Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]

To calculate whether the differences between 95th percentiles for two different time points is statistically significant, we used a different statistical methodology than that used by the National Center for Environmental Health, who publishes the National Report on Human Exposure to Environmental Chemicals from where our data are derived. Our estimates may differ slightly from those in the original report due to differences in statistical procedures used. [Methodology]

Healthy People 2020 Target

There are no Healthy People 2020 targets regarding nitrate.

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

Data Source

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

Trends and Most Recent Estimates

By Sex

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by sex, 2001-2012
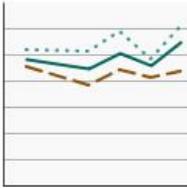
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Milligram/gram of creatinine (mg/g)	95% Confidence Interval
	Both Sexes	137.4	(122.1 - 150.9)
	Male	109.4	(99.2 - 120.1)
	Female	151.3	(139.9 - 169.9)

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by sex, 2001-2012
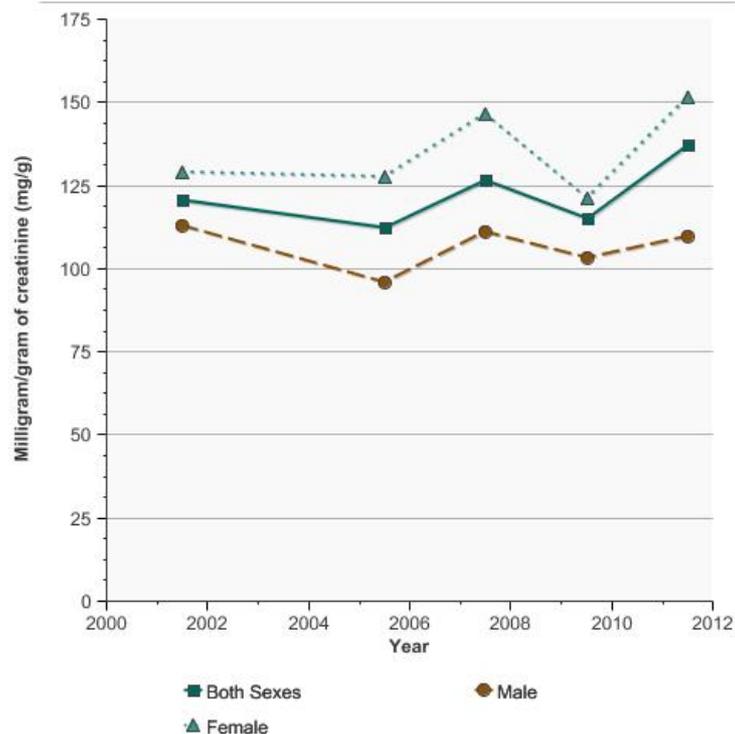
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Race/Ethnicity

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by race/ethnicity, 2001-2012
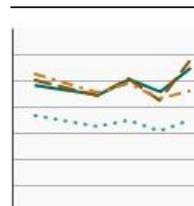
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Milligram/gram of creatinine (mg/g)	95% Confidence Interval
	All Races	137.4	(122.1 - 150.9)
	Non-Hispanic White	142.4	(122.9 - 153.8)
	Non-Hispanic Black	87.3	(78.2 - 99.2)
	Hispanic	114.8	(90.5 - 126.9)

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by race/ethnicity, 2001-2012
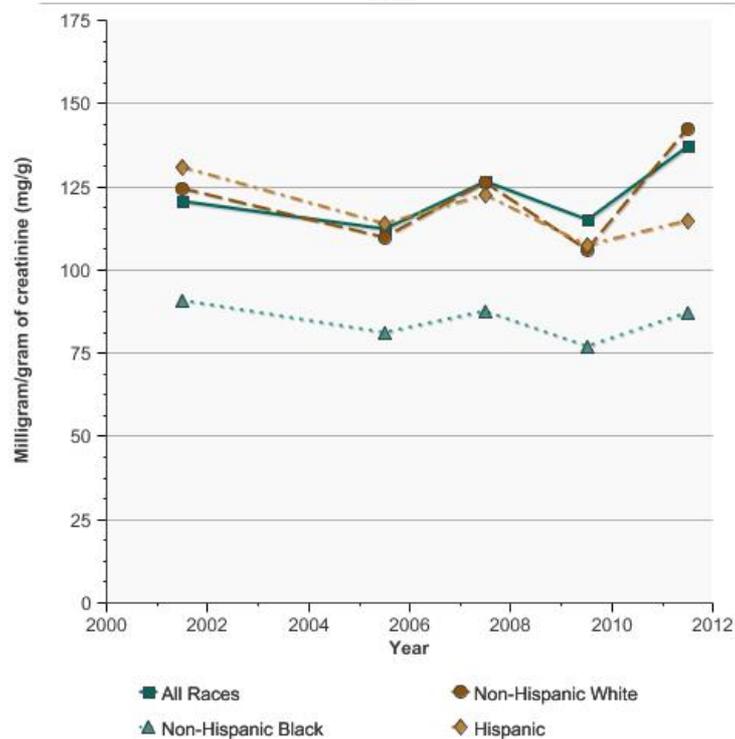
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Age

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by age, 2001-2012
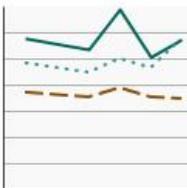
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Milligram/gram of creatinine (mg/g)	95% Confidence Interval
	Ages 6-11	143.0	(126.3 - 161.2)
	Ages 12-19	86.8	(67.6 - 126.9)
	Ages 20+	142.1	(121.0 - 153.9)

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by age, 2001-2012
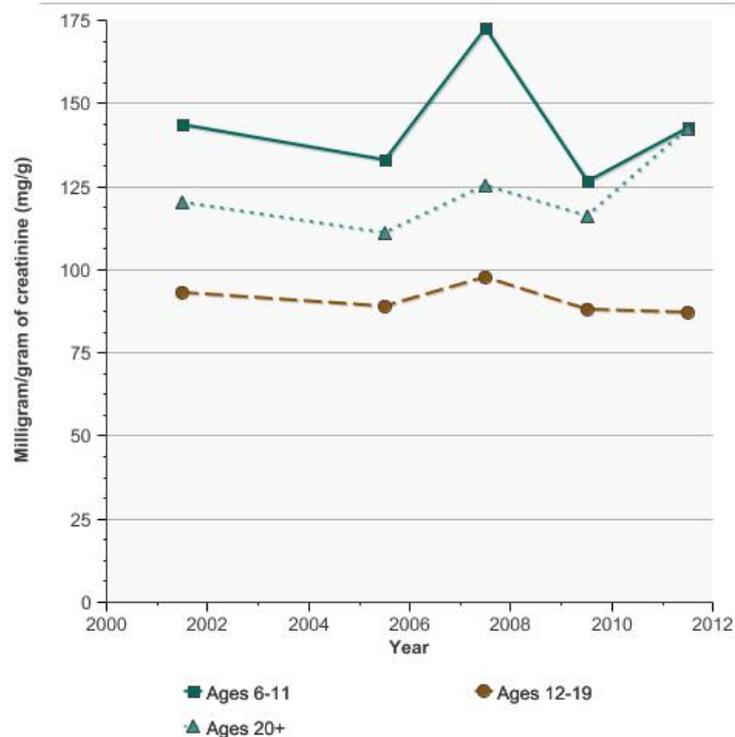
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Poverty Income Level

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by poverty income level, 2001-2012
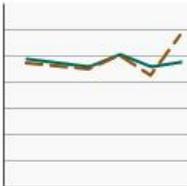
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Milligram/gram of creatinine (mg/g)	95% Confidence Interval
	< 200% of the federal poverty level	119.7	(106.4 - 129.1)
	>= 200% of the federal poverty level	143.8	(127.6 - 156.6)

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 6 years and older by poverty income level, 2001-2012

■ < 200% of the federal poverty level   ● >= 200% of the federal poverty level
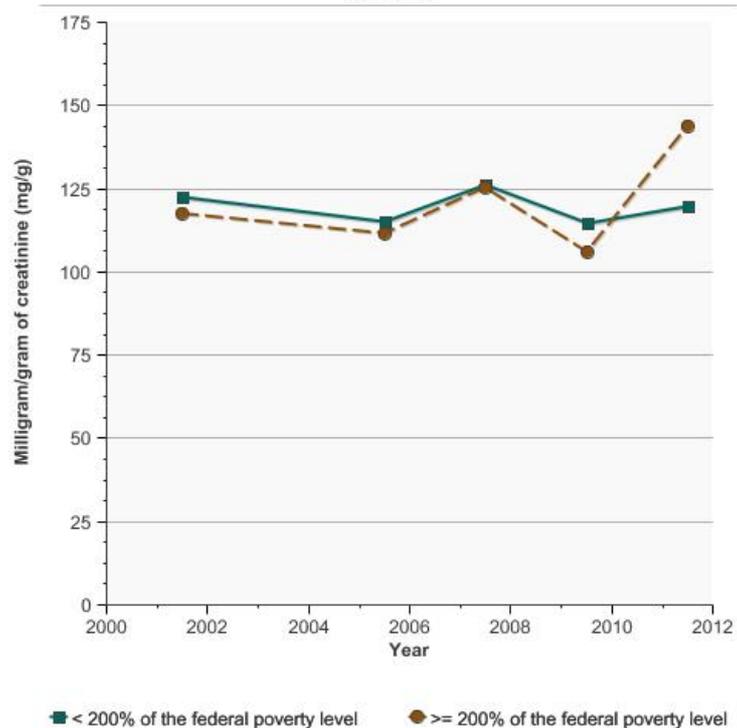
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

By Education Level

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 20 years and older by highest level of education obtained, 2001-2012
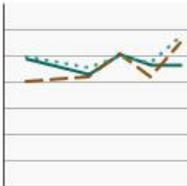
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011 to 2012)	
		Milligram/gram of creatinine (mg/g)	95% Confidence Interval
	Less than High School	116.2	(95.3 - 167.2)
	High School	136.7	(101.9 - 298.7)
	Greater than High School	143.4	(119.8 - 165.2)

95th percentile for urinary (creatinine corrected) concentrations (mg/g of creatinine) of nitrate among persons aged 20 years and older by highest level of education..


- Less than High School
- High School
- Greater than High School
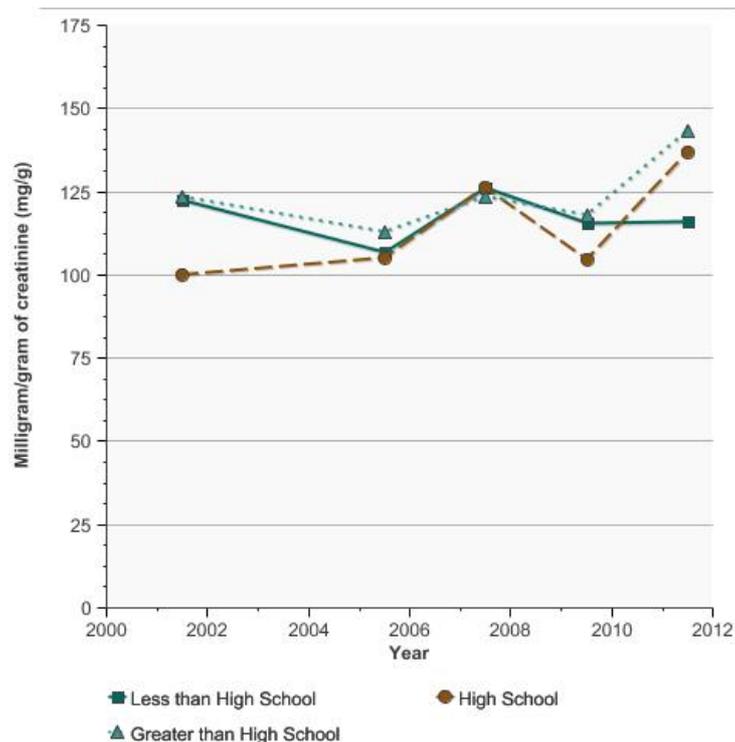
Source: National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are not age-adjusted.

Additional Information on Nitrate
For the public

- Toxic Substances Portal – Nitrates and Nitrites(http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=1186&tid=258). Agency for Toxic Substances & Disease Registry.
- What are the risk factors for stomach cancer?(http://www.cancer.org/cancer/stomachcancer/detailedguide/stomach-cancer-risk-factors) American Cancer Society.
- Fourth National Report on Human Exposure to Environmental Chemicals (2009)(http://www.cdc.gov/exposurereport/pdf/FourthReport.pdf). Centers for Disease Control and Prevention.
- Basic Information about Nitrate in Drinking Water(http://water.epa.gov/drink/contaminants/basicinformation/nitrate.cfm). Environmental Protection Agency.

For health professionals

- ATSDR Case Studies in Environmental Medicine Nitrate/Nitrite Toxicity(http://www.atsdr.cdc.gov/csem/nitrate_2013/docs/nitrite.pdf). Agency for Toxic Substances and Disease Registry.
- Interaction Profile for Cyanide, Fluoride, Nitrate, and Uranium (May 2004)(http://www.atsdr.cdc.gov/interactionprofiles/IP-09/ip09.pdf). Agency for Toxic Substances and Disease Registry.

Scientific reports

- Pancreatic cancer and exposure to dietary nitrate and nitrite in the NIH-AARP Diet and Health Study(http://www.ncbi.nlm.nih.gov/pubmed/21685410). Aschebrook-Kilfoy B, Cross AJ, Stolzenberg-Solomon RZ, et al. Am J Epidemiol. 2011;174(3):305–15.
- Thyroid cancer risk and dietary nitrate and nitrite intake in the Shanghai women's health study(http://www.ncbi.nlm.nih.gov/pubmed/22674227).

Aschebrook-Kilfoy B, Shu XO, Gao YT, et al. Int J Cancer 2013:132(4):897–904.

- Epithelial ovarian cancer and exposure to dietary nitrate and nitrite in the NIH-AARP Diet and Health Study(http://www.ncbi.nlm.nih.gov/pubmed/21934624). Aschebrook-Kilfoy B, Ward MH, Gierach GL, et al. Eur J Cancer Prev. 2012;21(1):65–72.
- Pancreatic cancer and drinking water and dietary sources of nitrate and nitrite(http://www.ncbi.nlm.nih.gov/pubmed/15033647). Coss A, Cantor KP, Reif JS, et al. Am J Epidemiol. 2004;159(7):693–701.
- Nitrate in public water supplies and risk of colon and rectum cancers(http://www.ncbi.nlm.nih.gov/pubmed/14569178). De Roos A, Ward MH, Lynch C, and Cantor KP. Epidemiology 2003;14(6):640–9.
- Carcinogenicity of nitrate, nitrite, and cyanobacterial peptide toxins(http://www.ncbi.nlm.nih.gov/pubmed/16900606). Grosse Y, Baan R, Straif K, et al. Lancet Oncol. 2006;7(8):628–9.
- Dietary intake of polyphenols, nitrate and nitrite and gastric cancer risk in Mexico City(http://www.ncbi.nlm.nih.gov/pubmed/19449378). Hernandez-Ramirez RU, Galvan-Portillo MV, Ward MH, et al. Int J Cancer 2009;125(6):1424–30.
- Nitrate in public water supplies and risk of renal cell carcinoma(http://www.ncbi.nlm.nih.gov/pubmed/17717631). Ward MH, Rusiecki J, Lynch CF, Cantor KP. Cancer Causes Control 2007 Dec;18(10):1141–51.
- Ingested Nitrate and Nitrite, and Cyanobacterial Peptide Toxins(http://monographs.iarc.fr/ENG/Monographs/vol94/). International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 2010;94.

Radon

Last Updated:
January 2017

Introduction

Radon is a radioactive gas that comes from the natural breakdown of uranium in soil, rock and water. Radon has no smell or taste and cannot be seen. It can be found all over the United States, in every state. Radon can get into any type of building where there is naturally occurring radon in the ground. When buildings have high levels of radon in the air, people can breathe air containing radon which can cause lung cancer. Radon is the second leading cause of lung cancer after smoking tobacco. Radon is the leading cause of lung cancer in non-smokers.

Most people are exposed to radon primarily in their homes since that is where people spend most of their time. Homes can be tested for radon. If high levels of radon are detected, there are ways to lower radon levels in a home. New homes can be built with radon-resistant features. These features can reduce radon entry, and can make it easier and less expensive to lower radon levels if necessary.

Examination of radon is new to the Cancer Trends Progress Report this year.

Measure

The proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure. This measure is expressed as a percentage. It is calculated for each year by dividing the cumulative number of single family dwellings (SFD) with an operating mitigation system by the number of SFDs estimated to have a radon level ≥4pCi/L, which is EPA's action level. The number of SFDs with an operating mitigation system is calculated based on the gross number of radon vent fans sold for a given year adjusted for longevity by subtracting the fans installed 11 years before, assuming the useful life of a fan is 10 years, and assuming one fan per SFD. The number of fans sold is based on radon vent fan sales data from three major fan manufacturers that represent over 90 percent of the market. More information available on the Healthy People 2020 website.

Healthy People 2020 Target

- Increase the proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure.

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

Data Source

Radon Vent Fan Manufacturers' Sales Data (https://www.healthypeople.gov/2020/data-source/homes-with-radon-mitigation-systems)

Trends and Most Recent Estimates

Homes with an Operating Radon Mitigation System

The proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure, 2003-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of homes	**Confidence Interval**
	Homes with an Operating Radon Mitigation System	15.0	Not available
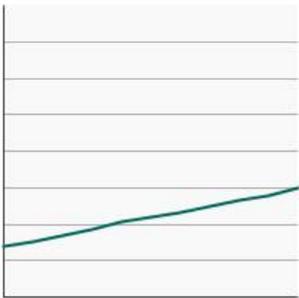
The proportion of homes with an operating radon mitigation system
for persons living in homes at risk for radon exposure, 2003-2013
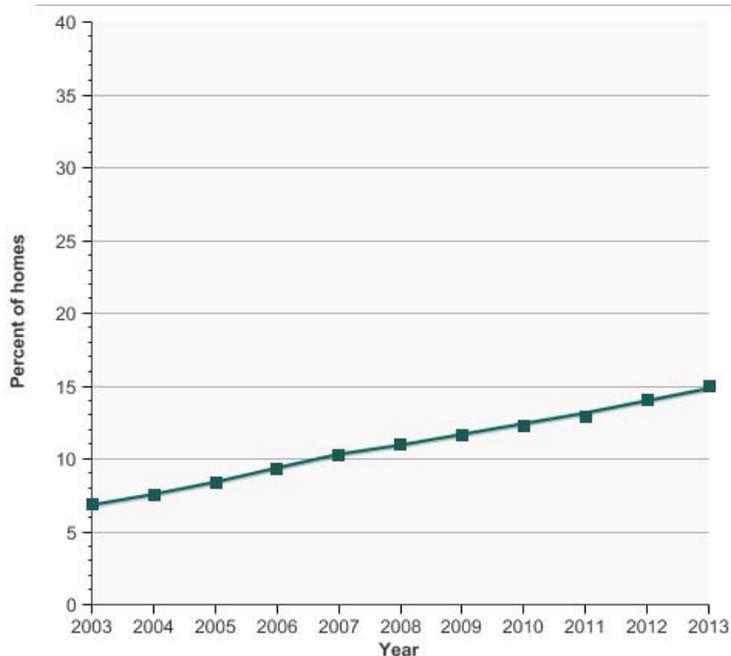
Source: Radon Vent Fan Manufacturers' Sales Data.

Additional Information on Radon
For the public

- Environmental Protection Agency. A Citizen's Guide to Radon: The Guide to Protecting Yourself and Your Family from Radon.
- Environmental Protection Agency. Basic Radon Facts.
- American Lung Association. Radon.(http://www.lung.org/our-initiatives/healthy-air/indoor/indoor-air-pollutants/radon.html)

For health professionals

- Agency for Toxic Substances and Disease Registry. Environmental Health and Medicine Education: Radon Toxicity.(http://www.atsdr.cdc.gov/csem/csem.asp?csem=8&po=0)
- Agency for Toxic Substances and Disease Registry. ToxGuide for Radon (October 2012).(http://www.atsdr.cdc.gov/toxguides/toxguide-145.pdf)

Scientific reports

- International Agency for Research on Cancer. Man-made Mineral Fibres and Radon.(http://monographs.iarc.fr/ENG/Monographs/vol43/mono43.pdf) IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 1988;43.

Early Detection

The use of screening tests to detect cancers early provides better opportunities for patients to obtain more effective treatment with fewer side effects.

Patients whose cancers are found early and treated in a timely manner are more likely to survive these cancers than are those whose cancers are not found until symptoms appear.

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

This section describes trends in the use of breast, cervical, and colorectal screening tests, which have been found to detect cancers accurately for specified age groups and can increase chances of survival.

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

Breast Cancer Screening

Last Updated:
January 2017

Introduction

Mammography screening uses an x-ray of the breast to look for disease in women who don't have symptoms. This screening method allows for the early detection of breast cancer, which helps increase survival, especially in women aged 50 to 69 years.

The U.S. Preventive Services Task Force recommends that women aged 50 to 74 years receive a mammogram at least once every 2 years. The American College of Obstetricians and Gynecologists Executive Board recommends further that women aged 40 years and older be offered screening mammography annually. Regular screening mammograms, followed by timely treatment when breast cancer is diagnosed, can help women improve their chances of survival.

Measure

The percentage of women aged 40 years and older, accounting for race/ethnicity, income, and education level, who reported having had a mammogram within the past 2 years.

Healthy People 2020 Target

- Increase to 81.1 percent the proportion of women aged 50 to 74 years who have received a breast cancer screening based on the most recent guidelines.

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2015.

Trends and Most Recent Estimates

By Race/Ethnicity

Percent of women aged 50-74 years who had mammography within the past 2 years by race/ethnicity, 1987-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	Confidence Interval
	All Races	71.6	(70.1 - 73.0)
	Non-Hispanic White	71.6	(69.8 - 73.4)
	Non-Hispanic Black	74.2	(70.4 - 78.1)
	Hispanic	72.2	(68.2 - 76.2)

Percent of women aged 50-74 years who had mammography within the past 2 years by race/ethnicity, 1987-2015

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic
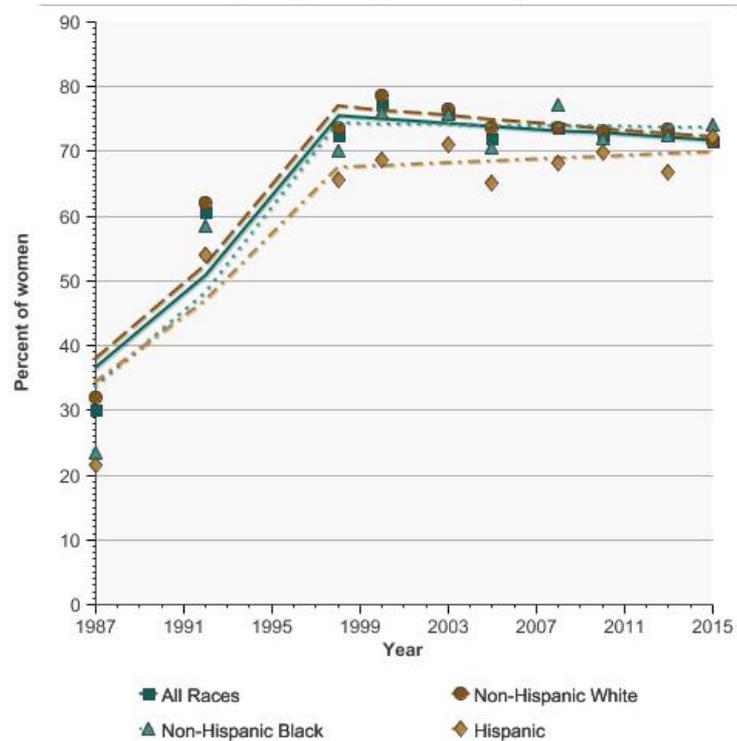
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-74.

By Poverty Income Level

Percent of women aged 50-74 years who had mammography within the past 2 years by poverty income level, 1998-2015
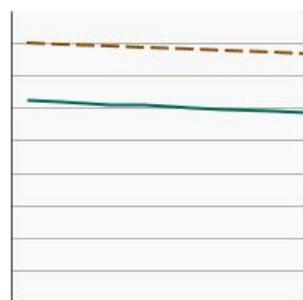
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	Confidence Interval
	<200% of federal poverty level	61.0	(58.1 - 63.8)
	>=200% of federal poverty level	75.5	(73.7 - 77.3)

Percent of women aged 50-74 years who had mammography within the past 2 years by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level
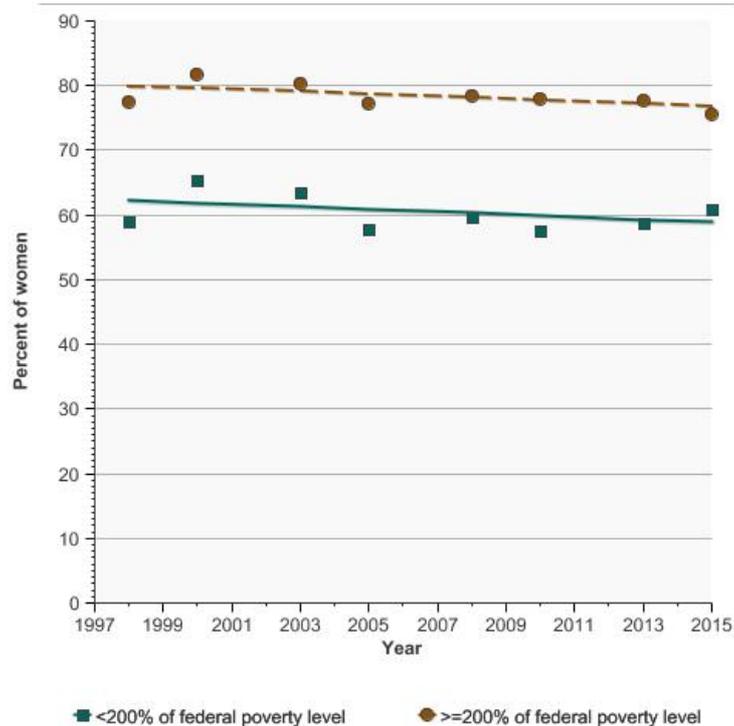
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-74.

By Education Level

Percent of women aged 50-74 years who had mammography within the past 2 years by highest level of education obtained, 1987-2015
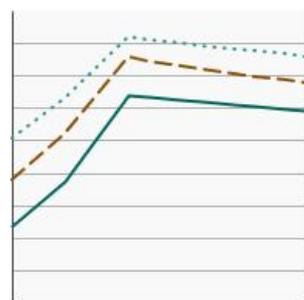
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	Confidence Interval
	Less than High School	60.1	(55.5 - 64.6)
	High School	68.1	(65.1 - 71.2)
	Greater than High School	75.0	(73.3 - 76.7)

Percent of women aged 50-74 years who had mammography within the past 2 years by highest level of education obtained, 1987-2015

- ■ Less than High School
- ● High School
- ▲ Greater than High School
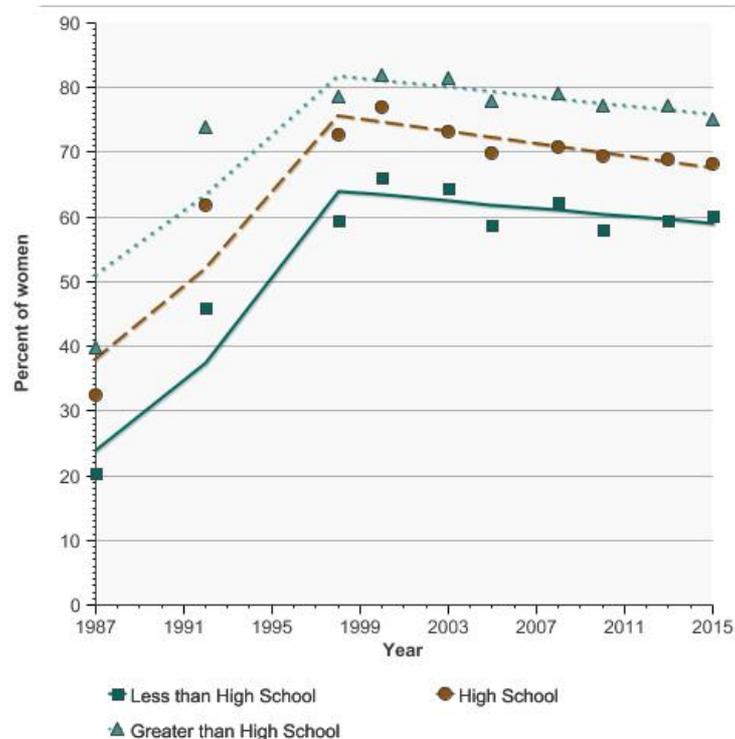
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-74.

Additional Information on Breast Cancer Screening
For the public

- Breast Cancer: Early Detection(http://www.cancer.org/cancer/breastcancer/moreinformation/breastcancerearlydetection/index). American Cancer Society.
- Medicare Coverage for Cancer Prevention and Early Detection(http://www.cancer.org/healthy/findcancerearly/cancerscreeningguidelines/medicare-coverage-for-cancer-prevention-and-early-detection). American Cancer Society.
- Breast Cancer – What Screening Tests Are There? Centers for Disease Control and Prevention.
- National Breast and Cervical Cancer Early Detection Program. Centers for Disease Control and Prevention.
- Breast Cancer Screening (PDQ®). National Cancer Institute.
- Fact Sheet – BRCA1 and BRCA2: Cancer Risk and Genetic Testing. National Cancer Institute.
- Fact Sheet – Mammograms. National Cancer Institute.
- Screening for Breast Cancer. U.S. Preventive Services Task Force.

For health professionals

- The Guide to Community Preventive Services – Cancer Prevention and Control(http://www.thecommunityguide.org/index.html). Centers for Disease Control and Prevention.
- Breast Cancer Screening (PDQ®). National Cancer Institute.
- NCI Breast Cancer Surveillance Consortium research network.
- The Guide to Clinical Preventive Services, Appendix F: Screening for Breast Cancer. U.S. Agency for Healthcare Research and Quality.

- Breast Cancer Screening. U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.
- Guideline Summary – 1) Screening for breast cancer: U.S. Preventive Services Task Force recommendation statement.. U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.
- Guideline Syntheses – Screening for Breast Cancer in Women at Average Risk. U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.

Scientific reports

- Detection of breast cancer with addition of screening ultrasound or a single screening MRI to mammography in women with elevated breast cancer risk(http://www.ncbi.nlm.nih.gov/pubmed/22474203). Berg WA, Zhang Z, Lehrer D, et al. JAMA 2012;307(13):1394–404.
- Screening mammography: update and review of publications since our report in the New England Journal of Medicine on the magnitude of the problem in the United States.. Bleyer A. Acad Radiol. 2015 Aug;22(8):949-60.
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- Beyond mammography: new frontiers in breast cancer screening(http://www.ncbi.nlm.nih.gov/pubmed/23561631). Drukteinis JS, Mooney BP, Flowers CI, and Gatenby RA. Am J Med. 2013;126(6):472–9.
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- Breast MRI use among U.S. women(http://www.ncbi.nlm.nih.gov/pubmed/23155135). Miller JW, Sabatino SA, Thompson TD, Breen N, et al. Cancer Epidemiol Biomarkers Prev. 2013 Jan; 22(1): 159-66.
- Screening for Breast Cancer: A Systematic Review to Update the 2009 U.S. Preventive Services Task Force Recommendation [Internet]. Nelson HD, Cantor A, Humphrey L, Fu R, Pappas M, Daeges M, Griffin J. Rockville (MD): Agency for Healthcare Research and Quality (US); 2016 Jan.
- The American Cancer Society Guidelines on Screening for Breast Cancer: What's New? Viale PH. J Adv Pract Oncol. 2015 Nov-Dec;6(6):508-10. Epub 2015 Nov 1.

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- Behavioral Risk Factor Surveillance System Prevalence Data(http://www.cdc.gov/brfss/data_tools.htm). Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
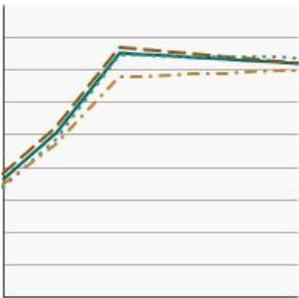- Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey(http://www.cdc.gov/nchs/nhis.htm).
- 2020 Topics & Objectives – Cancer(http://www.healthypeople.gov/2020/topics-objectives/topic/cancer). Healthy People 2020.
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Cervical Cancer Screening

Last Updated:
January 2017

Introduction

Screening methods used to find cervical changes that may lead to cervical cancer include the Pap test and human papillomavirus (HPV) testing. Such screening tests may find cancers early, when they are most treatable. Women who have never been screened or who have not been screened in the past 5 years face a greater risk of developing invasive cervical cancer.

Although it is widely accepted that Pap screening can reduce cervical cancer mortality, and although the percentage of women aged 18 years and older who reported they had a Pap test within the past 3 years is relatively high, certain groups of women in the United States are less likely than others to be screened. A number of factors have been associated with lower rates of cervical cancer screening, including low income, less education, a lack of health insurance, older age, smoking status (smoker), and obesity. Studies have also shown that women who have had a medical visit in the last year are more likely to have received a cervical cancer screening, which suggests that having a usual source of care or a recent clinical encounter may be a necessary condition for women to receiving screening.

Understanding the reasons why women do or do not maintain regular cervical cancer screening is important, given that cervical cancer is one of the most successfully treatable cancers, particularly when detected and treated early.

Measure

The percentage of women aged 18 years and older, accounting for race/ethnicity, income, and education level, who reported they had a Pap test within the past 3 years.

Healthy People 2020 Target

- Increase to 93 percent the proportion of women aged 21 to 65 years who received a cervical cancer screening based on the most recent guidelines. The U.S. Preventive Services Task Force recommends screening for cervical cancer in women aged 21 to 65 years with a Pap test every 3 years or, for women aged 30 to 65 years who want to lengthen the screening interval, screening with a combination of Pap testing and HPV testing every 5 years.

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2015.

Trends and Most Recent Estimates

By Race/Ethnicity

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by race/ethnicity, 1987-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	Confidence Interval
	All Races	78.7	(77.8 - 79.7)
	Non-Hispanic White	79.7	(78.4 - 81.0)
	Non-Hispanic Black	82.8	(80.5 - 85.0)
	Hispanic	75.9	(73.6 - 78.1)

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by race/ethnicity, 1987-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic
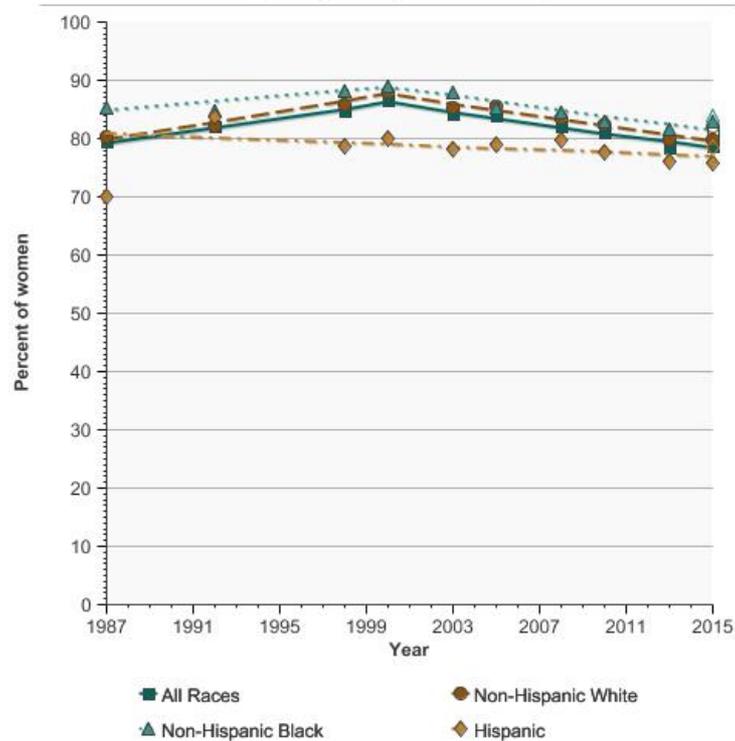
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Open data symbols represent women who had a pap smear test within the past 3 years or an HPV screening in the past 5 years.
Data are age-adjusted to the 2000 US standard population using age groups: 21-34, 35-44, 45-64.

By Poverty Income Level

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by poverty income level, 1998-2015
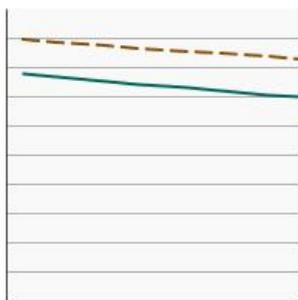
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	Confidence Interval
	<200% of federal poverty level	71.5	(69.5 - 73.4)
	>=200% of federal poverty level	81.9	(80.8 - 83.1)

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level
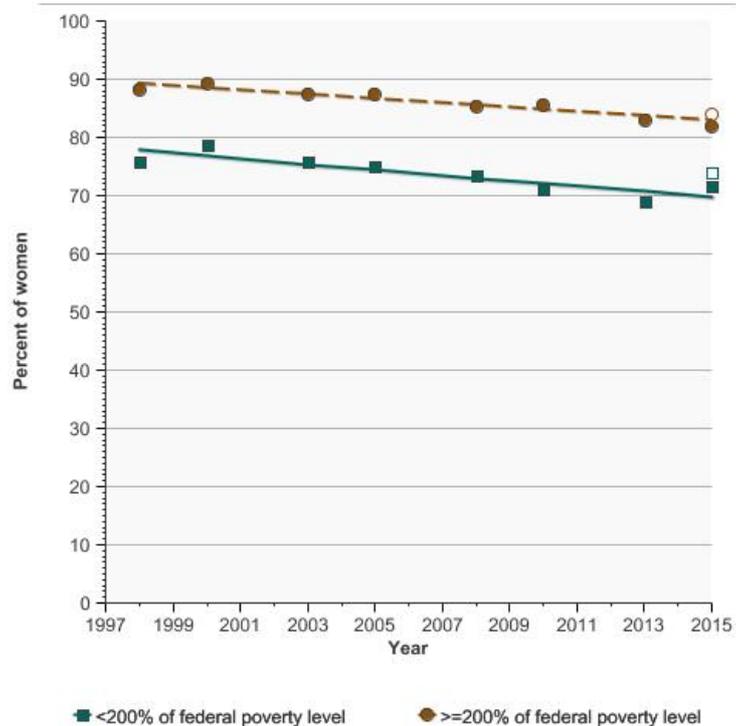
Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Open data symbols represent women who had a pap smear test within the past 3 years or an HPV screening in the past 5 years.
Data are age-adjusted to the 2000 US standard population using age groups: 21-34, 35-44, 45-64.

By Education Level

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by highest level of education obtained, 1987-2015
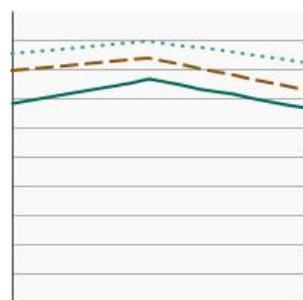
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of women	Confidence Interval
	Less than High School	67.7	(64.4 - 71.0)
	High School	72.3	(69.7 - 74.8)
	Greater than High School	82.4	(81.3 - 83.5)

Percent of women aged 21-65 years who had a pap smear test within the past 3 years by highest level of education obtained, 1987-2015

- ■ Less than High School
- ● High School
- ▲ Greater than High School
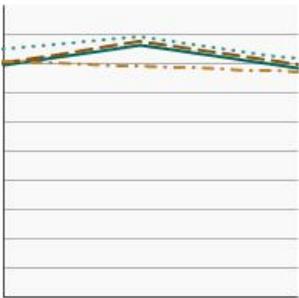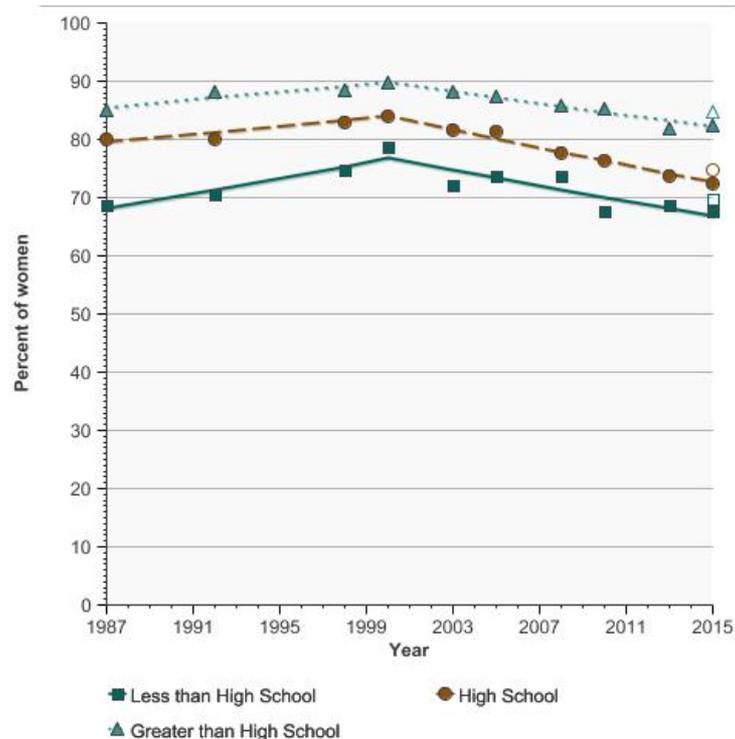
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Open data symbols represent women who had a pap smear test within the past 3 years or an HPV screening in the past 5 years.
Data are age-adjusted to the 2000 US standard population using age groups: 21-34, 35-44, 45-64.

Additional Information on Cervical Cancer Screening
For the public

- Cervical Cancer: Prevention and Early Detection(http://www.cancer.org/cancer/cervicalcancer/moreinformation/cervicalcancerpreventionandearlydetection/index). American Cancer Society.
- Medicare Coverage for Cancer Prevention and Early Detection(http://www.cancer.org/healthy/findcancerearly/cancerscreeningguidelines/medicare-coverage-for-cancer-prevention-and-early-detection). American Cancer Society.
- Gynecological Cancers – What Should I Know About Screening? Centers for Disease Control and Prevention.
- National Breast and Cervical Cancer Early Detection Program. Centers for Disease Control and Prevention.
- Cervical Cancer: Prevention, Genetics, Causes. National Cancer Institute.
- Pap and HPV Testing. National Cancer Institute.
- Screening and Testing to Detect Cancer: Cervical Cancer. National Cancer Institute.
- Screening for Cervical Cancer(http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm). U.S. Preventive Services Task Force.

For health professionals

- The Guide to Community Preventive Services – Cancer Prevention and Control(http://www.thecommunityguide.org/cancer/index.html). Centers for Disease Control and Prevention.
- Cervical Cancer Prevention (PDQ®). National Cancer Institute.
- Guideline Syntheses – Screening for Cervical Cancer in Women at Average Risk. U.S. Agency for Healthcare Research and Quality, and the National

Guideline Clearinghouse.

- Screening for cervical cancer: U.S. Preventive Services Task Force recommendation statement. 1996 (Revised 2012 Jun 19) . U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.

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- ACOG Practice Bulletin Number 131: Screening for cervical cancer. American Congress of Obstetricians and Gynecologists. Obstet Gynecol 2012;120(5):1222–38.
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- Applying a gender lens on human papillomavirus infection: cervical cancer screening, HPV DNA testing, and HPV vaccination. Brankovic I, Verdonk P, and Klinge I. Int J Equity Health 2013;12:14.
- Challenges in meeting healthy people 2020 objectives for cancer-related preventive services, National Health Interview Survey, 2008 and 2010. Brown ML, Klabunde CN, Cronin KA, White MC, et al. Prev Chronic Dis 2014 Feb 27;11:E29.
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- Papanicolaou testing among women in the southern United States. Peterson NB, Murff HJ, Cui Y, et al. J Women's Health 2008;17(6):939–946.
- Screening for cervical cancer: a systematic review and meta-analysis. Peirson L, Fitzpatrick-Lewis D, Ciliska D, et al. Syst Rev 2013;2:35.
- Cervical cancer screening among young adult women in the United States. Roland KB, Benard VB, Soman A, Breen N, Kepka D, Saraiya M. Cancer Epidemiol Biomarkers Prev. 2013 Apr;22(4):580-8. doi: 10.1158/1055-9965.EPI-12-1266. Epub 2013 Jan 25
- American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer. Saslow D, Solomon D, Lawson HW, et al. Am J Clin Pathol 2012;137(4):516–42.
- Cancer screening in the United States, 2013: a review of current American Cancer Society guidelines, current issues in cancer screening, and new guidance on cervical cancer screening and lung cancer screening. Smith RA, Brooks D, Cokkinides V, et al. CA Cancer J Clin 2013;63(2):88–105.
- Human papillomavirus vaccination coverage among adolescents, 2007-2013, and postlicensure vaccine safety monitoring, 2006-2014--United States. Stokley S, Jeyarajah J, Yankey D, Cano M, Gee J, Roark J, Curtis RC, Markowitz L; Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC; Centers for Disease Control and Prevention (CDC). MMWR Morb Mortal Wkly Rep. 2014 Jul 25;63(29):620-4.

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- Behavioral Risk Factor Surveillance System: Prevalence Data & Data Analysis Tools. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.
- Healthy People 2020, 2020 Topics & Objectives – Cancer.
- Health Information National Trends Survey. National Cancer Institute.
- Measure Summary – Cervical cancer screening: percentage of women 21 to 64 years of age who had cervical cytology performed every 3 years. U.S. Agency for Healthcare Research and Quality.

Colorectal Cancer Screening

Last Updated:
January 2017

Introduction

Three screening tests are used to detect colorectal cancer, including:

- **Fecal occult blood test (FOBT)** – When conducted annually using home-based test kits for people aged 50 to 75 years, the FOBT can increase the rate of survival for colorectal cancer.
- **Sigmoidoscopy—**Regular sigmoidoscopy can increase one's chances of surviving colorectal cancer. The U.S. Preventive Services Task Force (USPSTF) recommends sigmoidoscopy for adults aged 50 to 75 years once every 5 years, when conducted along with high-sensitivity FOBT once every 3 years.
- **Colonoscopy—**Used not only as a screening test, colonoscopies are also used as a diagnostic procedure to follow up after positive FOBT and sigmoidoscopy screening tests. USPSTF suggests a screening colonoscopy for adults aged 50 to 75 years once every 10 years.

Sigmoidoscopy and colonoscopy are collectively referred to as colorectal endoscopy in this report.

Measure

FOBT: The percentage of adults aged 50 to 75 years who reported that they had a fecal occult blood test (FOBT) within the past year, by racial/ethnic group. For the 2000 National Health Interview Survey, respondents were asked about both home- and office-based FOBTs; starting in 2003, respondents were asked only about home-based FOBTs.

Colorectal endoscopy: The percentage of adults aged 50 to 75 years who reported that they have had an endoscopy (sigmoidoscopy or colonoscopy).

Colorectal cancer tests: The percentage of adults aged 50 to 75 years who have had a colorectal cancer test (i.e., a home-based FOBT in the past year, or a colorectal endoscopy at any time).

Healthy People 2020 Target

- Increase to 70.5 percent the proportion of adults aged 50 to 75 years who have received a colorectal screening test based on the most recent guidelines. The U.S. Preventive Services Task Force suggests conducting a high-sensitivity FOBT at home every year; a sigmoidoscopy every 5 years, along with a high-sensitivity FOBT every 3 years; or a colonoscopy every 10 years.

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1987–2015.

Trends and Most Recent Estimates
Guideline Screening

By Sex

Colorectal test use rates[1] for adults aged 50-75 years by sex, 2000-2015
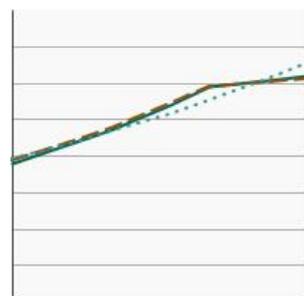
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	62.9	(61.6 - 64.2)
	Male	62.4	(60.6 - 64.2)
	Female	63.4	(61.8 - 65.0)

Colorectal test use rates[1] for adults aged 50-75 years by sex, 2000-2015

Legend: Both Sexes, Male, Female

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
[1]Colorectal test use rates are defined as the combined percentage of people who have received a home FOBT in the last year or had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. Each surveyed individual can only contribute once to the numerator of the calculation.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008 NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy, while 2010 respondents were asked about their most recent sigmoidoscopy and, separately, about their most recent colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Race/Ethnicity

Colorectal test use rates[1] for adults aged 50-75 years by race/ethnicity, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	62.9	(61.6 - 64.2)
	Non-Hispanic White	65.9	(64.3 - 67.4)
	Non-Hispanic Black	62.2	(59.2 - 65.2)
	Hispanic	49.1	(45.9 - 52.3)

Colorectal test use rates[1] for adults aged 50-75 years by race/ethnicity, 2000-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
[1]Colorectal test use rates are defined as the combined percentage of people who have received a home FOBT in the last year or had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. Each surveyed individual can only contribute once to the numerator of the calculation.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008 NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy, while 2010 respondents were asked about their most recent sigmoidoscopy and, separately, about their most recent colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Poverty Income Level

Colorectal test use rates[1] for adults aged 50-75 years by poverty income level, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	50.0	(47.8 - 52.1)
	>=200% of federal poverty level	67.4	(65.8 - 68.9)

Colorectal test use rates[1] for adults aged 50-75 years by poverty income level, 2000-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
[1]Colorectal test use rates are defined as the combined percentage of people who have received a home FOBT in the last year or had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. Each surveyed individual can only contribute once to the numerator of the calculation.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008 NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy, while 2010 respondents were asked about their most recent sigmoidoscopy and, separately, about their most recent colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Education Level

Colorectal test use rates[1] for adults aged 50-75 years by highest level of education obtained, 2000-2015
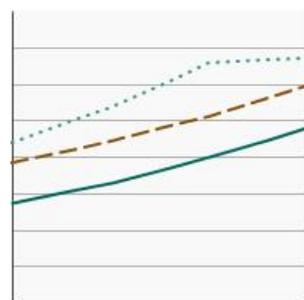
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	46.4	(43.3 - 49.6)
	High School	58.4	(56.1 - 60.7)
	Greater than High School	67.9	(66.5 - 69.3)

Colorectal test use rates[1] for adults aged 50-75 years by highest level of education obtained, 2000-2015

- ■ Less than High School
- ● High School
- ▲ Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
[1]Colorectal test use rates are defined as the combined percentage of people who have received a home FOBT in the last year or had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. Each surveyed individual can only contribute once to the numerator of the calculation.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008 NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy, while 2010 respondents were asked about their most recent sigmoidoscopy and, separately, about their most recent colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.
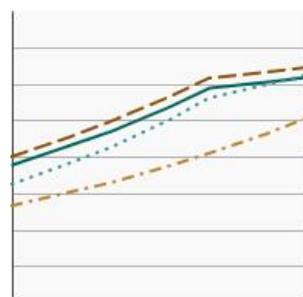
Home FOBT

By Sex

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by sex, 1987-2015

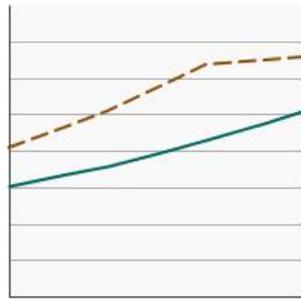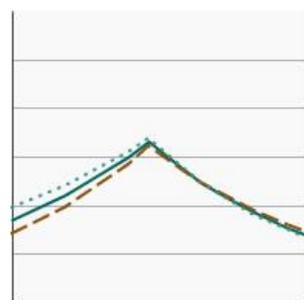| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	7.1	(6.5 - 7.7)
	Male	7.6	(6.6 - 8.5)
	Female	6.7	(5.9 - 7.5)

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by sex, 1987-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
The National Health Interview Survey (NHIS) did not distinguish between Home and Office FOBTs until the 2000 survey. Starting with the 2003 NHIS survey, sampled adults were only questioned about Home FOBT usage.
A falling trend for home FOBT screening cannot be determined to be headed in the wrong direction as home FOBT screening is being replaced by newer technologies such as colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Race/Ethnicity

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by race/ethnicity, 1987-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	All Races	7.1	(6.5 - 7.7)
	Non-Hispanic White	6.8	(6.1 - 7.5)
	Non-Hispanic Black	7.9	(6.2 - 9.5)
	Hispanic	7.2	(5.5 - 8.9)

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by race/ethnicity, 1987-2015

Legend: All Races, Non-Hispanic White, Non-Hispanic Black, Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
The National Health Interview Survey (NHIS) did not distinguish between Home and Office FOBTs until the 2000 survey. Starting with the 2003 NHIS survey, sampled adults were only questioned about Home FOBT usage.
A falling trend for home FOBT screening cannot be determined to be headed in the wrong direction as home FOBT screening is being replaced by newer technologies such as colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Poverty Income Level

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by poverty income level, 1998-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	<200% of federal poverty level	6.9	(5.9 - 8.0)
	>=200% of federal poverty level	7.2	(6.4 - 7.9)

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by poverty income level, 1998-2015

■ <200% of federal poverty level   ● >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
The National Health Interview Survey (NHIS) did not distinguish between Home and Office FOBTs until the 2000 survey. Starting with the 2003 NHIS survey, sampled adults were only questioned about Home FOBT usage.
A falling trend for home FOBT screening cannot be determined to be headed in the wrong direction as home FOBT screening is being replaced by newer technologies such as colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Education Level

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by highest level of education obtained, 1987-2015

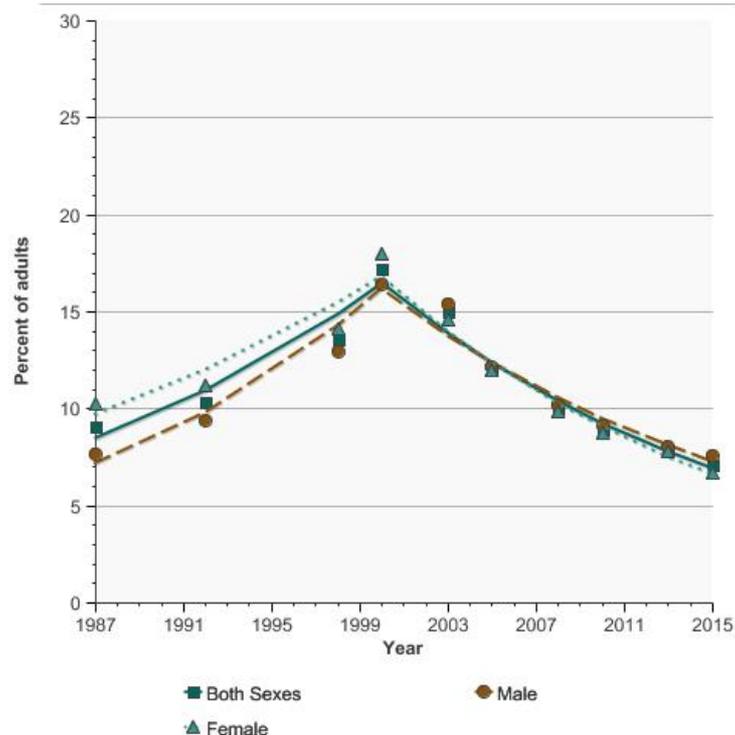| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	6.4	(4.8 - 8.0)
	High School	7.0	(5.8 - 8.2)
	Greater than High School	7.3	(6.6 - 8.1)

Percent of adults aged 50-75 years who had a home Fecal Occult Blood Test (FOBT) within the past year by highest level of education obtained, 1987-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
The National Health Interview Survey (NHIS) did not distinguish between Home and Office FOBTs until the 2000 survey. Starting with the 2003 NHIS survey, sampled adults were only questioned about Home FOBT usage.
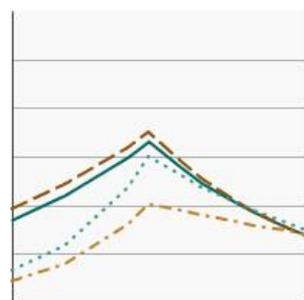A falling trend for home FOBT screening cannot be determined to be headed in the wrong direction as home FOBT screening is being replaced by newer technologies such as colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

Sigmoidoscopy or Colonoscopy

By Sex

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by sex, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Both Sexes	60.0	(58.7 - 61.3)
	Male	59.6	(57.8 - 61.3)
	Female	60.5	(58.9 - 62.1)

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by sex, 2000-2015

Legend:
- Both Sexes
- Male
- Female

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008 NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy, while 2010 respondents were asked about their most recent sigmoidoscopy and, separately, about their most recent colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Race/Ethnicity

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by race/ethnicity, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	All Races	60.0	(58.7 - 61.3)
	Non-Hispanic White	63.3	(61.8 - 64.9)
	Non-Hispanic Black	59.3	(56.2 - 62.4)
	Hispanic	45.9	(42.7 - 49.2)

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by race/ethnicity, 2000-2015

Legend:
- All Races
- Non-Hispanic White
- Non-Hispanic Black
- Hispanic

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008
NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy,
while 2010 respondents were asked about their most recent sigmoidoscopy and,
separately, about their most recent colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Poverty Income Level

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by poverty income level, 2000-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	**Confidence Interval**
	<200% of federal poverty level	46.8	(44.7 - 48.9)
	>=200% of federal poverty level	64.6	(63.0 - 66.1)

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by poverty income level, 2000-2015

Legend: <200% of federal poverty level; >=200% of federal poverty level

Source: Centers for Disease Control and Prevention, National Center for Health Statistics.
National Health Interview Survey.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008
NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy,
while 2010 respondents were asked about their most recent sigmoidoscopy and,
separately, about their most recent colonoscopy.
Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

By Education Level

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by highest level of education obtained, 2000-2015

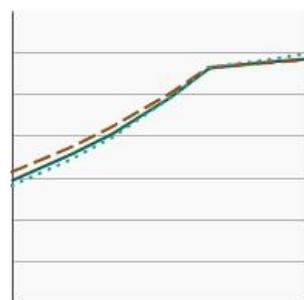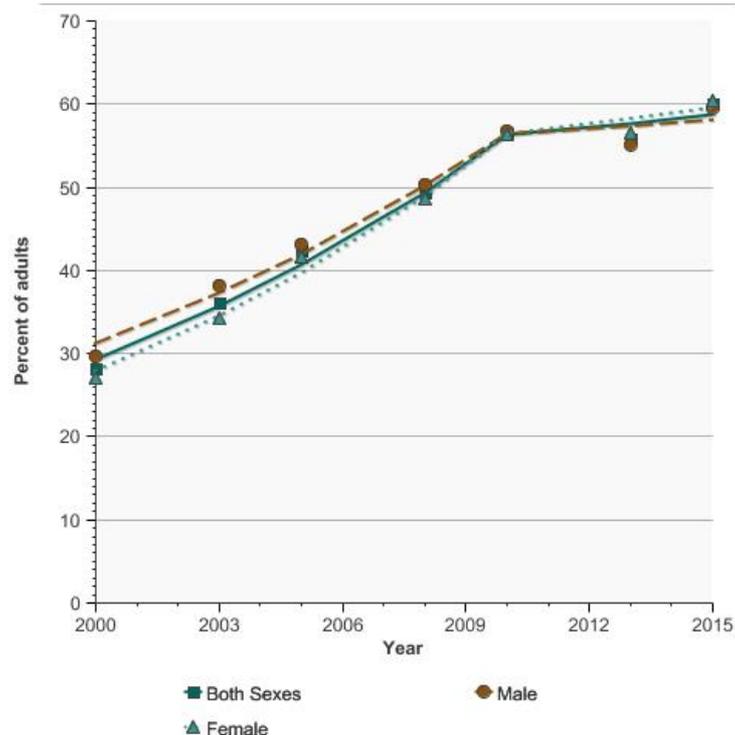| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of adults	Confidence Interval
	Less than High School	43.8	(40.6 - 47.0)
	High School	55.6	(53.3 - 57.8)
	Greater than High School	65.0	(63.5 - 66.4)

Percent of adults aged 50-75 years who had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years. by highest level of education obtained, 2000-..

- ■ Less than High School
- ● High School
- ▲ Greater than High School

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Estimates may be underreported for 2000-2008 because respondents to the 2000-2008 NHIS were asked about their most recent proctoscopy, colonoscopy, or sigmoidoscopy, while 2010 respondents were asked about their most recent sigmoidoscopy and, separately, about their most recent colonoscopy.
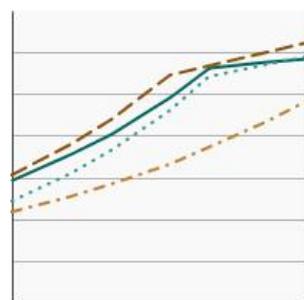Data are age-adjusted to the 2000 US standard population using age groups: 50-64, 65-75.

Additional Information on Colorectal Cancer Screening
For the public

- Colorectal Cancer Early Detection(http://www.cancer.org/cancer/colonandrectumcancer/moreinformation/colonandrectumcancerearlydetection/index). American Cancer Society.
- Medicare Coverage for Cancer Prevention and Early Detection(http://www.cancer.org/healthy/findcancerearly/cancerscreeningguidelines/medicare-coverage-for-cancer-prevention-and-early-detection). American Cancer Society.
- Colorectal (Colon) Cancer. Centers for Disease Control and Prevention.
- Colorectal Cancer Screening (PDQ®). National Cancer Institute.
- Fact Sheet – Tests to Detect Colorectal Cancer and Polyps. National Cancer Institute.
- Healthcare 411 News Series from AHRQ – Colorectal Cancer Screening. U.S. Agency for Healthcare Research and Quality.
- Screening for Colorectal Cancer. U.S. Preventive Services Task Force.

For health professionals

- American Gastroenterological Association(http://www.gastro.org).
- American Society of Colon & Rectal Surgeons(http://www.fascrs.org).
- The Guide to Community Preventive Services – Cancer Prevention and Control(http://www.thecommunityguide.org/cancer/index.html). Centers for Disease Control and Prevention.

- Colorectal Cancer Screening (PDQ®). National Cancer Institute.
- Health Care Systems for Tracking Colorectal Cancer Screening Tests: Final Report. U.S. Agency for Healthcare Research and Quality.
- Screening for colorectal cancer: a guidance statement from the American College of Physicians. U.S. Agency for Healthcare Research and Quality, and the National Guideline Clearinghouse.

Scientific reports

- Overuse of colorectal cancer screening services in the United States and its implications. Bian J. Chin J Cancer. 2016 Sep 15;35(1):88
- Evidence-Based Guideline: The USPSTF recommends screening for colorectal cancer in adults 50 to 75 years of age. Koretz RL. Ann Intern Med. 2016 Sep 20;165(6):
- Fecal DNA testing in screening for colorectal cancer in average-risk adults. Lin JS, Webber EM, Beil TL, et al. Comparative Effectiveness Reviews No. 52 (2012).
- Breast and colorectal cancer screening: U.S. primary care physicians' reports of barriers. Meissner HI, Klabunde CN, Breen N, et al. Am J Prev Med 2012;43(6):584–9.
- Racial/Ethnic and Socioeconomic Differences in Colorectal and Breast Cancer Treatment Quality: The Role of Physician-level Variations in Care. Popescu I, Schrag D, Ang A, Wong M. Med Care. 2016 Aug;54(8):780-8.
- Aid-assisted decision making and colorectal cancer screening: a randomized controlled trial. Schroy PC 3rd, Emmons KM, Peters E, et al. Am J Prev Med 2012;43(6):573–83.
- Reducing racial and ethnic disparities in colorectal cancer screening is likely to require more than access to care. Stimpson JP, Pagán JA, and Chen LW. Health Aff 2012;31(12):2747–54.
- Screening for colorectal cancer: the role of the primary care physician. Triantafillidis JK, Vagianos C, Gikas A, Korontzi M, Papalois A. Eur J Gastroenterol Hepatol. 2016 Sep 26.
- Colorectal cancer screening: structured abstract. U.S. Agency for Healthcare Research and Quality. 2010.
- Final Research Plan – Screening for Colorectal Cancer. U.S. Preventative Services Task Force.

Statistics

- Behavioral Risk Factor Surveillance System: Prevalence Data & Data Analysis Tools. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- National Health Interview Survey. Centers for Disease Control and Prevention, National Center for Health Statistics.
- Healthy People 2020, 2020 Topics & Objectives – Cancer.
- Measure Summary – Colorectal cancer screening: percentage of patients age 50 and older who meet criteria for colorectal cancer screening who are up-to-date with screening. U.S. Agency for Healthcare Research and Quality, and the National Quality Measures Clearinghouse.

Diagnosis

The rate of newly diagnosed cancer cases (incidence) is one way to measure progress against cancer. A lower rate of new cases suggests greater progress is being made.

Another important measure is the proportion of cancers diagnosed at a later stage of development. The stage of a cancer shows how far the disease has progressed and spread within the body. The earlier the stage at diagnosis, the better the chances are for a cure. Downward trends in the proportion of late cancer diagnoses are a sign that screening is working for cancers for which early detection methods are available.

This section describes trends in the rates of new cancers by cancer site and by racial and ethnic group. It also includes data on the proportion of cancers diagnosed at a late stage for six of the major cancer sites (female breast, lung, colon, rectum, cervix, and prostate) where cancer screening has been shown to make a difference in outcomes and is recommended or is being widely used. In this report, late stage colon, rectum, cervix, and prostate cancer cases are distant stage cases only. Late stage female breast and lung cancer cases include both regional and distant stage cases.

- Incidence
- Stage at Diagnosis

Incidence

Last Updated:
January 2017

Introduction

Cancer incidence is usually measured as the number of new cases each year for every 100,000 people (for gender-specific cancers, people of the same gender serve as the denominator) and age-adjusted to a standard population to allow comparisons over time.

In 2016, nearly half of all new cancer cases are expected to be cancers of the prostate, female breast, lung, and colon/rectum. According to American Cancer Society projections, about 1,658,210 new cases of cancer are expected to be diagnosed in 2016, including 180,890 cases of prostate cancer, 246,660 cases of female breast cancer, 224,390 cases of lung and bronchus cancer, and 134,490 cases of colon and rectum cancer.

Measure

Incidence rate: the observed number of new cancer cases per 100,000 people per year, adjusted for cancer case reporting delays and based on data from approximately 10 percent of the U.S. population.

Delay adjustment: a method of estimating delayed reporting of incident cases and then adjusting rates to account for this delay.

Healthy People 2020 Target

- Reduce new cases of invasive colorectal cancer to 39.9 per 100,000 people.
- Reduce new cases of invasive uterine cervical cancer to 7.2 per 100,000 females.

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

Data Source

SEER Program, National Cancer Institute, 1975–2013.

By Sex

Rates of new cases of all cancer, delay-adjusted cancer incidence by sex, 1975-2013
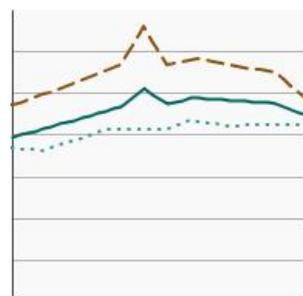
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	448.6	(446.3 - 451.0)
	Male	488.6	(484.9 - 492.3)
	Female	422.6	(419.5 - 425.8)

Rates of new cases of all cancer,
delay-adjusted cancer incidence by sex, 1975-2013
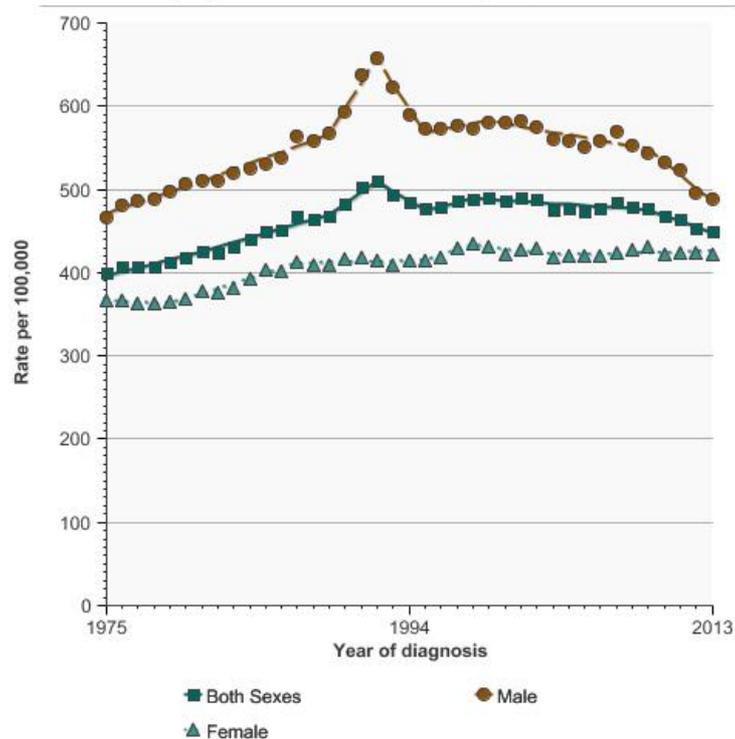
Legend:
- ■ Both Sexes
- ● Male
- ▲ Female

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9
areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9,
10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74,
75-79, 80-84, 85+.

By Race/Ethnicity

Rates of new cases of all cancer by race/ethnicity, 1992-2013
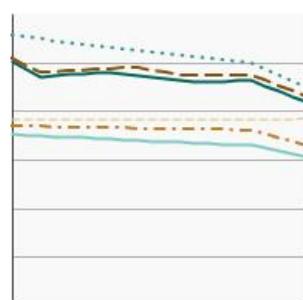
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	419.5	(417.6 - 421.4)
	White	429.9	(427.6 - 432.1)
	Black	444.2	(437.7 - 450.7)
	Hispanic	327.4	(322.8 - 332.0)
	Asian/Pacific Islander	305.3	(300.8 - 309.7)
	American Indian/Alaska Native	367.6	(346.1 - 389.0)

Rates of new cases of all cancer by race/ethnicity, 1992-2013
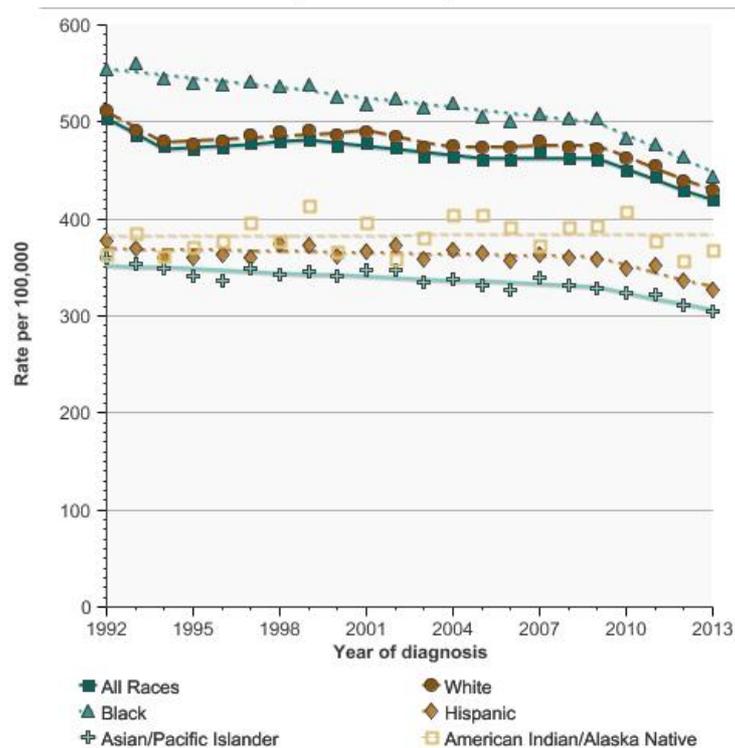
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Top Cancer Sites

Comparison of Top Cancer Sites

Rates of new cases of the most common cancers, delay-adjusted cancer incidence, 1975-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Colon and Rectum	37.9	(37.2 - 38.6)
	Lung and Bronchus	54.6	(53.8 - 55.4)
	Female Breast	132.2	(130.4 - 134.0)
	Prostate	112.1	(110.4 - 113.8)

Rates of new cases of the most common cancers, delay-adjusted cancer incidence, 1975-2013
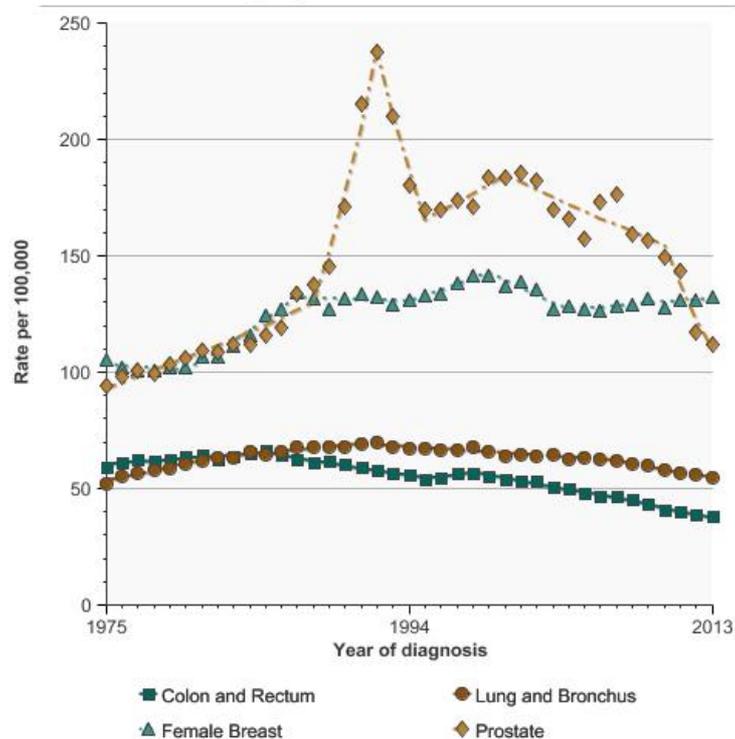
Legend:
- Colon and Rectum
- Lung and Bronchus
- Female Breast
- Prostate

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Colon and Rectum Cancer by Sex

Rates of new cases of colon and rectum cancer, delay-adjusted cancer incidence by sex, 1975-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	37.9	(37.2 - 38.6)
	Male	43.7	(42.6 - 44.8)
	Female	33.0	(32.1 - 33.8)

Rates of new cases of colon and rectum cancer, delay-adjusted cancer incidence by sex, 1975-2013

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Colon and Rectum Cancer by Race/Ethnicity

Rates of new cases of colon and rectum cancer by race/ethnicity, 1992-2013
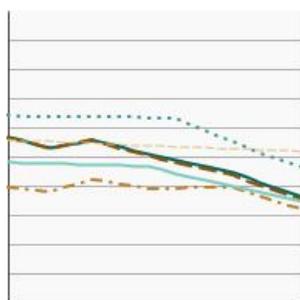
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	36.7	(36.2 - 37.3)
	White	35.6	(34.9 - 36.2)
	Black	45.8	(43.7 - 47.9)
	Hispanic	31.6	(30.1 - 33.0)
	Asian/Pacific Islander	34.2	(32.7 - 35.6)
	American Indian/Alaska Native	50.9	(42.6 - 59.1)

Rates of new cases of colon and rectum cancer by race/ethnicity, 1992-2013
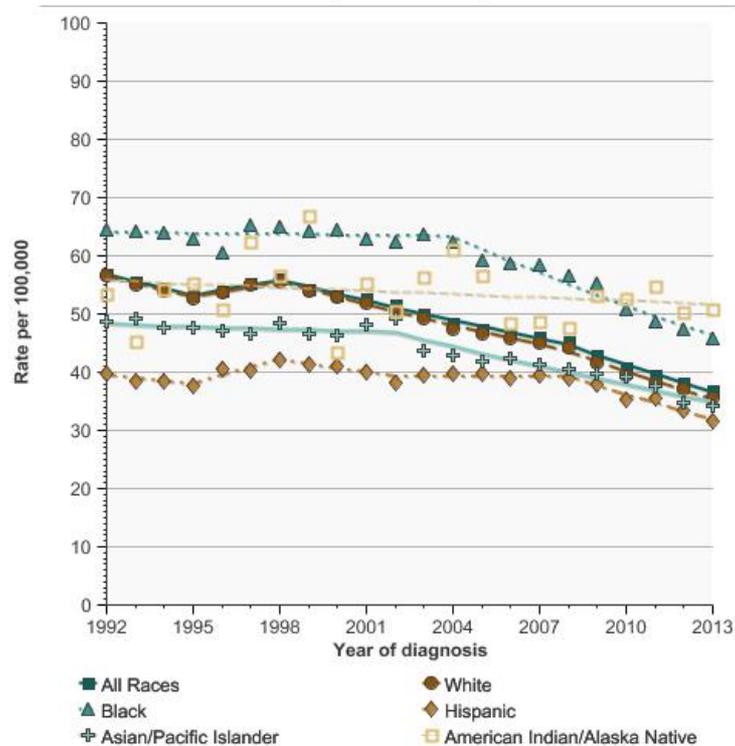
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Lung and Bronchus Cancer by Sex

Rates of new cases of lung and bronchus cancer, delay-adjusted cancer incidence by sex, 1975-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	54.6	(53.8 - 55.4)
	Male	62.3	(60.9 - 63.6)
	Female	48.9	(47.9 - 50.0)

Rates of new cases of lung and bronchus cancer, delay-adjusted cancer incidence by sex, 1975-2013

Legend: Both Sexes, Male, Female

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Lung and Bronchus Cancer by Race/Ethnicity
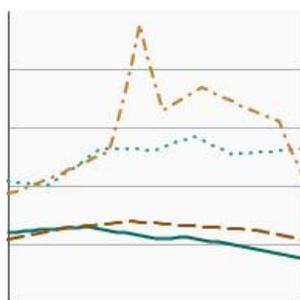
Rates of new cases of lung and bronchus cancer by race/ethnicity, 1992-2013
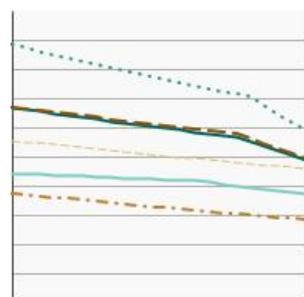
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	48.6	(48.0 - 49.3)
	White	49.3	(48.6 - 50.1)
	Black	58.5	(56.1 - 61.0)
	Hispanic	28.3	(26.8 - 29.8)
	Asian/Pacific Islander	37.3	(35.7 - 38.9)
	American Indian/Alaska Native	38.4	(31.1 - 45.7)

Rates of new cases of lung and bronchus cancer by race/ethnicity, 1992-2013
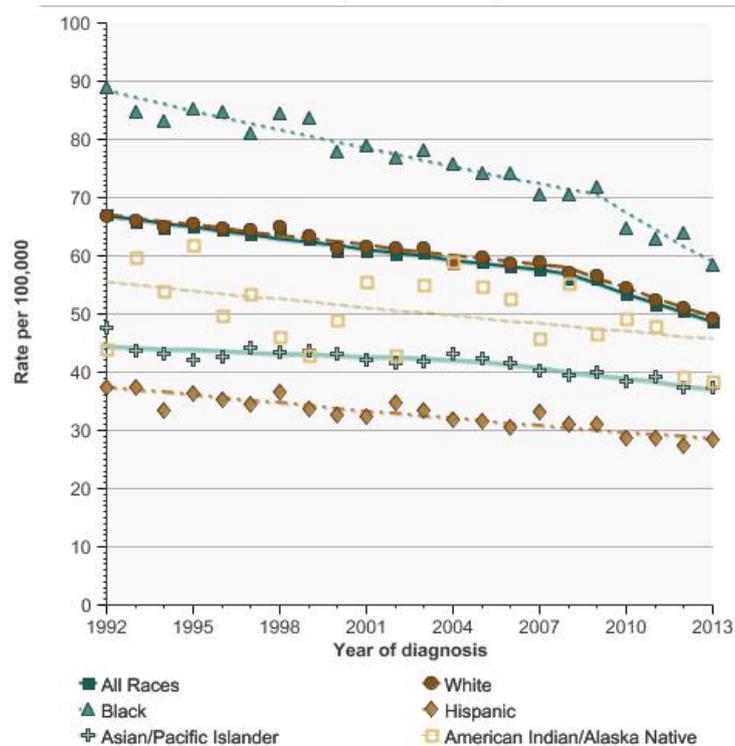
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
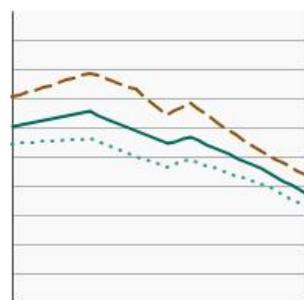
Female Breast Cancer by Race/Ethnicity

Rates of new cases of female breast cancer by race/ethnicity, 1992-2013
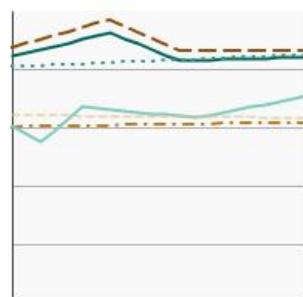
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	126.2	(124.8 - 127.7)
	White	129.1	(127.4 - 130.8)
	Black	126.4	(121.9 - 130.9)
	Hispanic	93.4	(90.2 - 96.6)
	Asian/Pacific Islander	107.4	(103.9 - 110.9)
	American Indian/Alaska Native	89.7	(76.3 - 103.0)

Rates of new cases of female breast cancer by race/ethnicity, 1992-2013
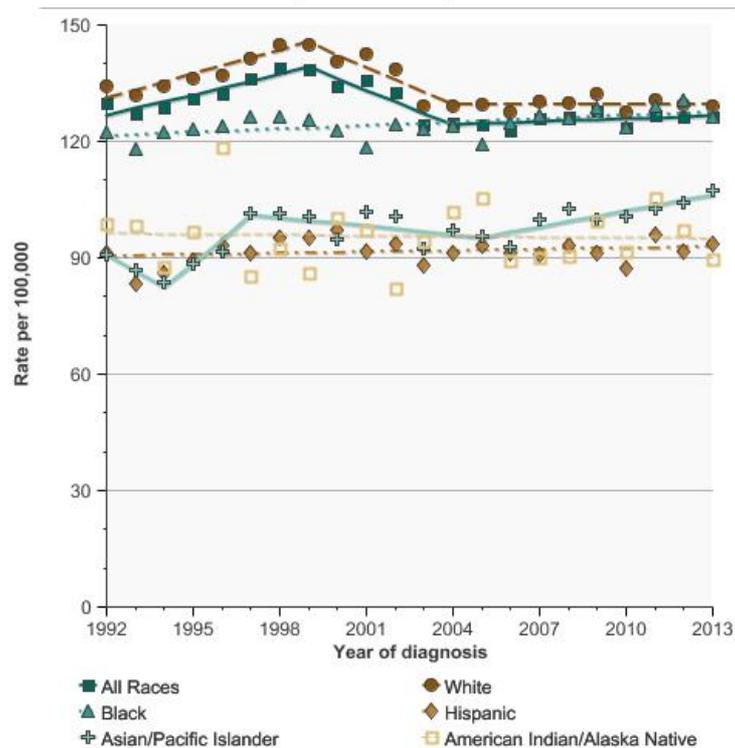
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Prostate Cancer by Race/Ethnicity

Rates of new cases of prostate cancer by race/ethnicity, 1992-2013
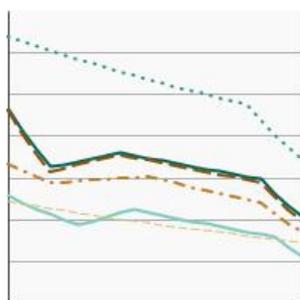
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	104.6	(103.2 - 106.0)
	White	99.6	(98.1 - 101.1)
	Black	170.0	(163.9 - 176.1)
	Hispanic	83.1	(79.5 - 86.8)
	Asian/Pacific Islander	56.7	(53.8 - 59.6)
	American Indian/Alaska Native	58.9	(45.3 - 72.5)

Rates of new cases of prostate cancer by race/ethnicity, 1992-2013
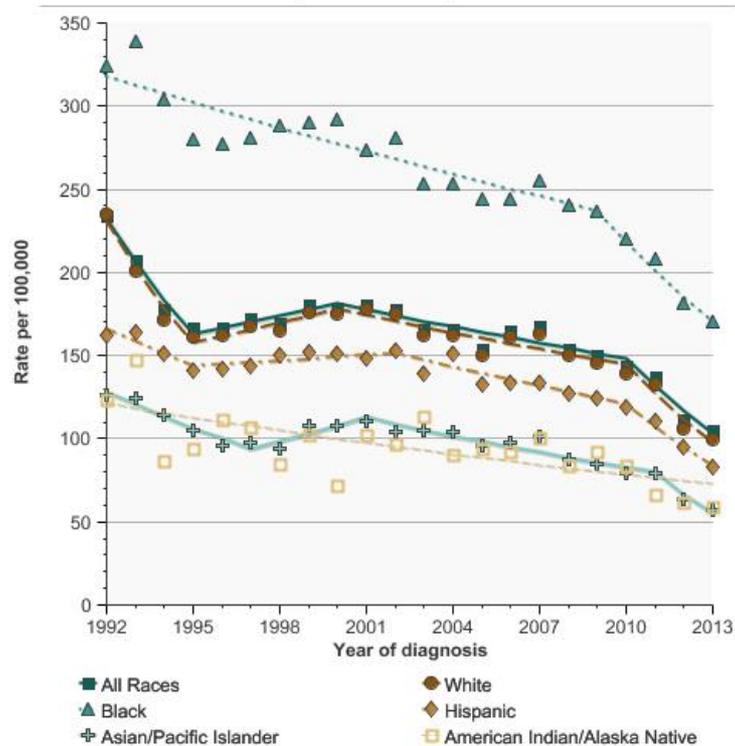
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
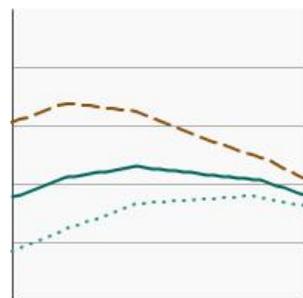
Additional Cancer Sites with Healthy People 2020 Targets

Rates of new cases of cervix uteri cancer by race/ethnicity, 1992-2013
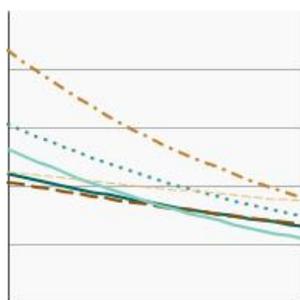
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	6.6	(6.3 - 6.9)
	White	6.5	(6.1 - 6.9)
	Black	8.1	(7.0 - 9.3)
	Hispanic	8.2	(7.3 - 9.0)
	Asian/Pacific Islander	5.7	(4.9 - 6.5)
	American Indian/Alaska Native	9.4	(4.9 - 13.9)

Rates of new cases of cervix uteri cancer by race/ethnicity, 1992-2013
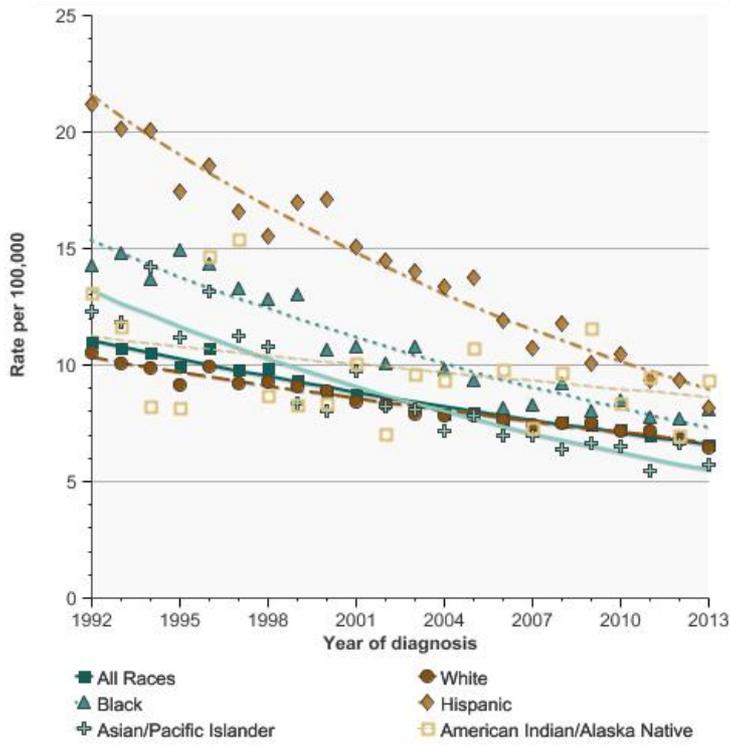
Legend:
- All Races
- Black
- Asian/Pacific Islander
- White
- Hispanic
- American Indian/Alaska Native

Selected Cancer Sites with Increasing Trends

Increasing Greater than 1.5% Annually

Rates of selected cancer sites that are increasing by 1.5% or greater per year^, delay-adjusted cancer incidence, 1975-2013
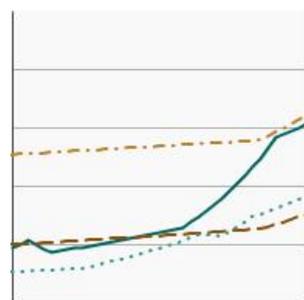
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Thyroid	15.3	(14.9 - 15.8)
	Myeloma	7.5	(7.2 - 7.8)
	Liver and Intrahepatic Bile Duct	8.8	(8.5 - 9.2)
	Leukemia	15.8	(15.3 - 16.3)

Rates of selected cancer sites that are increasing by 1.5% or greater per year^, delay-adjusted cancer incidence, 1975-2013

- Thyroid
- Myeloma
- Liver and Intrahepatic Bile Duct
- Leukemia

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
Restricted to cancer sites with 2013 incidence rates of 3 per 100,000 or greater.
^ Average annual percent change (AAPC) for five most recent years is greater than 1.5%.

Increasing Less than 1.5% Annually

Rates of selected cancer sites that are increasing by less than 1.5% per year^, delay-adjusted cancer incidence, 1975-2013
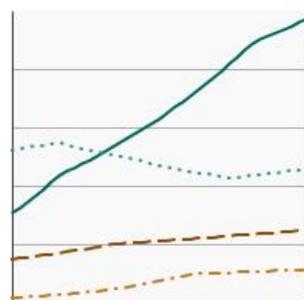
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Melanoma of the Skin	24.8	(24.2 - 25.3)
	Testis	6.1	(5.7 - 6.5)
	Oral Cavity and Pharynx	11.6	(11.3 - 12.0)
	Esophageal adenocarcinoma	2.8	(2.6 - 2.9)

Rates of selected cancer sites that are increasing by less than 1.5% per year^, delay-adjusted cancer incidence, 1975-2013

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
Restricted to cancer sites with 2013 incidence rates of 3 per 100,000 or greater.
^ Average annual percent change (AAPC) for five most recent years is less than 1.5%.

Selected Cancer Sites with Decreasing Trends

Rates of selected cancer sites with decreasing delay-adjusted incidence^, 1975-2013
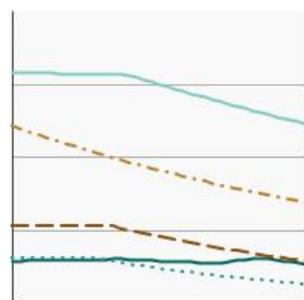
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Hodgkin Lymphoma	2.7	(2.5 - 2.9)
	Larynx	2.9	(2.7 - 3.0)
	Esophageal squamous cell carcinoma	1.3	(1.2 - 1.5)
	Stomach	6.9	(6.6 - 7.2)
	Ovary	11.7	(11.2 - 12.3)

Rates of selected cancer sites with decreasing delay-adjusted incidence^, 1975-2013
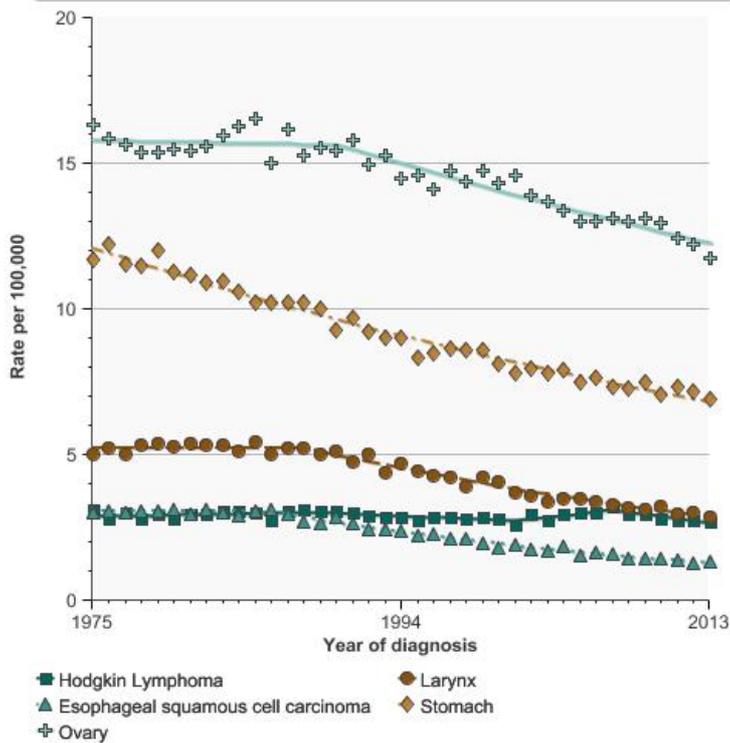
Legend:
- Hodgkin Lymphoma
- Esophageal squamous cell carcinoma
- Ovary
- Larynx
- Stomach

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
Restricted to cancer sites with 2013 incidence rates of 3 per 100,000 or greater.
^ Average annual percent change (AAPC) for five most recent years is less than zero.

Additional Information on Incidence
For the public

- Learn About Cancer.(http://www.cancer.org/cancer/index) American Cancer Society.
- Cancer Incidence Rate.(http://seer.cancer.gov/statistics/types/incidence.html) National Cancer Institute.
- Common Cancer Types. (http://www.cancer.gov/cancertopics/types/commoncancers) National Cancer Institute.

Scientific reports

- Lung cancer incidence trends among men and women – United States, 2005–2009.(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6301a1.htm?s_cid=mm6301a1_w) Henley SJ, Richareds TB, Underwood JM, et al. MMWR Morb Mortal Wkly Rep. 2014;63(01):1–5.
- Invasive cancer incidence – United States, 2010.(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6312a1.htm?s_cid=mm6312a1_w) Henley SJ, Singh S, King J, Wilson R, and Ryerson B. MMWR Morb Mortal Wkly Rep. 2014;63(12):253–259.
- Invasive cancer incidence – United States, 2009.(http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6207a1.htm) Singh S, Henley SJ, Wilson R, King J, and Eheman C. MMWR Morb Mortal Wkly Rep. 2013;62(07):113–118.

Statistics

- American Cancer Society – Facts & Figures 2016.(http://www.cancer.org/research/cancerfactsstatistics/cancerfactsfigures2016/)
- WONDER Online Databases – United States Cancer Statistics.(http://wonder.cdc.gov/cancer.html) Centers for Disease Control and Prevention.
- Healthy People 2020, 2020 Topics & Objectives – Cancer.(http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5)
- State Cancer Profiles.(http://statecancerprofiles.cancer.gov) National Cancer Institute, and Centers for Disease Control and Prevention.
- United States Cancer Statistics. National Cancer Institute, and Centers for Disease Control and Prevention.
- United States Cancer Statistics – Interpreting Incidence Data.(http://www.cdc.gov/cancer/npcr/uscs/technical_notes/interpreting/incidence.htm) National Cancer Institute, and Centers for Disease Control and Prevention.
- SEER Cancer Statistics Review, National Cancer Institute.(http://seer.cancer.gov/csr/)
- SEER Fast Stats: An interactive tool for access to SEER cancer statistics.(http://seer.cancer.gov/faststats/) Surveillance Research Program, National Cancer Institute.

Stage at Diagnosis

Last Updated:
January 2017

Introduction
Cancers can be diagnosed at different stages in their development. Stage of cancer diagnosis may be expressed as numbers (for example, I, II, III, or IV) or by terms such as "localized," "regional," and "distant." The lower the number or the more localized the cancer, the better a person's chances of benefiting from treatment.

Tracking the rates of late-stage (distant) cancers is a good way to monitor the impact of cancer screening. When more cancers are detected in early stages, fewer should be detected in late stages.

Both rates of late stage disease, and stage proportions are shown since each has a somewhat different interpretation. For example, rates could be declining among all stages of disease, but the proportion of late stage disease among diagnosed cases could be relatively constant.

Measure
Late-stage diagnosis rate: The number of new cancer cases diagnosed at a distant stage, per 100,000 people per year for cancers of the prostate, colon, rectum, and cervix uteri. Late stage is defined as regional and distant stage diagnoses, per 100,000 women per year for cancer of the female breast. Late stage is defined as AJCC 6th edition Stage III and Stage IV diagnoses, per 100,000 people per year for cancers of the lung and bronchus.

Stage Distribution: The proportion of new cancer cases among all cases diagnosed in a specific year. The full distribution of all stages (local, regional, distant and unstaged or I, II, III, IV and unstaged) is shown.

Healthy People 2020 Target

- Healthy People 2020 has only one target for late-stage diagnoses: to reduce the number of new late-stage female breast cancer cases to 42.1 per 100,000 females. Healthy People 2020 also includes targets for increasing the proportion of adults who are screened for cervical, colorectal, and breast cancer, and for increasing the proportion of men who are counseled about prostate-specific screening tests. These screenings may increase the proportion of adults whose cancer is detected in its early stage.

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

Data Source
SEER Program, National Cancer Institute, 1980–2013.

Trends and Most Recent Estimates
Late Stage Breast Cancer Rates
Rates of new cases of late stage breast cancer, 1980-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Late Stage Breast Cancer	43.6	(42.5 - 44.6)

Rates of new cases of late
stage breast cancer, 1980-2013
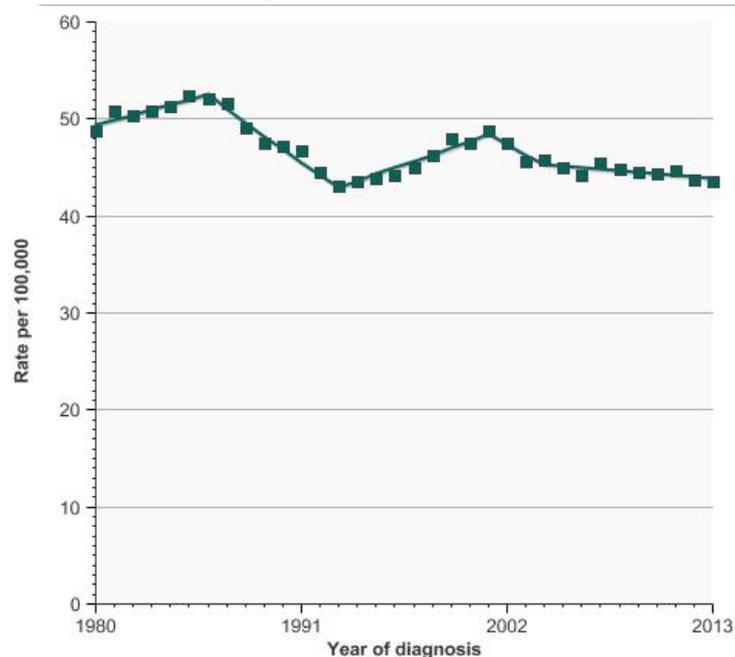
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9
areas (http://seer.cancer.gov/registries/terms.html).
Late stage breast cancer includes cases diagnosed at regional and distant stages.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9,
10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74,
75-79, 80-84, 85+.

Late Stage Lung Cancer Rates
Rates of new cases of late stage lung cancer, 2004-2013
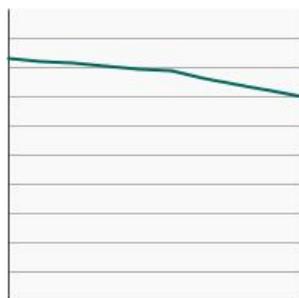
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Late Stage Lung Cancer	34.8	(34.5 - 35.2)

Rates of new cases of late stage lung cancer, 2004-2013
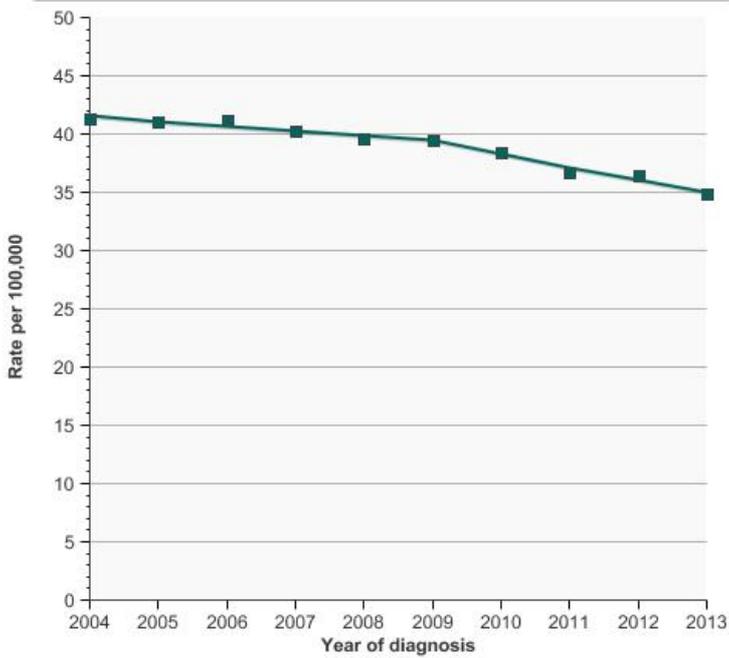
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 18 areas (http://seer.cancer.gov/registries/terms.html).
Late stage lung cancer includes cases diagnosed at AJCC (6th edition) stages III and IV.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Distant Stage Cancer Rates
Rates of new cancers of distant stage diseases, 1980-2013
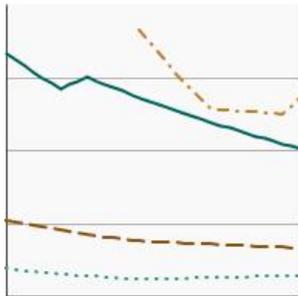
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Colon	5.9	(5.6 - 6.1)
	Rectum	2.0	(1.8 - 2.1)
	Cervix	0.8	(0.7 - 0.9)
	Prostate	8.2	(7.7 - 8.7)

Rates of new cancers of distant stage diseases, 1980-2013
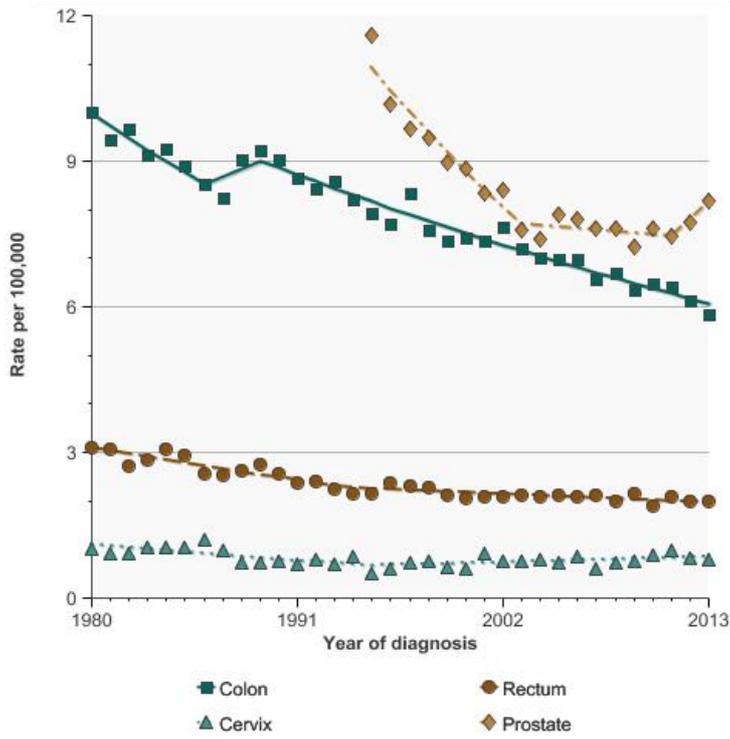
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Stage Distribution

Female Breast Cancer

Distribution of female breast cancer diagnoses by stage at diagnosis, 1980-2013
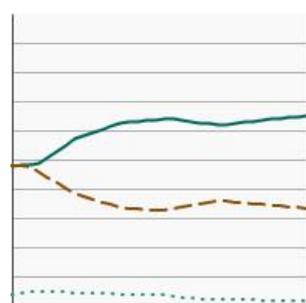
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of diagnoses	Confidence Interval
	Localized	65.5	(64.9 - 66.2)
	Regional/Distant	32.9	(32.3 - 33.5)
	Unstaged	1.5	(1.4 - 1.7)

Distribution of female breast cancer diagnoses by stage at diagnosis, 1980-2013
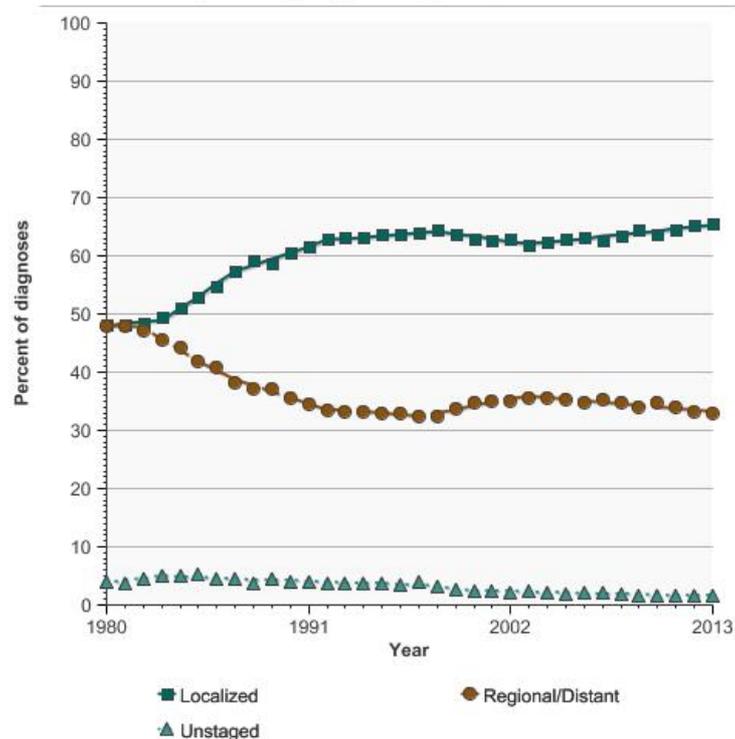
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Lung Cancer

Distribution of lung cancer diagnoses by stage at diagnosis, 2004-2013
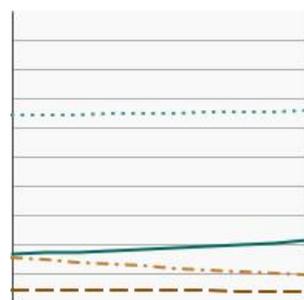
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of diagnoses	Confidence Interval
	Stage I	21.4	(21.0 - 21.8)
	Stage II	3.9	(3.8 - 4.1)
	Stage III/IV	65.1	(64.7 - 65.5)
	Unknown Stage	9.6	(9.3 - 9.9)

Distribution of lung cancer diagnoses by stage at diagnosis, 2004-2013
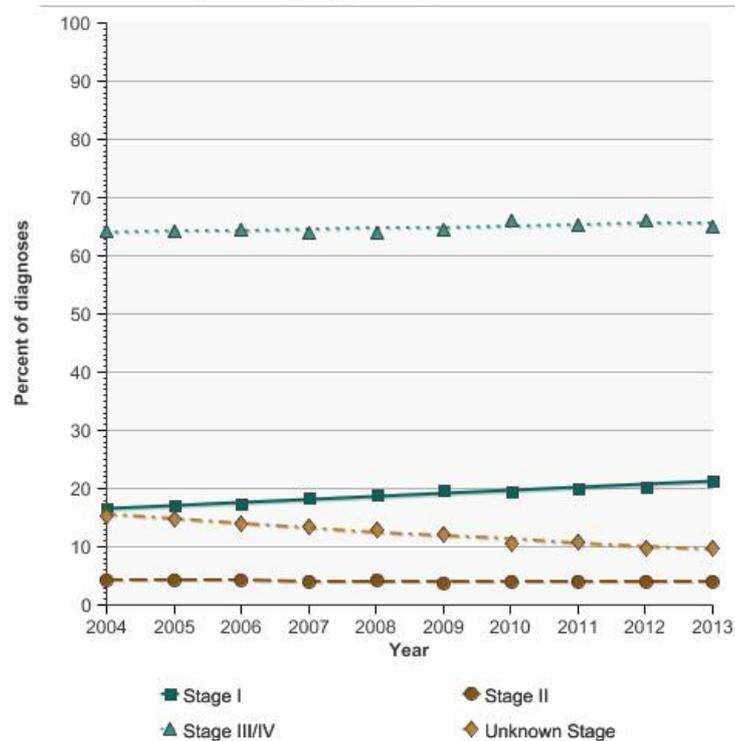
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 18 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.
Stage at diagnosis based on 6th edition AJCC coding.
Unknown stage includes cases staged as not applicable, occult and unknown

Colon Cancer

Distribution of colon cancer diagnoses by stage at diagnosis, 1980-2013
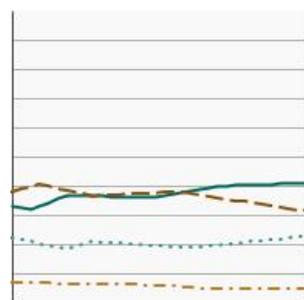
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of diagnoses	Confidence Interval
	Localized	41.4	(40.4 - 42.5)
	Regional	31.8	(30.8 - 32.8)
	Distant	22.3	(21.4 - 23.1)
	Unstaged	4.5	(4.0 - 4.9)

Distribution of colon cancer
diagnoses by stage at diagnosis, 1980-2013
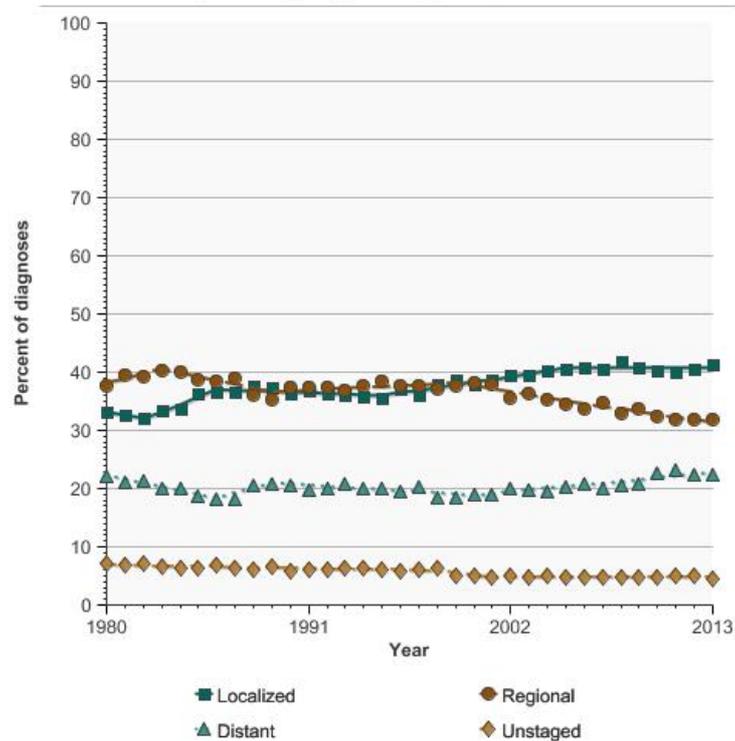
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9
areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Rectum Cancer

Distribution of rectum cancer diagnoses by stage at diagnosis, 1980-2013
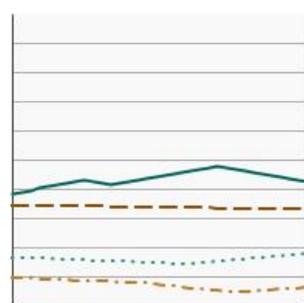
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of diagnoses	Confidence Interval
	Localized	42.5	(40.9 - 44.1)
	Regional	32.9	(31.4 - 34.4)
	Distant	18.1	(16.9 - 19.4)
	Unstaged	6.5	(5.7 - 7.3)

Distribution of rectum cancer diagnoses by stage at diagnosis, 1980-2013
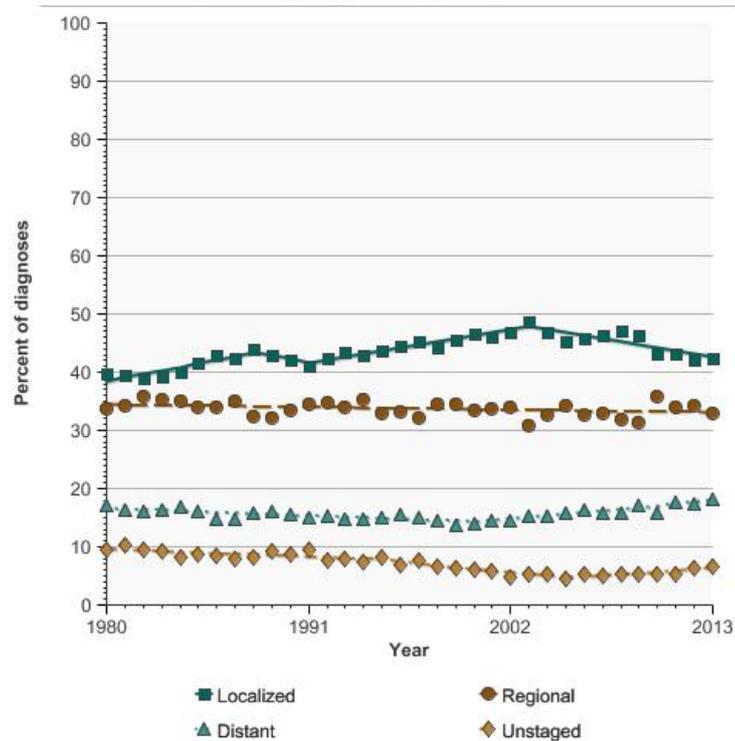
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Cervix Uteri Cancer

Distribution of cervix uteri cancer diagnoses by stage at diagnosis, 1980-2013
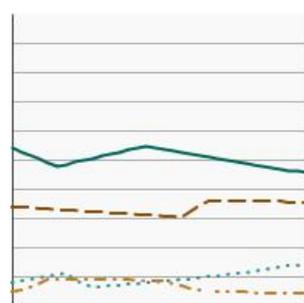
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of diagnoses	Confidence Interval
	Localized	45.6	(42.5 - 48.7)
	Regional	35.8	(32.8 - 38.8)
	Distant	13.6	(11.5 - 15.8)
	Unstaged	4.9	(3.6 - 6.3)

Distribution of cervix uteri cancer
diagnoses by stage at diagnosis, 1980-2013
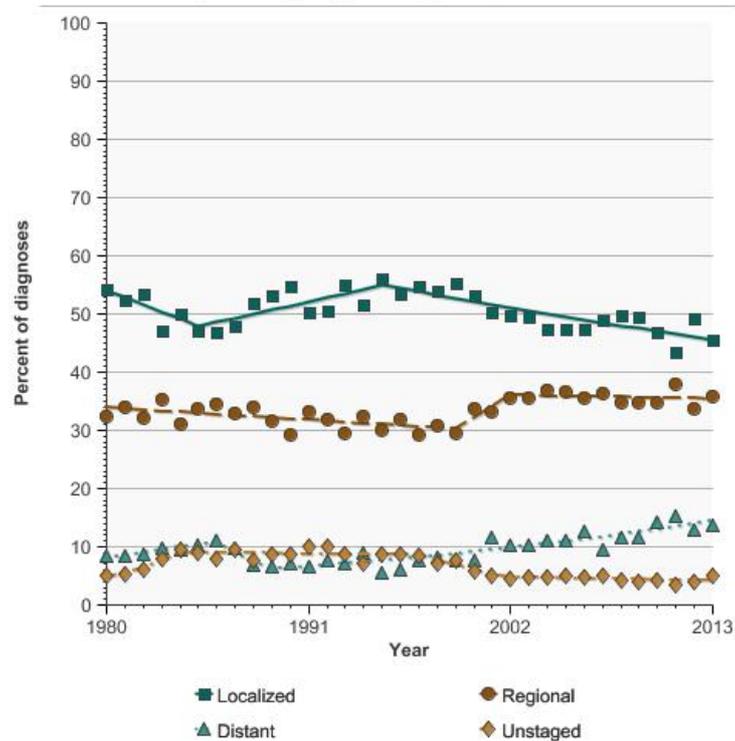
Legend: Localized, Regional, Distant, Unstaged

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9
areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Prostate Cancer

Distribution of prostate cancer diagnoses by stage at diagnosis, 1995-2013
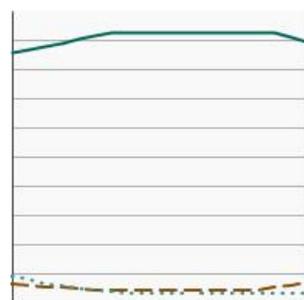
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of diagnoses	Confidence Interval
	Localized/regional	89.4	(89.0 - 89.9)
	Distant	6.8	(6.4 - 7.2)
	Unstaged	3.7	(3.5 - 4.0)

Distribution of prostate cancer diagnoses by stage at diagnosis, 1995-2013
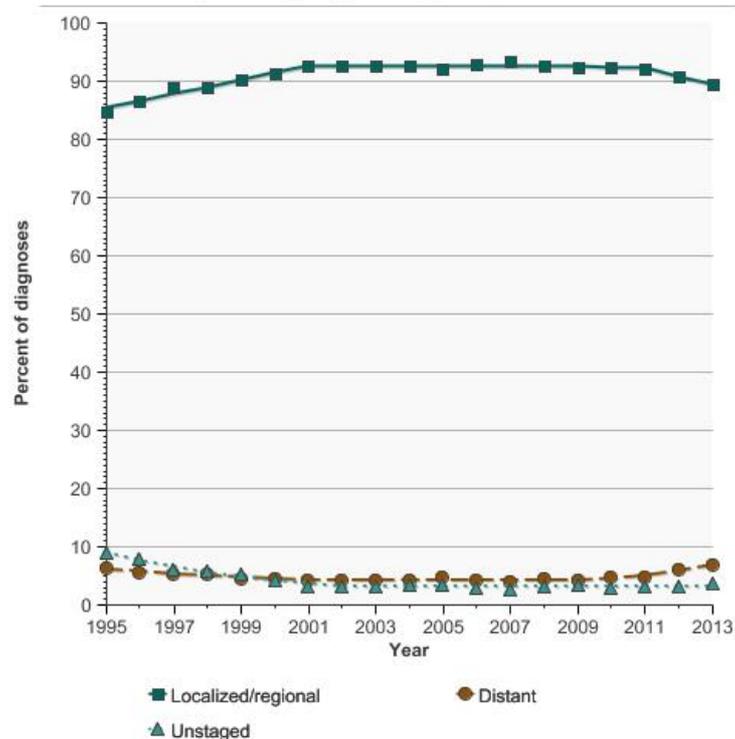
Legend:
- Localized/regional
- Distant
- Unstaged

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Additional Information on Stage at Diagnosis
For the public

- Staging.(http://www.cancer.org/treatment/understandingyourdiagnosis/staging) American Cancer Society.
- Cancer Staging.(http://www.cancer.gov/cancertopics/factsheet/detection/staging) National Cancer Institute.
- Metastatic Cancer.(http://www.cancer.gov/cancertopics/factsheet/Sites-Types/metastatic) National Cancer Institute.
- Tumor Grade.(http://www.cancer.gov/cancertopics/factsheet/detection/tumor-grade) National Cancer Institute.
- Tumor Markers.(http://www.cancer.gov/cancertopics/factsheet/detection/tumor-markers) National Cancer Institute.
- Understanding Laboratory Tests.(http://www.cancer.gov/cancertopics/factsheet/detection/laboratory-tests) National Cancer Institute.

For health professionals

- SEER Coding and Staging Manuals, National Cancer Institute.(http://seer.cancer.gov/tools/codingmanuals/)

Statistics

- Healthy People 2020, 2020 Topics & Objectives – Cancer.(http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5)
- SEER Cancer Statistics Factsheets: Breast Cancer, National Cancer Institute.(http://seer.cancer.gov/statfacts/html/breast.html)
- SEER Cancer Statistics Factsheets: Cervix Uteri Cancer, National Cancer Institute.(http://seer.cancer.gov/statfacts/html/cervix.html)
- SEER Cancer Statistics Factsheets: Colon and Rectum Cancer, National Cancer Institute.(http://seer.cancer.gov/statfacts/html/colorect.html)
- SEER Cancer Statistics Factsheets: Prostate Cancer, National Cancer Institute.(http://seer.cancer.gov/statfacts/html/prost.html)

- SEER Cancer Statistics Review, National Cancer Institute.(http://seer.cancer.gov/csr/)

Treatment

Cancer treatment is improving, saving lives and extending survival for many people. Depending on various factors, treatment options may include surgery, radiation, immunotherapy, chemotherapy, hormone therapy, or targeted, local therapy, among others. These treatments might be used alone or in combination. Clinical trials evaluate the benefits of new therapies and broaden the options available to patients.

This section includes treatment trends for cancer sites for which there are available data trends and definitive treatment guidelines based on rigorous evidence of benefit to patients, including bladder, breast, colorectal, kidney, lung, ovarian, and prostate cancers.

- Bladder Cancer Treatment
- Breast Cancer Treatment
- Colorectal Cancer Treatment
- Kidney Cancer Treatment

- Lung Cancer Treatment
- Ovarian Cancer Treatment
- Prostate Cancer Treatment

Bladder Cancer Treatment

Last Updated:
March 2015

Introduction
Bladder cancer is a disease in which malignant (cancer) cells form in the tissues of the bladder. Treatment options depend on the stage of bladder cancer. Three types of standard treatment are used: surgery, radiation therapy, and chemotherapy. Intravesical (within the bladder) therapy is another less common treatment option which involves the instillation of an agent or biologic into the bladder. The use of intravesical therapy has been associated with improved survival. There has been a significant increase in the use of intravesical therapy for patients diagnosed with non-muscle invasive Ta G1-2 bladder cancer.

Measure
Percentage of individuals receiving intravesical therapy in non-muscle invasive bladder cancer.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including bladder cancer treatment.

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

Data Source
SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1995 -2009.

Trends and Most Recent Estimates

Intravesical Therapy

Percent of patients receiving intravesical therapy for non-muscle invasive disease Ta G1-2 and all other non-muscle invasive disease, 1995-2009

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2009)	
		Percent of patients	95% Confidence Interval
	Ta G1-2	29.7	(22.3 - 37.1)
	Other non-muscle invasive disease	39.9	(31.2 - 48.6)
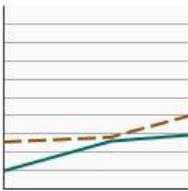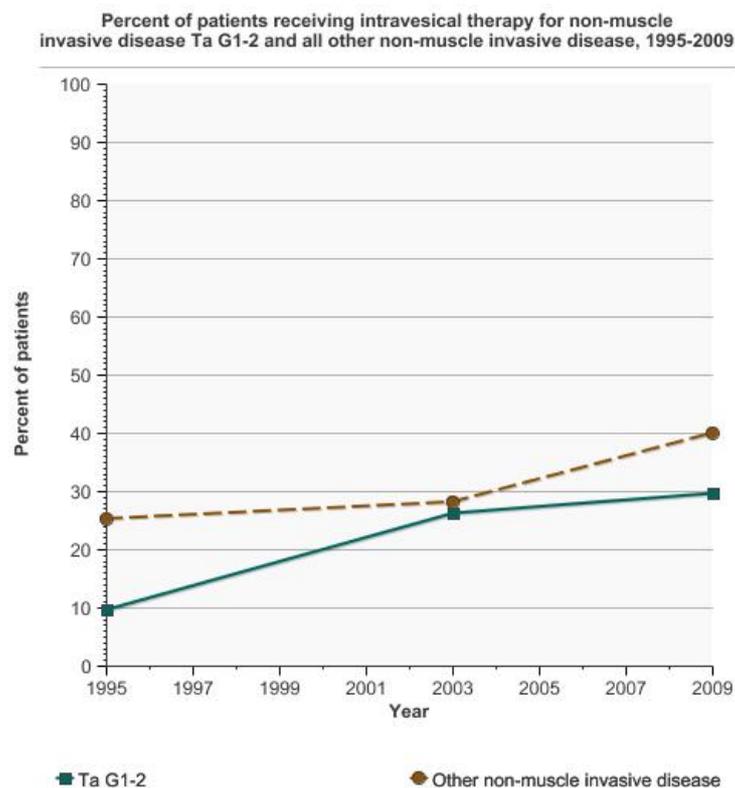
Percent of patients receiving intravesical therapy for non-muscle invasive disease Ta G1-2 and all other non-muscle invasive disease, 1995-2009

Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are age-adjusted based on the age distribution of urinary bladder cancer patients from 2008-2010 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Additional Information on Bladder Cancer Treatment
For the public

- Bladder Cancer – General Treatment Information(http://www.cancer.org/cancer/bladdercancer/detailedguide/bladder-cancer-treating-general-info). American Cancer Society.
- Bladder Cancer Treatment (PDQ®)(http://www.cancer.gov/types/bladder/patient/bladder-treatment-pdq).National Cancer Institute.
- What You Need to Know About™ Bladder Cancer(http://www.cancer.gov/publications/patient-education/wyntk-bladder-cancer). National Cancer Institute.

For health professionals

- Bladder Cancer Treatment (PDQ®)(http://www.cancer.gov/cancertopics/pdq/treatment/bladder/Patient). National Cancer Institute.

Scientific reports

- Predictors of intravesical therapy for non-muscle invasive bladder cancer: results from the Surveillance, Epidemiology, and End-Results Program's 2003 Patterns of Care Project(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3327445/). Huang GJ, Hamilton AS, Lo M, Stein JP, Penson DF. J Urol 2008;180(2):520–4.

Statistics

- SEER Cancer Statistics Factsheets: Bladder Cancer, National Cancer Institute(http://seer.cancer.gov/statfacts/html/urinb.html).
- SEER Patterns of Care/Quality of Care Studies, National Cancer Institute(http://appliedresearch.cancer.gov/poc/).

Breast Cancer Treatment

Last Updated:
January 2017

Introduction

Breast cancer is the most common type of cancer among women in the United States (other than skin cancer). Women with breast cancer have many treatment options, including surgery, radiation therapy, hormone therapy, chemotherapy, and targeted therapy. A woman diagnosed with breast cancer may receive more than one type of treatment.

The proportion of women with node-positive disease (cancer in the lymph nodes near the tumor) receiving guideline treatment is high. Clinical trials have demonstrated that women with early stage breast cancer who receive breast-conserving surgery (BCS) with radiation have a survival rate similar to those of women who undergo a mastectomy. Additionally, older women are less likely to receive chemotherapy than younger women, but there are no major differences in treatment among major racial and ethnic groups.

Breast cancer also develops in men, but it is rare.

Measure

Percentage of women aged 20 and older, diagnosed with early stage breast cancer (less than stage IIIA), receiving breast-conserving surgery and radiation treatment.

Percentage of women aged 20 and older, diagnosed with node-positive, stage I–IIIA breast cancer, receiving multi-agent chemotherapy.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including breast cancer treatment and multi-agent chemotherapy.

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

Data Source

Breast-conserving surgery and radiation treatment estimates: SEER 13 Registries, National Cancer Institute, 1992–2011.

Multi-agent chemotherapy estimates: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987-2010.

Trends and Most Recent Estimates

Treatment Distribution

Treatment distribution for invasive female breast cancer patients aged 20 years and older with AJCC stage less than IIIA, 1992-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of patients	Confidence Interval
	Mastectomy	38.0	(37.7 - 38.2)
	BCS with radiation	44.6	(44.3 - 44.9)
	BCS without radiation	17.4	(17.2 - 17.6)

Treatment distribution for invasive female breast cancer patients aged 20 years and older with AJCC stage less than IIIA, 1992-2013
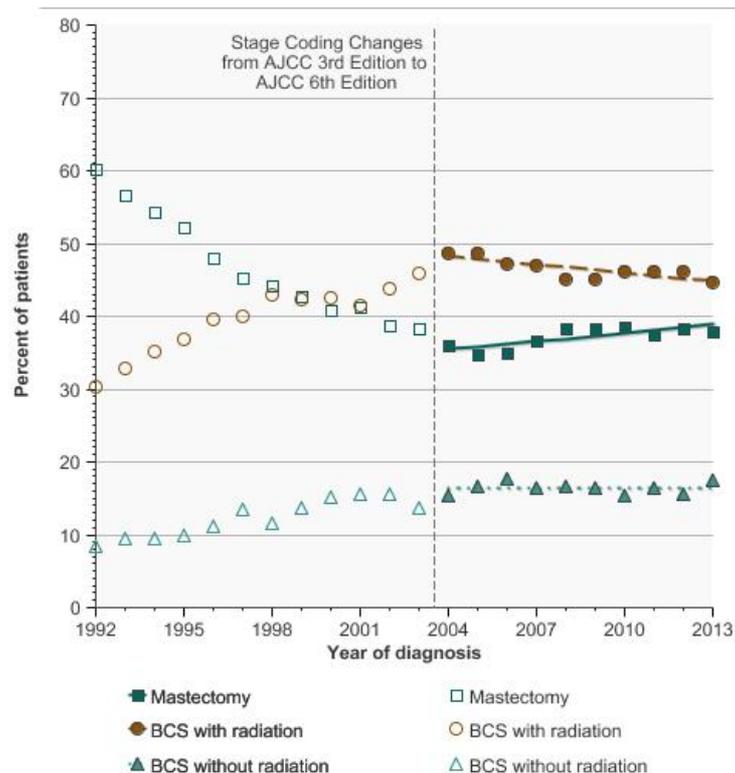
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted based on the age distribution of female breast cancer patients from 2011-2013 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using 5-year age groups from 20-24 through ages 85+.

Chemotherapy

Percentage of node positive female breast cancer patients receiving multiagent chemotherapy treatment by age at diagnosis, 1987-2010
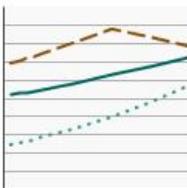
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010)	
		Percent of patients	Confidence Interval
	Ages 20+	65.2	(57.7 - 72.7)
	Ages 20-64	79.6	(72.0 - 87.2)
	Ages 65+	44.9	(29.4 - 60.5)

Percentage of node positive female breast cancer patients receiving multiagent chemotherapy treatment by age at diagnosis, 1987-2010

Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are age-adjusted based on the age distribution of female breast cancer patients from 2008-2010 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
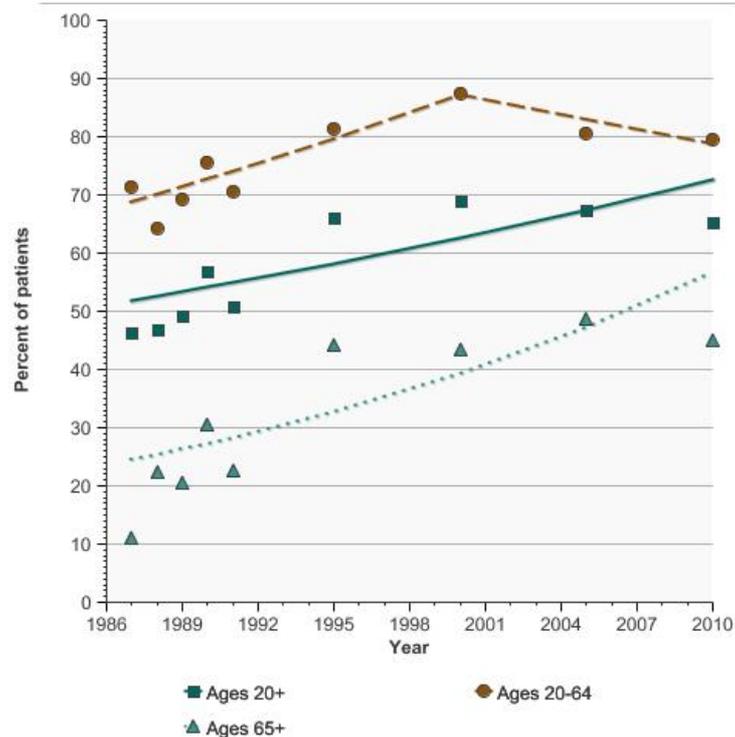
Additional Information on Breast Cancer Treatment
For the public

- Breast Cancer – For women facing a breast biopsy(http://www.cancer.org/treatment/understandingyourdiagnosis/examsandtestdescriptions/forwomenfacingabreastbiopsy/index). American Cancer Society.
- A Snapshot of Breast Cancer(http://www.cancer.gov/research/progress/snapshots/breast). National Cancer Institute.
- Breast Cancer Treatment (PDQ®)(http://www.cancer.gov/types/breast/patient/breast-treatment-pdq). National Cancer Institute.
- What You Need to Know About™ Breast Cancer(http://www.cancer.gov/publications/patient-education/wyntk-breast-cancer). National Cancer Institute.
- Breast Cancer (NCCN Guidelines for Patients®)(http://www.nccn.org/patients/guidelines/cancers.aspx#breast). National Comprehensive Cancer Network.

For health professionals

- Breast Cancer Treatment (PDQ®)(http://www.cancer.gov/types/breast/hp/breast-treatment-pdq). National Cancer Institute.

Statistics

- SEER Cancer Statistics Factsheets: Breast Cancer, National Cancer Institute(http://seer.cancer.gov/statfacts/html/breast.html).
- SEER-Medicare Linked Database, National Cancer Institute(http://healthcaredelivery.cancer.gov/seermedicare/).
- SEER Patterns of Care/Quality of Care Studies, National Cancer Institute(http://appliedresearch.cancer.gov/poc/).

Colorectal Cancer Treatment

Last Updated:
March 2015

Introduction

Colon cancer forms in the tissues of the colon, which is the longest part of the large intestine. Rectal cancer forms in the tissues of the rectum, which is the last several inches of the large intestine closest to the anus.

The main types of treatment for colon and rectal cancer are surgery, radiation therapy, chemotherapy, and targeted therapy. Depending on the stage of the cancer, two or more of these types of treatment may be combined at the same time or used one after another.

Surgery is the most common treatment for all stages of colorectal cancer. Adjuvant chemo is used after surgery to minimize chances of recurrence and has been shown to help people with stage II and stage III colon and rectal cancer live longer. Chemotherapy can make radiation therapy, which uses high-energy rays or particles to destroy cancer cells, more effective against some colon and rectal cancers. The proportion of patients receiving guideline adjuvant therapy increased steadily between 1987 and 2005. Potential disparities remain for some groups of patients.

Measure

Percent of individuals, aged 20 years and older, diagnosed with stage III colon cancer who received chemotherapy or diagnosed with stage II or stage III rectal cancer who received chemotherapy with or without radiotherapy.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including colorectal cancer treatment.

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

Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1987 -2010.

Trends and Most Recent Estimates

Guideline Therapy

Percent of colon stage III and rectal stages II & III cancer patients who received the guideline chemotherapy treatment by age at diagnosis, 1987-2010
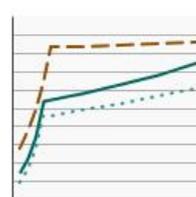
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010)	
		Percent of patients	95% Confidence Interval
	All Ages	68.9	(64.0 - 73.7)
	Ages <65	85.2	(80.0 - 90.3)
	Ages 65+	53.8	(46.6 - 61.0)

Percent of colon stage III and rectal stages II & III cancer patients who
received the guideline chemotherapy treatment by age at diagnosis, 1987-2010
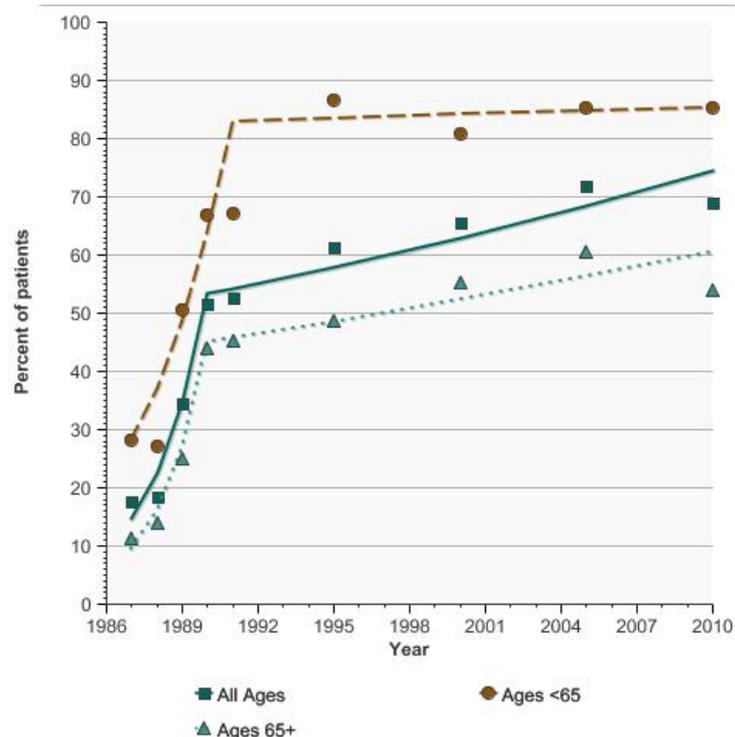
Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are age-adjusted based on the age distribution of colorectal cancer patients from
2008-2010 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age
groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-
79, 80-84, 85+.

Additional Information on Colorectal Cancer Treatment
For the public

- Treating Colon/Rectum Cancer(http://www.cancer.org/cancer/colonandrectumcancer/detailedguide/colorectal-cancer-treating-general-info?ssSourceSiteId=null). American Cancer Society.
- Colon Cancer Treatment (PDQ®)(http://www.cancer.gov/types/colorectal/patient/colon-treatment-pdq). National Cancer Institute.
- Colon and Rectal Cancer(http://www.cancer.gov/types/colorectal). National Cancer Institute
- Rectal Cancer Treatment (PDQ®)(http://www.cancer.gov/types/colorectal/patient/rectal-treatment-pdq). National Cancer Institute.
- Colon Cancer (NCCN Guidelines for Patients®)(http://www.nccn.org/patients/guidelines/colon/index.html). National Comprehensive Cancer Network.

For health professionals

- Colon Cancer Treatment (PDQ®)(http://www.cancer.gov/types/colorectal/hp/colon-treatment-pdq). National Cancer Institute.
- Rectal Cancer Treatment (PDQ®)(http://www.cancer.gov/types/colorectal/hp/rectal-treatment-pdq). National Cancer Institute.

Statistics

- Colorectal Cancer Mortality Projections(http://cisnet.cancer.gov/projections/colorectal/). Cancer Intervention Surveillance Network.
- SEER Cancer Statistics Factsheets: Colon and Rectum Cancer, National Cancer Institute(http://seer.cancer.gov/statfacts/html/colorect.html).
- SEER-Medicare Linked Database, National Cancer Institute(http://healthcaredelivery.cancer.gov/seermedicare/).
- SEER Patterns of Care/Quality of Care Studies, National Cancer Institute(http://appliedresearch.cancer.gov/poc/).

Scientific reports

- Duration of adjuvant chemotherapy for patients with non-metastatic colorectal cancer(http://www.ncbi.nlm.nih.gov/pubmed/20091614). Des Guetz G,

Uzzan B, Morere JF, Perret G, Nicolas P. Cochrane Database System Rev 2010;(1):CD007046.

Kidney Cancer Treatment

Last Updated:

January 2017

Introduction

Kidney cancer, also called renal cell cancer, is one of the ten most common cancers in both men and women. Treatment options may include surgery, ablation and other local therapies, active surveillance, radiation therapy, targeted therapy, immunotherapy (biological therapy), and chemotherapy. These treatments might be used alone or in combination, depending on various factors.

Surgery is the main treatment for most types of kidney cancer. Since 2000, the use of complete nephrectomy (removal of the whole kidney) in patients with localized kidney cancer or cancer in the immediately surrounding tissue (regional kidney cancer) has decreased, while the rate of partial nephrectomy has increased. Partial nephrectomy is now the preferred treatment for patients with early stage kidney cancer, though it may not always be a treatment option. Studies have shown the long-term results of partial nephrectomy are about the same as those when the whole kidney is removed, and partial nephrectomy may prevent serious side effects, including chronic kidney disease.

Measure

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

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including kidney cancer treatment.

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

Data Source

SEER 18 Registries, National Cancer Institute, 2000–2013.

Trends and Most Recent Estimates

All Ages

Percent of patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2013
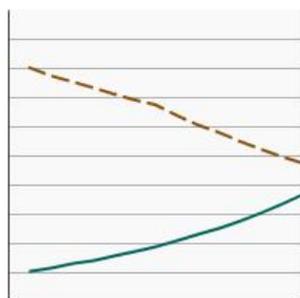
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of patients	Confidence Interval
	Partial nephrectomy	35.3	(34.4 - 36.2)
	Complete nephrectomy	47.6	(46.6 - 48.5)

Percent of patients aged 20 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2013
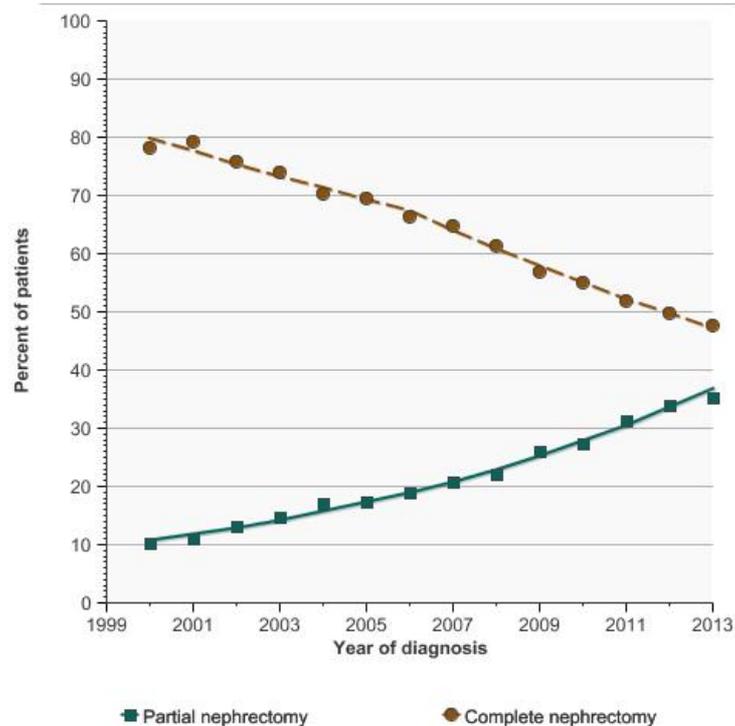
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 18 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted based on the age distribution of kidney cancer patients from 2011-2013 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
Complete nephrectomy includes complete, total, simple and radical nephrectomies.

Ages 20-64

Percent of patients aged 20 - 64 years diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2013
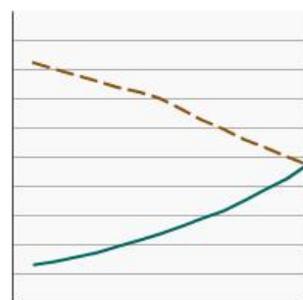
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of patients	Confidence Interval
	Partial nephrectomy	44.2	(42.9 - 45.5)
	Complete nephrectomy	47.9	(46.6 - 49.2)

Percent of patients aged 20 - 64 years diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2013
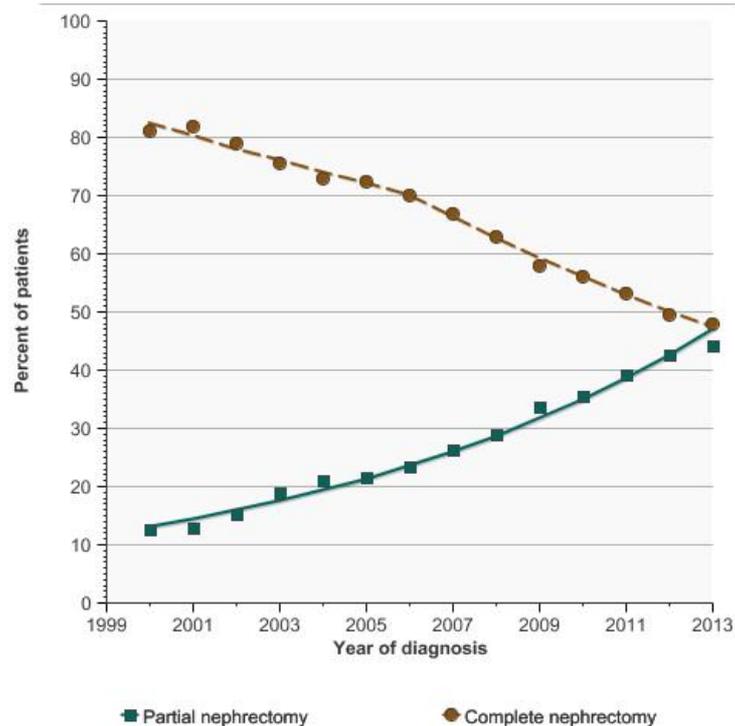
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 18 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted based on the age distribution of kidney cancer patients from 2011-2013 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
Complete nephrectomy includes complete, total, simple and radical nephrectomies.

Ages 65 and Older

Percent of patients aged 65 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2013
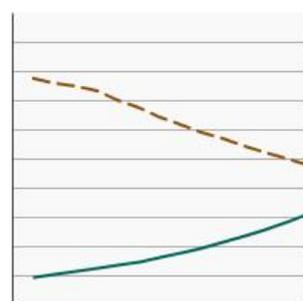
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Percent of patients	Confidence Interval
	Partial nephrectomy	30.3	(29.7 - 30.9)
	Complete nephrectomy	47.4	(46.6 - 48.2)

Percent of patients aged 65 years and older diagnosed with localized/regional kidney cancer receiving partial nephrectomy or complete nephrectomy, 2000-2013
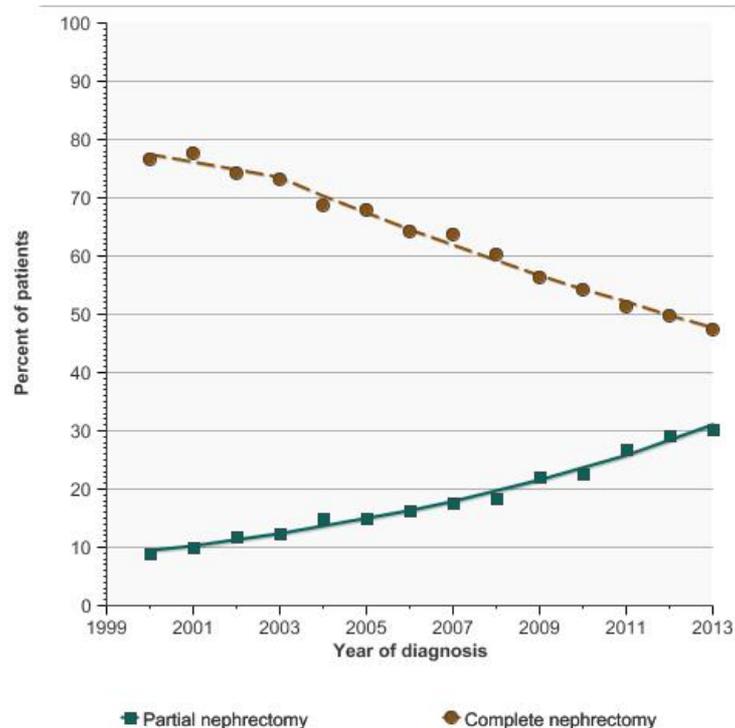
Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 18 areas (http://seer.cancer.gov/registries/terms.html).
Data are age-adjusted based on the age distribution of kidney cancer patients from 2011-2013 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.
Complete nephrectomy includes complete, total, simple and radical nephrectomies.

Additional Information on Kidney Cancer Treatment
For the public

- Treating Kidney Cancer(http://www.cancer.org/cancer/kidneycancer/detailedguide/kidney-cancer-adult-treating-general-info). American Cancer Society.
- Kidney Cancer Association(http://www.kidneycancer.org).
- Renal Cell Cancer Treatment (PDQ®)(http://www.cancer.gov/types/kidney/patient/kidney-treatment-pdq). National Cancer Institute.
- What You Need to Know About™ Kidney Cancer(http://www.cancer.gov/publications/patient-education/wyntk-kidney-cancer). National Cancer Institute.

For health professionals

- Renal Cell Cancer Treatment (PDQ®)(http://www.cancer.gov/types/kidney/hp/kidney-treatment-pdq). National Cancer Institute.

Statistics

- SEER Cancer Statistics Factsheets: Kidney and Renal Pelvis Cancer, National Cancer Institute(http://seer.cancer.gov/statfacts/html/kidrp.html).
- SEER-Medicare Linked Database, National Cancer Institute(http://healthcaredelivery.cancer.gov/seermedicare/).
- SEER Patterns of Care/Quality of Care Studies, National Cancer Institute(http://appliedresearch.cancer.gov/poc/).

Lung Cancer Treatment

Last Updated:
March 2015

Introduction

Lung cancer forms in tissues of the lung, usually in the cells that line air passages. The two main types of lung cancer are small cell lung cancer and non-small cell lung cancer (NSCLC), which is the most common. About 85 percent of lung cancers are NSCLCs.

Primary treatment options for people with NSCLC include surgery, radiation therapy, other local treatments, chemotherapy, and targeted therapies. In many cases, more than one of these treatments is used.

Surgery to remove the tumor presents the greatest chance of curing NSCLC, and is commonly used to treat stages I and II and some stage III cancers but is rarely used to treat stage IV cancers. Postoperative chemotherapy may provide an additional benefit to patients with resected NSCLC. Radiation therapy combined with chemotherapy can produce a cure in a small number of patients and can provide palliation in most patients.

Measure

Chemotherapy following the diagnosis of non-small cell lung cancer stages IIIB or IV.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including lung cancer treatment.

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

Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute, 1996-2010.

Trends and Most Recent Estimates

Chemotherapy

Distribution of patients aged 20 years and older diagnosed with stage IIIB or IV non-small cell lung cancer receiving any chemotherapy by age at diagnosis, 1996-2010
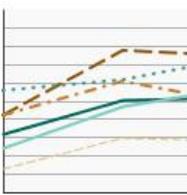
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2010)	
		Percent of patients	95% Confidence Interval
	Ages 20 and older	51.1	(45.5 - 56.7)
	Ages 20-49	75.7	(62.6 - 88.8)
	Ages 50-59	68.4	(58.0 - 78.9)
	Ages 60-69	53.4	(42.1 - 64.8)
	Ages 70-79	53.2	(42.7 - 63.8)
	Ages 80 and older	28.2	(15.8 - 40.5)

Distribution of patients aged 20 years and older diagnosed with stage IIIB or IV non-small cell lung cancer receiving any chemotherapy by age at diagnosis, 1996-2010

Legend:
- Ages 20 and older
- Ages 20-49
- Ages 50-59
- Ages 60-69
- Ages 70-79
- Ages 80 and older
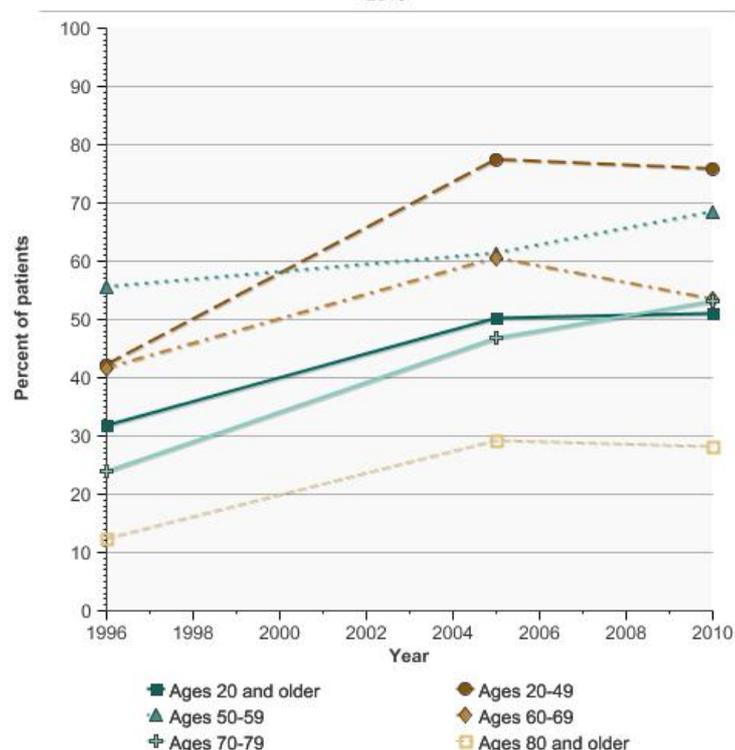
Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are age-adjusted based on the age distribution of lung cancer patients from 2008-2010 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Additional Information on Lung Cancer Treatment
For the public

- Treating Non-small Cell Lung Cancer(http://www.cancer.org/cancer/lungcancer-non-smallcell/detailedguide/non-small-cell-lung-cancer-treating-general-info). American Cancer Society.
- How is Lung Cancer Treated(http://www.lung.org/lung-health-and-diseases/lung-disease-lookup/lung-cancer/diagnosing-and-treating/how-lung-cancer-treated.html). American Lung Association.
- Non-Small Cell Lung Cancer Treatment(http://www.lungcancer.org/find_information/publications/163-lung_cancer_101/269-non-small_cell_lung_cancer_treatment). LungCancer.org.
- Understanding Treatment Options(http://www.lungcanceralliance.org/what-if-i-am-diagnosed/understanding-treatment-options/). Lung Cancer Alliance.
- Non-Small Cell Lung Cancer Treatment (PDQ®). National Cancer Institute.
- What You Need to Know About™ Lung Cancer. National Cancer Institute.
- Non-Small Cell Lung Cancer (NCCN Guidelines for Patients®). National Comprehensive Cancer Network.

For health professionals

- Non-Small Cell Lung Cancer Treatment (PDQ®). National Cancer Institute.

For smokers

- Stay Away from Tobacco. American Cancer Society.
- Free Help to Quit Smoking(http://www.cancer.gov/about-cancer/causes-prevention/risk/tobacco). National Cancer Institute.

- Smokefree.gov(http://smokefree.gov). National Cancer Institute.

Statistics

- SEER Cancer Statistics Factsheets: Lung and Bronchus Cancer, National Cancer Institute(http://seer.cancer.gov/statfacts/html/lungb.html).
- SEER-Medicare Linked Database, National Cancer Institute(http://healthcaredelivery.cancer.gov/seermedicare/).
- SEER Patterns of Care/Quality of Care Studies, National Cancer Institute(http://appliedresearch.cancer.gov/poc/).

Ovarian Cancer Treatment

Last Updated:
<u>January 2017</u>

Introduction

Ovarian cancer forms in the tissues of the ovary (one of a pair of female reproductive glands in which the ova, or eggs, are formed). Most ovarian cancers are either ovarian epithelial carcinomas (cancer that begins in the cells on the surface of the ovary) or malignant germ cell tumors (cancer that begins in egg cells). Cancerous ovarian tumors can also begin in stromal cells, which release hormones and connect the different structures of the ovaries, though this is less common.

The main treatments for ovarian cancer are surgery, chemotherapy, hormone therapy, targeted therapy, and radiation therapy. Often, two or more different treatments are used, though surgery is the main initial treatment for most ovarian cancers. Studies in early stage ovarian cancer have shown an increase in overall survival with the administration of chemotherapy, which is used in the majority of cases as a follow-up therapy to surgery.

Guidelines suggest intraperitoneal (IP) chemotherapy for later stage ovarian cancer. IP chemotherapy involves injecting a concentrated dose of drugs into the cancer cells in the abdominal cavity through a thin tube. In a study of women with advanced ovarian cancer, those receiving IP chemotherapy lived longer than those getting regular chemo, but the side effects were often more severe.

Measure

Percentage of individuals diagnosed with ovarian cancer who received chemotherapy by stage of diagnosis.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including ovarian cancer treatment.

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

Data Source

SEER Patterns of Care/Quality of Care Studies, National Cancer Institute,1991-2002.

Trends and Most Recent Estimates

Stage I and II Diagnoses

Percent of patients aged 20 years and older diagnosed with stage I or II ovarian cancer by type of treatment received, 1991-2011

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011)	
		Percent of patients	Confidence Interval
	Chemotherapy	63.5	(59.5 - 67.4)
	Hormone therapy	0.7	(0.1 - 1.2)

Percent of patients aged 20 years and older diagnosed with stage I or II ovarian cancer by type of treatment received, 1991-2011
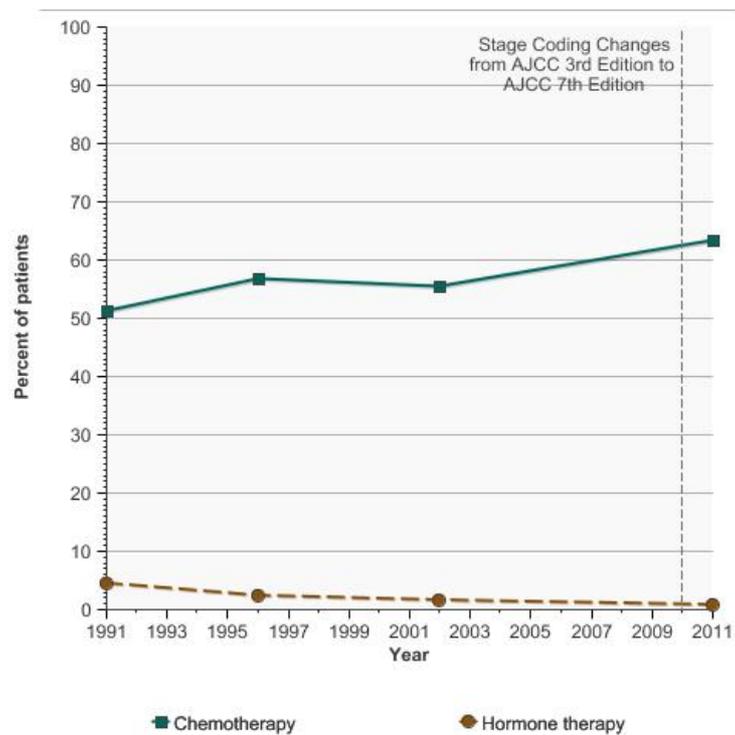
Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are age-adjusted based on the age distribution of ovarian cancer patients from 2010-2012 in the SEER 17 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Stage III and IV Diagnoses

Percent of patients aged 20 years and older diagnosed with stage III or IV ovarian cancer by type of treatment received, 1991-2011
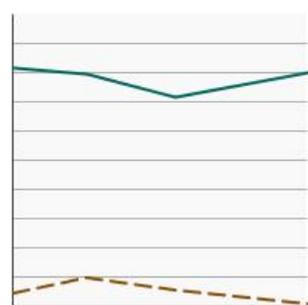
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2011)	
		Percent of patients	Confidence Interval
	Chemotherapy	79.9	(77.2 - 82.5)
	Hormone therapy	0.6	(0.2 - 1.0)

Percent of patients aged 20 years and older diagnosed with stage III or IV ovarian cancer by type of treatment received, 1991-2011
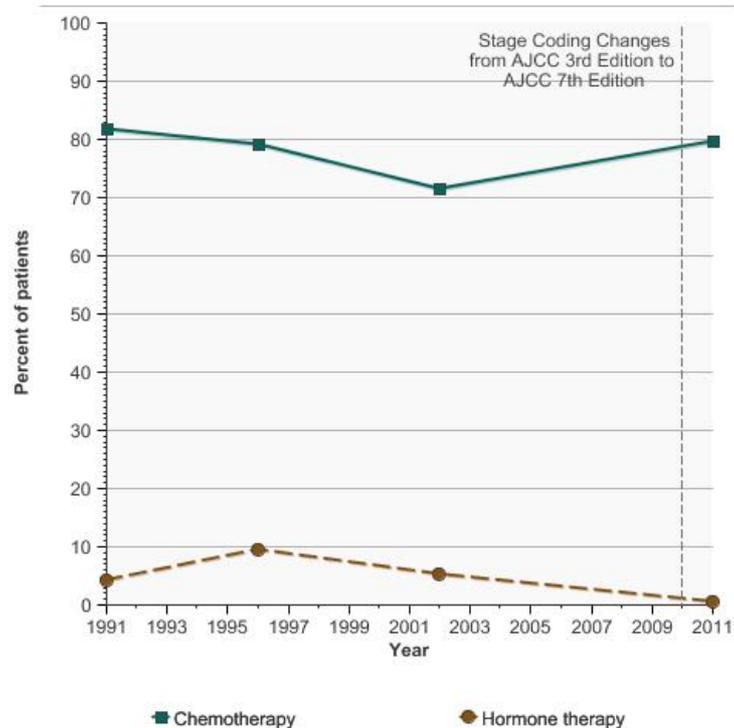
Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are age-adjusted based on the age distribution of ovarian cancer patients from 2010-2012 in the SEER 17 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Distribution of Chemotherapeutic Agents

Distribution of chemotherapeutic agents given to ovarian cancer patients aged 20 years and older by type of treatment received, 2011

Overview graph	Chemotherapy agent received	Stage I and II		Stage III and IV	
		Percent of patients receiving agent	Confidence Interval	Percent of patients receiving agent	Confidence Interval
	Carboplatin/Cisplatin	61.1	(56.9 - 65.1)	77.5	(74.5 - 80.2)
	Cyclophosphamide (Cytoxan)	0.1	(0.0 - 0.4)	0.6	(0.3 - 1.0)
	Paclitaxol (Taxol)	53.3	(49.1 - 57.5)	72.6	(69.5 - 75.4)
	Other Chemo Agents	15.7	(12.9 - 19.1)	30.7	(27.7 - 34.0)
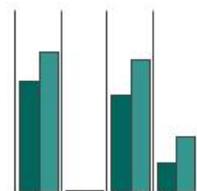
Distribution of chemotherapeutic agents given to ovarian cancer patients aged 20 years and older by type of treatment received, 2011
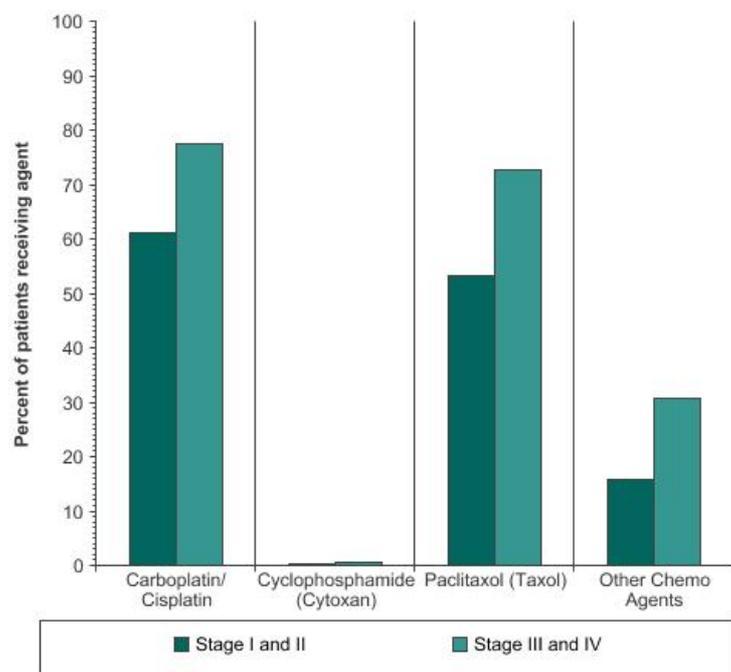
Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are not age-adjusted.

Additional Information on Ovarian Cancer Treatment
For the public

- Treating Ovarian Cancer(http://www.cancer.org/cancer/ovariancancer/detailedguide/ovarian-cancer-treating-general-info). American Cancer Society.
- Ovarian Cancer(http://www.foundationforwomenscancer.org/types-of-gynecologic-cancers/ovarian/). Foundation for Women's Cancer.
- Ovarian Cancer(http://www.cancer.gov/types/ovarian). National Cancer Institute.
- Ovarian Cancer (NCCN Guidelines for Patients®)(http://www.nccn.org/patients/guidelines/ovarian/index.html). National Comprehensive Cancer Network.
- Treatment Options(http://www.ovarian.org/treatment_options.php). National Ovarian Cancer Coalition.
- Treatment(http://www.ovariancancer.org/about/treatment/). Ovarian Cancer National Alliance.

For health professionals

- Ovarian Epithelial Cancer Treatment (PDQ®)(http://www.cancer.gov/types/ovarian/hp/ovarian-epithelial-treatment-pdq). National Cancer Institute.
- Ovarian Germ Cell Tumors Treatment (PDQ®)(http://www.cancer.gov/types/ovarian/hp/ovarian-germ-cell-treatment-pdq). National Cancer Institute.
- Ovarian Low Malignant Potential Tumors Treatment (PDQ®)(http://www.cancer.gov/types/ovarian/hp/ovarian-low-malignant-treatment-pdq). National Cancer Institute.

Statistics

- SEER Cancer Statistics Factsheets: Ovary Cancer, National Cancer Institute(http://seer.cancer.gov/statfacts/html/ovary.html).
- SEER-Medicare Linked Database, National Cancer Institute(http://healthcaredelivery.cancer.gov/seermedicare/).
- SEER Patterns of Care/Quality of Care Studies, National Cancer Institute(http://appliedresearch.cancer.gov/poc/).

Prostate Cancer Treatment

Last Updated:
March 2015

Introduction

Prostate cancer forms in tissues of the prostate (a gland in the male reproductive system found below the bladder and in front of the rectum). This disease, which usually occurs in older men and grows relatively slowly, is the most common cancer among men (after skin cancer), but can often be treated successfully.

Standard treatment options may include active surveillance, surgery, radiation therapy, hormonal therapy, chemotherapy, biologic therapy, bisphosphonate therapy, and targeted therapy. These treatments are generally used one at a time, although in some cases they may be combined.

Hormonal therapy is also called *androgen deprivation therapy* or *androgen suppression therapy*. Its goal is to reduce levels of male hormones, called *androgens*, in the body, and to prevent them from reaching prostate cancer cells. This type of therapy can slow prostate cancer cell growth, which is stimulated by androgens.

The use of hormonal therapy for prostate cancer typically increases with the age of the patient, and it is currently also recommended for men with a high risk of recurrence. It may also be used for men who are not able to have surgery or radiation, and for men who can't be cured by these treatments because the cancer has already spread beyond the prostate gland. It is increasingly being used before, during, and after local treatment as well.

Measure

Hormonal therapy following the diagnosis of prostate cancer.

Healthy People 2020 Target

- There are no Healthy People 2020 targets for cancer treatment, including prostate cancer treatment.

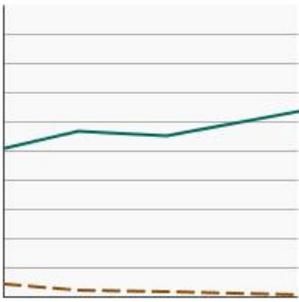Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source

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

Trends and Most Recent Estimates

Hormonal Therapy

Percent of men aged 40 years and older with localized/regional prostate cancer and receiving hormonal therapy by age at diagnosis, 1998-2008

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent of patients	95% Confidence Interval
	Ages 40 and older	21.1	(17.6 - 24.5)
	Ages 40-49	7.7	(3.4 - 12.1)
	Ages 50-59	10.4	(6.9 - 13.9)
	Ages 60-69	17.7	(10.9 - 24.5)
	Ages 70-79	24.7	(18.1 - 31.3)
	Ages 80 and older	53.0	(43.1 - 63.0)
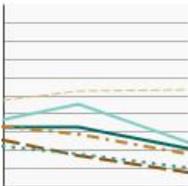
Percent of men aged 40 years and older with localized/regional prostate cancer and receiving hormonal therapy by age at diagnosis, 1998-2008

Legend: Ages 40 and older; Ages 40-49; Ages 50-59; Ages 60-69; Ages 70-79; Ages 80 and older
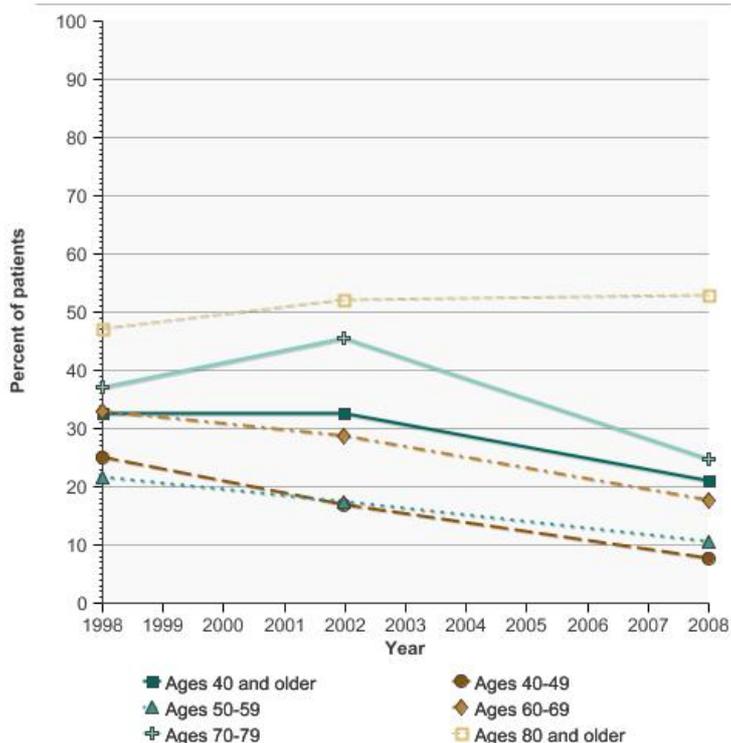
Source: SEER Patterns of Care/Quality of Care Studies, National Cancer Institute.
Data are age-adjusted based on the age distribution of prostate cancer patients from 2008-2010 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Additional Information on Prostate Cancer Treatment
**For the public**

- Treating Prostate Cancer(http://www.cancer.org/cancer/prostatecancer/detailedguide/prostate-cancer-treating-general-info). American Cancer Society.
- Prostate Cancer Treatment (PDQ®). National Cancer Institute.
- What You Need to Know About™ Prostate Cancer. National Cancer Institute.
- Prostate Cancer (NCCN Guidelines for Patients®)(http://www.nccn.org/patients/guidelines/prostate/). National Comprehensive Cancer Network.
- Treatment Options. Prostate Cancer Foundation.
- Treatment Options(http://www.ustoo.org/Treatment-Options). Us TOO International Prostate Cancer Education & Support Network.

For health professionals

- Prostate Cancer Treatment (PDQ®). National Cancer Institute.

Statistics

- SEER Cancer Statistics Factsheets: Prostate Cancer, National Cancer Institute(http://seer.cancer.gov/statfacts/html/prost.html).
- SEER-Medicare Linked Database, National Cancer Institute(http://healthcaredelivery.cancer.gov/seermedicare/).
- SEER Patterns of Care/Quality of Care Studies, National Cancer Institute(http://appliedresearch.cancer.gov/poc/).

Scientific reports

- Initial hormonal management of androgen-sensitive metastatic, recurrent, or progressive prostate cancer: 2006 update of an American Society of Clinical Oncology practice guideline(http://www.ncbi.nlm.nih.gov/pubmed/17404365). Loblaw DA, Virgo KS, Nam R, et al. Journal of Clinical Oncology

2004;22(20):4109–4118.

- NIH-funded study shows increased survival in men with metastatic prostate cancer who receive chemotherapy when starting hormone therapy. National Cancer Institute. December 2013.
- Immediate versus deferred hormonal treatment for patients with prostate cancer who are not suitable for curative local treatment: results of the randomized trial SAKK 08/88(http://www.ncbi.nlm.nih.gov/pubmed/15483020). Studer UE, Hauri D, Hanselmann S, et al. Journal of Clinical Oncology 2004;22(20):4109–4118.
- Immediate or deferred androgen deprivation for patients with prostate cancer not suitable for local treatment with curative intent: European Organization for Research and Treatment of Cancer Trial 30891(http://www.ncbi.nlm.nih.gov/pubmed/16622261). Studer UE, Whelan P, Albrecht W, et al. Journal of Clinical Oncology 2006;24(12):1868–1876.

Life After Cancer

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

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

- Financial Burden of Cancer Care
- Survival
- Cancer Survivors and Smoking

- Cancer Survivors and Obesity
- Cancer Survivors and Physical Activity

Financial Burden of Cancer Care

Last Updated:
January 2017

Introduction

The financial costs of cancer care are a burden to people diagnosed with cancer, their families, and society as a whole. National expenditures associated with cancer have been steadily increasing in the United States. Care for cancer survivors accounted for an estimated 137.4 billion in medical care expenditures in the United States in 2010. In the near future, cancer costs may increase at a faster rate than overall medical expenditures. As the population ages, cancer prevalence and the absolute number of people treated for cancer will increase even if cancer incidence rates remain constant or decrease somewhat. Costs are also likely to increase as new, more advanced, and more expensive treatments are adopted as standards of care.

The national economic burden of cancer care in 2016 is shown below for bladder, brain, female breast, cervical, colorectal, esophageal, head and neck, kidney, lung, ovarian, pancreatic, prostate, stomach, and uterine cancers, as well as lymphoma, leukemia, and melanoma. All other cancers are combined as a single category.

National expenditures were largest for lymphoma and female breast, colorectal, prostate, and lung cancers, reflecting prevalence of disease, treatment patterns, and costs for different types of care.

Measure

Estimates of national expenditures for cancer care.

Healthy People 2020 Target

- There is no Healthy People 2020 target for the financial burden of cancer care.

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

Data Source

Bradley CJ, Yabroff KR, Dahman B, Feuer EJ, Mariotto A, Brown ML. Productivity costs of cancer mortality in the United States: 2000-2020. J Natl Cancer Inst 2008; 100: 1763-70.

Mariotto AB, Yabroff KR, Shao Y, Feuer EJ, Brown ML. Projections of the cost of cancer care in the United States: 2010–2020. J Natl Cancer Inst 2011;103(2): 117–28.

Warren, JL, Yabroff KR, Meekins A, Topor M, Lamont E, Brown ML. Evaluation of trends in the cost of initial cancer treatment. J Natl Cancer Inst 2008; 100: 888-897.

Trends and Most Recent Estimates
Cost of Cancer Care

By Cancer Site

Estimates of national expenditures for cancer care in 2016 (in billions of dollars) by cancer site

Overview graph	Cancer Site	Expenditures(billion)
	Female Breast	18.9
	Colorectal	15.9
	Prostate	14.3
	Lymphoma	14.0
	Lung	13.6
	Leukemia	6.3
	Ovary	5.7
	Brain	5.1
	Kidney	4.6
	Bladder	4.5
	Head and Neck	4.0
	Uterus	2.8
	Melanoma	2.8
	Pancreas	2.6
	Stomach	2.1
	Esophagus	1.6
	Cervix	1.5
	All Other Sites	23.5
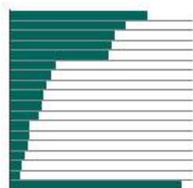
Estimates of national expenditures for cancer care in 2016 (in billions of dollars) by cancer site

Source: Mariotto AB, Yabroff KR, Shao Y, Feuer EJ, Brown ML. Projections of the cost of cancer care in the U.S.: 2010-2020. J Natl Cancer Inst 2011; 103(2):117-28.
Cancer Prevalence and Cost of Care Projections: http://costprojections.cancer.gov/
Cost estimates expressed in 2010 dollars using CMS cost adjusters and adjusted for out-of- pocket expenditures, including co-payments and deductibles
Estimates for the population younger than 65 were developed using ratios of cost in the younger than 65 and older 65 populations from studies conducted in managed care populations.

By Cancer Site and Phase of Care

Estimates of national expenditures for cancer care in 2016 (in billions of dollars) by cancer site and phase of care
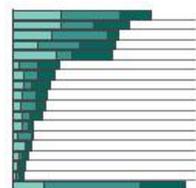
Overview graph	Cancer Site	Last year of life	Continuing care	Initial care
	Female Breast	4.3	8.0	6.5
	Colorectal	4.8	4.4	6.6
	Prostate	1.3	7.6	5.4
	Lymphoma	4.8	5.7	3.5
	Lung	5.6	2.1	5.9
	Leukemia	3.0	2.5	0.9
	Ovary	2.4	1.8	1.5
	Brain	2.5	1.2	1.4
	Kidney	1.3	2.0	1.3
	Bladder	1.2	2.1	1.1
	Head and Neck	1.7	1.1	1.2
	Uterus	0.8	0.8	1.2
	Melanoma	0.4	1.9	0.5
	Pancreas	0.9	0.1	1.6
	Stomach	0.9	0.3	0.9
	Esophagus	0.7	0.2	0.7
	Cervix	0.7	0.4	0.5
	All Other Sites	6.2	13.0	4.3

Estimates of national expenditures for cancer care in 2016 (in billions of dollars) by cancer site and phase of care

Distribution of Cost by Cancer Site

Estimates of the proportion of national expenditures for cancer care in 2016 by cancer site and phase of care

Overview graph	Cancer Site	Last year of life	Continuing care	Initial care
	Female Breast	22.9	42.5	34.6
	Colorectal	30.3	27.9	41.8
	Prostate	9.2	53.2	37.6
	Lymphoma	34.5	40.6	24.9
	Lung	41.4	15.2	43.4
	Leukemia	47.0	39.2	13.8
	Ovary	41.4	32.4	26.2
	Brain	48.8	24.3	27.0
	Kidney	29.1	42.8	28.1
	Bladder	27.7	47.4	24.9
	Head and Neck	42.5	27.8	29.7
	Uterus	28.5	29.7	41.8
	Melanoma	13.3	67.7	19.0
	Pancreas	33.2	5.1	61.8
	Stomach	41.8	12.8	45.5
	Esophagus	46.8	11.9	41.3
	Cervix	44.3	23.5	32.2
	All Other Sites	26.3	55.4	18.3
	All Sites	30.3	38.4	31.3
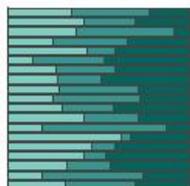
Estimates of the proportion of national expenditures for cancer care in 2016 by cancer site and phase of care

Source: Mariotto AB, Yabroff KR, Shao Y, Feuer EJ, Brown ML. Projections of the cost of cancer care in the U.S.: 2010-2020. J Natl Cancer Inst 2011; 103(2):117-28.
Cancer Prevalence and Cost of Care Projections: http://costprojections.cancer.gov/
Cost estimates expressed in 2010 dollars using CMS cost adjusters and adjusted for out-of-pocket expenditures, including co-payments and deductibles
Estimates for the population younger than 65 were developed using ratios of cost in the younger than 65 and older 65 populations from studies conducted in managed care populations.

Medicare Payments During First Year After Cancer Diagnosis

Percentage of Medicare payments in the first year following diagnosis for cancer care by type of service in 2002

Overview graph	Cancer Site	Cancer Related Surgery	Chemotherapy	Radiation therapy	Other hospitalizations	Other services
	Female Breast	24.6	14.8	11.0	18.3	31.3
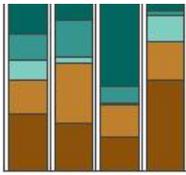
Lung	16.6	20.4	3.3	33.6	26.1
Colorectal	53.1	9.2	0.9	18.4	18.4
Prostate	11.8	2.3	14.4	21.4	50.1

Percentage of Medicare payments in the first year following diagnosis for cancer care by type of service in 2002
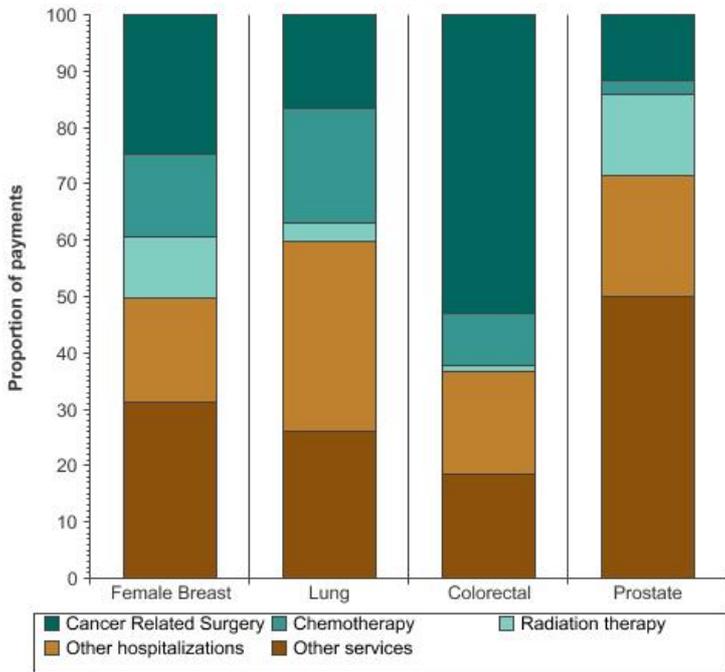
Source: Warren JL, Yabroff KR, Meekins A, Topor M, Lamont E, Brown ML. Evaluation of trends in the cost of initial cancer treatment. J Natl Cancer Inst 2008;100:888-897.

Lost Productivity Due to Cancer Diagnosis

Lost productivity due to cancer deaths in the United States among adults aged 20 years and older, 2005

Overview graph	Cancer Site	Present value of lifetime earnings (billion)
	Lung and bronchus	36.1
	Female breast	12.1
	Colon and rectum	10.7
	Pancreas	6.6
	Brain and ONS	5.7
	Leukemia	5.7
	Non-Hodgkin lymphoma	5.5
	Liver and intrahepatic bile duct	4.4
	Kidney and renal pelvis	3.4
	Head and neck	3.4
	Prostate	3.3
	Stomach	3.2
	Melanoma of the skin	3.2
	Ovary	2.8
	Cervix uteri	1.8
	Urinary bladder	1.8
	Corpus and uterus	1.0
	Hodgkin lymphoma	0.8

Testis	0.5
All other sites	22.5

Lost productivity due to cancer deaths in the United States among adults aged 20 years and older, 2005

Site	Present value of lifetime earnings (billion)
Lung and bronchus	36.1
Female breast	12.1
Colon and rectum	10.7
Pancreas	6.6
Brain and ONS	5.7
Leukemia	5.7
Non-Hodgkin lymphoma	5.5
Liver and intrahepatic bile duct	4.4
Kidney and renal pelvis	3.4
Head and neck	3.4
Prostate	3.3
Stomach	3.2
Melanoma of the skin	3.2
Ovary	2.8
Cervix uteri	1.8
Urinary bladder	1.8
Corpus and uterus	1.0
Hodgkin lymphoma	0.8
Testis	0.5
All other sites	22.5
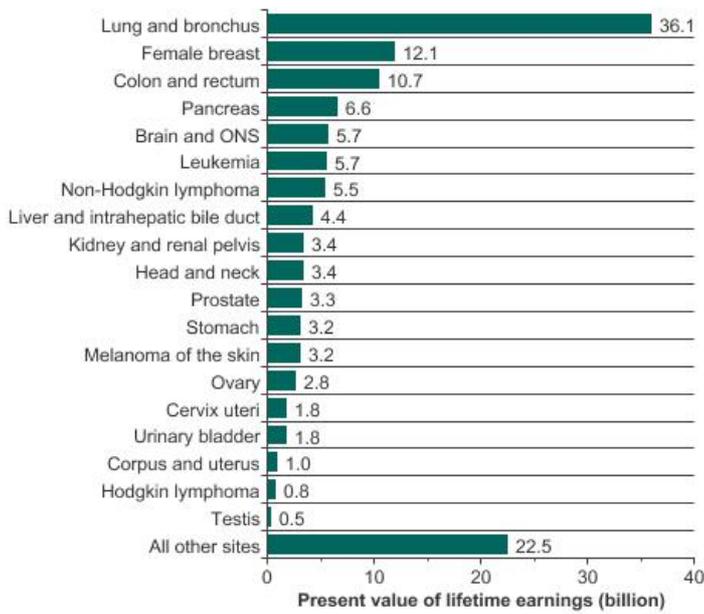
Source: Bradley CJ, Yabroff KR, Dahman B, Feuer EJ, Mariotto A, Brown ML. Productivity costs of cancer mortality in the United States: 2000-2020. J Natl Cancer Inst 2008;100: 1763-70.

Additional Information on the Financial Burden of Cancer Care
Scientific reports

- Projections of the cost of cancer care in the United States: 2010–2020(http://jnci.oxfordjournals.org/content/early/2011/01/12/jnci.djq495.full). Mariotto AB, Yabroff KR, Shao Y, Feuer EJ, Brown ML. J Natl Cancer Inst 2011;103(2): 117–28.
- Evaluation of trends in the cost of initial cancer treatment(http://www.ncbi.nlm.nih.gov/pubmed/18544740). Warren, JL, Yabroff KR, Meekins A, Topor M, Lamont E, Brown ML. J Natl Cancer Inst 2008; 100: 888-897.
- Productivity costs of cancer mortality in the United States: 2000-2020(http://www.ncbi.nlm.nih.gov/pubmed/?term=Productivity+costs+of+cancer+mortality+in+the+United+States%3A+2000-2020). Bradley CJ, Yabroff KR, Dahman B, Feuer EJ, Mariotto A, Brown ML. J Natl Cancer Inst 2008; 100: 1763-70.

Survival

Last Updated:
January 2017

Introduction

Advances in the ways that cancer is diagnosed and treated have increased the number of people who live disease-free for long periods of time. This report looks at trends in 5-year survival rates for cancer, the time period traditionally associated with good prognosis. However, some people will experience a recurrence of their cancer after 5 years.

Measure

Five-year relative cancer survival: The proportion of patients surviving cancer 5 years after diagnosis calculated in the absence of other causes of death. This percentage is the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors.

Five-year cause specific survival: The proportion of patients surviving a specified cause of death 5 years after diagnosis. Deaths from other causes are not considered cause-specific deaths.

This report shows survival for cancers of the prostate, female breast, colon/rectum, and lung/bronchus. It also shows survival for all cancers combined.

Healthy People 2020 Target

- Increase the proportion of cancer survivors who are living 5 years or longer after diagnosis to 71.7 percent.

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

Data Source

SEER Program, National Cancer Institute, 1975–2008 with follow-up through 2013.

Trends and Most Recent Estimates
All Cancer Sites Combined

By Sex

5-year relative survival for all cancer sites combined by sex, 1975-2008
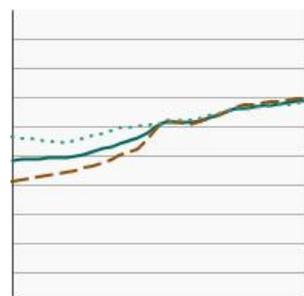
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	**Confidence Interval**
	Both Sexes	68.9	(68.6 - 69.2)
	Male	69.4	(68.9 - 69.9)
	Female	68.3	(67.9 - 68.8)

5-year relative survival for all cancer sites combined by sex, 1975-2008
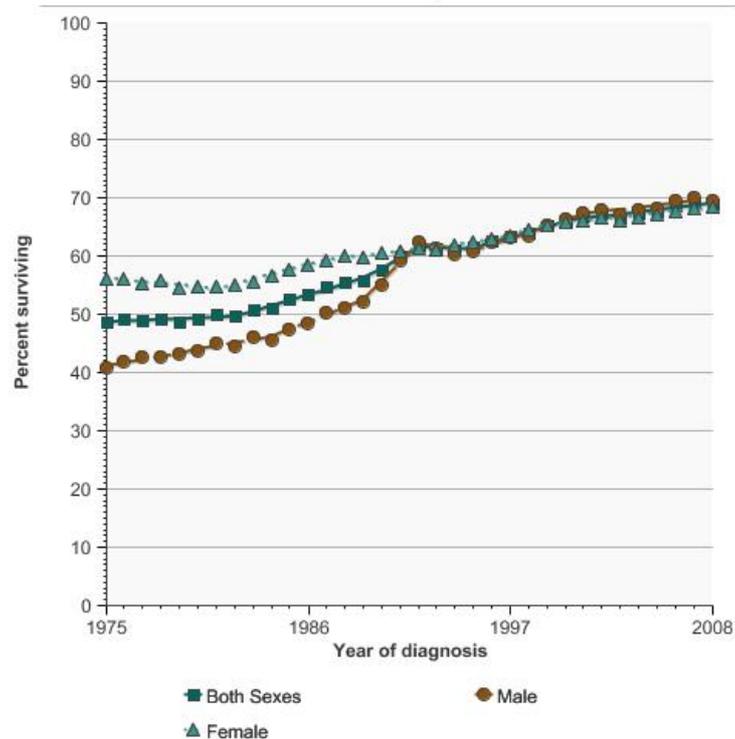
Both Sexes   Male

Female

Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

By Race/Ethnicity

5-year cause-specific survival for all cancer sites combined by race/ethnicity, 1992-2008
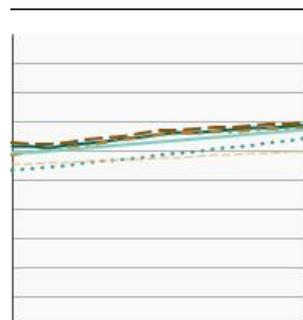
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	All Races	68.9	(68.7 - 69.2)
	White	69.6	(69.3 - 69.8)
	Black	63.9	(63.1 - 64.7)
	Hispanic	68.3	(67.5 - 69.0)
	Asian/Pacific Islander	66.9	(66.1 - 67.7)
	American Indian/Alaska Native	57.4	(54.2 - 60.6)

5-year cause-specific survival for all cancer sites combined by race/ethnicity, 1992-2008
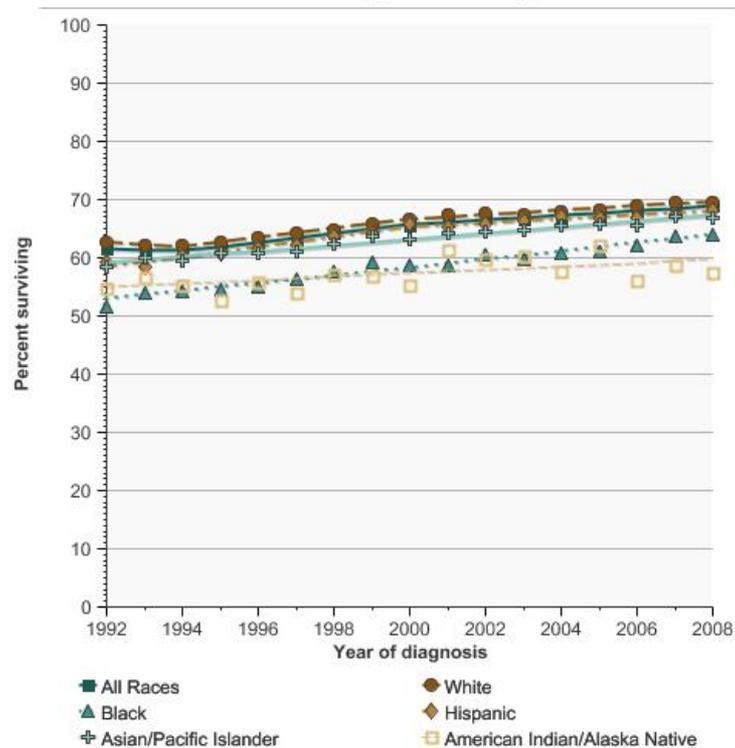
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html). Data are not age-adjusted.

Top Cancer Sites

Comparison of Top Cancer Sites

5-year relative survival for the most common cancers, 1975-2008
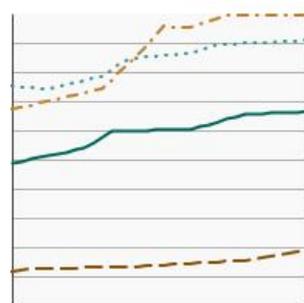
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	Colon and Rectum	67.2	(66.1 - 68.4)
	Lung and Bronchus	18.7	(18.0 - 19.5)
	Female Breast	90.6	(89.9 - 91.2)
	Prostate	99.1	(98.7 - 99.6)

5-year relative survival for the most common cancers, 1975-2008
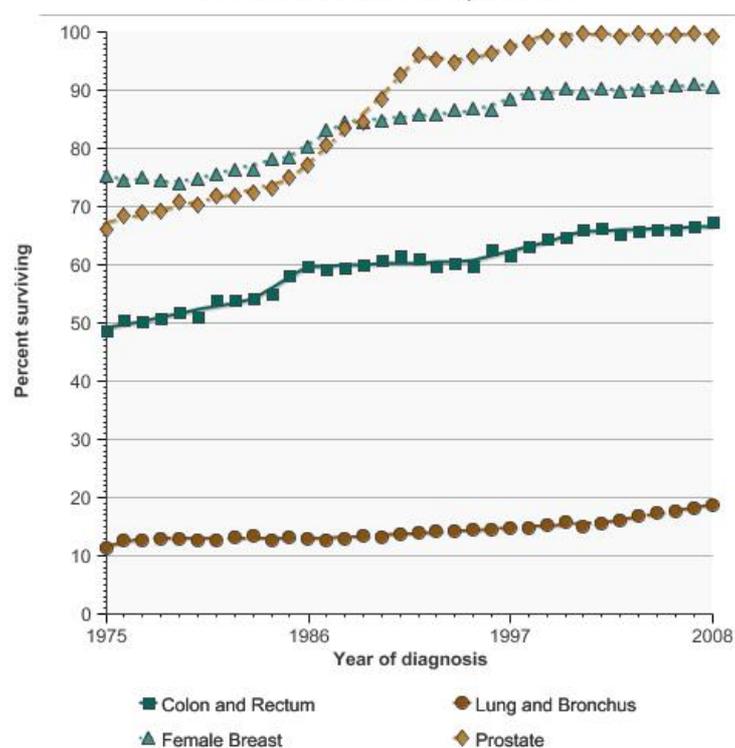
Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Colon and Rectum Cancer by Sex

5-year relative survival for colon and rectum cancer by sex, 1975-2008
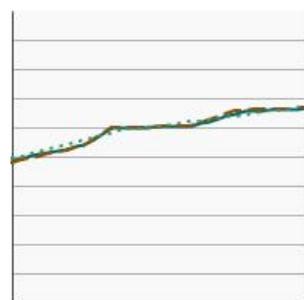
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	Both Sexes	67.2	(66.1 - 68.4)
	Male	67.5	(65.9 - 69.1)
	Female	67.0	(65.4 - 68.6)

5-year relative survival for colon and rectum cancer by sex, 1975-2008
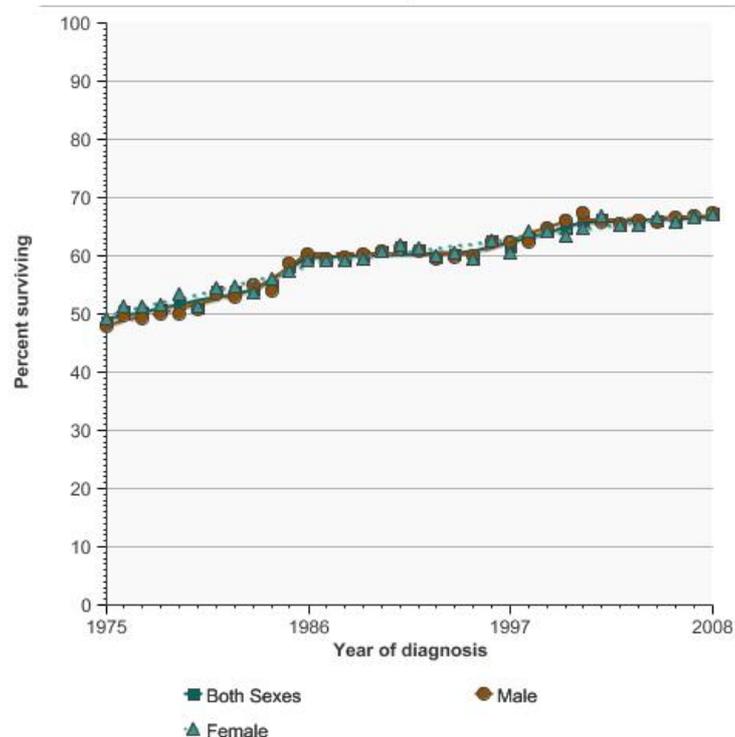
Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Colon and Rectum Cancer by Race/Ethnicity

5-year cause-specific survival for colon and rectum cancer by race/ethnicity, 1992-2008
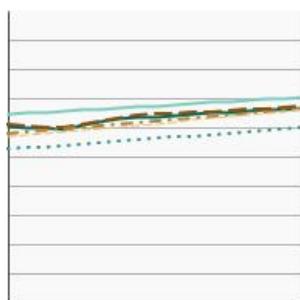
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	All Races	67.2	(66.4 - 68.0)
	White	67.5	(66.6 - 68.4)
	Black	59.9	(57.3 - 62.4)
	Hispanic	66.6	(64.2 - 69.0)
	Asian/Pacific Islander	70.8	(68.5 - 73.0)
	American Indian/Alaska Native	67.7	(58.9 - 76.6)

5-year cause-specific survival for colon and rectum cancer by race/ethnicity, 1992-2008
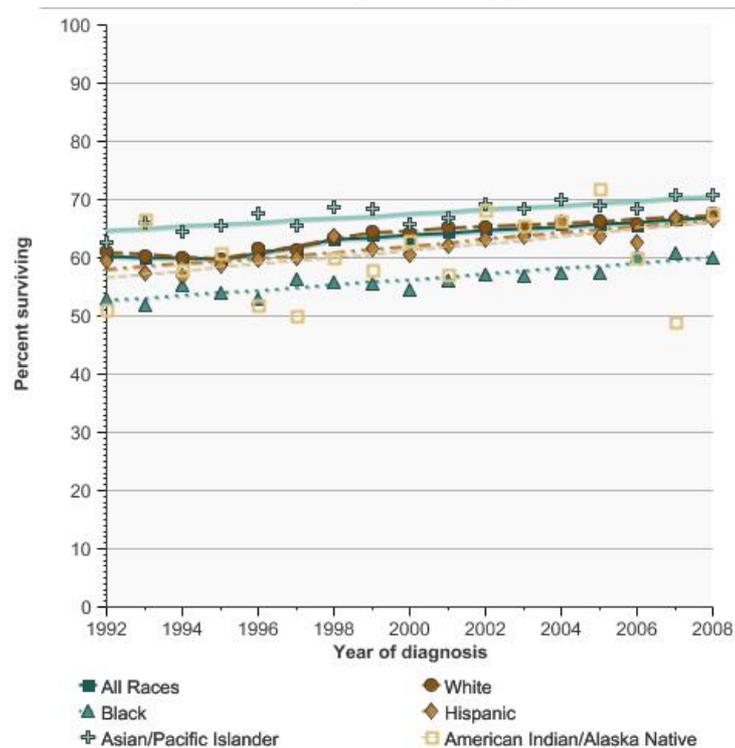
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html). Data are not age-adjusted.

Lung and Bronchus Cancer by Sex

5-year relative survival for lung and bronchus cancer by sex, 1975-2008
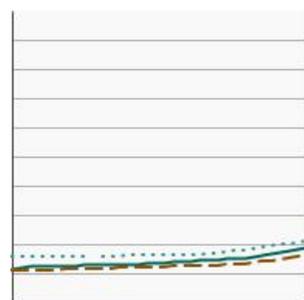
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	Both Sexes	18.7	(18.0 - 19.5)
	Male	16.7	(15.7 - 17.7)
	Female	21.0	(19.8 - 22.1)

5-year relative survival for lung
and bronchus cancer by sex, 1975-2008
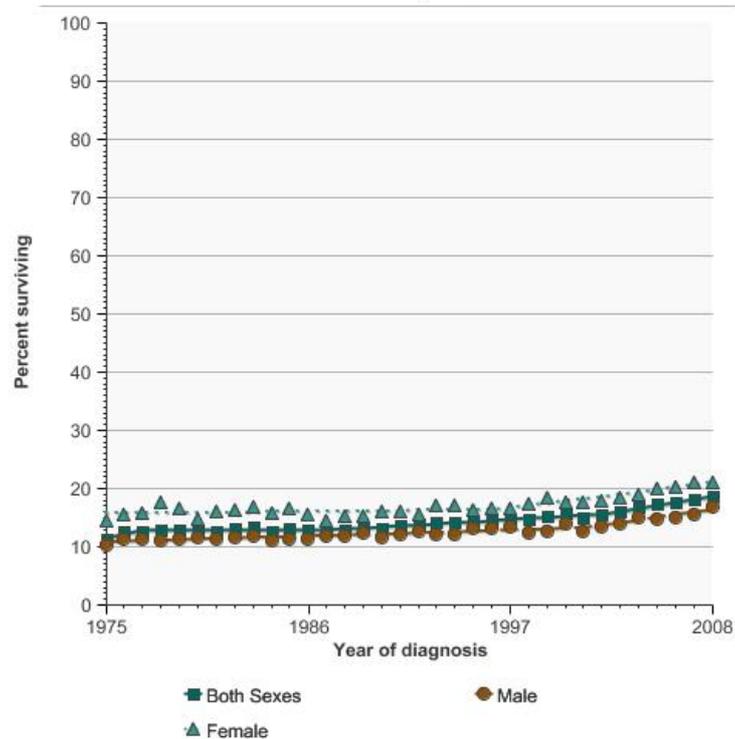
Source: SEER Program, National Cancer Institute. Underlying incidence data are from the
SEER 9 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Lung and Bronchus Cancer by Race/Ethnicity

5-year cause-specific survival for lung and bronchus cancer by race/ethnicity, 1992-2008
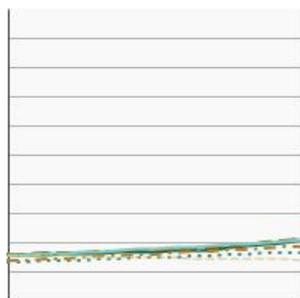
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	All Races	20.9	(20.2 - 21.5)
	White	21.3	(20.5 - 22.0)
	Black	18.5	(16.6 - 20.4)
	Hispanic	20.8	(18.2 - 23.4)
	Asian/Pacific Islander	20.6	(18.4 - 22.7)
	American Indian/Alaska Native	14.7	(7.9 - 21.6)

5-year cause-specific survival for lung and bronchus cancer by race/ethnicity, 1992-2008
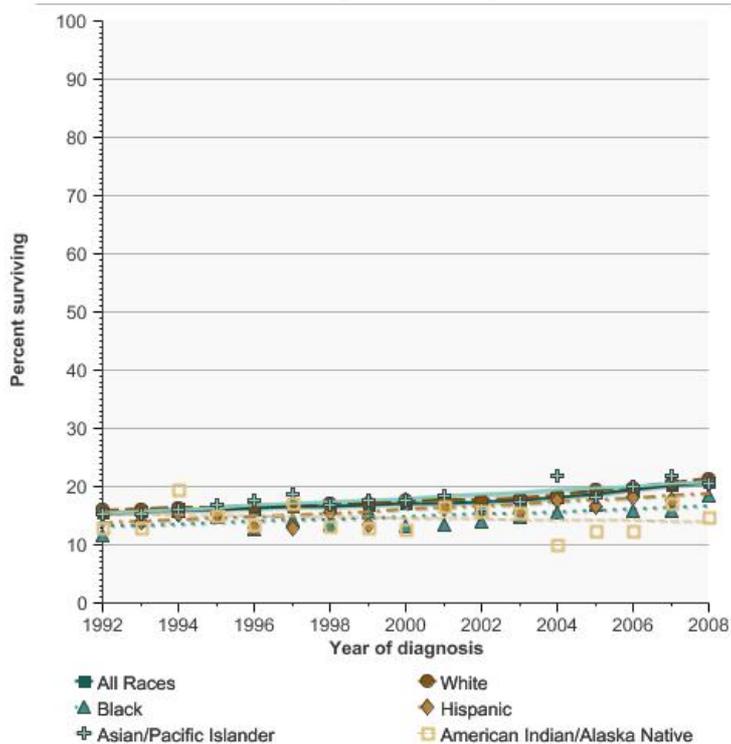
Legend: All Races, White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html). Data are not age-adjusted.

Female Breast Cancer by Race/Ethnicity

5-year cause-specific survival for female breast cancer by race/ethnicity, 1992-2008
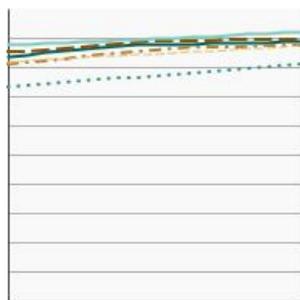
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	All Races	88.7	(88.3 - 89.1)
	White	89.2	(88.8 - 89.7)
	Black	80.9	(79.2 - 82.5)
	Hispanic	87.0	(85.6 - 88.4)
	Asian/Pacific Islander	91.7	(90.6 - 92.8)
	American Indian/Alaska Native	83.7	(77.3 - 90.1)

5-year cause-specific survival for female breast cancer by race/ethnicity, 1992-2008
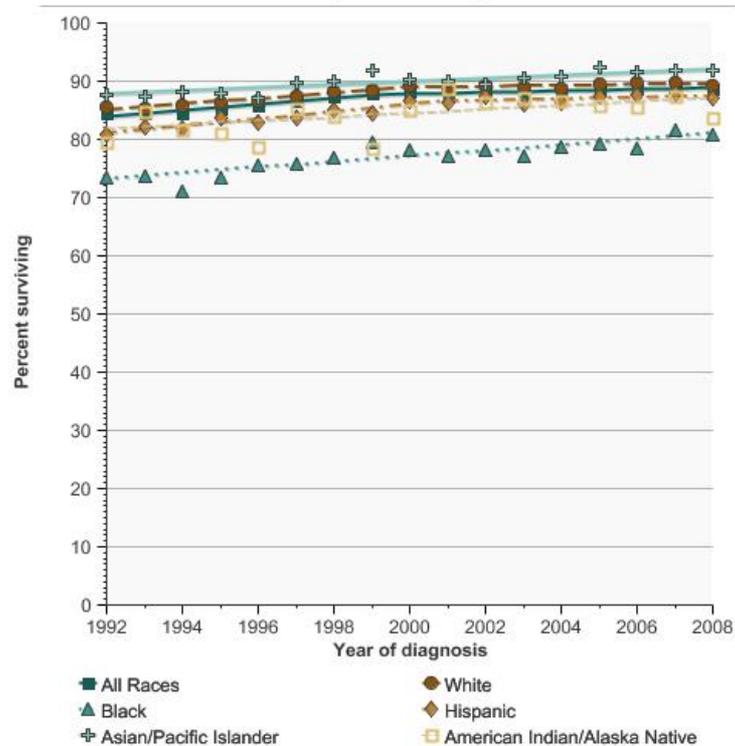
Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html). Data are not age-adjusted.

Prostate Cancer by Race/Ethnicity

5-year cause-specific survival for prostate cancer by race/ethnicity, 1992-2008
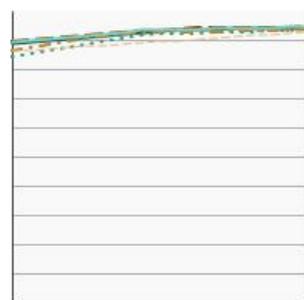
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2008)	
		Percent surviving	Confidence Interval
	All Races	94.5	(94.2 - 94.7)
	White	94.4	(94.1 - 94.8)
	Black	94.1	(93.3 - 94.9)
	Hispanic	93.6	(92.6 - 94.6)
	Asian/Pacific Islander	94.3	(93.2 - 95.4)
	American Indian/Alaska Native	94.0	(88.9 - 99.1)

5-year cause-specific survival for prostate cancer by race/ethnicity, 1992-2008
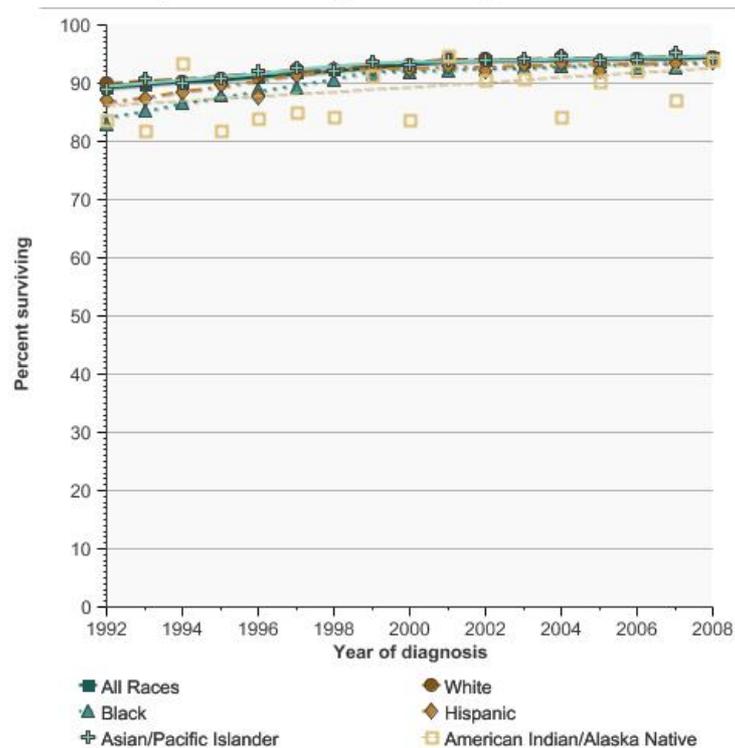
Legend:
- All Races
- Black
- Asian/Pacific Islander
- White
- Hispanic
- American Indian/Alaska Native

Source: SEER Program, National Cancer Institute. Underlying incidence data are from the SEER 13 areas (http://seer.cancer.gov/registries/terms.html).
Data are not age-adjusted.

Additional Information on Survival Statistics

- American Cancer Society – Cancer Facts & Figures 2016(http://www.cancer.org/research/cancerfactsstatistics/cancerfactsfigures2016/index)
- SEER Cancer Statistics Review, National Cancer Institute.
- SEER Fast Stats: An interactive tool for access to SEER cancer statistics. Surveillance Research Program, National Cancer Institute.

Cancer Survivors and Smoking

Last Updated:
January 2017

Introduction

Despite their increased risk for chronic health conditions and premature death, many cancer survivors continue to smoke after their diagnosis. Young survivors (those younger than age 40) may be at particular risk for smoking. To enhance the length and health-related quality of their lives, efforts are needed to identify these individuals and provide them with evidence-based interventions to help them quit smoking and remain tobacco free.

As the population of cancer survivors increases and their expected time of survival lengthens, the health behaviors of these individuals is becoming an important focus of attention. Adoption or maintenance of healthy lifestyles after cancer has the potential to reduce both cancer- and non-cancer-related morbidity. In some cases, lifestyle choices such as smoking may also affect survival. Tracking these behaviors permits evaluation of how well cancer control efforts are working to reduce unnecessary disability and death among those with a history of cancer.

Examination of survivors' smoking status was first added to the Cancer Trends Progress Report in the 2009–2010 issue. We update these numbers through 2015 here.

Measure

Rates of smoking among cancer survivors are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked whether they were a current smoker.

Healthy People 2020 Target

- There is no Healthy People 2020 target for smoking rates among cancer survivors, though it does include a national objective to increase the mental and physical health-related quality of life of cancer survivors. However, it is reasonable to set this at the goal determined for the general population, which is to decrease to 12 percent the proportion of people who smoke.

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2015.

Trends and Most Recent Estimates

By Sex

Percentage of cancer survivors aged 18 years and older who were current cigarette smokers by sex, 1992-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of cancer survivors	**Confidence Interval**
	Both Sexes	12.0	(10.6 - 13.5)
	Male	12.9	(10.0 - 15.8)
	Female	11.5	(9.8 - 13.2)

Percentage of cancer survivors aged 18 years and older who were current cigarette smokers by sex, 1992-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted based on the age distribution of cancer patients diagnosed in 2000 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

By Age

Percentage of cancer survivors aged 18 years and older who were current cigarette smokers by age, 1992-2015

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of cancer survivors	Confidence Interval
	Ages 18-44	29.2	(21.9 - 36.5)
	Ages 45-64	16.6	(13.4 - 19.8)
	Ages 65 and older	6.6	(5.0 - 8.2)

Percentage of cancer survivors aged 18 years and older who were current cigarette smokers by age, 1992-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted based on the age distribution of cancer patients diagnosed in 2000 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.
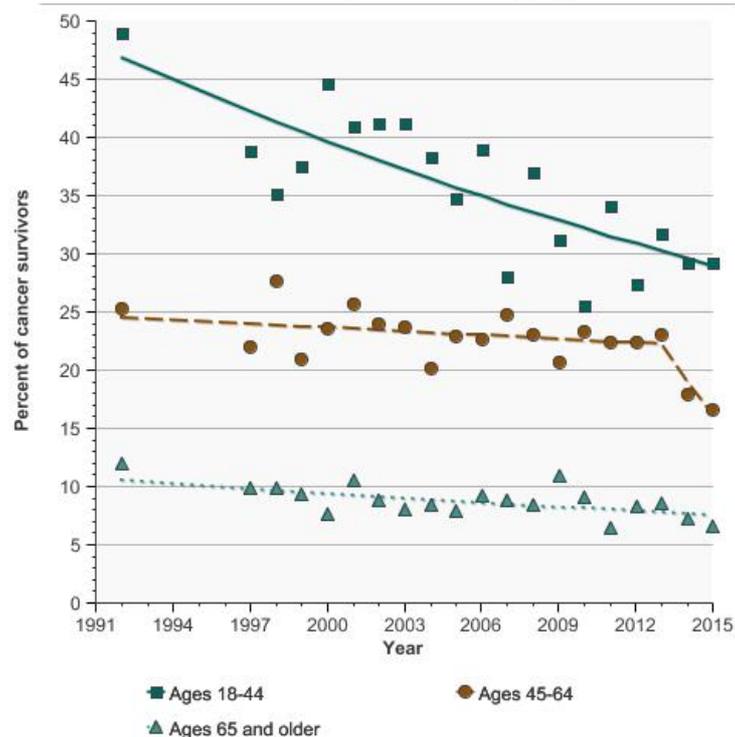
Compared to Remaining U.S. Population

Percentage of current smokers among cancer survivors and remaining U.S. population by age : 2006-2015

Overview graph	Age Group	Cancer Survivor		Remaining U.S. Population	
		Percent of population	Confidence Interval	Percent of population	Confidence Interval
	Ages 18-44	33.3	(30.8 - 35.9)	20.9	(20.5 - 21.3)
	Ages 45-64	21.5	(20.3 - 22.7)	20.3	(19.9 - 20.7)
	Ages 65 and older	8.2	(7.6 - 8.9)	9.1	(8.7 - 9.5)

Percentage of current smokers among cancer survivors and remaining U.S. population by age : 2006-2015
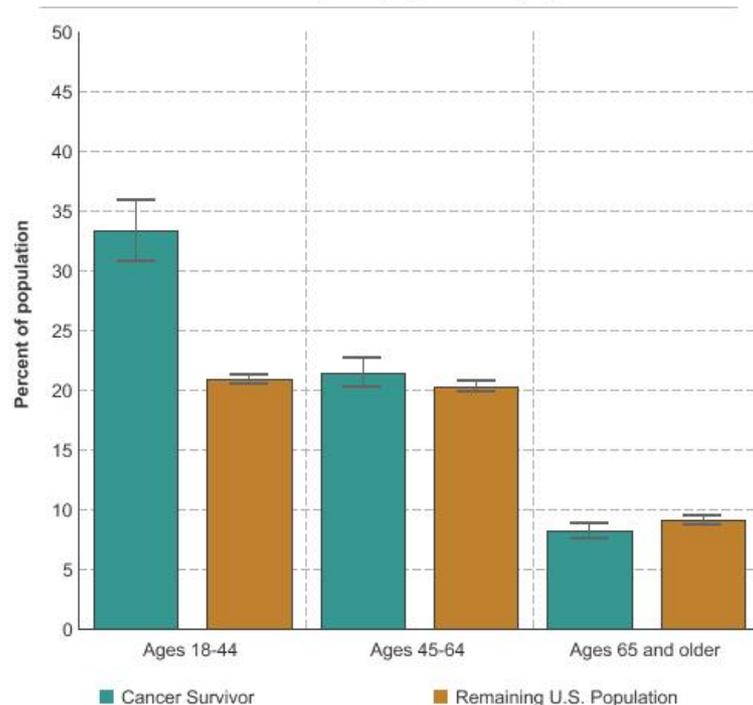
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+. Analysis uses the 2000 Standard Population.

Additional Information on Cancer Survivors and Smoking
For the public

- Smoking in Cancer Care (PDQ®). National Cancer Institute.

For health professionals

- Smoking in Cancer Care (PDQ®). National Cancer Institute.

Scientific reports

- Health behaviors of cancer survivors: examining opportunities for cancer control intervention(http://jco.ascopubs.org/content/23/34/8884.full). Bellizzi KM, Rowland JH, Jeffery DD, McNeel T. J Clin Oncol 2005;23(34):8884–93.
- Correlates of continued smoking versus cessation among survivors of smoking-related cancers(http://onlinelibrary.wiley.com/doi/10.1002/pon.3077/pdf). Berg CJ, Thomas AN, Mertens AC, Schauer GL, et al. Psycho-Oncology 2013;22:799–806.
- Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life: results from the American Cancer Society's SCS-II(http://jco.ascopubs.org/content/26/13/2198.full). Blanchard CM, Courneya KS, Stein, K. J Clin Oncol 2008;26(13):2198–2204.
- Smoking behaviors among cancer survivors: an observational clinical study(http://jop.ascopubs.org/content/5/1/6.full). Burke L, Miller LA, Saad A, Abraham J. Journal of Oncology Practice 2009;5(1):6–9.
- Promoting health and physical function among cancer survivors: potential for prevention and questions that remain(http://jco.ascopubs.org/content/24/32/5125.full). Demark-Wahnefried W, Pinto BM, Gritz ER. J Clin Oncol 2006;24(32):5125–31.
- Smoking prevention and cessation interventions for cancer survivors. DeMoor JS, Elder K, Emmons KM. Seminars in Oncology Nursing 2008;24(3):180–192.
- Health behaviors influence cancer survival(http://jco.ascopubs.org/content/27/12/1930.full.pdf). Gritz ER, Demark-Wahnefried W. J Clin Oncol 2009;27(12):1930–2.

- Successes and failures of the teachable moment: smoking cessation in cancer patients(http://onlinelibrary.wiley.com/doi/10.1002/cncr.21598/pdf). Gritz ER, Fingeret MC, Vidrine DJ, et al. Cancer 2006;106(1):17–27.
- Tobacco use and cessation for cancer survivors: an overview for clinicians. Karam-Hage M, Cinciripini PM, Gritz ER. CA Cancer J Clin. 2014 Jul-Aug;64(4):272-90. doi: 10.3322/caac.21231. Review.
- Tobacco smoking and the risk of subsequent primary cancer among cancer survivors: a retrospective cohort study(http://annonc.oxfordjournals.org/content/24/10/2699). Tabuchi T, Ito Y, Ioka A, Nakayama T, et al. Annals of Oncology 2013; 24(1):2699–2704.

Statistics

- Healthy People 2020, 2020 Topics & Objectives – Tobacco Use.

For smokers

- www.smokefree.gov/
- http://www.cancer.gov/about-cancer/causes-prevention/risk/tobacco
- http://women.smokefree.gov
- http://smokefree.gov/smokefreetxt/

Cancer Survivors and Obesity

Last Updated:

January 2017

Introduction

Adopting or maintaining a healthy lifestyle after cancer has the potential to reduce both cancer- and non-cancer-related morbidity. Preventing excess body weight and obesity can enhance the length and health-related quality of life of cancer survivors, and it can reduce the risk of developing cancers that have been linked to excess body weight, including colorectal, breast (among women who have gone through menopause), uterine, esophageal, renal cell (kidney), and pancreatic cancer.

As the number of cancer survivors grows and expected survival time increases, the health behaviors of these individuals are becoming an important focus of attention. Examination of survivors and obesity is new to the Cancer Trends Progress Report this year.

Measure

Rates of obesity among cancer survivors are based on the self-reporting of individuals with a cancer history, who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). These weight groups are defined by a measurement called body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared. For most adults, experts consider a BMI of 30 and over to be obese.

Healthy People 2020 Target

Although Healthy People 2020 has no target for obesity among cancer survivors, it does have nutrition and health status targets regarding obesity in the general population, including:

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

There is also a Healthy People 2020 objective to increase the mental and physical health-related quality of life of cancer survivors.

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2015.
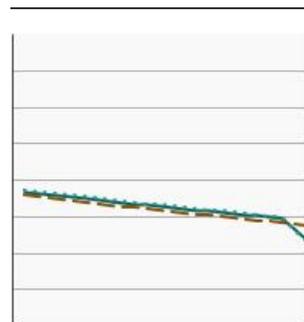
Trends and Most Recent Estimates

Obesity Among Cancer Survivors

Percentage of cancer survivors aged 20 years and older who were obese, 1992-2015
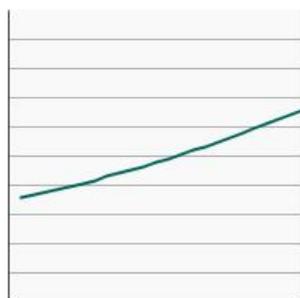
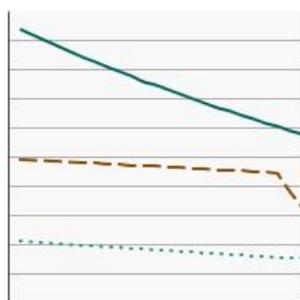| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of cancer survivors	Confidence Interval
	Cancer Survivors	31.4	(29.2 - 33.7)

Percentage of cancer survivors aged 20 years and older who were obese, 1992-2015
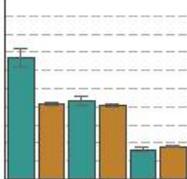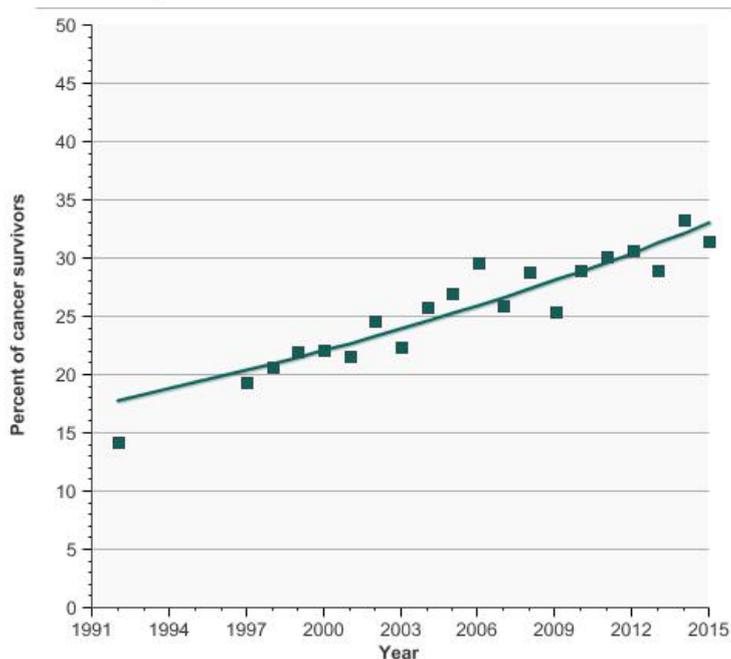
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted based on the age distribution of cancer patients diagnosed in 2000 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 20-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Compared to Remaining U.S. Population

Comparison of cancer survivors and remaining U.S. population for percentage of adults aged 18 years and older who were obese, 2006-2015

Overview graph	Age Group	Cancer Survivor		Remaining U.S. Population	
		Percent of population	Confidence Interval	Percent of population	Confidence Interval
	Ages 18 and older	30.7	(29.4 - 32.1)	27.8	(27.5 - 28.2)

Comparison of cancer survivors and remaining U.S. population for percentage of adults aged 18 years and older who were obese, 2006-2015
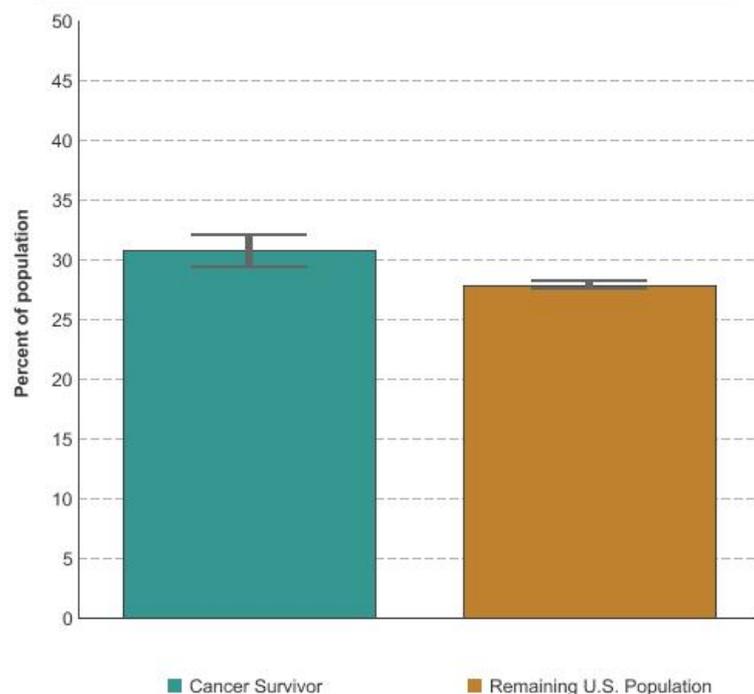
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+. Analysis uses the 2000 Standard Population.

Additional Information on Cancer Survivors and Obesity
For the Public

- Cancer Survivors Network(http://csn.cancer.org/). American Cancer Society.
- Survivorship: During and After Treatment(http://www.cancer.org/treatment/survivorshipduringandaftertreatment/index). American Cancer Society.
- Take Control of Your Weight(http://www.cancer.org/healthy/eathealthygetactive/takecontrolofyourweight). American Cancer Society.
- Nutrition, Physical Activity, and Obesity. Centers for Disease Control and Prevention.
- Overweight and Obesity. Centers for Disease Control and Prevention.
- Physical Activity for a Healthy Weight. Centers for Disease Control and Prevention.
- Body Mass Index Table. National Heart, Lung, and Blood Institute.
- How Are Overweight and Obesity Treated? National Heart, Lung, and Blood Institute.
- Journey Forward(http://www.journeyforward.org/).
- Facing Forward: Life After Cancer Treatment. National Cancer Institute.
- Health and Well-Being After Cancer. National Cancer Institute, Office of Cancer Survivorship.
- Living Beyond Cancer(http://www.canceradvocacy.org/resources/cancer-survival-toolbox/special-topics/living-beyond-cancer/). National Coalition for Cancer Survivorship.

For health professionals

- Screening for and Management of Obesity in Adults (June 2012)(http://www.uspreventiveservicestaskforce.org/uspstf/uspsobes.htm). U.S. Preventive Services Task Force.
- Screening for Obesity in Children and Adolescents (January 2010)(http://www.uspreventiveservicestaskforce.org/uspstf/uspschobes.htm). U.S. Preventive Services Task Force.

Scientific reports

- Health behaviors of cancer survivors: examining opportunities for cancer control intervention(http://jco.ascopubs.org/content/23/34/8884.full). Bellizzi KM, Rowland JH, Jeffery DD, McNeel T. J Clin Oncol 2005;23(34):8884–93.
- Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life: results from the American Cancer Society's SCS-II(http://jco.ascopubs.org/content/26/13/2198.full). Blanchard CM, Courneya KS, Stein, K. J Clin Oncol 2008;26(13):2198–2204.
- Promoting health and physical function among cancer survivors: potential for prevention and questions that remain(http://jco.ascopubs.org/content/24/32/5125.full). Demark-Wahnefried W, Pinto BM, Gritz ER. J Clin Oncol 2006;24(32):5125–31.
- Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999–2010. Flegal KM, Carroll MD, Kit BK, and Ogden CL. JAMA 2012;307(5):491–7.
- Health behaviors influence cancer survival(http://jco.ascopubs.org/content/27/12/1930.full.pdf). Gritz ER, Demark-Wahnefried W. J Clin Oncol 2009;27(12):1930–2.
- The role of physical activity in cancer prevention, treatment, recovery, and survivorship. Lemanne D, Cassileth B, Gubili J. Oncology 2013;27(6):580–5.
- The Role of Obesity in Cancer Survival and Recurrence: Workshop Summary. National Cancer Policy Forum, Board on Health Care Services, Institute of Medicine. Washington (DC): National Academies Press (US); 2012 Apr 3.

Statistics

- FastStats – Obesity and Overweight. Centers for Disease Control and Prevention.
- Centers for Disease Control and Prevention, National Cancer Statistics, National Health Interview Survey.
- Healthy People 2020, 2020 Topics & Objectives – Nutrition and Weight Status.

Cancer Survivors and Physical Activity

Last Updated:
January 2017

Introduction

As the number of cancer survivors grows and expected survival time increases, the health behaviors of these individuals is becoming an important focus of attention. Adoption or maintenance of healthy lifestyles after cancer has the potential to reduce both cancer- and non-cancer-related morbidity. Tracking these behaviors permits evaluation of how well cancer control efforts are working to reduce unnecessary disability and death among those with a history of cancer. To enhance the length and health-related quality of life of cancer survivors, efforts are needed to encourage adequate physical activity. Physical activity may reduce the risk of several types of cancer, including breast, colon, endometrium (lining of the uterus), and advanced prostate cancers, and it may also lower a person's risk of other health problems such as heart disease, high blood pressure, diabetes, and osteoporosis (bone thinning). Being active may also help to prevent weight gain and obesity, which can reduce the risk of developing cancers that have been linked to excess body weight.

Examination of survivors' physical activity is new to the Cancer Trends Progress Report this year.

Measure

The percentage of cancer survivors reporting no physical activity are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked how often they perform light, moderate, or vigorous activity for at least 10 minutes.

Healthy People 2020 Target

- There is no Healthy People 2020 target for physical activity among cancer survivors, though it does include a national objective to increase the mental and physical health-related quality of life of cancer survivors. However, it is reasonable to set this at the goal determined for the general population, which is to reduce the proportion of adults who engage in no leisure time physical activity to 32.6%.

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1997–2015.

Trends and Most Recent Estimates

By Sex

Percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2015
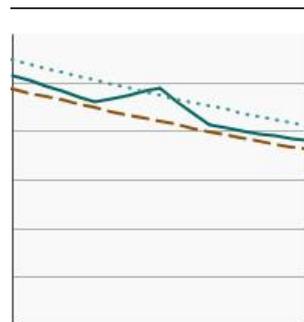
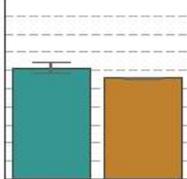| Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of cancer survivors	Confidence Interval
	Both Sexes	38.3	(35.8 - 40.8)
	Male	38.2	(34.2 - 42.1)
	Female	39.6	(36.5 - 42.6)

Percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time by sex, 1997-2015

Legend: Both Sexes, Male, Female

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted based on the age distribution of cancer patients diagnosed in 2000 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

By Age

Percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time by age, 1997-2015
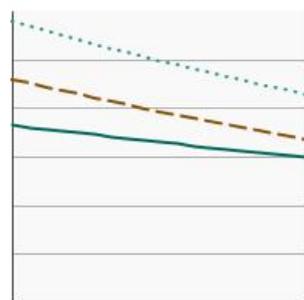
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2015)	
		Percent of cancer survivors	Confidence Interval
	Ages 18-44	26.8	(18.8 - 34.9)
	Ages 45-64	35.1	(30.9 - 39.4)
	Ages 65 and older	42.0	(38.8 - 45.2)

Percentage of cancer survivors aged 18 years and older reporting no physical activity in their leisure time by age, 1997-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted based on the age distribution of cancer patients diagnosed in 2000 in the SEER 18 areas (http://seer.cancer.gov/registries/terms.html) using age groups: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Compared to Remaining U.S. Population

Comparison of cancer survivors and remaining U.S. population for percentage of adults aged 18 years and older reporting no physical activity in their leisure time by age : 2006-2015

Overview graph	Age Group	Cancer Survivor		Remaining U.S. Population	
		Percent of population	Confidence Interval	Percent of population	Confidence Interval
	Ages 18-44	29.8	(27.0 - 32.7)	27.9	(27.3 - 28.6)
	Ages 45-64	36.3	(34.8 - 37.8)	34.0	(33.4 - 34.7)
	Ages 65 and older	46.1	(44.8 - 47.3)	46.2	(45.4 - 47.0)

Comparison of cancer survivors and remaining U.S. population for percentage of adults aged 18 years and older reporting no physical activity in their leisure time by age : 2006-2015

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 18-24, 25-34, 35-44, 45-64, 65+. Analysis uses the 2000 Standard Population.

Additional Information on Cancer Survivors and Physical Activity
For the public

- ACS Guidelines on Nutrition and Physical Activity for Cancer Prevention(http://www.cancer.org/healthy/eathealthygetactive/acsguidelinesonnutritionphysicalactivityforcancerprevention/index). American Cancer Society.
- Cancer Survivors Network(http://csn.cancer.org/). American Cancer Society.
- Life After Cancer Treatment(http://www.cancer.org/treatment/treatmentsandsideeffects/emotionalsideeffects/copingwithcancerineverydaylife/a-message-of-hope-life-after-cancer). American Cancer Society.
- Survivorship: During and After Treatment(http://www.cancer.org/treatment/survivorshipduringandaftertreatment/index). American Cancer Society.
- Journey Forward(http://www.journeyforward.org/).
- Facing Forward: Life After Cancer Treatment. National Cancer Institute.
- National Cancer Institute, Office of Cancer Survivorship. Health and Well-Being After Cancer.
- Living Beyond Cancer(http://www.canceradvocacy.org/resources/cancer-survival-toolbox/special-topics/living-beyond-cancer/). National Coalition for Cancer Survivorship.

Scientific reports

- Health behaviors of cancer survivors: examining opportunities for cancer control intervention(http://jco.ascopubs.org/content/23/34/8884.full). Bellizzi KM, Rowland JH, Jeffery DD, McNeel T. J Clin Oncol 2005;23(34):8884–93.
- Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life: results from the American Cancer Society's SCS-II(http://jco.ascopubs.org/content/26/13/2198.full). Blanchard CM, Courneya KS, Stein, K. J Clin Oncol 2008;26(13):2198–2204.
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remain(http://jco.ascopubs.org/content/24/32/5125.full). Demark-Wahnefried W, Pinto BM, Gritz ER. J Clin Oncol 2006;24(32):5125–31.

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Statistics

- Healthy People 2020, 2020 Topic & Objectives – Cancer.

End of Life

The ultimate measure of our nation's success against cancer is how quickly and how far we can lower the death rate from this group of diseases. This report provides national data not only on cancer mortality by major sites, sex, and race/ethnicity, but also in terms of the years of life lost to cancer—a measure that emphasizes the tragedy of common cancers that strike people at a relatively young age.

The good news is that the rate of death from cancer in the United States continues to decline among both men and women, among all major racial and ethnic groups, and for the most common types of cancer. It is our job as a nation to maintain and accelerate this trend.

- Mortality
- Person-Years of Life Lost

Mortality

Last Updated:
January 2017

Introduction

The rate of death from cancer in the United States continues to decline among both men and women, among all major racial and ethnic groups, and for the most common types of cancer, including lung(http://www.cancer.org/Cancer/LungCancer/index), colon(http://www.cancer.org/Cancer/ColonandRectumCancer/index), breast(http://www.cancer.org/Cancer/BreastCancer/index), and prostate(http://www.cancer.org/Cancer/ProstateCancer/index) cancers. The Annual Report to the Nation on the Status of Cancer(http://onlinelibrary.wiley.com/doi/10.1002/cncr.28509/abstract), published in the journal *Cancer*, shows that the death rate from all cancers combined is continuing the decline that began in the early 1990s.

Still, in 2015 cancers of the female breast, prostate, lung, colon/rectum, and pancreas accounted for nearly one-half (47 percent) of all cancer deaths in the United States. Lung cancer alone claimed nearly 27 percent of lives lost to cancer.

Measure

The number of cancer deaths per 100,000 people per year, age-adjusted to a U.S. 2000 standard population.

Healthy People 2020 Target

- Reduce the overall cancer death rate to 161.4 cancer deaths per 100,000 people per year.
- Reduce the colorectal cancer death rate to 14.5 deaths per 100,000 people per year.
- Reduce the lung cancer death rate to 45.5 deaths per 100,000 people per year.
- Reduce the female breast cancer death rate to 20.7 deaths per 100,000 females per year.
- Reduce the prostate cancer death rate to 21.8 deaths per 100,000 males per year.
- Reduce the death rate from cancer of the uterine cervix to 2.2 deaths per 100,000 females per year.
- Reduce the oropharyngeal cancer death rate to 2.3 deaths per 100,000 people per year.
- Reduce the melanoma cancer death rate to 2.4 deaths per 100,000 people per year.

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

Data Source

Centers for Disease Control and Prevention, National Center for Health Statistics, 1975–2013.

By Sex

U.S. death rates for all cancers by sex, 1975-2013
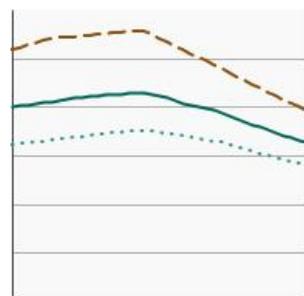
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	163.1	(162.7 - 163.5)
	Male	195.9	(195.1 - 196.6)
	Female	139.4	(138.9 - 139.9)

U.S. death rates for all cancers by sex, 1975-2013
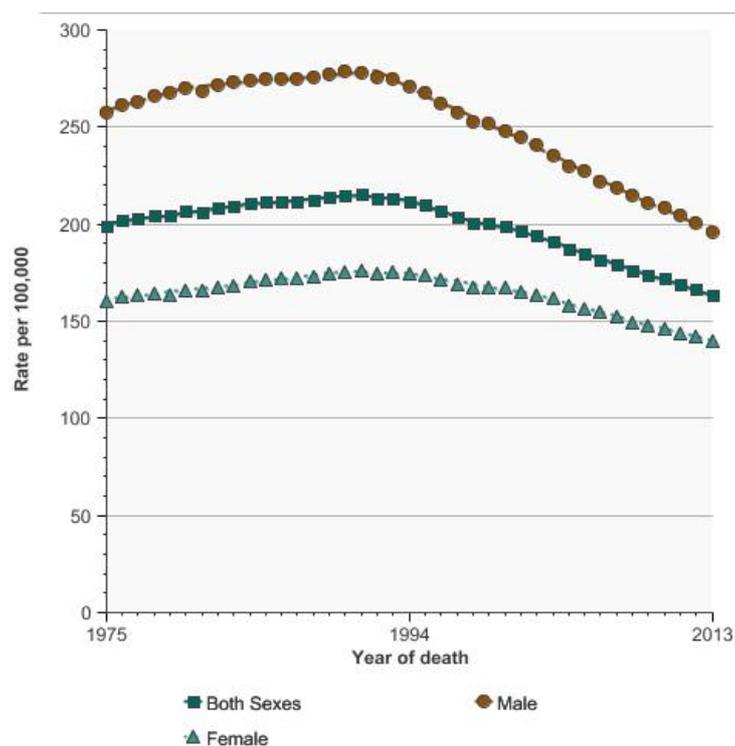
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

By Race/Ethnicity

U.S. death rates for all cancers by race/ethnicity, 1992-2013
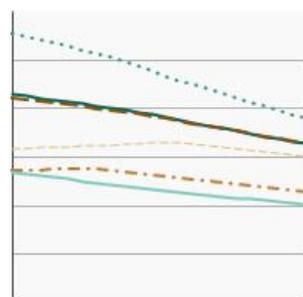
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	163.1	(162.7 - 163.5)
	White	163.6	(163.2 - 164.1)
	Black	188.9	(187.4 - 190.3)
	Hispanic	113.9	(112.6 - 115.1)
	Asian/Pacific Islander	99.6	(98.0 - 101.2)
	American Indian/Alaska Native	150.8	(144.1 - 157.5)

U.S. death rates for all cancers by race/ethnicity, 1992-2013
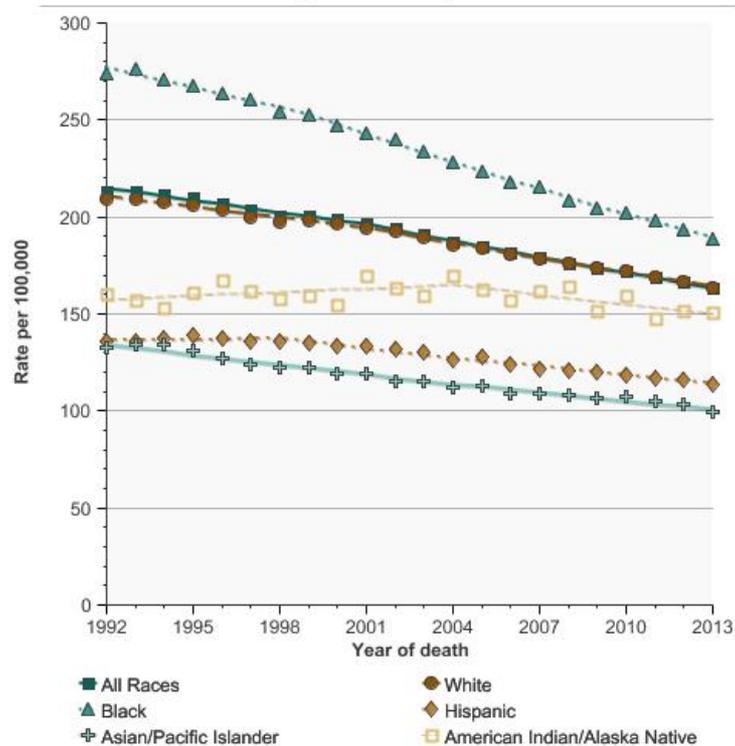
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Top Cancer Sites

Comparison of Top Cancer Sites

U.S. death rates for the most common cancers, 1975-2013
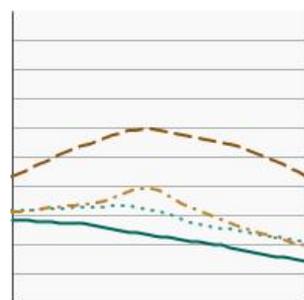
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Colon and Rectum	14.5	(14.4 - 14.6)
	Lung and Bronchus	43.3	(43.1 - 43.5)
	Female Breast	20.8	(20.6 - 21.0)
	Prostate	19.2	(18.9 - 19.4)

U.S. death rates for the
most common cancers, 1975-2013
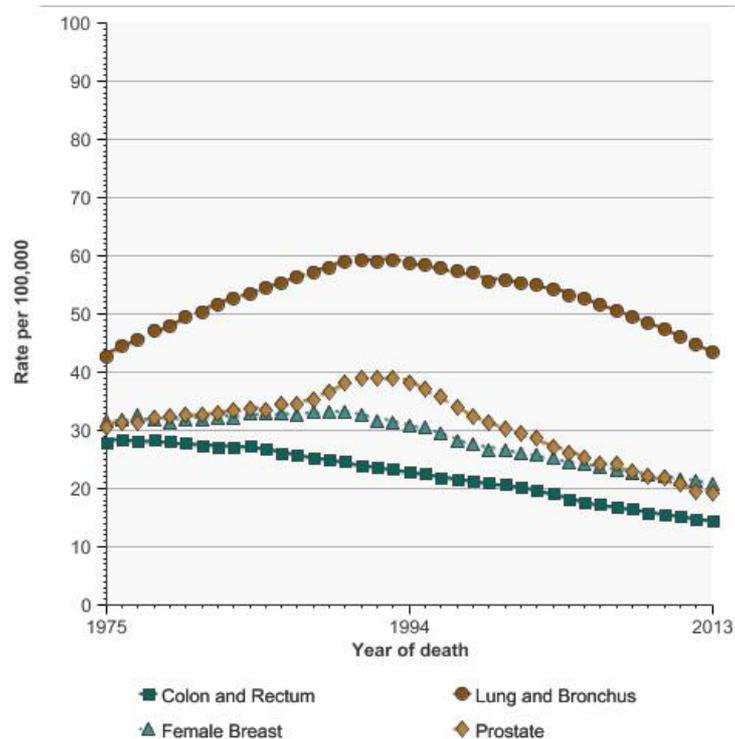
- Colon and Rectum
- Lung and Bronchus
- Female Breast
- Prostate

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14,
15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Colon and Rectum Cancer by Sex

U.S. death rates for colon and rectum cancer by sex, 1975-2013
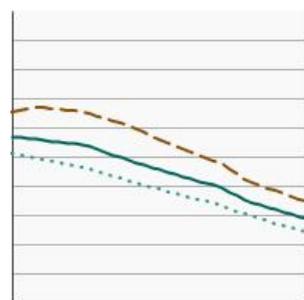
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	14.5	(14.4 - 14.6)
	Male	17.3	(17.1 - 17.5)
	Female	12.2	(12.0 - 12.3)

U.S. death rates for colon and rectum cancer by sex, 1975-2013
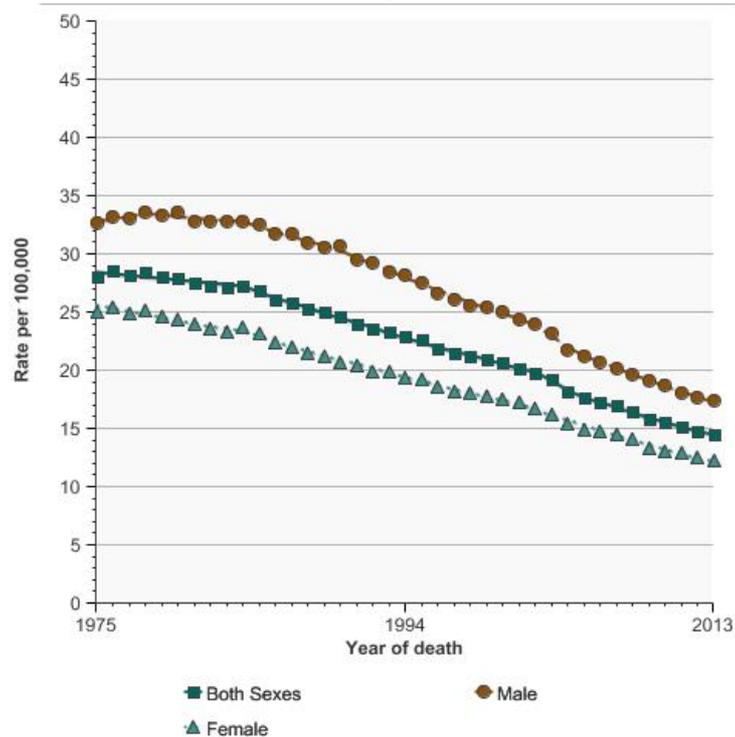
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Colon and Rectum Cancer by Race/Ethnicity

U.S. death rates for colon and rectum cancer by race/ethnicity, 1992-2013
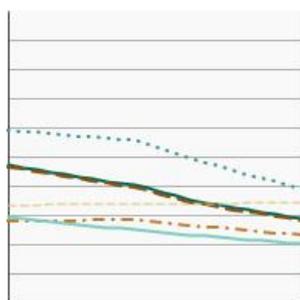
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	14.5	(14.4 - 14.6)
	White	14.2	(14.0 - 14.3)
	Black	19.3	(18.8 - 19.7)
	Hispanic	11.6	(11.2 - 12.0)
	Asian/Pacific Islander	9.7	(9.2 - 10.2)
	American Indian/Alaska Native	17.8	(15.5 - 20.1)

U.S. death rates for colon and rectum cancer by race/ethnicity, 1992-2013
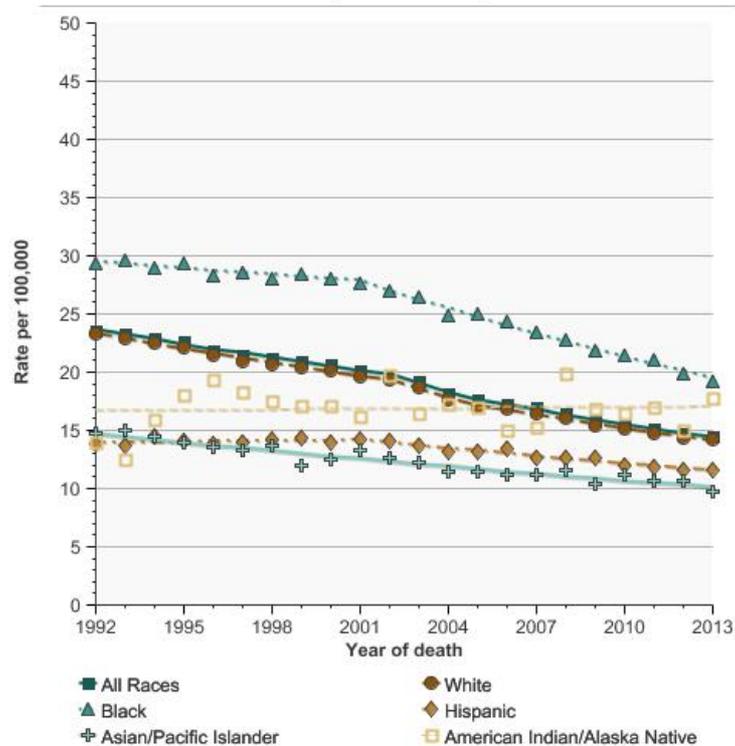
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Lung and Bronchus Cancer by Sex

U.S. death rates for lung and bronchus cancer by sex, 1975-2013

Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	43.3	(43.1 - 43.5)
	Male	53.7	(53.3 - 54.1)
	Female	35.4	(35.2 - 35.7)

U.S. death rates for lung and bronchus cancer by sex, 1975-2013
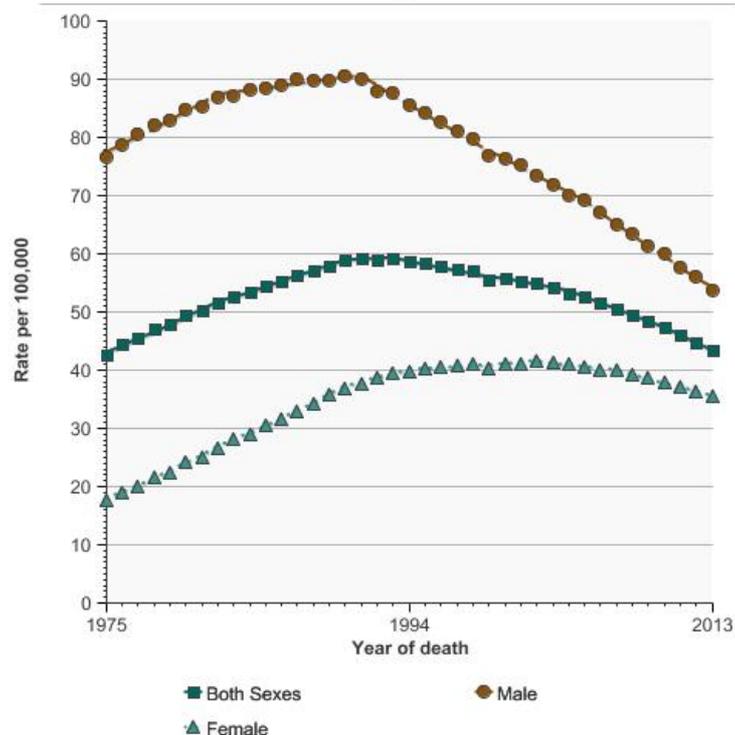
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Lung and Bronchus Cancer by Race/Ethnicity

U.S. death rates for lung and bronchus cancer by race/ethnicity, 1992-2013
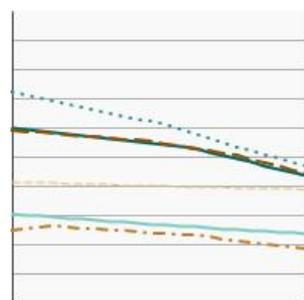
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	43.3	(43.1 - 43.5)
	White	44.1	(43.8 - 44.3)
	Black	46.7	(46.0 - 47.5)
	Hispanic	18.6	(18.1 - 19.1)
	Asian/Pacific Islander	23.1	(22.4 - 23.9)
	American Indian/Alaska Native	36.2	(32.8 - 39.5)

U.S. death rates for lung and bronchus cancer by race/ethnicity, 1992-2013
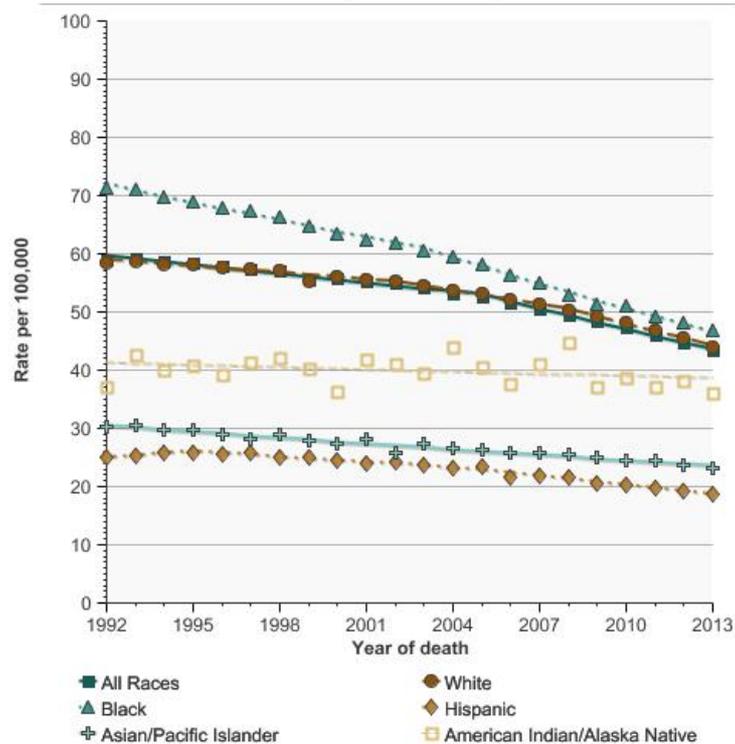
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Female Breast Cancer by Race/Ethnicity

U.S. death rates for female breast cancer by race/ethnicity, 1992-2013
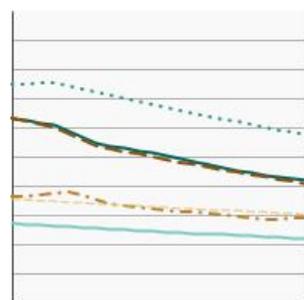
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	20.8	(20.6 - 21.0)
	White	20.4	(20.2 - 20.6)
	Black	28.2	(27.5 - 29.0)
	Hispanic	14.5	(13.9 - 15.0)
	Asian/Pacific Islander	11.0	(10.3 - 11.6)
	American Indian/Alaska Native	13.5	(10.9 - 16.0)

U.S. death rates for female breast cancer by race/ethnicity, 1992-2013
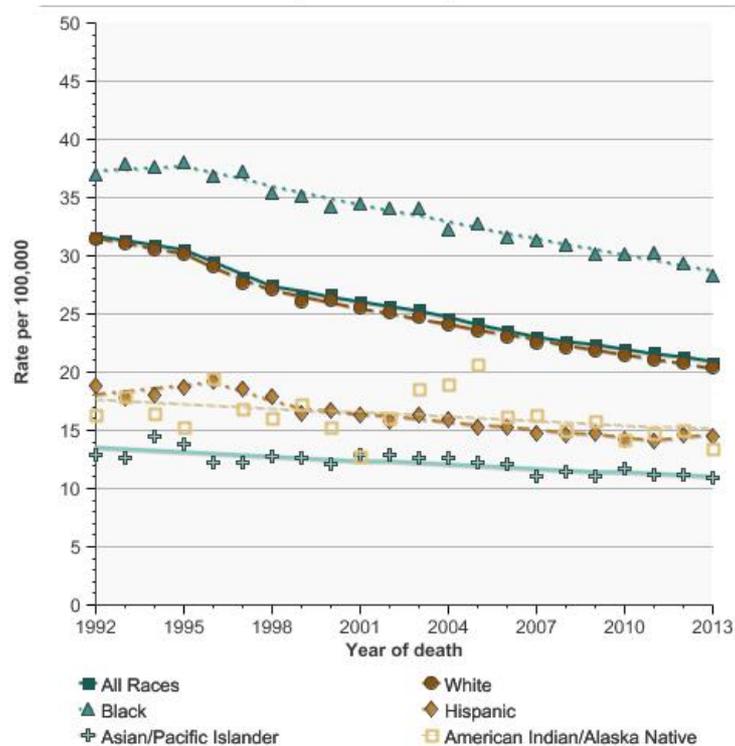
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Prostate Cancer by Race/Ethnicity

U.S. death rates for prostate cancer by race/ethnicity, 1992-2013
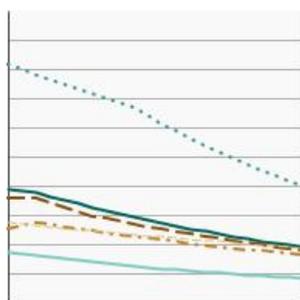
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	19.2	(18.9 - 19.4)
	White	17.9	(17.7 - 18.2)
	Black	38.5	(37.3 - 39.7)
	Hispanic	15.6	(14.8 - 16.4)
	Asian/Pacific Islander	8.6	(7.8 - 9.4)
	American Indian/Alaska Native	17.1	(13.2 - 21.1)

U.S. death rates for prostate cancer by race/ethnicity, 1992-2013
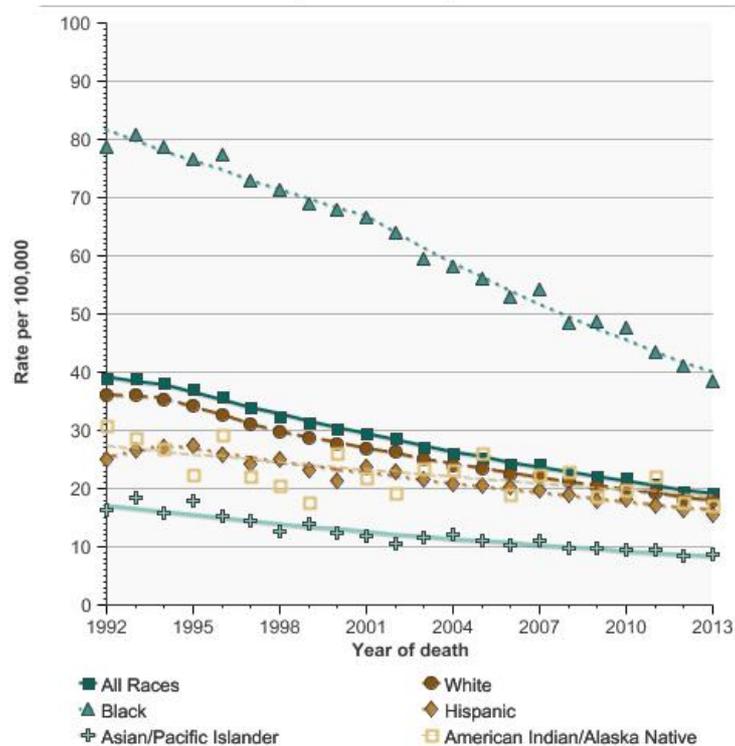
Legend: All Races, White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Additional Cancer Sites with Healthy People 2020 Targets

Comparison of Sites

U.S. death rates for additional cancer sites with Healthy People 2020 reduction goals, 1975-2013
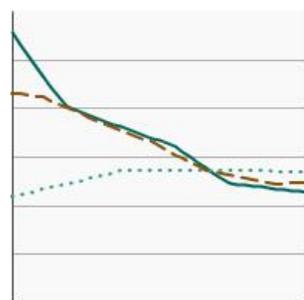
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Cervix Uteri	2.3	(2.3 - 2.4)
	Oral Cavity and Pharynx	2.4	(2.4 - 2.5)
	Melanoma of the Skin	2.7	(2.6 - 2.7)

U.S. death rates for additional cancer sites
with Healthy People 2020 reduction goals, 1975-2013

Legend:
- Cervix Uteri
- Oral Cavity and Pharynx
- Melanoma of the Skin
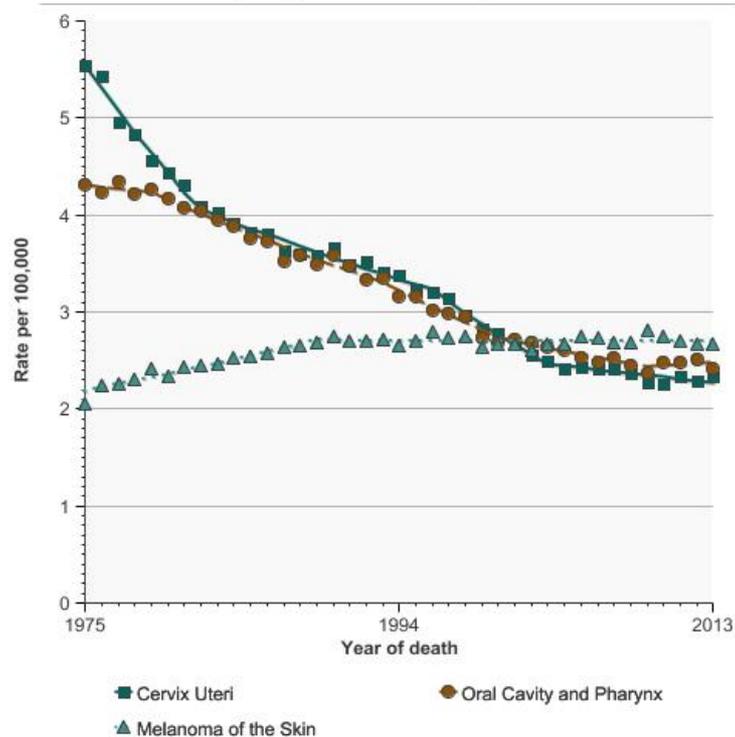
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Cervix Uteri by Race/Ethnicity

U.S. death rates for cervix uteri cancer by race/ethnicity, 1992-2013
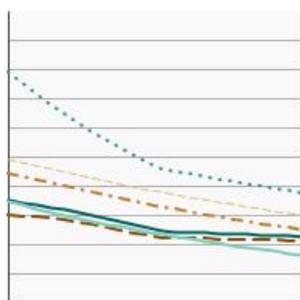
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	2.3	(2.3 - 2.4)
	White	2.2	(2.1 - 2.2)
	Black	3.9	(3.6 - 4.1)
	Hispanic	2.5	(2.3 - 2.7)
	Asian/Pacific Islander	1.9	(1.6 - 2.2)
	American Indian/Alaska Native	2.7	(1.6 - 3.8)

U.S. death rates for cervix uteri cancer by race/ethnicity, 1992-2013
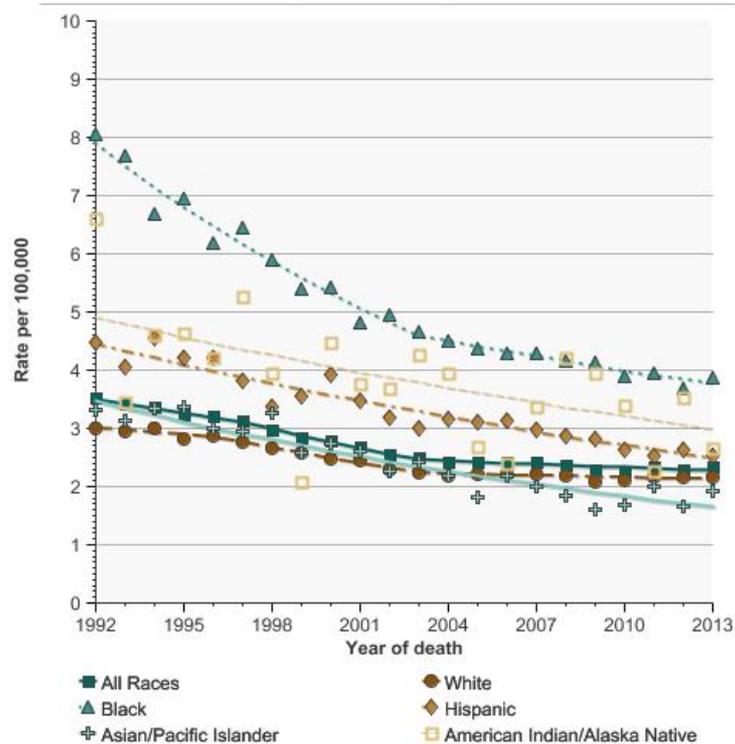
Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Oral Cavity and Pharynx by Sex

U.S. death rates for oral cavity and pharynx cancer by sex, 1975-2013
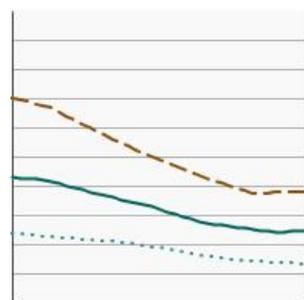
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	2.4	(2.4 - 2.5)
	Male	3.7	(3.6 - 3.8)
	Female	1.3	(1.3 - 1.4)

U.S. death rates for oral cavity
and pharynx cancer by sex, 1975-2013
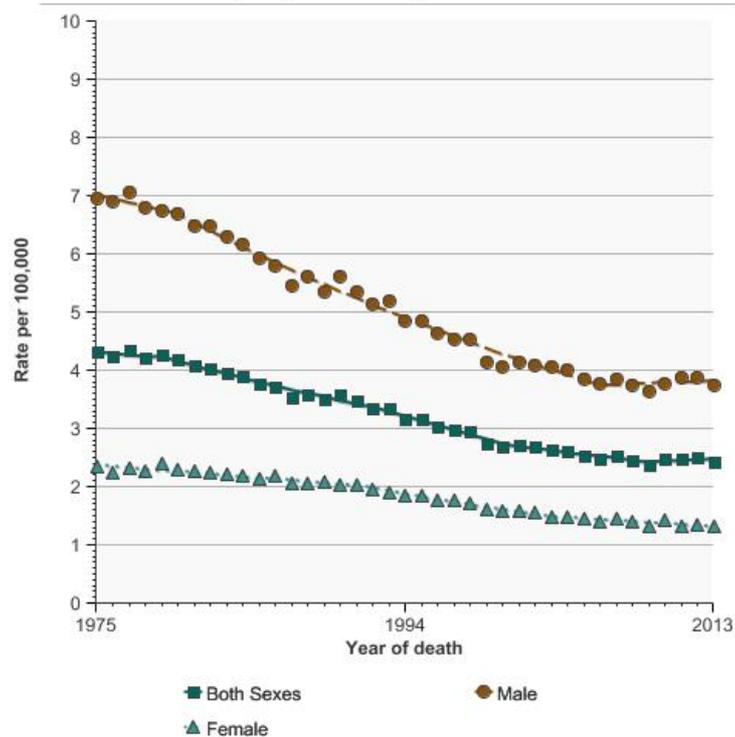
Legend: Both Sexes, Male, Female

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14,
15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Oral Cavity and Pharynx by Race/Ethnicity

U.S. death rates for oral cavity and pharynx cancer by race/ethnicity, 1992-2013
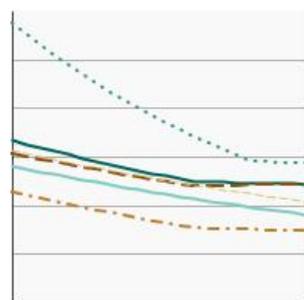
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	2.4	(2.4 - 2.5)
	White	2.4	(2.4 - 2.5)
	Black	2.8	(2.6 - 3.0)
	Hispanic	1.4	(1.3 - 1.5)
	Asian/Pacific Islander	1.9	(1.7 - 2.1)
	American Indian/Alaska Native	1.4	(0.8 - 2.0)

U.S. death rates for oral cavity and pharynx cancer by race/ethnicity, 1992-2013
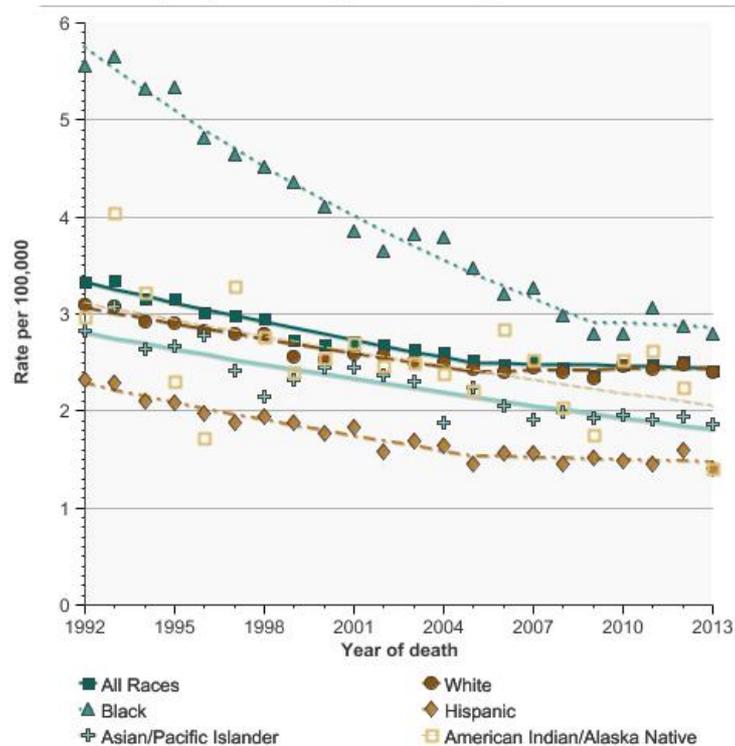
Legend: All Races, White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native

Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Melanoma of the Skin by Sex

U.S. death rates for melanoma of the skin by sex, 1975-2013
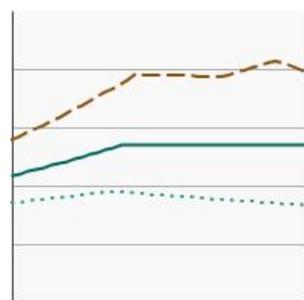
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Both Sexes	2.7	(2.6 - 2.7)
	Male	4.0	(3.9 - 4.1)
	Female	1.6	(1.6 - 1.7)

U.S. death rates for melanoma of the skin by sex, 1975-2013
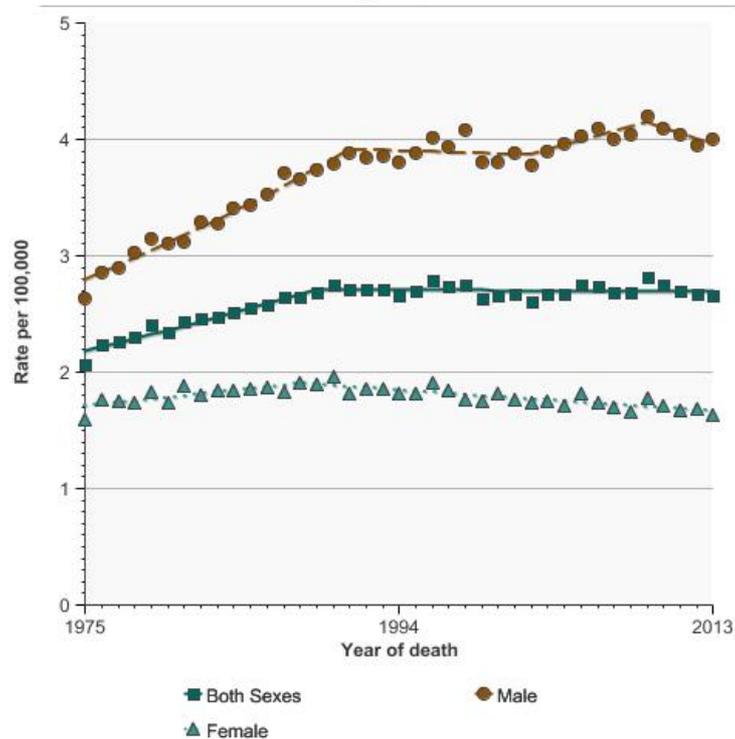
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Melanoma of the Skin by Race/Ethnicity

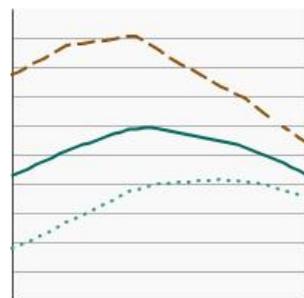U.S. death rates for melanoma of the skin by race/ethnicity, 1992-2013
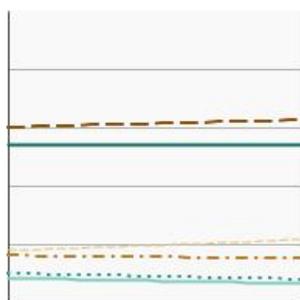
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	All Races	2.7	(2.6 - 2.7)
	White	3.1	(3.0 - 3.2)
	Black	0.4	(0.3 - 0.5)
	Hispanic	0.7	(0.6 - 0.8)
	Asian/Pacific Islander	0.3	(0.2 - 0.4)
	American Indian/Alaska Native	0.6	(0.2 - 1.0)

U.S. death rates for melanoma of the skin by race/ethnicity, 1992-2013

Legend:
- All Races
- White
- Black
- Hispanic
- Asian/Pacific Islander
- American Indian/Alaska Native
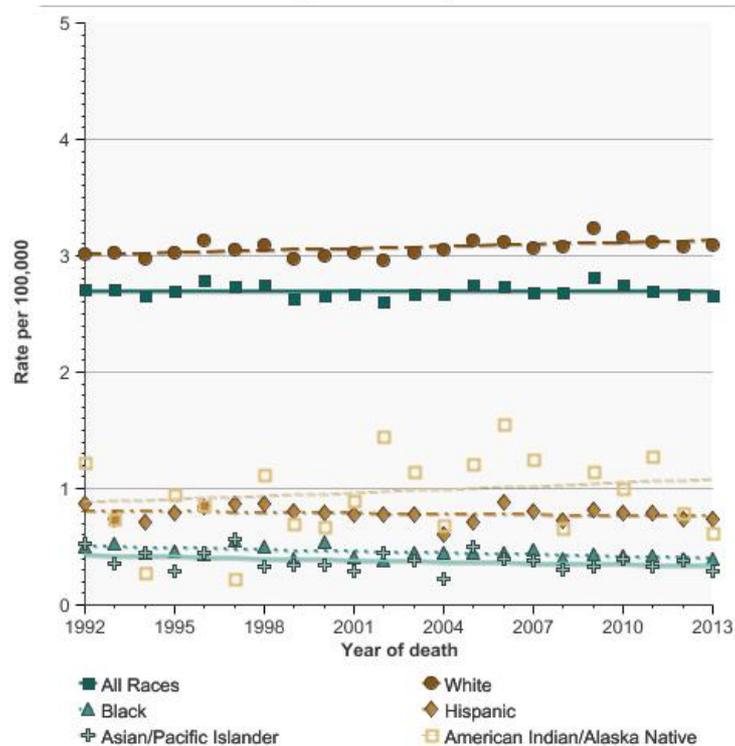
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.

Selected Cancer Sites with Increasing Trends

U.S. death rates for selected cancer sites that are increasing annually^, 1975-2013
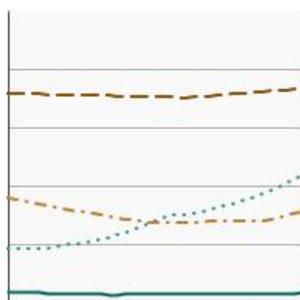
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Thyroid	0.5	(0.5 - 0.5)
	Pancreas	10.8	(10.7 - 10.9)
	Liver and Intrahepatic Bile Duct	6.5	(6.4 - 6.6)
	Corpus and Uterus, NOS	4.6	(4.6 - 4.7)

U.S. death rates for selected cancer sites that are increasing annually^, 1975-2013
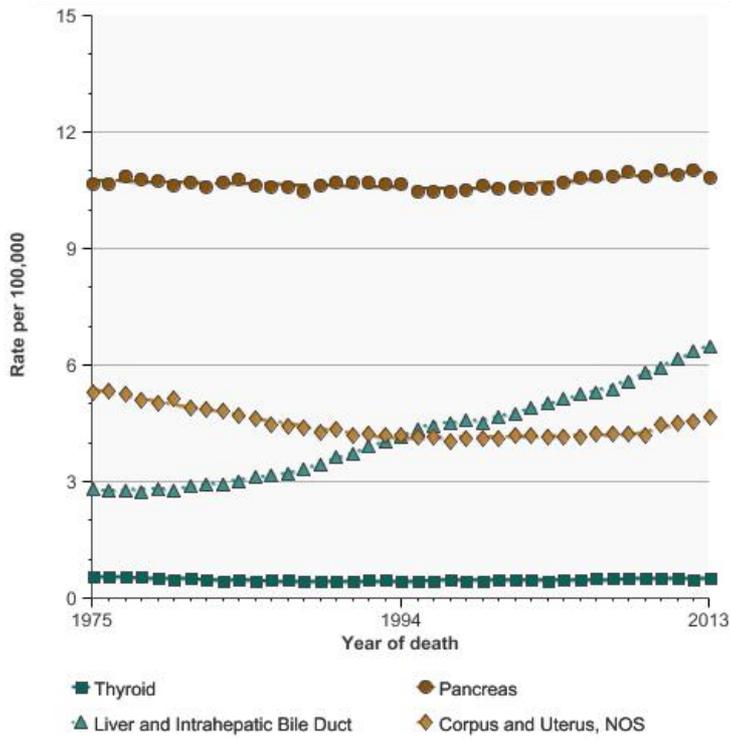
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.
Restricted to cancer sites with 2013 death rates of 3 per 100,000 or greater.
^ Annual percent change (APC) for final Joinpoint segment is greater than zero.

Selected Cancer Sites with Decreasing Trends

Decreasing Greater than 1% Annually

U.S. death rates for selected cancer sites that are decreasing by 1% per year or greater^, 1975-2013
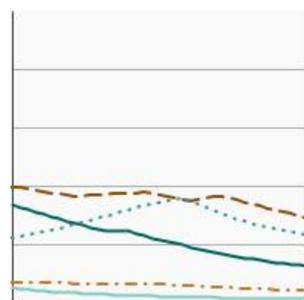
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Stomach	3.2	(3.1 - 3.2)
	Ovary	7.2	(7.1 - 7.3)
	Non-Hodgkin Lymphoma	5.7	(5.6 - 5.8)
	Larynx	1.0	(1.0 - 1.0)
	Hodgkin Lymphoma	0.3	(0.3 - 0.3)

U.S. death rates for selected cancer sites that
are decreasing by 1% per year or greater^, 1975-2013

Legend:
- Stomach
- Ovary
- Non-Hodgkin Lymphoma
- Larynx
- Hodgkin Lymphoma
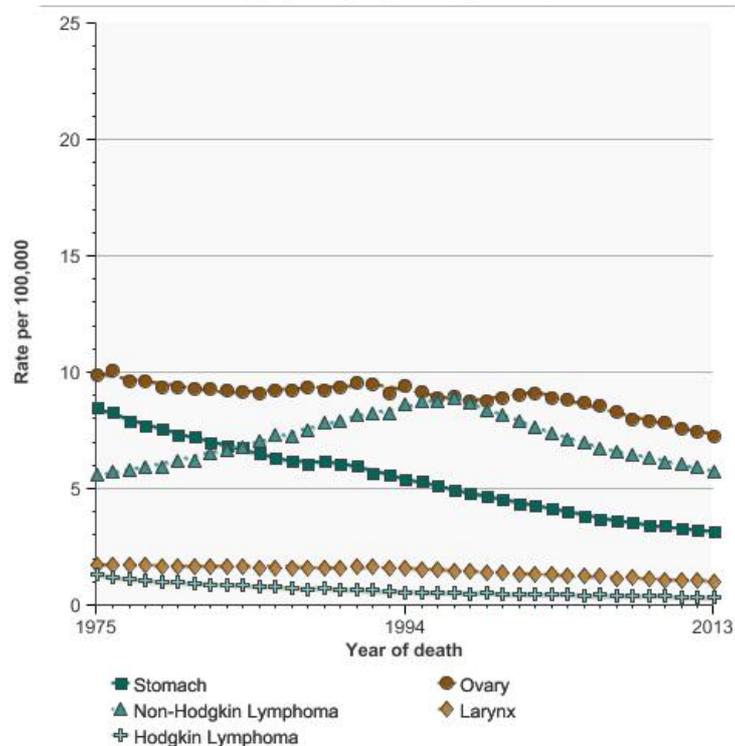
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14,
15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.
^ Annual percent change (APC) for final Joinpoint segment is greater than 1%.

Decreasing Less than 1% Annually

U.S. death rates for selected cancer sites that are decreasing by less than 1% per year^, 1975-2013
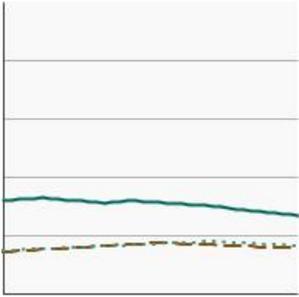
Overview Graph	Detailed Trend Graphs	Most Recent Estimates (2013)	
		Rate per 100,000	Confidence Interval
	Leukemia	6.7	(6.6 - 6.8)
	Kidney and Renal Pelvis	3.9	(3.8 - 3.9)
	Esophagus	4.0	(4.0 - 4.1)

U.S. death rates for selected cancer sites that are decreasing by less than 1% per year^, 1975-2013

Legend:
- Leukemia
- Kidney and Renal Pelvis
- Esophagus
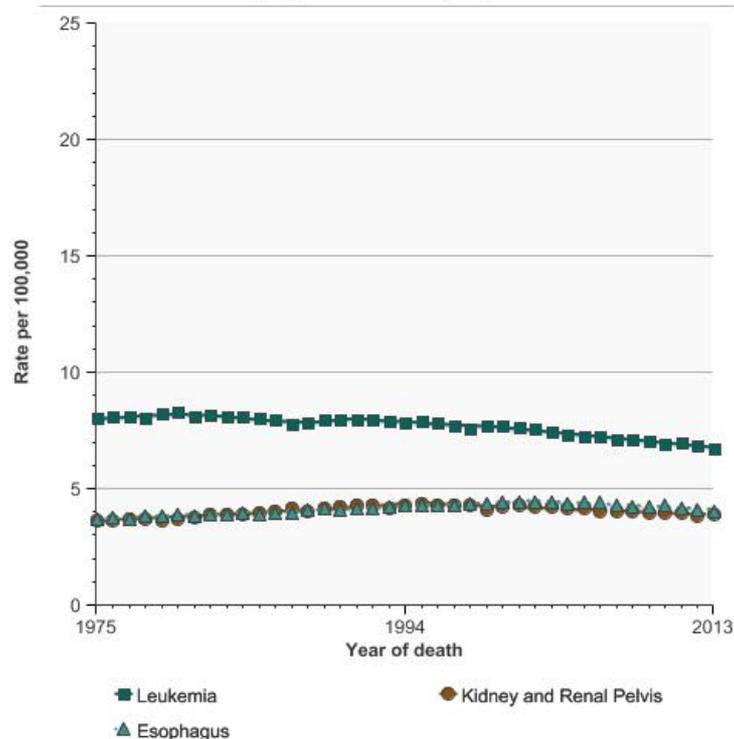
Source: National Center for Health Statistics data as analyzed by NCI.
Data are age-adjusted to the 2000 US standard population using age groups: <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+.
Restricted to cancer sites with 2013 death rates of 3 per 100,000 or greater.
^ Annual percent change (APC) for final Joinpoint segment is less than 1%.

Additional Information on Mortality
For the public

- American Cancer Society – Advance Directives(http://www.cancer.org/treatment/findingandpayingfortreatment/understandingfinancialandlegalmatters/advancedirectives/advance-directives-toc).
- American Cancer Society – Hospice Care(http://www.cancer.org/treatment/findingandpayingfortreatment/choosingyourtreatmentteam/hospicecare/hospice-care-toc).
- American Cancer Society – Nearing the End of Life(http://www.cancer.org/treatment/nearingtheendoflife/nearingtheendoflife/nearing-the-end-of-life-toc).

Statistics

- American Cancer Society – Cancer Facts & Figures 2016(http://www.cancer.org/research/cancerfactsstatistics/cancerfactsfigures2016/index).
- Cancer Intervention Surveillance Network – Colorectal Cancer Mortality Projection.
- Deaths: Final Data for 2010. CDC/NCHS. National Vital Statistics Reports 2013;61(4).
- National Vital Statistics System – Mortality Data. CDC/NCHS.
- Healthy People 2020, 2020 Topics & Objectives – Cancer.
- National Cancer Institute – State Cancer Profiles.
- SEER Cancer Statistics Review, National Cancer Institute.(http://seer.cancer.gov/csr/)
- SEER Fast Stats: An interactive tool for access to SEER cancer statistics.(http://seer.cancer.gov/faststats/) Surveillance Research Program, National

Cancer Institute.

Person-Years of Life Lost

Last Updated:
January 2017

Introduction
Death rates alone do not provide a complete picture of the burden that deaths impose on the population. Another useful measure that may add a different dimension is person-years of life lost (PYLL)—the years of life lost because of early death from a particular cause or disease. PYLL caused by cancer helps to describe the extent to which life is cut short by cancer.

Measure
Person-Years of Life Lost is measured as the difference between the actual age stemming from the disease/cause and the expected age of death due to a particular disease or cause. Specifically, this measure is estimated by linking life table data to each death of a person of a given age and sex. The life table permits a determination of the number of additional years an average person of that age, race, and sex would have been expected to live.
Average Years of Life Lost represents Person-Years of Life Lost divided by the number of people who lost their lives.

Healthy People 2020 Target
There is no Healthy People 2020 target for this measure.
Healthy People 2020 is a set of goals set forth by the Department of Health and Human Services.

Data Source
Centers for Disease Control and Prevention, National Center for Health Statistics, 2013.

Trends and Most Recent Estimates
Person-years of Life Lost

All Causes of Death, All Races, Both Sexes

Person-years of life lost in 2013 due to major causes of death, total U.S., all races, both sexes

Overview graph	Cause of death	Years of life lost (in thousands)
	Malignant Neoplasms	9186
	Heart Disease	7283
	Accidents	3809
	Chronic Lung Disease	1785
	Cerebrovascular	1413
	Suicide & Self-Inflicted Injury	1396
	Diabetes Mellitus	1135
	Cirrohosis	835
	Homicide	749
	Pneumonia & Influenza	634
	Nephritis & Nephrosis	556
	Alzheimers Disease	546
	Septicemia	542
	HIV	213
	Aortic Aneurysm & Dissection	136
	Atherosclerosis	57
	All Other Causes	8612
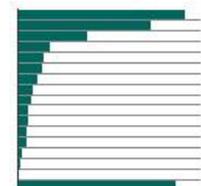
Person-years of life lost in 2013 due to major causes of death, total U.S., all races, both sexes
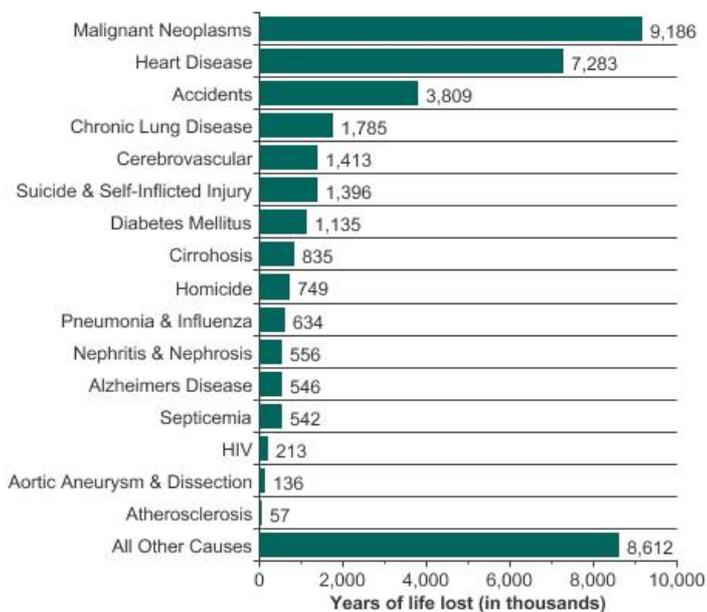
Source: National Center for Health Statistics data as analyzed by NCI and National Center for Health Statistics life-tables.
Data are not age-adjusted.
Estimates produced using 2011 life-tables.

All Causes of Death, All Races, Males

Person-years of life lost in 2013 due to major causes of death, total U.S., all races, males

Overview graph	Cause of death	Years of life lost (in thousands)
	Malignant Neoplasms	4567
	Heart Disease	4251
	Accidents	2525
	Suicide & Self-Inflicted Injury	1057
	Chronic Lung Disease	815
	Cerebrovascular	647
	Diabetes Mellitus	613
	Homicide	595
	Cirrohosis	534
	Pneumonia & Influenza	313
	Nephritis & Nephrosis	276
	Septicemia	258
	Alzheimers Disease	170
	HIV	150
	Aortic Aneurysm & Dissection	86
	Atherosclerosis	26
	All Other Causes	4278

Person-years of life lost in 2013 due to major causes of death, total U.S., all races, males

Cause of death	Years of life lost (in thousands)
Malignant Neoplasms	4,567
Heart Disease	4,251
Accidents	2,525
Suicide & Self-Inflicted Injury	1,057
Chronic Lung Disease	815
Cerebrovascular	647
Diabetes Mellitus	613
Homicide	595
Cirrohosis	534
Pneumonia & Influenza	313
Nephritis & Nephrosis	276
Septicemia	258
Alzheimers Disease	170
HIV	150
Aortic Aneurysm & Dissection	86
Atherosclerosis	26
All Other Causes	4,278

All Causes of Death, All Races, Females

Person-years of life lost in 2013 due to major causes of death, total U.S., all races, females

Overview graph	Cause of death	Years of life lost (in thousands)
	Malignant Neoplasms	4619
	Heart Disease	3031
	Accidents	1284
	Chronic Lung Disease	970
	Cerebrovascular	765
	Diabetes Mellitus	522
	Alzheimers Disease	376
	Suicide & Self-Inflicted Injury	339
	Pneumonia & Influenza	321
	Cirrohosis	301
	Septicemia	284
	Nephritis & Nephrosis	280
	Homicide	154
	HIV	63
	Aortic Aneurysm & Dissection	50
	Atherosclerosis	31
	All Other Causes	4334

Person-years of life lost in 2013 due to major causes of death, total U.S., all races, females

Cause of death	Years of life lost (in thousands)
Malignant Neoplasms	4,619
Heart Disease	3,031
Accidents	1,284
Chronic Lung Disease	970
Cerebrovascular	765
Diabetes Mellitus	522
Alzheimers Disease	376
Suicide & Self-Inflicted Injury	339
Pneumonia & Influenza	321
Cirrohosis	301
Septicemia	284
Nephritis & Nephrosis	280
Homicide	154
HIV	63
Aortic Aneurysm & Dissection	50
Atherosclerosis	31
All Other Causes	4,334

Source: National Center for Health Statistics data as analyzed by NCI and National Center for Health Statistics life-tables.
Data are not age-adjusted.
Estimates produced using 2011 life-tables.

Cancer, All Races, Both Sexes

Person-years of life lost in 2013 due to cancer, total U.S., all races, both sexes
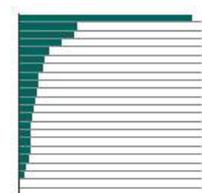
Overview graph	Cause of death	Years of life lost (in thousands)
	Lung & Bronchus	2372
	Colon & Rectum	800
	Breast (Female)	773
	Pancreas	583
	Liver & IBD	415
	Leukemia	368
	Brain & ONS	336
	Non-Hodgkin Lymphoma	281
	Prostate	274
	Ovary	250
	Esophagus	236
	Kidney & Renal Pelvis	219
	Stomach	184
	Urinary Bladder	179
	Corpus & Uterus, NOS	163
	Melanoma of the Skin	161
	Myeloma	160
	Oral Cavity & Pharynx	154
	Cervix Uteri	112
	Childhood Ages (0-14)	92
	Hodgkin Lymphoma	24
	Testis	13

Person-years of life lost in 2013 due to cancer, total U.S., all races, both sexes
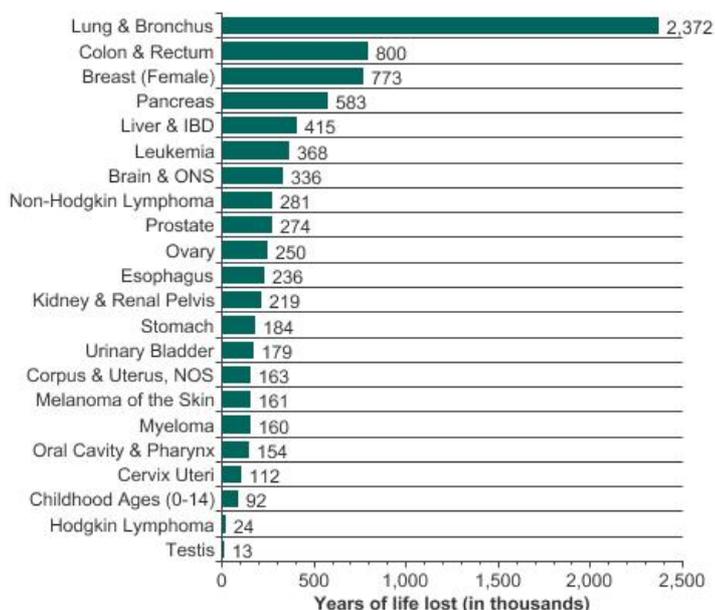
Source: National Center for Health Statistics data as analyzed by NCI and National Center for Health Statistics life-tables.
Data are not age-adjusted.
Estimates produced using 2011 life-tables.

Cancer, All Races, Males

Person-years of life lost in 2013 due to cancer, total U.S., all races, males
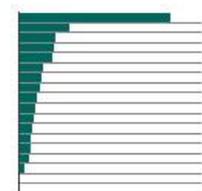
Overview graph	Cause of death	Years of life lost (in thousands)
	Lung & Bronchus	1242
	Colon & Rectum	425
	Pancreas	301
	Liver & IBD	287
	Prostate	274
	Leukemia	206
	Esophagus	190
	Brain & ONS	182
	Non-Hodgkin Lymphoma	157
	Kidney & Renal Pelvis	142
	Urinary Bladder	126
	Oral Cavity & Pharynx	110
	Stomach	108
	Melanoma of the Skin	101
	Myeloma	86
	Childhood Ages (0-14)	48
	Hodgkin Lymphoma	14
	Testis	13

Person-years of life lost in 2013 due to cancer, total U.S., all races, males
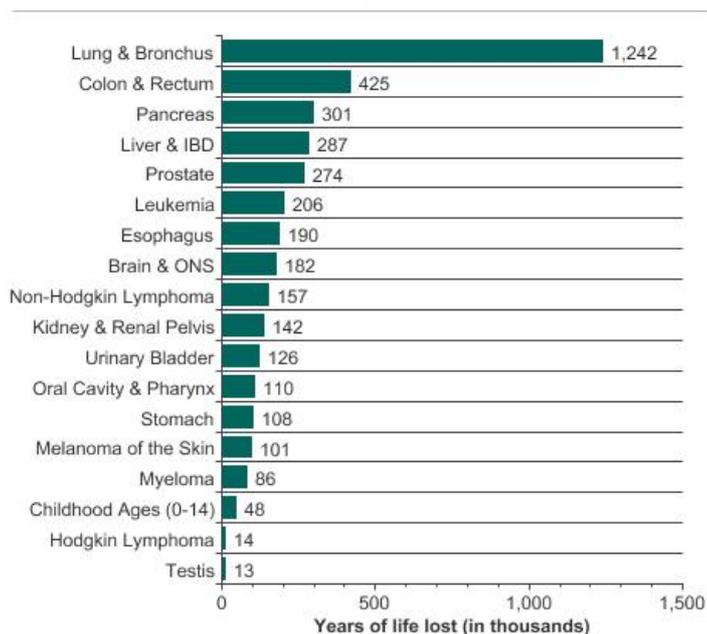
Source: National Center for Health Statistics data as analyzed by NCI and National Center for Health Statistics life-tables.
Data are not age-adjusted.
Estimates produced using 2011 life-tables.

Cancer, All Races, Females

Person-years of life lost in 2013 due to cancer, total U.S., all races, females
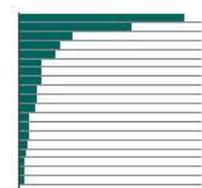
Overview graph	Cause of death	Years of life lost (in thousands)
	Lung & Bronchus	1130
	Breast (Female)	773
	Colon & Rectum	375
	Pancreas	282
	Ovary	250
	Corpus & Uterus, NOS	163
	Leukemia	162
	Brain & ONS	154
	Liver & IBD	128
	Non-Hodgkin Lymphoma	124
	Cervix Uteri	112
	Kidney & Renal Pelvis	77
	Stomach	76
	Myeloma	75
	Melanoma of the Skin	60
	Urinary Bladder	53
	Esophagus	46
	Childhood Ages (0-14)	45
	Oral Cavity & Pharynx	44
	Hodgkin Lymphoma	10

Person-years of life lost in 2013 due to cancer, total U.S., all races, females
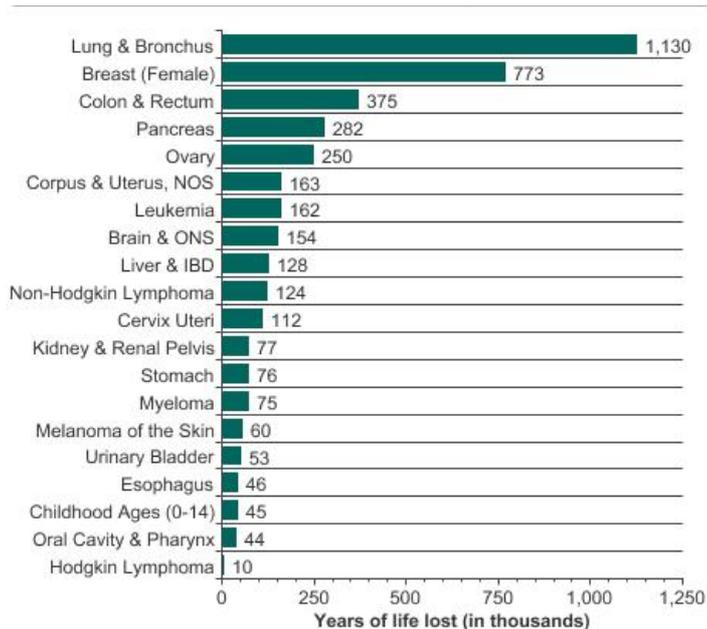
Source: National Center for Health Statistics data as analyzed by NCI and National Center for Health Statistics life-tables.
Data are not age-adjusted.
Estimates produced using 2011 life-tables.

Average Years of Life Lost

Average-years of life lost in 2013 due to cancer, total U.S., all races, both sexes

Overview graph	Cause of death	Years of life lost

Childhood Ages (0-14)	71.8
Testis	35.1
Cervix Uteri	26.5
Hodgkin Lymphoma	22.1
Brain & ONS	21.9
Breast (Female)	18.9
Ovary	17.5
Corpus & Uterus, NOS	17.4
Oral Cavity & Pharynx	17.4
Liver & IBD	17.3
Melanoma of the Skin	17.1
Stomach	16.3
Esophagus	16.1
Kidney & Renal Pelvis	15.8
All Sites Combined	15.7
Leukemia	15.6
Colon & Rectum	15.4
Lung & Bronchus	15.2
Pancreas	14.9
Non-Hodgkin Lymphoma	14.0
Myeloma	13.6
Urinary Bladder	11.3
Prostate	9.9

Average-years of life lost in 2013 due to cancer, total U.S., all races, both sexes
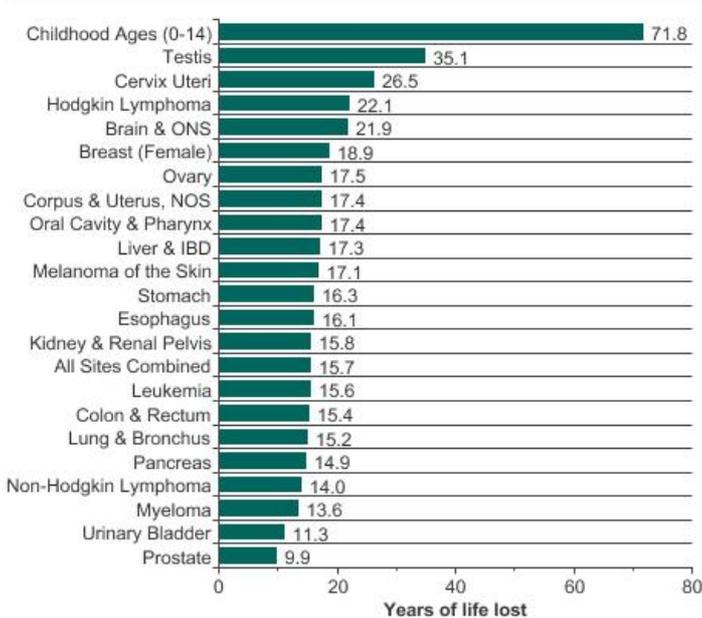
	Years of life lost
Childhood Ages (0-14)	71.8
Testis	35.1
Cervix Uteri	26.5
Hodgkin Lymphoma	22.1
Brain & ONS	21.9
Breast (Female)	18.9
Ovary	17.5
Corpus & Uterus, NOS	17.4
Oral Cavity & Pharynx	17.4
Liver & IBD	17.3
Melanoma of the Skin	17.1
Stomach	16.3
Esophagus	16.1
Kidney & Renal Pelvis	15.8
All Sites Combined	15.7
Leukemia	15.6
Colon & Rectum	15.4
Lung & Bronchus	15.2
Pancreas	14.9
Non-Hodgkin Lymphoma	14.0
Myeloma	13.6
Urinary Bladder	11.3
Prostate	9.9

Years of life lost

Source: National Center for Health Statistics data as analyzed by NCI and National Center for Health Statistics life-tables.
Data are not age-adjusted.
Estimates produced using 2011 life-tables.

Additional Information on Person-Years of Life Lost

- SEER Cancer Statistics Review, National Cancer Institute.
- United States Life Tables, 2011, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for
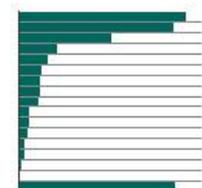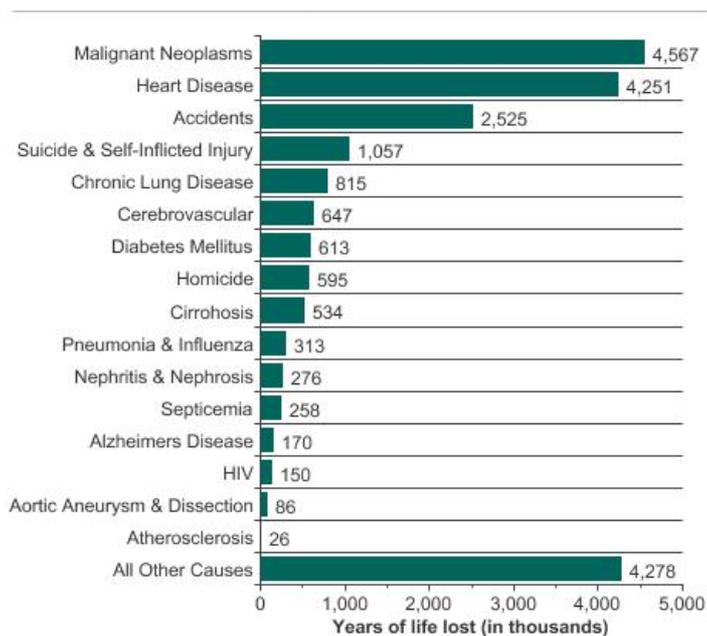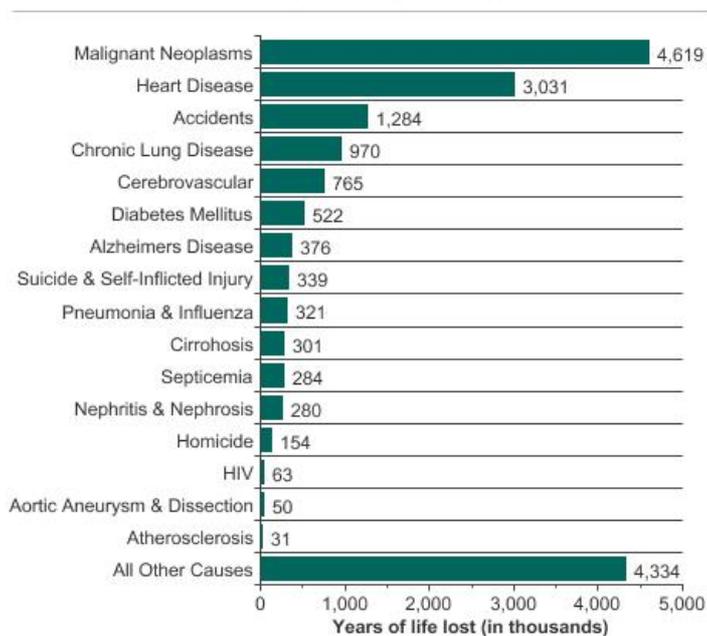
Summary Tables

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:

1. **Is the trend moving in the desired direction?**
   - A graph shows the trend direction for the measure. The desired trend direction is shown above the graph.
   - Each line in the graph is coded by color to indicate whether the trend is:

	green - headed in the right direction
	red - headed in the wrong direction
	black - stable or non-significant change (NSC)
	purple - indeterminate
	blue - Healthy People 2020 target

2. **How does the nation's progress compare to the Healthy People 2020 target?**
   Not all measures have an associated Healthy People 2020 target. When there is a target for a specific measure, it is shown by a solid blue horizontal line labeled "Healthy People 2020 target".

The example graph demonstrates the Adult Smoking trend, which is heading in the right direction (green line) toward the Healthy People 2020 target (solid blue horizontal line).

Available Summary Tables
Prevention

- Tobacco Use
- Smoking Cessation
- Diet
- Weight and Physical Activity
- UV Exposure and Sun Protective Practices

- HPV Immunization
- Tobacco Policy/Regulatory Factors
- Secondhand Smoke
- Chemical and Environmental Exposures

Early Detection

- Breast, Cervical, and Colorectal Cancer Screening

Diagnosis

- Incidence and Stage at Diagnosis

Treatment

- Bladder, Breast, Colorectal
- Kidney, Lung, Ovarian, Prostate

Life After Cancer

- Financial Burden of Cancer Care
- Survival, Smoking, Obesity, and Physical Activity

End of Life

- Mortality and Person-Years of Life Lost

Prevention Summary Tables

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

————	green - headed in the right direction
————	red - headed in the wrong direction
————	black - stable or non-significant change (NSC)
————	purple - indeterminate
————	blue - Healthy People 2020 target

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:

1. **Is the trend moving in the desired direction?**
2. **How does the nation's progress compare to the Healthy People 2020 target?**

- Tobacco Use
- Smoking Cessation
- Diet
- Weight and Physical Activity
- UV Exposure and Sun Protective Practices

- Tobacco Policy/Regulatory Factors
- HPV Immunization
- Secondhand Smoke
- Chemical Exposures

Tobacco Use - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

green line	green - headed in the right direction
red line	red - headed in the wrong direction
black line	black - stable or non-significant change (NSC)
purple line	purple - indeterminate
blue line	blue - Healthy People 2020 target

Measure Name: Youth Tobacco Use

Measure Name	Youth Tobacco Use
Year Range	1999-2015
Measure	The percentage of high school students (grades 9–12) who reported use of cigarettes, cigars, or smokeless tobacco on at least 1 day during the 30 days before the survey.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2011-2015
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	Among high school students in 2015, 10.8% were current cigarette smokers, 7.3% were current users of smokeless tobacco,10.3% were current cigar smokers (including little cigars). 18.6% were current users of cigarettes, cigars, or smokeless tobacco.
Healthy People 2020 Target	Decrease the proportion of high school students who currently: smoke cigarettes to 16.0%; use smokeless tobacco to 6.9%; smoke cigars to 8.0%; use cigarettes, cigars, or smokeless tobacco to 21.0%.
More Information	Youth Tobacco Use

Measure Name: Tobacco Use Initiation

Measure Name	Tobacco Use Initiation
Year Range	2002-2013
Measure	The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated cigarette smoking during the past 12 months. The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated cigar smoking during the past 12 months. The percentage of individuals among those aged 12 to 17 years and 18 to 25 years who said they had initiated smokeless tobacco use during the past 12 months.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2009-2013
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2013, 4.3% of children and adolescents aged 12 to 17 initiated cigarette smoking in the past year.
Healthy People 2020	

| **More Information** | Tobacco Use Initiation |

Measure Name: Adult Tobacco Use

Measure Name	**Adult Tobacco Use**
Year Range	1991-2015
Measure	**Cigarettes**: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigarette smokers. **Smokeless tobacco**: Percentage of adults aged 18 years and older who, at the time of the interview, were smokeless tobacco users. **Cigars**: Percentage of adults aged 18 years and older who, at the time of the interview, were current cigar smokers.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2011-2015
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2015, 15.3% of adults aged 18 and older were current cigarette smokers (males - 16.8%, females - 13.8%).
Healthy People 2020 Target	Reduce to 12.0% the proportion of adult current cigarette smokers.
More Information	Adult Tobacco Use
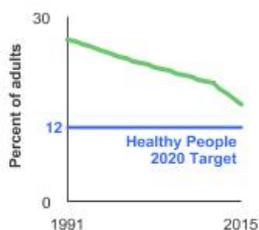
Smoking Cessation - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

——— (green)	green - headed in the right direction
——— (red)	red - headed in the wrong direction
——— (black)	black - stable or non-significant change (NSC)
——— (purple)	purple - indeterminate
——— (blue)	blue - Healthy People 2020 target

Measure Name: Clinicians' Advice to Quit Smoking

Measure Name	**Clinicians' Advice to Quit Smoking**
Year Range	1992-2011
Measure	The percentage of adult smokers (aged 18 years and older) who have seen a physician or dentist in the past 12 months and report that the physician or dentist advised them to quit smoking.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2006-2011
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2010 to 2011, 64.4% of adult smokers who had seen a physician during the past 12 months reported being advised by that doctor to quit smoking.
Healthy People 2020 Target	The Healthy People 2020 target for physicians' advice to quit smoking in office-based ambulatory care settings is 21.1 percent of visits. The target for ordered or provided tobacco counseling during hospital visits is 24.9 percent of visits.
More Information	Clinicians' Advice to Quit Smoking

Measure Name: Quitting Smoking

Measure Name	**Quitting Smoking**
Year Range	1998-2015
Measure	**Attempt to quit**: The percentage of adult smokers aged 18 years and older who attempted smoking cessation within the past 12 months. The attempt-to-quit measure includes both current smokers who smoke every day or some days and who, at the time of the survey, had quit smoking for at least 1 day during the past 12 months, as well as recent former smokers, who quit smoking less than 1 year ago.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2011-2015
Desired Direction	Rising
Summary Graph	

Trends and Most Recent Estimates	In 2015, 53.5% of adult smokers attempted to quit smoking within the past year.
Healthy People 2020 Target	Increase to 80.0% the proportion of adult everyday smokers ages 18 and older, who stopped smoking for a day or longer because they were trying to quit.
More Information	Quitting Smoking

Diet - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.
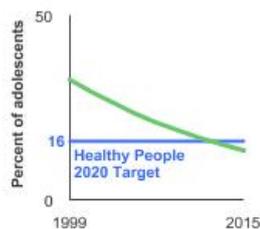
Legend:

▬▬▬ (green)	green - headed in the right direction
▬▬▬ (red)	red - headed in the wrong direction
▬▬▬ (black)	black - stable or non-significant change (NSC)
▬▬▬ (purple)	purple - indeterminate
▬▬▬ (blue)	blue - Healthy People 2020 target

Measure Name: Fruit and Vegetable Consumption

Measure Name	Fruit and Vegetable Consumption
Year Range	1994-2012
Measure	Average daily cup equivalents per 1,000 calories of fruits and vegetables for people aged 2 years and older. This measure includes fruits and vegetables from all sources.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2007-2012
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	From 2011 to 2012, people aged 2 years and older consumed, on average, 0.5 cup equivalents of fruits per 1,000 calories and 0.8 cup equivalents of vegetables per 1,000 calories (including 0.1 cup equivalents of dark green and orange vegetables and legumes per 1,000 calories).
Healthy People 2020 Target	0.9 cup equivalents of fruits per 1,000 calories. 1.2 cup equivalents of vegetables per 1,000 calories, with at least 0.55 cup equivalents of dark green or orange vegetables or legumes per 1,000 calories.
More Information	Fruit and Vegetable Consumption

Measure Name: Red Meat Consumption

Measure Name	Red Meat Consumption
Year Range	1994-2012
Measure	Average daily ounce equivalents of red meat for people aged 2 years and older. Red meat includes beef, lamb, and pork from all sources and does not include processed poultry.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2007-2012
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	From 2011 to 2012, people aged 2 years and older consumed, on average, 1.1 ounces of red meat per day.
Healthy People 2020	
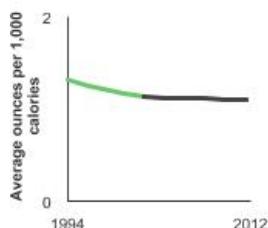
Healthy People 2020 Target	There is no Healthy People target for red meat consumption.
More Information	Red Meat Consumption

Measure Name: Fat Consumption

Measure Name	Fat Consumption
Year Range	1989-2012
Measure	Intakes of total fat, and of the major fatty acids - saturated, monounsaturated, and polyunsaturated - as a percentage of total calories.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2007-2012
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	From 2011 to 2012, total fat made up 32.9% of the calories people consumed, saturated fatty acids accounted for 10.8% of calories, monounsaturated, 11.6%, and polyunsaturated, 7.8%.
Healthy People 2020 Target	9.9% percent saturated fatty acids. (Healthy People 2020 includes targets for saturated fat and solid fat.)
More Information	Fat Consumption
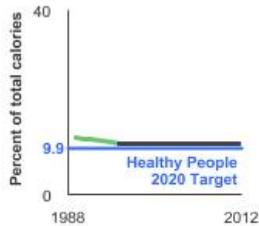
Measure Name: Alcohol Consumption

Measure Name	Alcohol Consumption
Year Range	1990-2014
Measure	Per capita alcohol consumption: The estimated number of gallons of pure alcohol consumed per person (aged 14 years and older), per year. This measure accounts for the varying alcohol content of wine, beer, and liquor. People as young as 14 are included because a large number of adolescents begin drinking at an early age.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2010-2014
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2014, per capita alcohol consumption was 2.3 gallons for all beverages, including beer, wine, and liquor.
Healthy People 2020 Target	Reduce annual per capita alcohol consumption to 2.1 gallons.
More Information	Alcohol Consumption
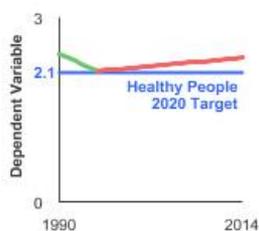
Weight and Physical Activity - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.
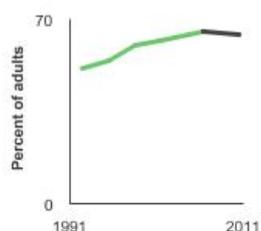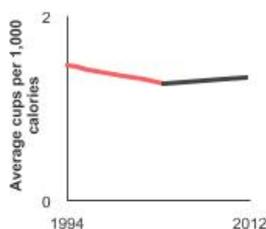
Legend:

——————	green - headed in the right direction
——————	red - headed in the wrong direction
——————	black - stable or non-significant change (NSC)
——————	purple - indeterminate
——————	blue - Healthy People 2020 target

Measure Name: Physical Activity

Measure Name	Physical Activity
Year Range	1997-2015
Measure	Percentage of adults aged 18 years and older who reported no leisure-time physical activity during the past month and percentage of adults who meet both the aerobic and muscle-strengthening guidelines.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2011-2015
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2015, 30.0% of adults 18 and older reported no physical activity in their leisure time.
Healthy People 2020 Target	Reduce to 32.6% the proportion of adults who engage in no leisure-time physical activity.
More Information	Physical Activity

Measure Name: Weight

Measure Name	Weight
Year Range	1971-2014
Measure	The percentage of adults aged 20 years and older who are at a healthy weight, overweight, or obese. These weight groups are defined by a measurement called body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared. For most adults, experts consider a BMI within the range of 18.5 to 24.9 to be healthy, a BMI between 25 and 29.9 to be overweight, and a BMI of 30 and over to be obese.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2009-2014
Desired Direction	Falling
Summary Graph	

Trends and Most Recent Estimates	From 2013 to 2014, 28.2% percent of adults aged 20 years and older were at a healthy weight, 32.8% percent were overweight, and 37.6% percent were obese.
Healthy People 2020 Target	Increase to 33.9% percent the proportion of adults who are at a healthy weight and decrease to 30.5% percent the proportion of obese adults.
More Information	Weight

UV Exposure and Sun-Protective Behavior - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

green line	green - headed in the right direction
red line	red - headed in the wrong direction
black line	black - stable or non-significant change (NSC)
purple line	purple - indeterminate
blue line	blue - Healthy People 2020 target

Measure Name	Sun-Protective Behavior	Indoor Tanning	Sunburn
Year Range	2005-2015	2009-2015	2000-2015
Measure	The percentage of adults aged 18 years and older who reported that they usually or always practice at least one of three sun-protective behaviors - using sunscreen, wearing protective clothing (a long-sleeve shirt, and/or wide brimmed hat shading the face, ears, and neck, and/or long pants/long skirt), or seeking shade when going outside on a sunny day for more than an hour.	The percentage of high school students (grades 9-12) who reported use of an indoor tanning device such as a sunlamp, sunbed, or tanning booth (not counting getting a spray-on tan) one or more times during the 12 months before the survey. The percentage of adults aged 18 years and older who have used an indoor tanning device one or more times during the past 12 months. Although NHIS-CCS also collected this data for adults in 2005 and 2008, the methodology used then likely resulted in overestimates and so that data was not included here.	The percentage of high school students (grades 9-12) who reported having been sunburned in the past 12 months. The percentage of adults aged 18 years and older who reported having been sunburned in the past 12 months.
Recent Summary Trend	Stable	Falling	Falling
Recent Summary Trend Year Range	2010-2015	2011-2015	2010-2015
Desired Direction	Rising	Falling	Falling
Summary Graph			
Trends and Most Recent Estimates	In 2015, 70.8% of adults said they usually or always protect themselves from the sun by practicing at least one of three sun protection behaviors.	In 2015, 10.6% of female adolescents used an indoor tanning device within the past year.	In 2015, 35.3% of adults aged 18 years and older were sunburned in the past year.
Healthy People 2020 Target	Increase to 73.7% the proportion of adults who are very likely to use sunscreen with an SPF of 15 or higher, wear protective clothing, or seek shade.	Reduce to 14.0% the proportion of adolescents in grades 9 through 12 who report using artificial sources of ultraviolet light for tanning.	Reduce to 33.8% the proportion of adults aged 18 years and older who report sunburn.
More Information	Sun-Protective Behavior	Indoor Tanning	Sunburn
Last Updated	January 2017	January 2017	January 2017

Tobacco Policy/Regulatory Factors - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.
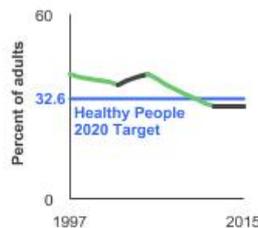
Legend:

green - headed in the right direction
red - headed in the wrong direction
black - stable or non-significant change (NSC)
purple - indeterminate
blue - Healthy People 2020 target

Measure Name: Tobacco Company Marketing Expenditures

Measure Name	**Tobacco Company Marketing Expenditures**
Year Range	1970-2013
Measure	Combined cigarette annual advertising and promotional expenditures by the five largest U.S. cigarette manufacturers, adjusted, as reported by manufacturers to the U.S. Federal Trade Commission. Combined smokeless tobacco annual advertising and promotional expenditures by the five parent companies of the major manufacturers of smokeless tobacco products in the U.S., adjusted, as reported by manufacturers to the U.S. Federal Trade Commission.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2009-2013
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2013, adjusted combined annual expenditures for cigarette advertising and promotion was 8.9 billion.
Healthy People 2020 Target	There is no Healthy People 2020 target for tobacco company marketing expenditures.
More Information	Tobacco Company Marketing Expenditures

Measure Name: Medicaid Coverage of Tobacco Dependency Treatments

Measure Name	**Medicaid Coverage of Tobacco Dependency Treatments**
Year Range	1990-2010
Measure	The number of states that provide coverage under Medicaid for any evidence-based tobacco dependence treatment (pharmacotherapy or counseling), either to their entire Medicaid population or to only pregnant women. The number of states that provide coverage under Medicaid for individual or group tobacco cessation counseling. The number of states that provide coverage under Medicaid for tobacco cessation medications.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2006-2010
Desired Direction	Rising
Summary Graph	

Trends and Most Recent Estimates	In 2010, all 51 Medicaid programs provided coverage for at least one tobacco-dependence treatment for at least some segment of their Medicaid eligible population.
Healthy People 2020 Target	There is no Healthy People 2020 target for Medicaid coverage of tobacco dependence treatments.
More Information	Medicaid Coverage of Tobacco Dependency Treatments

HPV Immunization - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

green - headed in the right direction
red - headed in the wrong direction
black - stable or non-significant change (NSC)
purple - indeterminate
blue - Healthy People 2020 target

Measure Name	**HPV Immunization**
Year Range	2008-2015
Measure	The percentage of adolescents who received 1+ dose, 2+ doses or 3+ doses of a HPV vaccine.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2011-2015
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2015, 37.1% of females aged 13-15 years had received 3+ doses of the HPV vaccine.
Healthy People 2020 Target	Increase the vaccination coverage level of 3 doses of human papillomavirus (HPV) vaccine for females aged 13 to 15 years to 80.00%
More Information	HPV Immunization
Last Updated	January 2017

Secondhand Smoke - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.
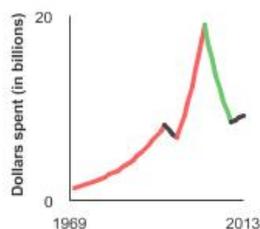
Legend:

green line	green - headed in the right direction
red line	red - headed in the wrong direction
black line	black - stable or non-significant change (NSC)
purple line	purple - indeterminate
blue line	blue - Healthy People 2020 target

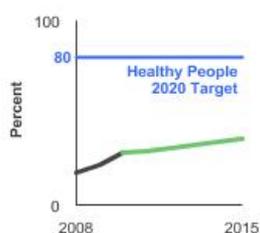| Measure Name	Secondhand Smoke Exposure	Smoke-free Home Rules	Smoke-free Workplace Rules and Laws
Year Range	1988-2012	1992-2011	1992-2011
Measure	The percentage of nonsmokers exposed to secondhand smoke. (The percentage of nonsmokers aged 3 years and older with a serum cotinine level greater than 0.05 ng/mL and less than or equal to 10 ng/mL.)	The percentage of respondents reporting a smoke-free home.	The percentage of indoor workers reporting a smoke-free work environment. The percentage of the population protected by local and state smoke-free indoor air laws covering workplaces, restaurants, and bars. This measure draws on data collected and analyzed by the Americans for Nonsmokers' Rights Foundation. Use of this information allows the National Cancer Institute (NCI) to include both local and state laws in its assessments.
Recent Summary Trend	Falling	Non-Significant Change	Non-Significant Change
Recent Summary Trend Year Range	2007-2012	2010-2	2010-3
Desired Direction	Falling	Rising	Rising
Summary Graph			
Trends and Most Recent Estimates	From 2011 to 2012, the estimate of children aged 3 to 11 years currently exposed to SHS is 40.6% (children ages 12-17 - 31.2%, nonsmokers ages 18 and older - 23.0%).	In 2010 to 2011, of adults aged 18 years and older reported a smoke-free home environment.	In 2010 to 2011, of adults aged 18 years and older reported a smoke-free work environment.
Healthy People 2020 Target	Reduce the proportion of children aged 3-11 years who are regularly exposed to tobacco smoke 47.0%. Reduce exposure for children aged 12-17 years to 41.0%. Reduce exposure for nonsmokers aged 18 years and older to 33.8%.	Increase the proportion of smoke-free homes to 87.0%.	Increase the proportion of persons covered by indoor worksite policies that prohibit smoking to 100%.
More Information	Secondhand Smoke Exposure	Smoke-free Home Rules	Smoke-free Workplace Rules and Laws
Last Updated	January 2017	January 2017	January 2017
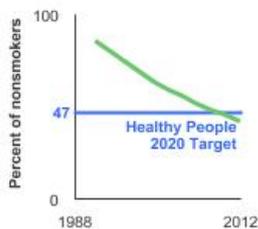
Chemical Exposures - Prevention Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

————	green - headed in the right direction
————	red - headed in the wrong direction
————	black - stable or non-significant change (NSC)
————	purple - indeterminate
————	blue - Healthy People 2020 target

Measure Name: Radon

Measure Name	**Radon**
Year Range	2003-2013
Measure	The proportion of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure. This measure is expressed as a percentage. It is calculated for each year by dividing the cumulative number of single family dwellings (SFD) with an operating mitigation system by the number of SFDs estimated to have a radon level ≥4pCi/L, which is EPA's action level.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2009-2013
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2013, 15.0% homes at risk for radon exposure had an operating radon mitigation system.
Healthy People 2020 Target	Increase the percent of at-risk homes with an operating radon mitigation system to 30.0%.
More Information	Radon

Measure Name: Arsenic

Measure Name	**Arsenic**
Year Range	2003-2012
Measure	We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2007-2012
Desired Direction	Falling

Summary Graph	

Trends and Most Recent Estimates	In 2011 to 2012, the urinary (creatinine corrected) concentration of arsenic among persons aged 6 years and older was 50.3 µg/g of creatinine.
Healthy People 2020 Target	Reduce exposure to arsenic in the population, as measured by blood and urine concentrations of the substance or its metabolites, to 35.28 µg/g of creatinine.
More Information	Arsenic

Measure Name: Cadmium

Measure Name	**Cadmium**
Year Range	1999-2012
Measure	We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2007-2012
Desired Direction	Falling
Summary Graph	

Trends and Most Recent Estimates	In 2011 to 2012, the blood (lipid-adjusted) concentration of cadmium among persons aged 1 year and older was 1.5 µg/L.
Healthy People 2020 Target	Reduce exposure to cadmium in the population, as measured by blood and urine concentrations of the substance or its metabolites, to 1.12 µg/L.
More Information	Cadmium

Measure Name: Nitrate

Measure Name	**Nitrate**
Year Range	2001-2012
Measure	We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]
Recent Summary Trend	Non-Significant Change

Recent Summary Trend Year Range	2007-2012
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2011 to 2012, the urinary (creatinine corrected) concentration of nitrate among persons aged 6 years and older was 137.4 mg/g of creatinine.
Healthy People 2020 Target	There is no Healthy People 2020 target for nitrate exposure.
More Information	Nitrate

Measure Name: Benzene

Measure Name	**Benzene**
Year Range	2001-2006
Measure	We present exposure data on the 95th percentile of the population, representing people with the greatest exposure. The 95th percentile level means that 95% of the population has concentrations below that level. Public health officials use such reference values to determine whether groups of people are experiencing an exposure that is unusual compared with an exposure experienced by the rest of the population. [Citation(http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf)]
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2001-2006
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2005 to 2006, the blood (lipid-adjusted) concentration of benzene among persons aged 20 years and older was 0.3 ng/mL.
Healthy People 2020 Target	There is no Healthy People 2020 target for benzene exposure.
More Information	Benzene
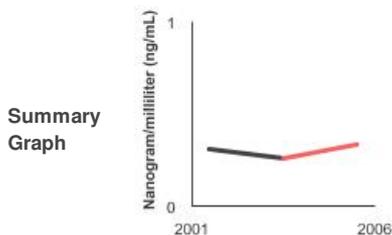
Breast, Cervical, and Colorectal Cancers - Early Detection Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

————	green - headed in the right direction
————	red - headed in the wrong direction
————	black - stable or non-significant change (NSC)
————	purple - indeterminate
————	blue - Healthy People 2020 target

Measure Name: Breast Cancer Screening

Measure Name	**Breast Cancer Screening**
Year Range	1987-2015
Measure	The percentage of women aged 40 years and older, accounting for race/ethnicity, income, and education level, who reported having had a mammogram within the past 2 years.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2010-2015
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2015, 71.6% of women aged 50-74 years had a mammogram within the past 2 years.
Healthy People 2020 Target	Increase the proportion of women who receive a breast cancer screening based on the most recent guidelines to 81.1%
More Information	Breast Cancer Screening

Measure Name: Cervical Cancer Screening

Measure Name	**Cervical Cancer Screening**
Year Range	1987-2015
Measure	The percentage of women aged 18 years and older, accounting for race/ethnicity, income, and education level, who reported they had a Pap test within the past 3 years.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2010-2015
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2015, 78.7% of women aged 21-65 had a pap smear test within the past 3 years
Healthy People 2020 Target	Increase the proportion of women who receive a cervical cancer screening based on the most recent guidelines to 93.0%
More Information	Cervical Cancer Screening
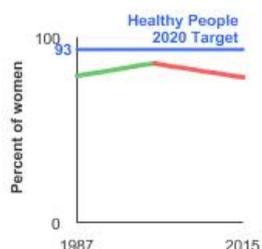
Measure Name: Colorectal Cancer Screening

Measure

Measure Name	Colorectal Cancer Screening
Year Range	2000-2015
Measure	**FOBT:** The percentage of adults aged 50 to 75 years who reported that they had a fecal occult blood test (FOBT) within the past year, by racial/ethnic group. For the 2000 National Health Interview Survey, respondents were asked about both home- and office-based FOBTs; starting in 2003, respondents were asked only about home-based FOBTs. **Colorectal endoscopy:** The percentage of adults aged 50 to 75 years who reported that they have had an endoscopy (sigmoidoscopy or colonoscopy).
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2010-2015
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2015, 62.9% of adults aged 50-75 had received a home FOBT in the last year or had a sigmoidoscopy in the past 5 years or had a colonoscopy in the past 10 years.
Healthy People 2020 Target	Increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines to 70.5%
More Information	Colorectal Cancer Screening

Incidence and Stage at Diagnosis - Diagnosis Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.
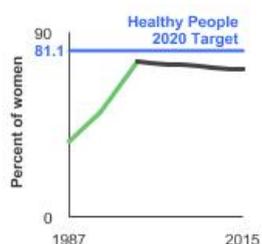
Legend:

green line	green - headed in the right direction
red line	red - headed in the wrong direction
black line	black - stable or non-significant change (NSC)
purple line	purple - indeterminate
blue line	blue - Healthy People 2020 target

Measure Name: Stage at Diagnosis

Measure Name	Stage at Diagnosis
Year Range	1980-2013
Measure	**Late-stage diagnosis rate**: The number of new cancer cases diagnosed at a distant stage, per 100,000 people per year for cancers of the prostate, colon, rectum, and cervix uteri. Late stage is defined as regional and distant stage diagnoses, per 100,000 women per year for cancer of the female breast. Late stage is defined as AJCC 6th edition Stage III and Stage IV diagnoses, per 100,000 people per year for cancers of the lung and bronchus.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2009-2013
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2013, the rate of new regional and distant stage breast cancer cases was 43.6 per 100,000 females.
Healthy People 2020 Target	Reduce new regional and distant stage female breast cancer cases to 42.1 per 100,000 females.
More Information	Stage at Diagnosis

Measure Name: Incidence

Measure Name	Incidence
Year Range	1975-2013
Measure	Incidence rate: the observed number of new cancer cases per 100,000 people per year, adjusted for cancer case reporting delays and based on data from approximately 10 percent of the U.S. population.
	Delay adjustment: a method of estimating delayed reporting of incident cases and then adjusting rates to account for this delay.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2009-2013
Desired Direction	Falling
Summary Graph	

Rate

0

1975   2013

Trends and Most Recent Estimates	In 2013, the rate of new cases of all cancers combined was 448.6 per 100,000 people per year.
Healthy People 2020 Target	There is no Healthy People 2020 target for cancer incidence.
More Information	Incidence

Treatment Summary Tables

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.
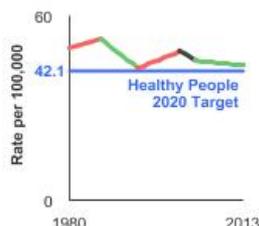
Legend:

———	green - headed in the right direction
———	red - headed in the wrong direction
———	black - stable or non-significant change (NSC)
———	purple - indeterminate
———	blue - Healthy People 2020 target

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:

1. **Is the trend moving in the desired direction?**
2. **How does the nation's progress compare to the Healthy People 2020 target?**

- Bladder, Breast, Colorectal
- Kidney, Lung, Ovarian, Prostate

Bladder, Breast, and Colorectal Cancer- Treatment Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.

Legend:

——— (green)	green - headed in the right direction
——— (red)	red - headed in the wrong direction
——— (black)	black - stable or non-significant change (NSC)
——— (purple)	purple - indeterminate
——— (blue)	blue - Healthy People 2020 target

Measure Name: Colorectal Cancer Treatment

Measure Name	**Colorectal Cancer Treatment**
Year Range	1987-2010
Measure	Percent of individuals, aged 20 years and older, diagnosed with stage III colon cancer who received chemotherapy or diagnosed with stage II or stage III rectal cancer who received chemotherapy with or without radiotherapy.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2005-2010
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2010, 68.9% of stage III colon and stage II and III rectal patients received adjuvant chemotherapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including colorectal cancer treatment.
More Information	Colorectal Cancer Treatment

Measure Name: Bladder Cancer Treatment

Measure Name	**Bladder Cancer Treatment**
Year Range	1995-2009
Measure	Percentage of individuals receiving intravesical therapy in non-muscle invasive bladder cancer.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2003-2009
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2009, 29.7% of patients with non-muscle invasive disease received intravesical therapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including bladder cancer treatment.
More Information	Bladder Cancer Treatment
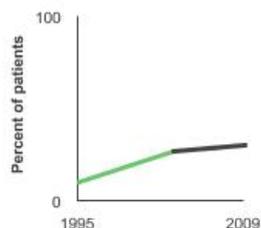
Measure Name: Breast Cancer Treatment

Measure Name	**Breast Cancer Treatment**
Year Range	1987-2010

Measure	Percentage of women aged 20 and older, diagnosed with early stage breast cancer (less than stage IIIA), receiving breast-conserving surgery and radiation treatment. Percentage of women aged 20 and older, diagnosed with node-positive, stage I–IIIA breast cancer, receiving multi-agent chemotherapy.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2010-2
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2010, 65.2% of women diagnosed with node positive breast cancer, received multi-agent chemotherapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including breast cancer treatment.
More Information	Breast Cancer Treatment
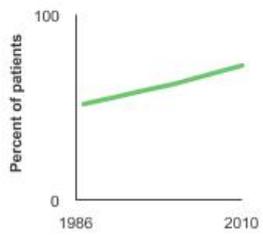
Kidney, Lung, Ovarian, and Prostate Cancer - Treatment Summary Table

Only one measure per topic is displayed in the summary table. A complete set of measures, where they exist, can be found by following the More Information link in the table below.
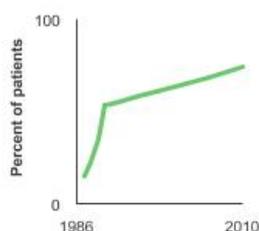
Legend:

———	green - headed in the right direction
———	red - headed in the wrong direction
———	black - stable or non-significant change (NSC)
———	purple - indeterminate
———	blue - Healthy People 2020 target

Measure Name: Lung Cancer Treatment

Measure Name	Lung Cancer Treatment
Year Range	1996-2010
Measure	Chemotherapy following the diagnosis of non-small cell lung cancer stages IIIB or IV.
Recent Summary Trend	Stable
Recent Summary Trend Year Range	2005-2010
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2010, 51.1% of stage IIIB or IV non-small cell lung cancer patients aged 20 years and older received chemotherapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including lung cancer treatment.
More Information	Lung Cancer Treatment

Measure Name: Prostate Cancer Treatment
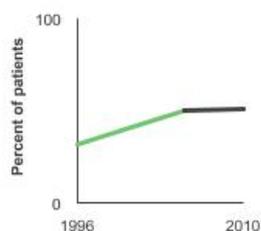
Measure Name	Prostate Cancer Treatment
Year Range	1998-2008
Measure	Hormonal therapy following the diagnosis of prostate cancer.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2002-2008
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	In 2008, 21.1% of localized/regional prostate cancer patients aged 40 years and older were given hormonal therapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including prostate cancer treatment.
More Information	Prostate Cancer Treatment
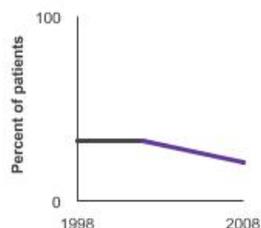
Measure Name: Kidney Cancer Treatment

Measure Name	Kidney Cancer Treatment
Year Range	2000-2013
Measure	Partial nephrectomy or complete nephrectomy in patients with localized/regional kidney cancer.
Recent Summary Trend	Rising

Recent Summary Trend Year Range	2009-2013
Desired Direction	Rising

Summary Graph	

Trends and Most Recent Estimates	In 2013, 35.3% of patients diagnosed with localized/regional kidney cancer received a partial nephrectomy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including kidney cancer treatment.
More Information	Kidney Cancer Treatment

Measure Name: Ovarian Cancer Treatment

Measure Name	**Ovarian Cancer Treatment**
Year Range	1991-2011
Measure	Percentage of individuals diagnosed with ovarian cancer who received chemotherapy by stage of diagnosis.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2002-2011
Desired Direction	Rising

Summary Graph	

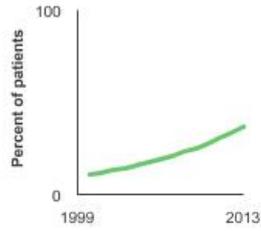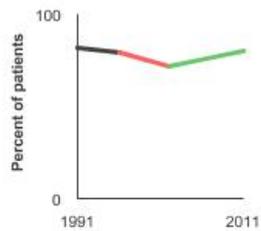|	
Trends and Most Recent Estimates	In 2011, 79.9% of stage III or IV ovarian cancer patients received chemotherapy.
Healthy People 2020 Target	There are no Healthy People 2020 targets for cancer treatment, including ovarian cancer treatment.
More Information	Ovarian Cancer Treatment

Life After Cancer Summary Tables

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Legend:

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————	purple - indeterminate
————	blue - Healthy People 2020 target

The tables in this section summarize the measures that are described at greater length in the body of this report. A graph, which addresses two questions, is included for most measures:

1. **Is the trend moving in the desired direction?**
2. **How does the nation's progress compare to the Healthy People 2020 target?**

- Financial Burden of Cancer Care
- Survival, Smoking, Obesity, and Physical Activity

Financial Burden of Cancer Care - Life After Cancer Summary Table

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Legend:

████████	green - headed in the right direction
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████████	purple - indeterminate
████████	blue - Healthy People 2020 target

Measure Name	**Financial Burden of Cancer Care**
Year Range	2015
Measure	Estimates of national expenditures for cancer care.
Recent Summary Trend	n/a
Recent Summary Trend Year Range	No trend data are available for the financial burden of cancer care.
Desired Direction	Falling
Summary Graph	No trend data are available for financial burden of cancer care
Trends and Most Recent Estimates	In 2015, national cancer care expenditures were an estimated $147.5 billion.
Healthy People 2020 Target	There is no Healthy People 2020 target for the financial burden of cancer care.
More Information	Financial Burden of Cancer Care
Last Updated	January 2017

Survival, Smoking, Physical Activity, and Obesity - Life After Cancer Summary Table

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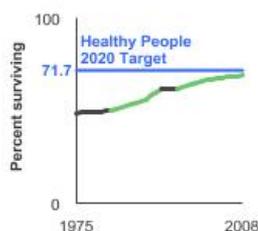
Legend:

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red line	red - headed in the wrong direction
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purple line	purple - indeterminate
blue line	blue - Healthy People 2020 target

Measure Name: Survival

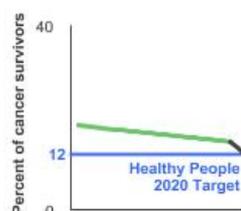|	
Measure Name	**Survival**
Year Range	1975-2008
Measure	**Five-year relative cancer survival**: The proportion of patients surviving cancer 5 years after diagnosis calculated in the absence of other causes of death. This percentage is the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors. **Five-year cause specific survival**: The proportion of patients surviving a specified cause of death 5 years after diagnosis. Deaths from other causes are not considered cause-specific deaths.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2004-2008
Desired Direction	Rising
Summary Graph	
Trends and Most Recent Estimates	For cancers diagnosed in 2008, the 5-year relative survival rate was 68.9%.
Healthy People 2020 Target	Increase to 71.7% the proportion of cancer survivors who are living five years or longer after diagnosis.
More Information	Survival

Measure Name: Cancer Survivors and Smoking

Measure Name	**Cancer Survivors and Smoking**
Year Range	1992-2015
Measure	Rates of smoking among cancer survivors are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked whether they were a current smoker.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2011-2015
Desired Direction	Falling
Summary Graph	

Trends and Most Recent Estimates	In 2015, 12.0% of cancer survivors aged 18 and older were current cigarette smokers.
Healthy People 2020 Target	Reduce to 12.0% the proportion of adult current cigarette smokers.
More Information	Cancer Survivors and Smoking

Measure Name: Cancer Survivors and Physical Activity

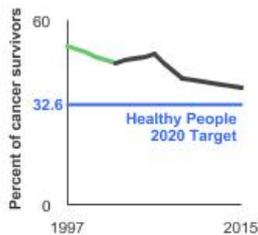|	
Measure Name	**Cancer Survivors and Physical Activity**
Year Range	1997-2015
Measure	The percentage of cancer survivors reporting no physical activity are based on the self-reporting of individuals with a cancer history who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). Participants were asked how often they perform light, moderate, or vigorous activity for at least 10 minutes.
Recent Summary Trend	Non-Significant Change
Recent Summary Trend Year Range	2011-2015
Desired Direction	Falling
Summary Graph	

Trends and Most Recent Estimates	In 2015, 38.3% of cancer survivors 18 and older reported no physical activity in their leisure time.
Healthy People 2020 Target	Reduce to 32.6% the proportion of adults who engage in no leisure-time physical activity.
More Information	Cancer Survivors and Physical Activity

Measure Name: Cancer Survivors and Obesity

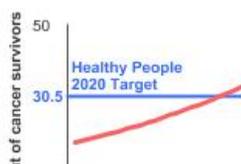|	
Measure Name	**Cancer Survivors and Obesity**
Year Range	1992-2015
Measure	Rates of obesity among cancer survivors are based on the self-reporting of individuals with a cancer history, who are interviewed as part of the annual population-based National Health Interview Survey (NHIS). These weight groups are defined by a measurement called body mass index (BMI), which is calculated by dividing weight in kilograms by height in meters squared. For most adults, experts consider a BMI of 30 and over to be obese.
Recent Summary Trend	Rising
Recent Summary Trend Year Range	2011-2015
Desired Direction	Falling
Summary Graph	

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1991   2015

Trends and Most Recent Estimates	From 2015, 31.4% percent of cancer survivors aged 20 years and older were obese.
Healthy People 2020 Target	Decrease to 30.5% percent the proportion of obese adults.
More Information	Cancer Survivors and Obesity

From 2015, 31.4% percent of cancer survivors aged 20 years and older were obese.

Mortality and Person-Years of Life Lost - End of Life Summary Table

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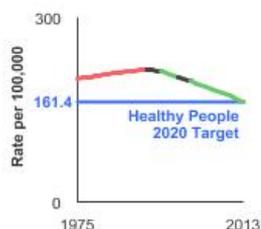
Legend:

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purple line	purple - indeterminate
blue line	blue - Healthy People 2020 target

Measure Name: Mortality

Measure Name	Mortality
Year Range	1975-2013
Measure	The number of cancer deaths per 100,000 people per year, age-adjusted to a U.S. 2000 standard population.
Recent Summary Trend	Falling
Recent Summary Trend Year Range	2009-2013
Desired Direction	Falling
Summary Graph	
Trends and Most Recent Estimates	In 2013, the death rate for all cancers combined was 163.1 per 100,000 people per year.
Healthy People 2020 Target	Reduce the overall cancer death rate to 161.4 cancer deaths per 100,000 people per year.
More Information	Mortality

Measure Name: Person-Years of Life Lost

Measure Name	Person-Years of Life Lost
Year Range	2012
Measure	The difference between the actual age stemming from the disease/cause and the expected age of death.
Recent Summary Trend	n/a
Recent Summary Trend Year Range	No trend data are available for person-years of life lost.
Desired Direction	Falling
Summary Graph	No trend data are available for person-years of life lost
Trends and Most Recent Estimates	In 2012, cancer deaths were responsible for 9.2 million person-years of life lost and on average 15.7 years of life lost per person who died of cancer.
Healthy People 2020 Target	There is no Healthy People 2020 target for person-years of life lost.
More Information	Person-Years of Life Lost