**13-CD-01**

**Committee:** Chronic Disease

**Title:** Revision to the National Chronic Disease Indicators

**I. Statement of the Problem:**
The Chronic Disease Indicators are a collaborative effort of the Council of State and Territorial Epidemiologists (CSTE), the National Association of Chronic Disease Directors (NACDD), and CDC's National Center for Chronic Disease Prevention and Health Promotion. They are a cross-cutting set of indicators that have been developed by consensus. They allow states, territories and large metropolitan areas to uniformly define, collect, and report chronic disease data that are 1) important to public health practice, and 2) available for states, territories and large metropolitan areas. One of the strengths of the CDIs is their rigorous definitions and rationales. Furthermore, they are an integrated set of indicators with data available in one place (the CDC Chronic Disease Indicators Website (1)) to assess chronic disease-related burden across many different content areas. In the late 1990s, CSTE worked with epidemiologists and chronic disease program directors at the state and federal levels to select, prioritize, and define the original 73 CDIs. The original 73 CDIs were adopted by a set of CSTE position statements at the 1998 CSTE business meeting. CSTE position statement #98-CD-01, "Modification of Chronic Disease Indicators," which was also adopted at the 1998 CSTE business meeting, charges the CSTE Chronic Disease Committee to work in collaboration with the NACDD Science and Epidemiology Committee to bring recommendations to CSTE for additions, deletions, and modifications to the CDIs (2).A formal revision process for the CDIs was undertaken in the early 2000s, when a CDI Work Group, composed of representatives of CSTE, NACDD, and CDC, was formed. The CDI Work Group reviewed the original CDIs, and recommended specific revisions to the original set of indicators. Revisions were made to six of the previous 73 indicators and 23 new indicators were added. This revised set of CDIs was adopted by CSTE position statement in 2002 (3).

Since 2002, no formal process to update the CDIs had been undertaken, although some small informal revisions to the indicators have been made periodically, primarily minor revisions to reflect changes in availability of data. After the 2002 revision, CDC undertook an effort to develop, maintain, and encourage use of the Chronic Disease Indicator's Website (1). CDC worked with state chronic disease epidemiologists to develop and revise the website to be most useful. While other chronic disease data websites are available, the CDI website has the unique role of providing access to a comprehensive list of indicators by which to measure chronic disease-related burden and access to data across several chronic disease content areas. CDC also works with all of the agencies housing the data sources to analyze and provide data on the CDIs, in order to display data for all the CDIs for each of the states, territories, and many large metropolitan areas on the CDI website.

Late in the 2000s, CSTE, NACDD, and CDC recognized that a formal review and revision to the CDIs was long overdue. Since the 2002 revision, many changes in chronic disease surveillance, including the systems used, the breadth of issues, and the available data, have occurred. Beginning in 2010, a process to review and revise the Chronic Disease Indicators was undertaken by NACDD, CSTE, and CDC. A Steering Committee was formed with representation from the three organizations/agencies and including the current CSTE Chronic Disease/MCH/Oral Health Committee Chair and the current NACDD Science and Epidemiology Committee Chair. The first part of the process involved stakeholder and subject matter expert interviews and surveys to identify potential needed revisions, additions, and deletions to the CDIs. These results informed the next part of the process, in which seventeen content-specific Working Groups with representation from subject-matter experts from state health departments and CDC, were convened to review and revise the CDIs to be better aligned with and relevant to current chronic disease practice and public health priorities. Particular attention was paid to the potential for adding systems/environment indicators to align with the focus of much of the chronic disease public health work being conducted nationally. Efforts have also been made to align these indicators with other indicator sets, such as Healthy People 2020, the National Oral Health Surveillance System, and the Preconception Health Indicators. The Working Groups conducted their business through

conference calls and email and provided recommendations by late summer 2012. On Friday, September 14, 2012, the Working Group Chairs (or their designee) gathered at the Chronic Disease Indicator Update Consensus Meeting in Atlanta, GA, to review and discuss all the recommended revisions to the CDIs. After the September meeting, the Steering Committee and the Working Group Chairs continued work through conference calls and email to finalize the revisions to the Chronic Disease Indicators. After receiving input from stakeholders and subject matter experts through this process, the CDI Steering Committee recommends specific revisions to the existing set of indicators, summarized below and detailed in the attached.

The names and affiliations of the Working Group members are listed in Appendix A.

**II. Statement of the desired action(s) to be taken:**
CSTE adopts the proposed revisions to the Chronic Disease Indicators (CDI) as standard case definitions and encourages states, territories, and CDC to utilize the CDI to guide programmatic and surveillance efforts. Further, CSTE recommends that CDC update its current Chronic Disease Indicator website to reflect these revisions. The Chronic Disease/MCH/Oral Health Committee of CSTE will work with CDC and NACDD on implementation of the newly revised Chronic Disease Indicators. CSTE also recommends that an ongoing joint CSTE, NACDD, and CDC working group be formed to routinely review, evaluate, and update the CDI.

A summary list of the recommended revised set of Chronic Disease Indicators is in Appendix B. Detailed indicator definitions and rationales are included in Attachment I.

A list of the indicators that are recommended for removal from the Chronic Disease Indicators and the rationale for their removal is in Appendix C.

**III. Public health Impact:**
Chronic diseases are the leading causes of death and disability in the United States despite the fact that they are largely preventable and controllable by intervening on their risk factors and by managing chronic conditions (4). Chronic disease programs in state and territorial health departments have grown tremendously over the past 10 years and now address a wide range of related health issues, including but not limited to cancer, cardiovascular disease, diabetes, asthma, tobacco use and exposure to secondhand smoke, alcohol use, obesity, physical activity, nutrition, oral health, health among women of reproductive age, arthritis, chronic kidney disease, COPD and adult immunizations. These programs work in multiple settings and are multi-level, including work on policy, environmental, and systems changes in communities, worksites, schools, and health care settings as well as individual knowledge, behavior change, and self-management of chronic conditions. In order to reduce the mortality and morbidity resulting from chronic diseases and prevent chronic conditions and their risk factors, public health chronic disease programs need access to data for relevant and sufficient chronic disease indicators to understand the patterns within their populations, how best to intervene, and program impact. These newly revised Chronic Disease Indicators provide state and territorial health departments and other health agencies with a framework for chronic disease surveillance in the form of rigorously-defined consensus measures that are relevant to their programs.

**IV. References**
1. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Chronic Disease Indicators. Website. http://apps.nccd.cdc.gov/cdi/Default.aspx. Accessed March 27, 2013.

2. Council of State and Territorial Epidemiologists. Modification of Chronic Disease Indicators. Position Statement #98-CD-01. 1998. http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/PS/1998-CD-1.pdf. Accessed March 27, 2013.

3. Council of State and Territorial Epidemiologists. Revise Chronic Disease Indicators (CDI) to reflect expert and stakeholder recommendations. Position Statement #02-CD.MCH.OH -02. 2002. http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/PS/2002-CDMCHOH-2.pdf. Accessed March 27, 2013

4. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. The Power of Prevention: Chronic disease…the public health challenge of the 21st century. 2009. Accessed March 27, 2013.

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## Appendix B. Recommended Revised Set of Chronic Disease Indicators

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Alcohol | 1.1 | Alcohol use among youth | Existing | YRBSS[1] |
| Alcohol | 1.2 | Alcohol use before pregnancy | New | PRAMS[2] |
| Alcohol | 2.1 | Binge drinking prevalence among youth | Existing | YRBSS |
| Alcohol | 2.2 | Binge drinking prevalence among adults aged ≥18 years | Existing | BRFSS |
| Alcohol | 2.3 | Binge drinking prevalence among women aged 18-44 years | Existing | BRFSS |
| Alcohol | 3 | Binge drinking frequency among adults aged ≥18 years | New | BRFSS[3] |
| Alcohol | 4 | Binge drinking intensity among adults aged ≥18 years | New | BRFSS |
| Alcohol | 5.1 | Heavy drinking among adults aged ≥18 years | Revised | BRFSS |
| Alcohol | 5.2 | Heavy drinking among women aged 18-44 years | New | BRFSS |
| Alcohol | 6 | Chronic liver disease mortality | Existing | Death certificate |
| Alcohol | 7 | Per capita alcohol consumption among persons aged ≥14 years | New | AEDS[4] |
| Alcohol | 8 | Amount of alcohol excise tax by beverage type | New | APIS[5] |
| Alcohol | 9 | Commercial host (dram shop) liability for alcohol service | New | Legal research[6] |
| Alcohol | 10 | Local control of the regulation of alcohol outlet density | New | Legal research[7] |
| Arthritis | 1.1 | Arthritis among adults aged ≥18 years | Existing | BRFSS |
| Arthritis | 1.2 | Arthritis among adults aged ≥18 years who are obese | Existing | BRFSS |
| Arthritis | 1.3 | Arthritis among adults aged ≥18 years who have diabetes | Existing | BRFSS |
| Arthritis | 1.4 | Arthritis among adults aged ≥18 years who have heart disease | Existing | BRFSS |
| Arthritis | 2 | Activity limitation due to arthritis among adults aged ≥18 years | Existing | BRFSS |
| Arthritis | 3 | Physical inactivity among adults aged ≥18 years with arthritis | Existing | BRFSS |
| Arthritis | 4 | Fair or poor health among adults aged ≥18 years with arthritis | Existing | BRFSS |
| Arthritis | 5 | Adults aged ≥18 years with arthritis who have taken a class to learn how to manage arthritis symptoms | Existing | BRFSS |
| Asthma | 1.1 | Current asthma prevalence | New | BRFSS/NSCH[8] |
| Asthma | 1.2 | Asthma prevalence among women aged 18-44 years | New | BRFSS |

[1]Youth Risk Behavior Surveillance System
[2]Pregnancy Risk Assessment Monitoring System
[3]Behavioral Risk Factor Surveillance System
[4]Alcohol Epidemiologic Data System
[5]Alcohol Policy Information System
[6]Mosher JF, Cohen EN, Jernigan DH. Commercial host (dram shop) liability: current status and trends. Manuscript submitted for publication.
[7] Mosher JF, Treffers R. State preemption, local control, and the regulation of alcohol retail outlet density. Am J Prev Med 2013;44:399-405.
[8]National Survey of Children's Health

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Asthma | 2.1 | Emergency department (ED) visit rate for asthma | New | SEDD[9] |
| Asthma | 2.2 | At-risk emergency department (ED) visit rate for asthma | New | SEDD; BRFSS; NSCH |
| Asthma | 3.1 | Hospitalizations for asthma | Existing | SID[10] |
| Asthma | 3.2 | Risk-based hospital discharge rate for asthma | New | SID; BRFSS; NSCH |
| Asthma | 4.1 | Asthma mortality rate | Existing | Death certificate |
| Asthma | 4.2 | Risk-based asthma mortality rate | New | Death certificate, BRFSS |
| Asthma | 5.1 | Influenza vaccination among non-institutionalized adults aged 18-64 years with asthma | New | BRFSS |
| Asthma | 5.2 | Influenza vaccination among non-institutionalized adults aged ≥65 years with asthma | New | BRFSS |
| Asthma | 6.1 | Pneumococcal vaccination among non-institutionalized adults aged 18-64 years with asthma | New | BRFSS |
| Asthma | 6.2 | Pneumococcal vaccination among non-institutionalized adults aged ≥65 years with asthma | New | BRFSS |
| Cancer | 1 | Mammography use among women aged 50-74 years | Revised | BRFSS |
| Cancer | 2.1 | Papanicolaou smear use among adult women aged 21-65 years | Revised | BRFSS |
| Cancer | 2.2 | Recent Papanicolaou smear use among women aged 21-44 years | New | BRFSS |
| Cancer | 3 | Fecal occult blood test, sigmoidoscopy, or colonoscopy among adults aged 50–75 years | Revised | BRFSS |
| Cancer | 4.1 | Invasive cancer (all sites combined), incidence | Existing | Statewide central cancer registries |
| Cancer | 4.2 | Invasive cancer (all sites combined), mortality | Existing | Death certificate |
| Cancer | 5.1 | Invasive cancer of the female breast, incidence | Existing | Statewide central cancer registries |
| Cancer | 5.2 | Cancer of the female breast, mortality | Existing | Death certificate |
| Cancer | 6.1 | Invasive cancer of the cervix, incidence | Existing | Statewide central cancer registries |
| Cancer | 6.2 | Cancer of the female cervix, mortality | Existing | Death certificate |
| Cancer | 7.1 | Cancer of the colon and rectum (colorectal), incidence | Existing | Statewide central cancer registries |
| Cancer | 7.2 | Cancer of the colon and rectum (colorectal), mortality | Existing | Death certificate |
| Cancer | 8.1 | Cancer of the lung and bronchus, incidence | Existing | Statewide central cancer registries |
| Cancer | 8.2 | Cancer of the lung and bronchus, mortality | Existing | Death certificate |
| Cancer | 9.1 | Invasive melanoma, incidence | Existing | Statewide central cancer registries |
| Cancer | 9.2 | Melanoma, mortality | Existing | Death certificate |
| Cancer | 10.1 | Invasive cancer of the oral cavity or pharynx, incidence | Existing | Statewide central cancer registries |
| Cancer | 10.2 | Cancer of the oral cavity and pharynx, mortality | Existing | Death certificate |

[9]State Emergency Department Database
[10]State Inpatient Database

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Cancer | 11.1 | Invasive cancer of the prostate, incidence | Existing | Statewide central cancer registries |
| Cancer | 11.2 | Cancer of the prostate, mortality | Existing | Death certificate |
| Cardiovascular Disease | 1.1 | Mortality from total cardiovascular diseases | Revised | Death certificate |
| Cardiovascular Disease | 1.2 | Mortality from diseases of the heart | Existing | Death certificate |
| Cardiovascular Disease | 1.3 | Mortality from coronary heart disease | Existing | Death certificate |
| Cardiovascular Disease | 1.4 | Mortality from heart failure | Revised | Death certificate |
| Cardiovascular Disease | 1.5 | Mortality from cerebrovascular disease (stroke) | Existing | Death certificate |
| Cardiovascular Disease | 2 | Hospitalization for heart failure among Medicare-eligible persons aged ≥65 years | Revised | CMS[11] Part A claims data; CMS Medicare population estimates |
| Cardiovascular Disease | 3.1 | Hospitalization for stroke | Revised | SID |
| Cardiovascular Disease | 3.2 | Hospitalization for acute myocardial infarction | Revised | SID |
| Cardiovascular Disease | 4 | Cholesterol screening among adults aged ≥18 years | Existing | BRFSS |
| Cardiovascular Disease | 5 | High cholesterol prevalence among adults aged ≥18 years | New | BRFSS |
| Cardiovascular Disease | 6.1 | Awareness of high blood pressure among adults aged ≥18 years | Existing | BRFSS |
| Cardiovascular Disease | 6.2 | Awareness of high blood pressure among women aged 18-44 years | New | BRFSS |
| Cardiovascular Disease | 7 | Taking medicine for high blood pressure control among adults aged ≥18 years with high blood pressure | Existing | BRFSS |
| Cardiovascular Disease | 8 | Pre-pregnancy hypertension | New | PRAMS |
| Cardiovascular Disease | 9.1 | Influenza vaccination among non-institutionalized adults aged 18-64 years with a history of coronary heart disease or stroke | New | BRFSS |
| Cardiovascular Disease | 9.2 | Influenza vaccination among non-institutionalized adults aged ≥65 years with a history of coronary heart disease or stroke | New | BRFSS |
| Cardiovascular Disease | 10.1 | Pneumococcal vaccination among non-institutionalized adults aged 18-64 years with a history of coronary heart disease | New | BRFSS |
| Cardiovascular Disease | 10.2 | Pneumococcal vaccination among non-institutionalized adults aged ≥65 years with a history of coronary heart disease | New | BRFSS |
| Chronic Kidney Disease | 1 | Mortality with end-stage renal disease | Existing | Death certificate |
| Chronic Kidney Disease | 2.1 | Incidence of treated end-stage renal disease | Existing | USRDS[12] |
| Chronic Kidney Disease | 2.2 | Incidence of treated end-stage renal disease attributed to diabetes | Existing | USRDS |
| Chronic Kidney Disease | 3 | Prevalence of chronic kidney disease among adults aged ≥18 years | New | BRFSS |

[11] Centers for Medicare and Medicaid Services
[12] U.S. Renal Data System

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Chronic Obstructive Pulmonary Disease | 1.1 | Mortality with chronic obstructive pulmonary disease as underlying cause among adults aged ≥45 years | Revised | Death certificate |
| Chronic Obstructive Pulmonary Disease | 1.2 | Mortality with chronic obstructive pulmonary disease as underlying or contributing cause among adults aged ≥45 years | Revised | Death certificate |
| Chronic Obstructive Pulmonary Disease | 2 | Prevalence of chronic obstructive pulmonary disease among adults | New | BRFSS |
| Chronic Obstructive Pulmonary Disease | 3 | Prevalence of current smoking among adults with diagnosed chronic obstructive pulmonary disease | New | BRFSS |
| Chronic Obstructive Pulmonary Disease | 4 | Prevalence of activity limitation among adults with diagnosed chronic obstructive pulmonary disease | New | BRFSS |
| Chronic Obstructive Pulmonary Disease | 5.1 | Hospitalization for chronic obstructive pulmonary disease as first-listed diagnosis | New | SID |
| Chronic Obstructive Pulmonary Disease | 5.2 | Hospitalization for chronic obstructive pulmonary disease as any diagnosis | New | SID |
| Chronic Obstructive Pulmonary Disease | 5.3 | Hospitalization for chronic obstructive pulmonary disease as first-listed diagnosis among Medicare-eligible persons aged ≥65 years | New | CMS Part A claims data; CMS Medicare population estimates |
| Chronic Obstructive Pulmonary Disease | 5.4 | Hospitalization for chronic obstructive pulmonary disease as any diagnosis among Medicare-eligible persons aged ≥65 years | New | CMS Part A claims data; CMS Medicare population estimates |
| Chronic Obstructive Pulmonary Disease | 6.1 | Emergency department visits rate for chronic obstructive pulmonary disease as first-listed diagnosis | New | SEDD; SID |
| Chronic Obstructive Pulmonary Disease | 6.2 | Emergency department visits rate for chronic obstructive pulmonary disease as any diagnosis | New | SEDD; SID |
| Chronic Obstructive Pulmonary Disease | 7 | Influenza vaccination among non-institutionalized adults aged ≥45 years with chronic obstructive pulmonary disease | New | BRFSS |
| Chronic Obstructive Pulmonary Disease | 8 | Pneumococcal vaccination among adults aged ≥45 years with chronic obstructive pulmonary disease | New | BRFSS |
| Diabetes | 1.1 | Mortality due to diabetes reported as any listed cause | Revised | Death certificate |
| Diabetes | 1.2 | Mortality with diabetic ketoacidosis | New | Death certificate |
| Diabetes | 2.1 | Diabetes prevalence among adults aged ≥18 years | Existing | BRFSS |
| Diabetes | 2.2 | Diabetes prevalence among women aged 18-44 years | New | BRFSS |
| Diabetes | 3.1 | Pre-pregnancy diabetes | New | PRAMS |
| Diabetes | 3.2 | Gestational diabetes | New | Birth certificate |
| Diabetes | 4 | Amputation of a lower extremity attributable to diabetes | Existing | SID |
| Diabetes | 5 | Foot examination among adults aged ≥18 years with diabetes | Existing | BRFSS |
| Diabetes | 6 | Glycosylated hemoglobin measurement among adults aged ≥18 years with diabetes | Revised | BRFSS |

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Diabetes | 7 | Dilated eye examination among adults aged ≥18 years with diabetes | Existing | BRFSS |
| Diabetes | 8 | Visits to dentist or dental clinic among adults aged ≥18 years with diabetes | New | BRFSS |
| Diabetes | 9 | Hospitalization with diabetes | Existing | SID |
| Diabetes | 10 | Adults with diabetes aged ≥18 years who have taken a diabetes self-management course | New | BRFSS |
| Diabetes | 11.1 | Prevalence of high cholesterol among adults aged ≥18 years with diabetes | New | BRFSS |
| Diabetes | 11.2 | Prevalence of high blood pressure among adults aged ≥18 years with diabetes | New | BRFSS |
| Diabetes | 11.3 | Prevalence of depressive disorders among adults aged ≥18 years with diabetes | New | BRFSS |
| Diabetes | 12.1 | Influenza vaccination among non-institutionalized adults aged 18-64 years with diabetes | Revised | BRFSS |
| Diabetes | 12.2 | Influenza vaccination among non-institutionalized adults aged ≥65 years with diabetes | Revised | BRFSS |
| Diabetes | 13.1 | Pneumococcal vaccination among non-institutionalized adults aged 18-64 years with diabetes | Revised | BRFSS |
| Diabetes | 13.2 | Pneumococcal vaccination among non-institutionalized adults aged ≥65 years with diabetes | Revised | BRFSS |
| Disability | 1 | Disability among adults aged ≥ 65 years | New | ACS[13] 1-Year Estimates |
| Immunization | 1 | Influenza vaccination among non-institutionalized adults aged ≥18 years | Revised | BRFSS |
| Mental Health | 1 | Recent mentally unhealthy days among adults aged ≥18 years | Existing | BRFSS |
| Mental Health | 2 | ≥ 14 recent mentally unhealthy days among women aged 18-44 years | New | BRFSS |
| Mental Health | 3 | Postpartum depressive symptoms | New | PRAMS |
| Nutrition, Physical Activity, and Weight Status | 1.1 | Obesity among adults aged ≥18 years | Existing | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 1.2 | Obesity among high school students | Revised | YRBSS |

[13] American Community Survey (U.S. Census Bureau)

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Nutrition, Physical Activity, and Weight Status | 2.1 | Overweight or obesity among adults aged ≥18 years | Existing | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 2.2 | Overweight or obesity among high school students | New | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 2.3 | Overweight and obesity among women aged 18-44 years | New | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 2.4 | Pre-pregnancy overweight and obesity | New | Birth certificate |
| Nutrition, Physical Activity, and Weight Status | 3.1 | Healthy weight among adults aged ≥18 years | New | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 3.2 | Healthy weight among high school students | New | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 4.1 | Median daily frequency of fruit consumption among high school students | Revised | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 4.2 | Median daily frequency of fruit consumption among adults aged ≥18 years | Revised | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 5.1 | Median daily frequency of vegetable consumption among high school students | Revised | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 5.2 | Median daily frequency of vegetable consumption among adults aged ≥18 years | Revised | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 6 | Census tracts with healthier food retailers within ½ mile of boundary | New | InfoUSA; USDA[14] |

[14] U.S. Department of Agriculture (listing of SNAP authorized retailers)

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Nutrition, Physical Activity, and Weight Status | 7.1 | Farmers markets that accept Women and Infant Children (WIC) farmers market nutrition program coupons | New | USDA National Farmers' Market Directory |
| Nutrition, Physical Activity, and Weight Status | 7.2 | Farmers markets that accept Supplemental Nutrition Assistance Program (SNAP) benefits | New | USDA National Farmers' Market Directory |
| Nutrition, Physical Activity, and Weight Status | 8 | Number of farmers markets per 100,000 residents | New | USDA National Farmers' Market Directory |
| Nutrition, Physical Activity, and Weight Status | 9.1 | Presence of regulations pertaining to serving fruit in early care and education settings | New | ASHW[15] |
| Nutrition, Physical Activity, and Weight Status | 9.2 | Presence of regulations pertaining to serving vegetables in early care and education settings | New | ASHW |
| Nutrition, Physical Activity, and Weight Status | 10 | No leisure-time physical activity among adults aged ≥18 years | New | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 11.1 | Meeting aerobic physical activity guidelines for substantial health benefits among adults aged ≥18 years | Revised | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 11.2 | Meeting aerobic physical activity guidelines for substantial health benefits and for muscle-strengthening activity among adults aged ≥18 years | New | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 11.3 | Meeting aerobic physical activity guidelines for additional and more extensive health benefits among adults aged ≥18 years | New | BRFSS |
| Nutrition, Physical Activity, and Weight Status | 11.4 | Meeting aerobic physical activity guidelines among high school students | Revised | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 12.1 | Participation in daily school physical education classes among high school students | New | YRBSS |

[15] Achieving a State of Healthy Weight: A National Assessment of Obesity Prevention Terminology in Child Care Regulations (updated annually)

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Nutrition, Physical Activity, and Weight Status | 12.2 | Soda consumption among high school students | New | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 13.1 | Middle and high schools that allow community-sponsored use of physical activity facilities by youth outside of normal school hours | New | CDC School Health Profiles |
| Nutrition, Physical Activity, and Weight Status | 13.2 | Middle schools and high schools that allow students to purchase soda or fruit drinks | New | CDC School Health Profiles |
| Nutrition, Physical Activity, and Weight Status | 13.3 | Middle schools and high schools that allow students to purchase sports drinks | New | CDC School Health Profiles |
| Nutrition, Physical Activity, and Weight Status | 13.4 | Middle schools and high schools that offer less healthy foods as competitive foods | New | CDC School Health Profiles |
| Nutrition, Physical Activity, and Weight Status | 14.1 | Presence of regulations pertaining to screen time in early care and education settings | New | ASWH |
| Nutrition, Physical Activity, and Weight Status | 14.2 | Television viewing among high school students | Revised | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 14.3 | Computer use among high school students | New | YRBSS |
| Nutrition, Physical Activity, and Weight Status | 15 | Infants breastfed at 6 months | New | National Immunization Survey |
| Nutrition, Physical Activity, and Weight Status | 16 | Receiving formula supplementation within the first 2 days of life among breastfed infants | New | National Immunization Survey |
| Nutrition, Physical Activity, and Weight Status | 17 | Mean maternity practices in infant nutrition care score | New | mPINC[16] |

[16] Maternity Practices in Infant Nutrition and Care (CDC biennial survey)

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Nutrition, Physical Activity, and Weight Status | 18 | Live births occurring at Baby Friendly Facilities | New | CDC Breastfeeding Report Card |
| Nutrition, Physical Activity, and Weight Status | 19 | State child care regulation supports onsite breastfeeding | New | ASHW |
| Nutrition, Physical Activity, and Weight Status | 20 | Presence of regulations pertaining to avoiding sugar in early care and education settings | New | ASHW |
| Older Adults | 1 | Hospitalization for hip fracture among Medicare-eligible persons aged ≥65 years | Existing | CMS Part A claims data; CMS Medicare population estimates |
| Older Adults | 2 | Percentage of female Medicare beneficiaries aged ≥65 years who reported not ever being screened for osteoporosis with a bone mass or bone density measurement | New | MCBS[17] |
| Older Adults | 3.1 | Proportion of older adults aged ≥65 years who are up to date on a core set of clinical preventive services | New | BRFSS |
| Older Adults | 3.2 | Proportion of older adults aged 50-64 years who are up to date on a core set of clinical preventive services | New | BRFSS |
| Older Adults | 4 | Prevalence of 2 or more chronic conditions among Medicare-eligible persons aged >65 years | New | CMS CCW[18] |
| Oral Health | 1.1 | Visits to dentist or dental clinic among adults aged ≥18 years | Existing | BRFSS |
| Oral Health | 1.2 | Dental visits among children and adolescents aged 1-17 years | New | NSCH |
| Oral Health | 2.1 | Preventive dental visits among children and adolescents aged 1-17 years | New | NSCH |
| Oral Health | 2.2 | Preventive dental care before pregnancy | New | PRAMS |
| Oral Health | 3 | Oral health services at Federally Qualified Health Centers | New | UDS[19] |
| Oral Health | 4.1 | All teeth lost among adults aged ≥ 65 years | Existing | BRFSS |
| Oral Health | 4.2 | Six or more teeth lost among adults aged ≥ 65 years | New | BRFSS |
| Oral Health | 4.3 | No tooth loss among adults aged 18-64 years | New | BRFSS |
| Oral Health | 5 | Population served by community water systems that receive optimally fluoridated drinking water | New | WFRS[20] |

[17] Medicare Current Beneficiary Survey
[18] CMS Chronic Condition Data Warehouse
[19] Uniform Data System (HRSA)
[20] Water Fluoridation Reporting System

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Overarching Conditions | 1.1 | Current lack of health insurance among adults aged 18-64 years | Existing | BRFSS |
| Overarching conditions | 1.2 | Current health care coverage among women aged 18-44 years | New | BRFSS |
| Overarching Conditions | 1.3 | Health insurance coverage before pregnancy | New | PRAMS |
| Overarching Conditions | 2.1 | High school completion among adults aged 18-24 years | Existing | CPS[21] |
| Overarching conditions | 2.2 | High school completion among women aged 18-44 years | New | BRFSS |
| Overarching Conditions | 3.1 | Poverty | Existing | CPS |
| Overarching Conditions | 3.2 | Poverty among women aged 18-44 years | New | CPS |
| Overarching Conditions | 4.1 | Life expectancy at birth | Existing | National Vital Statistics System |
| Overarching Conditions | 4.2 | Life expectancy at age 65 years | Existing | National Vital Statistics System |
| Overarching Conditions | 5 | Premature mortality among adults aged 45-64 years | Existing | Death certificate |
| Overarching Conditions | 6.1 | Fair or poor self-rated health status among adults aged ≥18 years | Existing | BRFSS |
| Overarching Conditions | 6.2 | Self-rated health status among women aged 18-44 years | New | BRFSS |
| Overarching Conditions | 7.1 | Recent physically unhealthy days among adults aged ≥18 years | Existing | BRFSS |
| Overarching Conditions | 7.2 | Recent activity limitation among adults aged ≥18 years | Existing | BRFSS |
| Overarching Conditions | 8 | Prevalence of sufficient sleep among adults aged ≥18 years | New | BRFSS |
| Overarching Conditions | 9 | Gini Index | New | ACS |
| Reproductive Health | 1 | Timeliness of routine health care checkup among women aged 18-44 years | New | BRFSS |
| Reproductive Health | 2 | Postpartum checkup | New | PRAMS |
| | | | | |
| Reproductive Health | 3 | Folic acid supplementation | New | PRAMS |
| Tobacco | 1.1 | Current cigarette smoking among youth | Existing | YRBSS |
| Tobacco | 1.2 | Current smoking among adults aged ≥18 years | Revised | BRFSS |
| Tobacco | 1.3 | Current cigarette smoking among women aged 18-44 years | New | BRFSS |
| Tobacco | 1.4 | Cigarette smoking before pregnancy | New | PRAMS |
| Tobacco | 2.1 | Current smokeless tobacco use among youth | Existing | YRBSS |
| Tobacco | 2.2 | Current smokeless tobacco use among adults aged ≥18 years | New | BRFSS |
| Tobacco | 3 | Quit attempts in the past year among current smokers | New | BRFSS |
| Tobacco | 4 | States that allows stronger local tobacco control and prevention laws | New | STATE[22] |
| Tobacco | 5 | Proportion of jurisdictions with strong policies that require retail licenses to sell tobacco products | New | STATE |

[21] Current Population Survey (U.S. Census Bureau)
[22] State Tobacco Activities Tracking and Evaluation System (CDC Office on Smoking and Health)

| Indicator Group | # | Indicator Measurement | Existing/Revised/New | Data Source |
|---|---|---|---|---|
| Tobacco | 6 | Proportion of jurisdictions with 100%, 24/7, public policies for tobacco-free workplaces and other public places (private workplaces, restaurants and bars) | New | STATE |
| Tobacco | 7 | Amount of tobacco product excise tax | New | STATE |
| Tobacco | 8 | Percent tobacco revenue to fund at CDC recommended level | New | STATE |
| Tobacco | 9 | Tobacco-free schools | New | CDC School Health Profiles |
| Tobacco | 10 | Sale of cigarette packs | Existing | STATE |
| Tobacco | 11.1 | Pneumococcal vaccination among non-institutionalized adults aged 18-64 years who smoke | New | BRFSS |
| Tobacco | 11.2 | Pneumococcal vaccination among non-institutionalized adults aged ≥65 years who smoke | New | BRFSS |

**Appendix C. Indicators Recommended for Removal from the Chronic Disease Indicators.**

| Indicator Group | Indicator Name | Rationale for Removal |
|---|---|---|
| Cancer | Cancer of the bladder (in situ and invasive), incidence | Although bladder cancer remains a significant cause of morbidity and mortality, particularly among men, use of this indicator in addition to the other cancer incidence indicators was deemed unnecessary for the purposes of the chronic disease indicators |
| Cancer | Cancer of the bladder, mortality | Although bladder cancer remains a significant cause of morbidity and mortality, particularly among men, use of this indicator in addition to the other cancer mortality indicators was deemed unnecessary for the purposes of the chronic disease indicators. |
| Cancer | Clinical breast examination among women ≥ 40 years | The most recent U.S. Preventive Services Task Force (USPSTF) recommendations regarding screening for breast cancer found insufficient evidence to assess the additional benefits and harms of clinical breast examination beyond screening mammography among women 50 years and older. There is inadequate evidence that CBE in addition to mammography yields better outcomes than mammography alone.** |
| Cancer | Fecal occult blood test among adults aged ≥ 50 years | These three indicators are replaced by one single proposed indicator, "Fecal occult blood test, sigmoidoscopy, or colonoscopy among adults aged 50 – 75 years" (Cancer #3), to reflect current U.S. Preventive Services Task Force Guidelines. The combined measure represents the proportion of respondents that are up-to-date with colorectal cancer screening.<br><br>Prior to 2008, Behavioral Risk Factor Surveillance System (BRFSS) data could not be used assess the prevalence of sigmoidoscopy use and colonoscopy use separately. The current indicator, which measures sigmoidoscopy/colonoscopy use every 5 years, may underestimate screening prevalence with these methods as screening colonoscopy in average risk people is recommended every 10 years. Starting in 2008, BRFSS data can be used to assess sigmoidoscopy use and colonoscopy use separately resulting in a more accurate estimate of the use of these test types.<br><br>These indicators are no longer consistent with USPSTF recommendations for colorectal cancer screening and do not maximize use of currently available data. USPSTF now recommends that average-risk adults aged 50 – 75 years be screened for colorectal cancer with one of three of options: 1) fecal occult blood test (FOBT) annually or, 2) |
| Cancer | Fecal occult blood test or sigmoidoscopy/colonoscopy among adults aged ≥ 50 years | |
| Cancer | Sigmoidoscopy/colonoscopy among adults ≥ 50 years | |

** http://www.uspreventiveservicestaskforce.org/uspstf09/breastcancer/brcanrs.htm

| | | |
|---|---|---|
| | | sigmoidoscopy every 5 years with FOBT every 3 years or, 3) colonoscopy every 10 years.*** As of 2008, BRFSS data can be used to measure the prevalence of use of each of these options alone. |
| CVD | Hospitalization for cerebrovascular accident or stroke among Medicare-eligible persons aged ≥ 65 years | Can occur in adults under age 65 years; therefore, the following CDI is more applicable: Hospitalization for stroke. |
| CVD | Hospitalization for congestive heart failure | Usually occurs in adults aged ≥ 65 years; therefore, more appropriate indicators are: Hospitalization for heart failure among Medicare-eligible persons aged ≥ 65 years; and Medicare-eligible persons aged ≥ 65 years hospitalized for heart failure. |
| CVD | Medicare-eligible persons aged ≥ 65 years hospitalized for cerebrovascular accident or stroke | Can occur in adults under age 65 years; therefore, the following CDI is more applicable: Hospitalization for stroke. |
| CVD | Medicare-eligible persons aged ≥ 65 years hospitalized for heart failure. | Indicator not needed. An existing indicator (Hospitalization for heart failure among Medicare-eligible persons aged ≥ 65 years) provides similar information. |
| Other Diseases and Risk Factors | Teeth cleaning among adults aged ≥ 18 years | The BRFSS last included the dental cleaning question in 2010. Due to resource constraints, it is unclear at this point if or when the question will be asked again in the BRFSS. |

***http://www.uspreventiveservicestaskforce.org/uspstf/uspscolo.htm

**Appendix D. Additional Agencies for Information.**

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# Attachment I: Chronic Disease Indicator Definitions

**Indicator Group: Alcohol**
**Indicator Number: 1.1**
**Indicator Name: Alcohol use among youth**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12. |
| Numerator: | Students in grades 9–12 who report consumption of ≥1 drink of alcohol during the past 30 days. |
| Denominator: | Students in grades 9–12 who reported having a specific number of drinks of alcohol, including zero, during the past 30 days (excluding those who did not answer). |
| Measures of Frequency: | Biennial (odd years) prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days. |
| Background: | In 2011, 39% of high school students reported drinking alcohol on at least one day during the past 30 days. The prevalence of current drinking is similar for boys and girls, but increases by grade. In 2011, among U.S. high school students, 80% had consumed alcohol by the 12th grade, even though the sale of alcohol to persons under age 21 years has been illegal in all states since 1988. Current drinking by youth is correlated with current drinking by adults in states. |
| Significance: | On average, alcohol is a factor in the deaths of approximately 4,700 youths in the United States per year, shortening their lives by an average of 60 years. Underage drinking cost the U.S. $24 billion in 2006. Studies have determined that delaying the age when drinking is initiated until age 21 years or later substantially reduces the risk of experiencing alcohol-related problems. Underage drinking is also strongly associated with injuries, violence, fetal alcohol syndrome, and risk of other acute and chronic health effects. |
| Limitations of Indicator: | The indicator does not convey the frequency of drinking or the specific amount of alcohol consumed. This indicator is available every other year. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all data from self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). YRBSS data only apply to youth who are attending school, and thus may not be representative of all persons in this age group. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA–13.1: Reduce the proportion of adolescents reporting use of alcohol or any illicit drugs during the past 30 days. |
| Related CDI Topic Area: | School Health |

**Indicator Group: Alcohol**
**Indicator Number: 1.2**
**Indicator Name: Alcohol use before pregnancy**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years who have had a recent live birth. |
| Numerator: | Respondents aged 18-44 years who reported that they drank any alcoholic beverages during the 3 months before they got pregnant with their most recent live born infant, including those having less than one drink in an average week. |
| Denominator: | Respondents aged 18-44 years who reported the number of drinks they had in an average week, including none, during the 3 months before they got pregnant with their most recent live born infant as well as those who reported that they did not have any alcoholic drinks in the past 2 years (excluding unknowns and refusals). |
| Measures of Frequency: | Crude prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Three months before the pregnancy resulting in the most recent live birth. |
| Background: | Preconception drinking patterns are highly predictive of alcohol use during pregnancy, which has been associated with adverse birth and infant outcomes, including Fetal Alcohol Syndrome (FAS).[1] Therefore, current medical guidelines advise against any alcohol use throughout pregnancy and around the time of conception, since the effects of alcohol consumption on the fetus may occur before a woman is aware she is pregnant.[2, 3] According to 2004 PRAMS data collected from 26 reporting areas, the mean prevalence of alcohol use during the 3 months prior to the most recent pregnancy was 50.1%.[4] |
| Significance: | The US Surgeon General has determined that no amount of alcohol consumption during pregnancy is known to be safe.[2] The Clinical Work Group of the Select Panel on Preconception Care workgroup recommends all childbearing aged women be screened for alcohol use and provided with information regarding potential adverse health outcomes including the negative effects of alcohol consumption during pregnancy.[5] In addition, women who exhibit signs of alcohol dependence or misuse should be directed to support programs that would assist them to achieve long-term cessation of alcohol use and be advised to delay any future pregnancies until they are able to abstain from alcohol use.[5] |
| Limitations of Indicator: | The indicator does not convey the frequency of drinking or the number of drinks per day or per occasion. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | While most self-report surveys such as PRAMS might be subject to systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias), PRAMS attempts to contact potential respondents by mail and landline/cell telephone to increase response rates. ). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective MICH-11: Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women. |
| Related CDI Topic Area: | Reproductive Health |

1. CDC. Alcohol use among women of childbearing age—United States 1991-1999. MMWR 2002 51(13):273-6. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5113a2.htm

2. Surgeon General's advisory on alcohol use in pregnancy. Feb 21, 2005. http://www.surgeongeneral.gov/pressreleases/sg02222005.html.
3. CDC. 2002 PRAMS surveillance report: multistate exhibits. Aug 23, 2006. http://www.cdc.gov/prams/2002PRAMSSurvReport/MultiStateExhibits/Multistates12.htm
4. D'Angelo D, Williams L, Morrow B, et al. Preconception and interconception health status of women who recently gave birth to a live-born infant---Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 26 Reporting Areas, 2004. MMWR 2007;56(SS10):1-35. http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5610a1.htm
5. Floyd RL, Jack BW, Cefalo R, et al. The clinical content of preconception care: alcohol, tobacco, and illicit drug exposures. Am J Obstet Gynecol 2008; 199 (6 Suppl B):S333- S339.

**Indicator Group: Alcohol**
**Indicator Number: 2.1**
**Indicator Name: Binge drinking prevalence among youth**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12. |
| Numerator: | Students in grades 9–12 who report having ≥5 drinks of alcohol within a couple of hours on ≥1 day during the past 30 days. |
| Denominator: | Students in grades 9–12 who report having a specific number, including zero, of drinks of alcohol within a couple of hours on ≥1 day during the past 30 days (excluding those who did not answer). |
| Measures of Frequency: | Biennial (odd years) prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days. |
| Background: | In 2011, 22% of high school students in the United States reported binge drinking during the past 30 days. Binge drinking accounts for 90% of the alcohol consumed by youths, and about 2 in 3 high school students who drink report binge drinking, usually on multiple occasions. The prevalence of binge drinking is similar for boys and girls, but increases by grade. White and Hispanic students were more likely to binge drink than were black students; prevalence increased with grade. Binge drinking by youth is correlated with binge drinking by adults in states. |
| Significance: | Alcohol is a factor in the deaths of approximately 4,700 youths in the United States per year, shortening their lives by an average of 60 years. Underage drinking cost the U.S. $24 billion in 2006. Binge drinking is a risk factor for many health and social problems, including motor-vehicle crashes, violence, suicide, hypertension, acute myocardial infarction, sexually transmitted diseases, unintended pregnancy, fetal alcohol syndrome, and sudden infant death syndrome. |
| Limitations of Indicator: | The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed. The definition of binge drinking used in the data source (YRBSS) is not gender-specific. This indicator is available every other year. |
| Data Resources: | Youth Risk Behavior Surveillance System. (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). YRBSS data only apply to youth who are attending school, and thus may not be representative of all persons in this age group. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA–14.1: Reduce the proportion of students engaging in binge drinking during the past 2 weeks—High school seniors.<br>Healthy People 2020 Objective SA–14.4: Reduce the proportion of persons engaging in binge drinking during the past month—Adolescents aged 12 to 17 years.<br>Prevention Status Report: Excessive Alcohol Use (forthcoming). |
| Related CDI Topic Area: | School Health |

**Indicator Group: Alcohol**
**Indicator Number: 2.2**
**Indicator Name: Binge drinking prevalence among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Adults aged ≥18 years. |
| Numerator: | Adults aged ≥18 years who report having ≥5 drinks (men) or ≥4 drinks (women) on ≥1 occasion during the previous 30 days. |
| Denominator: | Adults aged ≥18 years who report having a specific number, including zero, of drinks on one occasion during the previous 30 days (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days. |
| Background: | In 2010, a total of 17.1% of adults reported binge drinking on ≥1 occasion during the previous 30 days Binge drinking prevalence is higher among men, persons aged 18–34 years, whites, and those with household incomes ≥$75,000. |
| Significance: | Excessive alcohol use accounted for an estimated average of 80,000 deaths and 2.3 million years of potential life lost (YPLL) in the United States each year during 2001–2005, and an estimated $223.5 billion in economic costs in 2006. Binge drinking accounted for more than half of those deaths, two thirds of the YPLL, and three quarters of the economic costs. Binge drinking also is a risk factor for many health and social problems, including motor-vehicle crashes, violence, suicide, hypertension, acute myocardial infarction, sexually transmitted diseases, unintended pregnancy, fetal alcohol syndrome, and sudden infant death syndrome. In the United States, binge drinking accounts for more than half of the alcohol consumed by adults. However, most binge drinkers are not alcohol dependent. |
| Limitations of Indicator: | The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. A recent study using BRFSS data found that self-reports identify only 22%–32% of presumed alcohol consumption in states, based on alcohol sales. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA-14.3: Reduce the proportion of persons engaging in binge drinking during the past 30 days—Adults aged 18 years and older.<br>Prevention Status Report: Excessive Alcohol Use (forthcoming). |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Alcohol**
**Indicator Number: 2.3**
**Indicator Name: Binge drinking prevalence among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18–44 years. |
| Numerator: | Women aged 18–44 years who report having ≥4 drinks on ≥1 occasion during the previous 30 days. |
| Denominator: | Women aged 18–44 years who report a specific number, including zero, of drinks on one occasion during the previous 30 days (excluding unknowns and refusals). |
| Measures of Frequency: | Prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days. |
| Background: | In 2010, an estimated 14.0% of women aged 18-44 reported binge drinking on ≥1 occasion during the previous 30 days. |
| Significance: | Approximately 23,000 deaths among females each year in the United States are attributed to excessive alcohol use. Excessive alcohol use, including binge drinking, is strongly associated with injuries, violence, chronic liver disease, and risk of other acute and chronic health effects. Binge drinking can lead to unintended pregnancies, and females who are not expecting to get pregnant may not find out they are until later in their pregnancy. If women binge drink while pregnant, they risk exposing their developing baby to high levels of alcohol, increasing the chances the baby will be harmed by the mother's alcohol use. Alcohol use by pregnant women causes fetal alcohol spectrum disorders (FASDs). FASDs, which are estimated to affect at least 1% of all births in the United States, result in physical and growth problems, neurodevelopmental deficits and lifelong disability. |
| Limitations of Indicator: | The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. A recent study using BRFSS data found that self-reports identify only 22%–32% of presumed alcohol consumption in states, based on alcohol sales. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA-14.3: Reduce the proportion of persons engaging in binge drinking during the past 30 days—Adults aged 18 years and older.<br>Healthy People 2020 Objective MICH-11: Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women. |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Alcohol**
**Indicator Number: 3**
**Indicator Name: Binge drinking frequency among adults aged ≥ 18 years**

| | |
|---|---|
| Demographic Group: | Adults aged ≥18 years. |
| Numerator: | Number of binge drinking (≥5 drinks for men or ≥4 drinks for women on ≥1 occasion) episodes during the previous 30 days. |
| Denominator: | Adults aged ≥18 years who report having ≥5 drinks (men) or ≥4 drinks (women) on ≥1 occasion during the previous 30 days. |
| Measures of Frequency: | Annual binge drinking frequency — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days. |
| Background: | Excessive alcohol use accounted for an estimated average of 80,000 deaths and 2.3 million years of potential life lost (YPLL) in the United States each year during 2001–2005, and an estimated $223.5 billion in economic costs in 2006. Binge drinking accounted for more than half of those deaths, two thirds of the YPLL, and three quarters of the economic costs. In 2010, 85% of all alcohol-impaired driving episodes were reported by persons who also reported binge drinking. Over 90% of excessive drinkers report binge drinking, and most persons who report binge drinking do so frequently. In 2010, among binge drinkers, the frequency of binge drinking was 4.4 episodes per month. Binge drinking frequency was highest among binge drinkers aged ≥65 years (5.5 episodes per month) and those with household incomes <$25,000 (5.0 episodes per month). |
| Significance: | Binge drinking also is a risk factor for many health and social problems, including motor-vehicle crashes, violence, suicide, hypertension, acute myocardial infarction, sexually transmitted diseases, unintended pregnancy, fetal alcohol spectrum disorders, and sudden infant death syndrome. In the United States, binge drinking accounts for more than half of the alcohol consumed by adults. However, most binge drinkers are not alcohol dependent. The risk of alcohol-attributable harms (e.g., injuries) increases with the number of binge drinking episodes. Assessing the frequency of binge drinking may be particularly useful for planning and evaluating Community Guide-recommended strategies for preventing excessive alcohol use. |
| Limitations of Indicator: | Unless age, sex, education and race/ethnicity estimates are generated for this indicator, high-risk subpopulations will not be identified. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. A recent study using BRFSS data found that self-reports identify only 22%–32% of presumed alcohol consumption in states, based on alcohol sales. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA-14.3: Reduce the proportion of persons engaging in binge drinking during the past 30 days—Adults aged 18 years and older. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Alcohol**
**Indicator Number: 4**
**Indicator Name: Binge drinking intensity among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Adults aged ≥18 years. |
| Numerator: | Largest number of drinks consumed on an occasion in the previous 30 days among adult binge drinkers aged ≥18 years. |
| Denominator: | Adults aged ≥18 years who report having ≥5 drinks (men) or ≥4 drinks (women) on ≥1 occasion during the previous 30 days. |
| Measures of Frequency: | Annual binge drinking intensity — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days. |
| Background: | Excessive alcohol use accounted for an estimated average of 80,000 deaths and 2.3 million years of potential life lost (YPLL) in the United States each year during 2001–2005, and an estimated $223.5 billion in economic costs in 2006. Binge drinking accounted for more than half of those deaths, two thirds of the YPLL, and three quarters of the economic costs. In 2010, 85% of all alcohol-impaired driving episodes were reported by persons who also reported binge drinking. In 2010, among binge drinkers, the binge drinking intensity was 7.9 drinks on occasion during the previous 30 days. Binge drinking intensity was highest among persons aged 18–24 years (9.3 drinks on occasion) and those with household incomes <$25,000 (8.5 drinks on occasion). |
| Significance: | Binge drinking also is a risk factor for many health and social problems, including motor-vehicle crashes, violence, suicide, hypertension, acute myocardial infarction, sexually transmitted diseases, unintended pregnancy, fetal alcohol spectrum disorders, and sudden infant death syndrome. In the United States, binge drinking accounts for more than half of the alcohol consumed by adults. However, most binge drinkers are not alcohol dependent. The risk of alcohol-attributable harms (e.g., injuries) increases with the intensity of binge drinking. Assessing the intensity of binge drinking may be particularly useful for planning and evaluating Community Guide-recommended strategies for preventing excessive alcohol use. |
| Limitations of Indicator: | Unless age, sex, education and race/ethnicity estimates are generated for this indicator, high-risk subpopulations will not be identified. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. A recent study using BRFSS data found that self-reports identify only 22%–32% of presumed alcohol consumption in states, based on alcohol sales. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA-14.3: Reduce the proportion of persons engaging in binge drinking during the past 30 days—Adults aged 18 years and older.<br>Prevention Status Report: Excessive Alcohol Use (forthcoming). |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Alcohol**
**Indicator Number: 5.1**
**Indicator Name: Heavy drinking among adults aged ≥18 years**

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|---|---|
| Demographic Group: | Adults aged ≥18 years. |
| Numerator: | Adults aged ≥18 years who report an average daily alcohol consumption of >2 drinks (men) or >1 drink (women). |
| Denominator: | Adults aged ≥18 years who report a specific number, including zero, for the average number of daily drinks (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Average day. |
| Background: | In 2010, 5.4% of adult men reported an average daily consumption of>2 alcoholic drinks and 4.5% of adult women reported an average daily consumption of >1 alcoholic drink. Heavy drinkers are more likely to binge drink than moderate drinkers. |
| Significance: | Excessive alcohol use accounted for an estimated average of 80,000 deaths and 2.3 million years of potential life lost (YPLL) in the United States each year during 2001–2005, and an estimated $223.5 billion in economic costs in 2006.Excessive alcohol use, including heavy drinking, is strongly associated with injuries, violence, chronic liver disease, and risk of other acute and chronic health effects. |
| Limitations of Indicator: | The indicator does not convey the exact amount of alcohol consumed per day. Therefore, a weekly average of 7 alcoholic drinks for a woman or 14 alcoholic drinks for a man can be consumed over 2-day weekend on 1 or 2 occasions rather than up to 1 drink for a woman and up to 2 drinks for a man each day. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. A recent study using BRFSS data found that self-reports identify only 22%–32% of presumed alcohol consumption in states, based on alcohol sales. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA–15: Reduce the proportion of adults who drank excessively in the previous 30 days. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Alcohol**
**Indicator Number: 5.2**
**Indicator Name: Heavy drinking among women aged 18-44 years**

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|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Women aged 18-44 years who reported having an average of more than 1 drink per day on the days they drank alcohol during the previous 30 days. |
| Denominator: | Women aged 18-44 years who reported the average number of, including zero, on the days they drank alcohol as well as those who reported having had no drinks during the past 30 days (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 30 days. |
| Background: | Heavy alcohol use before pregnancy is predictive of continued use during pregnancy.[1] CDC analysis of 2002 Behavioral Risk Factor Surveillance System (BRFSS) data for women aged 18–44 indicated that the prevalence of frequent drinking (7 or more drinks in a week or binge drinking) was 13.2% for all women of childbearing age overall (including pregnant women) and 13.1% for women who might become pregnant.[2] |
| Significance: | Alcohol consumption during pregnancy is associated with spontaneous abortions, birth defects, and developmental disorders, many of which occur early in gestation before the woman is aware that she is pregnant.[2]Frequent or heavy alcohol use during pregnancy, especially in the first few weeks after conception, is associated with fetal alcohol syndrome (FAS), which is characterized by impaired growth and mental retardation in the infant.[3] Even though a dose-response relationship has been observed between prenatal alcohol consumption and effects on the fetus, no amount of alcohol consumption during pregnancy is known to be safe.[2,4] Therefore current medical guidelines, including the recommendations of the US Surgeon General and the American Academy of Pediatrics (AAP), advise against any alcohol use around the time of conception and throughout pregnancy.[5, 6] Furthermore, the Clinical Work Group of the Select Panel on Preconception Care workgroup recommends all childbearing aged women to be screened for alcohol use and provided with information regarding potential adverse health outcomes including the negative effects of alcohol consumption during pregnancy.[7] In addition, women who exhibit signs of alcohol dependence or misuse should be directed to support programs that would assist them to achieve long-term cessation of alcohol use and be advised to delay any future pregnancies until they are able to abstain from alcohol use .[7] |
| Limitations of Indicator: | The indicator does not convey the specific amount of alcohol consumed. Analysis for this indicator requires use of a calculated variable named _RFDRWM3. Details on the calculation of this variable can be found at http://ftp.cdc.gov/pub/data/brfss/calcvar_07.rtf. BRFSS estimates of alcohol consumption are similar to those found in other studies.[8] Although reliability of BRFSS alcohol consumption and binge drinking questions have been shown to be high, there may be reporting inconsistencies among heavy alcohol users. However, since BRFSS data appear to underestimate the prevalence of heavy drinkers, the validity of these data are considered to be moderate. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting |

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| | methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective MICH-11: Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women. |
| Related CDI Topic Area: | Reproductive Health |


1. CDC. Alcohol use among women of childbearing age—United States 1991-1999. MMWR 2002;51(13): 273-6. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5113a2.htm
2. CDC. Alcohol consumption among women who are pregnant or might become pregnant—United States 2002. MMWR 2004; 53(50); 1178-81. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5350a4.htm
3. CDC. 2002 PRAMS surveillance report: multistate exhibits. (2006, August 23).http://www.cdc.gov/prams/2002PRAMSSurvReport/MultiStateExhibits/Multistates12.htm
4. D'Angelo D, Williams L, Morrow B, et al. Preconception and interconception health status of women who recently gave birth to a live-born infant---Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 26 Reporting Areas, 2004. MMWR 2007;56(SS10): 1-35. http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5610a1.htm
5. Surgeon General's advisory on alcohol use in pregnancy (2005, February 21). http://www.surgeongeneral.gov/pressreleases/sg02222005.html
6. CDC. Alcohol and Public Health: Frequently Asked Questions. Information obtained from CDC website at: http://www.cdc.gov/alcohol/faqs.htm#10
7. Floyd RL, Jack BW, Cefalo R, et al. The clinical content of preconception care: alcohol, tobacco, and illicit drug exposures. Am J Obstet Gynecol 2008;199(6 Suppl B):S333- S339.
8. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001;46(Suppl 1):S3-S42.

**Indicator Group: Alcohol**
**Indicator Number: 6**
**Indicator Name: Chronic liver disease mortality**

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|---|---|
| Demographic Group: | All U.S. population. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes K70 or K73–K74 (ICD-9 code 571) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2009, a total of 30,500 persons died from chronic liver disease. The age-adjusted rate of death among males (12.6/100,000) was greater than the rate among females (6.1/100,000). |
| Significance: | Excessive alcohol use accounted for an estimated average of 80,000 deaths and 2.3 million years of potential life lost (YPLL) in the United States each year during 2001–2005, and an estimated $223.5 billion in economic costs in 2006. Sustained alcohol consumption is the leading cause of liver cirrhosis, one of the 12 leading causes of death. The risk of chronic liver disease and cirrhosis is directly related to heavy and long-term consumption of alcohol. |
| Limitations of Indicator: | Because alcohol-related disease can have a long latency, changes in behavior or clinical practice affecting population mortality might not be apparent for years. Not all chronic liver disease deaths are alcohol-attributable. However, in 2009, almost 70% of cirrhosis deaths in the United States were alcohol-attributable; and the proportion of cirrhosis deaths coded as 100% alcohol-attributable has increased dramatically, over the last 40 years, among United States adults aged 25-64. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA–11: Reduce cirrhosis deaths. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Alcohol**
**Indicator Number: 7**
**Indicator Name: Per capita alcohol consumption among persons aged ≥ 14 years**

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|---|---|
| Demographic Group: | Resident persons aged ≥14 years. |
| Numerator: | Gallons of pure alcohol consumed during a calendar year. |
| Denominator: | Mid-year resident population aged 14 and older for the same calendar year. |
| Measures of Frequency: | Annual alcohol consumption per capita |
| Time Period of Case Definition: | Calendar year. |
| Background: | The past 75 years of per capita consumption data show that alcohol consumption climbed sharply following the end of prohibition, to a transient peak in 1945, followed by a decline and plateau through the early 1960's. This was followed by a steady 20-year increase in per capita consumption that lasted through the early 1980's, after which consumption dropped again through 1995. Since 1995, per capita consumption has once again been increasing, albeit more slowly than in the 1960's and 1970's. From 1995 to 2010, per capita alcohol consumption increased 5.4% (from to 2.15 to 2.26 gallons), driven by a 17.7% increase in per capita spirits consumption (from 0.63 to 0.74 gallons) and a 35.5% increase in wine consumption (from 0.29 to 0.39 gallons). By contrast, beer consumption has been declining steadily since the early 1980s, and declined 8.0% (from 1.23 to 1.13 gallons) from 1995 to 2010. |
| Significance: | There is strong scientific evidence supporting the usefulness of per capita alcohol consumption as a proxy measure of excessive alcohol use. The independent, non-federal Community Preventive Services Task Force reviewed this measure in 2009, and the Task Force subsequently endorsed this measure, and decided to use it as a recommendation outcome for subsequent reviews of alcohol control policies. This indicator provides a more complete accounting of alcohol consumption in states than self-reported consumption indicators. A recent study using BRFSS data found that self-reports identify only 22%–32% of the presumed alcohol consumption in states based on this indicator. This indicator also supports state-level surveillance of alcohol consumption by beverage type. This indicator could potentially serve as a very broad environmental and system change indicator of changes in factors that influence excessive consumption, such as price, retail availability, and regulatory environment. |
| Limitations of Indicator: | This indicator does not support local analyses of alcohol consumption (e.g., by county or city), or the analysis of alcohol consumption among specific demographic groups (e.g., age, sex, race/ethnicity). |
| Data Resources: | Alcohol Epidemiologic Data System (AEDS). |
| Limitations of Data Resources: | Many factors may result in inaccuracies in estimates of per capita alcohol consumption. These include the use of fixed ethanol conversion coefficients (ECC, i.e., proportion of pure alcohol for each beverage type), despite evidence that ECCs may change over time by beverage type. The assumption is that changes in the average net ethanol content across all beverages have probably been minimal and not large enough to alter recent trends in overall per capita consumption. Other factors include the possibility that estimates in some States may be inflated by cross-border sales to buyers from neighboring States (e.g., in New Hampshire) or tourists' consumption of alcohol (e.g., in Washington DC). Other factors include variations in State reporting practices for sales of alcoholic beverages; time delay between State taxation records and actual consumption; exclusion of alcohol contained in medications and foods; unrecorded legal home production; and illicit production, importation, and sales. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SA–16: Reduce average annual alcohol consumption.<br>Prevention Status Report: Excessive Alcohol Use (forthcoming). |
| Related CDI Topic Area: | |

**Indicator Group: Alcohol**
**Indicator Number: 8**
**Indicator Name: Alcohol excise tax by beverage type**

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|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | State taxes levied per gallon at the wholesale or retail level, by beverage type (reported separately for): (a) Beer<br>(b) Wine<br>(c) Distilled spirits |
| Denominator: | None. |
| Measures of Frequency: | Annual excise tax amount, by beverage type. |
| Time Period of Case Definition: | Annual as of January 1st. |
| Background: | The Community Preventive Services Task Force recommends increasing the unit price of alcohol by raising taxes based on strong evidence of effectiveness for reducing excessive alcohol consumption and related harms. Public health effects are expected to be proportional to the size of the tax increase. Alcohol consumption is particularly sensitive to the price of alcoholic beverages. Across alcohol beverage types (i.e., beer, wine, and liquor), the median price elasticity (a measure of the relationship between price and consumption) ranges from -0.50 for beer to -0.79 for spirits, and the overall price elasticity for ethanol is -0.77. Thus, a 10% increase in the price of alcoholic beverages likely would reduce overall consumption by more than 7%. Recent analyses also note a substantial gap between the societal and governmental cost of excessive alcohol consumption (approximately $1.90 and $0.80 per drink, respectively) and the total federal and state taxes on alcoholic beverages (approximately $0.12 per drink). Alcohol taxes are implemented at the state and federal level, and are beverage-specific (i.e., they differ for beer, wine and spirits). These taxes are usually based on the volume of alcohol sold and not on the sales price, so their contribution to the total price of alcohol can erode over time due to inflation. |
| Significance: | This indicator provides information about the level of state alcohol excise taxes. At the state and federal levels, inflation-adjusted alcohol taxes have declined considerably since the 1950s. Concordant with this decrease in the real value of these taxes, the inflation-adjusted price of alcohol has decreased, reflecting the fact that changes in taxes are efficiently passed on through changes in prices. This indicator supports state-level surveillance of an important component of the price of alcohol – that is, beverage-specific alcohol excise taxes - which has been strongly associated with changes in alcohol consumption. |
| Limitations of Indicator: | Additional taxes other than excise taxes that can affect the price of alcoholic beverages (e.g., sales taxes, which are levied as a percentage of the beverage's retail price) are not reported. |
| Data Resources: | Alcohol Policy Information System (APIS). |
| Limitations of Data Resources: | Beverage-specific state tax levels are based on the taxes assessed on an index beverage within a particular beverage category (e.g. beer with 5% alcohol by volume). APIS reports taxes for the most commonly sold container size, and therefore does not include data on the taxes levied on alcoholic beverages sold in other container sizes. Tax amounts are not reported for States and beverage types where the index beverage is available in State-run retail stores or through State-run wholesalers. In these cases, the State sets a price for each alcohol product that is some combination of cost, mark-up, and taxes, and it is not possible to determine the dollar value assigned to each of these components. Some States have separate tax rates for other types of alcoholic beverages (e.g., sparkling wine), that are not included in APIS. However, these beverages generally constitute a small segment of the alcohol retail market. |
| Related Indicators or Recommendations: | Prevention Status Report: Excessive Alcohol Use (forthcoming). |

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| Related CDI Topic Area: | |

**Indicator Group: Alcohol**
**Indicator Number: 9**
**Indicator Name: Commercial host (dram shop) liability for alcohol service**

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|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | State has at least one of the following: (a) commercial host liability for alcohol service to intoxicated adults and minors with no major limitations*; (b) a commercial host liability for service to intoxicated adults or minors but not both, or the state's laws have major limitations*; or (c) no commercial host liability for service to either intoxicated adults or minors.<br><br>*Major limitations include having commercial host liability for minors or intoxicated adults but not both, increased evidentiary requirements for finding liability, limitations on damage awards, or restrictions on who may be sued. |
| Denominator: | None |
| Measures of Frequency: | State commercial host liability status |
| Time Period of Case Definition: | Annual as of January 1st. |
| Background: | The Community Preventive Services Task Force has concluded on the basis of strong evidence that dram shop liability is effective in preventing and reducing alcohol-related harms. Dram shop liability (also known as Commercial Host Liability) holds alcohol retailers liable for alcohol-attributable harms (e.g., injuries or deaths resulting from alcohol-related motor vehicle crashes) caused by a patron who was either intoxicated or under the age 21 minimum legal drinking age (e.g. a minor) at the time of service. This liability can be established in states either by case law or statute. Some states only have commercial host liability for service to minors. Some states also restrict commercial host liability by increasing evidence requirements, capping the amount of compensation allowed in suits, or restricting who may be sued. However, the existence of commercial host liability in a state is thought to improve compliance with laws prohibiting alcohol service to intoxicated patrons or minors. |
| Significance: | This indicator provides information on the existence of commercial host liability, and whether this liability has major restrictions in those states where it exists. In states where there are major restrictions on this liability, the impact of this intervention on excessive alcohol use and related harms is likely to be reduced. |
| Limitations of Indicator: | The legal research required to support this indicator is time-consuming and requires expertise in the area of alcohol control policies and legal analysis. |
| Data Resources: | Mosher, JF, Cohen, EN, Jernigan, DH. Commercial Host (Dram Shop) Liability: Current Status and Trends. Manuscript submitted for publication. |
| Limitations of Data Resources: | This indicator is currently updated annually only for dram shop liability for sales to underage youth; there is no current timeframe for updating dram shop liability status for sales to adults. Specialized legal consultation is required to interpret laws and regulations. |
| Related Indicators or Recommendations | Prevention Status Report: Excessive Alcohol Use (forthcoming). |
| Related CDI Topic Area: | |

**Indicator Group: Alcohol**
**Indicator Number: 10**
**Indicator Name: Local control of the regulation of alcohol outlet density**

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|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | State has at least one of the following: (a) fully delegates or shares the authority to license alcohol retailers with local governments; (b) has the exclusive authority to license alcohol retailers, but grants local governments zoning (land use) authority or has other mixed policies; or (c) has exclusive authority to license alcohol retailers, thereby preempting local governments from regulating alcohol outlet density. |
| Denominator: | None |
| Measures of Frequency: | Status of state's local authority to regulate alcohol outlet density. |
| Time Period of Case Definition: | Annual as of January 1st. |
| Background: | The Community Preventive Services Task Force has found sufficient evidence to recommend limiting alcohol outlet density through the use of regulatory authority (e.g., licensing and zoning) as a means of reducing or controlling excessive alcohol consumption and related harms. However, states vary in the extent to which they allow local governments to regulate the licensing of retail alcohol outlets and hence alcohol outlet density, ranging from the delegation of licensing authority to local governments to complete state control over alcohol licensing. |
| Significance: | This indicator provides information on the degree of local control over the regulation of alcohol outlet density. In general, states that allow for greater local control over the regulation of alcohol outlet density (i.e., those that do not preempt local control over alcohol licensing) provide local governments with more opportunities to regulate alcohol outlet density and thereby reduce excessive alcohol consumption and related harms. |
| Limitations of Indicator: | The legal research required to support this indicator is time-consuming and requires expertise in the area of liquor control law. |
| Data Resources: | Mosher JF, Treffers R. State preemption, local control, and the regulation of alcohol retail outlet density. Am J Prev Med 2013; 44:399–405. |
| Limitations of Data Resources: | There is currently no specified timeframe for updating this indicator. Specialized legal consultation is required to interpret laws and regulations. |
| Related Indicators or Recommendations: | Prevention Status Report: Excessive Alcohol Use (forthcoming). |
| Related CDI Topic Area: | |

**Indicator Group: Arthritis**
**Indicator Number: 1.1**
**Indicator Name: Arthritis among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥18 years who report having doctor-diagnosed arthritis. |
| Denominator: | Respondents aged ≥18 years who answered yes or no to the question: "Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?" (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence (years 2011-2015) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] As the population ages, arthritis is expected to affect an estimated 67 million adults in the United States by 2030.[1] In 2003, arthritis cost an estimated $128 billion (direct medical and indirect costs).[2] |
| Significance: | Monitoring the burden of arthritis is important for estimating the state-specific need for interventions that reduce symptoms, improve physical function, and improve the quality of life for people with arthritis. These interventions include self-management education programs that have been shown to reduce pain and improve psychological health and health behaviors, and physical activity programs that have been shown to improve physical function, mental health, and quality of life. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be acceptable for surveillance purposes[3] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis BRFSS tables produced for each state for odd numbered years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AOCBC-1: Reduce the mean level of joint pain among adults with doctor-diagnosed arthritis.<br>Healthy People 2020 Objective AOCBC-2: Reduce the proportion of adults with doctor-diagnosed arthritis who experience a limitation in activity due to arthritis or joint symptoms.<br>Healthy People 2020 Objective AOCBC-4: Reduce the proportion of adults with doctor-diagnosed arthritis who have difficulty in performing two or more personal care activities, thereby preserving independence.<br>Healthy People 2020 Objective AOCBC-5: Reduce the proportion of adults with doctor-diagnosed arthritis who report serious psychological distress.<br>Healthy People 2020 Objective AOCBC-6: Reduce the impact of doctor-diagnosed arthritis on employment in the working-age population.<br>Healthy People 2020 Objective AOCBC-7: Increase the proportion of adults with doctor-diagnosed arthritis who receive health care provider counseling. |

| | |
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| | Healthy People 2020 Objective AOCBC-8: Increase the proportion of adults with doctor-diagnosed arthritis who have had effective, evidence-based arthritis education as an integral part of the management of their condition. |
| Related CDI Topic Area: | |


1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.
2. CDC. National and state medical expenditures and lost earnings attributable to arthritis and other rheumatic conditions—United States, 2003. MMWR 2007;56(1):4–7.
3. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Arthritis**
**Indicator Number: 1.2**
**Indicator Name: Arthritis among adults aged ≥18 years who are obese**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report doctor-diagnosed arthritis and who are obese (body mass index≥30.0 kg/m²), calculated from self-reported weight and height. |
| Denominator: | Respondents aged ≥18 years who are obese (body mass index≥30.0 kg/m² calculated from self-reported weight and height). (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] In 2003 arthritis cost an estimated $128 billion (direct medical and indirect costs).[2]Obesity is common among people with arthritis and is a modifiable risk factor associated with arthritis-related disease progression, activity limitation, disability, reduced quality-of-life, total joint replacement, and poor clinical outcomes after joint replacement. The prevalence of obesity among adults with arthritis is, on average 54% higher than among adults without arthritis.[3] |
| Significance: | Monitoring the prevalence of arthritis among adults who are obese is important because obesity can worsen arthritis-related joint pain. Reaching and maintaining a normal weight can lower a person's risk for developing osteoarthritis, the most common type of arthritis representing about 2/3 of arthritis cases, and can improve symptoms and function in people who already have the condition. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in the BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be acceptable for surveillance purposes[4] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). Height and weight are self-reported. Respondents tend to overestimate their height and underestimate their weight, likely leading to underestimation of BMI and of the prevalence of obesity. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis BRFSS tables produced for each state for odd numbered years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AOCBC-7a: Increase the proportion of adults with doctor-diagnosed arthritis who receive health care provider counseling….for weight reduction among overweight and obese persons. |
| Related CDI Topic Area: | Nutrition, Physical Activity, and Weight Status |


1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.
2. CDC. National and state medical expenditures and lost earnings attributable to arthritis and other rheumatic conditions—United States, 2003. MMWR 2007;56(1):4–7.

3. CDC. State-specific trends in obesity prevalence among adults with arthritis, Behavioral Risk Factor Surveillance System, 2003–2009. MMWR 2011;60(16):509-513.
4. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Arthritis**
**Indicator Number: 1.3**
**Indicator Name: Arthritis among adults aged ≥18 years who have diabetes**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report ever having physician-diagnosed diabetes other than diabetes during pregnancy and who report doctor-diagnosed arthritis. |
| Denominator: | Respondents aged ≥18 years who report ever having physician-diagnosed diabetes other than diabetes during pregnancy (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] During 2005 and 2007, the prevalence of arthritis among adults aged ≥18 years with diabetes was 52%, compared with 27% for all adults aged ≥18 years.[2] The prevalence of physical inactivity is higher among adults with both diabetes and arthritis than those with either condition alone; physical activity is a recommended self-management strategy for both diabetes and arthritis. |
| Significance: | Monitoring the prevalence of arthritis among adults with diabetes is important because more than half of the adults with diabetes also have arthritis.[2] Diabetes and arthritis occur more frequently in older adults, women, and those who are obese. Arthritis may be an unaddressed barrier for adults with diabetes seeking to manage their condition through physical activity. Persons with arthritis report that increased joint pain is the number one barrier to participating in physical activities. Physical activity helps control blood glucose for people with diabetes and can reduce pain, improve function, and delay disability among adults with arthritis.[2] This indicator can be used to estimate the number of people with diabetes who may need special interventions to help them become more physically active and manage their disease, e.g., through the Chronic Disease Self Management Program, EnhanceFitness, etc. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in the BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be acceptable for surveillance purposes[3] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). Diabetes is also self-reported. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis BRFSS tables produced for each state for odd numbered years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Diabetes |


1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.
2. CDC. Arthritis as a Potential Barrier to Physical Activity Among Adults with Diabetes — United States, 2005 and 2007.MMWR 2008;57(18):486-489.

3. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Arthritis**
**Indicator Number: 1.4**
**Indicator Name: Arthritis among adults aged ≥18 years who have heart disease**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report ever being told by a doctor, nurse or other health professional that they had heart disease (myocardial infarction or coronary heart disease) and who report having doctor-diagnosed arthritis. |
| Denominator: | Respondents aged ≥18 years who report ever being told by a doctor, nurse or other health professional that they had heart disease (myocardial infarction or coronary heart disease) (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] During 2005 and 2007, the prevalence of arthritis among adults aged ≥18 years with heart disease was 57%, compared with 27% for all adults aged ≥18 years.[2]The prevalence of physical inactivity is higher among adults with both heart disease and arthritis than those with either condition alone; physical activity is a recommended self-management strategy for both heart disease and arthritis. |
| Significance: | Monitoring the prevalence of arthritis among adults with heart disease is important because over half of the adults with heart disease also have arthritis. Heart disease and arthritis occur more frequently in older adults and those who are obese. Arthritis may be an unaddressed barrier for adults with heart disease seeking to manage their condition through physical activity. Persons with arthritis report that increased joint pain is the number one barrier to participating in physical activities. Physical activity helps control blood pressure and helps individuals reach and maintain a healthy weight for people with heart disease and can reduce pain, improve function, and delay disability among adults with arthritis.[2] This indicator can be used to estimate the number of people with heart disease who may need special interventions to help them become more physically active and manage their disease, e.g., through the Chronic Disease Self-Management Program, Enhance Fitness, etc. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in the BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be valid for surveillance purposes[3] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). Doctor-diagnosis of heart disease was also self-reported. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis BRFSS tables produced for each state for odd numbered years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Cardiovascular Disease |

1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.
2. CDC. Arthritis as a potential barrier to physical activity among adults with heart disease — United States, 2005 and 2007. MMWR 2009;58(7):165-169.
3. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Arthritis**
**Indicator Number: 2**
**Indicator Name: Activity limitation due to arthritis among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report having doctor-diagnosed arthritis and an activity limitation due to arthritis or joint symptoms. |
| Denominator: | Respondents aged ≥18 years (excluding unknowns and refusals). |
| Measures of Frequency: | Biannual prevalence with 95% confidence interval (odd numbered years); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] By 2030, 25 million (9.3% of the adult population) are projected to report arthritis-attributable activity limitations.[1] In 2003, arthritis cost an estimated $128 billion (direct medical and indirect costs).[2] |
| Significance: | Monitoring the prevalence of arthritis-attributable activity limitation among the general population of adults is important for estimating the state-specific burden of arthritis, the need for interventions to reduce the disabling effects of arthritis, and how well existing interventions are working. These interventions include self-management education programs that have been shown to reduce pain and improve psychological health and health behaviors, and physical activity programs that have been shown to improve physical function, mental health, and quality of life. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in the BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be acceptable for surveillance purposes[3] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). Activity limitation is also self-reported. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS), Arthritis Burden Module (odd numbered years only).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AOCBC-2: Reduce the proportion of adults with doctor-diagnosed arthritis who experience a limitation in activity due to arthritis or joint symptoms. |
| Related CDI Topic Area: | Disability |


1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.
2. CDC. National and state medical expenditures and lost earnings attributable to arthritis and other rheumatic conditions—United States, 2003. MMWR 2007;56(1):4–7.
3. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Arthritis**
**Indicator Number: 3**
**Indicator Name: Physical inactivity among adults aged ≥18 years with arthritis**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report doctor-diagnosed arthritis and no leisure time physical activity. Includes respondents reporting no activity when asked six questions about frequency and duration of participation in non-occupational activities of moderate and vigorous intensity (i.e., lifestyle activities). All other respondents were classified as active. |
| Denominator: | Respondents aged ≥18 years who report doctor-diagnosed arthritis (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] By 2030, 25 million (9.3% of the adult population) are projected to report arthritis-attributable activity limitations.[1] Staying physically active and maintaining a healthy weight through diet and exercise are recommended for people with arthritis to reduce and delay disability. In 2003, arthritis cost an estimated $128 billion (direct medical and indirect costs).[2] |
| Significance: | Monitoring the prevalence of inactivity among people with arthritis is important because increasing physical activity has been shown to have significant benefits for people with arthritis, including reductions in pain and improvements in physical function, mental health, and quality of life. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in the BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be acceptable for surveillance purposes[3] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). Physical activity is also self-reported. Unadjusted data are presented in this report to provide actual estimates to help in state-level program planning. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis BRFSS tables produced for each state for odd numbered years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AOCBC-7.2: Increase the proportion of adults with doctor-diagnosed arthritis who receive health care provider counseling….for physical activity or exercise. |
| Related CDI Topic Area: | Nutrition, Physical Activity, and Weight Status |


1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.
2. Furner SE, Hootman JM, Helmick CG, Bolen J, Zack MM. Health-related quality of life of U.S. adults with arthritis: analysis of data from the Behavioral Risk Factor Surveillance System, 2003, 2005, and 2007. Arthritis Care Res 2011;

63:788-799.
3. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Arthritis**
**Indicator Number: 4**
**Indicator Name: Fair or poor health among adults aged ≥18 years with arthritis**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report doctor-diagnosed arthritis and who report that their health is fair or poor. |
| Denominator: | Respondents aged ≥18 years who report doctor-diagnosed arthritis (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] Based on combined 2003, 2005, and 2007 BRFSS data, of persons ages ≥18 years with arthritis, 27% reported fair/poor health, compared with 12% without arthritis.[2] |
| Significance: | Monitoring health-related quality of life among adults with arthritis is important because people with arthritis report worse health related quality of life than adults without arthritis.[1] Self-management education can help improve physical function and quality of life among adults with arthritis. As self-management education becomes more widespread in states, this measure can help track improvements in quality of life of people with arthritis. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be acceptable for surveillance purposes[3] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). General health status is also self-reported. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis BRFSS tables produced for each state for odd numbered years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |


1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.
2. Furner SE, Hootman JM, Helmick CG, Bolen J, Zack MM. Health-related quality of life of U.S. adults with arthritis: analysis of data from the Behavioral Risk Factor Surveillance System, 2003, 2005, and 2007.Arthritis Care Res 2011; 63:788-799.
3. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Arthritis**
**Indicator Number: 5**
**Indicator Name: Adults aged ≥18 years with arthritis who have taken a class to learn how to manage arthritis symptoms**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report doctor-diagnosed arthritis and who report ever taking a course or class on managing their arthritis or joint symptoms. |
| Denominator: | Respondents aged ≥18 years who report doctor-diagnosed arthritis (excluding unknowns and refusals). |
| Measures of Frequency: | Biannual prevalence with 95% confidence interval (for odd numbered years); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | An estimated 50 million adults have doctor-diagnosed arthritis, and 21.1 million report arthritis-attributable activity limitation.[1] The CDC Arthritis Program recommends evidence-based programs that are proven to improve the quality of life of people with arthritis, including self-management education classes/courses. Based on HP2010 data, only 11% of adults with arthritis have taken such recommended classes. |
| Significance: | Self-management education programs can reduce pain and health care costs and are an important arthritis intervention. The Arthritis Foundation's Self-Help Program teaches people how to manage arthritis and lessen its effects. This 6-week course reduces arthritis pain by 20%. More widespread use of this course and similar programs—such as the Chronic Disease Self-Management Program, which addresses arthritis along with other chronic diseases—could improve function and quality of life for people with arthritis. This measure will indicate the proportion of adults with arthritis who have ever taken a course or class to manage their symptoms. |
| Limitations of Indicator: | Doctor-diagnosed arthritis is self-reported in the BRFSS and was not confirmed by a health-care provider or objective monitoring; however, such self-reports have been shown to be valid for surveillance purposes[2] (despite minor changes made in 2011 to the case-finding question to include arthritis on the chronic conditions core). Participation in self-management programs is also self-reported. Unadjusted data are presented in this report to provide actual estimates for state-level program planning. This question comes from a BRFSS Optional Module, so data are missing for some states. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS), Arthritis Management optional module (odd numbered years only).<br>Also, the CDC Arthritis Program typically provides this estimate in standard arthritis BRFSS tables produced for each state for odd numbered years. Unadjusted data are usually presented in these tables to provide actual estimates to help in state-level program planning. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage, nonresponse, or measurement bias. In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AOCBC-8: Increase the proportion of adults with doctor-diagnosed arthritis who have had effective, evidence-based arthritis education as an integral part of the management of their condition. |
| Related CDI Topic Area: | |


1. Hootman JM, Helmick CG. Projections of US prevalence of arthritis and associated activity limitations. Arthritis Rheum 2006;54:226--9.

2. Sacks JJ, Harrold LR, Helmick CG, Gurwitz JH, Emani S, Yood RA. Validation of a surveillance case definition for arthritis. J Rheumatol 2005;32:340–7.

**Indicator Group: Asthma**
**Indicator Number: 1.1**
**Indicator Name: Current asthma prevalence**

| | |
|---|---|
| Demographic Group: | Civilian non-institutional population. |
| Numerator: | Weighted number of respondents who answer "yes" to both the question "have you ever been told by a doctor, nurse, or other health professional that you have asthma?" and the question "do you still have asthma?" |
| Denominator: | Weighted number of respondents to BRFSS (or National Survey of Children's Health) excluding "don't know" and "refused" responses to the question "do you still have asthma?" |
| Measures of Frequency: | Annual number of state residents with current asthma; annual current asthma prevalence percent; and 95% confidence intervals; and by demographic characteristics when feasible.<br><br>Annual number of adults (ages≥18 years) with current asthma; adult current asthma prevalence percent; and 95% confidence intervals; and by demographic characteristics when feasible.<br><br>Annual number of children (ages 0-17 years) with current asthma; child current asthma prevalence percent; and 95% confidence intervals; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year of survey. |
| Background: | Estimates of asthma prevalence indicate the number and percentage of the population with asthma at a given point in time. National estimates indicate that both adult and child current asthma prevalence estimates have been increasing.[1] Adult current asthma prevalence, available for states from BRFSS since 2001, varies by state and region as well as by many demographic characteristics. Child current asthma prevalence is available for a subset of states from BRFSS annually since 2005. Child current asthma prevalence is available for all states from the National Survey of Children's Health for 2003, 2007, and 2011. |
| Significance: | Asthma prevalence describes the size of a state's population with asthma as well as the overall asthma burden relative to other chronic conditions. The greater the prevalence of asthma, the greater the likelihood of adverse outcomes from asthma including emergency department visits, hospitalizations, and death. Compared to persons without asthma, persons with asthma have more days of activity limitation, missed school and missed work and are more likely to report comorbid depression.[2-6] |
| Limitations of Indicator: | All states have collected adult BRFSS data annually since 2001, but not all states collect child data using the child asthma module of the BRFSS. States that do not collect child asthma data from BRFSS cannot produce the total indicator for all years, only the adult indicator. However, child asthma prevalence data for all states is available every 4 years using the National Survey of Children's Health (2003, 2007 and 2011). For these years a total indicator can be produced for all states by combining the adult prevalence from BRFSS with the child prevalence from NSCH. This survey-based indicator requires a doctor diagnosis of asthma, which may not include all persons with asthma. The child information is provided by an adult proxy respondent. |
| Data Resources: | BRFSS survey for adults (all states) and for children (some states).<br>National Survey of Children's Health for those states not collecting child data with BRFSS. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |

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|---|---|
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |


1. CDC. National surveillance for asthma – United States, 1980 – 2004. MMWR 2007:56 (No. SS-8):1.
2. Moonie S, Sterling D, Figgs L, Castro M. Asthma status and severity affects missed school days. J School Health 2006; 76 (1).
3. King ME. Chapter 5: Serious psychological distress and asthma. IN: Preedy VR (ed). Scientific Basis of Healthcare. Science Publishers; 2012:86–107.http://www.crcnetbase.com/doi/abs/10.1201/b11607-6
4. Strine TW, Mokdad AH, Balluz LS, et al. Depression and anxiety in the United States: findings from the 2006 Behavioral Risk Factor Surveillance System. Psychiatr Serv 2008;59:1383--90.
5. Chapman DP, Perry GS, Strine TW. The vital link between chronic disease and depressive disorders. Prev Chronic Dis 2005;2:A14.
6. Scott KM, Von Korff M, Ormel J, et al. Mental disorders among adults with asthma: results from the World Mental Health Survey. Gen Hosp Psychiatry 2007;29(2):123-33. (doi:10.1016/j.genhosppsych.2006.12.006).

**Indicator Group: Asthma**
**Indicator Number: 1.2**
**Indicator Name: Asthma prevalence among women aged 18-44 years**

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| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Female respondents aged 18-44 years who reported that they had ever been told by a doctor, nurse, or other health professional that they had asthma and reported that they still have asthma. |
| Denominator: | Female respondents aged 18-44 years who reported that they had or had not ever been told by a doctor, nurse, or other health professional that they had asthma. |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | Asthma affects at least 8.2% of pregnant women and 9.4% of women of reproductive age in the United States.[1] For about 30% of women with asthma, the severity of the disease worsens during pregnancy.[2] |
| Significance: | While outcomes of pregnancy in which the woman's asthma is mild or well-controlled are usually good, severe and poorly controlled asthma during pregnancy may be associated with an increased likelihood of premature delivery, the need for cesarean delivery, preeclampsia, growth restriction, other perinatal complications, and maternal morbidity and mortality.[3] Furthermore, subsequent pregnancies tend to follow a course similar as the first pregnancy with respect to status of asthma severity.[4] The Clinical Work Group of the Select Panel on Preconception Care recommends that women of reproductive age with asthma be counseled about the importance of achieving asthma control prior to pregnancy and the potential for their asthma control to decline during pregnancy.[2] The panel also recommends that those women with poor control of their asthma is achieved.[2] Finally, preventive therapy with inhaled corticosteroids is highly recommended for women with chronic asthma who are planning to become pregnant or who could become pregnant as use of these medications prior to pregnancy has been shown to reduce the rate of asthma-related health care utilization during pregnancy.[4] |
| Limitations of Indicator: | Estimates are based on self-reported current asthma status, which has not been confirmed by a physician. The validity of self- reported asthma in BRFSS is currently unknown. There is no information about the severity of asthma, whether the asthma is controlled, and whether medications that are safe during pregnancy are being used to control asthma. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |


1. Kwon HL, Belanger K, Bracken MB. Asthma prevalence among pregnant and childbearing-aged women in the United States: estimates from national health surveys. Ann Epidemiol 2003;13:317-24.

2. Dunlop AL, Jack BW, Bottalico JN, et al. The clinical content of preconception care: women with chronic medical conditions. Am J Obstet Gynecol 2008; 199(6 Suppl B):S310-27.
3. American College of Obstetricians and Gynecologists. Asthma in pregnancy. ACOG Practice Bulletin No. 90. Obstet Gynecol 2008;111:457-64.
4. Schatz M, Dombrowski MP, Wise R, et al. Asthma morbidity during pregnancy can be predicted by severity classification. J Allergy Clin Immunol 2003;112:283-8.

**Indicator Group: Asthma**
**Indicator Number: 2.1**
**Indicator Name: Emergency department visit rate for asthma**

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| Demographic Group: | All resident persons. |
| Numerator: | Emergency Department (ED) visits with a principal diagnosis of International Classification of Diseases (ICD)-9-CM code 493 AND (if not already included) hospitalizations where the source of admission was the ED and an admission diagnosis of ICD-9-CM code 493 AND (if not already included) 24-hour observation beds where the source of the admission was the ED with a principal admission diagnosis of ICD-9-CM code 493 among residents during a calendar year. When possible, include ED visits/24-hour observations/hospitalizations for residents who have an ED visit/24-hour observation/hospitalization in another state. |
| Denominator: | Midyear resident population for the same calendar year, obtained from the US Census Bureau. |
| Measures of Frequency: | Annual number of ED visits. Annual ED visit rate per 10,000 — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population distribution #1[1]); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Use the ED discharge date if available for the calendar year. For ED cases found in the hospitalization data which do not have an ED discharge date, use the hospital admission date as the ED discharge date. |
| Background: | Each year, approximately 3.2 million ED visits related to asthma occur in the United States[1]. As of 2010, an estimated 25.7 million U.S. residents currently have asthma, which is a 27% increase over 10 years. The cost of ED care is substantially higher than the cost of outpatient and pharmaceutical services. |
| Significance: | Current scientific and clinical consensus is that the majority of acute asthma events, particularly emergency department visits, can be prevented if asthma is properly managed according to established medical guidelines. Effective management includes control of exposure to factors that trigger exacerbations, adequate pharmacological management, continual monitoring of the disease, and patient education in asthma care.[2] |
| Limitations of Indicator: | This indicator may be an overestimate of the burden of asthma exacerbations since people sometime use the ED inappropriately – i.e., using the ED for primary care. This indicator is calculated among the entire resident population, which includes people who do not have asthma. A more appropriate measure is one that is calculated among the population that has asthma (i.e., at risk based rate) - see indicator "At-risk Emergency Department (ED) Visit rate for Asthma". A subset of patients who appear in the numerator of ED indicators (those who were hospitalized with the ED as source of admission) will also appear in the numerator for both hospitalization indicators. Since resources were used by the patients at each site (ED and inpatient), it is important to count the events in both indicators as an indicator of asthma burden on the hospital system. |
| Data Resources: | State ED visit, observation unit, and hospitalization discharge data (numerator) from AHRQ and population estimates from the U.S. Census Bureau (denominator). |
| Limitations of Data Resources: | Not all states have access to administrative billing ED data. The diagnosis information contained in this data source may or may not match perfectly with information on the medical records, which is considered the "gold standard". State ED datasets may not include all facilities or populations. They may exclude Veterans Administration hospitals, Indian Health Service facilities, or institutionalized (prison) populations. For most states, this measure only includes state residents who visited the ED in their own state. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-3: Reduce hospital emergency department visits for asthma (RD-3.1 is specific for children aged <5 years; RD-3.2 is specific for children and adults aged 5–64 years; RD-3.3 is specific for adults aged ≥65 years.) |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20 http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. NIH: Bethesda MD; 2007.

**Indicator Group: Asthma**
**Indicator Number: 2.2**
**Indicator Name: At-risk emergency department visit rate for asthma**

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| Demographic Group: | Residents with asthma. |
| Numerator: | Emergency department (ED) visits with a principal diagnosis of International Classification of Diseases (ICD)-9-CM code 493 AND (if not already included) hospitalizations where the source of admission was the ED and an admission diagnosis of ICD-9-CM code 493 AND (if not already included) 24-hour observation beds where the source of the admission was the ED with a principal admission diagnosis of ICD-9-CM code 493 among residents during a calendar year. When possible, include ED visits/24-hour observations/hospitalizations for residents who have an ED visit/24-hour observation/hospitalization in another state. |
| Denominator: | Estimate of the number of state residents with current asthma for the same calendar year. For adults the estimate is obtained from the BRFSS and, for children, from the BRFSS child asthma module, if implemented. If not implemented the child estimate can be obtained from the National Survey of Children's Health (NSCH). |
| Measures of Frequency: | Annual number of state residents with current asthma; annual number of asthma ED visits; annual at-risk asthma ED visit rate; and by demographic characteristics when feasible.<br><br>Children (0-17) if BRFSS data are available<br>Annual number of ED visits for children ages 0-17 years.<br>Annual number of state residents ages 0-17 years with current asthma.<br>Annual risk-based child asthma ED rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1])<br>Children (0-17 years) if BRFSS data are not available<br>Number of ED visits for children ages 0-17 years for 2003, 2007, and 2011 (and every 4 years thereafter).<br>Number of state residents ages 0-17 years with current asthma for 2003, 2007, and 2011 (and every 4 years thereafter).<br>Risk-based child asthma ED visit rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1]) for 2003, 2007, and 2011 (and every 4 years thereafter).<br>Adults (≥18 years)<br>Annual number of ED visits for adults ages≥18 years.<br>Annual number of state residents ages≥18 years with current asthma.<br>Annual risk-based adult asthma ED visit rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1])<br>Total (all ages)<br>Annual number of ED visits for states/years with both child and adult prevalence<br>Annual number of state residents with current asthma for states/years with both child and adult prevalence<br>Annual risk-based asthma ED visit rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1]) for states/years with both child and adult prevalence) |
| Time Period of Case Definition: | Use the ED discharge date if available for the calendar year. For ED cases found in the hospitalization data which do not have an ED discharge date, use the hospital admission date as the ED discharge date. |
| Background: | Each year, approximately 1.8 million ED visits related to asthma occur in the United States.[2] As of 2010, an estimated 25.7 million U.S. residents currently have asthma,[3] which is a 27% increase over 10 years. The at-risk based asthma ED rate controls for the increase in the number of state residents with asthma that has occurred over time or differences in the underlying asthma prevalence across states. The population-based rates can increase simply because there are more people with asthma |

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| | each year or in specific geographic areas. The at-risk based rate reflects the use of ED's for asthma care per person with asthma and is therefore independent of the number of people with asthma. The cost of ED care is substantially higher than the cost of outpatient and pharmaceutical services. An at-risk based asthma ED rate will better reflect the burden of asthma independent of the increase or differences in the number of people with asthma. As more people with asthma achieve higher levels of asthma control, the at-risk rate should decline while population based rate may increase because more people have asthma. |
| Significance: | Current scientific and clinical consensus is that the majority of acute asthma events, particularly emergency department visits, can be prevented if asthma is properly managed according to established medical guidelines. Effective management includes control of exposure to factors that trigger exacerbations, adequate pharmacological management, continual monitoring of the disease, and patient education in asthma care.[4] |
| Limitations of Indicator: | As with the population based rate, it is crucial to recognize that myriad environmental factors affect asthma control, including the use of the ED (as opposed to the doctor's office) as the location to medically manage asthma. Diagnoses listed in ED data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to see patients in the ED. Because universal state emergency department data are not available, aggregation of state data to produce nationwide estimates will be incomplete. Because repeat ED visits by the same person in a single calendar year are included in the numerator, the ED rate is a visit-level rate not a person-level rate. Only a limited number of states have personal identifiers in the ED data and are able to de-duplicate[5] ED visit data. However, it is important to assess the full burden on the medical care system. Accordingly, the ED rate includes multiple visits by the same person and the rate calculated is a visit-level, not a person-level rate. However, multiple billing records for the same ED visit should only be counted as a single event. A subset of patients who appear in the numerator of ED indicators (those who were hospitalized with the ED as source of admission) will also appear in the numerator for both hospitalization indicators. Since resources were used by the patients at each site (ED and inpatient), it is important to count the events in both indicators as an indicator of asthma burden on the hospital system. |
| Data Resources: | State ED visit, observation unit, and state hospital discharge data (numerator) from AHRQ and estimates of the number of state residents with current asthma from the BRFSS (adults and children) or the NSCH (children) if the BRFSS child asthma module was not conducted (denominator). |
| Limitations of Data Resources: | If the BRFSS child module was not implemented, annual Child prevalence estimates will only be available for 2003, 2007, and 2011 from the National Survey of Children's Health (NSCH) which is conducted every 4 years.<br>For ED cases found in the hospitalization data, cases with an ED discharge date or a hospital admit date in the calendar year of interest may require use of the hospital discharge data file from the next calendar year. Some admissions at the end of the calendar year are discharged the following calendar year and are found in the hospital discharge file for the next year.<br>Emergency department data will not be available for all states. State ED datasets may not include all facilities or populations. They may exclude Veterans Administration hospitals, Indian Health Service facilities, or institutionalized (prison) populations. For most states, this measure only includes state residents who visited the ED in their own state. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20 http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma – United States, 1980 – 2004. MMWR 2007:56 (No. SS-8):1.
3. CDC. Trends in asthma prevalence, health care use, and mortality in the United States, 2001–2010. NCHS Data Brief, May 2012, (94).

4. National Asthma Education and Prevention Program. Expert Panel Report 3:Guidelines for the Diagnosis and Management of Asthma. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program, 2007.
5. As used here, the term de-duplicated means that persons with multiple admissions during the calendar year are counted only once. However, de-duplication of multiple billing records for the same ED visit is assumed.

**Indicator Group: Asthma**
**Indicator Number: 3.1**
**Indicator Name: Hospitalizations for asthma**

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| Demographic Group: | All resident persons. |
| Numerator: | Inpatient hospitalizations with a principal discharge diagnosis of International Classification of Diseases (ICD)-9-CM code 493 among residents during a calendar year. When possible, include hospitalizations for residents who are hospitalized in another state. |
| Denominator: | Midyear resident population for the same calendar year, obtained from the US Census Bureau. |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rate per 10,000 — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1]); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year based on the hospital discharge date. |
| Background: | Each year, approximately 480,000 hospitalizations related to asthma occur in the United States.[2] As of 2010, an estimated 25.7 million U.S. residents currently have asthma, which is a 27% increase over 10 years.[3] Although inpatient hospitalization for asthma is less frequently used than outpatient and pharmaceutical services, its cost is substantially higher. |
| Significance: | Hospitalizations due to asthma could be reduced if asthma is managed according to established guidelines. Effective management includes control of exposure to factors that trigger exacerbations, adequate pharmacological management, continual monitoring of the disease, and patient education in asthma care.[4] |
| Limitations of Indicator: | While reducing hospitalizations due to asthma is theoretically a function of better care and self-management knowledge, the economy and the health care system also greatly impact this measure. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients. The use of a population based-measure can be misleading as it is affected by changes in prevalence over space or time. As one person can have multiple hospitalizations for asthma in a single calendar year, this indicator describes rate of events, not rate of persons hospitalized. |
| Data Resources: | State hospital discharge data (numerator) from AHRQ and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | The diagnosis information contained in this data source may or may not match perfectly with information on the medical records, which is considered the "gold standard". Hospital discharge data may not be available for all states. State hospitalization datasets may not include all facilities or populations. They may exclude Veterans Administration hospitals, Indian Health Service facilities, or institutionalized (prison) populations. For most states, this measure only includes state residents who were hospitalized in their own state. Hospital inpatient data files are usually organized by discharge date. Some inpatient stays may have been initiated in the previous calendar year since some admissions at the end of one calendar year are discharged the following calendar year. Consequently, rates based on discharge date may differ from other indicators based on admission date. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-2: Reduce hospitalizations for asthma. (RD-2.1 is specific for children aged <5 years; RD-2.2 is specific for children and adults aged 5–64 years; RD-2.3 is specific for adults aged ≥65 years.) |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001.Healthy people 2010 statistical notes, no. 20 http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

2. Number and rate of discharges from short-stay hospitals and of days of care, with average length of stay, and standard error, by selected first-listed diagnostic categories: United States, 2009. National Hospital Discharge Survey. Accessed 10/30/12 at Http://www.cdc.gov/nchs/data/nhds/2average/2009ave2_firstlist.pdf
3. CDC. Trends in asthma prevalence, health care use, and mortality in the United States, 2001–2010. NCHS Data Brief, May 2012, (94).
4. National Asthma Education and Prevention Program. Expert Panel Report 3:Guidelines for the Diagnosis and Management of Asthma. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program, 2007.

**Indicator Group: Asthma**
**Indicator Number: 3.2**
**Indicator Name: Risk-based hospital discharge rate for asthma**

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| Demographic Group: | Residents with asthma. |
| Numerator: | In-patient hospitalizations with a principal discharge diagnosis of International Classification of Diseases (ICD)-9-CM code 493 among state residents during a calendar year. When possible include hospitalizations for state residents who have been hospitalized in another state. |
| Denominator: | Estimate of the number of state residents with current asthma for the same calendar year. For adults the estimate is obtained from the BRFSS and, for children, from the BRFSS child asthma module, if implemented. If not implemented the child estimate can be obtained from the National Survey of Children's Health (NSCH). |
| Measures of Frequency: | Annual number of state residents with current asthma; annual number of asthma inpatient hospitalizations; annual at-risk asthma hospital discharge rate; and by demographic characteristics when feasible.<br><br>Children (0-17 years) if BRFSS data are available<br>Annual number of hospital discharges for children ages 0-17 years.<br>Annual number of state residents ages 0-17 years with current asthma.<br>Annual risk-based child asthma hospital discharge rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population distribution[1])<br>Children (0-17 years) if BRFSS data are not available<br>Number of hospital discharges for children ages 0-17 years for 2003, 2007, and 2011 (and every 4 years thereafter).<br>Number of state residents ages 0-17 years with current asthma for 2003, 2007, and 2011 (and every 4 years thereafter).<br>Risk-based child asthma hospital discharge rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population distribution[1]) for 2003, 2007, and 2011 (and every 4 years thereafter).<br>Adults (≥18 years)<br>Annual number of hospital discharges for adults ages≥18 years.<br>Annual number of state residents ages≥18 years with current asthma.<br>Annual risk-based adult asthma hospital discharge rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population distribution[1])<br>Total (all ages)<br>Annual number of hospital discharges for states/years with both child and adult prevalence<br>Annual number of state residents with current asthma for states/years with both child and adult prevalence<br>Annual risk-based asthma hospital discharge rate per 10,000 - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population distribution[1]) for states/years with both child and adult prevalence |
| Time Period of Case Definition: | Calendar year based on the hospital discharge date. |
| Background: | Each year, there are approximately 500,000 inpatient hospital stays for asthma in the United States.[2] As of 2010, an estimated 25.7 million U.S. residents currently have asthma,[3] which is a 27% increase over 10 years. The at-risk based asthma hospital discharge rate controls for the increase in the number of state residents with asthma that has occurred over time or differences in the underlying asthma prevalence across states. Population-based rates can increase simply because |

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| | there are more people with asthma each year or in specific geographic areas. The at-risk based rate reflects hospitalizations for asthma per person with asthma and is therefore independent of the number of people with asthma. The cost of inpatient stays is substantially higher than the cost of outpatient and pharmaceutical services. An at-risk based asthma hospital discharge rate will better reflect the burden of asthma and improvements in asthma care independent of the increase or differences in the number of people with asthma. As more people with asthma achieve higher levels of asthma control, the at-risk rate should decline while population based rate may continue to increase simply because more people have asthma. |
| Significance: | Current scientific and clinical consensus is that the majority of acute asthma events, including inpatient stays, can be prevented if asthma is properly managed according to established medical guidelines. Effective management includes control of exposure to factors that trigger exacerbations, adequate pharmacological management, continual monitoring of the disease, and patient education in asthma care.[4] |
| Limitations of Indicator: | As with the population based rate, it is crucial to recognize that myriad environmental factors affect asthma control, including hospitalizations (as opposed to the doctor's office) as the location to medically manage asthma. Diagnoses listed in hospital data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to admit patients to the hospital. Because universal state hospital discharge data are not available, aggregation of state data to produce nationwide estimates will be incomplete or differ from those resulting from the national surveys. Because repeat stays by the same person in a single calendar year are included in the numerator, the at-risk based hospital discharge rate is an in-patient stay-level rate not a person-level rate. Only a limited number of states have personal identifiers in the hospital discharge data and are able to de-duplicate[5] inpatient data. However, it is important to assess the full burden on the medical care system. Accordingly, the hospital discharge rate includes multiple stays by the same person and the rate calculated is a stay-level, not a person-level rate. However, multiple billing records for the same hospital admission should only be counted as a single admission. |
| Data Resources: | State hospital discharge data (numerator) and estimates of the number of state residents with current asthma from the BRFSS (adults and children) or the NSCH (children) if the BRFSS child asthma module was not conducted (denominator). |
| Limitations of Data Resources: | If the BRFSS child module was not implemented, annual child prevalence estimates will only be available for 2003, 2007, and 2011 from the National Survey of Children's Health (NSCH). Hospital inpatient data files are usually organized by discharge date. Some inpatient stays may have been initiated in the previous calendar year since some admissions at the end of one calendar year are discharged the following calendar year. Consequently, rates based on discharge date may differ from other indicators based on admission date. Hospital discharge data may not be available for all states. State hospital discharge datasets may not include all facilities or populations. They may exclude Veterans Administration hospitals, Indian Health Service facilities, or institutionalized (prison) populations. For most states, this measure only includes state residents who were hospitalized in their own state. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20 http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma – United States, 1980 – 2004. MMWR 2007:56 (No. SS-8):1.
3. CDC. Trends in asthma prevalence, health care use, and mortality in the United States, 2001–2010. NCHS Data Brief, May 2012, (94).
4. National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute; 2007.
5. As used here, the term de-duplicated means that persons with multiple admissions during the calendar year are counted only once. However, de-duplication of multiple billing records for the same hospital admission is assumed.

**Indicator Group: Asthma**
**Indicator Number: 4.1**
**Indicator Name: Asthma mortality rate**

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| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code J45-J46 as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year, obtained from the US Census Bureau. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate per million — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1]); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. States with fewer than 20 deaths in a calendar year should calculate 3 to 5 year moving averages to increase reliability. |
| Background: | The number of deaths with asthma as the underlying cause decreased from 4,483 in 2000[2] to 3,816 in 2004[2] and then to 3,388 in 2009.[3] There was a very slight increase to 3,404 in 2010[3]. The population-based asthma mortality rate declined from 16.1 in 2000[2] to 10.6 per million population in 2010, while the risk-based asthma mortality rate declined from 2.1 in 2001 to 1.3 per 10,000 persons with asthma in 2010.[3] |
| Significance: | The majority of the problems associated with asthma are preventable if asthma is managed according to established guidelines. Effective management includes control of exposure to factors that trigger exacerbations, adequate pharmacological management, continual monitoring of the disease, and patient education in asthma care. With proper management, deaths from asthma are theoretically preventable.[4] |
| Limitations of Indicator: | The reliability of death certificate data for asthma has been questioned, particularly for older age groups. Asthma may be over or under reported for adults because of misreporting the cause of death, particularly in people with confounding medical conditions. In one study, inconsistencies in death certificate completion resulted in "asthma" automatically overriding the underlying cause chosen, leading to an overestimation of asthma deaths among people age 55 and older.[5-6] In contrast, a larger and well-designed study concluded that asthma death coding had very high specificity (99%) and low sensitivity (42%); that asthma as a cause of death was under-reported rather than over-reported in preference to COPD (58% false negative, 1% false positive); and that there was no age effect.[7] This study casts some doubt on the assumption that coding of asthma deaths in older individuals is unreliable in the United States. However, no studies representative of the entire US vital statistics system have been published. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-1: Reduce asthma deaths. (RD-1.1 is specific for children and adults under age 35 years; RD-1.2 is specific for adults aged 35 to 64 years old; RD-1.3 is specific for adults aged 65 years and older.) |
| Related CDI Topic Area: | |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma – United States, 1980 – 2004. MMWR 2007:56 (No. SS-8):1.
3. CDC. Wonder On-line databases. http://wonder.cdc.gov/

4. National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, 2007.
5. Brunner WM, Ross SK, Johnson JE. Review of the asthma mortality rate for Minnesota residents aged 55 years or older, 2004-2005: when death certificates deserve a second look. Prev Chronic Dis. 2009 Jul;6(3):A92. Epub 2009 Jun 15.
6. Rosenman KD, Hanna E, Wasilevich EA, Lyon-Callo SK. "2007 Annual Report on Asthma Deaths Among Individuals Aged 2-34 and 45-54 Years in Michigan". Michigan State University Department of Medicine. September 2010 (PDF available at www.GetAsthmaHelp.org)
7. Hunt LW, Silverstein MD, Reed CE, O'Connell EJ, O'Fallon WM, Yunginger JW. Accuracy of the death certificate in a population-based study of asthmatic patients. JAMA1993; 269: 1947-1952.

**Indicator Group: Asthma**
**Indicator Number: 4.2**
**Indicator Name: Risk-based asthma mortality rate**

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| Demographic Group: | Residents with asthma. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code J45-J46 as the underlying cause of death among residents during a calendar year. |
| Denominator: | Estimate of the number of state residents with current asthma for the same calendar year, obtained from the BRFSS (for adults), and for children from the BRFSS child module, if implemented, or from the National Survey of Children's Health (NSCH) if the BRFSS child module was not implemented. |
| Measures of Frequency: | Annual number of residents with current asthma; annual number of asthma deaths; annual at-risk asthma death rate; and by demographic characteristics when feasible. States with fewer than 20 deaths in a calendar year should calculate 3 to 5 year moving averages to increase reliability.<br><br>Children (0-17 years) from BRFSS if available<br>Annual number of deaths for children ages 0-17 years.<br>Annual number of state residents ages 0-17 years with current asthma.<br>Annual risk-based child asthma mortality rate per million - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1])<br>Children (0-17 years) from NSCH (if BRFSS data are not available)<br>Number of deaths for children ages 0-17 years for 2003, 2007, and 2011 (and every four years thereafter).<br>Number of state residents ages 0-17 years with current asthma for 2003, 2007, and 2011 (and every four years thereafter).<br>Risk-based child asthma mortality rate per million - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1]) for 2003, 2007, and 2011 (and every four years thereafter).<br>Adults (≥18 years)<br>Annual number of deaths for adults ages≥18 years.<br>Annual number of state residents ages≥18 years with current asthma.<br>Annual risk-based adult asthma mortality rate per million - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1])<br>Total (all ages)<br>Annual number of deaths<br>Annual number of state residents with current asthma (for states/years with both child and adult prevalence)<br>Annual risk-based asthma mortality rate per million - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution[1]) |
| Time Period of Case Definition: | Calendar year. States with fewer than 20 deaths in a calendar year should calculate 3 to 5 year moving averages to increase reliability. |
| Background: | The number of deaths with asthma as the underlying cause decreased from 4,483 in 2000[2] to 3,816 in 2004[2] and then to 3,388 in 2009.[3] There was a very slight increase to 3,404 in 2010.[3] The population-based asthma mortality rate declined from 16.1 in 2000[2] to 10.6 per million population in 2010[3], while the risk-based asthma mortality rate declined from 2.1 in 2001[2] to 1.3 per 100,000 persons with asthma in 2010.[4] As of 2010, an estimated 25.7 million U.S. residents currently had asthma[5], which is a 27% increase over 10 years. The at-risk based asthma mortality rate controls for the increase in the number of state residents with asthma that has occurred over time and differences in the underlying asthma prevalence across states. Population-based asthma mortality rates could increase simply because there are more people with asthma each year (or in specific geographic areas) who are at risk of death from asthma. The at-risk based rate reflects deaths |

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| | among persons with asthma and is therefore independent of the number of people with asthma. |
| Significance: | The majority of the problems associated with asthma are preventable if asthma is managed according to established guidelines. Effective management includes control of exposure to factors that trigger exacerbations, adequate pharmacological management, continual monitoring of the disease, and patient education in asthma care.[6] With proper management, deaths from asthma are theoretically preventable. |
| Limitations of Indicator: | The reliability of death certificate data for asthma has been questioned, particularly for older age groups. The cause of death in people with confounding medical conditions may be misreported.[7-9] Some studies have reported inconsistencies in death certificate completion that resulted in "asthma" automatically overriding the underlying cause chosen, leading to an overestimate of asthma deaths. In contrast, a larger and well-designed study concluded that asthma death coding had very high specificity (99%) and low sensitivity (42%); that asthma as a cause of death was under-reported rather than over-reported in preference to COPD (58% false negative, 1% false positive); and that there was no age effect. This study casts some doubt on the assumption that coding of asthma deaths in older individuals is unreliable in the United States. However, no studies representative of the entire US vital statistics system have been published. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and estimates of the state population with current asthma from the BRFSS and the National Survey of Children's Health (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate.<br>If the BRFSS child module was not implemented, annual child prevalence estimates will only be available for 2003, 2007, and 2011 from the National Survey of Children's Health (NSCH). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-1: Reduce asthma deaths. (RD-1.1 is specific for children and adults under age 35 years; RD-1.2 is specific for adults aged 35 to 64 years old; RD-1.3 is specific for adults aged 65 years and older.) |
| Related CDI Topic Area: | |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma – United States, 1980 – 2004. MMWR 2007:56 (No. SS-8):1.
3. CDC. Wonder On-line databases. http://wonder.cdc.gov/
4. CDC. National Asthma Control program; personal communication.
5. CDC. Trends in asthma prevalence, health care use, and mortality in the United States, 2001–2010. NCHS Data Brief, May 2012, (94).
6. National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, 2007.
7. Brunner WM, Ross SK, Johnson JE. Review of the asthma mortality rate for Minnesota residents aged 55 years or older, 2004-2005: when death certificates deserve a second look. Prev Chronic Dis. 2009 Jul;6(3):A92. Epub 2009 Jun 15.
8. Rosenman KD, Hanna E, Wasilevich EA, Lyon-Callo SK. "2007 Annual Report on Asthma Deaths Among Individuals Aged 2-34 and 45-54 Years in Michigan". Michigan State University Department of Medicine. September 2010.
9. Hunt LW, Silverstein MD, Reed CE, O'Connell EJ, O'Fallon WM and Yunginger JW. Accuracy of the death certificate in a population-based study of asthmatic patients. JAMA 1993;269:1947-1952.

**Indicator Group: Asthma**
**Indicator Number: 5.1**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged 18-64 years with asthma**

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|---|---|
| Demographic Group: | Non-institutionalized resident persons aged 18 – 64 years. |
| Numerator: | Respondents aged 18-64 years who report having ever been told that they have asthma and who still have asthma, and who report having received influenza vaccination in the previous 12 months. |
| Denominator: | Respondents aged 18-64 years who report having ever been told that they have asthma and who still have asthma, and who report having received influenza vaccination in the previous 12 months or not having received influenza vaccination in the previous 12 months (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of asthma, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Current (Still has asthma)<br>Previous 12 months (vaccinated) |
| Background: | Asthma is a significant public health burden. Currently in the United States, approximately 13.8 million adults have asthma.[2]During the 2010-2011 influenza season, 48.4% of high risk adults 18 – 64 years of age received influenza vaccine.[3] |
| Significance: | Asthma appears to be related to influenza infection. Children and adults with asthma are at higher risk for influenza-related adverse health outcomes, including pneumonia, hospitalization for acute respiratory disease, and death. Because 5 to 10% of the US population has asthma, the potential public health impact of influenza infection on this vulnerable subgroup is enormous.[4] |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12: Increase the percentage of children and adults who are vaccinated annually against seasonal influenza (IID-12.6 is specific for noninstitutionalized high-risk adults aged 18 to 64 years).<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships: Percent of adults who reported influenza vaccination within the past year. |
| Related CDI Topic Area: | Immunization |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma–United States, 1980–2004. MMWR. 2007;5(SS-8):1. http://www.cdc.gov/mmwr/PDF/ss/ss5608.pdf /

3. CDC. Interim results: state-specific seasonal influenza vaccination coverage - United States, August 2010-February 2011. MMWR 2011; 60(22):737-743. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6022a3.htm
4. Eisner MD. Asthma and influenza vaccination. Chest 2003;124:775-777. http://journal.publications.chestnet.org/article.aspx?articleid=1081881/

**Indicator Group: Asthma**
**Indicator Number: 5.2**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged ≥65 years with asthma**

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| Demographic Group: | Non-institutionalized resident persons aged ≥65 years. |
| Numerator: | Respondents aged≥65 years who report having ever been told that they have asthma and who still have asthma, and who report having received influenza vaccination in the previous 12 months. |
| Denominator: | Respondents aged ≥65 years who report having ever been told that they have asthma and who still have asthma, and who report having received influenza vaccination in the previous 12 months or not having received influenza vaccination in the previous 12 months (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of asthma, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Current (Asthma)<br>Previous 12 months (Vaccinated) |
| Background: | Asthma is a significant public health burden. Currently in the United States, approximately 13.8 million adults have asthma.[2] During the 2010-2011 influenza season, 68.6% of adults aged ≥65 years received influenza vaccine.[3] |
| Significance: | Asthma appears to be related to influenza infection. Children and adults with asthma are at higher risk for influenza-related adverse health outcomes, including pneumonia, hospitalization for acute respiratory disease, and death. Because 5 to 10% of the US population has asthma, the potential public health impact of influenza infection on this vulnerable subgroup is enormous.[4] |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12: Increase the percentage of children and adults who are vaccinated annually against seasonal influenza. (IID-12.7 is specific for noninstitutionalized adults aged 65 years and older.) Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |
| Related CDI Topic Area: | Immunization; Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma–United States, 1980–2004. MMWR 2007;5(SS-8):1. http://www.cdc.gov/mmwr/PDF/ss/ss5608.pdf
3. CDC. Interim results: state-specific seasonal influenza vaccination coverage - United States, August 2010-February 2011. MMWR 2011; 60(22):737-743. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6022a3.htm

4. Eisner MD. Asthma and influenza vaccination. Chest 2003;124:775-777. http://journal.publications.chestnet.org/article.aspx?articleid=1081881/

**Indicator Group: Asthma**
**Indicator Number: 6.1**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged 18-64 years with asthma**

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| Demographic Group: | Non-institutionalized resident persons aged 18-64 years. |
| Numerator: | Respondents aged 18-64 years who report having ever been told that they have asthma and who still have asthma, and who report ever having received a pneumococcal vaccination. |
| Denominator: | Respondents aged 18-64 years who report having ever been told that they have asthma and who still have asthma, who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. standard population, using the direct method[1]) — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of asthma, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Current (Still has asthma)<br>Lifetime (Ever vaccinated) |
| Background: | Asthma is a significant public health burden. Currently in the United States, approximately 13.8 million adults have asthma.[2]In 2010 in the U.S., pneumococcal vaccination coverage among high-risk adults aged 19–64 years was 18.5% overall.[3] |
| Significance: | An estimated 7.3% of U.S. adults have active asthma. In a case-control study conducted in Tennessee, which identified cases through active, population-based and laboratory-based surveillance and verified history of asthma from the Tennessee Medicaid database, showed that among adults aged 18--49 years, invasive pneumococcal disease (IPD) was more common among persons with asthma than persons without asthma (adjusted odds ratio =2.4; 95% confidence interval =1.8--3.3). Among persons with high-risk asthma, the risk for IPD was nearly twice that for persons with low-risk asthma. In contrast, in a study conducted among a cohort of older veterans (average age: 53 years), persons with asthma did not have higher rates of hospitalization for pneumococcal pneumonia compared with persons in a group without asthma or chronic obstructive pulmonary disease (COPD) who were matched to the asthma patients by age, sex, and region. However, in the same study, hospitalization rates for pneumococcal pneumonia among persons with COPD were higher compared with persons in the control group. Because distinguishing between COPD and asthma becomes more difficult with advancing age, misclassification of persons in this study is a possibility.[4] |
| Limitations of Indicator: | Although self-reported pneumococcal vaccination has been validated[5], the reliability and validity of this measure is unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease. IID-13.2 is specific to noninstitutionalized high-risk adults aged 18 to 64 years.<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships:<br>Percent of adults who reported current smoking, diabetes, asthma or cardiovascular disease who have ever had a pneumococcal vaccination. |

| Related CDI Topic Area: | Immunization |
|---|---|


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma–United States, 1980–2004. MMWR. 2007;5(SS-8):1. http://www.cdc.gov/mmwr/PDF/ss/ss5608.pdf /
3. CDC. Adult vaccination coverage — United States, 2010. MMWR 2012;61(04):66-72. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6104a2.htm /
4. CDC. Updated recommendations for prevention of invasive pneumococcal disease among adults using the 23-valent pneumococcal polysaccharide vaccine (PPSV23). MMWR 2010;59:1102-1106. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm/
5. Shenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015-1020. http://www.ncbi.nlm.nih.gov/pubmed/15620474#/

**Indicator Group: Asthma**
**Indicator Number: 6.2**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged ≥65 years with asthma**

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| Demographic Group: | Non-institutionalized resident persons aged≥65 years. |
| Numerator: | Respondents aged≥65 years who report having ever been told that they have asthma and who still have asthma, and who report ever having received a pneumococcal vaccination. |
| Denominator: | Respondents aged ≥65 years who report having ever been told that they have asthma and who still have asthma, who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. standard population, using the direct method[1]) — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of asthma, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Current (Still has asthma)<br>Lifetime (ever vaccinated) |
| Background: | Asthma is a significant public health burden. Currently in the United States, approximately 13.8 million adults have asthma.[2] In 2010 in the U.S., pneumococcal vaccination coverage Among adults aged ≥65 years, coverage was 59.7% overall.[3] |
| Significance: | An estimated 7.3% of U.S. adults have active asthma. In a case-control study conducted in Tennessee, which identified cases through active, population-based and laboratory-based surveillance and verified history of asthma from the Tennessee Medicaid database, showed that among adults aged 18--49 years, invasive pneumococcal disease (IPD) was more common among persons with asthma than persons without asthma (adjusted odds ratio = 2.4; 95% confidence interval = 1.8--3.3). Among persons with high-risk asthma, the risk for IPD was nearly twice that for persons with low-risk asthma. In contrast, in a study conducted among a cohort of older veterans (average age: 53 years), persons with asthma did not have higher rates of hospitalization for pneumococcal pneumonia compared with persons in a group without asthma or chronic obstructive pulmonary disease (COPD) who were matched to the asthma patients by age, sex, and region. However, in the same study, hospitalization rates for pneumococcal pneumonia among persons with COPD were higher compared with persons in the control group. Because distinguishing between COPD and asthma becomes more difficult with advancing age, misclassification of persons in this study is a possibility.[4] |
| Limitations of Indicator: | Although self-reported pneumococcal vaccination has been validated,[5] the reliability and validity of this measure is unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease. IID-13.1 is specific to noninstitutionalized adults aged 65 years and older. Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |
| Related CDI Topic Area: | Immunization; Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. National surveillance for asthma–United States, 1980–2004. MMWR. 2007;5(SS-8):1. http://www.cdc.gov/mmwr/PDF/ss/ss5608.pdf /
3. CDC. Adult vaccination coverage — United States, 2010. MMWR 2012; 61(04):66-72. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6104a2.htm /
4. CDC. Updated recommendations for prevention of invasive pneumococcal disease among adults using the 23-valent pneumococcal polysaccharide vaccine (PPSV23). MMWR 2010;59:1102-1106. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm
5. Shenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015-1020. http://www.ncbi.nlm.nih.gov/pubmed/15620474#

**Indicator Group: Cancer**
**Indicator Number: 1**
**Indicator Name: Mammography use among women aged 50-74 years**

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|---|---|
| Demographic Group: | Resident females aged 50-74 years. |
| Numerator: | Female respondents aged 50-74 years who report having had a mammogram within the previous 2 years |
| Denominator: | Female respondents aged 50-74 years who report ever having or never having had a mammogram (excluding unknowns and refusals) |
| Measures of Frequency: | Prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1]) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 2 years |
| Background: | In 2010, 20% of women aged 50-74 years had not had a mammogram with the previous 2 years. Breast cancer is the most common cancer among women. In 2008, female breast cancer caused approximately 40,500 deaths. Approximately 210,000 new cases of invasive female breast cancer are diagnosed annually. |
| Significance: | Strong evidence shows that mammography screening can reduce breast cancer deaths by 17% among women aged 50–69 years. The USPSTF recommends biennial screening for women aged 50–74 years. Evidence supporting mammography among women aged 40–49 years is weak. |
| Limitations of Indicator: | Recommendations for mammography screening are not always consistent among national groups. |
| Data Resources: | Behavioral Risk Factor Surveillance Survey. |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-17: Increase the proportion of women who receive breast cancer screening based on the most recent guidelines. |
| Related CDI Topic Area: | Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 2.1**
**Indicator Name: Papanicolaou smear use among adult women aged 21-65 years**

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|---|---|
| Demographic Group: | Resident females aged 21 – 65 years without a hysterectomy. |
| Numerator: | Female respondents aged 21 – 65 years who do not report having had a hysterectomy and who report having had a Papanicolaou (Pap) smear within the previous 3 years |
| Denominator: | Female respondents aged 21 – 65 years who do not report having had a hysterectomy and who report ever having or never having had a Pap smear (excluding unknowns and refusals) |
| Measures of Frequency: | Prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1]) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 3 years |
| Background: | In 2010, 13% of women aged 21 – 65 years had not had a Pap smear within the previous 3 years. In 2008, cancer of the cervix caused approximately 4,000 deaths, and approximately 12,500 new cases are diagnosed annually. Black women have higher incidence of and mortality from cervical cancer than do white women. |
| Significance: | Approximately 40%–60% of cervical cancer deaths can be prevented by increased use of the Pap test (especially among women never screened) and effective, timely treatment. The dramatic decrease in cervical cancer incidence and mortality during the past 50 years is mainly the result of the widespread use of the Pap test. |
| Limitations of Indicator: | Recommendations for screening frequency vary by risk factor and a 3-year interval may not be appropriate for some women. |
| Data Resources: | Behavioral Risk Factor Surveillance Survey (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. National guidelines also include use of HPV testing along with Pap testing for cervical cancer screening. BRFSS does not currently contain questions about human papillomavirus (HPV) status or testing. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-15: Increase the proportion of women who receive a cervical cancer screening based on the most recent guidelines. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 2.2**
**Indicator Name: Recent Papanicolaou smear use among women aged 21-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 21 to 44 years without a hysterectomy |
| Numerator: | Female respondents aged 21-44 years do not report having had a hysterectomy and who reported that they had a Papanicolaou (Pap) smear within the previous 3 years. |
| Denominator: | Female respondents aged 21-44 years who do not report having had a hysterectomy and who reported ever having or never having had a Pap smear(excluding unknowns and refusals). |
| Measures of Frequency: | Crude prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Within the past 3 years. |
| Background: | In 2010, 13% of women aged 21–65 years had not had a Pap smear within the previous 3 years. In 2008, cancer of the cervix caused approximately 4,000 deaths, and approximately 12,500 new cases are diagnosed annually. |
| Significance: | Approximately 40%-60% of cervical cancer deaths can be prevented by increased use of the Pap smear and effective, timely treatment. Almost all cases of cervical cancer are caused by infection with high-risk types of the human papillomavirus (HPV).[1] The CDC's Select Panel on Preconception Care recommends that women be screened routinely for HPV-associated abnormalities of the cervix and that recommended subgroups receive the HPV vaccine. Use of the vaccine, in conjunction with regular pap screening to detect HPV abnormalities early on, can reduce or eliminate the need for procedures that could decrease cervical competency during pregnancy.[2] The office visit during which a Pap test is most often performed, sometimes referred to as the annual exam, is a prime opportunity for the clinician to screen for preconception risk factors and provide treatment or other interventions as necessary. |
| Limitations of Indicator: | Starting Pap smears is recommended at age 21 years or 3 years after the initiation of intercourse. The prevalence of Pap testing may be limited by any changes in age distribution over time, since younger women will have had less opportunity to be in the age-group recommended for the test. The reliability of the BRFSS item assessing having ever had a Pap test is high. Regarding the validity of recall periods for this item, sensitivity is high but specificity is low to moderate with recollection being better with shorter periods of time.[3] |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-15: Increase the proportion of women who receive a cervical cancer screening based on the most recent guidelines. |
| Related CDI Topic Area: | Reproductive Health |


1. Utah's Indicator-Based Information System for Public Health; Indicator Profile for Cervical Cancer Screening. Retrieved 10/30/08 at: http://ibis.health.utah.gov/indicator/view/CervCAScr.UT_US.html
2. Jack B, Atrash H, Coonrod D, Moos M-K, O'Donnell J, Johnson K. The clinical content of preconception care: an overview and preparation of this supplement. Am J Obstet Gynecol 2008; 199(6 Suppl B): S266-S279.

3. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001; 46 Suppl 1:S3-42.

**Indicator Group: Cancer**
**Indicator Number: 3**
**Indicator Name: Fecal occult blood test, sigmoidoscopy, or colonoscopy among adults aged 50–75 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged 50–75 years. |
| Numerator: | Respondents aged 50–75 years who report having had a fecal occult blood test (FOBT) within the previous year or, a sigmoidoscopy within the previous 5 years and a FOBT within the previous 3 years or, a colonoscopy within the previous 10 years. |
| Denominator: | Respondents aged 50–75 years who report ever having or never having a FOBT, sigmoidoscopy or colonoscopy (excluding unknowns and refusals). |
| Measures of Frequency: | Prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1]) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year for FOBT alone; previous 5 years for sigmoidoscopy; previous 3 years for FOBT in conjunction with sigmoidoscopy; previous 10 years for colonoscopy. |
| Background: | In 2010, 35% of adults aged 50–75 years had not received a recommended colorectal cancer screening test within the appropriate time interval. Among adults aged 50 – 75 years, 60% reported having had colonoscopy within 10 years as their most recent colorectal cancer screening test. In 2008, colorectal cancer caused approximately 53,000 deaths. Approximately 147,000 cases are diagnosed annually. |
| Significance: | Colorectal cancer screening can both prevent the occurrence of cancer by detecting and removing precancerous lesions, and detect colorectal cancer early when treatment is more effective. Colorectal cancer screening has been shown to significantly reduce mortality from the disease. |
| Limitations of Indicator: | National colorectal cancer screening guidelines vary regarding the choice of screening test, the appropriate screening interval, and the age at which screening should occur. |
| Data Resources: | Behavioral Risk Factor Surveillance Survey (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-16: Increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines. |
| Related CDI Topic Area: | Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 4.1**
**Indicator Name: Invasive cancer (all sites combined), incidence**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C00 – C80 and behavior = 3 (malignant, primary site), C67.0 – C67.9 (bladder cancer) and behavior = 2 or 3 (in situ or malignant, primary site) among residents during a calendar year (certain histologic types are excluded). |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | Approximately 1.5 million new cases of cancer are diagnosed annually. Cancer is the second leading cause of death in the United States. Approximately one in two males and one in three females will have a diagnosis of cancer over their lifetime. |
| Significance: | Information on cancer at all sites combined provides a measure of, and means of tracking, the substantial burden imposed by cancer. Morbidity and mortality from cancers of the lung, colon, female breast, cervix, oral cavity and pharynx, and multiple other cancers can be reduced through known interventions. |
| Limitations of Indicator: | Cancer is not a single disease, but rather numerous diseases with different causes, risks, and potential interventions. Interpretation of trends or patterns in cancer incidence can be made only by examination of specific types of cancers. Because certain cancers have a long latency period, years might pass before changes in behavior or clinical practice patterns affect the incidence of new cancer cases. In addition, certain cancers are not amenable to primary prevention or screening. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 4.2**
**Indicator Name: Invasive cancer (all sites combined), mortality**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-10 codes C00-C97 (ICD-9 codes 140-208) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | Approximately 1.5 million new cases of cancer are diagnosed annually. Cancer is the second leading cause of death in the United States. Approximately one in two males and one in three females will have a diagnosis of cancer over their lifetime. |
| Significance: | Information on cancer at all sites combined provides a measure of, and means of tracking, the substantial burden imposed by cancer. Morbidity and mortality from cancers of the lung, colon, female breast, cervix, oral cavity and pharynx, and multiple other cancers can be reduced through known interventions. |
| Limitations of Indicator: | Cancer is not a single disease, but rather numerous diseases with different causes, risks, and potential interventions. Interpretation of trends or patterns in cancer mortality can be made only by examination of specific types of cancers. Because certain cancers have a long latency period, years might pass before changes in behavior or clinical practice patterns affect cancer mortality. In addition, certain cancers are not amenable to primary prevention or screening. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-1: Reduce the overall cancer death rate. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 5.1**
**Indicator Name: Invasive cancer of the female breast, incidence**

| | |
|---|---|
| Demographic Group: | All female residents. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C50 and behavior = 3 (malignant, primary site, excluding histologic types M9590 – M9989) among female residents during a calendar year. |
| Denominator: | Midyear female resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | In 2008, approximately 210,200 women were diagnosed with breast cancer and 40,500 died from the disease. Except for non-melanoma skin cancer, breast cancer is the most common cancer among women. |
| Significance: | Monitoring rates over time and comparison of rates at stage of diagnosis by various demographic features can be used to measure disparities and the effectiveness and coverage of screening programs. |
| Limitations of Indicator: | Breast cancer has a long latency period and years might pass before changes in behavior or clinical practice patterns affect the incidence of breast cancer. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-11: Reduce late-stage breast cancer. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 5.2**
**Indicator Name: Cancer of the female breast, mortality**

| | |
|---|---|
| Demographic Group: | All female residents. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code C50 (ICD-9 codes 174-175) as the underlying cause of death among female residents during a calendar year. |
| Denominator: | Midyear resident female population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | In 2008, approximately 210,200 women were diagnosed with breast cancer and 40,500 died from the disease. Except for non-melanoma skin cancer, breast cancer is the most common cancer among women. |
| Significance: | Screening for breast cancer with mammography can reduce deaths from breast cancer. Although scientific controversy remains regarding the benefits versus risks of screening, particularly among women aged 40-49 years, mammography is recommended for women aged 50 – 74 years. |
| Limitations of Indicator: | Because breast cancer can have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-3: Reduce the female breast cancer death rate. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 6.1**
**Indicator Name: Invasive cancer of the cervix, incidence**

| | |
|---|---|
| Demographic Group: | All female residents. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C53 and behavior = 3 (malignant, primary site, excluding histologic types M9590 – M9989) among female residents during a calendar year. |
| Denominator: | Midyear female resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | In 2008, approximately 12,400 women were diagnosed with cervical cancer and 4,000 died from the disease. Black and Hispanic women have higher incidence rates of cervical cancer compared to white women. |
| Significance: | The dramatic decrease in cervical cancer incidence and mortality during the past 45 years is mainly the result of the widespread use of the Papanicolaou test. Cigarette smoking; infection with high-risk human papillomavirus types; and certain sexual practices, including having multiple sex partners, early age at first intercourse, and history of a sexually transmitted disease, increase the risk of cervical cancer. |
| Limitations of Indicator: | Cervical cancer has a long latency period and years might pass before changes in behavior or clinical practice patterns affect the incidence of cervical cancer. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-10: Reduce invasive uterine cervical cancer. |
| Related CDI Topic Area: | Reproductive Health, Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 6.2**
**Indicator Name: Cancer of the female cervix, mortality**

| | |
|---|---|
| Demographic Group: | All female residents. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code C53 (ICD-9 code 180) as the underlying cause of death among female residents during a calendar year. |
| Denominator: | Midyear resident female population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | In 2008, approximately 12,400 women were diagnosed with cervical cancer and 4,000 died from the disease. Black and Hispanic women have higher incidence rates of cervical cancer compared to white women. |
| Significance: | The dramatic decrease in cervical cancer incidence and mortality during the past 45 years is mainly the result of the widespread use of the Papanicolaou test. Cigarette smoking; infection with high-risk human papillomavirus types; and certain sexual practices, including having multiple sex partners, early age at first intercourse, and history of a sexually transmitted disease, increase the risk of cervical cancer. |
| Limitations of Indicator: | Because cervical cancer can have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-4: Reduce the death rate from cancer of the uterine cervix. |
| Related CDI Topic Area: | Reproductive Health, Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 7.1**
**Indicator Name: Cancer of the colon and rectum (colorectal), incidence**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C18 – C20, C26.0 and behavior = 3 (malignant, primary site, excluding histologic types M9590 – M9989) among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | Colorectal cancer is the second leading cause of cancer death among cancers that affect both men and women. In 2008, approximately 142,900 people were diagnosed with and 52,800 people died from the disease. The incidence of colorectal cancer rises sharply after age 50 years. |
| Significance: | Screening for colorectal cancer with fecal occult blood test, flexible sigmoidoscopy or colonoscopy can prevent colorectal cancer by detecting and removing precancerous polyps and can detect cancer early when treatment is more likely to be effective. Comparison of rates by stage at diagnosis can be used to measure the effectiveness and coverage of screening programs. |
| Limitations of Indicator: | Colorectal cancer has a long latency period and years might pass before changes in behavior or clinical practice patterns affect the incidence of colorectal cancer. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-9: Reduce invasive colorectal cancer. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 7.2**
**Indicator Name: Cancer of the colon and rectum (colorectal), mortality**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes C18- C20 (ICD-9 codes 153, 154.0, 154.1, 159.0) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | Colorectal cancer is the second leading cause of cancer death among cancers that affect both men and women. In 2008, approximately 142,900 people were diagnosed with and 52,800 people died from the disease. The incidence of colorectal cancer rises sharply after age 50 years. |
| Significance: | Screening for colorectal cancer with fecal occult blood test, flexible sigmoidoscopy or colonoscopy can prevent colorectal cancer by detecting and removing precancerous polyps and can detect cancer early when treatment is more likely to be effective. Comparison of rates by stage at diagnosis can be used to measure the effectiveness and coverage of screening programs. |
| Limitations of Indicator: | Because colorectal cancer can have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-5: Reduce the colorectal cancer death rate. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 8.1**
**Indicator Name: Cancer of the lung and bronchus, incidence**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C34 and behavior = 3 (malignant, primary site, excluding histologic types M9590 – M9989) among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years |
| Background: | More people die from lung cancer than from any other cancer. In 2008, approximately 208,500 people were diagnosed with lung cancer and 158,600 died from the disease. Over the past ten years, lung cancer incidence and mortality have continued to decline among men, and have remained level among women. |
| Significance: | Cigarette smoking accounts for 80% - 90% of lung cancer cases. Lung cancer is also associated with secondhand tobacco smoke and certain environmental exposures, such as radon. |
| Limitations of Indicator: | Lung cancer has a long latency period and years might pass before changes in behavior or clinical practice patterns affect the incidence of lung cancer. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 8.2**
**Indicator Name: Cancer of the lung and bronchus, mortality**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code C34 (ICD-9 codes 162.2- 162.9) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years. |
| Background: | More people die from lung cancer than from any other cancer. In 2008, approximately 208,500 people were diagnosed with lung cancer and 158,600 died from the disease. Over the past ten years, lung cancer incidence and mortality have continued to decline among men, and have remained level among women. |
| Significance: | Cigarette smoking accounts for 80% - 90% of lung cancer cases. Lung cancer is also associated with secondhand tobacco smoke and certain environmental exposures, such as radon. |
| Limitations of Indicator: | Because lung cancer can have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-2: Reduce the lung cancer death rate. |
| Related CDI Topic Area: | Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 9.1**
**Indicator Name: Invasive melanoma, incidence**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C44 and behavior = 3 (malignant, primary site) and histologic types 8720 – 8790 among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years. |
| Background: | In 2008, 59,700 people were diagnosed with melanoma and 8,600 died from the disease. Approximately 80% of all skin cancer-associated deaths are caused by melanoma. The incidence of melanoma has continued to increase among both men and women over the past decade. |
| Significance: | Exposure to ultraviolet (UV) light causes about 65% - 90% of melanomas. Risk factors for melanoma include a lighter natural skin color, a history of sunburns early in life, and a history of indoor tanning use. In 2008, only 58% of adults said they usually practice at least one of the three sun-protective behaviors (use sunscreen, wear sun-protective clothing, or seek shade). According to the 2010 National Health Interview Study, 19% of women aged 18 – 29 years reported using an indoor tanning device at least once during the past 12 months. |
| Limitations of Indicator: | Melanoma has a long latency period and years might pass before changes in behavior or clinical practice patterns affect the incidence of melanoma. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Melanoma is frequently diagnosed outside of the hospital and therefore might be underreported by a central cancer registry. Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 9.2**
**Indicator Name: Melanoma, mortality**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code C43 (ICD-9 code 172) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years. |
| Background: | In 2008, 59,700 people were diagnosed with melanoma and 8,600 died from the disease. Approximately 80% of all skin cancer-associated deaths are caused by melanoma. The incidence of melanoma has continued to increase among both men and women over the past decade. |
| Significance: | Exposure to ultraviolet (UV) light causes about 65% - 90% of melanomas. Risk factors for melanoma include a lighter natural skin color, a history of sunburns early in life, and a history of indoor tanning use. In 2008, only 58% of adults said they usually practice at least one of the three sun-protective behaviors (use sunscreen, wear sun-protective clothing, or seek shade). According to the 2010 National Health Interview Study, 19% of women aged 18 – 29 years reported using an indoor tanning device at least once during the past 12 months. According to the 2010 National Health Interview Study, 19% of women aged 18 – 29 years reported using an indoor tanning device at least once during the past 12 months. |
| Limitations of Indicator: | Because melanoma can have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-8: Reduce the melanoma cancer death rate. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 10.1**
**Indicator Name: Invasive cancer of the oral cavity or pharynx, incidence**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C00.0 – C14.8 and behavior = 3 (malignant, primary site, excluding histologic types M9590 – M9989) among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years. |
| Background: | In 2008, approximately 35,900 people were diagnosed with cancer of the oral cavity or pharynx, and 8,000 people died from the disease. The incidence of and mortality from cancer of the oral cavity and pharynx is more than twice as high among men compared to women. |
| Significance: | Cancer of the oral cavity and pharynx is associated with use of tobacco products and excessive alcohol use. Together, alcohol and tobacco use account for approximately 75% of all oral cancers in the United States. A significant percentage (63%) of oropharyngeal cancers may also be linked to human papillomavirus (HPV).[2] |
| Limitations of Indicator: | Cancer of the oral cavity and pharynx has a long latency period and years might pass before changes in behavior or clinical practice patterns affect the incidence of oropharyngeal cancer. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Oral Health, Tobacco, Alcohol |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Human Papillomavirus (HPV)-Associated Cancers. Available: http://www.cdc.gov/cancer/hpv/statistics/headneck.htm. Accessed: March 27, 2013.

**Indicator Group: Cancer**
**Indicator Number: 10.2**
**Indicator Name: Cancer of the oral cavity and pharynx, mortality**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes C00 – C14 (ICD-9 codes 140-149) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years. |
| Background: | In 2008, approximately 35,900 people were diagnosed with cancer of the oral cavity or pharynx, and 8,000 people died from the disease. The incidence of and mortality from cancer of the oral cavity and pharynx is more than twice as high among men compared to women. |
| Significance: | Cancer of the oral cavity and pharynx is associated with use of tobacco products and excessive alcohol use. Together, alcohol and tobacco use account for approximately 75% of all oral cancers in the United States. A significant percentage (63%) of oropharyngeal cancers may also be linked to human papillomavirus (HPV).[2] |
| Limitations of Indicator: | Because cancer of the oral cavity and pharynx can have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-6: Reduce oropharyngeal cancer death rate. |
| Related CDI Topic Area: | Oral Health, Tobacco, Alcohol |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Human Papillomavirus (HPV)-Associated Cancers. Available: http://www.cdc.gov/cancer/hpv/statistics/headneck.htm. Accessed: March 27, 2013.

**Indicator Group: Cancer**
**Indicator Number: 11.1**
**Indicator Name: Invasive cancer of the prostate, incidence**

| | |
|---|---|
| Demographic Group: | All male residents. |
| Numerator: | Incident cases of cancer with an International Classification of Diseases (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C61.9 and behavior = 3 (malignant, primary site, excluding histologic types M9590 – M9989) among male residents during a calendar year. |
| Denominator: | Midyear resident male population for the same calendar year. |
| Measures of Frequency: | Average annual number of incident cases. Average annual incidence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years. |
| Background: | In 2008, approximately 220,000 men were diagnosed with prostate cancer, and 28,400 men died from the disease. Prostate cancer is the most common cancer among men. Black men have higher rates of prostate cancer incidence and mortality than do white men. |
| Significance: | Although screening for prostate cancer is not recommended by the United States Preventive Services Task Force, screening for prostate cancer has increased the number of new cases and the percentage of new cases diagnosed at an early stage. |
| Limitations of Indicator: | The impact of screening for prostate cancer on prostate cancer mortality is unknown. Current methods do not allow for differentiation between cases of prostate cancer that may result in death from indolent cases that are unlikely to result in death from the disease. |
| Data Resources: | Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Data from some statewide central cancer registries may not meet standards for data completeness and quality. Therefore, nationwide estimates calculated from aggregated state data might not include data from each state. However, state registry data should accurately represent state cancer incidence in the majority of states, particularly where completeness and quality of registry data are high. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cancer**
**Indicator Number: 11.2**
**Indicator Name: Cancer of the prostate, mortality**

| | |
|---|---|
| Demographic Group: | All male residents. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code C61 (ICD-9 code 185) as the underlying cause of death among male residents during a calendar year. |
| Denominator: | Midyear resident male population for the same calendar year. |
| Measures of Frequency: | Average annual number of deaths. Average annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1] based on single years of age from the Census P25-1130 series estimates which are summed to form 5-year age groups) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Five years. |
| Background: | In 2008, approximately 220,000 men were diagnosed with prostate cancer, and 28,400 men died from the disease. Prostate cancer is the most common cancer among men. Black men have higher rates of prostate cancer incidence and mortality than do white men. |
| Significance: | Substantial evidence exists that prostate-specific antigen (PSA) can detect early stage prostate cancer, but evidence is inconclusive regarding the ability of early detection to improve health outcomes, including mortality. |
| Limitations of Indicator: | Because prostate cancer can have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death or other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective C-7: Reduce the prostate cancer death rate. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 1.1**
**Indicator Name: Mortality from total cardiovascular diseases**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes I00–I99 (ICD-9 code 390–459) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Cardiovascular disease (CVD) is the major cause of death in the United States, nearly 800,000 people die in the United States each year from cardiovascular diseases—that's 1 in every 3 deaths. About 150,000 Americans who died from CVD in 2009 were younger than age 65. |
| Significance: | Modifiable risk factors for cardiovascular disease include behaviors (e.g., tobacco use, physical inactivity, and improper nutrition), health status (e.g., hypertension, hyperlipidemia, overweight, or diabetes), and policies (e.g., smoking policies in restaurants and worksites). Substantial differences in CVD death rates exist by race, age, sex, place of residence, and other demographic factors. |
| Limitations of Indicator: | CVD is not a single disease, but rather multiple diseases with different causes, risks, and potential interventions. Interpretation of trends or patterns in mortality from cardiovascular disease can be made only by examination of specific types of cardiovascular disease. Because certain types of cardiovascular disease have a long latency period, years might pass before changes in behavior or clinical practice affect CVD mortality. Certain types of CVD (e.g., valvular and congenital heart disease) are not amenable to primary prevention or screening. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-2: Reduce coronary heart disease deaths.<br>Healthy People 2020 Objective HDS-3: Reduce stroke deaths. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 1.2**
**Indicator Name: Mortality from diseases of the heart**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes I00–I09, I11, I13, I20–I51 (ICD-9 codes 390–398, 402, 404, 410–429) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Of the nearly 800,000 Americans who die of CVD in 2009, 600,000 die from heart disease—that's 1 in every 4 deaths. In 2009, the age-adjusted rate among males (202.9/ 100,000) is greater than the age-adjusted rate among females (187.89/100,000). |
| Significance: | Modifiable risk factors for heart disease include behaviors (e.g., tobacco use, physical inactivity, and improper nutrition), health status (e.g., hypertension, hyperlipidemia, overweight, or diabetes), and policies (e.g., smoking policies in restaurants and worksites). Substantial differences in heart disease death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors. |
| Limitations of Indicator: | Heart disease is not a single disease, but rather multiple diseases with different causes, risks, and potential interventions. Interpretation of trends or patterns in mortality from heart disease can be made only by examination of specific types of heart disease. Because certain types of heart disease have a long latency period, years might pass before changes in behavior or clinical practice affect heart disease mortality. Certain types of heart disease (e.g., valvular and congenital heart disease) are not amenable to primary prevention or screening. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-2: Reduce coronary heart disease deaths. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 1.3**
**Indicator Name: Mortality from coronary heart disease**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes I20–I25 (ICD-9 codes 410–414, 429.2) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2009, coronary heart disease (CHD) is the largest category of heart disease, killing more than 385,000 people annually. In 2009, age-adjusted rate among males (138.7/ 100,000) is greater than the age-adjusted rate among females (113.3/100,000). |
| Significance: | Modifiable risk factors for CHD include behaviors (e.g., tobacco use, physical inactivity, and improper nutrition), health status (e.g., hypertension, hyperlipidemia, overweight, or diabetes), and policies (e.g., smoking policies in restaurants and worksites). Substantial differences in CHD death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors. |
| Limitations of Indicator: | The coding of death from CHD, especially use of ICD-9 429.2, "cardiovascular disease, un-specified," varies geographically. Historically, epidemiologists have used different groups of ICD rubrics to monitor CHD mortality. This has created differences in published mortality measures. Because CHD might have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-2: Reduce coronary heart disease deaths. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 1.4**
**Indicator Name: Mortality from heart failure**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 code I50 (ICD-9 code 428) as the underlying or contributing (any mentioned) cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Heart failure is the primary cause of more than 55,000 of the 600,000 heart disease deaths in 2009 and heart failure was mentioned as a contributing cause in more than 270,000 deaths (1 in 9) in 2009. Congestive heart failure (CHF) is the leading principal diagnosis for Medicare hospital claims. |
| Significance: | Approximately 75% of persons with CHF have antecedent hypertension. During 1979–1996, hospitalization for CHF increased by 130%. Substantial differences in CHF death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors. |
| Limitations of Indicator: | Because congestive heart failure is a chronic disease and can have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 1.5**
**Indicator Name: Mortality from cerebrovascular disease (stroke)**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes I60–I69 (ICD-9 code 430–438) as the underlying cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2009, stroke kills almost 130,000 of the 800,000 Americans who die of CVD each year—that's 1 in every 19 deaths from all causes. Historically, the southeastern United States has experienced high stroke death rates. |
| Significance: | Modifiable risk factors for stroke include behaviors (e.g., tobacco use, physical inactivity, and improper nutrition) and health status (e.g., untreated hypertension, hyperlipidemia, overweight, or diabetes). Approximately 26% of stroke deaths in the United States are attributable to high blood pressure and 12% to smoking. Substantial differences in risk and preventive factors exist by race, age, sex, place of residence, and other demographic factors. |
| Limitations of Indicator: | Although the two major types of stroke — hemorrhagic (approximately 10% of stroke) and Ischemic (approximately 65% of stroke) — share certain risk factors, their treatment varies. Consequently, accurate interpretation of trends or patterns in total mortality from cerebrovascular disease is difficult. Because cerebrovascular disease has a long latency period, years might pass before changes in behavior or clinical practice patterns affect cerebrovascular disease mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-3: Reduce stroke deaths. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 2**
**Indicator Name: Hospitalization for heart failure among Medicare-eligible persons aged ≥ 65 years**

| | |
|---|---|
| Demographic Group: | Medicare-eligible resident persons aged ≥65 years. |
| Numerator: | Hospitalizations with principal diagnosis of International Classification of Diseases (ICD)-9-CM code 428.0 among Medicare-eligible resident persons aged ≥65 years. |
| Denominator: | Residents aged ≥65 years who were eligible for Medicare Part A benefits on July 1 of the calendar year, excluding members of health maintenance organizations. |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rates — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 18[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Heart failure (HF) is the leading principal diagnosis for Medicare hospital claims. |
| Significance: | Approximately 75% of persons with HF have antecedent hypertension. During 1979–1996, hospitalizations for HF increased by 130%. |
| Limitations of Indicator: | Because heart failure is a chronic disease that can have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population morbidity and mortality. |
| Data Resources: | Centers for Medicare and Medicaid Services (CMS) Part A claims data (numerator) and CMS estimates of the population of persons eligible for Medicare (denominator). |
| Limitations of Data Resources: | Diagnoses listed on Medicare claims data might be inaccurate. Practice patterns and payment mechanisms could affect decisions by health-care providers to hospitalize patients. Indicator is limited to Medicare-eligible population. Multiple admissions for an individual patient can falsely elevate the number of persons with HF. The Medicare claims dataset cannot provide incident (new) hospitalizations for HF. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-24: Reduce hospitalizations of older adults with heart failure as the principal diagnosis (24.1 is specific for adults aged 65–74 years; 24.2 is specific for adults aged 75–84 years; 24.3 is specific for adults aged ≥85 years.) |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Older Adults; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 3.1**
**Indicator Name: Hospitalization for stroke**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Hospitalizations with principal diagnosis International Classification of Diseases (ICD)-9-CM codes 430–434 and 436–438 among residents during a calendar year. When possible, include discharges for residents who are hospitalized in another state. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rates — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2009, stroke killed almost 130,000 of the 800,000 Americans who die of CVD each year—that's 1 in every 19 deaths from all causes. More than 795,000 (about 800,000) people have a stroke each year in the United States (610,000 of those are first or new strokes, 185,000, or nearly 1 in 4, are recurrent strokes). |
| Significance: | Modifiable risk factors for stroke include behaviors (e.g., tobacco use, physical inactivity, and improper nutrition) and health status (e.g., untreated hypertension, hyperlipidemia, overweight, or diabetes). Approximately 26% of stroke deaths in the United States are attributable to high blood pressure and 12% to smoking. Substantial differences in stroke death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors. Historically, the southeastern United States has had high stroke death rates. |
| Limitations of Indicator: | Although the two major types of stroke — hemorrhagic (approximately 10% of stroke) and ischemic (approximately 65% of stroke) — share certain risk factors, their treatment varies. Because cerebrovascular disease has a long latency period, years might pass before changes in behavior or clinical practice patterns affect cerebrovascular disease morbidity and mortality. |
| Data Resources: | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms could affect decisions by health-care providers to hospitalize patients. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for an individual patient can falsely elevate the number of persons with stroke. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete. State discharge records cannot identify incident (new) hospitalizations for stroke. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-3: Reduce stroke deaths.<br>Healthy People 2020 Objective HDS-17 (Developmental): Increase the proportion of adults aged 20 years and older who are aware of the symptoms of and how to respond to a stroke.<br>Healthy People 2020 Objective HDS-23 (Developmental): Increase the proportion of adult stroke survivors who are referred to a stroke rehabilitation program at discharge. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 3.2**
**Indicator Name: Hospitalization for acute myocardial infarction**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Hospitalizations with principal diagnosis of International Classification of Diseases (ICD)-9-CM code 410 among residents during a calendar year. When possible, include hospitalizations for residents who are hospitalized in another state. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rates — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) — with 95%confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Acute myocardial infarction (heart attack) is one measure of coronary heart disease (CHD). |
| Significance: | Modifiable risk factors for CHD include behaviors (e.g., tobacco use, physical inactivity, and improper nutrition), health status (e.g., hypertension, hyperlipidemia, overweight, or diabetes), and policies (e.g., smoking policies in restaurants and worksites).Rapid identification and treatment of heart attack reduces heart muscle damage, improves heart muscle function, and lowers the heart attack death rate. Substantial differences in CHD death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors. |
| Limitations of Indicator: | Substantial numbers of persons with acute myocardial infarction die before reaching a hospital. Because heart disease is a chronic disease that can have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population morbidity and mortality.<br>A substantial number of misdiagnoses, particularly among women, have been reported. |
| Data Resources: | State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator). |
| Limitations of Data Resources: | Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for an individual patient can falsely elevate the number of persons acute myocardial infarctions. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete. State hospital discharge data does not allow identification of incident (new) hospitalizations for acute myocardial infarction. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-16: Increase the proportion of adults aged 20 years and older who are aware of the symptoms of and how to respond to a heart attack.<br>Healthy People 2020 Objective HDS-18: (Developmental) Increase the proportion of out-of-hospital cardiac arrests in which appropriate bystander and emergency medical services are administered.<br>Healthy People 2020 Objective HDS-19.1: Increase the proportion of eligible patients with heart attacks who receive fibrinolytic therapy within 30 minutes of hospital arrival.<br>Healthy People 2020 Objective HDS-19.2: Increase the proportion of eligible patients with heart attacks who receive percutaneous intervention within 90 minutes of hospital arrival.<br>Healthy People 2020 Objective HDS-22: (Developmental) Increase the proportion of adult heart attack survivors who are referred to a cardiac rehabilitation program at discharge.<br>Million Hearts® brings together communities, health systems, nonprofit organizations, federal agencies, and private-sector partners from across the country to fight heart disease and stroke. http://millionhearts.hhs.gov/index.html |

| | |
|---|---|
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 4**
**Indicator Name: Cholesterol screening among adults aged ≥18 years**

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|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report having their cholesterol checked within the previous 5 years. |
| Denominator: | Respondents aged ≥18 years who report having their cholesterol checked within the previous 5 years (excluding unknowns and refusals). |
| Measures of Frequency: | Biennial (odd years) prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 5 years. |
| Background: | Although rates of cholesterol screening have doubled in the past 15 years, 25% of adults aged >18 years still have not had their cholesterol checked within the previous 5 years. Among those who had ever been screened for high blood cholesterol, the percentage who reported ever being told by a health care provider their blood cholesterol was high was 35.0% in 2009. |
| Significance: | Elevated levels of serum cholesterol can lead to development of atherosclerosis. Approximately 30%–40% of coronary heart disease and 10%–20% of strokes in the United States are attributable to elevated serum cholesterol. Elevated cholesterol has been associated with physical inactivity, high fat intake, smoking cigarettes, diabetes, and obesity. Lifestyle changes and medications can reduce cholesterol and prevent heart disease among persons with elevated serum cholesterol. |
| Limitations of Indicator: | Validity and reliability of this indicator can be low because patients might not be aware of the specific tests conducted on their blood samples collected in clinical settings. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., lower telephone coverage among populations of low socioeconomic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-6: Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Number: 5**
**Indicator Group: Cardiovascular Disease**
**Indicator Name: High cholesterol prevalence among adults aged ≥ 18 years**

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|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns), and report having been told by a doctor, nurse or other health professional that they had high cholesterol. |
| Denominator: | Respondents aged ≥18 years who report having their cholesterol checked within the previous 5 years (excluding unknowns and refusals). |
| Measures of Frequency: | Biennial (odd years) prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 5 years. |
| Background: | Among those who had ever been screened for high blood cholesterol, the percentage who reported ever being told by a health care provider their blood cholesterol was high was 35.0% in 2009. Only 33.5% (1 out of every 3) adults with high cholesterol have the condition under control and less than half of adults with high cholesterol get treatment. |
| Significance: | Elevated levels of serum cholesterol can lead to development of atherosclerosis. Approximately 30%–40% of coronary heart disease and 10%–20% of strokes in the United States are attributable to elevated serum cholesterol. Elevated cholesterol has been associated with physical inactivity, high fat intake, smoking cigarettes, diabetes, and obesity. Lifestyle changes and medications can reduce cholesterol and prevent heart disease among persons with elevated serum cholesterol. |
| Limitations of Indicator: | Validity and reliability of this indicator can be low because patients might not be aware of the specific tests conducted on their blood samples collected in clinical settings. Or the patients cannot afford to go to see doctor to get cholesterol checked. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-6: Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years.<br>Health People 2020 Objective HDS-7: Reduce the proportion of adults with high total blood cholesterol levels. |
| Related CDI Topic Area: | Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 6.1**
**Indicator Name: Awareness of high blood pressure among adults aged ≥ 18 years**

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|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report having been told by a doctor, nurse, or other health professional of having high blood pressure. |
| Denominator: | Respondents aged ≥18 years (excluding unknowns and refusals). |
| Measures of Frequency: | Biennial (odd years) prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | In the United States, 1 in every 3 adults had hypertension (NHANES 2003–2010).BRFSS 2009 data showed that overall age-adjusted prevalence of self-reported high blood pressure in the United States was 28.3%. |
| Significance: | More than 348,000 American deaths in 2009 included high blood pressure as a primary or contributing cause. Approximately 20%–30% of coronary heart disease and 20%–50% of strokes in the United States are attributable to uncontrolled hypertension. Blood pressure-related cardiovascular complications can occur before the onset of established hypertension. Lifestyle risk factors for hypertension include high sodium intake, excessive caloric intake, physical inactivity, excessive alcohol consumption, and deficient potassium intake. Lifestyle changes and medications can be used to reduce blood pressure. |
| Limitations of Indicator: | Indicator does not measure the proportion of adults who currently have diagnosed high blood pressure and may result in an underestimate of the prevalence of high blood pressure. Indicator is unable to measure those who are aware of having hypertension because current guidelines recommend that hypertension is diagnosed after being told two or more times by a health care professional that the systolic level was ≥140 mmHg or the diastolic level was ≥90 mmHg. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., lower telephone coverage among populations of low socioeconomic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-4: Increase the proportion of adults who have had their blood pressure measured within the preceding 2 years and can state whether their blood pressure was normal or high.<br>Healthy People 2020 Objective HDS-5.1: Reduce the proportion of adults with hypertension. |
| Related CDI Topic Area: | Alcohol; Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 6.2**
**Indicator Name: Awareness of high blood pressure among women aged 18-44 years**

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|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Female respondents aged 18-44 years who reported ever being told by a doctor, nurse, or other health professional that they have high blood pressure. Women with high blood pressure during pregnancy would be included in the numerator, but women with borderline high blood pressure or pre-hypertension would not. |
| Denominator: | Female respondents aged 18-44 years who reported that they had or had never been told by a doctor, nurse, or other health professional that they have high blood pressure (excluding unknowns and refusals). |
| Measures of Frequency: | Biennial (odd years) crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Lifetime. |
| Background: | In 2002, national data estimate that 3% of women of reproductive age had hypertension.[1] As the number of pregnancies among women aged 35 years and older increases, this proportion is likely to grow. |
| Significance: | Pregnancies among women with chronic hypertension can lead to preeclampsia or eclampsia, damage to the central nervous system, and kidney damage.[2,3] Potential life threatening conditions related to chronic hypertension during pregnancy include preterm delivery, intrauterine growth retardation, placental abruption, and fetal demise.[4] The Clinical Work Group of the Select Panel on Preconception Care recommends that all women of reproductive age with chronic hypertension be counseled before pregnancy about medication management and about the maternal and infant risks associated with hypertension during pregnancy.[5] |
| Limitations of Indicator: | Estimates are based on self-reported high blood pressure, which has not been confirmed by a physician. Studies have reported high reliability for this BRFSS item.[6] However, based on studies comparing self-reports with clinical data, validity is deemed to be moderate as self-reported high blood pressure status may result in an underestimate of true hypertension prevalence.[7] However, this underestimation is consistent with other research.[6]There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-5.1: Reduce the proportion of adults with hypertension. |
| Related CDI Topic Area: | Reproductive Health; |


1. U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau, Women's Health USA 2002. Rockville, MD: U.S. Department of Health and Human Services; 2002.
2. Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. Am J Obstet Gynecol 2000; 183:S1-22.

3. Agency for Healthcare Research and Quality. Management of chronic hypertension during pregnancy. Evidence Report/Technology Assessment no. 14. AHRQ publication no. 00E011. Rockville, MD: Agency for Healthcare Research and Quality; 2000.
4. Ferrer RL, Sibai BM, Morrow CD, Chiquette E, Stevens KR, Cornell J. Management of mild chronic hypertension during pregnancy: a review. Obstet Gynecol 2000; 96:849-60.
5. Dunlop AL, Jack BW, Bottalico JN, et al. The clinical content of preconception care: women with chronic medical conditions. Am J Obstet Gynecol2008;199(6 Suppl B):S310-27.
6. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001;46 Suppl 1:S3-42.
7. Joint National Committee. Hypertension prevalence and the status of awareness, treatment, and control in the United States: final report. Hypertension 1985; 7:456-468.

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 7**
**Indicator Name: Taking medicine for high blood pressure control among adults aged ≥18 years with high blood pressure**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report taking medicine for high blood pressure. |
| Denominator: | Respondents aged ≥18 years who report having been told by a doctor, nurse, or other health professional of having high blood pressure (excluding unknowns and refusals). |
| Measures of Frequency: | Biennial (odd years) prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | CDC vital signs (2012) showed that about half (47%) of people with high blood pressure have their condition under control. It is very important to improve the control rate to reduce the risk of heart attack and stroke. Studies showed that 46,000 deaths might be averted each year if 70% of patients with high blood pressure were treated according to goals established in current clinical guidelines. Reducing average population systolic blood pressure by only 12–13 mmHg could reduce stroke by 37%, coronary heart disease by 21%, and cardiovascular disease mortality by 25%, and all-cause mortality by 13%. |
| Significance: | Approximately 20%–30% of coronary heart disease and 20%–50% of strokes in the United States are attributable to uncontrolled hypertension. Blood pressure-related cardiovascular complications can occur before the onset of established hypertension. Lifestyle risk factors for hypertension include high sodium intake, excessive caloric intake, physical inactivity, excessive alcohol consumption, and deficient potassium intake. Lifestyle changes and medications can be used to reduce blood pressure. |
| Limitations of Indicator: | Indicator does not measure the proportion of adults with diagnosed hypertension who have their blood pressure successfully controlled. Also, the indicator does not include persons with hypertension who have their blood pressure successfully controlled through lifestyle changes and without medication. Indicator only measures those aware of being told they have high blood pressure and not those who have been told they have hypertension. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., lower telephone coverage among populations of low socioeconomic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-11: Increase the proportion of adults with hypertension who are taking prescribed medications to lower their blood pressure. |
| Related CDI Topic Area: | Alcohol; Diabetes; Nutrition, Physical Activity, and Weight Status; Tobacco |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 8**
**Indicator Name: Pre-pregnancy hypertension**

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|---|---|
| Demographic Group: | Women aged 18-44 years who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported having high blood pressure or hypertension before they became pregnant with their most recent live born infant. |
| Denominator: | Women who did or did not report having high blood pressure before they became pregnant with their most recent live born infant (excluding unknowns and refusals). |
| Measures of Frequency: | Crude prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Before the pregnancy resulting in the most recent live birth. |
| Background: | In 2002, national data estimate that 3% of women of reproductive age had hypertension.[1] As the number of pregnancies among women aged 35 years and older increases, this proportion is likely to grow. |
| Significance: | Pregnancies among women with chronic hypertension can lead to preeclampsia or eclampsia, damage to the central nervous system, and kidney damage.[2,3] Potential life threatening conditions related to chronic hypertension during pregnancy include preterm delivery, intrauterine growth retardation, placental abruption, and fetal demise.[4] The Clinical Work Group of the Select Panel on Preconception Care recommends that all women of reproductive age with chronic hypertension be counseled before pregnancy about medication management and about the maternal and infant risks associated with hypertension during pregnancy.[5] Based on studies making comparisons with clinical data, self- reports of hypertension status may underestimate hypertension prevalence.[6] |
| Limitations of Indicator: | Estimates are based on self-reported high blood pressure, which has not been confirmed by a physician. Based on studies comparing self-reports with clinical data, validity is deemed to be moderate as self-reported high blood pressure status may result in an underestimate of true hypertension prevalence.[7] However, this underestimation is consistent with other research.[6]There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | While most self-report surveys such as PRAMS might be subject to systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias), PRAMS attempts to contact potential respondents by mail and landline/cell telephone to increase response rates. Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective HDS-5.1: Reduce the proportion of adults with hypertension. |
| Related CDI Topic Area: | Reproductive Health |


1. D'Angelo D, Williams L, Morrow B, et al. Preconception and interconception health status of women who recently gave birth to a live-born infant, Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 26 reporting area, 2004. MMWR Surveill Summ 2007;56:1-35.
2. Jain L. The effect of pregnancy-induced and chronic hypertension on pregnancy outcome. J Perinatol 1997; 17:425-27.

3. Thorngren-Jereck K, Herbst A. Perinatal factors associated with cerebral palsy in children born in Sweden. Obstet Gynecol 2006;108:1499-1505.
4. Barton J, Sibai B. Prediction and prevention of recurrent preeclampsia. Obstet Gynecol2008;112:359-72.
5. Dunlop AL, Jack BW, Bottalico JN, et al. The clinical content of preconception care: women with chronic medical conditions. Am J Obstet Gynecol 2008;199(6 Suppl 2): S310-27.
6. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001;46 Suppl 1:S3-42.
7. Joint National Committee. Hypertension prevalence and the status of awareness, treatment, and control in the United States: final report. Hypertension 1985;7:456-468.

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 9.1**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged 18-64 years with a history of coronary heart disease or stroke**

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|---|---|
| Demographic Group: | Resident persons aged 18-64 years. |
| Numerator: | Respondents aged 18-64 years ever told by a doctor or health professional that they have had a heart attack or stroke or have angina or other coronary heart disease who report having received an influenza vaccination in the previous 12 months. |
| Denominator: | Respondents age 18-64 years ever told by a doctor or health professional that they have had a heart attack or stroke or have angina or other coronary heart disease who report having or not having an influenza vaccination in the past 12 months (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state level who have a history of coronary heart disease or stroke, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Previous 12 months (influenza vaccination).<br>Lifetime (history of heart attack, stroke, angina or other coronary heart disease). |
| Background: | In 2005, only 34% of adults with coronary heart disease reported receiving an influenza vaccination in the previous 12 months.[2] |
| Significance: | Annual vaccination against seasonal influenza prevents cardiovascular morbidity and all-cause mortality in people with cardiovascular conditions. The American Heart Association and American College of Cardiology recommend influenza immunization with inactivated vaccine as part of comprehensive secondary prevention in persons with coronary and other atherosclerotic vascular disease. The American Heart Association estimates that 16.3 million people in the U.S. have a history of coronary heart disease and 7.0 million have a history of stroke.[3] Influenza vaccination coverage levels in this population are well below national goals.[2]People with cardiovascular disease (excluding isolated hypertension) are considered by the Advisory Committee on Immunization Practices to be a high-risk group for severe complications due to influenza. |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (Streptococcus pneumoniae) vaccinations. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12.6: Increase the percentage of noninstitutionalized high-risk adults aged 18 to 64 years who are vaccinated annually against seasonal influenza.<br>Healthy People 2020 Objective HDS-2: Reduce coronary heart disease deaths.<br>Healthy People 2020 Objective HDS-3: Reduce stroke deaths.<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships:<br>Percent of adults who reported influenza vaccination within the past year.<br>Percent of adults who reported current smoking, diabetes, asthma or cardiovascular disease who have ever had a pneumococcal vaccination. |

| Related CDI Topic Area: | Immunization |
|---|---|


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
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3. Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics – 2012 Update: a report from the American Heart Association. Circulation. 2012;125:e2-e220.

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 9.2**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged ≥ 65 years with a history of coronary heart disease or stroke**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥65 years. |
| Numerator: | Respondents aged ≥65 years ever told by a doctor or health professional that they have had a heart attack or stroke or have angina or other coronary heart disease who report having received an influenza vaccination in the previous 12 months. |
| Denominator: | Respondents age ≥65 years ever told by a doctor or health professional that they have had a heart attack or stroke or have angina or other coronary heart disease who report having or not having an influenza vaccination in the past 12 months (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method)[1] — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state level who have a history of coronary heart disease or stroke, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Previous 12 months (influenza vaccination).<br>Lifetime (history of heart attack, stroke, angina or other coronary heart disease). |
| Background: | In 2005, only 34% of adults with coronary heart disease reported receiving an influenza vaccination in the previous 12 months.[2] |
| Significance: | Annual vaccination against seasonal influenza prevents cardiovascular morbidity and all-cause mortality in people with cardiovascular conditions. The American Heart Association and American College of Cardiology recommend influenza immunization with inactivated vaccine as part of comprehensive secondary prevention in persons with coronary and other atherosclerotic vascular disease. The American Heart Association estimates that 16.3 million people in the U.S. have a history of coronary heart disease and 7.0 million have a history of stroke.[3] Influenza vaccination coverage levels in this population are well below national goals.[2] People with cardiovascular disease (excluding isolated hypertension) are considered by the Advisory Committee on Immunization Practices to be a high-risk group for severe complications due to influenza. |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12.6: Increase the percentage of noninstitutionalized adults aged 65 years and older who are vaccinated annually against seasonal influenza.<br>Healthy People 2020 Objective HDS-2: Reduce coronary heart disease deaths.<br>Healthy People 2020 Objective HDS-3: Reduce stroke deaths.<br>Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |
| Related CDI Topic Area: | Immunization; Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Davis MM, Taubert K, Benin AL, Brown DW, Mensah GA, Baddour LM, Dunbar S, Krumholz H. Influenza vaccination as secondary prevention for cardiovascular disease: a Science Advisory from the American Heart Association/American College of Cardiology. Circulation. 2006;114:1549-1553.
3. Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics – 2012 Update: a report from the American Heart Association. Circulation. 2012;125:e2-e220.

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 10.1**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged 18-64 years with a history of coronary heart disease**

| | |
|---|---|
| Demographic Group: | Resident persons aged 18-64 years. |
| Numerator: | Respondents aged 18-64 years ever told by a doctor or health professional that they have had a heart attack or have angina or other coronary heart disease who report ever having received a pneumococcal vaccination. |
| Denominator: | Respondents aged 18-64 years ever told by a doctor or health professional that they have had a heart attack or have angina or other coronary heart disease who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method)[1] — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state level who have a history of coronary heart disease, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Lifetime (ever vaccinated).<br>Lifetime (history of heart attack, angina or other coronary heart disease). |
| Background: | In 2008, only 17% of high-risk persons aged 18 to 64 years reported ever receiving a pneumococcal vaccination. |
| Significance: | Invasive pneumococcal infection is a major cause of illness and death in the United States, with an estimated 43,500 cases and 5,000 deaths among persons of all ages in 2009. People with chronic heart disease (excluding hypertension) are considered by the Advisory Committee on Immunization Practices to be a high-risk group who should receive pneumococcal vaccination. The American Heart Association estimates that 16.3 million people in the U.S. have a history of coronary heart disease.[2] Pneumococcal vaccination rates among high-risk adults are well below national goals. |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13.2: Increase the percentage of noninstitutionalized high-risk adults aged 18 to 64 years who are vaccinated against pneumococcal disease.<br>Healthy People 2020 Objective HDS-2: Reduce coronary heart disease deaths.<br>Healthy People 2020 Objective HDS-3: Reduce stroke deaths.<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships:<br>Percent of adults who reported influenza vaccination within the past year.<br>Percent of adults who reported current smoking, diabetes, asthma or cardiovascular disease who have ever had a pneumococcal vaccination. |
| Related CDI Topic Area: | Immunization |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

2. Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics – 2012 Update: a report from the American Heart Association. Circulation. 2012;125:e2-e220.

**Indicator Group: Cardiovascular Disease**
**Indicator Number: 10.2**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged ≥65 years with a history of coronary heart disease**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥65 years. |
| Numerator: | Respondents aged ≥65 years ever told by a doctor or health professional that they have had a heart attack or have angina or other coronary heart disease who report ever having received a pneumococcal vaccination. |
| Denominator: | Respondents aged ≥65 years ever told by a doctor or health professional that they have had a heart attack or have angina or other coronary heart disease who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method)[1] — with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state level who have a history of coronary heart disease, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Lifetime (ever vaccinated).<br>Lifetime (history of heart attack, angina or other coronary heart disease). |
| Background: | In 2008, only 60% of persons aged ≥65 years reported ever receiving a pneumococcal vaccination. |
| Significance: | Invasive pneumococcal infection is a major cause of illness and death in the United States, with an estimated 43,500 cases and 5,000 deaths among persons of all ages in 2009. People with chronic heart disease (excluding hypertension) are considered by the Advisory Committee on Immunization Practices to be a high-risk group who should receive pneumococcal vaccination. The American Heart Association estimates that 16.3 million people in the U.S. have a history of coronary heart disease.[2] Pneumococcal vaccination rates among high-risk adults are well below national goals. |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13.2: Increase the percentage of noninstitutionalized adults aged 65 years and older who are vaccinated against pneumococcal disease.<br>Healthy People 2020 Objective HDS-2: Reduce coronary heart disease deaths.<br>Healthy People 2020 Objective HDS-3: Reduce stroke deaths.<br>Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |
| Related CDI Topic Area: | Immunization; Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics – 2012 Update: a report from the American Heart Association. Circulation. 2012;125:e2-e220.

**Indicator Group: Chronic Kidney Disease**
**Indicator Number: 1**
**Indicator Name: Mortality with end-stage renal disease**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classifications of Diseases (ICD)-10 code N03-N05, N13.0-N13.3, N17-N19, N25-N26, N28.0, N28.8 (ICD-9 codes 581-588, 591, 593.8, and 595.9) as the underlying cause or contributing of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2001, >96,000 incident cases of end-stage renal disease (ESRD) were reported. Diabetes is the leading cause (44%) of ESRD, and hypertension is the second leading cause (26%). |
| Significance: | The complications of diabetes and hypertension, including ESRD, can be prevented through improved patient education and self-management, and provision of adequate and timely medical care, including blood glucose and blood pressure control. |
| Limitations of Indicator: | Because ESRD develops over a long period, years might pass before changes in behavior or clinical practice affect population incidence. Approximately one third of diabetes cases are undiagnosed. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. The number of contributing causes of death listed on the death certificate might vary by person completing the death certificate and geographic region. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective CKD-14: Reduce deaths in persons with ESRD. |
| Related CDI Topic Area: | Diabetes; Cardiovascular Disease |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Chronic Kidney Disease**
**Indicator Number: 2.1**
**Indicator Name: Incidence of treated end-stage renal disease**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Initial claims for either renal dialysis or renal transplant among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of incident cases. Annual incidence – crude and adjusted (standardized by the method used by the U.S. Renal Data System); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2001, >96,000 incident cases of end-stage renal disease (ESRD) were reported. Diabetes is the leading cause (44%) of ESRD, and hypertension is the second leading cause (26%). |
| Significance: | The complications of diabetes and hypertension, including ESRD, can be prevented through improved patient education and self-management, and provision of adequate and timely medical care, including blood glucose and blood pressure control. |
| Limitations of Indicator: | Because ESRD develops over a long period, years might pass before changes in behavior or clinical practice affect population incidence. |
| Data Resources: | ESRD incidence data in the U.S. Renal Data System (USRDS). |
| Limitations of Data Resources: | Despite using multiple sources of information to learn of and verify numbers of patients who have ESRD, USRDS might not have complete counts. For example, a patient who dies of renal failure without first receiving dialysis or a transplant might not be verified as a patient with ESRD because of a lack of Medicare claim for renal dialysis or transplant. Occasionally, a reporting delay causes incomplete initial reports. USRDS annually reports data for each of 18 U.S. regions and each of the states and territories. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective CKD-8: Reduce the rate of new cases of ESRD. |
| Related CDI Topic Area: | Diabetes; Cardiovascular Disease |

**Indicator Group: Chronic Kidney Disease**
**Indicator Number: 2.2**
**Indicator Name: Incidence of treated end-stage renal disease attributed to diabetes**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Initial claims for either renal dialysis or renal transplant with diabetes listed as the primary cause of disease among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of incident cases. Annual incidence – crude and adjusted (standardized by the method used by the U.S. Renal Data System); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2001, >96,000 incident cases of end-stage renal disease (ESRD) were reported. Diabetes is the leading cause (44%) of ESRD, and hypertension is the second leading cause (26%). |
| Significance: | The complications of diabetes and hypertension, including ESRD, can be prevented through improved patient education and self-management, and provision of adequate and timely medical care, including blood glucose and blood pressure control. |
| Limitations of Indicator: | Because ESRD develops over a long period, years might pass before changes in behavior or clinical practice affect population incidence. Approximately one third of diabetes cases are undiagnosed. |
| Data Resources: | ESRD incidence data in the U.S. Renal Data System (USRDS). |
| Limitations of Data Resources: | Despite using multiple sources of information to learn of and verify numbers of patients who have ESRD, USRDS might not have complete counts. For example, a patient who dies of renal failure without first receiving dialysis or a transplant might not be verified as a patient with ESRD because of a lack of Medicare claim for renal dialysis or transplant. Occasionally, a reporting delay causes incomplete initial reports. USRDS annually reports data for each of 18 U.S. regions and each of the states and territories. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective CKD-9: Reduce kidney failure due to diabetes. |
| Related CDI Topic Area: | Diabetes; Cardiovascular Disease |

**Indicator Group: Chronic Kidney Disease**
**Indicator Number: 3**
**Indicator Name: Prevalence of chronic kidney disease among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | All adults aged ≥ 18 years. |
| Numerator: | Number of individuals self-reporting chronic kidney disease (CKD). |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, kidney disease was the eighth leading cause of death in the United States. While approximately 570,000 individuals have end-stage renal disease, more than 20 million U.S. adults aged ≥20 years are estimated to have CKD, and most of them are unaware of their condition. |
| Significance: | If left untreated, CKD can lead to kidney failure, requiring dialysis or transplantation for survival. However, persons with CKD are more likely to die from cardiovascular disease than develop end-stage renal disease. Controlling blood glucose, blood pressure, and cholesterol can prevent or delay these conditions and improve health outcomes. For the first time, Healthy People 2020 included objectives addressing the earlier stages of kidney disease. |
| Limitations of Indicator: | Reducing the proportion of the U.S. population with CKD is likely to be difficult because of the growing prevalence of major risk factors such as diabetes, hypertension, and aging of the population. Many years may pass before declining trends are observed. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | The estimated prevalence of CKD in the U.S. population is likely to be an underestimate because BRFSS is a telephone survey that excludes the institutionalized population, where prevalence is likely to be higher and because prevalence is based on self-report. Also, one data point is available at this time. The question, “Has a doctor, nurse, or other health professional EVER told (Ever told) you have kidney disease? Do NOT include kidney stones, bladder infection or incontinence.” was asked for the first time in the 2011 BRFSS core questionnaire. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective CKD-1: Reduce the proportion of the US population with chronic kidney disease. |
| Related CDI Topic Area: | Diabetes; Cardiovascular Disease |

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 1.1**
**Indicator Name: Mortality with chronic obstructive pulmonary disease as underlying cause among adults aged ≥ 45 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥45 years |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 Code J40-J44 (ICD-9-CM codes 490, 491, 492, 466, 496) as underlying cause death among residents aged ≥45 years |
| Denominator: | Midyear resident population aged ≥45 years |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate--crude and age-adjusted death rate per 100,000 population (standardized by the direct method to the year 2000 standard U.S. population[1])with 95% confidence interval; and by demographic characteristics when feasible. (age group: 45-54, 55-64, 65-74, 75-84, ≥85) |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, there were 133,575 deaths (63.1/100,000) with chronic obstructive pulmonary disease (COPD) as the underlying cause of death for U.S. adults aged ≥25 years.[2] Between 1999 and 2010, COPD deaths declined for U.S. men (p=0.001) but not for women (p=0.127).[2]Over 99% of deaths from COPD occur among adults aged ≥45 years.[2] |
| Significance: | Elimination of tobacco use or exposure may be the most effective way to reduce COPD because almost 80% of COPD deaths are attributable to smoking.[3] Other risk factors for COPD include occupational exposure, ambient air pollution, and long-term severe asthma.[4] Public education and awareness of COPD symptoms and earlier diagnosis and treatment may slow further lung damage, improve COPD symptoms, and reduce COPD-related disability and mortality.[5] |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population mortality. Other comorbid conditions such as cardiovascular disease may displace COPD as the underlying cause of death that is reported on the death certificate.[6,7] |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-10: Reduce deaths from COPD among adults. |
| Related CDI Topic Area: | Asthma, Tobacco, Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).
3. CDC. Smoking-attributable mortality, years of potential life lost, and productivity losses—United States, 2000-2004. MMWR 2008;57(45):1226-1228.
4. Mannino DM. Epidemiology and global impact of chronic obstructive pulmonary disease. Semin Respir Crit Care Med 2005;26(2):204-210.
5. Qaseem A, Wilt TJ, Weinberger SE, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. Ann Intern Med 2011;155:179-191.
6. Hansell AL, Walk JA, Soriano JB. What do chronic obstructive pulmonary disease patients die from? A multiple cause coding analysis. Eur Respir J 2003;22:809-814.

7. Jensen HH, Godtfredsen NS, Lange P, Vestbo J. Potential misclassification of death from COPD. Eur Resp J 2006;28:781-785.

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 1.2**
**Indicator Name: Mortality with chronic obstructive pulmonary disease as underlying or contributing cause among adults aged ≥ 45 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥45 years |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 Code J40-J44 (ICD-9-CM codes 490, 491, 492, 466, 496) as either underlying or contributing cause of death among residents aged ≥45 years |
| Denominator: | Midyear resident population aged ≥45 years |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate-crude and age-adjusted death rate per 100,000 population (standardized by the direct method to the year 2000 standard U.S. population[1])-with 95% confidence interval; and by demographic characteristics when feasible. (age group: 45-54, 55-64, 65-74, 75-84, ≥85) |
| Time Period of Case Definition: | Calendar year. |
| Background: | Over 99% of deaths from chronic obstructive pulmonary disease (COPD) occur among adults aged ≥45 years.[2] COPD became the third leading cause of death in 2008.[3] However, other comorbid conditions such as cardiovascular disease may displace COPD as the underlying cause of death that is reported on the death certificate.[4,5] |
| Significance: | Deaths from COPD may be under-estimated; therefore a much more serious public health burden may be masked. Public education and awareness of COPD symptoms and earlier diagnosis and treatment can slow further lung damage, improve COPD symptoms, and reduce COPD-related disability and mortality.[6] |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. The number of contributing causes of death listed on the death certificate might vary by person completing the death certificate and geographic region. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-10: Reduce deaths from COPD among adults. |
| Related CDI Topic Area: | Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).
3. Minino AM, Xu J, Kochanek KD. Deaths: preliminary data for 2008. National Vital Statistics Report 2010;59(2):1-52.
4. Hansell AL, Walk JA, Soriano JB. What do chronic obstructive pulmonary disease patients die from? A multiple cause coding analysis. Eur Respir J 2003;22:809-814.
5. Jensen HH, Godtfredsen NS, Lange P, Vestbo J. Potential misclassification of death from COPD. Eur Resp J 2006;28:781-785.
6. Qaseem A, Wilt TJ, Weinberger SE, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. Ann Intern Med 2011;155:179-191.

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 2**
**Indicator Name: Prevalence of chronic obstructive pulmonary disease**

| | |
|---|---|
| Demographic Group: | 1. Resident persons aged ≥18 years<br>2. Resident persons aged ≥45 years |
| Numerator: | Respondents aged ≥18 years (or ≥45 years) who report ever having physician-diagnosed chronic obstructive pulmonary disease (COPD), emphysema, or chronic bronchitis. |
| Denominator: | Respondents aged ≥18 years (or ≥45 years) who report or do not report ever having physician-diagnosed COPD, emphysema, or chronic bronchitis (excluding refusals). |
| Measures of Frequency: | Annual prevalence (percentage)--crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1])with 95% confidence interval; and by demographic characteristics when feasible. (age groups: #1. 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, ≥85, and #2. 45-54, 55-64, 65-74, 75-84, ≥85 ) |
| Time Period of Case Definition: | Lifetime (ever diagnosed) with COPD, which includes emphysema and/or chronic bronchitis. |
| Background: | In 2011, 6.3% (15 million) of adults aged ≥18 years reported that they had COPD.[2] It has been estimated that another 15 million adults have impaired pulmonary function and COPD symptoms but are unaware of having COPD because the disease has not been diagnosed by their physician with the use of spirometry.[3]Between 80-90% of identified COPD cases occur at ages ≥45 years.[2,4] |
| Significance: | Elimination of tobacco use or exposure may be the most effective way to reduce COPD because almost 80% of COPD deaths are attributable to smoking.[5] Other risk factors for COPD include occupational exposure, ambient air pollution, and long-term severe asthma.[6] Public education and awareness of COPD symptoms and earlier diagnosis with spirometry and treatment may slow further lung damage, improve COPD symptoms, and reduce COPD-related disability and mortality.[7] |
| Limitations of Indicator: | The indicator is based on being diagnosed by a physician and respondent recall of the diagnosis and may underestimate the true prevalence. |
| Data Resources: | Prevalence data from Behavioral Risk Factor Surveillance System (BRFSS) (numerator) and population estimates from the U.S. Census Bureau (denominator). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-13: (Developmental) Increase the proportion of adults with abnormal lung function whose underlying obstructive disease has been diagnosed. |
| Related CDI Topic Area: | Asthma, Tobacco, Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Chronic obstructive pulmonary disease among adults—United States, 2011. MMWR 2012;61(46):938-943.
3. Mannino DM, Gagnon RC, Petty TL, Lydick E. Obstructive lung disease and low lung function in adults in the United States: data from the national health and nutrition examination survey, 1988-1994. Arch Intern Med 2000;160:1683-1689.
4. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).

5. CDC. Smoking-attributable mortality, years of potential life lost, and productivity losses—United States, 2000-2004. MMWR 2008;57(45):1226-1228.
6. Mannino DM. Epidemiology and global impact of chronic obstructive pulmonary disease. Semin Respir Crit Care Med 2005;26(2):204-210.
7. Qaseem A, Wilt TJ, Weinberger SE, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. Ann Intern Med 2011;155:179-191.

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 3**
**Indicator Name: Prevalence of current smoking among adults with diagnosed chronic obstructive pulmonary disease**

| | |
|---|---|
| Demographic Group: | 1. Resident persons aged ≥18 years<br>2. Resident persons aged ≥45 years |
| Numerator: | Respondents aged ≥18 years (or ≥45 years) who report being current smokers and ever having physician-diagnosed chronic obstructive pulmonary disease (COPD), emphysema, or chronic bronchitis. |
| Denominator: | Respondents aged ≥18 years (or ≥45 years) who report ever having physician-diagnosed COPD, emphysema, or chronic bronchitis. |
| Measures of Frequency: | Annual prevalence (percentage)--crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1]) with 95% confidence interval; and by demographic characteristics when feasible. (age groups: #1. 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, ≥85, and #2. 45-54, 55-64, 65-74, 75-84, ≥85 ) |
| Time Period of Case Definition: | Lifetime (ever diagnosed) with COPD, which includes emphysema and/or chronic bronchitis. |
| Background: | In 2011, 6.3% (15 million) of adults aged ≥18 years reported that they had COPD; 75% of these adults had a history of smoking and 39% continued to smoke despite awareness of having COPD.[2] Between 80-90% of identified COPD cases occur at ages ≥45 years.[2,3] About 80% of COPD deaths are attributable to tobacco use.[4] |
| Significance: | Elimination of tobacco use or exposure may be the most effective way to improve COPD symptoms among persons with COPD and the most effective way to prevent most COPD cases.[5,6] |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population prevalence. |
| Data Resources: | Prevalence data from Behavioral Risk Factor Surveillance System (BRFSS) and population estimates from the U.S. Census Bureau (denominator). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Older Adults, Tobacco |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Chronic obstructive pulmonary disease among adults—United States, 2011. MMWR 2012;61(46):938-943.
3. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).
4. CDC. Smoking-attributable mortality, years of potential life lost, and productivity losses—United States, 2000-2004. MMWR 2008;57(45):1226-1228.
5. Lee PN, Fry JS. Systematic review of the evidence relating FEV1 decline to giving up smoking. BMC Med 2010;8:84.
6. Eisner MD, Balmes J, Yelin EH, et al. Directly measured secondhand smoke exposure and COPD health outcomes. BMC Pulm Med 2006;6:12.

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 4**
**Indicator Name: Prevalence of activity limitation among adults with diagnosed chronic obstructive pulmonary disease**

| | |
|---|---|
| Demographic Group: | 1. Resident persons aged ≥18 years<br>2. Resident persons aged ≥45 years |
| Numerator: | Respondents aged ≥18 years (or ≥45 years) who report any health-related activity limitation (≥1 day in previous 30 days) and ever having physician-diagnosed Chronic Obstructive Pulmonary Disease (COPD), emphysema, or chronic bronchitis. |
| Denominator: | Respondents aged ≥18 years (or ≥45 years) who report ever having physician-diagnosed COPD, emphysema, or chronic bronchitis. |
| Measures of Frequency: | Annual prevalence (percentage)--crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1]) with 95% confidence interval; and by demographic characteristics when feasible. (age groups: #1. 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, ≥85, and #2. 45-54, 55-64, 65-74, 75-84, ≥85 ) |
| Time Period of Case Definition: | Lifetime (ever diagnosed) with COPD, which includes emphysema and/or chronic bronchitis. |
| Background: | In 2011, 6.3% (15 million) of adults aged ≥18 years reported that they had COPD; 80% were over age 45 years .[2] COPD is an important cause of activity limitation and disability. In the 2007-2009 BRFSS for North Carolina, 5.7% of adults aged ≥18 years reported COPD; adults with COPD were more likely to report moderate to severe disability (37.0% versus 9.1%) than adults without COPD.[3] |
| Significance: | Public education and awareness of COPD symptoms and earlier diagnosis with spirometry and treatment may slow further lung damage, improve COPD symptoms, and reduce COPD-related disability and mortality.[4] |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population prevalence. |
| Data Resources: | Prevalence data from Behavioral Risk Factor Surveillance System (BRFSS) (numerator) and population estimates from the U.S. Census Bureau (denominator). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-9: Reduce activity limitations among adults with chronic obstructive pulmonary disease (COPD). |
| Related CDI Topic Area: | Disability, Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Chronic obstructive pulmonary disease among adults—United States, 2011. MMWR 2012;61(46):938-943.
3. CDC. Chronic obstructive pulmonary disease and associated health-care resource use—North Carolina, 2007 and 2009. MMWR 2012;61(8):143-146.
4. Qaseem A, Wilt TJ, Weinberger SE, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. Ann Intern Med 2011;155:179-191.

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 5.1**
**Indicator Name: Hospitalization for chronic obstructive pulmonary disease as first-listed diagnosis**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥45 years |
| Numerator: | Hospitalizations with first-listed diagnosis of ICD-9-CM codes 490, 491, 492, 466, 496 or ICD-10-CM codes J40-44 among residents aged ≥45 years. When possible, include hospitalizations for residents who are hospitalized in another state. |
| Denominator: | Midyear resident population aged ≥45 years |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1], age categories: 45-54, 55-64, 65-74, 75-84, ≥85) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, there were 699,000 (34.4 per 10,000 U.S. civilian population) hospitalizations with a first-listed diagnosis of chronic obstructive pulmonary disease (COPD) among adults aged ≥25 years; 97.5% occurred among ages ≥45 years.[2] Hospitalizations for a first-listed diagnosis of COPD declined between 1999 and 2010 (p=0.018).[2] |
| Significance: | Decreasing the frequency and severity of acute exacerbations of COPD may impact the rate of hospital and emergency visits. |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population who had COPD with serious complications. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. State discharge records cannot identify incident (new) hospitalizations for COPD. Patients with COPD are often hospitalized with pneumonia and/or cardiovascular diseases, which may be the first-listed diagnosis. |
| Data Resources: | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms could affect decisions by health-care providers to hospitalize patients. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete. State discharge records cannot identify incident (new) hospitalizations. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-11: Reduce hospitalizations for COPD. |
| Related CDI Topic Area: | Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 5.2**
**Indicator Name: Hospitalization for chronic obstructive pulmonary disease as any diagnosis**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥45 years |
| Numerator: | Hospitalizations with any diagnosis of ICD-9-CM codes 490, 491, 492, 466, 496 or ICD-10-CM codes J40-44 among residents aged ≥45 years. When possible, include hospitalizations for residents who are hospitalized in another state. |
| Denominator: | Midyear resident population aged ≥45 years |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population,[1] age categories: 45-54, 55-64, 65-74, 75-84, ≥85) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, there were 699,000 (34.4 per 10,000 U.S. civilian population) hospitalizations with a first-listed diagnosis of chronic obstructive pulmonary disease (COPD) among adults aged ≥25 years; 97.5% occurred among ages ≥45 years.[2] Hospitalizations for a first-listed diagnosis of COPD declined between 1999 and 2010 (p=0.018).[2] Patients with COPD may be often hospitalized with pneumonia and/or cardiovascular diseases, which may be the first-listed diagnosis. |
| Significance: | Decreasing the frequency and severity of acute exacerbations of COPD may impact the rate of hospital and emergency visits. |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population who had COPD with serious complications. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. State discharge records cannot identify incident (new) hospitalizations for COPD. |
| Data Resources: | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-11: Reduce hospitalizations for COPD. |
| Related CDI Topic Area: | Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 5.3**
**Indicator Name: Hospitalization for chronic obstructive pulmonary disease as first-listed diagnosis among Medicare-eligible persons aged ≥ 65 years**

| | |
|---|---|
| Demographic Group: | Medicare-eligible resident persons aged ≥65 years |
| Numerator: | Hospitalizations with first-listed diagnosis of ICD-9-CM codes 490, 491, 492, 466, 496 or ICD-10-CM codes J40-44 among Medicare-eligible resident persons aged ≥65 years |
| Denominator: | Residents aged≥65 years who were eligible for Medicare Part A benefits on July 1 of the calendar year |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1], age categories: 65-74, 75-84, ≥85) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, there were 312,654 (11.1 per 1000 Medicare enrollees) hospitalizations for a first-listed diagnosis of chronic obstructive pulmonary disease (COPD) among Medicare enrollees aged ≥65 years.[2] Hospitalizations declined between 1999 and 2010 for men (p=0.022) but not for women (p=0.138).[2] |
| Significance: | Decreasing the frequency and severity of acute exacerbations of COPD may impact the rate of hospital and emergency visits. |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population who had COPD with serious complications. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. Medicare claims records cannot identify incident (new) hospitalizations for COPD. Patients with COPD are often hospitalized with pneumonia and/or cardiovascular diseases, which may be the first-listed diagnosis. |
| Data Resources: | Centers for Medicare and Medicaid Services (CMS) Part A claims data (numerator) and CMS estimates of the population of persons eligible for Medicare (denominator). |
| Limitations of Data Resources: | Diagnoses listed on Medicare hospital claims might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients and to report COPD as the first-listed diagnosis. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-11: Reduce hospitalizations for COPD. |
| Related CDI Topic Area: | Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 5.4**
**Indicator Name: Hospitalization for chronic obstructive pulmonary disease as any diagnosis among Medicare-eligible persons aged ≥ 65 years**

| | |
|---|---|
| Demographic Group: | Medicare-eligible resident persons aged ≥65 years |
| Numerator: | Hospitalizations with any diagnosis of ICD-9-CM codes 490, 491, 492, 466, 496 or ICD-10-CM codes J40-44 among Medicare-eligible resident persons aged ≥65 years |
| Denominator: | Residents aged≥65 years who were eligible for Medicare Part A benefits on July 1 of the calendar year |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1], age categories: 65-74, 75-84, ≥85) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, there were 312,654 (11.1 per 1000 Medicare enrollees) hospitalizations for a first-listed diagnosis of chronic obstructive pulmonary disease (COPD) among Medicare enrollees aged ≥65 years.[2] Hospitalizations declined between 1999 and 2010 for men (p=0.022) but not for women (p=0.138).[2] Patients with COPD are often hospitalized with pneumonia and/or cardiovascular diseases, which may be the first-listed diagnosis. |
| Significance: | Decreasing the frequency and severity of acute exacerbations of COPD may impact the rate of hospital and emergency visits. |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population who had COPD with serious complications. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. Medicare claims records cannot identify incident (new) hospitalizations for COPD. |
| Data Resources: | Centers for Medicare and Medicaid Services (CMS) Part A claims data (numerator) and CMS estimates of the population of persons eligible for Medicare (denominator). |
| Limitations of Data Resources: | Diagnoses listed on Medicare hospital claims might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients and to identify COPD as the first-listed diagnosis. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-11: Reduce hospitalizations for chronic obstructive pulmonary disease (COPD). |
| Related CDI Topic Area: | Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 6.1**
**Indicator Name: Emergency department visits rate for chronic obstructive pulmonary disease as first-listed diagnosis**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥45 years |
| Numerator: | Number of ED visits with a first-listed diagnosis of ICD-9-CM codes 490, 491, 492, 466, 496 or ICD-10-CM codes J40-44 among residents aged ≥45 years |
| Denominator: | Midyear resident population aged ≥45 years |
| Measures of Frequency: | Annual number of emergency department visits. Annual emergency department visit rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population[1], age categories: 45-54, 55-64, 65-74, 75-84, ≥85) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, there were 1,468,000 (72.0 per 10,000 U.S. civilian population) emergency department visits for a first-listed diagnosis of chronic obstructive pulmonary disease (COPD) among adults aged ≥25 years; 73.6% of these visits occurred among persons aged ≥45 years.[2] Emergency department visits have not changed between 1999 and 2010.[2] |
| Significance: | Public education and awareness of COPD symptoms and earlier diagnosis and treatment can slow further lung damage and improve COPD symptoms and reduce the COPD-related disability and mortality.[3] Decreasing the frequency and severity of acute exacerbations of COPD will impact the rate of hospitalizations and ED visits and possibly mortality. |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population who had COPD with serious complications. |
| Data Resources: | State Emergency Department Databases (visits that do not result in an admission) from the Healthcare Cost and Utilization Project (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Diagnoses listed on emergency department visit data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to identify COPD as the first-listed diagnosis. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. Data may not be available for all states. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-12: Reduce hospital emergency department visits for COPD. |
| Related CDI Topic Area: | Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).
3. Qaseem A, Wilt TJ, Weinberger SE, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. Ann Intern Med 2011;155:179-191.

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 6.2**
**Indicator Name: Emergency department visits rate for chronic obstructive pulmonary disease as any diagnosis**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥45 years |
| Numerator: | Number of emergency department visits with any diagnosis of ICD-9-CM codes 490, 491, 492, 466, 496 or ICD-10-CM codes J40-44 among residents aged ≥45 years |
| Denominator: | Midyear resident population aged ≥45 years |
| Measures of Frequency: | Annual number of emergency department visits. Annual emergency department visit rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population,[1] age categories: 45-54, 55-64, 65-74, 75-84, ≥85)with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2010, there were 1,468,000 (72.0 per 10,000 U.S. civilian population) emergency department visits for a first-listed diagnosis of chronic obstructive pulmonary disease (COPD) among adults aged ≥25 years; 73.6% of these visits occurred among persons aged ≥45 years.[2] Emergency department visits have not changed between 1999 and 2010.[2] |
| Significance: | Public education and awareness of COPD symptoms and earlier diagnosis and treatment can slow further lung damage and improve COPD symptoms and reduce the COPD-related disability and mortality.[3] Decreasing the frequency and severity of acute exacerbations of COPD will impact the rate of hospitalizations and ED visits and possibly mortality. |
| Limitations of Indicator: | Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population who had COPD with serious complications. |
| Data Resources: | State Emergency Department Databases (visits that do not result in an admission) from the Healthcare Cost and Utilization Project (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Diagnoses listed on emergency department visit data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to identify COPD as the first-listed diagnosis. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for an individual patient can falsely elevate the number of persons with COPD. Data may not be available for all states. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective RD-12: Reduce hospital emergency department visits for COPD. |
| Related CDI Topic Area: | Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Ford ES, Croft JB, Mannino DM, Wheaton AG, Zhang X, Giles WH. Chronic obstructive pulmonary disease-United States, 1999-2011. Chest 2013 (in press for July).
3. Qaseem A, Wilt TJ, Weinberger SE, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. Ann Intern Med 2011;155:179-191.

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 7**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged ≥45 years with chronic obstructive pulmonary disease**

| | |
|---|---|
| Demographic Group: | Non-institutionalized resident persons aged ≥45 years. |
| Numerator: | Respondents aged ≥45 years who report having ever been told that they have chronic obstructive pulmonary disease (COPD), emphysema or chronic bronchitis, and who report having received influenza vaccination in the previous 12 months. |
| Denominator: | Respondents aged ≥45 years having ever been told that they have COPD, emphysema or chronic bronchitis, and who report having received influenza vaccination in the previous 12 months or not having received influenza vaccination in the previous 12 months (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of COPD, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Lifetime COPD, which includes emphysema and/or chronic bronchitis.<br>Previous 12 months (vaccinated). |
| Background: | In 2011, 6.3% (15 million) of adults aged ≥18 years reported that they had COPD; 80% were over age 45 years .[2] During the 2010-2011 influenza season, 48.4% of high risk adults 18–64 years of age and 68.6% of adults ≥65 years of age received influenza vaccine.[3] |
| Significance: | Influenza viruses cause respiratory tract infections that in patients with underlying lung diseases such as COPD are associated with exacerbations and excess morbidity and mortality.[4] |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12: Increase the percentage of children and adults who are vaccinated annually against seasonal influenza. (IID-12.6 is specific for noninstitutionalized high-risk adults aged 18 to 64 years; and IID-12.7 is specific to noninstitutionalized adults aged 65 years and older)<br>Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services.<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships:<br>Percent of adults who reported influenza vaccination within the past year. |
| Related CDI Topic Area: | Immunization; Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

2. CDC. Chronic obstructive pulmonary disease among adults—United States, 2011. MMWR 2012;61(46):938-943.
3. CDC. Interim results: state-specific seasonal influenza vaccination coverage - United States, August 2010-February 2011. MMWR 2011; 60(22):737-743. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6022a3.htm
4. Wesseling G. Occasional review: Influenza in COPD: pathogenesis, prevention, and treatment. Int J Chron Obstruct Pulmon Dis 2007 March; 2(1): 5–10. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2692115/

**Indicator Group: Chronic Obstructive Pulmonary Disease**
**Indicator Number: 8**
**Indicator Name: Pneumococcal vaccination among adults aged ≥45 years with chronic obstructive pulmonary disease**

| | |
|---|---|
| Demographic Group: | Non-institutionalized resident persons aged ≥45years. |
| Numerator: | Respondents aged ≥45 years who reported having ever been told that they (COPD) chronic obstructive pulmonary disease, emphysema or chronic bronchitis, and who reported ever having received pneumococcal vaccine. |
| Denominator: | Respondents aged ≥45 years having ever been told that they have (COPD) chronic obstructive pulmonary disease, emphysema or chronic bronchitis, and who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of COPD, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Lifetime COPD, which includes emphysema and/or chronic bronchitis.<br>Lifetime (Ever been vaccinated) |
| Background: | In 2011, 6.3% (15 million) of adults aged ≥18 years reported that they had COPD; 80% were over age 45 years .[2] In 2010 in the U.S., pneumococcal vaccination coverage among high-risk adults aged 19–64 years was 18.5% overall; among adults aged ≥65 years, coverage was 59.7%.[3] |
| Significance: | In a study conducted among a cohort of older veterans (average age: 53 years), hospitalization rates for pneumococcal pneumonia among persons with COPD were higher compared with persons in the control group.[4] |
| Limitations of Indicator: | Although self-reported pneumococcal vaccination has been validated[5], the reliability and validity of this measure is unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease. (IID-13.1 is specific to noninstitutionalized adults aged 65 years and older, and IID-13.2 is specific to noninstitutionalized high-risk adults aged 18 to 64 years.)<br>Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services.<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships:<br>Percent of adults who reported current smoking, diabetes, asthma or cardiovascular disease who have ever had a pneumococcal vaccination. |
| Related CDI Topic Area: | Immunization; Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Chronic obstructive pulmonary disease among adults—United States, 2011. MMWR 2012;61(46):938-943.
3. CDC. Adult vaccination coverage — United States, 2010. MMWR 2012;61(04):66-72. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6104a2.htm3/

4. CDC. Updated recommendations for prevention of invasive pneumococcal disease among adults using the 23-valent pneumococcal polysaccharide vaccine (PPSV23). MMWR 2010;59:1102-1106. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm
5. Shenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015-1020. http://www.ncbi.nlm.nih.gov/pubmed/15620474#

**Indicator Group: Diabetes**
**Indicator Number: 1.1**
**Indicator Name: Mortality due to diabetes reported as any listed cause**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths with International Classification of Diseases (ICD)-10 codes E10-E14 (ICD-9 code 250) as an underlying or contributing cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual death rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 4[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | During 2011, diabetes was the seventh leading cause of death in the United States, resulting in approximately 73,000 deaths. Diabetes is two times as likely to be listed as a contributing cause of death than as the underlying cause of death. In 2004, heart disease was noted on 68% of diabetes-related death certificates among people aged 65 years or older. |
| Significance: | Multiple long-term complications of diabetes can be prevented through regular, optimal blood glucose, blood lipid, and blood pressure monitoring and through screening and treatment for eye, foot, and kidney abnormalities. Means to prevent complications include improved patient education and self-management and provision of adequate and timely screening services and medical care. |
| Limitations of Indicator: | Approximately one fourth of cases of diabetes are undiagnosed. Diabetes is likely to be underreported as a cause of death, listed on the death certificates of only approximately 40% of decedents who actually had diabetes. Because diabetes has a long preclinical and clinical phase, years might pass before changes in behavior or clinical practice affect population mortality. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. The number of contributing causes of death listed on the death certificate can vary by person completing the death certificate and geographic region. If this estimate is calculated within the diabetes population, restrict the denominator to only persons with diabetes. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-3: Reduce the diabetes death rate from 73.1 per 100,000 population in 2007 to 65.8 per 100,000 population (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | Cardiovascular Disease; Nutrition, Physical Activity, and Weight Status |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 1.2**
**Indicator Name: Mortality with diabetic ketoacidosis**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Deaths from International Classification of Diseases (ICD)-10 codes E10.1, E11.1, E12.1, E13.1, E14.1 (ICD-9 code 250.1) as an underlying or contributing cause of death among residents during a calendar year. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 4[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | During 2010, diabetic ketoacidosis (DKA) was listed as the underlying cause of death for approximately 2,000 persons. DKA is more frequent among persons with type 1 diabetes than among persons with type 2. Diabetes is two times as likely to be listed as a contributing cause of death than as the underlying cause of death. In 2004, heart disease was noted on 68% of diabetes-related death certificates among people aged 65 years or older. |
| Significance: | DKA is a life-threatening condition. Among persons with diagnosed diabetes, DKA is substantially preventable through improved patient education and self-management and provision of adequate and timely medical care, including blood glucose control and monitoring. |
| Limitations of Indicator: | Although the percent awareness of having the disease (diabetes) is higher among persons with type 1 diabetes than among those with type 2 diabetes, approximately one fourth of all cases of diabetes are undiagnosed. Also, although DKA is an acute event and would be expected to be listed more frequently than diabetes as the underlying cause of death, diabetes is listed on the death certificates of only approximately 40% of decedents who actually had diabetes. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Causes of death and other variables listed on the death certificate might be inaccurate. The number of contributing causes of death listed on the death certificate might vary by the person completing the death certificate and geographic region. If this estimate is calculated within the diabetes population, restrict the denominator to only persons with diabetes. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 2.1**
**Indicator Name: Diagnosed diabetes prevalence among adults aged ≥ 18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥ 18 years who report ever been told by a doctor or other health professional that they have diabetes other than diabetes during pregnancy. |
| Denominator: | Respondents aged ≥ 18 years who report or do not report ever been told by a doctor or other health professional that they have diabetes (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 8[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Lifetime (ever diagnosed). |
| Background: | In 2010, 8.7% of the U.S. adult population aged ≥ 18 years had diagnosed diabetes. Substantial differences in diabetes prevalence exist by age, race, and ethnicity. |
| Significance: | The burden of diabetes in the United States has increased with the increasing prevalence of obesity. Multiple long-term complications of diabetes can be prevented through improved patient education and self-management and provision of adequate and timely screening services and medical care. |
| Limitations of Indicator: | Approximately one fourth of cases of diabetes are undiagnosed. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Nutrition, Physical Activity, and Weight Status |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 2.2**
**Indicator Name: Diabetes prevalence among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Female respondents aged 18-44 years who reported ever being told by a doctor that they have diabetes. Women with gestational diabetes would be included in the numerator, but women with pre- diabetes or borderline diabetes would not. |
| Denominator: | Female respondents aged 18-44 years who did or did not report ever having been told by a doctor that they have diabetes (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Lifetime. |
| Background: | In 2007, the median percent of all participating states and territories for female BRFSS respondents reporting ever being told by a doctor that they have diabetes was equal to 9.9% (8.1% "Yes"; 1.8% "Yes, pregnancy-related").[1] |
| Significance: | Diabetes is the sixth leading cause of death in the United States, and is capable of causing serious health complications including heart disease, blindness, kidney failure, and lower-extremity amputations. In addition, gestational diabetes can cause serious problems for both mothers and babies. Because preconceptional and prenatal control of diabetes reduces the risk of congenital malformations, pregnancy loss, and perinatal mortality, the Clinical Work Group of the Select Panel on Preconception Care recommends that all diabetic women of reproductive age be counseled before pregnancy about the importance of diabetes control.[2] |
| Limitations of Indicator: | Indicator is based on self-reported data that were not confirmed by a physician. However, self-reported diabetes data from BRFSS has consistently yielded high reliability and moderate validity, which is also consistent with other research demonstrating underreporting of diabetes.[3]There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |


1. CDC. Behavioral Risk Factor Surveillance System Survey Data. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2007.
2. Dunlop AL, Jack BW, Bottalico JN, et al. The clinical content of preconception care: women with chronic medical conditions. Am J Obstet Gynecol 2008; 199(6 Suppl 2):S310-27.
3. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001; 46 Suppl 1:S3-42.

**Indicator Group: Diabetes**
**Indicator Number: 3.1**
**Indicator Name: Pre-pregnancy diabetes**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported ever being told by a doctor, nurse or health care worker that they had Type 1 or Type 2 diabetes before the pregnancy that resulted in their most recent live birth. |
| Denominator: | Respondents aged 18-44 years who reported that they had or had not ever been told by a doctor, nurse or health care worker that they had Type 1 or Type 2 diabetes before the pregnancy that resulted in their most recent live birth (excluding unknowns and refusals). |
| Measures of Frequency: | Crude prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Lifetime. |
| Background: | Based on 2005 data, 10.4% of women who had a live birth reported experiencing diabetes; 23.1% of these women reported pre-existing diabetes.[1] |
| Significance: | Women with diabetes are at an increased risk for complications during pregnancy, and are more likely than non-diabetic women to experience adverse infant health outcomes such as large for gestational-age birth weight and birth defects.[2,3] Macrosomia (i.e., large for gestational age) increases the risk of labor complications, cesarean delivery, intracranial hemorrhage, shoulder dystocia, and respiratory distress. Because preconceptional and prenatal control of diabetes reduces the risk of congenital malformations, pregnancy loss, and perinatal mortality, the Clinical Work Group of the Select Panel on Preconception Care recommends that all diabetic women of reproductive age be counseled about the importance of diabetes control before pregnancy and appropriately treated to achieve diabetes control.[4] |
| Limitations of Indicator: | Women experiencing a fetal death or abortion are excluded. These data are self-reported, were not confirmed by a physician and may be subject to misclassification bias. In addition, there is no means to differentiate between Type 1 and Type 2 diabetes. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | While most self-report surveys such as PRAMS might be subject to systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias), PRAMS attempts to contact potential respondents by mail and landline/cell telephone to increase response rates. ). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |


1. CDC. Pregnancy complications and perinatal outcomes among women with diabetes -- North Carolina, 1989-1990. MMWR 1993; 42(43):847-51.
2. Temple RC, Aldridge VJ, Murphy HR. Prepregnancy care and pregnancy outcomes in women with type 1 diabetes. Diabetes Care 2006; 29:1744-49.

3. Clausen TD, Mathiesen E, Ekbom P, et al. Poor pregnancy outcome in women with type 2 diabetes. Diabetes Care 2005, 28:323-28.
4. Dunlop AL, Jack BW, Bottalico JN, et al. The clinical content of preconception care: women with chronic medical conditions. Am J Obstet Gynecol 2008;199(6 Suppl B):S310-27.

**Indicator Group: Diabetes**
**Indicator Number: 3.2**
**Indicator Name: Gestational diabetes prevalence**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 who have had a live birth. |
| Numerator: | Number of women who have had a live birth where gestational diabetes is listed on the birth certificate. |
| Denominator: | Number of women who have had a live birth. |
| Measures of Frequency: | Annual prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | The prevalence of gestational diabetes in the United States is increasing, and rates in some populations range from 2% to 10%, putting more than 200,000 women at risk for developing type 2 diabetes in 2009. |
| Significance: | Gestational diabetes is defined as having abnormally high blood glucose levels first detected in pregnancy. This abnormality usually disappears after pregnancy, although as many as 5% to 10% of women with gestational diabetes have over seven times (RR=7.43) the risk of developing type 2 diabetes compared to women who had a normoglycaemic pregnancy. Infants born to women with gestational diabetes have a higher risk of developing diabetes and obesity. Long-term follow-up combined with maintaining a healthy weight and exercise can reduce the risk of type 2 diabetes by 50%. Offspring of mothers who had gestational diabetes during the pregnancy are at risk for obesity, early onset of type 2 diabetes, and early cardiovascular disease. |
| Limitations of Indicator: | Difficulties in documenting and reaching consensus on the prevalence of gestational diabetes exist for a number of reasons including the use of various diagnostic criteria, past confusion about the specific criteria used to diagnose gestational diabetes, and the lack of a universal recommendation for screening and diagnosis. It was a developmental Healthy People 2010 objective, but was discontinued mid-term for lack of data. Based on a Gestational Diabetes Consensus Panel convened on March 2013, NIH released a draft consensus statement on screening and diagnosis of gestational diabetes (http://prevention.nih.gov/cdp/conferences/2013/gdm/resources.aspx/). Electronic medical records are expected to enhance accuracy of hospital records data. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Birth certificate, National Vital Statistics System |
| Limitations of Data Resources: | Not all states use 2003 version of birth certificates, and may not identify gestational diabetes separately from diabetes. Birth certificates may not be accurate in documenting maternal health status. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Diabetes**
**Indicator Number: 4**
**Indicator Name: Amputation of a lower extremity attributable to diabetes**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Hospitalizations with a first-listed or contributing diagnosis of International Classification of Diseases (ICD)-9-CM code 250 and a procedure of ICD-9-CM code 84.1, and not having ICD-9-CM codes 895–897 (traumatic amputation) among residents during a calendar year. Search all diagnostic fields. When possible, include hospitalizations for residents who are hospitalized in another state. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of persons hospitalized. Annual hospitalization rates – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 4[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Diabetes is the leading cause of nontraumatic amputation in the United States, causing approximately 68,000 amputations in 2009. |
| Significance: | Multiple long-term complications of diabetes, including amputation, can be prevented through glucose, lipid, and blood pressure regulation, and screening and treatment for foot abnormalities. Means to prevent amputation include improved patient education and self-management. |
| Limitations of Indicator: | Because approximately one fourth of cases of diabetes are undiagnosed, years might pass before changes in behavior or clinical practice affect the total incidence of amputation. |
| Data Resources: | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). Hospital discharge data does not allow identification of amputations that are new (incident case) versus a second amputation for an individual. |
| Limitations of Data Resources: | Diagnoses and procedures listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms might affect decisions by health-care providers to hospitalize patients. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple, but unrecognized, admissions for one person can falsely elevate the number of persons hospitalized lower extremity amputations. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-4: Reduce the rate of lower extremity amputations in persons with diagnosed diabetes to less than 3.5 lower extremity amputations per 1,000 persons with diagnosed diabetes (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | Disability |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 5**
**Indicator Name: Foot examination among adults aged ≥ 18 years with diabetes**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥ 18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told having diabetes only when pregnant) who report having received at least one clinical foot examination within the previous year. |
| Denominator: | Respondents aged ≥ 18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told having diabetes only when pregnant, refusals, and unknowns). |
| Measures of Frequency: | Annual prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 8[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | In 2010, approximately 68% of adults with diagnosed diabetes reported having received at least one foot examination in the past 12 months (age adjusted to the year 2000 population). |
| Significance: | Persons with diabetes are at increased risk for pathologic changes of their lower extremities that, when combined with minor trauma and infection, can lead to serious foot problems, including amputation. Routine and periodic foot examination can enable early detection of peripheral vascular complications. Diabetes is the leading cause of nontraumatic amputation in the United States, causing approximately 68,000 amputations in 2009. |
| Limitations of Indicator: | The reliability and validity of this indicator are unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-9: Increase the proportion of adults with diabetes who have at least an annual foot examination from 68.0% in 2008 to 74.8% (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 6**
**Indicator Name: Glycosylated hemoglobin measurement among adults aged ≥ 18 years with diabetes**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥ 18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told having diabetes only when pregnant, refusals and unknowns), and report having their A1c checked at least twice in last 12 months by a doctor, nurse or other health professional. |
| Denominator: | Respondents aged ≥ 18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told having diabetes only when pregnant, refusals and unknowns |
| Measures of Frequency: | Annual prevalence –crude and age-adjusted (standardized by the direct method to the year 2000 standard US population, distribution 8[1]) with 95% confidence intervals; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year |
| Background: | In 2010, approximately 69% of adults ≥18 years with diagnosed diabetes reported having an A1c measurement at least twice in the last 12 months (age adjusted to the year 2000 population). |
| Significance: | While frequently monitoring of blood glucose may be recommended, values are indicators of current status and may not reflect the on-going glycemic control, or lack thereof. It is an indicator of provider effort to monitor glycemic control as well as patient level of control. |
| Limitations of Indicator: | Persons who reported they never have heard of an A1c test are not counted as not having the test. It is possible that some of the respondents have had the test and reported that they do not know due to awareness, communication or cognitive difficulties. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-11: Increase the proportion of adults with diabetes who have a glycosylated hemoglobin measurement at least twice a year from 64.6% in 2008 to 71.1% (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 7**
**Indicator Name: Dilated eye examination among adults aged ≥ 18 years with diabetes**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥ 18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant) who report having received a dilated eye exam within the previous year. |
| Denominator: | Respondents aged ≥ 18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals, and unknowns). |
| Measures of Frequency: | Annual prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 8[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | In 2010, approximately 63% of adults with diabetes reported having received a dilated eye exam within the previous year. |
| Significance: | Routine dilated eye examinations can lead to early detection and effective treatment of complications. Persons with diabetes are at increased risk for blindness as a result of retinopathy. Diabetes is the leading cause of new cases of blindness among adults aged 20–74 years. |
| Limitations of Indicator: | Respondents might not distinguish between eye examinations that are dilated that those that are not. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-10: Increase the proportion of adults with diabetes who have an annual dilated eye examination from 53.4% in 2008 to 58.7% (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 8**
**Indicator Name: Visits to dentist or dental clinic among adults aged ≥ 18 years with diabetes**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals, and unknown) who report having visited a dentist or dental clinic within the previous year. |
| Denominator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals, and unknown). |
| Measures of Frequency: | Prevalence - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 8[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | In 2004, among the 50 states, DC, and the U.S. territories, the median estimated age-adjusted percentage of dentate adults with diabetes who had a dental visit during the preceding 12 months was 67.3% (range: 49.1%–83.3%).[2] |
| Significance: | Periodontal disease is a major complication of diabetes. The oral health status of patients with diabetes should be closely monitored to reduce and eliminate periodontal infection and avoid further worsening diabetic condition. The Centers for Disease Control and Prevention (CDC) and the American Diabetes Association (ADA) recommend that people with diabetes have a dental exam at least once every six months. |
| Limitations of Indicator: | Approximately one fourth of cases of diabetes are undiagnosed. Dental visit indicator does not convey reasons for visit or whether dental care was actually received. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-8: Increase the proportion of persons with diagnosed diabetes who have at least an annual dental examination from 55.6% in 2008 to 61.2% (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | Oral Health |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Dental visits among dentate adults with diabetes — United States, 1999 and 2004. MMWR 2005;54(46):1181–3.

**Indicator Group: Diabetes**
**Indicator Number: 9**
**Indicator Name: Hospitalization with diabetes**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Hospitalizations with a first-listed or contributing diagnosis of International Classification of Diseases (ICD)-9-CM code 250. Search all diagnostic fields among residents during a calendar year. When possible, include hospitalizations for residents who are hospitalized in another state. |
| Denominator: | Midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospital rate – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 4[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2009, approximately 5.5 million hospitalizations had diabetes listed as a diagnosis, including 688,000 hospitalizations with diabetes listed as the principal diagnosis. Cardiovascular disease, kidney failure, amputation, and ketoacidosis are complications of diabetes that frequently require hospitalization. |
| Significance: | Long-term complications of diabetes requiring hospitalization can be prevented through glucose, lipid, and blood pressure regulation, as well as screening and treatment for eye, foot, and kidney abnormalities. Patient education, self-management, and medical care can prevent complications. |
| Limitations of Indicator: | Because diabetes is a chronic disease and approximately one fourth of cases are undiagnosed, years might pass before improvements in patient self-management and clinical practice affect diabetes-related hospitalization rates. The number of diagnoses listed on discharge abstracts might vary by person completing the abstract and geographic region of the U.S. Hospital discharge records cannot identify incident (new) hospitalizations for diabetes. |
| Data Resources: | State hospital discharge data (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms might affect decisions by health-care providers to hospitalize patients. Residents of one state might be hospitalized in another state and not be reflected in the first state's hospital data set. Multiple admissions for one person might falsely elevate the number of persons with diabetes. Because no universal availability of state hospital discharge data exists, aggregation of state data to produce nationwide estimates will be incomplete. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 10**
**Indicator Name: Adults with diabetes aged ≥18 years who have taken a diabetes self-management course**

| | |
|---|---|
| Demographic Group: | All resident persons ages ≥18 years |
| Numerator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns) and who report ever taking a course or class in how to self-manage diabetes. |
| Denominator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns) |
| Measures of Frequency: | Annual prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard US population, distribution 8[1]) with 95% confidence intervals; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year |
| Background: | In 2010, approximately 57% of adults aged 18 years and older with diagnosed diabetes reported ever receiving diabetes self-management education (age-adjusted to the year 2000 population). |
| Significance: | The American Diabetes Association recommends that people with diabetes receive diabetes self-management education (DSME) as outlined in the national standards for DSME at the time of their diagnosis and as needed thereafter. DSME is an essential component of diabetes care, and the national standards are based on evidence of its benefits. It assists people with diabetes in effectively managing their disease when they are initially diagnosed, and helps them continue a high-quality level of self-care that is essential for optimizing metabolic control, managing complications, and having an acceptably high quality of life. |
| Limitations of Indicator: | Data are limited to those states that ask the optional Diabetes Module.<br>Definition of "course or class" is not well defined. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-14: Increase the proportion of persons with diagnosed diabetes who receive formal diabetes education from 56.8% in 2008 to 62.5% (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 11.1**
**Indicator Name: Prevalence of self-reported high cholesterol among adults aged ≥ 18 years with diabetes**

| | |
|---|---|
| Demographic Group: | All resident persons ages ≥18 years |
| Numerator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns) and report having been told by a doctor, nurse or other health professional that they had high cholesterol. |
| Denominator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns |
| Measures of Frequency: | Biannual (odd years) prevalence –crude and age-adjusted (standardized by the direct method to the year 2000 standard US population, distribution 8[1]) with 95% confidence intervals; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Ever |
| Background: | In 2010, approximately 58% of U.S. adults aged ≥18 years with diagnosed diabetes reported having high blood cholesterol (age adjusted to the year 2000 population). |
| Significance: | Diabetes is a major, independent risk factor for coronary heart disease and other forms of cardiovascular disease. Reducing cholesterol levels in people with diabetes reduces the risk for coronary heart disease. |
| Limitations of Indicator: | BRFSS measures "ever told they had high cholesterol" which may be overestimating the diagnosis of high cholesterol. Also the perimeters for "high" cholesterol are not defined. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-6: Improve lipid control among persons with diagnosed diabetes from 53.1% of adults aged ≥18 years with LDL cholesterol < 100 mg/dL in 2005–2008 to 58.4%. National Heart Lung and Blood Institute, National Cholesterol Education Program |
| Related CDI Topic Area: | Cardiovascular Disease |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 11.2**
**Indicator Name: Prevalence of self-reported high blood pressure among adults aged ≥18 years with diabetes**

| | |
|---|---|
| Demographic Group: | All resident persons ages≥18 years |
| Numerator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns) and report having been told by a doctor, nurse or other health professional that they had high blood pressure (excluding pregnancy). |
| Denominator: | Respondents aged≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns |
| Measures of Frequency: | Biannual (odd years) prevalence –crude and age-adjusted (standardized by the direct method to the year 2000 standard US population, distribution 8[1]) with 95% confidence intervals; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Ever |
| Background: | In 2009, about 57% of adults aged ≥18 years with diagnosed diabetes reported having high blood pressure (age adjusted to the year 2000 population). |
| Significance: | Hypertension is an extremely common comorbidity in patients with diabetes. In 2005–2008, about two-thirds of adults aged 20 years or older with self-reported diabetes had blood pressure greater than or equal to 140/90 millimeters of mercury or used prescription medications for high blood pressure. The development of hypertension in patients with diabetes is particularly harmful, as it accelerates the development of cardiovascular disease and is estimated to be responsible for up to 75% of diabetic cardiovascular complications, including stroke, coronary artery disease, and peripheral vascular disease. Hypertension is also thought to play a major role in the development of retinopathy, nephropathy, and possibly neuropathy. Early detection and treatment is essential to prevent these complications. |
| Limitations of Indicator: | BRFSS measures "ever told they had high blood pressure" which may be overestimating the diagnosis of hypertension. Also the perimeters of blood pressure values are not defined. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective D-7: Increase the proportion of the population with diagnosed diabetes whose blood pressure is under control from 51.8% of adults aged ≥18 years with blood pressure under control in 2005–2008 to 57.0% (age adjusted to the year 2000 population). |
| Related CDI Topic Area: | Cardiovascular Disease |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Number: 11.3**
**Indicator Group: Diabetes**
**Indicator Name: Prevalence of depressive disorders among adults aged ≥18 years with diabetes**

| | |
|---|---|
| Demographic Group: | All resident persons ages ≥18 years |
| Numerator: | Respondents aged≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns) and report ever been told they had a depressive disorder (including depression, major depression, dysthymia or minor depression). |
| Denominator: | Respondents aged ≥18 years ever told by a doctor or other health professional that they have diabetes (excluding women who were told only when pregnant, refusals and unknowns |
| Measures of Frequency: | Annual prevalence –crude and age-adjusted (standardized by the direct method to the year 2000 standard US population, distribution 8[1]) with 95% confidence intervals; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Ever |
| Background: | People with diabetes are twice as likely to have depression, which can complicate diabetes management, than people without diabetes. In addition, depression is associated with a 60% increased risk of developing type 2 diabetes. |
| Significance: | Poor glucose control is associated with depression, a factor to be considered when developing diabetes treatment programs. Screening for and treatment of depression is appropriate and may improve glycemic control. |
| Limitations of Indicator: | BRFSS measures "ever told they had a depressive disorder" which may overestimate the diagnosis of depressive disorders. Some respondents may not understand the meaning of the terms in the question, or may experience a stigma associated with depression and alter their responses accordingly. Descriptions of disorders are not précis. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Diabetes**
**Indicator Number: 12.1**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged 18-64 years with diabetes**

| | |
|---|---|
| Demographic Group: | Non-institutionalized persons aged 18-64 years |
| Numerator: | Respondents aged 18-64 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant) who report having received an influenza vaccination in the previous 12 months. |
| Denominator: | Respondents age 18-64 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant, refusals, and unknowns), and who report having received influenza vaccination in the previous 12 months or not having received influenza vaccination in the previous 12 months (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of diabetes, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Diabetes: Ever diagnosed<br>Vaccination: Previous 12 months. |
| Background: | In 2010, 50% of adults ≥18 years with diagnosed diabetes reported having received influenza vaccination in the last year (age adjusted to the year 2000 population). |
| Significance: | An annual influenza vaccination might prevent or attenuate the clinical course of respiratory illness attributable to influenza. Compared with persons without diabetes, mortality from pneumonia and influenza has been demonstrated to be ≥7 times higher among persons with diabetes diagnosed before age 30 years and approximately 2 times higher among persons with diabetes first diagnosed after age 30 years. Among patients with diabetes mellitus, vaccination was associated with a 56% reduction in any complication, a 54% reduction in hospitalizations, and a 58% reduction in deaths.[2] |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. Self-report of influenza vaccination among adults compared with determining vaccination status from the medical record, is a sensitive and specific source of information.[3] |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12: Increase the percentage of adults who are vaccinated against influenza. (IID-12.6 is specific for non-institutionalized high-risk adults aged 18-64 years.)<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships: Percent of adults who reported influenza vaccination within the past year. |
| Related CDI Topic Area: | Immunization |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

2. Looijmans-Van den Akker I, Verheij TJ, Buskens E, et al. Clinical effectiveness of first and repeat influenza vaccination in adult and elderly diabetic patients. Diabetes Care 2006;29:1771–6.
3. Zimmerman RK, Raymund M, Janosky JE, et al. Sensitivity and specificity of patient self-report of influenza and pneumococcal poly¬saccharide vaccinations among elderly outpatients in diverse patient care strata. Vaccine 2003;21:1486–91.

**Indicator Group: Diabetes**
**Indicator Number: 12.2**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged ≥ 65 years with diabetes**

| | |
|---|---|
| Demographic Group: | Non-institutionalized persons aged ≥65 years |
| Numerator: | Respondents aged ≥65 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant) and who report having received an influenza vaccination in the previous 12 months. |
| Denominator: | Respondents age ≥65 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant, refusals, and unknowns), and who report having received influenza vaccination in the previous 12 months or not having received influenza vaccination in the previous 12 months (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of diabetes, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Diabetes: Ever diagnosed<br>Vaccination: Previous 12 months. |
| Background: | In 2010, 50% of adults ≥18 years with diagnosed diabetes reported having received influenza vaccination in the past 12 months (age adjusted to the year 2000 population). In 2010, among adults ≥65 years with diagnosed diabetes, about 70% reported having received influenza vaccination in the past 12 months. |
| Significance: | An annual influenza vaccination might prevent or attenuate the clinical course of respiratory illness attributable to influenza. Compared with persons without diabetes, mortality from pneumonia and influenza has been demonstrated to be ≥7 times higher among persons with diabetes diagnosed before age 30 years and approximately 2 times higher among persons with diabetes first diagnosed after age 30 years. Among patients with diabetes mellitus, vaccination was associated with a 56% reduction in any complication, a 54% reduction in hospitalizations, and a 58% reduction in deaths.[2] |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. Self-report of influenza vaccination among adults compared with determining vaccination status from the medical record, is a sensitive and specific source of information.[3] |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12: Increase the percentage of adults who are vaccinated against influenza (IID-12.7 is specific for non-institutionalized adults aged ≥65 years).<br>Healthy People OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |
| Related CDI Topic Area: | Immunization; Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Looijmans-Van den Akker I, Verheij TJ, Buskens E, et al. Clinical effectiveness of first and repeat influenza vaccination in adult and elderly diabetic patients. Diabetes Care 2006;29:1771–6.
3. Zimmerman RK, Raymund M, Janosky JE, et al. Sensitivity and specificity of patient self-report of influenza and pneumococcal polysaccharide vaccinations among elderly outpatients in diverse patient care strata. Vaccine 2003;21:1486–91.

**Indicator Group: Diabetes**
**Indicator Number: 13.1**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged 18-64 years with diabetes**

| | |
|---|---|
| Demographic Group: | Non-institutionalized persons aged 18-64 years. |
| Numerator: | Respondents aged 18-64 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant) and who report having ever received a pneumococcal vaccination. |
| Denominator: | Respondents aged 18-64 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant, refusals, and unknowns) and who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of diabetes, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Lifetime (diabetes and vaccination). |
| Background: | In 2010, 8.7% of adults reported they had ever been told they had diabetes (BRFSS: http://apps.nccd.cdc.gov/BRFSS/list.asp?cat=DB&yr=2010&qkey=1363&state=All), and 42.5% of adults ≥18 years with diabetes reported having ever received pneumococcal vaccination (BRFSS: http://www.cdc.gov/diabetes/statistics/preventive/fZ_pneum.htm) |
| Significance: | Compared with persons without diabetes, mortality from pneumonia and influenza has been demonstrated to be ≥7 times higher among persons with diabetes diagnosed before age 30 years and approximately 2 times higher among persons with diabetes first diagnosed after age 30 years. Adults with diabetes are 3 times more likely to develop serious (invasive) pneumococcal infections than healthy adults. The Advisory Committee on Immunization Practices recommends pneumococcal vaccination of persons with diabetes. A pneumonia vaccination might prevent or attenuate the clinical course of respiratory illness attributable to *Streptococcus pneumoniae*. |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. The reliability and validity of this measure is unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. The National Health Interview Survey (NHIS) can be used as an alternative data source; however, the size of the sample from NHIS might not be adequate for calculating stable, state-specific estimates. Although self-reported pneumococcal vaccination has been validated[2], the reliability and validity of this measure is unknown. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease. (IID-13.2 is specific for non-institutionalized high-risk adults aged 18-64 years.) |
| Related CDI Topic Area: | Immunization |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

2. AShenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015-1020.

**Indicator Group: Diabetes**
**Indicator Number: 13.2**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged ≥ 65 years with diabetes**

| | |
|---|---|
| Demographic Group: | Non-institutionalized persons aged ≥65 years |
| Numerator: | Respondents aged ≥65 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant) and who report having ever received a pneumococcal vaccination. |
| Denominator: | Respondents aged≥65 years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant, refusals, and unknowns) and who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified, and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) with 95% confidence interval; and by demographic characteristics when feasible. Because of the relatively small numbers of BRFSS respondents at the state-level who have a history of diabetes, 2 or 3-year averages may be needed to provide stable state-level estimates. U.S. estimates may be based on single years of data. |
| Time Period of Case Definition: | Lifetime (diabetes and vaccination). |
| Background: | In 2010, 8.7% of adults reported they had ever been told they had diabetes (BRFSS: http://apps.nccd.cdc.gov/BRFSS/list.asp?cat=DB&yr=2010&qkey=1363&state=All), and 42.5% of adults ≥18 years with diabetes reported having ever received pneumococcal vaccination (BRFSS: http://www.cdc.gov/diabetes/statistics/preventive/fZ_pneum.htm). Among all adults ≥65 years, 70.0% reported in 2011 ever having received pneumococcal vaccination (BRFSS: http://apps.nccd.cdc.gov/brfss/list.asp?cat=IM&yr=2011&qkey=8351&state=All). |
| Significance: | Compared with persons without diabetes, mortality from pneumonia and influenza has been demonstrated to be ≥7 times higher among persons with diabetes diagnosed before age 30 years and approximately 2 times higher among persons with diabetes first diagnosed after age 30 years. Adults with diabetes are 3 times more likely to develop serious (invasive) pneumococcal infections than healthy adults. The Advisory Committee on Immunization Practices recommends pneumococcal vaccination of persons with diabetes. A pneumonia vaccination might prevent or attenuate the clinical course of respiratory illness attributable to Streptococcus pneumoniae. |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. The reliability and validity of this measure is unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. The National Health Interview Survey (NHIS) can be used as an alternative data source; however, the size of the sample from NHIS might not be adequate for calculating stable, state-specific estimates. Although self-reported pneumococcal vaccination has been validated[2], the reliability and validity of this measure is unknown. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease.<br>Healthy People OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |
| Related CDI Topic Area: | Immunization; Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. AShenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015-1020.

**Indicator Group: Disability**
**Indicator Number: 1**
**Indicator Name: Disability among adults aged ≥ 65 years**

| | |
|---|---|
| Demographic Group: | All resident persons aged ≥ 65 years. |
| Numerator: | Number of persons aged 65 ≥ years who response yes to the following set of questions: 1) Are you deaf or do you have serious difficulty hearing?; 2) Are you blind or do you have serious difficulty seeing, even when wearing glasses?; 3) Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?;4) Do you have serious difficulty walking or climbing stairs?; 5) Do you have difficulty dressing or bathing?; and, 6) Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping? |
| Denominator: | Number of persons aged ≥65 years. |
| Measures of Frequency: | Annual prevalence; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | The six item set of questions used on the ACS and other major surveys to measure disability was developed by a federal interagency committee and reflects the change in how disability is conceptualized consistent with the International Classification of Functioning, Disability, and Health. The question set defines disability from a functional perspective and was developed so that disparities between the 'disabled' and 'nondisabled' population can be monitored. The question set went through several rounds of cognitive and field testing and has been adopted in many federal data collection systems. OMB has encouraged the use of this question set by other federal agencies conducting similar population studies due to the extensive testing used in the development of these measures, including the findings that alternative measures did not test as well. Cognitive testing of these questions revealed that the six questions must be used as a set to assure a meaningful measure of disability.[1] |
| Significance: | Assessment of disability allows for a description of the older adult population from a functional perspective. Disability measures highlight opportunities and areas for improvement for people with disabilities, including opportunities to fully participate in and benefit from public health activities, receive well-timed interventions and services, interact with their environment without barriers, and participate in everyday life activities (/healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicId=9#one). |
| Limitations of Indicator: | The six-item disability standard represents a minimum standard and the questions and answer categories cannot be changed. Therefore, a combined measure must be used. Additional questions on disability may be added to any survey as long as the minimum standard is included. If the ACS changes the disability questions in the future, HHS will revisit the standard and modify as necessary. |
| Data Resources: | American Community Survey, 1-Year Estimates, US Census Bureau. |
| Limitations of Data Resources: | The Census Bureau introduced a new set of disability questions in the 2008 ACS questionnaire. Accordingly, comparisons of disability data from 2008 or later with data from prior years are not recommended. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OA-5: Reduce the proportion of older adults who have moderate to severe functional limitations.<br>Healthy People 2020 Objective OA-6: Increase the proportion of older adults with reduced physical or cognitive function who engage in light, moderate, or vigorous leisure-time physical activities.<br>Healthy People 2020 Objective DH-9 (Developmental): Reduce the proportion of people with disabilities who encounter barriers to participating in home, school, work, or community activities. |

| | |
|---|---|
| Related CDI Topic Area: | Older Adults |

1. Brault, M, Stern S, Raglin D. Evaluation Report Covering Disability, American Community Survey Content Test Report P.4. U.S. Census Bureau, Washington, DC; 2007

**Indicator Group: Immunization**
**Indicator Number: 1**
**Indicator Name: Influenza vaccination among non-institutionalized adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report having received an influenza vaccination within the previous year. |
| Denominator: | Respondents aged ≥18 years who report having or not having an influenza vaccination within the previous year (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, master list[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | Although vaccination rates have increased, in 2010, only about 40% of adults aged ≥18 years were vaccinated against influenza. |
| Significance: | In the United States during 1976 to 2007, estimates of annual influenza deaths ranged from 3,349 (in 1986-87) to 48,614 (in 2003-2004). During these annual epidemics, rates of serious illness and death are highest among persons ≥65 years, children under two years of age, and persons of any age who have medical conditions that place them at increased risk for complications from influenza. During 1990-1999, influenza epidemics were associated with approximately 226,000 hospitalizations. An annual influenza vaccination might prevent or attenuate the clinical course of respiratory illness attributable to influenza. The Advisory Committee on Immunization Practices has recommended annual influenza vaccination for all persons aged ≥6 months in the United States. |
| Limitations of Indicator: | Respondents might not distinguish between influenza and pneumococcal (*Streptococcus pneumoniae*) vaccinations. Indicator does not measure vaccination rates among persons at high risk (e.g., persons with chronic illness) who should also be immunized. Estimates are not specific to one influenza season; influenza vaccinations reported in the past 12 months could have been received for one or more of up to three prior influenza seasons. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-12: Increase the percentage of children and adults who are vaccinated annually against seasonal influenza.<br>(IID-12.6 is specific for noninstitutionalized high-risk adults aged 18 to 64 years; and IID-12.7 is specific to noninstitutionalized adults aged 65 years and older).<br>Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services.<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships: Percent of adults who reported influenza vaccination within the past year. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Mental Health**
**Indicator Number: 1**
**Indicator Name: Recent mentally unhealthy days among adults aged ≥ 18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Sum of the number of days during the previous 30 days for which respondents aged ≥18 years report that their mental health (including stress, depression, and problems with emotions) was not good. |
| Denominator: | Total number of respondents aged ≥ 18 years who report >=0 days during the previous 30 days for which their mental health was not good (excluding unknowns and refusals) multiplied by 30 days. |
| Measures of Frequency: | Mean number of mentally unhealthy days during the previous 30 days — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 30 days. |
| Background: | In 2009, the mean number of mentally unhealthy days (days when mental health was not good) during the previous 30 days was 3.5. During this period, approximately 10% of adults reported "frequent mental distress" (i.e., ≥14 mentally unhealthy days). This is the best available measure of population mental health. |
| Significance: | Poor mental health interferes with social functioning, is associated with health behavior, and should be monitored as an overall indicator of chronic disease burden. Recent mentally unhealthy days is used with recent physically unhealthy days to estimate the mean number of unhealthy days (days with impaired physical or mental health) during the previous 30 days — a summary measure of population health. |
| Limitations of Indicator: | Although this indicator is based on self-assessment, it has been demonstrated to have good reliability, validity, and responsiveness. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Mental Health**
**Indicator Number: 2**
**Indicator Name: ≥ 14 recent mentally unhealthy days among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Female respondents aged 18-44 years who reported that their mental health was not good for 14 or more days in the past month. |
| Denominator: | Female respondents aged 18-44 years who reported the number of days in the past month when their mental health was not good including none (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 30 days. |
| Background: | |
| Significance: | Research has shown that poor mental health is a major source of distress, disability, and social burden.[1] Furthermore, poor mental health can interfere with social functioning and negatively impact physical well-being as well as the practice of health-promoting behaviors.[2] |
| Limitations of Indicator: | Reliability of data on the number of poor mental health days is currently not known. However, the measure has been shown to be moderately valid.[3] There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factors Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |

1. Murray CJL, Lopez AD. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. 1996. Boston: Harvard University Press.
2. Surgeon General of the United States. Mental health: a report of the Surgeon General. 1999. http://www.surgeongeneral.gov/library/mentalhealth/home.html
3. Nelson DE, Holtzman D, Bolen J, et al. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med 2001; 46 Suppl 1: S3-S42.

**Indicator Group: Mental Health**
**Indicator Number: 3**
**Indicator Name: Postpartum depressive symptoms**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported that they felt down, depressed, or hopeless, often or always after their most recent live birth. |
| Denominator: | Respondents aged 18-44 years who reported that they felt down, depressed, or hopeless never, rarely, sometimes, often, or always after delivery of their most recent live birth (excluding unknowns and refusals). |
| Measures of Frequency: | Crude prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and mail/telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Since the most recent live birth. |
| Background: | Depressive disorders after delivery range from "baby blues", which occur within the first several weeks after delivery, to depression of postpartum onset (postpartum depression), which is more severe, requires treatment, and can manifest up to one year after delivery.[1] Postpartum depression is estimated to affect 14-15% of mothers, and has been shown to have an adverse effect on marital relationships and mother-infant bonding, and can contribute to unfavorable parenting and infant health practices.[2-8] |
| Significance: | Depressive disorders generally have high recurrence rates, and previous depression and/or postpartum depression is predictive of depression during and after subsequent pregnancies.[9] Screening for depression has been shown to be simple and safe, and various treatments are available.[10] Identifying high risk women in the preconception period may prevent the emergence of depressive disorders during pregnancy and postpartum. Recommended screening for depression during well-baby visits in the postpartum period is also being considered by the American Academy of Pediatrics.[11] |
| Limitations of Indicator: | It is not possible to distinguish preexisting depressive symptoms from those that manifested after delivery. This indicator represents self-reported depressive symptoms only and cannot be used to determine actual depression status. Various similar tools assessing self-reported depressive symptoms including feelings of being down depressed, sad, or hopeless, have been recommended for depression case-finding.[9] Sensitivity measures for these tools is generally high with moderate to high specificity measures.[12-14] The response option "slowed down" was excluded from the case definition as this experience may be common among new mothers due to lack of appropriate rest. The measure for this indicator is a new item on the PRAMS Phase 6 questionnaire, which was implemented in 2009. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | While most self-report surveys such as PRAMS might be subject to systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias), PRAMS attempts to contact potential respondents by mail and landline/cell telephone to increase response rates. ). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | |

| Related CDI Topic Area: | |
|---|---|


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2. Dietz PM, Williams SB, Callaghan WM, et al. Clinically identified maternal depression before, during, and after pregnancies ending in live births. Am J Psychiatry 2007;164:1515-20.
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5. Galler JR, Harrison RH, Ramsey F. Bed-sharing, breastfeeding and maternal moods inBarbados. Infant Beh Dev 2006; 29:526-34.
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10. U.S. Preventive Services Task Force. Screening for depression: recommendations and rationale. May 2002. Agency for Healthcare Research and Quality. http://www.ahrq.gov/clinic/3rduspstf/depression/depressrr.htm#scientific.
11. Chaudron LH, Szilagyi PG, Campbell AT, et al. Legal and ethical considerations: risks and benefits of postpartum depression screening at well-child visits. Pediatrics 2007;119:123-28.
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13. Beck CT, Gable RK. Comparative analysis of the performance of the Postpartum Depression Screening Scale with two other depression instruments. Nurs Res 2001;50:242-50.
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**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 1.1**
**Indicator Name: Obesity among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥ 18 years who have a body mass index (BMI) ≥30.0 kg/m² calculated from self-reported weight and height. |
| Denominator: | Respondents aged ≥ 18 years for whom BMI can be calculated from their self-reported weight and height (excluding unknowns, refusals to provide weight or height, and exclusions listed below). |
| Exclusions: | Exclude the following from numerator and denominator:<br>● Height: Excludes data from respondents shorter than 3 feet, or 8 feet or taller<br>● Weight: Excludes data from respondents weighing less than50 pounds, or 650 pounds or more<br>● BMI: Excludes data from respondents with BMI less than12 kg/$m^2$, or 100 kg/$m^2$ or higher<br>● Pregnant women are excluded |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2011, a total of 28% of adults were obese. The prevalence of obesity has been increasing in the United States. |
| Significance: | Being overweight or obese increases the risk for multiple chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. Behavior, environment, and genetic factors may have an effect in causing people to be overweight and obese. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric intake might reduce a person's BMI. |
| Limitations of Indicator: | Respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of obesity. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-9: Reduce the proportion of adults who are obese. |
| Related CDI Topic Area: | Arthritis; Cancer; Cardiovascular Disease; Diabetes; Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001.http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 1.2**
**Indicator Name: Obesity among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12. |
| Numerator: | Students in grades 9–12 with a body mass index (BMI) at or above the sex- and age-specific 95th percentile from CDC Growth Charts: United States.[1] |
| Denominator: | Students in grades 9–12 who answer height, weight, sex and age questions. |
| Exclusions: | YRBSS self-reported height and weight are edited for plausibility. Age- and sex-specific cutpoints are used to exclude implausible values. Details can be found at ftp://ftp.cdc.gov/pub/data/YRBSS/2011/YRBSS_2011_National_User_Guide.pdf starting on page 3. Details on editing for plausibility start on page 5. |
| Measures of Frequency: | Biennial (odd years) prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2003, 13.5% of students in grades 9–12 were obese. The prevalence of obesity among high school students has not changed significantly since 2003. The prevalence of obesity (at or above the sex- and age-specific 95th percentile for BMI) among ages inclusive of younger children has increased during the past few decades. Specifically, during the 1970s and 1988–1994, the prevalence approximately doubled among children and adolescents aged 6–17 years. |
| Significance: | Obese children are more likely to have high blood pressure, high cholesterol, impaired glucose tolerance, insulin resistance, type 2 diabetes, asthma, joint problems, and other physical, social, and psychological problems. Obese children are more likely to become obese adults, which increases the risk for multiple chronic diseases in adulthood, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. Behavior, environment, and genetic factors may have an effect in causing people to be overweight and obese. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric intake might reduce a person's BMI. |
| Limitations of Indicator: | Respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of obesity. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-10: Reduce the proportion of children and adolescents who are considered obese. (NWS-10.4 is specific for adolescents aged 12–19 years.) |
| Related CDI Topic Area: | Asthma; Arthritis; Cancer; Cardiovascular Disease; Diabetes; School Health |

1. Kuczmarksi RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Washington, DC: US Department of Health and Human Services, CDC, National Center for Health Statistics. Advance data from vital and health statistics; December 4, 2000 (revised). Publication no. 314. http://www.cdc.gov/nchs/data/ad/ad314.pdf

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 2.1**
**Indicator Name: Overweight or obesity among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥ 18 years who have a body mass index (BMI) ≥ 25.0 kg/m² calculated from self-reported weight and height. |
| Denominator: | Respondents aged ≥ 18 years for whom BMI can be calculated from their self-reported weight and height (excluding unknowns, refusals to provide weight or height, and exclusions listed below). |
| Exclusions: | Exclude the following from numerator and denominator:<br>● Height: Excludes data from respondents less than 3 feet, or 8 feet or taller<br>● Weight: Excludes data from respondents less than50 pounds, or 650 pounds or more<br>● BMI: Excludes data from respondents with BMI less than12 kg/$m^2$, or 100 kg/$m^2$ or higher<br>● Pregnant women are excluded |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2011, a total of 36% of adults were overweight, and 28% were obese. The prevalence of overweight and obesity has been increasing in the United States. |
| Significance: | Being overweight or obese increases the risk for multiple chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. Behavior, environment, and genetic factors may have an effect in causing people to be overweight and obese. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric intake might reduce a person's BMI. |
| Limitations of Indicator: | Respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of overweight and obesity. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-8: Increase the proportion of adults who are at a healthy weight.<br>Healthy People 2020 Objective NWS-9: Reduce the proportion of adults who are obese. |
| Related CDI Topic Area: | Arthritis; Cancer; Cardiovascular Disease; Diabetes; Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001.http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 2.2**
**Indicator Name: Overweight or obesity among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12. |
| Numerator: | Students in grades 9–12 with a body mass index (BMI) at or above the sex- and age-specific 85th percentile from CDC Growth Charts: United States.[1] |
| Denominator: | Students in grades 9–12 who answer height, weight, sex and age questions. |
| Exclusions: | YRBSS self-reported height and weight are edited for plausibility. Age- and sex-specific cutpoints are used to exclude implausible values. Details can be found at ftp://ftp.cdc.gov/pub/data/YRBSS/2011/YRBSS_2011_National_User_Guide.pdf starting on page 3. Details on editing for plausibility start on page 5. |
| Measures of Frequency: | Biennial (odd years) prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2003, 15.4% of students in grades 9–12 were overweight and 13.5% were obese. The prevalence of overweight and obesity among high school students has not changed significantly since 2003. The prevalence of obesity (at or above the sex- and age-specific 95th percentile for BMI) among ages inclusive of younger children has increased during the past few decades. Specifically, during the 1970s and 1988–1994, the prevalence approximately doubled among children and adolescents aged 6–17 years. |
| Significance: | Obese children are more likely to have high blood pressure, high cholesterol, impaired glucose tolerance, insulin resistance, type 2 diabetes, asthma, joint problems, and other physical, social, and psychological problems. Obese children are more likely to become obese adults, which increases the risk for multiple chronic diseases in adulthood, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. Behavior, environment, and genetic factors may have an effect in causing people to be overweight and obese. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric intake might reduce a person's BMI. |
| Limitations of Indicator: | Respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of obesity. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-10: Reduce the proportion of children and adolescents who are considered obese. (NWS-10.4 is specific for adolescents aged 12–19 years.) |
| Related CDI Topic Area: | Asthma; Arthritis; Cancer; Cardiovascular Disease; Diabetes; School Health |

1. Kuczmarksi RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Washington, DC: US Department of Health and Human Services, CDC, National Center for Health Statistics. Advance data from vital and health statistics; December 4, 2000 (revised). Publication no. 314. http://www.cdc.gov/nchs/data/ad/ad314.pdf

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 2.3**
**Indicator Name: Overweight and obesity among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Overweight: Women aged 18-44 years who have a body mass index (BMI) of 25 kg/$m^2$ or greater but <30 kg/$m^2$. BMI is calculated from self-reported weight and height.<br>Obesity: Women aged 18-44 years who have a BMI ≥30 kg/$m^2$. BMI is calculated from self-reported weight and height. |
| Denominator: | Women aged 18-44 years for whom BMI can be calculated using their self-reported weight and height. |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval; and by demographic characteristics when feasible, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection. and adjust for non-response and telephone non-coverage). |
| Time Period of Case Definition: | Current. |
| Background: | |
| Significance: | In the non-pregnant state, obesity contributes to numerous adverse health conditions including type II diabetes, hypertension, heart disease, a variety of cancers, and infertility.[1-4] Obesity is also associated with a host of unfavorable perinatal health outcomes including neural tube defects, labor and delivery complications, fetal and neonatal death, and maternal complications such as gestational diabetes and preeclampsia.[5-9] While health risks are better established for obese persons, overweight is a predictor of subsequent obesity.[3] Therefore, several professional health organizations and councils, in addition to the Clinical Work Group of the Select Panel on Preconception Care workgroup recommends that all women have their BMI calculated at least annually.[10] Furthermore, women with a BMI ≥25 kg/$m^2$ should be counseled about their own health risks as well as those that may occur related to pregnancy. And, overweight and obese women should be provided with healthy strategies to achieve a healthier body weight, especially prior to any future pregnancies. |
| Limitations of Indicator: | Height and weight are self-reported by the participant but are not verified using medical records data. Self-reported weight and height in the BRFSS have both been demonstrated to be highly reliable and valid.[11] However, women have been shown to underreport weight, which may lead to an underestimation of BMI.[12] Analysis for this indicator requires use of a calculated variable named _BMI4CAT. Details on the calculation of this variable can be found at http://ftp.cdc.gov/pub/data/brfss/calcvar_07.rtf. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-8: Increase the proportion of adults who are at a healthy weight.<br>Healthy People 2020 Objective NWS-9: Reduce the proportion of adults who are obese. |
| Related CDI Topic Area: | Reproductive Health |

1. Institute of Medicine. Influence of pregnancy weight on maternal child health: a workshop report. Washington, DC: National Academy Press; 2007.
2. Sarwer DB, Allison KC, Gibbons LM, Markowitz JT, Nelson DB. Pregnancy and obesity: a review and agenda for future research. J Womens Health (Larchmt) 2006;15:720-33.
3. McTigue KM, Harris R, Hemphill B, et al. Screening and interventions for obesity in adults: summary of the evidence for the US Preventive Services Task Force. Ann Intern Med 2003; 139:933-49.
4. Dixit A, Girling JC. Obesity and pregnancy. J Obstet Gynaecol 2008; 28:14-23.
5. Rich-Edwards JW, Goldman MB, Willett WC, et al. Adolescent body mass index and infertility caused by ovulatory disorder. Am J Obstet Gynecol 1994;171:171-7.
6. Watkins ML, Rasmussen SA, Honein MA, Botto LD, Moore CA. Maternal obesity and risk for birth defects. Pediatrics 2003;111:1152-8.7.
7. Cedergren MI. Maternal morbid obesity and the risk of adverse pregnancy outcome.Obstet Gynecol 2004;103:219-24.
8. Cnattingius S, Bergstrom R, Lipworth L, Kramer MS. Prepregnancy weight and the risk of adverse pregnancy outcomes. N Engl J Med 1998;338:147-52.
9. Baeten JM, Bukusi EA, Lambe M. Pregnancy complications and outcomes among overweight and obese nulliparous women. Am J Public Health 2001;91:436-40.
10. Gardiner PM, Nelson L, Shellhaas CS, et al. The clinical content of preconception care: nutrition and dietary supplements. Am J Obstet Gynecol 2008; 199 (6 Suppl B): S345- S356.
11. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001; 46 Suppl 1:S3-S42.
12. Gillum RF, Sempos CT. Ethnic variation in validation of classification of overweight and obesity using self-reported weight and height in American women and men: the Third National Health and Nutrition Examination Survey. Nutr J 2005; 4:27.

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 2.4**
**Indicator Name: Pre-pregnancy overweight and obesity**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 who have had a live birth. |
| Numerator: | Overweight: Women aged 18-44 years whose prepregnancy body mass index (BMI) was 25 $kg/m^2$ or greater but less than 30 $kg/m^2$. BMI is calculated from self-reported weight and height.<br>Obesity: Women aged 18-44 years whose prepregnancy BMI was $\geq$30 $kg/m^2$. BMI is calculated from self-reported weight and height. |
| Denominator: | Women aged 18-44 years for whom BMI can be calculated using their self-reported weight and height. |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval; and by demographic characteristics when feasible, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection and adjust for non-response and telephone non-coverage). |
| Time Period of Case Definition: | Before the pregnancy resulting in the most recent live birth. |
| Background: | |
| Significance: | In the non-pregnant state, obesity contributes to numerous adverse health conditions including type II diabetes, hypertension, heart disease, a variety of cancers, and infertility.[1-4] Obesity is also associated with a host of unfavorable perinatal health outcomes including neural tube defects, labor and delivery complications, fetal and neonatal death, and maternal complications such as gestational diabetes and preeclampsia.[5-9] While health risks are better established for obese persons, overweight is a predictor of subsequent obesity.[3] In addition to steadily increasing obesity rates in the general U.S. population, a notable increase toward higher prepregnancy BMI in the U.S. has been demonstrated.[10] Therefore, several professional health organizations and councils, in addition to the Clinical Work Group of the Select Panel on Preconception Care workgroup recommends that all women have their BMI calculated at least annually.[11] Furthermore, women with a BMI$\geq$25 $kg/m^2$ should be counseled about their own health risks as well as those that may occur related to pregnancy. And, overweight and obese women should be provided with healthy strategies to achieve a healthier body weight, especially prior to any future pregnancies. |
| Limitations of Indicator: | Maternal weight and height as recorded on the birth certificate are based on either maternal recall or prenatal records.[12] Unpublished data demonstrates that birth certificate data underestimate the prevalence of obesity although the data have a satisfactory reliability and validity for surveillance and research purposes (Unpublished data from Florida birth certificates, 2005). There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Birth certificate, National Vital Statistics System. |
| Limitations of Data Resources: | Missing values—definition of exclusion criteria are not stated nor how to address biologically implausible values. Not all states use 2003 version of birth certificates, which capture prepregnancy height and weight. Birth certificates may not be accurate in documenting maternal health status. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-8: Increase the proportion of adults who are at a healthy weight.<br>Healthy People 2020 Objective NWS-9: Reduce the proportion of adults who are obese. |
| Related CDI Topic Area: | Reproductive Health |


1. Institute of Medicine. Influence of pregnancy weight on maternal child health: a workshop report. Washington, DC: National Academy Press; 2007.
2. Sarwer DB, Allison KC, Gibbons LM, Markowitz JT, Nelson DB. Pregnancy and obesity: a review and agenda for future research. J Womens Health (Larchmt) 2006;15:720-33.

3. McTigue KM, Harris R, Hemphill B, et al. Screening and interventions for obesity in adults: summary of the evidence for the US Preventive Services Task Force. Ann Intern Med 2003; 139:933-49.
4. Dixit A, Girling JC. Obesity and pregnancy. J Obstet Gynaecol 2008; 28:14-23.
5. Rich-Edwards JW, Goldman MB, Willett WC, et al. Adolescent body mass index and infertility caused by ovulatory disorder. Am J Obstet Gynecol 1994;171:171-7.
6. Watkins ML, Rasmussen SA, Honein MA, Botto LD, Moore CA. Maternal obesity and risk for birth defects. Pediatrics 2003;111:1152-8.
7. Cedergren MI. Maternal morbid obesity and the risk of adverse pregnancy outcome. Obstet Gynecol 2004;103:219-24.
8. Cnattingius S, Bergstrom R, Lipworth L, Kramer MS. Prepregnancy weight and the risk of adverse pregnancy outcomes. N Engl J Med 1998;338:147-52.
9. Baeten JM, Bukusi EA, Lambe M. Pregnancy complications and outcomes among overweight and obese nulliparous women. Am J Public Health 2001;91:436-40.
10. Yeh J, Shelton JA. Increasing prepregnancy body mass index: Analysis of trends and contributing variables. Am J Obstet Gynecol 2005; 193:1994-98.
11. Gardiner PM, Nelson L, Shellhaas CS, et al. The clinical content of preconception care: nutrition and dietary supplements. Am J Obstet Gynecol 2008; 199 (6 Suppl B): S345- S356.
12. National Center for Health Statistics. 2003 revisions of the U.S. standard certificates of live birth and death and the fetal death report [online]. Available at: http://www.cdc.gov/nchs/vital_certs_rev.htm. Accessed March 2, 2009.

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 3.1**
**Indicator Name: Healthy weight among adults aged ≥ 18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥ 18 years who have a body mass index (BMI) 18.5-24.9 kg/m² calculated from self-reported weight and height. |
| Denominator: | Respondents aged ≥ 18 years for whom BMI can be calculated from their self-reported weight and height (excluding unknowns or refusals to provide weight or height). |
| Exclusions: | Exclude the following from numerator and denominator:<br>● Height: Excludes data from respondents less than 3 feet, or 8 feet or taller<br>● Weight: Excludes data from respondents less than50 pounds, or 650 pounds or more<br>● BMI: Excludes data from respondents with BMI less than12 kg/$m^2$, or 100 kg/$m^2$ or higher<br>● Pregnant women are excluded |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2011, a total of 34.5% of adults were healthy weight (U.S. and D.C.). The prevalence of healthy weight has been decreasing in the United States. |
| Significance: | Body weight is the result of genes, metabolism, behavior, environment, culture, and socioeconomic status. Overweight and obesity result from an energy imbalance. This involves eating too many calories and not getting enough physical activity. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric intake might reduce a person's BMI to a healthy weight level. |
| Limitations of Indicator: | Respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and an overestimation of the prevalence of healthy weight. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-8: Increase the proportion of adults who are at a healthy weight. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001.http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 3.2**
**Indicator Name: Healthy weight among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12. |
| Numerator: | Students in grades 9–12 with a body mass index (BMI) at the sex- and age-specific 5th percentile to less than the 85th percentile from CDC Growth Charts: United States.[1] |
| Denominator: | Students in grades 9–12 who answer height, weight, sex and age questions. |
| Exclusions: | YRBSS self-reported height and weight are edited for plausibility. Age- and sex-specific cutpoints are used to exclude implausible values. Details can be found at ftp://ftp.cdc.gov/pub/data/YRBSS/2011/YRBSS_2011_National_User_Guide.pdf starting on page 3. Details on editing for plausibility start on page 5. |
| Measures of Frequency: | Biennial (odd years) prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2011, 60% of high school students in the United States were healthy weight. The prevalence of healthy weight was stable (no significant change in prevalence) during the previous eight years; in 2003, 71% of high school students in the United States were healthy weight. |
| Significance: | Body weight is the result of genes, metabolism, behavior, environment, culture, and socioeconomic status. Overweight and obesity result from an energy imbalance. This involves eating too many calories and not getting enough physical activity. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric intake might reduce a person's BMI to a healthy weight level. |
| Limitations of Indicator: | Respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and an overestimation of the prevalence of healthy weight. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-10: Reduce the proportion of children and adolescents who are considered obese (NWS-10.4 is specific for adolescents aged 12–19 years.) |
| Related CDI Topic Area: | School Health |

1. Kuczmarksi RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Washington, DC: US Department of Health and Human Services, CDC, National Center for Health Statistics. Advance data from vital and health statistics; December 4, 2000 (revised). Publication no. 314. http://www.cdc.gov/nchs/data/ad/ad314.pdf

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 4.1**
**Indicator Name: Median daily frequency of fruit consumption among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9-12. |
| Numerator: | Number of total daily intake of fruit consumption (100% fruit juice and fruit) |
| Denominator: | All respondents for whom these data are available (excluding unknowns or refusals to provide responses to fruit consumption question). |
| Calculation: | Total daily fruit consumption was calculated from reported intake of 100% fruit juice and fruit. The median daily intake of fruit (times per day) is from all respondents for whom these data are available (excluding unknowns or refusals to provide responses to fruit consumption question). |
| Measures of Frequency: | Median frequency with interquartile range; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 7 days |
| Background: | The *Dietary Guidelines for Americans 2010* and Healthy People 2020 objectives call for Americans to increase their intake of fruits and vegetables. National recommendations for fruit intake are about 1.5 cup equivalents for girls14-18 years of age and 2 cup equivalents for boys 14-18 years of age, depending on age and physical activity level. |
| Significance: | The *Dietary Guidelines for Americans, 2010* recommends Americans eat more fruits and vegetables as part of a healthy diet, because they contribute important nutrients, can reduce the risk for many chronic diseases, and can also help with weight management. |
| Limitations of Indicator: | The indicator conveys the median frequency of fruit consumption among high school students surveyed. However, because it does not convey the cup equivalents of fruits consumed, it cannot be compared to Healthy People 2020 targets. Healthy People 2020 measures progress based on cup equivalents per 1000 kilocalories of intake. The Youth Risk Behavior Surveillance System (YRBSS) assesses frequency of fruit intake and therefore is not used to assess progress towards the specific Healthy People 2020 objectives for increased fruit consumption or national fruit intake recommendations based on cup equivalents. However, YRBSS data are used to track increased frequency of fruit consumption, a key recommendation of Dietary Guidelines for Americans. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-14: Increase the contribution of fruits to the diets of the population aged 2 years and older. |
| Related CDI Topic Area: | School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 4.2**
**Indicator Name: Median daily frequency of fruit consumption among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years |
| Numerator: | Number of total daily intake of fruit consumption (100% fruit juice and fruit) |
| Denominator: | All respondents for whom these data are available (excluding unknowns or refusals to provide responses to fruit consumption question). |
| Calculation: | Total daily fruit consumption was calculated from reported intake of 100% fruit juice and fruit (fresh, frozen, or canned). The median daily intake of fruit (times per day) is from all respondents aged ≥18 years for whom these data are available (excluding respondents with missing responses for either the fruit juice or fruit intake or those with a total intake >16). |
| Measures of Frequency: | Median frequency with interquartile range; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days |
| Background: | The *Dietary Guidelines for Americans 2010* and Healthy People 2020 objectives call for Americans to increase their intake of fruits and vegetables. National recommendations for fruit intake are about 1.5-2 cup equivalents daily for adult women and 2 cup equivalents daily for adult men, depending on age and physical activity level. |
| Significance: | The *Dietary Guidelines for Americans, 2010* recommends Americans eat more fruits and vegetables as part of a healthy diet, because they contribute important nutrients, can reduce the risk for many chronic diseases, and can also help with weight management. |
| Limitations of Indicator: | The indicator conveys the median frequency of fruit consumption of the adult population. However, because it does not convey the cup equivalents of fruits consumed, these data cannot be compared to Healthy People 2020 targets. Healthy People 2020 measures progress based on cup equivalents per 1000 kilocalories of intake. The Behavioral Risk Factor Surveillance System (BRFSS) assesses frequency of fruit intake and therefore is not used to assess progress towards the specific Healthy People 2020 objectives for increased fruit consumption or national fruit intake recommendations based on cup equivalents. However, BRFSS data are used to track increased frequency of fruit consumption, a key recommendation of Dietary Guidelines for Americans. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-14: Increase the contribution of fruits to the diets of the population aged 2 years and older. |
| Related CDI Topic Area: | |

**Indicator Number: 5.1**
**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Name: Median daily frequency of vegetable consumption among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12 |
| Numerator: | Number of total daily intake of vegetable consumption (green salad, potatoes, carrots, and other vegetables) |
| Denominator: | All respondents for whom these data are available (excluding unknowns or refusals to provide responses to vegetable consumption). |
| Calculation: | Total daily vegetable consumption was calculated from reported intake of green salad, potatoes, carrots and other vegetables. The median intake of vegetables (times per day) is from all respondents for whom these data are available (excluding unknowns or refusals to provide responses to any of the vegetable consumption questions). |
| Measures of Frequency: | Median frequency with interquartile range; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 7 days |
| Background: | The *Dietary Guidelines for Americans 2010* and Healthy People 2020 objectives call for Americans to increase their intake of fruits and vegetables. National recommendations for vegetable intake are about 2.5 cup equivalents daily for girls 14-18 years of age and 3 cup equivalents daily for boys 14-18 years of age, depending on age and physical activity level. |
| Significance: | The *Dietary Guidelines for Americans, 2010* recommends Americans eat more fruits and vegetables as part of a healthy diet, because they contribute important nutrients, can reduce the risk for many chronic diseases, and can also help with weight management. |
| Limitations of Indicator: | The indicator conveys the median frequency of vegetable consumption among high school students surveyed. However, because it does not convey the cup equivalents of vegetables consumed, it cannot be compared to Healthy People 2020 targets. Healthy People 2020 measures progress based on cup equivalents per 1000 kilocalories of intake. The Youth Risk Behavior Surveillance System (YRBSS) assesses frequency of vegetable intake and therefore is not used to assess progress towards the specific Healthy People 2020 objectives for increased vegetable consumption or national vegetable intake recommendations based on cup equivalents. However, YRBSS data are used to track increased frequency of vegetables consumption, a key recommendation of Dietary Guidelines for Americans. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-15.1: Increase the contribution of total vegetables to the diets of the population aged 2 years and older. |
| Related CDI Topic Area: | School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 5.2**
**Indicator Name: Median daily frequency of vegetable consumption among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years |
| Numerator: | Number of total daily intake of vegetable consumption (beans (legumes), dark green vegetables, orange vegetables, and other vegetables) |
| Denominator: | All respondents for whom these data are available (excluding unknowns or refusals to provide responses to vegetable consumption). |
| Calculation: | Total daily vegetable consumption was calculated from reported intake of beans (legumes), dark green vegetables, orange vegetables and other vegetables. The median daily intake of vegetables (times per day) is from all respondents aged ≥18 years for whom these data are available (excluding respondents with missing responses for any of the vegetable questions or those with a total intake > 23). |
| Measures of Frequency: | Median frequency with interquartile range; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 30 days |
| Background: | The *Dietary Guidelines for Americans 2010* and Healthy People 2020 objectives call for Americans to increase their intake of fruits and vegetables. National recommendations for vegetable intake are about 2-2.5 cup equivalents daily for adult women and 2.5-3 cup equivalents daily for adult men, depending on age and physical activity level. |
| Significance: | The *Dietary Guidelines for Americans, 2010* recommends Americans eat more fruits and vegetables as part of a healthy diet, because they contribute important nutrients, can reduce the risk for many chronic diseases, and can also help with weight management. |
| Limitations of Indicator: | The indicator conveys the median frequency of vegetable consumption of the adult population. However, because it does not convey the cup equivalents of vegetables consumed, these data cannot be compared to Healthy People 2020 targets. Healthy People 2020 measures progress based on cup equivalents per 1000 kilocalories of intake. The Behavioral Risk Factor Surveillance System (BRFSS) assesses frequency of vegetables intake and therefore is not used to assess progress towards the specific Healthy People 2020 objectives for increased vegetable consumption or national vegetable intake recommendations based on cup equivalents per day. However, BRFSS data can be used to track increased frequency of vegetable consumption, a key recommendation of Dietary Guidelines for Americans. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-15.1: Increase the contribution of total vegetables to the diets of the population aged 2 years and older. |
| Related CDI Topic Area: | |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 6**
**Indicator Name: Census tracts with healthier food retailers within ½ mile of boundary**

| | |
|---|---|
| Demographic Group: | All residents. |
| Numerator: | The number of Census tracts with at least one healthier food retailer (at least one supermarket, supercenter, larger grocery store, warehouse club, or fruit and vegetable specialty stores) located within the tract or within a 1/2-mile. Note: Two separate national-level directories on retail food stores were used to develop a comprehensive list of healthier food retailers in the U.S3,18: InfoUSA, a proprietary source of individual store listings, current as of June 2011 and a list of stores authorized to accept Supplemental Nutrition Assistance Program (SNAP) benefits as of January 2012. The following InfoUSA stores were defined as healthier food retailers using several criteria including 2007 North American Industry Classification Codes (NAICS), annual sales volume, and annual employees on payroll: larger grocery stores and supermarkets (stores classified as NAICS 445110 with ≥10 annual payroll employees or ≥$2 million in annual sales); other chain supermarkets, supercenters, and warehouse clubs (NAICS 445, 452112, and 452910 whose company names matched a name on a list of national supermarket/supercenter chains; fruit and vegetable specialty food stores (NAICS 445230). NAICS descriptions are available at http://www.census.gov/eos/www/naics. Date accessed June 1, 2012. Further details on methodology for identifying healthier food retailers are available upon request. |
| Denominator: | Total number of Census tracts. Census Tract Boundaries, 2010 U.S. Census Bureau. Available at http://www.census.gov/geo/www/tiger/tgrshp2010/tgrshp2010.html. Date accessed June 1, 2012. |
| Measures of Frequency: | Percentage of Census tracts |
| Time Period of Case Definition: | Current year |
| Background: | One measure of access to fruits and vegetables is the percentage of census tracts in states that have a typical healthier food retailer (at least one supermarket, supercenter, larger grocery store, warehouse club, or fruit and vegetable specialty stores) located within the tract or within a 1/2-mile. A census tract is a small and relatively permanent subdivision of counties that is similar in population and economic characteristics and living conditions. On average supermarkets, supercenters, larger grocery stores, warehouse clubs, and fruit and vegetable specialty stores stock a wide selection of affordable, high quality fruits and vegetables. In 2009, 72% of U.S. Census tracts had a healthy food retailer within ½ mile of boundary. |
| Significance: | Having access to stores that sell fruits and vegetables and other healthier foods may increase fruit and vegetable consumption among adults. Improving access to fruits and vegetables and other healthier foods can include expanding access to stores that typically stock an affordable and wide selection of fruits and vegetables (i.e. supermarkets, larger grocery stores, fruit and vegetable specialty stores). |
| Limitations of Indicator: | Neighborhoods identified as not having at least one healthier food retailer might still have access to healthier foods if smaller stores (e.g. convenience stores, corner stores, etc.) that provide a wide selection and adequate quantity of affordable produce and other items. However, since there is not a systematic way to identify smaller retailers offering healthier foods at a national level, they are not included as a healthier food retailer in this metric. Residents may have additional access to produce in their neighborhoods through farmers markets and farm stands. However, these venues are not captured in this analysis as they may not be available year round. |
| Data Resources: | InfoUSA; USDA listing of SNAP authorized retailers; Census Tract Boundaries, 2010 U.S. Census Bureau. |
| Limitations of Data Resources: | Evidence suggests that secondary data may only capture 55-68% of food outlets that truly exist in an area and store misclassification is also common. However, two independent data sources were used to reduce inaccuracies in store operational status and store misclassification. |

| | |
|---|---|
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-4 (Developmental): Increase the proportion of Americans who have access to a food retail outlet that sells a variety of foods that are encouraged by the Dietary Guidelines for Americans. |
| Related CDI Topic Area: | |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 7.1**
**Indicator Name: Farmers markets that accept WIC farmers market nutrition program coupons**

| | |
|---|---|
| Demographic Group: | Special Nutrition Program for Women, Infants, and Children (WIC) Enrollees. |
| Numerator: | Number of farmers markets that accept WIC farmers market nutrition program coupons. |
| Denominator: | Total number of farmers markets. |
| Measures of Frequency: | Percentage of farmers markets. |
| Time Period of Case Definition: | Current year. |
| Background: | Farmers markets are a mechanism for purchasing foods from local farms and can augment access to fruits and vegetables from typical retail stores or provide a retail venue for fruits and vegetables in areas lacking such stores. Increasing access to farmers markets includes increasing access to persons with lower household incomes who are participating in the WIC program. In 2009, 28.2% of farmers markets accepted WIC farmers market nutrition program coupons. |
| Significance: | Farmers markets that accept nutrition assistance program benefits, such as Supplemental Nutrition Assistance Program (SNAP), WIC, Farmers Market Nutrition Program (FMNP) coupons, and WIC Cash Value Vouchers (CVV), improve access to fruits and vegetables for individuals and families with lower incomes. |
| Limitations of Indicator: | None noted. |
| Data Resources: | United States Department of Agriculture, Agricultural Marketing Service. USDA National Farmers' Market Directory. |
| Limitations of Data Resources: | None noted. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Overarching Conditions; Reproductive Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 7.2**
**Indicator Name: Farmers markets that accept SNAP benefits**

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|---|---|
| Demographic Group: | Supplemental Nutrition Assistance Program (SNAP) participants. |
| Numerator: | The number of Farmers markets that accept SNAP benefits. |
| Denominator: | Total number of Farmers markets. |
| Measures of Frequency: | Percentage of Farmers markets. |
| Time Period of Case Definition: | Current year. |
| Background: | Farmers markets are a mechanism for purchasing foods from local farms and can augment access to fruits and vegetables from typical retail stores or provide a retail venue for fruits and vegetables in areas lacking such stores. Increasing access to farmers markets includes increasing access to persons with lower household incomes. |
| Significance: | Farmers markets that accept nutrition assistance program benefits, such as SNAP, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Farmers Market Nutrition Program (FMNP) coupons, and WIC Cash Value Vouchers (CVV), improve access to fruits and vegetables for individuals and families with lower incomes. |
| Limitations of Indicator: | None noted. |
| Data Resources: | United States Department of Agriculture, Agricultural Marketing Service. USDA National Farmers' Market Directory. |
| Limitations of Data Resources: | None noted. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Overarching Conditions |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 8**
**Indicator Name: Number of farmers markets per 100,000 residents**

| | |
|---|---|
| Demographic Group: | All residents. |
| Numerator: | The number of farmers markets. |
| Denominator: | Total population estimate divided by 100,000. |
| Measures of Frequency: | Number of farmers markets per 100,000 residents. |
| Time Period of Case Definition: | Current year. |
| Background: | Farmers markets are a mechanism for purchasing foods from local farms and can augment access to fruits and vegetables from typical retail stores or provide a retail venue for fruits and vegetables in areas lacking such stores. In 2009, a total of 1.7 farmers markets per 100,000 U.S. population were available. |
| Significance: | The number of farmers markets per 100,000 state residents provides a broad estimate of the availability of fruits and vegetables from farmers markets adjusted for variation in state population. |
| Limitations of Indicator: | None noted. |
| Data Resources: | United States Department of Agriculture, Agricultural Marketing Service. USDA National Farmers' Market Directory. |
| Limitations of Data Resources: | None noted. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Overarching Conditions |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 9.1**
**Indicator Name: Presence of regulations pertaining to serving fruit in early care and education settings**

| | |
|---|---|
| Demographic Group: | Children in child care ages 0–5 years. |
| Numerator: | The numerator for the U.S. measure is the number of states with child care regulations serving children in child care ages 0-5 years that support serving fruits of several varieties, especially whole fruits at each meal. (Note: For states with separate regulations for large and small homes and centers, language in all sets of regulations should fully include national guidelines.) Individual states will have a yes/no response to this indicator. |
| Denominator: | The denominator for the U.S. measure is 50 states. |
| Measures of Frequency: | The measure of frequency for the U.S. data is the percent of states with language that supports serving fruits of several varieties, especially whole fruits, in state child care regulations. Individual states will have a yes/no response to this indicator. |
| Time Period of Case Definition: | Current year. |
| Background: | In 2011, 8% of states had language that supported serving fruits of several varieties, especially whole fruits, at each meal in state child care regulations. |
| Significance: | Preventing Childhood Obesity in Early Care and Education Programs: Selected Standards from Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition (PCO) is a set of national standards based on evidenced based best practices in nutrition, physical activity, and screen time for all types of early care and education programs. Current research supports a diet based on a variety of nutrient dense foods which provide substantial amounts of essential nutrients. To ensure that child care programs are offering a variety of foods PCO recommends that children should be offered items from each food group, including eating a variety of fruit, especially whole fruits. |
| Limitations of Indicator: | Indicator does not capture compliance with regulation. |
| Data Resources: | Achieving a State of Healthy Weight: A National Assessment of Obesity Prevention Terminology in Child Care Regulations 2011; and CDC State Indicator Report on Fruits and Vegetables[1]. |
| Limitations of Data Resources: | There is much variability in the way states' documents are organized and the language used within the states' documents. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-1: Increase the number of States with nutrition standards for foods and beverages provided to preschool-aged children in child care. |
| Related CDI Topic Area: | Reproductive Health; School Health |


1. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. State Indicator Report on Fruits and Vegetables, 2013. http://www.cdc.gov/nutrition/downloads/State-Indicator-Report-Fruits-Vegetables-2013.pdf. Accessed June 5, 2013.

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 9.2**
**Indicator Name: Presence of regulations pertaining to serving vegetables in early care and education settings**

| | |
|---|---|
| Demographic Group: | Children in child care ages 0-5 years. |
| Numerator: | The numerator for the U.S. measure is the number of states with child care regulations serving children in child care ages 0-5 years that support serving vegetables, specifically dark green, orange, deep yellow and root vegetables at each meal. (Note: For states with separate regulations for large and small homes and centers, language in all sets of regulations should fully include national guidelines.) Individual states will have a yes/no response to this indicator. |
| Denominator: | The denominator for the U.S. measure is 50 states. |
| Measures of Frequency: | The measure of frequency for the U.S. data is the percentage of states with language that supports of serving vegetables, specifically dark green, orange, deep yellow and root vegetables in state child care regulations. Individual states will have a yes/no response to this indicator. |
| Time Period of Case Definition: | Current year. |
| Background: | In 2011, 8% of states had language supporting serving vegetables, specifically dark green, orange, deep yellow and root vegetables at each meal in child care regulations. |
| Significance: | Preventing Childhood Obesity in Early Care and Education Programs: Selected Standards from Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition (PCO) is a set of national standards based on evidenced based best practices in nutrition, physical activity, and screen time for all types of early care and education programs. Current research supports a diet based on a variety of nutrient dense foods which provide substantial amounts of essential nutrients. To ensure that child care programs are offering a variety of foods PCO recommends that children should be offered items from each food group, including dark green, orange, and deep yellow vegetables. |
| Limitations of Indicator: | Indicator does not capture compliance with regulation. |
| Data Resources: | Achieving a State of Healthy Weight: A National Assessment of Obesity Prevention Terminology in Child Care Regulations 2011; and CDC State Indicator Report on Fruits and Vegetables[1]. |
| Limitations of Data Resources: | There is much variability in the way states' documents are organized and the language used within the states' documents. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-1: Increase the number of States with nutrition standards for foods and beverages provided to preschool-aged children in child care. |
| Related CDI Topic Area: | Reproductive Health; School Health |


1. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. State Indicator Report on Fruits and Vegetables, 2013. http://www.cdc.gov/nutrition/downloads/State-Indicator-Report-Fruits-Vegetables-2013.pdf. Accessed June 5, 2013.

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 10**
**Indicator Name: No leisure-time physical activity among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years |
| Numerator: | Respondents who answered, "No", to the following question: "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?" |
| Denominator: | Number of adults aged ≥18 years who report any or no physical activity within the previous month (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence (crude and age-adjusted) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past month. |
| Background: | The *2008 Physical Activity Guidelines for Americans* states that all adults should avoid inactivity. In 2011, nationwide (states and DC) 26.2 percent of adults participated in no leisure-time physical activity in the past month. |
| Significance: | Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk of: early death, coronary heart disease, stroke, high blood pressure, Type 2 diabetes, breast and colon cancer, falls, and depression. The *2008 Guidelines* state that some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits. |
| Limitations of Indicator: | Indicator captures information only about non-occupational physical activity. The National Health Interview Survey is the national data source for Healthy People 2020, and BRFSS is the state data source. The questions from each data source and the survey administration are different, so data cannot be compared. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-1: Reduce the proportion of adults who engage in no leisure-time physical activity. |
| Related CDI Topic Area: | Cancer; Cardiovascular Disease; Diabetes; Older Adults |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 11.1**
**Indicator Name: Meeting aerobic physical activity guidelines for substantial health benefits among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Number of adults aged ≥18 years who reported at least 150 minutes per week of moderate-intensity physical activity, or at least 75 minutes per week of vigorous-intensity physical activity, or a combination of moderate-intensity and vigorous-intensity physical activity (multiplied by two) totaling at least 150 minutes per week. |
| Denominator: | Number of adults aged ≥18 years who report any or no moderate or vigorous physical activity within the previous month (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence (crude and age-adjusted) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past month. |
| Background: | The *2008 Physical Activity Guidelines for Americans* states that for substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous intensity aerobic activity. In 2011, nationwide (states and DC) 51.7 percent of adults participated in 150 minutes or more of moderate-intensity equivalent aerobic physical activity per week. |
| Significance: | Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk of: early death, coronary heart disease, stroke, high blood pressure, Type 2 diabetes, breast and colon cancer, falls, and depression. |
| Limitations of Indicator: | Indicator captures information only about non-occupational physical activity. The questions only collect information about the two types of physical activities that the respondent spent the most time doing during the preceding month. The National Health Interview Survey is the national data source for Healthy People 2020, and BRFSS is the state data source. The questions from each data source and the survey administration are different, so data cannot be compared. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA–2: Increase the proportion of adults who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity. Healthy People 2020 Objective PA-2.1: Increase the proportion of adults who engage in aerobic physical activity of at least moderate intensity for at least 150 minutes/week, or 75 minutes/week of vigorous intensity, or an equivalent combination. |
| Related CDI Topic Area: | Cancer; Cardiovascular Disease; Diabetes; Older Adults |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 11.2**
**Indicator Name: Meeting aerobic physical activity guidelines for substantial health benefits and for muscle-strengthening activity among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Number of adults aged ≥18 years who reported:<br>● At least 150 minutes per week of moderate-intensity physical activity, or at least 75 minutes per week of vigorous-intensity physical activity, or a combination of moderate-intensity and vigorous-intensity physical activity (multiplied by two) totaling at least 150 minutes per week; and<br>● Muscle-strengthening activities on 2 or more days of the week. |
| Denominator: | Number of adults aged ≥18 years who report any or no moderate or vigorous physical activity and who report any or no muscle-strengthening activity within the previous month (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence (crude and age-adjusted) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past month. |
| Background: | The *2008 Physical Activity Guidelines for Americans* state that for substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous intensity aerobic activity. In addition, the *2008 Guidelines* state that adults should do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week. In 2011, nationwide (states and DC) 21.0 percent of adults participated in 150 minutes or more of moderate-intensity equivalent aerobic physical activity per week and performed muscle-strengthening activities on 2 or more days of the week. |
| Significance: | Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk of early death, coronary heart disease, stroke, high blood pressure, Type 2 diabetes, breast and colon cancer, falls, and depression. Muscle-strengthening activities provide additional benefits not found with aerobic activity. The benefits of muscle-strengthening activity include increased bone strength and muscular fitness. Muscle-strengthening activities can also help maintain muscle mass during a program of weight loss. |
| Limitations of Indicator: | Indicator captures information only about non-occupational physical activity. The questions assessing aerobic physical activity only collect information about the two types of physical activities that the respondent spent the most time doing during the preceding month. The question assessing muscle-strengthening activities does not specify the intensity nor does it specify that the activities should involve all major muscle groups. The National Health Interview Survey is the national data source for Healthy People 2020, and BRFSS is the state data source. The questions from each data source and the survey administration are different, so data cannot be compared. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |

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| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-2: Increase the proportion of adults who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity.<br>Healthy People 2020 Objective PA–2.4: Increase the proportion of adults who meet the objectives for aerobic physical activity and for muscle-strengthening activity. |
| Related CDI Topic Area: | Cancer; Cardiovascular Disease; Diabetes; Older Adults |

**Indicator Number: 11.3**
**Indicator Name: Meeting aerobic physical activity guidelines for additional and more extensive health benefits among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Number of adults aged ≥18 years who reported at least 300 minutes per week of moderate-intensity physical activity, or at least 150 minutes per week of vigorous-intensity physical activity, or a combination of moderate-intensity and vigorous-intensity physical activity (multiplied by two) totaling at least 300 minutes per week. |
| Denominator: | Number of adults aged ≥18 years who report any or no moderate or vigorous physical activity within the previous month (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence (crude and age-adjusted) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past month. |
| Background: | The *2008 Physical Activity Guidelines for Americans* states that for substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous intensity aerobic activity. For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. In 2011, nationwide (states and DC) 32.5 percent of adults participated in 300 minutes or more of moderate-intensity equivalent aerobic physical activity per week. |
| Significance: | Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk of: early death, coronary heart disease, stroke, high blood pressure, Type 2 diabetes, breast and colon cancer, falls, and depression. |
| Limitations of Indicator: | Indicator captures information only about non-occupational physical activity. The questions only collect information about the two types of physical activities that the respondent spent the most time doing during the preceding month. The National Health Interview Survey is the national data source for Healthy People 2020, and BRFSS is the state data source. The questions from each data source and the survey administration are different, so data cannot be compared. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-2.2: Increase the proportion of adults who engage in aerobic physical activity of at least moderate intensity for more than 300 minutes/week, or more than 150 minutes/week of vigorous intensity, or an equivalent combination. |
| Related CDI Topic Area: | Cancer; Cardiovascular Disease; Diabetes; Older Adults |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 11.4**
**Indicator Name: Meeting aerobic physical activity guidelines among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12 |
| Numerator: | Students in grades 9–12 that answered, "7 days", to the following question: "During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spend in any kind of physical activity that increases your heart rate and makes you breathe hard some of the time.)" |
| Denominator: | Students in grades 9–12 who report doing any kind of physical activity that increased their heart rate and made them breathe hard some of the time for a total of at least 60 minutes/day on 0 or more days during the 7 days before the survey. |
| Measures of Frequency: | Biennial (odd years) prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 7 days. |
| Background: | The *2008 Physical Activity Guidelines for Americans* states that children and adolescents should do 60 minutes (1 hour) or more of physical activity daily. In 2011, 28.7% of high school students had been physically active doing any kind of physical activity that increased their heart rate and made them breathe hard some of the time for a total of least 60 minutes per day on each of the 7 days before the survey (i.e., physically active at least 60 minutes on all 7 days). |
| Significance: | Among children and adolescents, physical activity can: improve bone health, improve cardiorespiratory and muscular fitness, decrease levels of body fat, and reduce symptoms of depression. Physical activity patterns established during adolescence might extend into adulthood and affect future chronic disease risk. |
| Limitations of Indicator: | The indicator may not be measuring the accurate amount of physical activity because the respondent must calculate each day's activities and then consider this across the week. Also, the indicator does not account for the metabolic and physiologic needs of growing children, which may vary according to intensity of exercise, type of exercise performed, and body type. The indicator also does not capture the full guideline for children and adolescents which includes the following specifications:<br>● *Aerobic:* Most of the ≥60 minutes a day should be either moderate- or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week.<br>● *Muscle-strengthening:* As part of their ≥60minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week.<br>● *Bone-strengthening:* As part of their ≥60 minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-3: Increase the proportion of adolescents who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity.<br>Healthy People 2020 Objective PA-3.1: Increase the proportion of adolescents who meet current Federal physical activity guidelines for aerobic physical activity. |

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| Related CDI Topic Area: | School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 12.1**
**Indicator Name: Participation in daily school physical education classes among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12. |
| Numerator: | Respondents who answered, "5 days", to the following question: "In an average week in school when you go to school, how many days do you attend physical education (PE) classes?" |
| Denominator: | Students surveyed in grades 9–12. Respondents with missing data were excluded. |
| Measures of Frequency: | Biennial (odd years) prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | An average week in school. |
| Background: | Physical education is an effective strategy to increase physical activity among young people. In 2011, 31.5% of students went to physical education classes 5 days in an average week when they were in school (i.e., attended physical education classes daily). |
| Significance: | Among children and adolescents, physical activity can improve bone health, improve cardiorespiratory and muscular fitness, decrease levels of body fat, and reduce symptoms of depression. Physical activity patterns established during adolescence might extend into adulthood and affect future chronic disease risk. The *2008 Physical Activity Guidelines for Americans* states that children and adolescents should do 60 minutes (1 hour) or more of physical activity daily. |
| Limitations of Indicator: | The indicator does not capture time spent in physical education class nor does it capture time spent physically active in class. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-4: Increase the proportion of the Nation's public and private schools that require daily physical education for all students.<br>Healthy People 2020 Objective PA-4.3: Increase the proportion of the Nation's public and private senior high schools that require daily physical education for all students.<br>Healthy People 2020 Objective PA-5: Increase the proportion of adolescents who participate in daily school physical education. |
| Related CDI Topic Area: | School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 12.2**
**Indicator Name: Soda consumption among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9-12. |
| Numerator: | Students in grades 9–12 who report consuming 1 or more cans, bottles, or glasses of soda per day. |
| Denominator: | Students in grades 9–12 who report consuming cans, bottles, or glasses, including zero, per day (excluding unknowns and refusals). |
| Measures of Frequency: | Biennial (odd years) prevalence per day with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 7 days. |
| Background: | In 2011, 27.8% of 9th to 12th graders drank one or more soda or pop per day. |
| Significance: | Calorically-sweetened beverage intake has been associated with obesity, dental caries,4 type 2 diabetes, displacement of nutrient-rich foods (e.g., milk), disruptive behaviors, and poor mental health (e.g., psychological distress). It is one of the target behaviors that CDC has designated as a high priority. |
| Limitations of Indicator: | It does not include all sources of calorically-sweetened beverages. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with data from all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Diabetes; Oral Health; School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 13.1**
**Indicator Name: Middle and high schools that allow community-sponsored use of physical activity facilities by youth outside of normal school hours**

| | |
|---|---|
| Demographic Group: | Public middle and high schools. |
| Numerator: | Number of public middle and high schools that had a, "yes", response to the following question: "Outside of school hours or when school is not in session, do children or adolescents use any of this school's physical activity or athletic facilities for community-sponsored sports teams, classes or lessons?" |
| Denominator: | All public middle and high schools surveyed. |
| Measures of Frequency: | Percentage with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current year. |
| Background: | Schools can promote physical activity among students by allowing community-sponsored sports teams or physical activity programs to use school facilities outside of school hours or when school is not in session. In 2010, the percentage of schools in which children or adolescents use any of the school's indoor physical activity or athletic facilities for community-sponsored physical activity classes or lessons outside of school hours or when school is not in session ranged from 54.8% to 96.8% across states (median: 81.3%). |
| Significance: | Among children and adolescents, physical activity can improve bone health, improve cardiorespiratory and muscular fitness, decrease levels of body fat, and reduce symptoms of depression. Physical activity patterns established during adolescence might extend into adulthood and affect future chronic disease risk. |
| Limitations of Indicator: | As with any study that relies on self-report, it is possible that the data reflect some amount of over-reporting or underreporting and actual lack of knowledge. |
| Data Resources: | School Health Profiles School Principal Survey |
| Limitations of Data Resources: | Data presented in this report apply only to public middle schools and high schools and are limited to these school populations. As with all sample surveys, data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). Survey is not conducted annually or biennially. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-10: Increase the proportion of the Nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours (that is, before and after the school day, on weekends, and during summer and other vacations). |
| Related CDI Topic Area: | School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 13.2**
**Indicator Name: Middle schools and high schools that allow students to purchase soda or fruit drinks**

| | |
|---|---|
| Demographic Group: | Middle and high school children in each state. |
| Numerator: | Number of middle and high schools in each state that allow students to purchase soda pop or fruit drinks that are not 100% juice (weighted data for states with ≥ 70% response rate). |
| Denominator: | Number of middle and high schools in each state (weighted data by states with ≥70% response rate). |
| Measures of Frequency: | Percentage based on number of schools in each state who responded. Because School Health Profiles estimates are not available nationally, U.S. National data is the median of the state estimates. |
| Time Period of Case Definition: | Current year. |
| Background: | The School Health Profiles School Principal Survey includes a question regarding specific food items available as competitive foods: "Can students purchase each of the following snack foods or beverages from vending machines or at the school store, canteen, or snack bar?" The percentage presented is based upon the number of schools in each state who responded "Yes" to response category "Soda pop or fruit drinks that are not 100% juice." States with estimates are those with weighted data (≥ 70% response rate). Because national estimates are not available for the Profiles survey, the U.S. data presented is the median of the state estimates. In 2010, the median for states with ≥ 70% response rate was 29.8%. |
| Significance: | Calorically-sweetened beverage intake has been associated with obesity, dental caries, type 2 diabetes, displacement of nutrient-rich foods (e.g., milk), disruptive behaviors, and poor mental health (e.g., psychological distress). It is one of the target behaviors that CDC's Division of Nutrition, Physical Activity, and Obesity has designated as a high priority. These data are included as part of an aggregated indicator reported in the School Health Profiles summary on competitive foods and was used as an indicator in the Children's Food Environment Indicator Report. |
| Limitations of Indicator: | It does not include data on access outside of the school setting. |
| Data Resources: | School Heath Profiles Survey School Principal Survey. State reports only include those with >70% response rate; data are weighted. |
| Limitations of Data Resources: | National data (other than median of state estimates) are not available. Data presented in this report apply only to public middle schools and high schools and are limited to these school populations. As with all sample surveys, data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). Survey is not conducted annually or biennially. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-2.1: Increase the proportion of schools that do not sell or offer calorically-sweetened beverages to students. |
| Related CDI Topic Area: | Diabetes; Oral Health, School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 13.3**
**Indicator Name: Middle schools and high schools that allow students to purchase sports drinks**

| | |
|---|---|
| Demographic Group: | Middle and high school children in each state. |
| Numerator: | Number of middle and high schools in each state that allow students to purchase sports drinks (weighted data for states with ≥ 70% response rate). |
| Denominator: | Number of middle and high schools in each state (weighted data by states with ≥ 70% response rate). |
| Measures of Frequency: | Weighted percentage based on number of schools in each state who responded. Because School Health Profiles estimates are not available nationally, U.S. National data is the median of the state estimates. |
| Time Period of Case Definition: | Current year. |
| Background: | The School Health Profiles School Principal Survey includes a question regarding specific food items available as competitive foods: "Can students purchase each of the following snack foods or beverages from vending machines or at the school store, canteen, or snack bar?" The percentage presented is based upon the number of schools in each state who responded "Yes" to response category "Sports drinks, such as Gatorade." States with estimates are those with weighted data (≥ 70% response rate). Because national estimates are not available for the Profiles survey, the data presented in the "U.S. National" row is the median of the state estimates. In 2010, the median for states with ≥ 70% response rates was 50.7%. |
| Significance: | Calorically-sweetened beverage intake has been associated with obesity, dental caries,[4] type 2 diabetes, displacement of nutrient-rich foods (e.g., milk), disruptive behaviors, and poor mental health (e.g., psychological distress). It is one of the target behaviors that CDC's Division of Nutrition, Physical Activity, and Obesity has designated as a high priority. These data are included as part of an aggregated indicator reported in the School Health Profiles summary on competitive foods and was used as an indicator in the Children's Food Environment Indicator Report. |
| Limitations of Indicator: | It does not include data on access outside of the school setting. |
| Data Resources: | School Heath Profiles Survey School Principal Survey. State reports only include those with >70% response rate; data are weighted. |
| Limitations of Data Resources: | National data (other than the median of state estimates) are not available. Data presented in this report apply only to public middle schools and high schools and are limited to these school populations. As with all sample surveys, data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). The survey is not implemented annually or biennially. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-2.1: Increase the proportion of schools that do not sell or offer calorically-sweetened beverages to students. |
| Related CDI Topic Area: | Diabetes; Oral Health, School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 13.4**
**Indicator Name: Middle schools and high schools that offer less healthy foods as competitive foods**

| | |
|---|---|
| Demographic Group: | Middle and high school children in each state |
| Numerator: | Number of middle and high schools in each state that offer less healthy foods as competitive foods (weighted data for states with ≥70% response rate). |
| Denominator: | Number of middle and high schools in each state (weighted data by states with ≥70% response rate). |
| Measures of Frequency: | Percentage based on number of schools in each state who responded. Because School Health Profiles estimates are not available nationally, U.S. National data is the median of the state estimates. |
| Time Period of Case Definition: | Current year. |
| Background: | The School Health Profiles survey includes a question regarding specific food items available as competitive foods: "Can students purchase each of the following snack foods or beverages from vending machines or at the school store, canteen, or snack bar?" The percentage presented is based upon the number of schools in each state who responded "Yes" to one or more of the following response categories: "Chocolate candy", "Other kinds of candy", "Salty snacks that are not low in fat, such as regular potato chips", "Cookies, crackers, cakes, pastries, or other baked goods that are not low in fat", "Ice cream or frozen yogurt that is not low in fat", or "Water ices or frozen slushes that do not contain juice". In 2008, the median for states with ≥70% response rates was 51.4%. |
| Significance: | Less healthy foods are frequently high in calories, fat, sugar, or salt and excess intake of these can potentially lead to the development of risk factors for cardiovascular disease, diabetes, other chronic diseases, and/or obesity. The School Health Profiles Survey includes this indicator in their annual reports |
| Limitations of Indicator: | It does not include data on access outside of the school setting. |
| Data Resources: | School Heath Profiles Survey School Principal Survey. State reports only include those with >70% response rate; data are weighted. |
| Limitations of Data Resources: | National data (other than the median of state estimates) are not available. Data presented in this report apply only to public middle schools and high schools and are limited to these school populations. As with all sample surveys, data might be subject to systematic error resulting from non-coverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). The survey is not implemented annually or biennially. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-2: Increase the proportion of schools that offer nutritious food and beverages outside of school meals. |
| Related CDI Topic Area: | Cardiovascular Disease; Diabetes; Oral Health; School Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 14.1**
**Indicator Name: Presence of regulations pertaining to screen time in early care and education settings**

| | |
|---|---|
| Demographic Group: | Children in child care ages 0-5 years. |
| Numerator: | The numerator for the U.S. measure is the number of states with child care regulations that support limiting screen time. Individual states will have a yes/no response to this indicator. |
| Denominator: | The denominator for the U.S. measure is 50 States. |
| Measures of Frequency: | The measure of frequency for the U.S. data is the percent of states with child care regulations. Individual states will have a yes/no response to this indicator. |
| Time Period of Case Definition: | Annual. |
| Background: | In 2006, 65% percent of center-based programs and 11% of home-based programs watched no television during the early care and education day. |
| Significance: | Excess screen time is associated with language delay among Infants; and attention problems and less healthy diets, and obesity-related behaviors among children. *Preventing Childhood Obesity in Early Care and Education Programs: Selected Standards from Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition (PCO)* is a set of national standards based on evidenced based best practices in nutrition, physical activity, and screen time for all types of early care and education programs. Infants and children should have positive interactions with people and not engaged in screen time that takes away from social interaction. To ensure that child care programs are promoting the healthy development of children PCO recommends that television viewing be discouraged for children younger than age two and screen time for children over the age to two to no more than one to two hours of quality programming per twenty-four period. |
| Limitations of Indicator: | Does not include screen time outside of the child care setting. Also, this indicator does not capture compliance with regulation. |
| Data Resources: | Achieving a State of Healthy Weight: A National Assessment of Obesity Prevention Terminology in Child Care Regulations 2011; and CDC State Indicator Report on Physical Activity[1]. |
| Limitations of Data Resources: | There is much variability in the way states' documents are organized and the language used within the states' documents. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-8.2: Increase the proportion of children and adolescents 2 years old through 12th grade who view television, videos, or play video games for no more than 2 hours a day. |
| Related CDI Topic Area: | Reproductive Health; School Health |

1. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. State Indicator Report on Physical Activity, 2010. Atlanta, GA: U.S. Department of Health and Human Services, 2010. http://www.cdc.gov/physicalactivity/downloads/PA_State_Indicator_Report_2010.pdf. Accessed June 5, 2013.

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 14.2**
**Indicator Name: Television viewing among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9-12. |
| Numerator: | Students in grades 9–12 who report watching television for 3 or fewer hours on an average school day. |
| Denominator: | Students in grades 9–12 who report watching television for any number of hours, including zero, on an average school day (excludes missing data). |
| Measures of Frequency: | Biennial (odd year) prevalence on an average school day with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Average school day. |
| Background: | In 2011, 32.4% of students in grades 9–12 watched television for 3 or more hours on an average school day. |
| Significance: | Excessive television viewing is associated with obesity. Although data are inconsistent as to whether TV viewing reduces physical activity, there is evidence that TV viewing time is positively associated with reported intakes of high fat foods, and TV viewing during mealtime is associated with lower consumption of fruits and vegetables and higher consumption of salty snacks and soda. Food advertising/commercials can affect food choices and eating while viewing TV can reduce awareness of satiety cues. TV viewing as a potential risk factor for obesity is of public health importance: as it increases the development of risk factors for cardiovascular disease and diabetes. |
| Limitations of Indicator: | Indicator does not capture time spent with computers and hand-held devices; however, based on Kaiser Family Foundation data, of the approximate 7.5 hours of screen time per day for 8-18 year-olds, 4.5 hours is TV viewing. Also, indicator intervals are not aligned with the American Academy of Pediatrics guidelines of 2 hours or less of screen time per day, so cannot survey results cannot be compared to them. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with data from all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-8.2: Increase the proportion of children and adolescents aged 2 years through 12$^{th}$ grade who view television, videos, or play video games for no more than 2 hours a day. |
| Related CDI Topic Area: | Cardiovascular Disease; Diabetes; Nutrition, Physical Activity, and Weight Status |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 14.3**
**Indicator Name: Computer use among high school students**

| | |
|---|---|
| Demographic Group: | Students in grades 9–12. |
| Numerator: | Students in grades 9–12 who report playing video or computer games or using a computer for 3 or more hours/day on an average school day for something that was not school work. |
| Denominator: | Students in grades 9–12 who report playing video or computer games or using a computer for any number of hours, including zero, on an average school day for something that was not school work (excludes missing data). |
| Measures of Frequency: | Biennial (odd years) prevalence on an average school day with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Average school day. |
| Background: | In 2011, 31.1% of students in grades 9–12 played video or computer games or used a computer for 3 or more hours on an average school day. |
| Significance: | Research findings examining the association between screen media use such as videotapes/ video games/computers and obesity show mixed results. One study among preschoolers found a positive association, whereas 3 other studies found no significant statistical association. Use of these screen media may or may not be a sedentary activity. As with TV viewing, these media may involve exposure to food advertising which can affect food choices, and, if students eating while viewing videotapes, for example, they may reduce their awareness of satiety cues. As the use of advertising becomes more prevalent in these screen media, the potential for their positive association with obesity increases, so it would seem prudent to discourage excessive use. Obesity is of public health importance: it increases the development of risk factors for cardiovascular disease and diabetes. |
| Limitations of Indicator: | Indicator does not capture time spent viewing TV or hand-held devices. However, based on Kaiser Family Foundation data, of the approximate 7.5 hours of screen time viewed per day by 8-18 year-olds, 2.75 hours is computer and video game time. Also, indicator intervals are not aligned with the American Academy of Pediatrics guidelines of 2 hours or less of screen time per day, so survey results cannot be compared to them. |
| Data Resources: | Youth Risk Behavior Surveillance System (YRBSS). |
| Limitations of Data Resources: | As with data from all self-reported sample surveys, YRBSS data might be subject to systematic error resulting from noncoverage (e.g., no participation by certain schools), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective PA-8.3.3: Increase the proportion of adolescents in grades 9 through 12 who use a computer or play computer games outside of school (for non-school work) for no more than 2 hours a day. |
| Related CDI Topic Area: | Cardiovascular Disease; Diabetes; Nutrition, Physical Activity, and Weight Status |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 15**
**Indicator Name: Infants breastfed at 6 months**

| | |
|---|---|
| Demographic Group: | Infants. |
| Numerator: | Number of caregivers of children born in a cohort year who indicate their child was breastfed any amount at 6 months of age |
| Denominator: | Number of children aged 19-35 months born in the same cohort year. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | At 6 months of age. |
| Background: | Among U.S. infants born in 2008, 47% were breastfed at 6 months and 16% were exclusively breastfed for 6 months; 26% were breastfed for 12 months. |
| Significance: | Breastfeeding is associated with health benefits for mother and infant. Mothers who breastfeed have a reduced risk of developing breast and ovarian cancer, and infants who are breastfed may be less likely to experience a variety of infections and to develop chronic conditions, including obesity during childhood. The American Academy of Pediatrics recommends exclusive breastfeeding for about the first six months of life with continued breastfeeding for at least the first year. |
| Limitations of Indicator: | No limitations noted. |
| Data Resources: | National Immunization Survey, CDC, NCIRD, NCHS. Breastfeeding estimates are released by CDC's Division of Nutrition, Physical Activity, and Obesity (DNPAO) each August. |
| Limitations of Data Resources: | As with data from all self-reported sample surveys, National Immunization Survey data might be subject to systematic error resulting from noncoverage (e.g., e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).<br>Although socio-demographic and state specific rates are available each year on the national sample, sample size per state does not permit for calculation of yearly rates by socio-demographic strata within states. However, CDC's DNPAO combines multiple birth years to report socio-demographic specific rates within a state. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective MICH-21.2: Increase the proportion of infants who are breastfed at 6 months. |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 16**
**Indicator Name: Receiving formula supplementation within the first 2 days of life among breastfed infants**

| | |
|---|---|
| Demographic Group: | Infants. |
| Numerator: | Breastfed infants who received formula supplementation before 2 days of life. |
| Denominator: | Infants born during the specified year and breastfeeding at 2 days of age. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | At 2 days of age. |
| Background: | Among U.S. infants born in 2008, 25% received formula before 2 days of age. Furthermore, 47% were breastfed for 6 months and 16% were exclusively breastfed for 6 months; 26% were breastfed for 12 months. |
| Significance: | Supplementation of newborn breastfed infants with formula has an important influence on breastfeeding after hospital discharge. The Joint Commission, an organization that accredits hospitals, recently added a performance measure for which hospitals report the proportion of newborns who leave the hospital having had nothing but breast milk. |
| Limitations of Indicator: | No limitations noted. |
| Data Resources: | National Immunization Survey, CDC, NCIRD, NCHS. Estimates are released by CDC's Division of Nutrition, Physical Activity, and Obesity (DNPAO) each August. |
| Limitations of Data Resources: | As with data from all self-reported sample surveys, National Immunization Survey data might be subject to systematic error resulting from noncoverage (e.g., e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).<br>Although socio-demographic and state specific rates are available each year on the national sample, sample size per state does not permit for calculation of yearly rates by socio-demographic strata within states. However, CDC's DNPAO combines multiple birth years to report socio-demographic specific rates within a state. These estimates will be released on the DNPAO website in 2012. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective MICH-23: Reduce the proportion of breastfed newborns who receive formula supplementation within the first two days of life. |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 17**
**Indicator Name: Mean maternity practices in infant nutrition and care (mPINC) score**

| | |
|---|---|
| Demographic Group: | Infants. |
| Numerator: | Sum of facility-specific scores for facilities providing maternity care in the state. |
| Denominator: | Number of state facilities that provide maternity care at birth participating in the survey. |
| Calculation: | mPINC scores represent points earned by the facility for reported maternity practices in infant nutrition and care out of a possible 100 points |
| Measures of Frequency: | Biennial, mean mPINC score. |
| Time Period of Case Definition: | Previous year of care. |
| Background: | The mPINC Survey initiated by CDC, measures breastfeeding-related maternity care practices at intrapartum care facilities across the US and compares the extent to which these practices vary by state. Thus, the state mPINC score represents the extent to which each state's birth facilities provide maternity care that supports breastfeeding. In 2011, the mean mPINC score for the nation was 70.0. |
| Significance: | Breastfeeding is associated with health benefits for mother and infant. The American Academy of Pediatrics recommends exclusive breastfeeding for about the first six months of life with continued breastfeeding for at least the first year. For women who plan to breastfeed, the hospital experience is critical because experiences and support during the first hours and days after birth influence their later ability to continue breastfeeding. In 1991, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) developed the Baby-Friendly Hospital Initiative, the core of which is the Ten Steps to Successful Breastfeeding. These evidence-based steps outline best practices in hospital settings to help mothers initiate and continue breastfeeding, thus increasing exclusivity and duration of breastfeeding well beyond the hospital stay. The American Academy of Pediatrics endorsed the Ten Steps to Successful Breastfeeding in 2009 and the White House Task Force on Childhood Obesity Report to the President recommended improving maternity care practices in 2010. |
| Limitations of Indicator: | Data are self-reported by a key informant at each hospital. |
| Data Resources: | Maternity Practices in Infant Nutrition and Care (mPINC) Survey, CDC. CDC's mPINC is a biennial survey of all U.S. facilities that provide maternity care at birth. Hospital-specific scores are released every other year to each participating hospital. A mean national mPINC score and mean mPINC scores for all U.S. states are released every other year (odd years) on the CDC Breastfeeding Report Card. |
| Limitations of Data Resources: | No limitations noted. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 18**
**Indicator Name: Live births occurring at Baby Friendly Facilities**

| | |
|---|---|
| Demographic Group: | Infants. |
| Numerator: | Number of annual live births occurring at facilities designated as Baby Friendly. |
| Denominator: | Number of annual live births. |
| Measures of Frequency: | Annual percentage of live births. |
| Time Period of Case Definition: | Current year. |
| Background: | From June 2011 to June 2012, an estimated 6.22% of infants were born in facilities designated as Baby Friendly. |
| Significance: | Breastfeeding is associated with health benefits for mother and infant. The American Academy of Pediatrics recommends exclusive breastfeeding for about the first six months of life with continued breastfeeding for at least the first year. For women who plan to breastfeed, the hospital experience is critical because experiences and support during the first hours and days after birth influence their later ability to continue breastfeeding. In 1991, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) developed the Baby-Friendly Hospital Initiative to encourage and recognize hospitals and birthing centers that offer an optimal level of care for lactation based on the WHO/UNICEF Ten Steps to Successful Breastfeeding for Hospitals. These evidence-based steps outline best practices in hospital settings to help mothers initiate and continue breastfeeding, thus increasing exclusivity and duration of breastfeeding well beyond the hospital stay. The American Academy of Pediatrics endorsed the Ten Steps to Successful Breastfeeding in 2009 and the White House Task Force on Childhood Obesity Report to the President recommended improving maternity care practices in 2010. |
| Limitations of Indicator: | No limitations noted. |
| Data Resources: | CDC CDC's Division of Nutrition, Physical Activity, and Obesity (DNPAO) Breastfeeding Report Card. |
| Limitations of Data Resources: | Not all states may be represented. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective MICH-24: Increase the proportion of live births that occur in facilities that provide recommended care for lactating mothers and their babies. |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 19**
**Indicator Name: State child care regulation supports onsite breastfeeding**

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|---|---|
| Demographic Group: | Infants and Young Children |
| Numerator: | Has regulation to support onsite breastfeeding at child care facilities |
| Denominator: | 50 States |
| Calculation: | Indicator is defined as whether or not all child care facilities (center and home based) have regulation to support onsite breastfeeding. State scores were obtained from appropriate fluids rating (1A1) as determined by the National Resource Center for Health and Safety in Child Care and Early Education, which categorized state regulation as fully supportive of onsite breastfeeding with a score of 4. States with a score of 4 were categorized as "Yes," and any scores less than 4 were categorized as "No." |
| Measures of Frequency: | Annual. |
| Time Period of Case Definition: | Current year. |
| Background: | In 2011, only six U.S. states report child care regulation to support onsite breastfeeding. |
| Significance: | Breastfeeding is associated with health benefits for mother and infant. Mothers who breastfeed have a reduced risk of developing breast and ovarian cancer, and infants who are breastfed are less likely to experience a variety of infections and to develop chronic conditions, including obesity during childhood. The American Academy of Pediatrics recommends exclusive breastfeeding for about the first six months of life with continued breastfeeding for at least the first year. In the US, many infants are routinely cared for by someone other than a parent. About half of these infants attend child care centers; the other half spend time in a variety of home-based settings including licensed family child care homes or the home of a family member, friend, or neighbor. Thus, child care facilities – both family child care homes and child care centers – play an important role in supporting breastfeeding among mothers whose infants are cared for in these facilities. |
| Limitations of Indicator: | The indicator does not measure other aspects of child care support for breastfeeding. |
| Data Resources: | National Resource Center for Health and Safety in Child Care and Early Education, University of Colorado Denver. 2011. National Resource Center for Health and Safety in Child Care and Early Education: Achieving a State of Healthy Weight: A National Assessment of Obesity Prevention Terminology in Child Care Regulations 2011. Aurora, CO. |
| Limitations of Data Resources: | The data included in the assessment is of established child care regulations only for the year of assessment. There is much variability in the way states' documents are organized and the language used within the states' documents. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Nutrition, Physical Activity, and Weight Status**
**Indicator Number: 20**
**Indicator Name: Presence of regulations pertaining to avoiding sugar in early care and education settings**

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|---|---|
| Demographic Group: | States serving children in child care ages 0-5 years. |
| Numerator: | States with child care regulations serving children in child care ages 0-5 years that support avoiding sugar including concentrated sweets, such as candy, sodas, sweetened drinks, fruit nectars, and flavored milk. (Note: For states with separate regulations for large and small homes and centers, language in all sets of regulations should fully include national guidelines.) |
| Denominator: | 50 States<br>Note: The numerator and denominator above define the indicator for the United States data. Individual states will have a yes/no response to this indicator. |
| Measures of Frequency: | Percent of states with language that supports avoiding sugar including concentrated sweets, such as candy, sodas, sweetened drinks, fruit nectars, and flavored milk. |
| Time Period of Case Definition: | Current year. |
| Background: | In 2011, 20% of states had language that supported avoiding sugar including concentrated sweets, such as candy, sodas, sweetened drinks, fruit nectars, and flavored milk in child care regulations. |
| Significance: | *Preventing Childhood Obesity in Early Care and Education Programs: Selected Standards from Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition* (PCO) is a set of national standards based on evidenced based best practices in nutrition, physical activity, and screen time for all types of early care and education programs. Current research supports a diet based on a variety of nutrient dense foods which provide substantial amounts of essential nutrients. To ensure that child care programs are offering a variety of foods PCO recommends that children should be offered items from each food group and avoid concentrated sweets such as candy, sodas, sweetened drinks, fruit nectars, and flavored milk. |
| Limitations of Indicator: | Indicator does not capture compliance with regulation. |
| Data Resources: | Achieving a State of Healthy Weight: A National Assessment of Obesity Prevention Terminology in Child Care Regulations 2011. |
| Limitations of Data Resources: | There is much variability in the way states' documents are organized and the language used within the states' documents. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective NWS-1: Increase the number of States with nutrition standards for foods and beverages provided to preschool-aged children in child care. |
| Related CDI Topic Area: | Diabetes; Oral Health; Reproductive Health |

**Indicator Group: Older Adults**
**Indicator Number: 1**
**Indicator Name: Hospitalization for hip fracture among Medicare-eligible persons aged ≥ 65 years**

| | |
|---|---|
| Demographic Group: | Medicare-eligible resident persons aged ≥65 years |
| Numerator: | Hospitalizations with an International Classification of Diseases (ICD)-9-CM code 820 (search all diagnostic fields) among Medicare-eligible persons aged ≥ 65 years among residents during a calendar year. |
| Denominator: | Residents aged ≥65 years who were eligible for Medicare Part A benefits on July 1 of the calendar year, excluding members of health maintenance organizations. |
| Measures of Frequency: | Annual number of hospitalizations. Annual hospitalization rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Approximately 300,000 hip fractures occur each year in the United States. In 2003, the hip fracture rate for women was 85% higher than for men. Approximately 10 million U.S. residents have osteoporosis. |
| Significance: | Hip fracture is the most serious consequence of osteoporosis. The risk of osteoporosis and its complications might be reduced through physical activity, proper nutrition (i.e., adequate calcium and vitamin D intake through food or supplementation), and pharmacologic therapy. |
| Limitations of Indicator: | Hip fracture is a proxy measure for osteoporosis. Although 80%–90% of hip fractures are associated with osteoporosis, all hip fractures are not related to osteoporosis. Because osteoporosis is a chronic disease, years might pass before changes in patient behavior or clinical practice affect hospitalization for hip fracture. Indicator excludes younger persons who are at risk for osteoporosis (e.g., as a result of steroid treatment or early menopause). About 15% of persons aged ≥65 years do not participate in Medicare Part A; this limits comparability with data from other sources such as the National Hospital Discharge Survey. |
| Data Resources: | Centers for Medicare and Medicaid Services (CMS) Part A claims data (numerator) and CMS estimates of the population of persons eligible for Medicare (denominator). |
| Limitations of Data Resources: | Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms might affect decisions by health-care providers to hospitalize patients. Indicator is limited to Medicare-eligible population. Multiple admissions for an individual patient can falsely elevate the number of persons with hip fracture. The Medicare claims dataset cannot provide incident (new) hospitalizations for hip fracture. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AOCBC-11.1: Reduce hip fractures among females aged ≥65 years. Healthy People 2020 Objective AOCBC-11.2: Reduce hip fractures among males aged ≥65 years. |
| Related CDI Topic Area: | Nutrition, Physical Activity, and Weight Status |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Older Adults**
**Indicator Number: 2**
**Indicator Name: Percentage of women Medicare beneficiaries aged ≥65 years who reported not ever being screened for osteoporosis with a bone mass or bone density measurement**

| | |
|---|---|
| Demographic Group: | Medicare-eligible resident women aged ≥65 years |
| Numerator: | The subset of the denominator who reported ever being screened for osteoporosis with a bone mass or bone density measurement. |
| Denominator: | Full-year data for women aged ≥65 years who ever talked to a doctor about osteoporosis who resided in the community. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Osteoporosis screening with hip DEXA scans and follow-up management in older adults has been shown in a large population-based cohort study to be associated with 36 percent fewer incident hip fractures over six years compared with usual medical care. While screening alone would not have an effect on fractures, it may lead physicians to implement management strategies that may decrease fractures. |
| Significance: | At some point in their lifetime, 30 to 50 percent of women and 15 to 30 percent of men will experience an osteoporotic fracture. Medicare spent more than $8 billion in 1999 to treat injuries to seniors, with fractures accounting for two-thirds of the spending. |
| Limitations of Indicator: | Data are from only the Medicare Current Beneficiary Survey (MCBS), Access to Care file, which contains information on beneficiaries' reports. The measure involves self-reports regarding being screened for osteoporosis with a bone mass or bone density measurement. |
| Data Resources: | Medicare Current Beneficiary Survey (MCBS), Access to Care. |
| Limitations of Data Resources: | Data may not be available at the state level. Further discussions with either CMS or AHRQ would be needed. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AOCBC-11: Reduce hip fractures among older adults. |
| Related CDI Topic Area: | |

**Indicator Group: Older Adults**
**Indicator Number: 3.1**
**Indicator Name: Proportion of older adults aged ≥65 years who are up to date on a core set of clinical preventive services by age and sex**

| | |
|---|---|
| Demographic Group: | All resident persons aged ≥65 years. |
| Numerator: | Women: Number of women aged ≥65 years reporting flu shot in past year, pneumococcal vaccination (PPV) ever and either a colonoscopy/sigmoidoscopy in 10 years or fecal occult blood test (FOBT) in past year plus a mammogram in past 2 years.<br>Men: Number of men aged ≥ 65 years reporting flu shot in past year, PPV ever and either a colonoscopy/sigmoidoscopy in 10 years or FOBT in past year. |
| Denominator: | Women: Number of women aged ≥65 years.<br>Men: Number of men aged ≥65 years. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Older adults are among the fastest growing age groups; and the first "baby boomers" (adults born between 1946 and 1964) turned 65 in 2011. More than 37 million people in this group (60 percent) will manage more than 1 chronic condition by 2030. Older adults are at high risk for developing chronic illnesses and related disabilities. National experts agree on a set of recommended clinical preventive services for adults aged ≥65 that can help detect many of these diseases, delay their onset, or identify them early in more treatable stages, which include influenza vaccination, pneumococcal vaccination, colorectal cancer screening, and mammography screening for women. |
| Significance: | The up-to-date measure improves program transparency, accountability and decision making by driving the coordination of prevention activities across disease-based "silos" in both the clinical and public health setting. Since it is an all-or-none measure, it cannot increase unless multiple component activities (screenings and vaccinations) are delivered to the same individual. It thereby potentially raises the bar on performance. |
| Limitations of Indicator: | Is limited to a select set of clinical preventive services by age and sex for which data are available in the Behavioral Risk Factor Surveillance System (BRFSS). Data on all services in the core set are not available every year given the rotating core questions on BRFSS. Indicator should not be interpreted as covering all recommended clinical preventives services for this age group. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |
| Related CDI Topic Area: | Cancer; Immunizations |

**Indicator Group: Older Adults**
**Indicator Number: 3.2**
**Indicator Name: Proportion of older adults aged 50-64 years who are up to date on a core set of clinical preventive services**

| | |
|---|---|
| Demographic Group: | All resident persons aged 50-64 years. |
| Numerator: | Women: Number of women aged 50-64 years reporting flu shot in past year, either a colonoscopy/sigmoidoscopy in 10 years or fecal occult blood test (FOBT) in past year, Pap test, plus a mammogram in past 2 years.<br>Men: Number of men aged 50-64 years reporting flu shot in past year and either a colonoscopy/sigmoidoscopy in 10 years or FOBT in past year. |
| Denominator: | Women: Number of women aged 50-64 years.<br>Men: Number of men aged 50-64 years. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | One of every five Americans will be between the ages of 50 and 64 by 2015. More than 70 percent will already be diagnosed with at least one chronic condition by the time they enter this age group. Moreover, nearly half will have two or more chronic conditions. The resulting functional limitations may seriously compromise their ability to carry out the multiple roles they play at this point in their lives. National experts agree on a set of recommended clinical preventive services that can help detect selected chronic diseases, delay their onset, or identify them early in their most treatable stages, which include influenza vaccination and colorectal cancer screening, and Pap and mammography screening for women. |
| Significance: | The up-to-date measure improves program transparency, accountability and decision making by driving the coordination of prevention activities across disease-based "silos" in both the clinical and public health setting. Since it is an all-or-none measure, it cannot increase unless multiple component activities (screenings and vaccinations) are delivered to the same individual. It thereby potentially raises the bar on performance. |
| Limitations of Indicator: | Is limited to a select set of clinical preventive services by age and sex for data that are available in the Behavioral Risk Factor Surveillance System (BRFSS). Data on all services in the core set are not available every year given the rotating core questions on BRFSS. Indicator should not be interpreted as covering all recommended clinical preventives services for this age group. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Cancer; Immunizations |

**Indicator Group: Older Adults**
**Indicator Number: 4**
**Indicator Name: Prevalence of 2 or more chronic conditions among Medicare-eligible persons aged ≥65 years**

| | |
|---|---|
| Demographic Group: | Medicare-eligible resident persons aged ≥65 years |
| Numerator: | Medicare beneficiaries who had a Medicare administrative claim indicating receipt of service or treatment for at least two or more of the following conditions: Alzheimer's disease and related dementia, arthritis, asthma, atrial fibrillation, cancer (breast, colorectal, lung, prostate), chronic kidney disease, chronic obstructive pulmonary disease, depression, diabetes, heart failure, hyperlipidemia, hypertension, ischemic heart disease, osteoporosis, and stroke. |
| Denominator: | Medicare beneficiaries enrolled in fee-for-service coverage of both Parts A and B for the entire year. Beneficiaries who were enrolled at any point during the year in a Medicare Advantage plan were excluded as were beneficiaries who first became eligible for Medicare after January of the calendar year. Beneficiaries who died during the year were included up to their date of death if they meet the other inclusion criteria. |
| Measures of Frequency: | Prevalence of 2 or more chronic conditions during the calendar year. |
| Time Period of Case Definition: | Calendar year. |
| Background: | Twenty-six percent of U.S. adults had multiple chronic conditions (MCC) in 2010, and increase from 21.8% in 2001.[1] The prevalence of MCC significantly increases with age. In 2010, 68.4% of Medicare beneficiaries had 2 or more chronic conditions. The prevalence of Medicare beneficiaries with 4 or more chronic conditions was 36.4%.[2] |
| Significance: | Public health approaches to prevention and treatment of chronic diseases traditionally focused on single conditions and risk factors. However, recent trends in population growth and age distribution, coupled with increases in chronic disease, will have implications in the prevalence of MCC. To address MCC, coordinated health care approaches, which consider the broader context of multiply occurring risk factors and functional limitations, may be needed from public health, clinicians, and social programs.[3] |
| Limitations of Indicator: | The indicator does not provide information on specific dyads or triads of multiple chronic conditions. Although the HHS Framework includes 20 proposed chronic conditions, these data do not include 3 of the proposed conditions (substance abuse, HIV, and hepatitis). |
| Data Resources: | Centers for Medicare and Medicaid Services (CMS) administrative enrollment and claims data for Medicare beneficiaries enrolled in the fee-for-service parts A and B, available at the CMS Chronic condition Data Warehouse (CCW): http://www.ccwdata.org/index.htm<br>Detailed information on the identification of chronic conditions in the CCW is available at http://www.ccwdata.org/chronic-conditions/index.htm |
| Limitations of Data Resources: | Discrepancies in physician coding are possible and could have introduced error. Lack of treatment for a condition is possible and thus would not be reflected in these prevalence estimates. These estimates are for the Medicare fee-for-service population only; therefore estimates of multiple chronic conditions among beneficiaries enrolled in Medicare Advantage plans are not available. The actual prevalence of MCC among the Medicare-eligible population is likely underestimated. |
| Related Indicators or Recommendations: | U.S. Department of Health and Human Services Inventory of Programs, Activities, and Initiatives Focused on Improving the Health of Individuals with Multiple Chronic Conditions. http://www.hhs.gov/ash/initiatives/mcc/mcc-inventory-20111018.pdf |
| Related CDI Topic Area: | Arthritis; Asthma; Cancer; Cardiovascular Disease; Chronic Kidney Disease; Chronic Obstructive Pulmonary Disease; Diabetes. |

1. Ward BW, Schiller JS. Prevalence of multiple chronic conditions among US adults: estimates from the National Health Interview Survey, 2010. Prev Chronic Dis 2013;10:120203. DOI: http://dx.doi.org/10.5888/pcd10.120203.

2. Lockner KA, Cox CS. Prevalence of multiple chronic conditions among Medicare beneficiaries, United States, 2010. Prev Chronic Dis 2013;10:120137. DOI: http://dx.doi.org/10.5888/pcd10.120137.
3. Goodman RA, Posner SF, Huang ES, Parekh AK, Koh HK. Defining and measuring chronic conditions: imperatives for research, policy, program, and practice. Prev Chronic Dis 2013;10:120239. DOI: http://dx.doi.org/10.5888/pcd10.120239.

**Indicator Group: Oral Health**
**Indicator Number: 1.1**
**Indicator Name: Visits to dentist or dental clinic among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report having been to the dentist or dental clinic in the previous year. |
| Denominator: | Respondents aged ≥18 years (exclude unknowns and refusals). |
| Measures of Frequency: | Annual prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | Most oral diseases are preventable in part with regular visits to the dentist. In 2010, 69.7% (median) of adults aged ≥18 years in the United States reported having a dental visit in the past year (BRFSS). The rate has remained essentially unchanged over the past decade. Access to oral health care is associated with various socio-demographic characteristics and geographic location. To address these determinants to reduce health disparities and improve the oral health outcomes, HP2020 chose utilization of oral health services as a Leading Health Indicator. |
| Significance: | Regular use of the oral health-care delivery system leads to better oral health by providing an opportunity for clinical preventive services and early detection or oral diseases. Infrequent use of dental services has been associated with poor oral health among adults. |
| Limitations of Indicator: | Indicator does not convey reason for visit or whether dental care was actually received. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OH-7: Increase the proportion of children, adolescents, and adults who used the oral health care system in the past 12 months (LHI). |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Oral Health**
**Indicator Number: 1.2**
**Indicator Name: Dental visits among children and adolescents aged 1-17 years**

| | |
|---|---|
| Demographic Group: | Resident children and adolescents aged 1-17 years. |
| Numerator: | Children and adolescents aged 1-17 years with parent-reported dental visit for any kind of dental care, including check-ups, dental cleanings, x-rays, or filling cavities in the previous year. |
| Denominator: | Children and adolescents aged 1-17 years (excluding unknowns and refusals). |
| Measures of Frequency: | Prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | In 2009, 45.4% of children aged 0-18 years reported having had at least one dental visit in the past year (MEPS).[1] |
| Significance: | Access to dental care is important to obtain prevention, education, and early identification and treatment of oral diseases. The American Academy of Pediatric Dentistry, the American Academy of Pediatrics, the American Dental Association, and the American Association of Public Health Dentistry all recommend establishing a dental home and the first dental visit by age 1 year. Private and public funds are spent each year for emergency department visits for oral health conditions and providing restorations for the children that could have potentially been avoided with routine and optimal preventive and early dental care. |
| Limitations of Indicator: | Indicator does not validate types of dental care children actually received. |
| Data Resources: | National Survey of Children's Health (NSCH). |
| Limitations of Data Resources: | NSCH is a parent-reported telephone survey, and subject to limitations such as recall bias and non-coverage bias. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OH-7: Increase the proportion of children, adolescents, and adults who used the oral health care system in the past 12 months (LHI). |
| Related CDI Topic Area: | School Health |

1. CDC. NIDCR/CDC Oral Health Data Query System (http://apps.nccd.cdc.gov/dohdrc/dqs/entry.html)

**Indicator Group: Oral Health**
**Indicator Number: 2.1**
**Indicator Name: Preventive dental visits among children and adolescents aged 1-17 years**

| | |
|---|---|
| Demographic Group: | Resident children and adolescents aged 1-17 years. |
| Numerator: | Children and adolescents aged 1-17 years with parent-reported at least one preventive dental visit, including check-ups, or dental cleanings, in the previous year. |
| Denominator: | Children and adolescents aged 1-17 years (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | In 2007, 78.4% of children aged 1-17 years reported having had at least one preventive dental visit in the past year . |
| Significance: | Studies have shown the benefits of regular and age-appropriate preventive dental visits; Children could avoid complex and expensive restorative and emergency dental treatment in later years, and these changes ultimately led to significant savings in dental expenditures.[1,2] |
| Limitations of Indicator: | Indicator does not validate types of dental care children actually received. |
| Data Resources: | National Survey of Children's Health (NSCH). |
| Limitations of Data Resources: | NSCH is a parent-reported telephone survey, and subject to limitations such as recall bias and non-coverage bias. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OH-7: Increase the proportion of children, adolescents, and adults who used the oral health care system in the past 12 months (LHI). |
| Related CDI Topic Area: | School Health |

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1. Savage MF, Lee JY, Kotch JB, Vann WF. Early preventive dental visits: Effects on subsequent utilization and costs. Pediatrics 2004;114(4):e418-e423.
2. Ramos-Gomez FJ, Shepard DS. Cost-effectiveness model for the prevention of early childhood caries. J Calif Dent Assoc 1999;27(7):539-544.

**Indicator Group: Oral Health**
**Indicator Number: 2.2**
**Indicator Name: Preventive dental care before pregnancy**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported that they had their teeth cleaned by a dentist or dental hygienist in the 12 months before their most recent pregnancy. |
| Denominator: | Respondents aged 18-44 years who reported that they did or did not have their teeth cleaned by a dentist or dental hygienist in the 12 months before their most recent pregnancy (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval); and by demographic characteristics when feasible; weighted using the PRAMS methodology (to compensate for oversampling or other differences between the sampled strata and the population, as well as non-response and non-coverage. |
| Time Period of Case Definition: | During the 12 months before the pregnancy resulting in the most recent live birth. |
| Background: | |
| Significance: | The American Academy of Periodontology recommends that women have a periodontal evaluation before pregnancy and that they maintain good oral hygiene during pregnancy.[1] High C-reactive protein levels, found in women with periodontitis, have been associated with adverse pregnancy outcomes, such as preterm labor.[2,3] However, studies from PRAMS states reveal that a quarter or more of pregnant women may need dental care during their pregnancy but nearly half do not seek the care that they need.[4-6] |
| Limitations of Indicator: | Routine dental cleaning is often limited to women who have dental insurance, those who can otherwise afford it, and those who consider dental care to be a health priority. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | While most self-report surveys such as PRAMS might be subject to systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias), PRAMS attempts to contact potential respondents by mail and landline/cell telephone to increase response rates. ). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |


1. American Academy of Periodontology. AAP statement on the periodontal management of the pregnant patient. 2005.
2. Pitiphat W, Joshipura KJ, Rich-Edwards JW, Williams PL, Douglass CW, Gillman MW. Periodontitis and plasma C-reactive protein during pregnancy. J Periodontol 2006; 77:821-5.
3. Pitiphat W, Gillman MW, Joshipura KJ, Williams PL, Douglass CW, Rich-Edwards JW. PlasmaC-reactive protein in early pregnancy and preterm delivery. Am J Epidemiol 2005; 162:1108-13.
4. Brooks K, El Reda D, Grigorescu V, Kirk G. Michigan Department of Community Health. "Oral Health During Pregnancy." MI PRAMS Delivery. Volume 6, Number 2. Family and Community Health, Michigan Department of Community Health, May 2007.

5. Lydon-Rochelle M, Krakowiak P, Hujoel PP, Peters RM. Dental care use and self- reported dental problems in relation to pregnancy. Am J Public Health 2004; 94: 765-771.
6. Gaffield ML, Gilbert BJ, Malvitz DM, Romaguera R. Oral health during pregnancy: an analysis of information collected by the Pregnancy Risk Assessment Monitoring System. J Am Dent Assoc 2001; 132:1009-1016.

**Indicator Group: Oral Health**
**Indicator Number: 3**
**Indicator Name: Oral health services at Federally Qualified Health Centers**

| | |
|---|---|
| Demographic Group: | Patients who received any services at Federally Qualified Health Centers. |
| Numerator: | Patients who received at least one oral health (dental) services at Federally Qualified Health Centers in a year. |
| Denominator: | Patients who received any services at Federally Qualified Health Centers in a year. |
| Measures of Frequency: | Annual prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2011, 20.0% of patients at Federally Qualified Health Centers received oral health services. |
| Significance: | In 2007, only a third of people living at or below 200 percent of the federal poverty level had a dental visit during the year. FQHCs serve diverse patient populations with low income or who lack access to health care and provide services and interventions, including dental care, to improve the health of underserved communities and vulnerable populations. |
| Limitations of Indicator: | Indicator does not convey what dental service(s) is (are) provided for each dental visit, and/or whether dental services rendered at FQHCs actually meet their patients' dental need. |
| Data Resources: | Uniform Data System (UDS): Each year HRSA health center grantees are required to report core set of information that is appropriate for monitoring and evaluating performance and for reporting on annual trends. The 2011 summary report of the 1,128 health centers from 49 states are available through the system. A patient visit for a dental service is defined in the UDS as "a patient visit to a dental provider for the purpose of prevention, assessment, or treatment of a dental problem". To be included as a visit, services rendered must be documented by grantees in a chart in written or electronic form in a system which permits ready retrieval of current data for the patient (UDS Reporting Manual). |
| Limitations of Data Resources: | Stratified patient characteristics by age, gender, race, ethnicity or insurance status are not available. Variance of data reporting compliances. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OH-11: Increase the proportion of patients who receive oral health services at Federally Qualified Health Centers each year. |
| Related CDI Topic Area: | Overarching Conditions |

**Indicator Group: Oral Health**
**Indicator Number: 4.1**
**Indicator Name: All teeth lost among adults aged ≥65 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥65 years. |
| Numerator: | Respondents aged ≥65 years who report having lost all of their natural teeth due to tooth decay or gum disease. |
| Denominator: | Respondents aged ≥65 years (exclude unknowns and refusals). |
| Measures of Frequency: | Annual prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 18[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | The 2010 Behavioral Risk Factor Surveillance System (BRFSS) data indicated that 16.9% (median) of adults aged ≥ 65 years in the United States were edentulous (having no natural teeth). For persons aged 65-74 years, 14.2% were edentulous. For persons aged ≥ 75 years, 19.9% were edentulous. |
| Significance: | Loss of all natural permanent teeth (complete tooth loss) substantially reduces quality of life, self-image, and daily functioning. |
| Limitations of Indicator: | Health beliefs, societal attitudes, and history of dental treatment affect the levels of complete tooth loss. The indicator does not consider these questions. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OH-4.2: Reduce the proportion of older adults aged 65 to 74 years who have lost all of their natural teeth. |
| Related CDI Topic Area: | Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Oral Health**
**Indicator Number: 4.2**
**Indicator Name: Six or more teeth lost among adults aged ≥65 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥65 years. |
| Numerator: | Respondents aged ≥65 years who report having lost six or more teeth due to tooth decay or gum disease. |
| Denominator: | Respondents aged ≥65 years (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 18[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2008, 43.1% of adults aged ≥65 years in the United States reported having lost six or more teeth due to tooth decay or gum disease. |
| Significance: | The rate of edentulism among older adults declines in the past decades thanks to better prevention and control of underlying causes of tooth loss, dental caries and periodontal diseases. Because having 20 teeth is considered necessary for functional dentition, even partial tooth loss can compromise person's essential chewing and speech functions and diminish quality of life. |
| Limitations of Indicator: | Possibilities of over/under-estimation; not being able to differentiate causes of teeth loss and not being able to know other reasons of tooth loss. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Older Adults |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Oral Health**
**Indicator Number: 4.3**
**Indicator Name: No tooth loss among adults aged 18-64 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged 18-64 years. |
| Numerator: | Respondents aged 18-64 years who report having no permanent tooth extracted due to tooth decay or gum disease. |
| Denominator: | Respondents aged 18-64 years (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence - crude and age-adjusted (to the 2000 U.S. Standard Population, using the direct method[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2010, among the 50 states and DC, the median estimated age-adjusted percentage of adults aged ≥18 years who had no permanent tooth extracted due to tooth decay or gum diseases was 56.4%. |
| Significance: | With adequate personal, professional, and population-based preventive practices, most adults can keep their full set of teeth throughout their lives. Tooth loss affects a person's ability to chew and speak and can interfere with social functioning. The most common causes of tooth loss in adults are tooth decay and periodontal (gum) disease. Despite an overall trend towards reduced tooth loss in the US population, not all groups have benefited to the same extent. Among all predisposing and enabling factors, a low education level has the strongest and most consistent association with tooth loss. |
| Limitations of Indicator: | Possibilities of over/under-estimation; not being able to differentiate causes of teeth loss and not being able to know other reasons of tooth loss. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OH 4.1: Reduce the proportion of adults aged 45 to 64 years who have ever had a permanent tooth extracted because of dental caries or periodontitis. |
| Related CDI Topic Area: | Overarching Conditions |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Oral Health**
**Indicator Number: 5**
**Indicator Name: Population served by community water systems that receive optimally fluoridated drinking water**

| | |
|---|---|
| Demographic Group: | Population on community water systems. |
| Numerator: | Population on community water systems that received optimally fluoridated drinking water in a year. |
| Denominator: | Population on community water systems. |
| Measures of Frequency: | Monthly fluoride level reading. |
| Time Period of Case Definition: | Annual. |
| Background: | In 2010: 73.9% of U.S. population on community water system received fluoridated drinking water. |
| Significance: | In the United States, community water fluoridation has been the basis for the primary prevention of dental caries for 60 years and has been recognized as one of the 10 great achievements in public health of the twentieth century. It is effective, safe, inexpensive intervention that requires no behavior change by individuals, and does not depend on access or availability of professional services. Water fluoridation is equally effective in preventing dental caries among different socioeconomic, racial, and ethnic groups. Fluoridation helps to lower the cost of dental care and helps residents retain their teeth throughout life. It has been estimated that about every $1 invested in community water fluoridation saves approximately $38 in averted costs. |
| Limitations of Indicator: | Double-counting of individuals is a possible limitation. Water systems may report total people served, which could include people with primary and secondary residences, such as college students or recreational homes. Water systems base their estimates of population served on the number of connections to the system multiplied by the estimated number of people served at each connection. Because these are estimates, perfect deduplication is not possible. |
| Data Resources: | Water Fluoridation Reporting System (WFRS): Water systems that adjust the fluoride of their water to the optimal level for decay prevention collect data to monitor fluoridation quality. State fluoridation managers enter all of these data into WFRS and generate reports that can be used to assure program quality. All 50 states are participating in the WFRS. |
| Limitations of Data Resources: | States' data collection/reporting standardization should be improved. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective OH-13: Increase the proportion of the U.S. population served by community water systems with optimally fluoridated water. |
| Related CDI Topic Area: | |

**Indicator Group: Overarching Conditions**
**Indicator Number: 1.1**
**Indicator Name: Current lack of health insurance among adults aged 18-64 years**

| | |
|---|---|
| Demographic Group: | All resident persons aged 18–64 years. |
| Numerator: | Respondents aged 18–64 years who report having no current health insurance coverage. |
| Denominator: | Respondents aged 18–64 years who report having current health insurance or having no current health insurance (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 22[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | Lack of health insurance varies substantially by income, education, age, race and ethnicity. |
| Significance: | Lack of health insurance remains a major determinant of access to necessary health services, including preventive care. Certain socioeconomic conditions, including a lack of health insurance coverage and poverty, are associated with poor health status and chronic disease. |
| Limitations of Indicator: | Covered health-care procedures and services can vary across insurance and other health plans. Required payments and copayments by patients can vary across insurance and other health plans, thereby affecting the financial ability of patients to receive services. Because individual persons might move in and out of health insurance, this indicator might underestimate the prevalence of a lack of health insurance. All persons aged ≥65 years are eligible for Medicare. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective AHS-1: Increase the proportion of persons with health insurance. |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Overarching Conditions**
**Indicator Number: 1.2**
**Indicator Name: Current health care coverage among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18 to 44 years. |
| Numerator: | Female respondents aged 18-44 years who reported that they currently had some kind of health care coverage, including health insurance, prepaid plans such as health maintenance organizations, or government plans such as Medicare. |
| Denominator: | Female respondents aged 18-44 years who reported that they did or did not currently have some kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | |
| Significance: | In order to achieve optimal preconception health, women of childbearing age need access to preventive health care services at all times, not just during or shortly before pregnancy. Consistent access to care is especially critical for women of reproductive age with chronic medical conditions such as diabetes or hypertension. Lack of health care coverage has been widely associated with decreased use of preventive health services, delay in seeking medical care, and poor health status.[1-2] In describing the clinical content of preconception care, the Clinical Work Group of the Select Panel on Preconception Care workgroup recommends that providers ask all women of childbearing age about their health insurance coverage status and their usual source of care, and refer women without adequate coverage to social services or other agencies as appropriate.[3] |
| Limitations of Indicator: | Studies indicate a high degree of validity for self-reported health insurance data although reliability studies are lacking.[4] It cannot be ruled out that some respondents might interpret "health care coverage" to include health care available to them despite lacking insurance (e.g. through free clinics or emergency room care that they cannot and do not pay for). There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |


1. Weissman JS, Stern R, Fielding SL, Epstein AM. Delayed access to health care: risk factors, reasons, and consequences. Ann Intern Med 1991;114:325-31.
2. CDC. Health insurance coverage and receipt of preventive health services -- United States, 1993. MMWR 1995; 44:219-25.

3. Jack B, Atrash H, Coonrod D, Moos M-K, O'Donnell J, Johnson K. The clinical content of preconception care: an overview and preparation of this supplement. Am J Obstet Gynecol 2008; 199 (6 Suppl B):S266-S279.
4. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001; 46 Suppl 1:S3-S42.

**Indicator Group: Overarching Conditions**
**Indicator Number: 1.3**
**Indicator Name: Health insurance coverage before pregnancy**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported that they had health insurance coverage during the month before they became pregnant. All response options qualify as having health insurance coverage with the exception of "I did not have any health insurance". |
| Denominator: | Respondents aged 18-44 years who reported that they did or did not have health insurance coverage during the month before they became pregnant (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for oversampling or other differences between the sampled strata and the population, as well as non-response and non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | One month before the pregnancy resulting in the most recent live birth. |
| Background: | |
| Significance: | In order to achieve optimal preconception health, women of childbearing age need access to preventive health care services at all times, especially if they are planning pregnancy. Consistent access to care is especially critical for women of reproductive age with chronic medical conditions such as diabetes or hypertension. Lack of health care coverage has been widely associated with decreased use of preventive health services, delay in seeking medical care, and poor health status.[1-2] During 2003, one third of women with low incomes, half of women with disabilities, and 18% of non-elderly women (<age 65) did not have health insurance.[3] In describing the clinical content of preconception care, the Clinical Work Group of the Select Panel on Preconception Care recommends that providers ask all women of childbearing age about their health insurance coverage and their access to social services or other agencies as appropriate.[4] |
| Limitations of Indicator: | A previous study examining the validity of source of health insurance using BRFSS data, revealed source misclassification in which respondents primarily had difficulty identifying whether coverage was received through their own or another person's employer.[5] However, this type of bias would only be of concern if it were of interest to know the specific source of health insurance coverage. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | While most self-report surveys such as PRAMS might be subject to systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias), PRAMS attempts to contact potential respondents by mail and landline/cell telephone to increase response rates. ). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |

1. Weissman JS, Stern R, Fielding SL, Epstein AM. Delayed access to health care: risk factors, reasons, and consequences. Ann Intern Med 1991;114:325-31.

2. CDC. Health insurance coverage and receipt of preventive health services – United States, 1993. MMWR 1995; 44:219-25.
3. Kaiser Family Foundation. Women's health insurance coverage. Washington, DC: KaiserFamily Foundation; 2004.
4. Jack B, Atrash H, Coonrod D, Moos M-K, O'Donnell J, Johnson K. The clinical content of preconception care: an overview and preparation of this supplement. Am J Obstet Gynecol 2008; 199 (6 Suppl B): S266- S279.
5. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001; 46 Suppl 1:S3-S42.

**Indicator Group: Overarching Conditions**
**Indicator Number: 2.1**
**Indicator Name: High school completion among adults aged 18-24 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged 18–24 years. |
| Numerator: | Respondents aged 18–24 years who have completed 4 years of high school (i.e., completed high school). |
| Denominator: | Respondents aged 18–24 years for the same calendar year. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 1998, approximately 12% of adults aged 18–24 years did not graduate from high school. |
| Significance: | Socioeconomic conditions (e.g., low level of education) are associated with poor health status and morbidity from chronic disease, including cardiovascular disease, cancer, diabetes, and chronic lung disease. Low educational attainment among young adults is strongly associated with low income and poor health status. The level of a person's education is modifiable. |
| Limitations of Indicator: | Estimate is based on self-report. High school education might be completed after age 24. |
| Data Resources: | Current Population Survey (CPS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, Current Population Survey data might be subject to systematic error resulting from noncoverage (e.g., residence in a noneligible household), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Cancer; Cardiovascular Disease; Chronic Obstructive Pulmonary Disease; Diabetes |

**Indicator Group: Overarching Conditions**
**Indicator Number: 2.2**
**Indicator Name: High school completion among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Female respondents aged 18-44 years who completed the 12th grade or received a GED including those who completed one or more years of college (excluding unknowns and refusals). |
| Denominator: | Female respondents aged 18-44 years who reported their highest completed level of education. |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | |
| Significance: | Education is the dimension of socioeconomic status (SES) that most strongly and consistently predicts health, especially for women and their children. Education is among the most widely used indicators of socioeconomic position in US public health research. Reasons for its popularity include ease of measurement; applicability to person not in the active labor force, stability over adult lifespan, and association with numerous health outcomes. A low level of education limits a person's access to jobs and other social resources which in turn limits his/her capacity to integrate within society and thereby increases the risk of subsequent poverty. Having less education can lead to unhealthy behaviors, exposure to stress, and psychological reactions to stress that increase the risk of intrauterine growth retardation or preterm delivery. Maternal and paternal education were the strongest predictors of adverse reproductive outcomes in one study. |
| Limitations of Indicator: | Measuring the diverse complexity of SES with one relatively unchanging measure has its limitations. Changing SES levels over a lifetime has been shown to affect health, but the level of education generally remains stable even with the loss of resources. The span of education levels is far less than the range of income and wealth so that education may be a less sensitive measure of the magnitude of social inequalities in health. Education is less predictive than class position of ownership of capital assets. Lastly, educational level does not have a universal meaning across populations and generations. Studies of the reliability of educational attainment in surveys showed the variance is small and the correlation is high. Some BRFSS studies have also identified high reliability and two studies found correlations between 0.70-0.80.There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Overarching Conditions**
**Indicator Number: 3.1**
**Indicator Name: Poverty**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | Respondents living at or below poverty level (as established by the Social Security Administration) during a calendar year. |
| Denominator: | Respondents for the same calendar year. |
| Measures of Frequency: | Annual prevalence with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | In 2012, a total of 15.0% (46.2 million) of U.S. residents were living at or below poverty level. Substantial differences in poverty exist by race, ethnicity, education, and region of the United States. |
| Significance: | Socioeconomic conditions (e.g., poverty, low level of education, and lack of health insurance coverage) are associated with poor health status and chronic disease, including cardiovascular disease, cancer, diabetes, and chronic lung disease. Income provides an assessment of the financial resources available to individual persons or families for basic necessities (e.g., food, clothing, and health care) to maintain or improve their well-being. |
| Limitations of Indicator: | Level of income might not reflect all the resources available to individual persons and families for health and health care. Persons who are living at or below the poverty rate might receive health-care services through Medicaid, Medicare, accumulated assets, or other means. |
| Data Resources: | Current Population Survey (CPS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, Current Population Survey data might be subject to systematic error resulting from noncoverage (e.g., residence in a non-eligible household), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SDOH-3: Proportion of persons living in poverty. |
| Related CDI Topic Area: | Cancer; Cardiovascular Disease; Chronic Obstructive Pulmonary Disease; Diabetes |

**Indicator Group: Overarching Conditions**
**Indicator Number: 3.2**
**Indicator Name: Poverty among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years |
| Numerator: | Female respondents aged 18-44 years who reported family income at or below 200% of the Federal Poverty Threshold. |
| Denominator: | Female respondents aged 18-44 years who reported family income and family size (excluding those with missing data). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Preceding calendar year. |
| Background: | |
| Significance: | Socioeconomic status (SES) is one of the major social determinants of health and is a complex construct generally used to define social inequality. One way of evaluating the impact of SES, especially income, on health is to consider the relationship of income and poverty. One approach to measuring poverty is to set the income threshold at a subsistence level related to biological survival—the approach underlying measurement of poverty level in the United States.[1] If poverty were listed as a cause of death in the U.S., in 1991 it would have ranked as the fourth leading cause of death among black women and sixth among white women.[2] Even when confounding and/or effect modification are taken into account, low SES is generally associated with increased risks of both preterm birth and intrauterine growth retardation.[3,4] For many federal and state health and social programs, 200% of the Federal Poverty Threshold is the basis for income eligibility criteria. As part of preconception health promotion, it is recommended that providers ask all women of childbearing age about their economic status and refer them to agencies that can help determine their eligibility for financial assistance if they appear to be in need.[5] In addition, women below this income threshold may need assistance services. |
| Limitations of Indicator: | Measuring the diverse complexity of SES with one dichotomous measure has its limitations. The proportion in poverty varies whether it is in one month, one year or two years.[6] Poverty can also be measured at the individual level and the neighborhood level.[7] Not including other measures of SES, such as wealth, can be problematic.[8] In addition, the current US poverty level is based on a threshold established in 1964 and was set at three times the cost of what was termed an "economy food plan". It was further adjusted for family size, gender of family head, number of children under 18 years, and farm versus non-farm residence. The poverty line for subsequent years is adjusted based on the Consumer Price Index for inflation. According to the National Academy of Science, this approach is marred by several flaws, including erroneous assumptions about the proportions of income spent on food.[9] Little research has been conducted on the validity and reliability of income data collection. For many different reasons there is a tendency in household surveys for respondents to underreport their income. Based on an analysis of independently derived income estimates, the Census Bureau determined that respondents report income earned from wages or salaries more accurately than other sources of income, and that the reported wage and salary income is nearly equal to independent estimates of aggregate income.[9] Miller compared income figures as reported in the Census-CPS Match Study and the Office of Business Economics (OBE) estimates. Data from the OBE are considered the most comprehensive and accurate and are the standard for evaluating other information. Except for income from the "other than earnings" category, Miller found that census data were reasonably accurate compared with OBE data.[10,11] However, non-response in income is a major problem in surveys and is likely to have the most significant impact on the quality of these data.[12] ASEC uses the most advanced methods to collect reliable family income data. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |

| | |
|---|---|
| Data Resources: | Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS). |
| Limitations of Data Resources: | |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SDOH-3: Proportion of persons living in poverty. |
| Related CDI Topic Area: | Reproductive Health |


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12. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soz Praventivmed 2001; 46 Suppl 1:S3-42.

**Indicator Group: Overarching Conditions**
**Indicator Number: 4.1**
**Indicator Name: Life expectancy at birth**

| | |
|---|---|
| Demographic Group: | All resident persons. |
| Numerator: | |
| Denominator: | |
| Measures of Frequency: | Life expectancy. (Life expectancy at birth is the average number of years to be lived on the basis of a given set of age-specific death rates.); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Lifetime. |
| Background: | In 2008, life expectancy among U.S. residents was 78.1 years. Life expectancy has been increasing steadily since records have been kept in the United States. Life expectancy varies substantially by sex, race, and ethnicity. |
| Significance: | Life expectancy at birth measures health status across all age groups. |
| Limitations of Indicator: | Causes of changes in life expectancy at birth are not readily identifiable from this single indicator. |
| Data Resources: | Data used to estimate death rates from which life expectancy is determined include death certificate data from the National Vital Statistics System and population estimates from the U.S. Census Bureau or suitable alternative. |
| Limitations of Data Resources: | Reporting of age at death varies in quality, especially for older persons. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

**Indicator Group: Overarching Conditions**
**Indicator Number: 4.2**
**Indicator Name: Life expectancy at age 65 years**

| | |
|---|---|
| Demographic Group: | All resident persons aged ≥ 65 years. |
| Numerator: | Not applicable |
| Denominator: | Not applicable |
| Measures of Frequency: | Life expectancy. (Life expectancy at age 65 years is the average number of years remaining to be lived by those surviving to that age on the basis of a given set of age-specific death rates.); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Lifetime. |
| Background: | In 2008, life expectancy among U.S. residents aged 65 years was 18.8 years. It has been increasing in recent years. Life expectancy at age 65 years varies substantially by sex, race, and ethnicity. |
| Significance: | Life expectancy at age 65 years reflects health status and health-care access among the elderly. |
| Limitations of Indicator: | Indicator does not recognize premature deaths. |
| Data Resources: | Data used to estimate death rates from which life expectancy is determined include death certificate data from vital statistics agencies and population estimates from the U.S. Census Bureau or suitable alternative. |
| Limitations of Data Resources: | Reporting of age at death varies in quality, especially for older persons. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | Older Adults |

**Indicator Group: Overarching Conditions**
**Indicator Number: 5**
**Indicator Name: Premature mortality among adults aged 45-64 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged 45–64 years. |
| Numerator: | Deaths among resident persons aged 45–64 years during a calendar year. |
| Denominator: | Midyear resident population aged 45–64 years for the same calendar year. |
| Measures of Frequency: | Annual number of deaths. Annual mortality rate with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Calendar year. |
| Background: | During 2010, approximately 494,009 persons aged 45–64 years died in the United States. The rate among males (758.1/100,000) was greater than the rate among females (461.6/100,000). |
| Significance: | Multiple chronic diseases including heart disease, cancer, stroke, chronic lung disease, and diabetes are associated with modifiable risk factors that can lead to premature mortality. Premature mortality from all causes is a key approximation of preventable deaths. |
| Limitations of Indicator: | Not all deaths among persons aged 45–64 years are associated with modifiable risk factors. Premature mortality might be defined with an age range that is different from the range used for this indicator. |
| Data Resources: | Death certificate data from vital statistics agencies (numerator) and population estimates from the U.S. Census Bureau or suitable alternative (denominator). |
| Limitations of Data Resources: | Reporting of age at death varies in quality, especially for older persons. |
| Related Indicators or Recommendations: | None. |
| Related CDI Topic Area: | |

**Indicator Group: Overarching Conditions**
**Indicator Number: 6.1**
**Indicator Name: Fair or poor self-rated health status among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report their general health status as "fair" or "poor." |
| Denominator: | Respondents aged ≥18 years who report their general health status as "excellent," "very good," "good," "fair," or "poor" (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2011, a total of 16.9% of adults reported "fair" or "poor" health status. |
| Significance: | Self-assessed health status is a strong measure of overall health status and has been demonstrated to correlate with subsequent health service use, functional status, and mortality. |
| Limitations of Indicator: | The indicator is based on self-assessment. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Overarching Conditions**
**Indicator Number: 6.2**
**Indicator Name: Self-rated health status among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Female respondents aged 18-44 years who reported their general health status was excellent, very good, or good. |
| Denominator: | Female respondents aged 18-44 years who reported their general health status was excellent, very good, good, fair, or poor (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | Self-rated health status is a simple measure of health-related quality of life that has also been related to general happiness and life satisfaction. |
| Significance: | Self-rated health status is recognized as an indicator of a population's overall well-being as lower ratings of subjective health status have consistently been associated with increased mortality, incident adverse health events, health care utilization, and illness severity, even after medical risk factors have been accounted for. |
| Limitations of Indicator: | This measure is based on self-assessment only and does not include an objective health component. Self-rated health status is a subjective measure, making it difficult to know its reliability and validity. However, studies suggest self-rated health status has a moderate reliability (by comparing response at initial interview with the response after 1 year) and high validity (given the strong correlation with various adverse health outcomes).There are other age group definitions recognized for “reproductive age” but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |

**Indicator Group: Overarching Conditions**
**Indicator Number: 7.1**
**Indicator Name: Recent physically unhealthy days among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Sum of the number of days during the previous 30 days for which respondents aged ≥ 18 years report that their physical health (including physical illness and injury) was not good. |
| Denominator: | Total number of respondents aged ≥18 years who report ≥0 days during the previous 30 days for which their physical health was not good (excluding unknowns and refusals) multiplied by 30 days. |
| Measures of Frequency: | Mean number of physically unhealthy days during the previous 30 days — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 30 days. |
| Background: | In 2009, the mean reported number of physically unhealthy days (i.e., days when physical health was not good) during the previous 30 days was 3.6. This is the best available measure of population physical health. |
| Significance: | Poor physical health interferes with social functioning, is associated with health behavior, and should be monitored as an indicator of overall chronic disease burden. Recent physically unhealthy days are used with recent mentally unhealthy days to estimate the mean number of unhealthy days (i.e., days with impaired physical or mental health) during the previous 30 days — a summary measure of population health. |
| Limitations of Indicator: | Although this indicator is based on self-assessment, it has been demonstrated to have good reliability, validity, and responsiveness. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Overarching Conditions**
**Indicator Number: 7.2**
**Indicator Name: Recent activity limitation among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years. |
| Numerator: | Sum of the number of days during the previous 30 days for which respondents aged ≥18 years report that their usual activities (e.g., self-care, work, and recreation) were limited because of poor physical or mental health. |
| Denominator: | Number of respondents aged ≥18 years who report (or for whom it can be imputed) ≥0 days during the previous 30 days of activity limitation because of poor physical or mental health multiplied by 30 days (excluding unknowns and refusals). |
| Measures of Frequency: | Mean number of days with activity limitation during the previous 30 days — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 30 days. |
| Background: | In 2009, the mean number of days of recent activity limitation because of poor physical or mental health during the previous 30 days was 2.3. In 1999, a total of 6.2% of adult U.S. residents experienced ≥14 days with poor physical or mental health that kept them from doing their usual activities. This is an available measure of disability burden. |
| Significance: | Experiencing activity limitations because of poor physical or mental health interferes with social functioning, is associated with health behavior, and is an indicator of population productivity. A measure of disability burden should be monitored as a chronic condition. |
| Limitations of Indicator: | Although this indicator is based on self-assessment, it has been demonstrated to have good reliability, validity, and responsiveness. Because of the skip pattern in the computation, 0 days must be imputed for respondents who report 0 days for both recent physical and mental health. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Overarching Conditions**
**Indicator Number: 8**
**Indicator Name: Prevalence of sufficient sleep among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥18 years |
| Numerator: | Respondents aged ≥18 years who report usually getting sufficient sleep (≥8 hours for those aged 18 to 21 years and ≥7 hours for those aged ≥22 years, on average, during a 24-hour period) |
| Denominator: | Respondents aged ≥18 years who report or do not report usually getting sufficient sleep. |
| Measures of Frequency: | Annual prevalence (percentage) - crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current. |
| Background: | In 2008, 69.6% of adults reported usually getting sufficient sleep (defined as ≥8 hours for those aged 18-21 years and ≥7 hours for those aged ≥22 years, on average, during a 24-hour period). |
| Significance: | Insufficient sleep is associated with a number of chronic diseases and conditions—such as diabetes, cardiovascular disease, hypertension, obesity, and depression.[2] Insufficient sleep is associated with the onset of these conditions and also poses important implications for their management and outcome. Moreover, insufficient sleep is responsible for motor vehicle crashes and industrial errors, causing substantial injury and disability each year. Sleepiness can also reduce productivity and quality of life.[2] |
| Limitations of Indicator: | Indicator does not convey variation in sleep duration (for instance, weekday vs. weekend sleep) or quality of sleep. Both of these might affect the risk for chronic disease. Indicator does not identify specific sleep problems, such as sleep disordered breathing, which are associated with different chronic conditions. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SH-4: Increase the proportion of adults who get sufficient sleep. |
| Related CDI Topic Area: | |

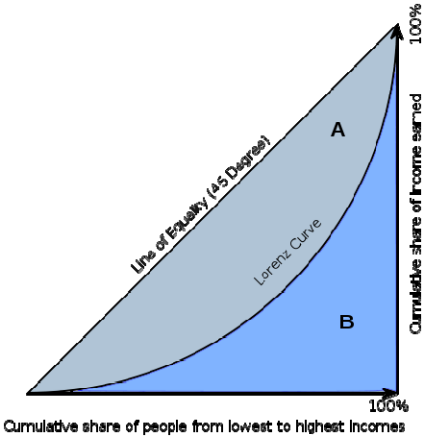

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. Institute of Medicine. Sleep disorders and sleep deprivation: an unmet public health problem. Washington DC: the National Academies Press; 2006.

**Indicator Group: Overarching Conditions**
**Indicator Number: 9**
**Indicator Name: Gini Index[1] of Income Inequality (also known as Gini Coefficient or Gini Ratio)**

| | |
|---|---|
| Demographic Group: | All households |
| Numerator: | The area between the line of perfect income equality and the Lorenz curve[2] (observed population income distribution depicting the relationship between the cumulative percentage of households (x-axis), and the cumulative percentage of income (y-axis.) in a state or county. Area A in the diagram below. |
| Denominator: | 0.5 (A+B in the diagram below).[2] |
| Measures of Frequency: | Gini Index. More information available at: http://en.wikipedia.org/wiki/Gini_coefficient. |
| Time Period of Case Definition: | Calendar year. |
| Background: | A score of "0" on the Gini Index represents complete equality, i.e., every person has the same income. A score of 1 would represent complete inequality, i.e., where one person has all the income and others have none. In recent years the Gini Index has gone up (from 0.397 in 1967 to 0.477 in 2011 for US households). County-level Gini Index report for 2006-2010 is available at: http://www.census.gov/prod/2012pubs/acsbr10-18.pdf and State-level Gini Index report for 2010 and 2011 is available at: http://www.census.gov/prod/2012pubs/acsbr11-02.pdf. |
| Significance: | The Gini Index is a measure of how evenly wealth is distributed within a population. It is a measure of social inequality (defines the gap between rich and poor), which is directly related to access to care and well-being. |
| Limitations of Indicator: | The Gini Index is available only at the state and county level. It is not available by any demographics (e.g., race, gender) or other variables. |
| Data Resources: | American Community Survey, US Census Bureau[3] |
| Limitations of Data Resources: | Data may need to be aggregated across years at the county level. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective SDOH-3: Proportion of persons living in poverty. |
| Related CDI Topic Area: | |

1. Named after its inventor, the Italian statistician Corrado Gini (1884-1965).

   Source: http://www.businessdictionary.com/definition/gini-index.html
2. The Lorenz Curve graph, shown to the right.
3. The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. Information from the survey generates data that help determine how more than $400 billion in federal and state funds are distributed each year. Source: http://www.census.gov/acs/www/.



**Indicator Group: Reproductive Health**
**Indicator Number: 1**
**Indicator Name: Timeliness of routine health care checkup among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18 to 44 years. |
| Numerator: | Female respondents aged 18-44 years who reported that they had visited a doctor for a routine checkup within the past year. |
| Denominator: | Female respondents aged 18-44 years who reported that they had or had not visited a doctor for a routine checkup within the past year (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the BRFSS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous year. |
| Background: | |
| Significance: | Currently, more than 40 million persons have no particular doctor's office, clinic, health center, or other place where they go for health care advice.[1,2] People with a usual source of health care are more likely than those without a usual source of care to receive a variety of preventive health care services. Data from the 2005 National Health Interview Survey indicate that 22% of women aged 18 to 24 and 14% of women aged 25-44 had no usual source of care. [3] The relatively high rate among women in this age group is concerning given their need for routine gynecological visits where preconception health promotion might occur. |
| Limitations of Indicator: | Reliability of this BRFSS item has been found to be moderate and the validity low.[4] It is possible that respondents may include visits for injuries or routine checkups for chronic conditions such as asthma or diabetes rather than limiting their response only to general physical exams. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | |


1. Moy E, Bartman BA, and Weir MR. Access to hypertensive care: Effects of income, insurance, and source of care. Arch Intern Med 1995; 155:1497-1502.
2. Ettner SL. The timing of preventive services for women and children: The effect of having a usual source of care. Am J Public Health 1996; 86:1748-1754.
3. National Center for Health Statistics. Centers for Disease Control and Prevention. National Health Interview Survey, 2005. Accessed on-line via the Commonwealth Fund's Performance Snapshots: Usual Source of Care and Receipt of Preventive Care. http://www.cmwf.org/snapshots

4. Nelson DE, Holtzman D, Bolen J, Stanwyck CA, Mack KA. Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). Soc Prev Med2001; 46 Suppl 1:S3-S42.

**Indicator Group: Reproductive Health**
**Indicator Number: 2**
**Indicator Name: Postpartum checkup**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported that they had a postpartum checkup. |
| Denominator: | Respondents aged 18-44 years who reported that they had or did not have a postpartum checkup (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for oversampling or other differences between the sampled strata and the population, as well as non-response and non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Approximately six weeks after the most recent live birth. |
| Background: | |
| Significance: | The postpartum checkup provides a health care provider with an opportunity to assess a woman's physical recovery and emotional well- being following delivery. The postpartum visit is an optimal time to conduct interconception assessment and provide counseling related to risk factors such as preterm labor, diabetes, hypertension, substance abuse, and mental health issues, which may affect subsequent pregnancies.[1] However, attendance at the postpartum visit is generally poor, especially among some groups that may be at a higher risk for poor pregnancy outcomes.[2] A large multi-state study using PRAMS data showed the prevalence of postpartum checkups were lowest among women who were non-White, aged less than 35 years, and reported an intended pregnancy.[2,3] |
| Limitations of Indicator: | It is not possible to assess barriers to having a postpartum checkup. In addition, some respondents may consider a health care visit for some other reason (e.g., to monitor a chronic health condition or to treat a specific illness or injury) as a postpartum checkup. There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | While most self-report surveys such as PRAMS might be subject to systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias), PRAMS attempts to contact potential respondents by mail and landline/cell telephone to increase response rates. ). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Cardiovascular Disease; Diabetes |


1. American College of Obstetricians and Gynecologists. ACOG technical bulletin. Preconception Care. Number 313 - Sept. 2005. Compendium of Selected Publications, Volume 1: committee opinions and policy statements, pp.214-215.
2. Kogan MD, Leary M, Schaetzel T. Factors associated with postpartum care among Massachusetts users of the maternal and infant care program. Family Plan Perspect 1990; 22: 128-30.
3. D'Angelo D, Williams L, Morrow B, et al. Preconception and interconception health status of women who recently gave birth to a live-born infant—Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 26 reporting areas. MMWR 2007; 56(SS10): 1-35.

**Indicator Group: Reproductive Health**
**Indicator Number: 3**
**Indicator Name: Folic acid supplementation**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported taking a multivitamin, prenatal vitamin or folic acid vitamin every day of the week during the month before they got pregnant with their most recent live born infant. |
| Denominator: | Respondents aged 18-44 years who reported that they took a multivitamin, prenatal vitamin or folic acid vitamin 1 to 3 days a week, 3 to 6 days a week, or everyday of the week during the month before they got pregnant with their most recent live born infant or that they did not take a multivitamin, prenatal vitamin or folic acid vitamin at all during the month before they got pregnant with their most recent live born infant (excluding unknowns and refusals). |
| Measures of Frequency: | Crude prevalence and 95% confidence interval, weighted using the PRAMS methodology (to compensate for unequal probabilities of selection and adjust for non-response and telephone non-coverage); and by demographic characteristics when feasible. |
| Time Period of Case Definition: | One month before the pregnancy resulting in the most recent live birth. |
| Background: | Data from the annual survey conducted for the March of Dimes by the Gallup organization indicate that only 40% of all US women ages 18-45 consumed folic acid supplements daily in 2007 (March of Dimes, unpublished data, 2007). |
| Significance: | Neural tube defects (NTDs) affect 3,000 pregnancies in the USeach year.[1] Up to 70% of all NTDs can be prevented when women capable of becoming pregnant consume the recommended amount of folic acid prior to conception.[2] The Clinical Work Group of the Select Panel on Preconception Care and other organizations recommend that all women of reproductive age take a folic acid containing multivitamin (400 µg daily).[3,4] These guidelines are particularly important since half of all pregnancies are unplanned. |
| Limitations of Indicator: | This indicator focuses solely on the use of folic acid supplements and does not consider consumption of folic acid-fortified foods as recommended in the Healthy People 2010 objectives. However, studies have identified folic acid supplements as an important source needed by most women to achieve the recommended amount of folic acid daily.[5] Data are self-reported and may be subject to recall bias. However, studies assessing the validity of self-reported supplement intake show good correlation to the amount of supplements reported and measures of nutrients found in blood samples.[6-8]There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | The measure is based on self-assessment and it does not include an objective health outcomes. However, PRAMS attempts to contact potential respondents by mail and telephone to increase response rates and thus overcome the systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Nutrition, Physical Activity, and Weight Status |

1. Division of Birth Defects, National Center for Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. Use of supplements containing folic acid among women of childbearing age—United States. Available at www.cdc.gov/ncbddd/folicacid/data.html.
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7. Yen J, Zoumas-Morse C, Pakiz B, Rock CL. Folate intake assessment: Validation of a new approach. J Am Diet Assoc 2003; 103: 991-1000.
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**Indicator Group: Tobacco**
**Indicator Number: 1.1**
**Indicator Name: Current cigarette smoking among youth**

| | |
|---|---|
| Demographic Group: | Students in grades 9-12 |
| Numerator: | Respondents in grades 9-12 who report having smoked a cigarette on ≥1 during the previous 30 days |
| Denominator: | Students in grades 9–12 who reported information about smoking (excluding those who did not answer). |
| Measures of Frequency: | Biennial (odd years) prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 30 days |
| Background: | This question on the survey measures current smoking use (at least one cigarette in the past 30 days).Cigarette smoking is the leading cause of preventable death in the United States and accounts for approximately 440,000 deaths each year. Cigarette smoking increases risk of heart disease; chronic obstructive pulmonary disease; acute respiratory illness; stroke; and cancers of the lung, larynx, oral cavity, pharynx, pancreas, and cervix. In addition, as compared to nonsmokers, cigarette smokers are more likely to drink alcohol, use marijuana and cocaine, engage in risky sexual behaviors, engage in physical fighting, carry a weapon, and attempt suicide. |
| Significance: | If current patterns of smoking behavior persist, an estimated 6.4 million U.S. persons who were under the age of 18 in 2000 could die prematurely from smoking-related illnesses. |
| Limitations of Indicator: | Despite the expressed desire to expand this indicator to middle schools, there is no national middle school YRBSS. State and local data are the only option. Also, some middle school surveys cover grades 7 and 8 only; that decision is up to the state or local coordinator therefore data would not be consistent across jurisdictions. |
| Data Resources: | National YRBSS data are representative of all public and private school students in grades 6-8 in the 50 states and the District of Columbia. National YRBSS data are not the aggregate of the state YRBSS data; the National YRBSS uses a separate scientific sample of schools and students. For the national, state, territory, and local YRBSS samples, schools are selected with probability proportional to the size of student enrollment in grades 9-12 and then required classes of students (e.g., English classes) are randomly selected to participate. Within selected classes, all students are eligible to participate. See the Methodology of the Youth Risk Behavior Surveillance System for a more detailed description of sampling procedures. (http://www.cdc.gov/mmwr/PDF/rr/rr5312.pdf ) |
| Limitations of Data Resources: | Despite being a nationally representative sample, results are not available from every state because some states do not participate in the YRBSS and some states that do participate did not achieve a high enough overall response rate to receive weighted results, and are therefore not included in the results. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-2.1: Reduce use of tobacco products by adolescents (past month). |
| Related CDI Topic Area: | Alcohol; Cancer; Cardiovascular Disease; Chronic Obstructive Pulmonary Disease; School Health |

**Indicator Group: Tobacco**
**Indicator Number: 1.2**
**Indicator Name: Current smoking among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | Resident persons aged ≥ 18 years. |
| Numerator: | Respondents aged ≥18 years who report having smoked 100 cigarettes in their lifetime and currently smoke some days or every day. |
| Denominator: | Respondents aged ≥18 years who reported information about cigarette smoking (excluding unknowns and refusals) |
| Measures of Frequency: | Annual prevalence – crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9[1]) – with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Annual current |
| Background: | Although the overall rate of smoking has decreased in recent decades, in 2011 18.9% of the adult population still smoked. The rate of smoking among young adults has risen in recent years. |
| Significance: | Approximately 440,000 deaths each year are attributed to cigarette smoking, making it the leading preventable cause of death in the United States. Smoking increases the risk of heart disease, cancer, stroke, and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among nonsmokers. Cessation of smoking by current smokers reduces their risk of heart disease, cancer, stroke, and respiratory disease. |
| Limitations of Indicator: | Indicator does not convey the lifetime or current among of cigarettes smoked. Each of these factors can affect the risk for acquiring chronic disease from smoking cigarettes. Indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among nonsmokers. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-1.1: Reduce cigarette smoking by adults. |
| Related CDI Topic Area: | Alcohol; Cancer; Cardiovascular Disease; Chronic Obstructive Pulmonary Disease |

1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf

**Indicator Group: Tobacco**
**Indicator Number: 1.3**
**Indicator Name: Current cigarette smoking among women aged 18-44 years**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years. |
| Numerator: | Women aged 18-44 years who reported that they smoked ≥100 cigarettes in their lifetime and currently smoke every day or some days. |
| Denominator: | Women aged 18-44 years who reported that they currently smoke either every day, some days, or not at all, or reported that they had not smoked ≥ 100 cigarettes in their lifetime (excluding unknowns and refusals). |
| Measures of Frequency: | Crude annual prevalence and 95% confidence interval; and by demographic characteristics when feasible; weighted using the BRFSS methodology to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage. |
| Time Period of Case Definition: | Annual Current |
| Background: | |
| Significance: | Smoking is the most preventable cause of morbidity and mortality in the United States, yet more than 140,000 women die each year from smoking related causes.[1] Women of reproductive age (18-44 years) who smoke risk adverse pregnancy outcomes, including difficulty conceiving, infertility, spontaneous abortion, prematurity, premature rupture of membranes, low birth weight, neonatal mortality, stillbirth, and sudden infant death syndrome (SIDS), as well as adverse health consequences for themselves.[2,3] Recent studies have found an increase in genetic mutations in fetuses of women who quit smoking during pregnancy, usually when they found out they were pregnant.[4] Because only 20% of women who smoke are able to quit successfully during pregnancy, the Centers for Disease Control and Prevention (CDC) recommend smoking cessation prior to pregnancy.[5] Furthermore, the Clinical Work Group of the Select Panel on Preconception Care workgroup recommends that all childbearing aged women be screened for tobacco use.[6] Interventions should be provided to tobacco users to include counseling about the benefits of not smoking before, during, and after pregnancy, a discussion of medications, and referral to intensive services that aid individuals attempting to stop smoking.[6]There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Limitations of Indicator: | The indicator does not convey the frequency of using cigarettes or the lifetime or current amount of cigarettes smoked, which may affect maternal and infant health outcomes. Indicator does not measure intent to quit smoking or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among non- smokers. Only women who smoked at least 100 cigarettes in their entire lives are asked about current smoking. Therefore, the numerator excludes women who began to smoke relatively recently, although this is likely a small number. Multiple studies have indicated high reliability for BRFSS smoking status data. Although few studies have been conducted to assess the validity of BRFSS smoking data, research of other research studies using similar smoking status questions suggests that the prevalence of current smoking is moderately valid. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |

| | |
|---|---|
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |


1. Cornforth T. The effects of smoking on women's health. About.com: women's health. http://womenshealth.about.com/library/weekly/aa111599.htm. Updated November 12, 2007.
2. CDC. Smoking prevalence among women of reproductive age—United States, 2006. MMWR 2008; 57(31):849-852. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5731a2.htm
3. CDC Fact Sheets. Preventing smoking and exposure to secondhand smoke before, during and after pregnancy. http://www.cdc.gov/NCCdphp/publications/factsheets/Prevention/smoking.htm
4. Baum M, Rossi L. Secondhand smoke during pregnancy is risky. Medical News Today Jul 27, 2005. http://www.medicalnewstoday.com/articles/28119.php
5. CDC. Recommendations to improve preconception health and health care—United States. MMWR 2006; 55 (RR-6). http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5506a1.htm
6. Floyd RL, Jack BW, Cefalo R, et al. The clinical content of preconception care: alcohol, tobacco, and illicit drug exposures. Am J Obstet Gynecol 2008; 199 (6 Suppl B):S333- S339.

**Indicator Group: Tobacco**
**Indicator Number: 1.4**
**Indicator Name: Cigarette smoking before pregnancy**

| | |
|---|---|
| Demographic Group: | Women aged 18-44 years who have had a live birth. |
| Numerator: | Respondents aged 18-44 years who reported that they had smoked cigarettes in the past 2 years and that they smoked any number of cigarettes, including <1 cigarette, on an average day during the 3 months before they got pregnant with their most recent live born infant. |
| Denominator: | Respondents aged 18-44 years who reported the number of cigarettes they smoked on an average day in the 3 months before they got pregnant with their most recent live born infant, including none, as well as those who reported that they had not smoked any cigarettes in the past 2 years (excluding unknowns and refusals). |
| Measures of Frequency: | Crude prevalence and 95% confidence interval, and by demographic characteristics when feasible; weighted using the PRAMS methodology (to compensate for unequal probabilities of selection, and adjust for non-response and telephone non-coverage). |
| Time Period of Case Definition: | Three months before the pregnancy resulting in the most recent live birth. |
| Background: | According to 2004 PRAMS data collected from 26 reporting areas, the mean prevalence of pre-pregnancy tobacco use was 23.2%; 45% of these women reported quitting during pregnancy, yet over 50% of them relapsed within six months after delivery.[1] |
| Significance: | Smoking before and during pregnancy is the most preventable known cause of illness and death among mothers and infants and has been strongly associated with low birthweight, small size for gestational age, preterm birth, as well as spontaneous abortion, stillbirth, SIDS and increased risk for various birth defects.[2,3] Compared to non-smokers, women who smoked during pregnancy were about twice as likely to have premature rupture of membranes, placental abruption and placenta previa.[2]Tobacco use during early pregnancy can be harmful to both the fetus and the infant later in life with increased risk resulting from progressive levels of cigarette consumption.[4-8] Therefore, women who quit smoking before pregnancy can significantly reduce their risk for adverse birth and infant outcomes. The Clinical Work Group of the Select Panel on Preconception Care workgroup recommends that all childbearing aged women be screened for tobacco use.[9] Interventions should be provided to tobacco users to include counseling about the benefits of not smoking before, during, and after pregnancy, a discussion of medications, and referral to intensive services that aid individuals attempting to stop smoking.[9] |
| Limitations of Indicator: | There are two different questions that must be used to construct the indicator related to smoking 2 years and 3 months prior to pregnancy. Grouping women in categories based on the number of cigarettes smoked adds valuable information There are other age group definitions recognized for "reproductive age" but these measurements will consistently use the age range of 18-44 years. |
| Data Resources: | Pregnancy Risk Assessment Monitoring System (PRAMS). |
| Limitations of Data Resources: | The measure is based on self-assessment and it does not include an objective health outcomes. However, PRAMS attempts to contact potential respondents by mail and telephone to increase response rates and thus overcome the systematic error resulting from non-coverage (e.g. lower landline telephone coverage due to transition to cell phone only households or undeliverable addresses), nonresponse (e.g. refusal to participate in the survey or to answer specific questions), or measurement bias (e.g. recall bias). Another limitation is that women with fetal death or abortion are excluded. PRAMS estimates only cover the population of residents in each state who also deliver in that state; therefore, residents who delivered in a different state are not captured in their resident state. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area: | Reproductive Health |

1. CDC. Smoking prevalence among women of reproductive age—United States, 2006. MMWR 2008; 57(31); 849-852. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5731a2.htm
2. CDC Fact Sheets. Preventing smoking and exposure to secondhand smoke before, during and after pregnancy. http://www.cdc.gov/NCCdphp/publications/factsheets/Prevention/smoking.htm
3. D'Angelo D, Williams L, Morrow B, et al. Preconception and interconception health status of women who recently gave birth to a live-born infant---Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 26 Reporting Areas, 2004. MMWR. December 14, 2007; 56(SS10); 1-35. http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5610a1.htm
4. Hanke W, Sobala W, Kalinka J. Environmental tobacco smoke exposure among pregnant women: impact on fetal biometry at 20-24 weeks of gestation and newborn child's weight. Int Arch Occup Environ Health 2004; 77: 47-52.
5. Malik S, Ccelves MA, Honein MA, et al. Maternal smoking and congenital heart defects. Pediatrics 2008; 121(4)e: 810-6.
6. Figueras F, Meler E, Eixarch E, et al. Association of smoking during pregnancy and fetal growth restriction: subgroups of higher susceptibility. European J Obstet Gynecol Reprod Biol 2008; 138:171-5.
7. Jaddoe VW, Troe EJ, Hofman A, et al. Active and passive smoking during pregnancy and the risks of low birthweight and preterm birth: The Generation R Study. Paediatr Perinat Epidemiol 2008; 22:162-71
8. Vielwerth SE, Jensen RB, Larsen T, Greisen G. The impact of maternal smoking on fetal and infant growth. Early Hum Dev 2007; 83:491-5.
9. Floyd RL, Jacj BW, Cefalo R, et al. The clinical content of preconception care: alcohol, tobacco, and illicit drug exposures. Am J Obstet Gynecol 2008; 199 (6 Suppl B):S333- S339.

**Indicator Group: Tobacco**
**Indicator Number: 2.1**
**Indicator Name: Current smokeless tobacco use among youth**

| | |
|---|---|
| Demographic Group: | Students in grades 9-12 |
| Numerator: | Respondents in grades 9-12 who report having used smokeless tobacco on ≥1 during the previous 30 days. |
| Denominator: | Students in grades 9-12 who reported information about smokeless tobacco use (excluding those who did not answer). |
| Measures of Frequency: | Biennial (odd years) prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Previous 30 days |
| Background: | Among high school students nationwide in 2009, 9% had used smokeless tobacco (e.g., chewing tobacco, snuff, or dip) on at least 1 day during the 30 days before the survey and 6% had used smokeless tobacco on school property on at least 1 day during the 30 days before the survey.[1] The percentage of students who reported smokeless tobacco use on at least 1 day during the 30 days before the survey decreased during 1995–2003 (11%–7%) and then did not change significantly during 2003–2009 (7%–9%).[1] |
| Significance: | This survey question measures smokeless tobacco use in the past 30 days. Smokeless tobacco contains 28 known human carcinogens.[2] Use of smokeless tobacco products increases the risk of developing cancer of the oral cavity.[2] Other oral health problems strongly associated with smokeless tobacco use are leukoplakia (a lesion of the soft tissue that consists of a white patch or plaque that cannot be scraped off) and recession of the gums. Smokeless tobacco use also causes an increased risk of heart disease and stroke. |
| Limitations of Indicator: | Despite the expressed desire to expand this indicator to middle schools, there is no national middle school YRBSS. State and local data are the only option. Also, some middle school surveys cover grades 7 and 8 only; that decision is up to the state or local coordinator therefore data would not be consistent across jurisdictions. |
| Data Resources: | National YRBSS data are representative of all public and private school students in grades 9-12 in the 50 states and the District of Columbia. National YRBSS data are not the aggregate of the state YRBSS data; the National YRBSS uses a separate scientific sample of schools and students. For the national, state, territory, and local YRBSS samples, schools are selected with probability proportional to the size of student enrollment in grades 9-12 and then required classes of students (e.g., English classes) are randomly selected to participate. Within selected classes, all students are eligible to participate. See the Methodology of the Youth Risk Behavior Surveillance System for a more detailed description of sampling procedures. (http://www.cdc.gov/mmwr/PDF/rr/rr5312.pdf ) |
| Limitations of Data Resources: | Despite being a nationally representative sample, results are not available from every state because some states do not participate in the YRBSS and some states that do participate did not achieve a high enough overall response rate to receive weighted results, and are therefore not included in the results. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-2.3: Reduce use of smokeless tobacco products by adolescents (past month). |
| Related CDI Topic Area: | Cancer; Oral Health, School Health |


1. CDC. Current tobacco use among middle and high school students--United States, 2011. MMWR 2012;61(31):581-585.
2. U.S. Department of Health and Human Services. *Preventing tobacco use among youth and young adults: a report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control

and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2012.

**Indicator Group: Tobacco**
**Indicator Number: 2.2**
**Indicator Name: Current smokeless tobacco use among adults aged ≥18 years**

| | |
|---|---|
| Demographic Group: | All residents aged ≥18 years. |
| Numerator: | Respondents aged ≥18 years who report having ever used smokeless tobacco and are current smokeless tobacco users on every day or some days (excluding unknowns and refusals) |
| Denominator: | Respondents aged ≥ 18 years who responded to the smokeless tobacco question. |
| Measures of Frequency: | Annual crude and age-adjusted prevalence and 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current daily |
| Background: | Smokeless tobacco use has not declined during the past few years in the United States. Smokeless tobacco use is predominantly a public health problem among men, young adults, and persons with lower education, and in certain states. |
| Significance: | The health consequences of cigarette smoking and smokeless tobacco use both have been well documented, including increased risk for lung, throat, oral, and other types of cancers. |
| Limitations of Indicator: | May not include all smokeless products. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-1.2: Reduce use of smokeless tobacco products by adults. |
| Related CDI Topic Area: | Cancer; Oral Health |

1. CDC. State-specific prevalence of cigarette smoking and smokeless tobacco use among adults --- United States, 2009. MMWR2010;59(43):1400-6.

**Indicator Group: Tobacco**
**Indicator Number: 3**
**Indicator Name: Quit attempts in the past year among current smokers**

| | |
|---|---|
| Demographic Group: | All residents aged ≥18 years. |
| Numerator: | Current adult smokers ≥18 who stopped smoking in the past 12 months for 1 day or longer because they were trying to quit (excluding unknown and refusals). |
| Denominator: | Adults aged ≥18 who currently smoke (smoked 100 cigarettes and now smoke every day and some days). |
| Measures of Frequency: | Annual crude and age-adjusted prevalence and 95% confidence intervals; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Past 12 months. |
| Background: | The prevalence of quit attempts increased during 2001—2010 among smokers aged 25--64 years, but not among other age groups. In 2010, 68.8% of adult smokers wanted to stop smoking, 52.4% had made a quit attempt in the past year, 6.2% had recently quit, 48.3% had been advised by a health professional to quit, and 31.7% had used counseling and/or medications when they tried to quit.[1] |
| Significance: | Quitting smoking is beneficial to health at any age, and cigarette smokers who quit before age 35 years have mortality rates similar to those who never smoked. It is important to measure the proportion of recent successful quit attempts to document progress toward cessation. |
| Limitations of Indicator: | Does not include HP2020 definition. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-4: Increase smoking cessation attempts by adult smokers. |
| Related CDI Topic Area: | |

1. CDC. Quitting smoking among adults--United States, 2001-2010. MMWR 2011;60(44):1513-9.

**Indicator Group: Tobacco**
**Indicator Number: 4**
**Indicator Name: States that allows stronger local tobacco control and prevention laws**

| | |
|---|---|
| Demographic Group: | States |
| Numerator: | Numbers of states with various types of local tobacco control laws (i.e., advertising, smoke-free indoor air, youth access) that are not preempted by state law |
| Denominator: | |
| Measures of Frequency: | Number of states |
| Time Period of Case Definition: | Newly enacted legislation in effect as of the last day of the quarter is updated in the STATE system on a quarterly basis |
| Background: | Preemptive state tobacco control legislation prohibits localities from enacting tobacco control laws that are more stringent than state law. The number of states with preemptive provisions in any of the three policy categories (i.e., advertising, smoke-free indoor air, youth access) decreased by one, from 28 states at the end of 2000 to 27 states at the end of 2010. The number of states that preempted local action in all three categories decreased from 11 states at the end of 2000 to seven states at the end of 2010.[2] |
| Significance: | Preemptive legislation is the tobacco industry's main strategy for eradicating local tobacco control ordinances. Preemptive laws prevent communities from engaging in the process of public education, mobilization, and debate that occurs when a local ordinance is under consideration; this is a process that can increase awareness and change social norms. These laws can also pose a barrier to local enforcement because communities may be less likely to enforce state laws that they were not directly involved in adopting. |
| Limitations of Indicator: | |
| Data Resources: | State Tobacco Activities Tracking and Evaluation System (STATE), CDC Office on Smoking and Health |
| Limitations of Data Resources: | In determining whether state laws preempt local smoking restrictions, the STATE System considers statutes and examines relevant case law, because rulings by state courts sometimes have been decisive in determining whether local policies were preempted. Because litigation has been less common with regard to state preemption of local advertising and youth access restrictions, the STATE System analyzes state statutes but not case law in these areas. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-16: Eliminate State laws that preempt stronger local tobacco control laws. |
| Related CDI Topic Area | |

1. CDC. State preemption of local tobacco control policies restricting smoking, advertising, and youth access—United States, 2000–2010. MMWR 2011;60(33):1124–7.

**Indicator Group: Tobacco**
**Indicator Number: 5**
**Indicator Name: Proportion of jurisdictions with strong policies that require retail licenses to sell tobacco products**

| | |
|---|---|
| Demographic Group: | States |
| Numerator: | Number of jurisdictions with strong policies that require retail licenses to sell tobacco products. |
| Denominator: | All jurisdictions in each state |
| Measures of Frequency: | Percent of jurisdictions in each state |
| Time Period of Case Definition: | Newly enacted legislation in effect as of the last day of the quarter is updated in the STATE system on a quarterly basis |
| Background: | "Strong" licensure includes, among other things, a requirement to obtain a license and renew it annually; a license fee set high enough to cover state costs associated with administration, implementation, and enforcement of the license; and provisions authorizing penalty to the business, including suspension or revocation of the license. As of 2012, 41 states and the District of Columbia required tobacco retailers to obtain a license for over-the-counter tobacco sales and 35 states and the District of Columbia had laws in place identifying circumstances in which retail licenses can be suspended or revoked. |
| Significance: | Strong licensing helps to increase compliance with other local, state and federal tobacco laws. Licensing laws that include penalties for illegal sales and provisions for suspension or revocation for repeated violations may be an incentive for merchants to obey the law. Strong licensure with effective enforcement can help to reduce illegal sales to minors. Additionally, licensure can serve as an effective mechanism to reduce the concentration, location and type of tobacco retailers. |
| Limitations of Indicator: | |
| Data Resources: | State Tobacco Activities Tracking and Evaluation System (STATE), CDC, NCCDPHP, OSH; Americans for Nonsmokers' Rights. |
| Limitations of Data Resources: | The STATE System reports only legislative data and does not capture information regarding the level or type of licensure enforcement activities executed by the states. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-19: Reduce the illegal sales rate to minors through enforcement of laws prohibiting the sale of tobacco products to minors. |
| Related CDI Topic Area: | |

**Indicator Group: Tobacco**
**Indicator Number: 6**
**Indicator Name: Proportion of jurisdictions with 100%, 24/7, public policies for tobacco-free workplaces and other public places (private workplaces, restaurants and bars).**

| | |
|---|---|
| Demographic Group: | States |
| Numerator: | Number of jurisdictions with public policies for tobacco-free workplaces and other public places (private workplaces, restaurants and bars). |
| Denominator: | All jurisdictions in each state |
| Measures of Frequency: | Percent of jurisdictions in each state. |
| Time Period of Case Definition: | Newly enacted legislation in effect as of the last day of the quarter is updated in the STATE system on a quarterly basis |
| Background: | Evidence shows that workplace smoking restrictions reduce nonsmokers' exposure to secondhand smoke. Policies that restrict smoking in workplaces are also linked to reduced tobacco use by smokers and possibly lower smoking prevalence. The number of states with comprehensive smoke-free laws in effect increased from zero on December 31, 2000, to 26 states on December 31, 2010. |
| Significance: | The health effects of secondhand smoke exposure are well documented: there is no safe level of secondhand smoke exposure. Therefore environmental changes that implement comprehensive smoke free policies are the best way to prevent nonsmokers exposure to smoke. |
| Limitations of Indicator: | Some jurisdictions may have smoke-free policies, but the smoke-free policies don't meet the CDC definition. |
| Data Resources: | State Tobacco Activities Tracking and Evaluation System (STATE), CDC, NCCDPHP, OSH; Americans for Nonsmokers' Rights. |
| Limitations of Data Resources: | None noted. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-13: Establish laws in States, District of Columbia, Territories, and Tribes on smoke-free indoor air that prohibit smoking in public places and worksites. |
| Related CDI Topic Area: | |

**Indicator Group: Tobacco**
**Indicator Number: 7**
**Indicator Name: Amount of tobacco product excise tax**

| | |
|---|---|
| Demographic Group: | States |
| Numerator: | Number of states that increased tax on cigarettes by $1.50 over the tracking period beginning in 2010. |
| Denominator: | All states. |
| Measures of Frequency: | Number |
| Time Period of Case Definition: | Newly enacted legislation in effect as of the last day of the quarter is updated in the STATE system on a quarterly basis |
| Background: | Increasing tobacco product pricing reduces tobacco consumption and prevalence especially among price sensitive populations such as youth and young people. |
| Significance: | Because tobacco use is the most preventable contributor to mortality in the United States, it is important to prevent and reduce tobacco use. In particular preventing use at an early age. Increasing tobacco price is identified as an effective strategy for reducing and preventing tobacco use as outlined in the World Health Organization's MPOWER Framework. |
| Limitations of Indicator: | Cigarette tax data do not provide complete picture. To gather more complete data on tobacco price, in addition to cigarette price data, evaluators can also collect data on other tobacco products such as smokeless, small cigars, loose tobacco/roll your own, etc. |
| Data Resources: | State Tobacco Activities Tracking and Evaluation System (STATE), CDC, NCCDPHP, OSH; state departments of revenue. |
| Limitations of Data Resources: | None noted |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-17: Increase the Federal and State tax on tobacco products. |
| Related CDI Topic Area: | |

**Indicator Group: Tobacco**
**Indicator Number: 8**
**Indicator Name: Percent tobacco revenue to fund at CDC recommended level**

| | |
|---|---|
| Demographic Group: | States |
| Numerator: | Actual annual amount of tobacco control funding. |
| Denominator: | CDC recommended annual total funding level for state tobacco control and prevention programs |
| Measures of Frequency: | Percent |
| Time Period of Case Definition: | Annual |
| Background: | CDC recommended funding levels are based on evidence from scientific literature and the experience of large-scale and sustained efforts of state programs in California and Massachusetts as documented in the 2007 Best Practices for Comprehensive Tobacco Control Programs. Recommended levels factor in state-specific variables, such as the overall population; smoking prevalence; the proportion of the population uninsured or receiving publicly financed insurance or living at or near the poverty level; infrastructure costs; the number of local health units; geographic size; the targeted reach for quitline services; and the cost and complexity of conducting mass media campaigns to reach targeted audiences, such as youth, racial/ethnic minorities, or people of low socioeconomic status. Although comprehensive tobacco control programs have been effective in decreasing tobacco use in the United States, they remain underfunded. In fiscal year 2011, CDC recommended appropriate annual funding levels for each state comprehensive tobacco control program. However, only two states funded tobacco control programs at CDC-recommended levels. |
| Significance: | Almost 90% of funds for tobacco control interventions come from the states through tobacco excise tax revenues and tobacco settlement payments. Implementing evidence-based tobacco control programs that are comprehensive, sustainable, and accountable at recommended levels provide the foundation needed to reduce, and ultimately eliminate tobacco use in each state. |
| Limitations of Indicator: | The indicator reflects total funding only and does not specify how funds are spent. |
| Data Resources: | State Tobacco Activities Tracking and Evaluation System (STATE), CDC, NCCDPHP, OSH; state departments of revenue. CDC recommended funding levels are determined by an evidence-based analysis of comprehensive state tobacco control programs published in Best Practices for Comprehensive Tobacco Control Programs—2007 |
| Limitations of Data Resources: | None noted. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-20 (Developmental): Increase the number of States and the District of Columbia, Territories, and Tribes with sustainable and comprehensive evidence-based tobacco control programs. |
| Related CDI Topic Area: | |

**Indicator Group: Tobacco**
**Indicator Number: 9**
**Indicator Name: Tobacco-free schools**

| Demographic Group: | States |
|---|---|
| Numerator: | Number of schools sampled within the state responding in the affirmative (based on the school's principle and lead health education teacher responses) that they have a comprehensive tobacco-free school policies which includes prohibiting tobacco use at all times (24 hours a day/ 7 days a week), by all persons (students, families, school staff, visitors, and all other non-school personnel) on school property (buildings, grounds, and fields); in school vehicles and those used for school purposes; and at school sponsored events, both on and off school property. |
| Denominator: | Number of schools sampled within a given state. |
| Measures of Frequency: | Percent |
| Time Period of Case Definition: | Survey year |
| Background: | These questions measure the extent to which schools develop, implement, and enforce a policy that creates a totally tobacco-free environment within the school experience for both young people and adults, as outlined in the CDC Guidelines for School Health Programs to Prevent Tobacco Use and Addiction[1] to achieve the Healthy People 2020 Tobacco Use Objective-15 increasing tobacco-free environments in schools, including all school facilities, property, vehicles, and school events.[2] The Pro-Children Act of 1994, reauthorized under the No Child Left Behind Act of 2001, prohibits smoking in facilities where federally funded educational, health, library, daycare, or child development services are provided to children under the age of 18. |
| Significance: | Because tobacco use is the most preventable contributor to mortality in the United States, it is important to restrict use or exposure to tobacco products at an early age.[1] The existence and enforcement of a school policy creates a tobacco-free environment that models acceptable behavior and sends a clear message to students, teachers, staff, parents, and visitors that the use of tobacco is socially unacceptable. Environmental interventions aimed at reducing use of tobacco in homes, public places, and worksites lead to reduction of tobacco use. Likewise, tobacco-free school policies are associated with lower rates of student smoking. Prohibiting any use of any tobacco product at all times, whether or not school is in session, and regardless of whether students are present, protects students and staff from the harmful effects of secondhand smoke (a mixture of smoke from the burning end of tobacco products and the smoke exhaled by smokers). The 2006 U.S. Surgeon General's report, The Harmful Effects of Involuntary Exposure to Tobacco Smoke, outlines a large body of research findings which demonstrate that breathing secondhand smoke is harmful to health. Evidence shows that there is no safe level of secondhand smoke exposure, and even the most advanced ventilation systems cannot eliminate secondhand smoke or its harmful effects. A complete ban of indoor smoking at all times in a facility (such as a school building) is the only effective approach to controlling involuntary inhalation of secondhand smoke. |
| Limitations of Indicator: | The data are based on the response of specific individuals in the sample schools throughout a given state, city, territory, or tribal government and are subject to the actual knowledge of the individual completing the survey. |
| Data Resources: | CDC School Health Profiles (Profiles) |
| Limitations of Data Resources: | By providing school-level data that are representative of each participating state, city, territory, and tribal government, Profiles as a whole can allow comparisons of school health policies and practices across these jurisdictions. However, a nationally representative sample is not possible with this survey. The survey may not be implemented annually or biennially. |

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|---|---|
| Related Indicators or Recommendations: | Healthy People 2020 Objective TU-15: Increasing tobacco-free environments in schools, including all school facilities, property, vehicles, and school events. |
| Related CDI Topic Area: | School Health |


1. CDC. Guidelines for school health programs to prevent tobacco use and addiction. MMWR 1994;43(RR-2):1–18.
2. Institute of Medicine. Ending the tobacco problem: a blueprint for the nation. Washington, DC: The National Academies Press; 2007.

**Indicator Group: Tobacco**
**Indicator Number: 10**
**Indicator Name: Sale of cigarette packs**

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| Demographic Group: | All resident persons |
| Numerator: | Number of packs of cigarettes sold (i.e., cigarette stamps issued) in a state during a calendar year. |
| Denominator: | Total midyear resident population for the same calendar year. |
| Measures of Frequency: | Annual number of packs sold per capita. |
| Time Period of Case Definition: | 12 month period starting in July to end of June of the following year. |
| Background: | In 2012, a total of 14.3 billion packs of cigarettes were sold in the United States. The national per capita consumption was 46.0 packs of cigarettes. |
| Significance: | Approximately 443,000 deaths each year are attributed to cigarette smoking, making it the leading preventable cause of death in the United States. Smoking increases the risk of heart disease, cancer, stroke, and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk for heart disease and cancer among nonsmokers. In each of the 50 states and the District of Columbia, purchasing tobacco products is illegal for youth aged <18 years. Sale of packs of cigarettes measures the total population's consumption of cigarettes. |
| Limitations of Indicator: | Indicator does not convey the number or percentage of residents who smoke or the current or lifetime amount smoked per smoker. Both of these might affect the population's morbidity and mortality from cigarettes. Cross-border sales can falsely affect resident per-capita sales rates. Per-capita sales rates have been frequently reported using only adults in the denominator, which overestimates the per-capita sales rate for the total population and does not convey the fact that youths aged <18 years also purchase and consume cigarettes. |
| Data Resources: | Sales data from State Tobacco Activities Tracking and Evaluation (STATE) System, which is based on Tax Burden on Tobacco compiled by Orzechowski and Walker |
| Limitations of Data Resources: | In certain areas, local and state mechanisms for collecting and reporting data from revenue agencies do not exist. When mechanisms do exist, methods might vary across states, affecting comparability of state estimates. States might collect sales data for the fiscal year, which might not correspond to calendar year. |
| Related Indicators or Recommendations: | |
| Related CDI Topic Area | |

**Indicator Group: Tobacco**
**Indicator Number: 11.1**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged 18-64 years who smoke**

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| Demographic Group: | Resident persons aged 18-64 years. |
| Numerator: | Respondents aged 18-64 years who report having smoked ≥100 cigarettes in their lifetime and are current smokers on every day or some days, and who report ever having received a pneumococcal vaccination. |
| Denominator: | Respondents aged 18-64 years who report ever or not ever smoking ≥100 cigarettes in their lifetime and report their current smoking status who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. standard population, using the direct method[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current (smokers).<br>Lifetime (ever vaccinated). |
| Background: | During 2001--2003, 53% of invasive pneumococcal disease patients aged 18--64 years were current cigarette smokers.[2]Although the overall rate of smoking has decreased in recent decades, in 2002, a total of 23% of the adult population still smoked. The rate of smoking among young adults has risen in recent years. Population-based surveillance studies conducted before introduction of the 7-valent pneumococcal conjugate vaccine (PCV7) consistently reported that smokers accounted for approximately half of otherwise healthy adults with invasive pneumococcal disease.[2] |
| Significance: | Approximately 440,000 deaths each year are attributed to cigarette smoking, making it the leading preventable cause of death in the United States. In a multicenter, population-based, case-control study in which invasive pneumococcal disease patients were identified through Active Bacterial Core surveillance, the risk for invasive pneumococcal disease among immunocompetent cigarette smokers aged 18--64 years was four times the risk for controls who had never smoked (AOR = 4.1; CI = 2.4--7.3).[2]ACIP also concluded that adults who smoke cigarettes are at significantly increased risk for invasive pneumococcal disease and recommended that persons aged 19--64 years who smoke cigarettes should receive a single dose of the 23-valent pneumococcal polysaccharide vaccine (PPSV23) and smoking cessation guidance. |
| Limitations of Indicator: | Indicator does not convey the frequency of using cigarettes or the lifetime and current amount of cigarettes smoked. Each of these might affect the risk for chronic disease. Indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among nonsmokers. Although self-reported pneumococcal vaccination has been validated[3], the reliability and validity of this measure is unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease. (IID-13.2 is specific for non-institutionalized high-risk adults aged 18-64 years.)<br>Promoting Preventive Services for Adults 50-64 -- Community and Clinical Partnerships:<br>Percent of adults who reported current smoking, diabetes, asthma or cardiovascular disease who |

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| | have ever had a pneumococcal vaccination. |
| Related CDI Topic Area: | Immunization |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Updated recommendations for prevention of invasive pneumococcal disease among adults using the 23-valent pneumococcal polysaccharide vaccine (PPSV23). MMWR 2010;59:1102-1106. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm
3. Shenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015-1020.

**Indicator Group: Tobacco**
**Indicator Number: 11.2**
**Indicator Name: Pneumococcal vaccination among non-institutionalized adults aged ≥65 years who smoke**

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| Demographic Group: | Resident persons aged ≥65 years. |
| Numerator: | Respondents aged≥65 years who report having smoked ≥100 cigarettes in their lifetime and are current smokers on every day or some days, and who report ever having received a pneumococcal vaccination. |
| Denominator: | Respondents aged >=65 years who report ever or not ever smoking ≥100 cigarettes in their lifetime and report their current smoking status who report ever having or not ever having a pneumococcal vaccination (excluding unknowns and refusals). |
| Measures of Frequency: | Annual prevalence — crude, age-stratified and age-adjusted (to the 2000 U.S. standard population, using the direct method[1]) — with 95% confidence interval; and by demographic characteristics when feasible. |
| Time Period of Case Definition: | Current (smokers).<br>Lifetime (ever vaccinated). |
| Background: | Although the overall rate of smoking has decreased in recent decades, in 2002, a total of 23% of the adult population still smoked. The rate of smoking among young adults has risen in recent years. Adults aged ≥65 are at increased risk for pneumococcal infection.[2] Persons who smoke or who have certain underlying medical conditions are also at increased risk for developing pneumococcal infection or experiencing severe disease or complications.[3]Population-based surveillance studies conducted before introduction of the 7-valent pneumococcal conjugate vaccine (PCV7) consistently reported that smokers accounted for approximately half of otherwise healthy adults with invasive pneumococcal disease.[3] |
| Significance: | Approximately 440,000 deaths each year are attributed to cigarette smoking, making it the leading preventable cause of death in the United States. Smoking increases the risk of heart disease, cancer, stroke, and chronic lung disease. Data from community-based studies indicate that overall incidence of pneumococcal bacteremia in the United States is several-fold higher for persons aged ≥65 compared to the overall annual incidence. The incidence of pneumococcal meningitis is highest among persons aged ≥65 years and children aged 6-24 months.[2]Case-fatality rates are highest for meningitis and bacteremia, and the highest mortality occurs among the elderly and patients who have underlying medical conditions.[2] ACIP concluded that adults who smoke cigarettes are at significantly increased risk for invasive pneumococcal disease and recommended that persons who smoke cigarettes should receive a single dose of the 23-valent pneumococcal polysaccharide vaccine (PPSV23) and smoking cessation guidance. |
| Limitations of Indicator: | Indicator does not convey the frequency of using cigarettes or the lifetime and current amount of cigarettes smoked. Each of these might affect the risk for chronic disease. Indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoke among nonsmokers. Although self-reported pneumococcal vaccination has been validated[4], the reliability and validity of this measure is unknown. |
| Data Resources: | Behavioral Risk Factor Surveillance System (BRFSS). |
| Limitations of Data Resources: | As with all self-reported sample surveys, BRFSS data might be subject to systematic error resulting from noncoverage (e.g., on college campuses or in the military), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias). In an effort to address some of these potential concerns, BRFSS began including cell phone only users in the 2011 data collection. Due to changes in sampling and weighting methodology, 2011 is a new baseline for BRFSS, and comparisons with prior year data is inappropriate. |
| Related Indicators or Recommendations: | Healthy People 2020 Objective IID-13: Increase the percentage of adults who are vaccinated against pneumococcal disease. (IID-13.1 is specific for non-institutionalized adults aged ≥65 years.)<br>Healthy People 2020 Objective OA-2: Increase the proportion of older adults who are up to date on a core set of clinical preventive services. |

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| Related CDI Topic Area: | Immunization; Older Adults |


1. Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2001. Healthy people 2010 statistical notes, no. 20. http://www.cdc.gov/nchs/data/statnt/statnt20.pdf
2. CDC. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997;46(No. RR-8):1-24. http://www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm
3. CDC. Updated recommendations for prevention of invasive pneumococcal disease among adults using the 23-valent pneumococcal polysaccharide vaccine (PPSV23). MMWR 2010;59:1102-1106. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm
4. Shenson D, DiMartino D, Bolen J, Campbell M, Lu PJ, Singleton JA. Validation of self-reported pneumococcal vaccination in behavioral risk factor surveillance surveys: experience from the sickness prevention achieved through regional collaboration (SPARC) program. Vaccine 2005;23:1015-1020.