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## Indicators for Chronic Disease Surveillance

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### **CONTENTS**

<b>Introduction</b> .....	1
<b>Abbreviations Used in This Report</b> .....	2
<b>Chronic Disease Indicators</b> .....	2
<b>Data Sources</b> .....	4
<b>Data Concerns</b> .....	5
<b>Future Needs</b> .....	6
<b>References</b> .....	6
<b>Appendix: Chronic Disease Indicators</b> .....	7
<b>Physical Activity and Nutrition</b> .....	9
<b>Tobacco and Alcohol Use</b> .....	19
<b>Cancer</b> .....	33
<b>Cardiovascular Disease</b> .....	59
<b>Overarching Conditions</b> .....	77
<b>Other Diseases and Risk Factors</b> .....	89

# Indicators for Chronic Disease Surveillance

Prepared collaboratively by

CDC, the Council of State and Territorial Epidemiologists, and the Association of State and Territorial Chronic Disease Program Directors

## Summary

Chronic diseases account for seven of the 10 leading causes of death in the United States, including the three leading causes of preventable death (tobacco use, improper diet and physical inactivity, and alcohol use). Seventy percent of health-care costs in the United States are for chronic diseases. In 1999, to allow public health officials to uniformly define, collect, and report chronic disease data, the Council of State and Territorial Epidemiologists released Indicators for Chronic Disease Surveillance. The report provided standard definitions for 73 indicators developed by epidemiologists and chronic disease program directors at the state and federal level. The indicators were selected because of their importance to public health and the availability of state-level data. This report describes the latest revisions to the chronic disease indicators. The revised set of 92 indicators includes 63 indicators that were unchanged from the first edition, six that have been revised, and 23 that are new. Four indicators from the first edition were deleted. Of the indicators, 24 are for cancer; 15 for cardiovascular disease; 11 for diabetes; seven for alcohol; five each for nutrition and tobacco; three each for oral health, physical activity, and renal disease; and two each for asthma, osteoporosis, and immunizations. The remaining 10 indicators cover such overarching conditions as poverty, education, life expectancy, and health insurance. Additional information regarding the indicators for chronic disease surveillance is available at <http://www.cdc.gov/nccdphp/cdi>.

## Introduction

During the 20<sup>th</sup> century, the leading causes of death in the United States shifted from infectious to chronic diseases. Chronic diseases (e.g., cardiovascular disease, cancer, and diabetes) are now among the most prevalent, costly, and preventable of all health problems. Seven of every 10 U.S. residents who die each year (>1.7 million persons) do so as a result of a chronic disease. Chronic diseases affect the quality of life of 90 million U.S. residents (1), and the cost of medical care for persons with these diseases accounts for 70% of total medical care expenditures (2).

Although chronic diseases are among the most common and costly health problems, they are also among the most preventable. Adopting healthy behaviors (e.g., eating nutritious foods, being physically active, and avoiding tobacco use) can prevent or control the effects of these diseases. In addition, quality of life is enhanced when chronic diseases are detected and treated early. Regular screening can reduce morbidity and mortality from cancers of the breast, cervix, colon, and rectum. Clinical preventive services can prevent the debilitating complications of diabetes and cardiovascular disease.

Increased chronic disease mortality and greater opportunities for primary and secondary prevention of chronic disease have resulted in an expansion of chronic disease programs in state public health agencies. Community intervention pro-

grams have proved to be effective, and certain ones have become model programs for public health (3,4). Within the past decade, each state has developed programs in tobacco control and breast and cervical cancer control.

Comprehensive public health programs necessarily include monitoring of disease or risk factors through public health surveillance, which is defined as the ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in planning, implementing, and evaluating public health practice (5). Multiple data systems form the foundation for chronic disease surveillance. Chronic disease surveillance initially focused on mortality data from the National Vital Statistics System, managed by CDC's National Center for Health Statistics. However, in the 1970s, morbidity from selected chronic diseases came under surveillance through disease registries. For example, the National Cancer Institute established the Surveillance, Epidemiology, and End Results cancer registry system to record and follow every new case of cancer among nine specific U.S. populations, four of which were states. In 1992, Congress authorized the National Program of Cancer Registries (NPCR) at CDC to monitor local trends in cancer incidence and mortality with statewide, population-based cancer registries.

In the 1980s and 1990s, CDC and state health agencies collaboratively developed additional surveillance systems to monitor behavioral risk factors for chronic disease. In 1984, with CDC assistance, 15 state health agencies began to use the Behavioral Risk Factor Surveillance System (BRFSS) to monitor adult behaviors related to the leading causes of death. Recognizing the usefulness and flexibility of BRFSS, all 50

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states, the District of Columbia, and three territories participated in the system by 1994. By 2003, a total of 43 states and 22 local areas (also supported with financial and technical assistance from CDC) used the Youth Risk Behavioral Surveillance System (YRBSS) to monitor health risk behaviors among high school students.

## Abbreviations Used in This Report

<b>BRFSS</b>	Behavioral Risk Factor Surveillance System
<b>CDD</b>	chronic disease directors
<b>CDI</b>	chronic disease indicator
<b>CMS</b>	Centers for Medicare and Medicaid Services
<b>CPS</b>	Current Population Survey
<b>CSTE</b>	Council of State and Territorial Epidemiologists
<b>ESRD</b>	end-stage renal disease
<b>ICD</b>	<i>International Classification of Diseases</i>
<b>ICD-O-2</b>	<i>International Classification of Diseases for Oncology — Second Edition</i>
<b>ICD-O-3</b>	<i>International Classification of Diseases for Oncology — Third Edition</i>
<b>ICD-9</b>	<i>International Classification of Diseases, Ninth Revision</i>
<b>ICD-9-CM</b>	<i>International Classification of Disease, Ninth Revision, Clinical Modification</i>
<b>ICD-10</b>	<i>International Classification of Diseases, Tenth Revision</i>
<b>NAACCR</b>	North American Association of Central Cancer Registries
<b>NCHS</b>	National Center for Health Statistics
<b>NPCR</b>	National Program of Cancer Registries
<b>SEER</b>	Surveillance, Epidemiology, and End Results
<b>SENSOR</b>	Sentinel Event Notification System for Occupational Risks
<b>STATE</b>	State Tobacco Activities Tracking and Evaluation System
<b>USRDS</b>	United States Renal Data System
<b>YRBSS</b>	Youth Risk Behavior Surveillance System
<b>YTS</b>	Youth Tobacco Survey

## Chronic Disease Indicators

In 1996, the Council of State and Territorial Epidemiologists (CSTE) voted to place the prevalence of cigarette smoking among adults, data for which were collected for each state by BRFSS, under nationwide surveillance. This was the first time that CSTE — the professional organization that, in conjunction with CDC, has historically reviewed and recom-

mended procedures for nationwide, state-based surveillance — had placed a personal behavior associated with a chronic disease under nationwide surveillance. This action effectively defined the first indicator for chronic disease surveillance. In addition, this was the first time that a survey sample was designated as the mechanism by which surveillance data would be used for nationwide, state-level surveillance.

Although conducting nationwide surveillance for prevalence of cigarette smoking among adults was important, it made CSTE, the chronic disease directors (CDD), and CDC more aware of the lack of a comprehensive and consistent approach to state-level chronic disease surveillance. For example, no guidelines existed for state-level surveillance of other behavioral risks (e.g., physical inactivity or unhealthy eating). Similarly, state-level epidemiologists did not necessarily employ consistent methods to report chronic diseases and risk factors. For example, epidemiologists from different states might have been using the 1940 U.S. population, the 1970 U.S. population, or a population of their own state for standardization of rates.

To address the need for common definitions and methods for state-level chronic disease surveillance, CSTE, CDD, and CDC collaborated in a 2-year process that led CSTE to adopt 73 chronic disease indicators (CDI) (6). The 73 indicators were chosen because 1) the disease or condition being monitored by the indicator incurred a substantial public health burden, and 2) surveillance data were available for the majority of states. The indicators provided 1) a minimal set of chronic diseases, conditions, and risk factors that would be under state-level surveillance; 2) consistent methods for state-level analyses, results from which would provide comparable state-specific data; and 3) an operational measure of state-level capacity in chronic disease surveillance, with a state's successful use of the indicators being one benchmark of the state's efforts in chronic disease surveillance.

In 2001, CSTE, CDD, and CDC began revising the chronic disease indicators. Chronic disease epidemiologists, program managers, subject matter experts, and partner organizations met to review existing indicators and to propose a revised set of indicators. Proposed indicators were evaluated for their relevance to chronic disease prevention and control at the state level and for the availability of data on an annual or biannual basis at the state level for the majority of states. In addition, an attempt was made to select indicators that were consistent with *Healthy People 2010* objectives (7). At the 2002 annual meeting, CSTE membership approved a revised set of 92 chronic disease indicators (Table) (see Appendix). This report describes how each indicator is to be measured, why it is important, the limitations for both the indicator and its data source, and the relevant objective in *Healthy People 2010* (7).

**TABLE. Summary list of chronic disease indicators by group (see Appendix)**

No.	Group	Title	Age (yrs) or grade	Sex	Data source*
1	Physical activity and nutrition	Fruit and vegetable consumption among adults aged ≥18 years	≥18	Both	BRFSS
2		Fruit and vegetable consumption among youth	Grades 9–12	Both	YRBSS
3		Prevalence of overweight or obesity among adults aged ≥18 years	≥18	Both	BRFSS
4		Obesity prevalence among adults aged ≥18 years	≥18	Both	BRFSS
5		Overweight prevalence among youth	Grades 9–12	Both	YRBSS
6		Recommended physical activity among adults aged ≥18 years	≥18	Both	BRFSS
7		Vigorous physical activity among youth	Grades 9–12	Both	YRBSS
8		Television viewing among youth	Grades 9–12	Both	YRBSS
9	Tobacco and alcohol use	Binge drinking among adults aged ≥18 years	≥18	Both	BRFSS
10		Binge drinking among women of childbearing age	18–44	Females	BRFSS
11		Binge drinking among youth	Grades 9–12	Both	YRBSS
12		Alcohol use among youth	Grades 9–12	Both	YRBSS
13		Heavy drinking among adult males aged ≥18 years	≥18	Males	BRFSS
14		Heavy drinking among adult females aged ≥18 years	≥18	Females	BRFSS
15		Mortality from chronic liver disease	All	Both	Vital statistics
16		Cigarette smoking among adults aged ≥18 years	≥18	Both	BRFSS
17		Cigarette smoking among youth	Grades 9–12	Both	YRBSS/YTS
18		Smokeless tobacco use among youth	Grades 9–12	Both	YRBSS/YTS
19		Sale of cigarette packs	All	Both	STATE/Revenue agency
20	Cancer	Incidence of invasive cancer (all sites combined)	All	Both	Cancer registry
21		Mortality from cancer (all sites combined)	All	Both	Vital statistics
22		Incidence of cancer of the lung and bronchus	All	Both	Cancer registry
23		Mortality from cancer of the lung and bronchus	All	Both	Vital statistics
24		Incidence of cancer of the colon and rectum	All	Both	Cancer registry
25		Mortality from cancer of the colon and rectum	All	Both	Vital statistics
26		Incidence of invasive cancer of the female breast	All	Females	Cancer registry
27		Mortality from cancer of the female breast	All	Females	Vital statistics
28		Incidence of invasive cancer of the prostate	All	Males	Cancer registry
29		Mortality from cancer of the prostate	All	Males	Vital statistics
30		Incidence of invasive cancer of the cervix	All	Females	Cancer registry
31		Mortality from cancer of the cervix	All	Females	Vital statistics
32		Incidence of cancer of the bladder (in situ and invasive)	All	Both	Cancer registry
33		Mortality from cancer of the bladder	All	Both	Vital statistics
34		Incidence of invasive melanoma	All	Both	Cancer registry
35		Mortality from melanoma	All	Both	Vital statistics
36		Incidence of invasive cancer of the oral cavity or pharynx	All	Both	Cancer registry
37		Mortality from cancer of the oral cavity or pharynx	All	Both	Vital statistics
38		Mammography use among women aged ≥40 years	≥40	Females	BRFSS
39		Clinical breast examination among women aged ≥40 years	≥40	Females	BRFSS
40		Papanicolaou smear use among adult women aged ≥18 years	≥18	Females	BRFSS
41		Fecal occult blood test or sigmoidoscopy/colonoscopy among adults aged ≥50 years	≥50	Both	BRFSS
42		Fecal occult blood test among adults aged ≥50 years	≥50	Both	BRFSS
43		Sigmoidoscopy/colonoscopy among adults aged ≥50 years	≥50	Both	BRFSS
44	Cardiovascular disease	Mortality from major cardiovascular diseases	All	Both	Vital statistics
45		Mortality from diseases of the heart	All	Both	Vital statistics
46		Mortality from coronary heart disease	All	Both	Vital statistics
47		Mortality from congestive heart failure	All	Both	Vital statistics
48		Mortality from cerebrovascular disease (stroke)	All	Both	Vital statistics
49		Hospitalization for acute myocardial infarction	All	Both	Hospital discharge
50		Hospitalization for congestive heart failure	All	Both	Hospital discharge
51		Hospitalization for congestive heart failure among Medicare-eligible persons aged ≥65 years	≥65	Both	Hospital discharge
52		Medicare-eligible persons aged ≥65 years hospitalized for congestive heart failure	≥65	Both	Hospital discharge
53		Hospitalization for cerebrovascular accident or stroke	All	Both	Hospital discharge
54		Hospitalization for cerebrovascular accident or stroke among Medicare-eligible persons aged ≥65 years	≥65	Both	Hospital discharge
55		Medicare-eligible persons aged ≥65 years hospitalized for cerebrovascular accident or stroke	≥65	Both	Hospital discharge
56		Cholesterol screening among adults aged ≥18 years	≥18	Both	BRFSS
57		Prevalence of high blood pressure awareness among adults aged ≥18 years	≥18	Both	BRFSS
58		Taking medicine for high blood pressure control among adults aged ≥18 years	≥18	Both	BRFSS

**TABLE. (Continued) Summary list of chronic disease indicators by group (see Appendix)**

No.	Group	Title	Age (yrs) or grade	Sex	Data source*
59	Overarching conditions	Poverty	All	Both	CPS
60		High school completion among adults aged 18–24 years	18–24	Both	CPS
61		Premature mortality among adults aged 45–64 years	45–64	Both	Vital statistics
62		Life expectancy at age 65 years	≥65	Both	Vital statistics
63		Life expectancy at birth	All	Both	Vital statistics
64		Current lack of health insurance among adults aged 18–64 years	18–64	Both	BRFSS
65		Self-assessed health status among adults aged ≥18 years	≥18	Both	BRFSS
66		Recent physical health among adults aged ≥18 years	≥18	Both	BRFSS
67		Recent mental health among adults aged ≥18 years	≥18	Both	BRFSS
68		Recent activity limitation among adults aged ≥18 years	≥18	Both	BRFSS
69	Other diseases and risk factors	Mortality with diabetes	All	Both	Vital statistics
70		Mortality with diabetic ketoacidosis	All	Both	Vital statistics
71		Diabetes prevalence among adults aged ≥18 years	All	Both	BRFSS
72		Amputation of a lower extremity attributable to diabetes	All	Both	Hospital discharge
73		Influenza vaccination among adults aged ≥18 years with diabetes	All	Both	BRFSS
74		Pneumonia vaccination among adults aged ≥18 years with diabetes	All	Both	BRFSS
75		Foot examination among adults aged ≥18 years with diabetes	All	Both	BRFSS
76		Self blood-glucose monitoring among adults aged ≥18 years with diabetes	All	Both	BRFSS
77		Dilated eye examination among adults aged >18 years with diabetes	All	Both	BRFSS
78		Hospitalization with diabetes	All	Both	Hospital discharge
79		Mortality from end-stage renal disease	All	Both	Vital statistics
80		Mortality with end-stage renal disease	All	Both	Vital statistics
81		Incidence of treated end-stage renal disease	All	Both	USRDS
82		Incidence of treated end-stage renal disease attributed to diabetes	All	Both	USRDS
83		Mortality with chronic obstructive pulmonary disease among adults aged ≥45 years	≥45	Both	Vital statistics
84		Pneumococcal vaccination among adults aged ≥65 years	≥65	Both	BRFSS
85		Influenza vaccination among adults aged ≥50 years	≥50	Both	BRFSS
86		Hospitalization with asthma	All	Both	Hospital discharge
87		Mortality from asthma	All	Both	Vital statistics
88		Hospitalization for hip fracture among Medicare-eligible persons aged ≥65 years	≥65	Both	Hospital discharge
89		Hospitalization for vertebral fractures among Medicare-eligible persons aged ≥65 years	≥65	Both	Hospital discharge
90		Visits to dentist or dental clinic among adults aged ≥18 years	≥18	Both	BRFSS
91		Teeth cleaning among adults aged ≥18 years	≥18	Both	BRFSS
92		All teeth lost among adults aged ≥65 years	≥65	Both	BRFSS

\* BRFSS = Behavioral Risk Factor Surveillance System; YRBSS = Youth Risk Behavior Surveillance System; YTS = Youth Tobacco Survey; STATE = State Tobacco Activities Tracking and Evaluation System; CPS = Current Population Survey; USRDS = United States Renal Data System.

## Data Sources

Data for surveillance of chronic disease indicators are derived from multiple sources.

- **Behavioral Risk Factor Surveillance System.** BRFSS, a major source of data, is a telephone survey conducted by all state health departments, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam with assistance from CDC. BRFSS is the largest continuously conducted telephone health survey in the world, monitoring preventable chronic diseases, injuries, and infectious diseases. States use BRFSS data to track health problems and to develop and evaluate public health programs. Data are collected by using standard procedures through monthly telephone interviews with adults aged ≥18 years (8).
- **Cancer Registries.** State cancer registries collect information about the incidence of cancer, the types of cancers that occur and their locations within the body, and the extent of cancer at the time of diagnosis. These data

are reported to a central statewide registry from different medical facilities, including hospitals, physicians' offices, therapeutic radiation facilities, freestanding surgical centers, and pathology laboratories. CDC's NPCR provides funds to 45 states, three territories, and the District of Columbia to enhance state-level cancer registries and data analysis (9). NPCR works with the North American Association of Central Cancer Registries (NAACCR) to develop and implement surveillance methods and protocols.

- **Current Population Survey.** The Current Population Survey (CPS) is the primary source of information on the labor force characteristics of the U.S. population. The sample is scientifically selected to represent the civilian noninstitutional population. Estimates obtained from CPS include employment, unemployment, earnings, hours of work, and other indicators, and are available by

- different demographic characteristics, including age, sex, race, marital status, and educational attainment (10).
- **Hospital Discharge Data.** Hospital discharge data are the abstracted records associated with a patient's stay in a short-term hospital. These data typically contain diagnosis, treatment, and payment information. State-based hospital discharge data are collected, maintained, and analyzed by individual states. Hospital discharge data for Medicare beneficiaries are handled by the Centers for Medicare and Medicaid Services (CMS).
  - **Death Certificates.** In the United States, state laws require death certificates to be completed for all deaths, and federal law mandates national collection and publication of deaths and other vital statistics data. The National Vital Statistics System is the result of the cooperation between CDC and the states to provide access to statistical information from death certificates. Mortality data are used to monitor the underlying and contributing causes of death for persons dying in the United States and to determine life expectancy (11).
  - **Tobacco Data Sources.** The State Tobacco Activities Tracking and Evaluation (STATE) System is an electronic data warehouse containing up-to-date and historic state-level data on tobacco use prevention and control. The STATE System is designed to integrate multiple data sources, provide comprehensive summary data, and facilitate research with consistent interpretation of data (12). State revenue agencies are an alternative source of information on state tobacco sales.
  - **Renal Disease Data Sources.** The United States Renal Data System (USRDS) is a national data system that collects, analyzes, and distributes information about end-stage renal disease (ESRD) in the United States. USRDS is funded directly by the National Institute of Diabetes and Digestive and Kidney Diseases in the National Institutes of Health, in conjunction with CMS. USRDS staff collaborate with members of CMS and the ESRD networks to share data sets and improve the accuracy of ESRD patient information (13).
  - **Youth Risk Behavior Surveillance System.** YRBSS monitors priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States. These behaviors, often established during childhood and early adolescence, include tobacco use, unhealthy dietary behaviors, inadequate physical activity, alcohol and other drug use, risky sexual behaviors, and behaviors that contribute to unintentional injuries and violence. Conducted as a school-based survey every 2 years, YRBSS includes

national, state, and local representative samples of students in grades 9–12 (14). For states that do not participate in YRBSS, the Youth Tobacco Survey (YTS) can provide data on the prevalence of tobacco use among high school students.

## Data Concerns

Certain concerns related to data analysis should be considered when using the chronic disease indicators. To be comparable, standardized chronic disease indicator rates should use the same standard population figures. In 1999, the U.S. Department of Health and Human Services began to adjust all mortality data to the year 2000 U.S. standard population to enhance the comparability of disease rates for different geographic areas and subpopulations. Whenever possible, rates for chronic disease indicators should be standardized to the year 2000 U.S. population. Because the age of the population being monitored is not the same for all indicators, each indicator that calls for an age-standardized measure has a particular age distribution to be used in the standardization process (15).

Certain agencies and professional organizations have established thresholds for the quality of data. For example, NAACCR has calculated combined incidence rates only for data from cancer registries of the highest quality, as demonstrated by compliance with all requests and standards related to completeness and quality. Also, CDC only weights YRBSS data to produce state-specific estimates for surveys that have an overall response rate of  $\geq 60\%$  and have appropriate survey documentation. In addition, because surveillance that is based on a limited number of cases in a defined geographic area or demographic group might compromise a person's confidentiality, public health agencies often do not publish surveillance reports or summary information that is based on less than a specific number (e.g., five) of cases. The threshold for publishing data might also depend on the geographic level and size of the population for which the data are reported.

Another concern is that rates based on limited numbers are inherently unstable. For example, if five persons among a population of 10,000 have a particular chronic disease and six persons among another population of 10,000 have the same disease, the rate among the second population is 1.2 times higher. However, the 20% increase is from only one additional case; such variations can be within the expected random fluctuation of disease occurrence.

Finally, to partially adjust for potential nonresponse and sample selection bias, sample surveys (e.g., BRFSS and YRBSS) typically weight their data. The weights are estimates of the population by subgroup (e.g., age, race, or sex) from which the survey data were collected.

## Future Needs

The indicators should be reviewed periodically because of changes in availability of data and public health priorities for chronic disease. Surveillance data sources at the state level should also be improved. For example, multiple states do not participate in YRBSS or have access to hospital discharge data. Finally, not all states have sufficient chronic disease epidemiology capacity to collect, analyze, and report on the data required for each indicator. Fifteen (30%) states and the District of Columbia do not report having a state chronic disease epidemiologist (16).

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**Appendix**  
**Chronic Disease Indicators**



## **Physical Activity and Nutrition**



## Indicator 1 — Fruit and Vegetable Consumption Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report eating fruits and vegetables $\geq 5$ times/day.
Denominator	Respondents aged $\geq 18$ years who report eating fruits and vegetables any number of times per day, including zero (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*) — with 95% confidence interval.
Period for case definition	Daily.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, a total of 77% of adults did not consume a daily average of $\geq 5$ servings of fruits and vegetables. Men were less likely to consume $\geq 5$ servings than were women.
Significance	Approximately 400,000 deaths each year in the United States are attributable to physical inactivity and poor nutrition. A diet of $\geq 5$ servings of fruits and vegetables/day is associated with reduced risk of coronary heart disease and certain types of cancer, including cancer of the colon, rectum, oral cavity, pharynx, stomach, and esophagus.
Limitations of indicator	The indicator conveys the percentage of the adult population who report, on average, consuming fruits and vegetables $\geq 5$ times/day. It does not convey the average number of daily servings of fruits and vegetables consumed. Studies have demonstrated a dose-response effect associated with increased consumption of fruits and vegetables, not a threshold effect of 5 servings/day.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	19-5: Increase the proportion of persons aged $\geq 2$ years who consume $\geq 2$ servings of fruit/day. 19-6: Increase the proportion of persons aged $\geq 2$ years who consume $\geq 3$ daily servings of vegetables, with at least one third of them being dark green or orange vegetables.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 2 — Fruit and Vegetable Consumption Among Youth

Demographic group	Students in grades 9–12.
Numerator	Respondents in grades 9–12 who report eating fruits and vegetables $\geq 5$ times/day during the previous 7 days.
Denominator	Respondents in grades 9–12 who report eating fruits and vegetables any number of times per day, including zero (excluding those who did not answer).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Daily.
Data resources	Youth Risk Behavior Surveillance System (YRBSS).
Background	In 2003, a total of 22% of students in grades 9–12 consumed $\geq 5$ fruits and vegetables/day during the previous 7 days.
Significance	Approximately 400,000 deaths each year in the United States are attributable to physical inactivity and poor nutrition. A diet of $\geq 5$ servings of fruits and vegetables/day is associated with reduced risk of coronary heart disease and certain types of cancer, including cancer of the colon, rectum, oral cavity, pharynx, stomach, and esophagus. Dietary habits established during youth might extend into adulthood and affect future chronic disease risk.
Limitations of indicator	The indicator conveys the percentage of youth who report, on average, consuming fruits and vegetables $\geq 5$ times/day. It does not convey the average number of daily servings of fruits and vegetables consumed. Studies have demonstrated a dose-response effect associated with increased consumption of fruits and vegetables, not a threshold effect of 5 servings/day.
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).
<i>Healthy People 2010</i> objectives	19-5: Increase the proportion of persons aged $\geq 2$ years who consume $\geq 2$ servings of fruit/day. 19-6: Increase the proportion of persons aged $\geq 2$ years who consume $\geq 3$ daily servings of vegetables, with at least one third of them being dark green or orange vegetables.
Additional data items	Age, sex, race, ethnicity, or grade.

## **Indicator 3 —Prevalence of Overweight or Obesity Among Adults Aged $\geq 18$ Years**

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who have a body mass index (BMI) $\geq 25.0 \text{ kg/m}^2$ calculated from self-reported weight and height.
Denominator	Respondents aged $\geq 18$ years for whom BMI can be calculated from their self-reported weight and height (excluding unknowns or refusals to provide weight or height).
Measures of frequency	Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9*) — with 95% confidence interval.
Period for case definition	Current.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, a total of 37% of adults were overweight, and 22% were obese. The prevalence of overweight and obesity has been increasing in the United States.
Significance	Approximately 400,000 deaths each year in the United States are attributable to physical inactivity and poor nutrition. Being overweight or obese increases the risk for multiple chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric, especially fat, 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. Recently published guidelines have established additional BMI cut points for weight: Underweight, $<18.5$ ; Normal, $18.5\text{--}24.9$ ; Overweight, $25.0\text{--}29.9$ ; Obesity I, $30.0\text{--}34.9$ ; Obesity II, $35.0\text{--}39.9$ ; Obesity III, $\geq 40.0$ .
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010 objectives</i>	19-1: Increase the proportion of adults who are at a healthy weight. 19-2: Reduce the proportion of adults who are obese.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 4 — Obesity Prevalence Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who have a body mass index (BMI) $\geq 30.0 \text{ kg/m}^2$ calculated from self-reported weight and height.
Denominator	Respondents aged $\geq 18$ years for whom BMI can be calculated from their self-reported weight and height (excluding unknowns or refusals to provide weight or height).
Measures of frequency	Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9*) — with 95% confidence interval.
Period for case definition	Current.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, a total of 37% of adults were overweight, and 22% were obese. The prevalence of overweight and obesity has been increasing in the United States.
Significance	Approximately 400,000 deaths each year in the United States are attributable to physical inactivity and poor nutrition. Obesity increases the risk of multiple chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric, especially fat, 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. Recently published guidelines have established additional BMI cut points for obesity: Obesity I, 30.0–34.9; Obesity II, 35.0–39.9; Obesity III, $\geq 40.0$ .
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
Healthy People 2010 objectives	19-1: Increase the proportion of adults who are at a healthy weight. 19-2: Reduce the proportion of adults who are obese.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 5 — Overweight Prevalence Among Youth

Demographic group	Students in grades 9–12.
Numerator	Respondents in grades 9–12 with a body mass index (BMI) at or above the sex- and age-specific 95 <sup>th</sup> percentile from CDC Growth Charts: United States.*
Denominator	Respondents in grades 9–12 who answer height and weight questions.
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Current.
Data resources	Youth Risk Behavior Surveillance System (YRBSS).
Background	In 2003, a total of 13.5% of students in grades 9–12 were overweight. The proportion of children who are at or above the sex- and age-specific 95 <sup>th</sup> percentile for BMI is increasing. Specifically, during the 1970s and 1988–1994, the prevalence of overweight approximately doubled among children and adolescents aged 6–17 years.
Significance	Approximately 400,000 deaths each year in the United States are attributable to physical inactivity and poor nutrition. BMI levels established during youth might extend into adulthood and affect future chronic disease risk. Being overweight increases the risk of multiple chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. An appropriate amount, intensity, and duration of regular physical activity and decreased caloric, especially fat, 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. Overweight cut points of BMI are specific to age and sex, thereby complicating analysis.
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).
<i>Healthy People 2010</i> objectives	19-3: Reduce the proportion of children and adolescents who are overweight or obese. (19-3b is specific for adolescents aged 12–19 years.)
Additional data items	Age, sex, race, ethnicity, or grade.

\* See 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.

## Indicator 6 — Recommended Physical Activity Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Number of adults aged $\geq 18$ years who report moderate physical activity for $\geq 30$ minutes $\geq 5$ times/week or who report vigorous physical activity for $\geq 20$ minutes $\geq 3$ times/week.
Denominator	Number of adults aged $\geq 18$ 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 (standardized by the direct method to the year 2000 standard U.S. population, distribution 9*) — with 95% confidence interval.
Period for case definition	Usual week.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2001, approximately 32% of adults aged $\geq 18$ years engaged in moderate or vigorous physical activity during a usual week.
Significance	Approximately 400,000 deaths each year in the United States are attributable to physical inactivity and poor nutrition. Physical activity reduces the risk for heart disease, colon cancer, stroke, type 2 diabetes and its complications, overweight, and osteoporosis.
Limitations of indicator	Indicator does not capture information on occupational activities, but does assess moderate and vigorous leisure-time, household, and transportation activities. The National Health Interview Survey is the national data source for <i>Healthy People 2010</i> , and BRFSS is the state data source. The questions from each data source are not the same, and the surveys are administered differently.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	22.2: Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for $\geq 30$ minutes/day.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 7 — Vigorous Physical Activity Among Youth

Demographic group	Students in grades 9–12.
Numerator	Respondents in grades 9–12 who report vigorous physical activity (sweating and breathing hard) for $\geq 20$ minutes/day on $\geq 3$ days during the previous 7 days.
Denominator	Respondents in grades 9–12 who report any or no physical activity (sweating and breathing hard) during the previous 7 days (excluding those who did not answer).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Previous 7 days.
Data resources	Youth Risk Behavior Surveillance System (YRBSS).
Background	In 2003, a total of 63% of students in grades 9–12 participated in vigorous physical activity for $\geq 20$ minutes/day on $\geq 3$ days during the previous 7 days. The prevalence of participation in vigorous physical activity is higher among male students than among female students.
Significance	Approximately 400,000 deaths each year in the United States are attributable to physical inactivity and poor nutrition. Physical activity reduces the risk for heart disease, colon cancer, stroke, type 2 diabetes and its complications, overweight, and osteoporosis. Physical activity patterns established during adolescence might extend into adulthood and affect future chronic disease risk.
Limitations of indicator	Indicator does not convey information on any beneficial physical activity that is less than vigorous. Although this indicator monitors vigorous physical activity among youth, the indicator for physical activity among adults measures the prevalence of moderate or vigorous physical activity.
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).
<i>Healthy People 2010</i> objectives	22.7: Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness $\geq 3$ days/week for $\geq 20$ minutes/occasion.
Additional data items	Age, sex, race, ethnicity, or grade.

## Indicator 8 — Television Viewing Among Youth

Demographic group	Students in grades 9–12.
Numerator	Respondents in grades 9–12 who report watching television for $\leq 2$ hours on an average school day.
Denominator	Respondents in grades 9–12 who report watching television for any number of hours, including zero, on an average school day (excluding those who did not answer).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	School day.
Data resources	Youth Risk Behavior Surveillance System (YRBSS).
Background	In 2003, a total of 62% of students in grades 9–12 watched television for $\leq 2$ hours on an average school day.
Significance	Excessive television watching is associated with overweight and physical inactivity among children. Certain children are less physically active than recommended, and physical activity declines during adolescence. Physical activity reduces the risk for heart disease, cancer, stroke, osteoporosis, and type 2 diabetes.
Limitations of indicator	Indicator does not capture time spent with computers and hand-held games. However, computers and hand-held games require more activity than watching television. Studies indicate that children are more likely to eat while watching television.
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).
<i>Healthy People 2010</i> objective	22.11: Increase the proportion of adolescents who view television $\leq 2$ hours on a school day.
Additional data items	Age, sex, race, ethnicity, or grade.

## **Tobacco and Alcohol Use**



## Indicator 9 — Binge Drinking Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report having $\geq 5$ drinks on $\geq 1$ occasion during the previous month.
Denominator	Respondents aged $\geq 18$ years who report having a specific number, including zero, of drinks on one occasion during the previous month (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*) — with 95% confidence interval.
Period for case definition	Previous month.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, a total of 29% of adults reported binge drinking on $\geq 1$ occasion during the previous month. The prevalence of binge drinking is higher among young adult males than among other groups.
Significance	Approximately 85,000 deaths each year in the United States are attributed to alcohol abuse. Alcohol abuse is strongly associated with injuries, violence, fetal alcohol syndrome, chronic liver disease, and risk of other acute and chronic health effects.
Limitations of indicator	The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	26-11: Reduce the proportion of persons engaging in binge drinking of alcoholic beverages. (26-11c is specific for adults aged $\geq 18$ years.)
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 10 — Binge Drinking Among Women of Childbearing Age

Demographic group	Female residents aged 18–44 years.
Numerator	Female respondents aged 18–44 years who report having $\geq 5$ drinks on $\geq 1$ occasion during the previous month.
Denominator	Female respondents aged 18–44 years who report a specific number, including zero, of drinks on one occasion during the previous month (excluding unknowns and refusals).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Previous month.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, a total of 17% of adult women reported binge drinking on $\geq 1$ occasion during the previous month.
Significance	Approximately 85,000 deaths each year in the United States are attributed to alcohol abuse. Approximately 5,000 infants are born each year with fetal alcohol syndrome, which is irreversible and the leading known cause of mental retardation. Alcohol use by pregnant women causes fetal alcohol syndrome. Alcohol abuse 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 frequency of binge drinking or the specific amount of alcohol consumed.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	16-17: Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women. (16-17a is specific for alcohol; 16-17b is specific for binge drinking.)
Additional data items	Age, race, ethnicity, or education.

## Indicator 11 — Binge Drinking Among Youth

Demographic group	Students in grades 9–12.
Numerator	Respondents in grades 9–12 who report having $\geq 5$ drinks of alcohol on $\geq 1$ day during the previous 30 days.
Denominator	Respondents in grades 9–12 who report having a specific number, including zero, of drinks on $\geq 1$ day during the previous 30 days (excluding those who did not answer).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Previous 30 days.
Data resources	Youth Risk Behavior Surveillance System. (YRBSS).
Background	In 2003, a total of 28% of high school students reported binge drinking in the previous 30 days. Whites and Hispanics were more likely to binge drink than were blacks; prevalence increased with grade. Among U.S. youth, 83% have consumed alcohol by the 12 <sup>th</sup> grade. As a result of the National Minimum Drinking Age Law, all states prohibit persons aged <21 years from purchasing alcohol.
Significance	Approximately 85,000 deaths each year in the United States are attributed to alcohol abuse. Studies have determined that a delay in drinking until age 21 years substantially reduces the risk of experiencing alcohol-related problems. Alcohol abuse among youth is 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 binge drinking or the specific amount of alcohol consumed.
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).
<i>Healthy People 2010</i> objectives	26-11: Reduce the proportion of persons engaging in binge drinking of alcoholic beverages. (26-11a is specific for high school seniors; 26-11d is specific for adolescents aged 12–17 years.)
Additional data items	Age, sex, race, ethnicity, or grade.

## Indicator 12 — Alcohol Use Among Youth

Demographic group	Students in grades 9–12.
Numerator	Respondents in grades 9–12 who report alcohol consumption of $\geq 1$ drink in the previous 30 days.
Denominator	Respondents in grades 9–12 who reported having a specific number, including zero, of drinks in the previous 30 days (excluding those who did not answer).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Previous 30 days.
Data resources	Youth Risk Behavior Surveillance System (YRBSS).
Background	In 2003, a total of 28% of high school students reported binge drinking in the previous 30 days. Whites and Hispanics were more likely to binge drink than were blacks; prevalence increased with grade. Among U.S. youth, 83% have consumed alcohol by the 12 <sup>th</sup> grade. As a result of the National Minimum Drinking Age Law, all states prohibit persons aged <21 years from purchasing alcohol.
Significance	Approximately 85,000 deaths each year in the United States are attributed to alcohol abuse. Studies have determined that a delay in drinking until age 21 years substantially reduces the risk of experiencing alcohol-related problems. Alcohol abuse among youth is 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.
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).
<i>Healthy People 2010</i> objectives	26-9: Increase the age and proportion of adolescents who remain alcohol and drug free. (26-9a is specific for alcohol; 26-9c is specific for high school seniors never using alcoholic beverages.)
Additional data items	Age, sex, race, ethnicity, or grade.

## Indicator 13 — Heavy Drinking Among Adult Males Aged ≥18 Years

Demographic group	Resident males aged ≥18 years.
Numerator	Male respondents aged ≥18 years who report an average daily alcohol consumption of >2 drinks.
Denominator	Male respondents 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*) — with 95% confidence interval.
Period for case definition	Average day.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2003, a total of 6.9% of adult men reported an average daily consumption of >2 alcoholic drinks.
Significance	Approximately 85,000 deaths each year in the United States are attributed to alcohol abuse. Alcohol abuse 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 specific amount of alcohol consumed.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010 objectives</i>	26-13: Reduce the proportion of adults who exceed the guidelines for low-risk drinking. (26-13a is specific for females; 26-13b is specific for males.)
Additional data items	Age, race, ethnicity, or education.

\* See 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.

## Indicator 14 — Heavy Drinking Among Adult Females Aged ≥18 Years

Demographic group	Resident females aged ≥18 years.
Numerator	Female respondents aged ≥18 years who report an average daily alcohol consumption of >1 drink.
Denominator	Female respondents 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*) — with 95% confidence interval.
Period for case definition	Average day.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2003, a total of 4.6% of adult women reported an average daily consumption of >1 alcoholic drink.
Significance	Approximately 85,000 deaths each year in the United States are attributed to alcohol abuse. Approximately 5,000 infants are born each year with fetal alcohol syndrome, which is irreversible and the leading known cause of mental retardation. Alcohol use by pregnant women is the cause of fetal alcohol syndrome. Alcohol abuse 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 specific amount of alcohol consumed.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010 objectives</i>	26-13: Reduce the proportion of adults who exceed the guidelines for low-risk drinking. (26-13a is specific for females; 26-13b is specific for males.)
Additional data items	Age, race, ethnicity, or education.

\* See 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.

## Indicator 15 — Mortality from Chronic Liver Disease

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	In 2000, a total of 26,000 persons died from chronic liver disease. The age-adjusted rate of death among males (13.4/100,000) was greater than the rate among females (6.1/100,000).
Significance	Approximately 85,000 deaths each year in the United States are attributed to alcohol abuse. 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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	26.2: Reduce deaths caused by cirrhosis.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 16 — Cigarette 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 are current smokers on every day or some days.
Denominator	Respondents aged ≥18 years who report ever or not ever smoking 100 cigarettes in their lifetime and report their current smoking status (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*) — with 95% confidence interval.
Period for case definition	Current.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
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.
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 amount 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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or answer specific questions), or measurement (e.g., social desirability or recall bias).
Healthy People 2010 objectives	27-1: Reduce tobacco use by adults. (27-1a is specific for cigarette smoking.)
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 17 — 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 day during the previous 30 days.
Denominator	Respondents in grades 9–12 who report having or not having smoked a cigarette on ≥1 day during the previous 30 days (excluding those who did not answer).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Previous 30 days.
Data resources	Youth Risk Behavior Surveillance System (YRBSS) and Youth Tobacco Survey (YTS).
Background	In 2003, a total of 22% of students in grades 9–12 smoked ≥1 cigarette during the previous 30 days. A greater percentage of white students smoked than did black or Hispanic students.
Significance	In each of the 50 states and the District of Columbia, purchasing tobacco products is illegal for youth aged <18 years. Among adults in the United States who ever smoked daily, 82% tried their first cigarette before age 18 years. 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 for heart disease and lung cancer among nonsmokers.
Limitations of indicator	Indicator does not convey the lifetime or current amount of cigarettes smoked. Each of these factors can affect the risk for 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. It also does not indicate the usual source of acquiring cigarettes.
Limitations of data resources	As with all self-reported sample surveys, YRBSS and YTS 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).
<i>Healthy People 2010 objectives</i>	27-2: Reduce tobacco use by adolescents. (27-2a is specific for tobacco products [previous month]; 27-2b is specific for cigarettes [previous month].)
Additional data items	Age, sex, race, ethnicity, or grade.

## Indicator 18 — Smokeless Tobacco Use Among Youth

Demographic group	Students in grades 9–12.
Numerator	Respondents in grades 9–12 who report having used smokeless tobacco products on $\geq 1$ days during the previous 30 days.
Denominator	Respondents in grades 9–12 who report having or not having used smokeless tobacco products on $\geq 1$ days during the previous 30 days (excluding those who did not answer).
Measures of frequency	Annual prevalence with 95% confidence interval.
Period for case definition	Previous 30 days.
Data resources	Youth Risk Behavior Surveillance System (YRBSS) and Youth Tobacco Survey (YTS).
Background	In 2003, a total of 1.5% of students in grades 9–12 used chewing tobacco or snuff on $\geq 1$ of the previous 30 days. A greater percentage of male and white students used smokeless tobacco than did female and black students, respectively.
Significance	Smokeless tobacco use is a cause of oral cancer and oral leukoplakia. Also, studies have determined it to be a risk factor for coronary heart disease, hypertension, and stomach cancer. Smokeless tobacco use established during adolescence might extend into adulthood and affect risk for chronic disease. In each of the 50 states and the District of Columbia, purchasing tobacco products is illegal for youth aged <18 years.
Limitations of indicator	Indicator does not convey the frequency of using smokeless tobacco or the lifetime and current amount of smokeless tobacco consumed. Each of these might affect the risk for chronic disease.
Limitations of data resources	As with all self-reported sample surveys, YRBSS and YTS 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).
<i>Healthy People 2010</i> objectives	27-2: Reduce tobacco use by adolescents. (27-2a is specific for tobacco products [previous month]; 27-2c is specific for spit tobacco [previous month].)
Additional data items	Age, sex, race, ethnicity, or grade.

## Indicator 19 — Sale of Cigarette Packs

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.
Period for case definition	Calendar year.
Data resources	Sales data from State Tobacco Activities Tracking and Evaluation (STATE) System or state revenue agency (numerator), and population estimates from U.S. Bureau of the Census or suitable alternative (denominator).
Background	In 2002, a total of 20.4 billion packs of cigarettes were sold in the United States. The national per capita consumption was 71.7 packs of cigarettes.
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 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.
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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Amount of excise tax.



## Cancer



## Indicator 20 — Incidence of Invasive Cancer (All Sites Combined)

Demographic group	All resident persons.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C00–C80 and behavior = 3 (malignant, primary site), or 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	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	Approximately 1.3 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 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.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, cancer site, or stage at diagnosis.

\* See 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.

## Indicator 21 — Mortality from Cancer (All Sites Combined)

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer was the second leading cause of death in the United States, accounting for approximately 553,400 deaths. Approximately 1.3 million new cases of cancer are diagnosed annually. Approximately one in two males and one in three females will have a diagnosis of cancer during their lifetime.
Significance	Morbidity or mortality from cancers of the lung, colon and rectum, female breast, cervix, oral cavity and pharynx, and multiple other cancers can be reduced through known interventions. Information on cancer at all sites combined provides a measure of, and means of tracking, the substantial burden imposed by cancer.
Limitations of indicator	Cancer is not a single disease, but rather numerous diseases with different causes, risks, and potential interventions. Interpretation of increases or decreases 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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3-1: Reduce the overall cancer death rate.
Additional data items	Age, sex, race, ethnicity, cancer site, or education.

\* See 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.

## Indicator 22 — Incidence of Cancer of the Lung and Bronchus

Demographic group	All resident persons.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C34 and behavior = 3 (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	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, cancer of the lung was the most common cause of cancer mortality, accounting for approximately 157,400 deaths. Approximately 170,000 new cases are diagnosed annually. In the United States, incidence of lung cancer among women is increasing. Both incidence and mortality rates of lung cancer are approximately two times higher among men than women.
Significance	Cigarette smoking accounts for 80%–90% of lung cancer. Lung cancer is also associated with environmental tobacco smoke and certain workplace exposures. A healthy diet might reduce risk.
Limitations of indicator	Because lung cancer has a long latency period, behavior changes affecting the incidence of lung cancer might not be apparent for years.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 23 — Mortality from Cancer of the Lung and Bronchus

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer of the lung was the most common cause of cancer mortality, accounting for approximately 157,400 deaths. Approximately 170,000 new cases are diagnosed annually. In the United States, mortality from lung cancer among women is increasing, but among men, mortality is decreasing. The 5-year relative survival rate is <15%, among one of the lowest of common cancers.
Significance	Approximately 80%–90% of lung cancer mortality is attributable to cigarette smoking. Lung cancer mortality is also associated with environmental tobacco smoke and certain workplace exposures. A healthy diet might reduce risk.
Limitations of indicator	Because lung cancer has a long latency period, years might pass before changes in smoking behavior or patterns of clinical practice affect lung cancer mortality among the general population.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3-2: Reduce the lung cancer death rate.
Additional data items	Age, sex, education, race, or ethnicity.

\* See 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.

## Indicator 24 — Incidence of Cancer of the Colon and Rectum

Demographic group	All resident persons.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) codes 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	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, cancer of the colon and rectum caused approximately 56,700 deaths and was the second most common cause of cancer death. In 2003, approximately 148,000 new cases were diagnosed. The incidence of colon and rectum cancer rises sharply after age 50 years.
Significance	Early detection with fecal occult blood testing and sigmoidoscopy/colonoscopy, treatment of precancerous lesions, and treatment in the early stages of cancer decrease mortality from colon and rectum cancer. Comparison of rates by stage at diagnosis can be used to measure the effectiveness and coverage of screening programs. Physical activity, healthy diet, and avoidance of overweight might reduce risk.
Limitations of indicator	Because colon and rectum cancer has a long latency period, years might pass before changes in behavior or clinical practice patterns affect the incidence rate for these cancers. If interventions increase screening rates, a transient increase in the incidence rate might be observed.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 25 — Mortality from Cancer of the Colon and Rectum

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 codes C18–C21 (ICD-9 codes 153–154) 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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer of the colon and rectum caused approximately 56,700 deaths and was the second most common cause of cancer death. Approximately 148,000 new cases are diagnosed annually. The mortality rate among men is substantially higher than that among women.
Significance	Early detection with fecal occult blood testing and sigmoidoscopy/colonoscopy, treatment of precancerous lesions, and treatment in the early stages of cancer decrease mortality from colon and rectum cancer. Physical activity, healthy diet, and avoidance of overweight might reduce risk.
Limitations of indicator	Because colon and rectum cancer have a long latency period, years might pass before changes in behavior or clinical practice patterns affect population mortality.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3-5: Reduce the colorectal cancer death rate.
Additional data items	Age, sex, education, race, or ethnicity.

\* See 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.

## Indicator 26 — Incidence of Invasive Cancer of the Female Breast

Demographic group	All female residents.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (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 resident female population for the same calendar year.
Measures of frequency	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, cancer of the female breast caused approximately 40,200 deaths. Approximately 211,000 new cases are diagnosed annually; breast cancer is the most common cancer among women. One in every eight women will have breast cancer during her lifetime.
Significance	Comparison of rates by stage at diagnosis can be used to measure the effectiveness and coverage of screening programs. Physical activity, healthy diet, and avoidance of overweight might reduce risk.
Limitations of indicator	Because breast cancer has a long latency period, years might pass before changes in behavior or clinical practice patterns affect the incidence of breast cancer. If certain interventions (e.g., screening) are effective and widespread, a transient increase in incidence might be observed.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 27 — Mortality from Cancer of the Female Breast

Demographic group	All female residents.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 code C50 (ICD-9 code 174) 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	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer of the female breast caused approximately 40,200 deaths. Approximately 211,000 new cases are diagnosed annually. Breast cancer is the most common cancer among women; one in every eight women will have breast cancer during her lifetime.
Significance	Mammography screening with or without clinical breast examination can reduce breast cancer deaths by 16% among women aged $\geq 40$ years, and the risk reduction is greater among older women. Although limited scientific controversy remains regarding the benefits versus the risks of screening women in their 40s, mammography and clinical breast examination are recommended for women aged 50–69 years.
Limitations of indicator	Because breast cancer can have a long latency period, years might pass before changes in behavior or clinical practice affect population mortality.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3.3: Reduce the breast cancer death rate.
Additional data items	Age, education, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 28 — Incidence of Invasive Cancer of the Prostate

Demographic group	All male residents.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (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	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, cancer of the prostate caused approximately 31,500 deaths. Approximately 221,000 new cases are diagnosed annually. Prostate cancer is the most common cancer among men; one in every six men will have prostate cancer during his lifetime. Black men have higher rates of prostate cancer incidence and mortality than do white men.
Significance	Although screening and treatment procedures are controversial, the practice of screening for prostate cancer has increased the number of new cases and the percentage of new cases diagnosed at an early stage. Certain studies indicate that a healthy diet might reduce risk.
Limitations of indicator	Because of the lack of consensus regarding appropriate treatment of prostate cancer, secondary prevention efforts to reduce mortality through screening remain controversial. If certain interventions (e.g., screening) are effective and widespread, a transient increase in incidence might be observed.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 29 — Mortality from Cancer of the Prostate

Demographic group	All male residents.
Numerator	Deaths with <i>International Classification of Diseases</i> (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	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer of the prostate caused approximately 31,500 deaths. Approximately 221,000 new cases are diagnosed annually. Prostate cancer is the most common cancer among men; one in every six men will have prostate cancer during his lifetime. Black men have higher rates of prostate cancer incidence and mortality than do white men.
Significance	Substantial evidence exists that prostate-specific antigen (PSA) screening can detect early-stage prostate cancer, but evidence is mixed and inconclusive regarding the ability of early detection to improve health outcomes, including mortality. Screening is associated with critical harms, including frequent false-positive results and unnecessary anxiety, biopsies, and potential complications of treatment of certain cancers that might never have affected a patient's health. Evidence is insufficient to determine whether the benefits outweigh the harms for a screened population.
Limitations of indicator	Because prostate cancer can have a long latency period, years might pass before changes in behavior or clinical practice affect population mortality. Because of the lack of consensus regarding appropriate treatment of prostate cancer, secondary prevention efforts to reduce mortality through screening remain controversial.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3-7: Reduce the prostate cancer death rate.
Additional data items	Age, education, race, or ethnicity.

\* See 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.

## Indicator 30 — Incidence of Invasive Cancer of the Cervix

Demographic group	All female residents.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (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 resident female population for the same calendar year.
Measures of frequency	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, cancer of the cervix caused approximately 4,400 deaths, and 12,200 new cases are diagnosed annually. Cases detected at a premalignant stage ( <i>in situ</i> ) are more common, accounting for 55,000 new cases/year. Black women have higher rates of cervical cancer incidence than do white women.
Significance	The dramatic decrease in cervical cancer incidence and mortality during the past 40 years is mainly the result of the widespread use of the Papanicolaou test. Cigarette smoking; infection with the high-risk human papilloma virus; and certain sexual practices, including having multiple sex partners, early age at first intercourse, and history of a sexually transmitted disease, increase the risk for cervical cancer.
Limitations of indicator	Because cancer of the cervix has a long latency period, years might pass before changes in behavior or clinical practice patterns affect the incidence rate of cancer of the cervix. If certain interventions (e.g., screening) are effective and widespread, a transient increase in incidence among populations at high risk might be observed.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 31 — Mortality from Cancer of the Cervix

Demographic group	All female residents.
Numerator	Deaths with <i>International Classification of Diseases</i> (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	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer of the cervix caused approximately 4,400 deaths. Approximately 12,200 new cases are diagnosed annually. Cases detected at the earliest, premalignant stage ( <i>in situ</i> ) are more common, accounting for 55,000 new cases/year. Black women have higher rates of cervical cancer incidence and mortality than do white women.
Significance	Approximately 40%–60% of cervical cancer deaths could be prevented by increased use of the Papanicolaou (Pap) test and effective, timely treatment. The dramatic decrease in cervical cancer incidence and mortality during the past 40 years is mainly the result of the widespread use of the Pap test. Cigarette smoking; infection with the high-risk human papilloma virus; 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 cancer of the cervix can have a long latency period, years might pass before changes in behavior or clinical practice affect population mortality.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3.4: Reduce the death rate from cancer of the uterine cervix.
Additional data items	Age, education, race, or ethnicity.

\* See 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.

## Indicator 32 — Incidence of Cancer of the Bladder (*In Situ* and Invasive)

Demographic group	All resident persons.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C67 and behavior = 2 or 3 (in situ or 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	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, cancer of the bladder caused approximately 12,400 deaths, and 57,400 new cases are diagnosed annually. Bladder cancer occurs more frequently among white males than it does among other groups.
Significance	Cigarette smoking is estimated to account for 30%–50% of bladder cancer. Risk of bladder cancer is also associated with certain occupational exposures. Approximately 20% of bladder cancer is attributable to occupational exposure.
Limitations of indicator	Because bladder cancer has a long latency period, years might pass before changes in behavior or clinical practice patterns affect incidence.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, stage at diagnosis, or occupation.

\* See 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.

## Indicator 33 — Mortality from Cancer of the Bladder

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 code C67 (ICD-9 code 188) 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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer of the bladder caused approximately 12,400 deaths, and 57,400 new cases are diagnosed annually. Bladder cancer occurs more frequently among white males than among other groups.
Significance	Cigarette smoking is estimated to account for 30%–50% of bladder cancer. Risk of bladder cancer is also associated with certain occupational exposures. Approximately 20% of bladder cancer is attributable to occupational exposure.
Limitations of indicator	Because bladder cancer can have a long latency period, years might pass before changes in behavior or clinical practice affect population mortality.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, education, race, ethnicity, stage at diagnosis, or occupation.

\* See 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.

## Indicator 34 — Incidence of Invasive Melanoma

Demographic group	All resident persons.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (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	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator) and population estimates from U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, melanoma caused approximately 7,800 deaths, and 54,200 new cases are diagnosed annually. Approximately 80% of all skin cancer-associated deaths are caused by melanoma. The incidence of melanoma increased in the 1990s, although not as rapidly as in previous years. Melanoma is 15 times more common among whites than among blacks.
Significance	Sun exposure, especially intense, repeated, blistering sunburns during childhood, increases the risk of melanoma as an adult. Prevention of melanoma should include avoidance of sunburns.
Limitations of indicator	Because melanoma has a long latency period, years might pass before changes in behavior or clinical practice patterns affect the incidence of melanoma. If certain interventions (e.g., screening) are effective and widespread, a transient increase in incidence might be observed.
Limitations of data resources	Melanoma is frequently diagnosed outside of the hospital and therefore might be underreported by a central cancer registry that does not employ special case identification mechanisms, including reporting by dermatologists and other physicians. Data from certain existing statewide cancer registries do not yet meet standards for data completeness and quality. Certain newly established central state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 35 — Mortality from Melanoma

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, melanoma caused approximately 7,800 deaths, and 54,200 new cases are diagnosed annually. Approximately 80% of all skin cancer-associated deaths are caused by melanoma. The incidence of melanoma increased in the 1990s, although not as rapidly as in previous years. Melanoma is 15 times more common among whites than among blacks and has the highest case-fatality rate of all skin cancers.
Significance	Sun exposure, especially intense, repeated, blistering sunburns during childhood, increase the risk of melanoma as an adult. Prevention of melanoma should include avoidance of sunburns.
Limitations of indicator	Because melanoma can have a long latency period, years might pass before changes in behavior or clinical practice affect population mortality.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3-8: Reduce the rate of melanoma cancer deaths.
Additional data items	Age, education, sex, race, or ethnicity.

\* See 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.

## Indicator 36 — Incidence of Invasive Cancer of the Oral Cavity or Pharynx

Demographic group	All resident persons.
Numerator	Incident cases of cancer with an <i>International Classification of Diseases</i> (ICD)-O-2 or ICD-O-3 (for cases diagnosed after January 1, 2001) code C00–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	Annual number of incident cases. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	Cancer incidence data from statewide central cancer registries (numerator), and population estimates from U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, cancer of the oral cavity and pharynx caused approximately 7,800 deaths, and 30,100 new cases are diagnosed annually. The 5-year relative survival rate is approximately 50%, among the lowest of most common cancers.
Significance	Cancer of the oral cavity and pharynx is associated with use of tobacco products and excessive alcohol use. Together, tobacco and alcohol use account for approximately 75% of all oral cancers in the United States. Comparison of rates by stage at diagnosis can be used to measure the effectiveness and coverage of screening programs.
Limitations of indicator	Because cancer of the oral cavity or pharynx has a long latency period, years might pass before changes in behavior or clinical practice patterns affect its incidence. If interventions increase screening rates, a transient increase in incidence might be observed.
Limitations of data resources	Data from certain existing statewide central cancer registries do not yet meet standards for data completeness and quality. Certain newly established state registries have not yet begun to produce surveillance data. 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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or stage at diagnosis.

\* See 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.

## Indicator 37 — Mortality from Cancer of the Oral Cavity or Pharynx

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, cancer of the oral cavity and pharynx caused approximately 7,800 deaths, and 30,100 new cases are diagnosed annually. The 5-year survival rate is approximately 50%, among the lowest of most common cancers.
Significance	Cancer of the oral cavity and pharynx is associated with use of tobacco products and excessive alcohol use. Together, tobacco and alcohol use account for approximately 75% of all oral cancers in the United States.
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 affect population mortality.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	3-6: Reduce the oropharyngeal cancer death rate.
Additional data items	Age, education, sex, race, or ethnicity.

\* See 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.

## Indicator 38 — Mammography Use Among Women Aged $\geq 40$ Years

Demographic group	Resident females aged $\geq 40$ years.
Numerator	Female respondents aged $\geq 40$ years who report having had a mammogram within the previous 2 years.
Denominator	Female respondents aged $\geq 40$ years who report ever having or never having had a mammogram (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 15*) — with 95% confidence interval.
Period for case definition	Previous 2 years.
Data resources	Behavioral Risk Factor Surveillance Survey (BRFSS).
Background	In 2000, a total of 18% of women aged $\geq 40$ years had not had a mammogram within the previous 2 years. Breast cancer is the most common cancer among women. Female breast cancer caused approximately 40,200 deaths in 2001. Approximately 211,000 new cases of invasive breast cancer are diagnosed annually.
Significance	Mammography screening with or without clinical breast examination can reduce breast cancer deaths by 16% among women aged $\geq 40$ years; risk reduction is greater among women aged $\geq 50$ years.
Limitations of indicator	Recommendations for mammography screening are not always consistent among national groups.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	3-13: Increase the proportion of women aged $\geq 40$ years who have received a mammogram within the preceding 2 years.
Additional data items	Age, education, race, or ethnicity.

\* See 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.

## Indicator 39 — Clinical Breast Examination Among Women Aged $\geq 40$ Years

Demographic group	Resident females aged $\geq 40$ years.
Numerator	Female respondents aged $\geq 40$ years who report having a clinical breast exam within the previous 2 years.
Denominator	Female respondents aged $\geq 40$ years who report ever having or never having had a clinical breast exam (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 15*) — with 95% confidence interval.
Period for case definition	Previous 2 years.
Data resources	Behavioral Risk Factor Surveillance Survey (BRFSS).
Background	In 2000, a total of 9% of women aged $\geq 40$ years had never had a clinical breast examination. Breast cancer is the most common cancer among women. Female breast cancer caused approximately 40,200 deaths in 2001. Approximately 211,000 new cases of invasive breast cancer are diagnosed annually.
Significance	Among women aged 50–69 years, detection and treatment of breast cancer at an early stage reduces the risk of breast cancer mortality by 25%–30%. Although controversy remains regarding effectiveness, a clinical breast exam is widely recommended for women aged $\geq 40$ years.
Limitations of indicator	Mammography and clinical breast examination combined are more effective in detecting breast cancer than either examination alone.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, education, race, or ethnicity.

\* See 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.

## **Indicator 40 — Papanicolaou Smear Use Among Adult Women Aged $\geq 18$ Years**

Demographic group	Resident females aged $\geq 18$ years without a hysterectomy.
Numerator	Female respondents aged $\geq 18$ 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 $\geq 18$ 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	Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9*) — with 95% confidence interval.
Period for case definition	Previous 3 years.
Data resources	Behavioral Risk Factor Surveillance Survey (BRFSS).
Background	In 2000, a total of 13% of women aged $\geq 18$ years had not had a Pap smear within the previous 3 years. During 2001, cancer of the cervix caused approximately 4,400 deaths, and 12,200 new cases are diagnosed annually. Cases detected at the earliest, premalignant stage ( <i>in situ</i> ) are more common, accounting for 55,000 cases/year. Black women have higher rates of cervical cancer incidence and mortality than do white women.
Significance	Approximately 40%–60% of cervical cancer deaths can be prevented by increased use of the Pap test and effective, timely treatment. The dramatic decrease in cervical cancer incidence and mortality during the past 40 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 is not appropriate for all women.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	3-11: Increase the proportion of women who receive a Pap test. (3-11b is specific for women aged $\geq 18$ years who received a Pap test within the preceding 3 years.)
Additional data items	Age, education, race, or ethnicity.

\* See 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.

## Indicator 41 — Fecal Occult Blood Test or Sigmoidoscopy/Colonoscopy Among Adults Aged $\geq 50$ Years

Demographic group	Resident persons aged $\geq 50$ years.
Numerator	Respondents aged $\geq 50$ years who report having either a fecal occult blood test (FOBT) within the previous year or a sigmoidoscopy or colonoscopy exam within the previous 5 years.
Denominator	Respondents aged $\geq 50$ years who report ever having or never having an FOBT and who report ever having or never having either a sigmoidoscopy or colonoscopy (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 17*) — with 95% confidence interval.
Period for case definition	Previous year for FOBT or previous 5 years for sigmoidoscopy or colonoscopy.
Data resources	Behavioral Risk Factor Surveillance Survey (BRFSS).
Background	In 2001, among adults aged $\geq 50$ years, 69% had not had an FOBT within the previous 2 years, and 54% had never had a sigmoidoscopy. During 2001, cancer of the colon and rectum caused approximately 56,700 deaths and was the second most common cause of cancer death. Approximately 148,000 new cases are diagnosed annually. The incidence of colon and rectum cancer rises sharply after age 50 years.
Significance	Mortality from colon and rectum cancer can be reduced through early detection and treatment.
Limitations of indicator	A lack of scientific and clinical consensus exists concerning the choice of screening tests, the appropriate screening intervals, and the cost-effectiveness of screening.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, or ethnicity.

\* See 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.

## Indicator 42 — Fecal Occult Blood Test Among Adults Aged $\geq 50$ Years

Demographic group	Resident persons aged $\geq 50$ years.
Numerator	Respondents aged $\geq 50$ years who report having had a fecal occult blood test (FOBT) within the previous year.
Denominator	Respondents aged $\geq 50$ years who report ever having or never having an FOBT (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 17*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance Survey (BRFSS).
Background	In 2001, among adults aged $\geq 50$ years, 69% had not had an FOBT within the previous 2 years. During 2001, cancer of the colon and rectum caused approximately 56,700 deaths and was the second most common cause of cancer death. Approximately 148,000 new cases are diagnosed annually. The incidence of colon and rectum cancer rises sharply after age 50 years.
Significance	Early detection with FOBT and sigmoidoscopy/colonoscopy, treatment of precancerous lesions, and treatment in the early stages of cancer decrease mortality from colon and rectum cancer.
Limitations of indicator	A lack of scientific and clinical consensus exists concerning the choice of screening tests, the appropriate screening intervals, and the cost-effectiveness of screening. The specificity of FOBT is low.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	3-12: Increase the proportion of adults who receive a colorectal cancer screening examination. (3-12a is specific for adults aged $\geq 50$ years who have received an FOBT within the preceding 2 years.)
Additional data items	Age, sex, race, or ethnicity.

\* See 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.

## Indicator 43 — Sigmoidoscopy/Colonoscopy Among Adults Aged $\geq 50$ Years

Demographic group	Resident persons aged $\geq 50$ years.
Numerator	Respondents aged $\geq 50$ years who report having had either a sigmoidoscopy or colonoscopy within the previous 5 years.
Denominator	Respondents aged $\geq 50$ years who report ever having or never having either a sigmoidoscopy or colonoscopy (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 17*) — with 95% confidence interval.
Period for case definition	Previous 5 years.
Data resources	Behavioral Risk Factor Surveillance Survey (BRFSS).
Background	In 2001, among adults aged $\geq 50$ years, 54% had never had a sigmoidoscopy. During 2001, cancer of the colon and rectum caused approximately 56,700 deaths and was the second most common cause of cancer death. Approximately 148,000 new cases are diagnosed annually. The incidence of colon and rectum cancer rises sharply after age 50 years.
Significance	Early detection with fecal occult blood testing and sigmoidoscopy/colonoscopy, treatment of precancerous lesions, and treatment in the early stages of cancer decrease mortality from colon and rectum cancer.
Limitations of indicator	A lack of scientific and clinical consensus exists concerning the choice of screening and surveillance tests, the appropriate screening and surveillance intervals, and the cost-effectiveness of screening.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	3-12: Increase the proportion of adults who receive a colorectal cancer screening examination. (3-12b is specific for adults aged $\geq 50$ years who have ever received a sigmoidoscopy.)
Additional data items	Age, sex, race, or ethnicity.

\* See 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.

## **Cardiovascular Disease**



## Indicator 44 — Mortality from Major Cardiovascular Diseases

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 codes I00–I78 (ICD-9 code 390–448) 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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	Cardiovascular disease (CVD) is the major cause of death in the United States, accounting for approximately 40% (936,900 in 2000) of all deaths each year. The age-adjusted rate among males (407.3/100,000) is greater than the age-adjusted rate among females (288.4/100,000).
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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 45 — Mortality from Diseases of the Heart

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2000, heart disease was the largest component of cardiovascular disease mortality, accounting for approximately 710,800 deaths. The age-adjusted rate among males (320.0/100,000) is greater than the age-adjusted rate among females (210.9/100,000).
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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 46 — Mortality from Coronary Heart Disease

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 codes I11, I20–I25 (ICD-9 codes 402, 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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2000, coronary heart disease (CHD) was the largest component of heart disease mortality, accounting for approximately 539,000 deaths.
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, unspecified,” 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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	12.1: Reduce coronary heart disease deaths.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 47 — Mortality from Congestive Heart Failure

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 code I50.0 (ICD-9 code 428.0) 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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 48 — Mortality from Cerebrovascular Disease (Stroke)

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2000, stroke was the third leading cause of death in the United States, accounting for approximately 167,700 deaths. 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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	12.7: Reduce stroke deaths.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 49 — Hospitalization for Acute Myocardial Infarction

Demographic group	All resident persons.
Numerator	Hospitalizations (not unduplicated*) with principal diagnosis of <i>International Classification of Diseases</i> (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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1†) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	Acute myocardial infarction is one measure of the incidence of heart disease. Heart disease is the largest component of cardiovascular disease mortality.
Significance	Modifiable risk factors for coronary heart disease (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. A substantial number of misdiagnoses, particularly among women, have been reported.
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 hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, principal payer, charges, residence, or discharge status.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 50 — Hospitalization for Congestive Heart Failure

Demographic group	All resident persons.
Numerator	Hospitalizations (not unduplicated*) with principal diagnosis of <i>International Classification of Diseases</i> (ICD)-9-CM code 428.0 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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1†) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	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, hospitalizations 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 which can have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population morbidity and mortality.
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 could falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.
Healthy People 2010 objectives	12.6: Reduce hospitalizations of older adults with congestive heart failure as the principal diagnosis. (12-6a is specific for adults aged 65–74 years; 12-6b is specific for adults aged 75–84 years; 12-6c is specific for adults aged $\geq 85$ years.)
Additional data items	Age, sex, principal payer, charges, residence, or discharge status.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 51 — Hospitalization for Congestive Heart Failure Among Medicare-Eligible Persons Aged $\geq 65$ Years

Demographic group	Medicare-eligible resident persons aged $\geq 65$ years.
Numerator	Hospitalizations (not unduplicated*) with principal diagnosis of <i>International Classification of Diseases</i> (ICD)-9-CM code 428.0 among Medicare-eligible resident persons aged $\geq 65$ years.
Denominator	Residents aged $\geq 65$ 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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 18†) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	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, hospitalizations 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 that can have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population morbidity and mortality.
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. Indicator is limited to Medicare-eligible population.
<i>Healthy People 2010</i> objectives	12.6: Reduce hospitalizations of older adults with congestive heart failure as the principal diagnosis. (12-6a is specific for adults aged 65–74 years; 12-6b is specific for adults aged 75–84 years; 12-6c is specific for adults aged $\geq 85$ years.)
Additional data items	Age, sex, principal payer, charges, residence, or discharge status.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 52 — Medicare-Eligible Persons Aged >65 Years Hospitalized for Congestive Heart Failure

Demographic group	Medicare-eligible resident persons aged $\geq 65$ years.
Numerator	Hospitalizations (unduplicated*) with principal diagnosis <i>International Classification of Diseases</i> (ICD)-9-CM code 428.0 among Medicare-eligible resident persons aged $\geq 65$ years.
Denominator	Residents aged $\geq 65$ 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 persons hospitalized. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 18†) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	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, hospitalizations 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 morbidity and mortality.
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. Indicator is limited to Medicare-eligible population.
<i>Healthy People 2010</i> objectives	12.6: Reduce hospitalizations of older adults with congestive heart failure as the principal diagnosis. (12-6a is specific for adults aged 65–74 years; 12-6b is specific for adults aged 75–84 years; 12-6c is specific for adults aged $\geq 85$ years.)
Additional data items	Age, sex, principal payer, charges, residence, or discharge status.

\* The term *unduplicated* means that persons with multiple admissions during the calendar year should only be counted once.

† See 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.

## Indicator 53 — Hospitalization for Cerebrovascular Accident or Stroke

Demographic group	All resident persons.
Numerator	Hospitalizations (not unduplicated*) with principal diagnosis <i>International Classification of Diseases</i> (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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1†) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	During 2001, stroke was the third leading cause of death in the United States, accounting for approximately 164,000 deaths.
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. 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 morbidity and mortality.
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 hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, principal payer, charges, residence, or discharge status.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 54 — Hospitalization for Cerebrovascular Accident or Stroke Among Medicare-Eligible Persons Aged $\geq 65$ Years

Demographic group	Medicare-eligible resident persons aged $\geq 65$ years.
Numerator	Hospitalizations (not unduplicated*) with principal diagnosis <i>International Classification of Diseases</i> (ICD)-9-CM codes 430–434 and 436–438 among Medicare-eligible resident persons aged $\geq 65$ years during a calendar year.
Denominator	Residents aged $\geq 65$ 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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 18†) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, stroke was the third leading cause of death in the United States, accounting for approximately 164,000 deaths.
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.
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. Indicator is limited to Medicare-eligible population.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, principal payer, charges, residence, or discharge status.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 55 — Medicare-Eligible Persons Aged ≥65 Years Hospitalized for Cerebrovascular Accident or Stroke

Demographic group	Medicare-eligible resident persons aged ≥65 years.
Numerator	Hospitalizations (unduplicated*) with principal diagnosis of <i>International Classification of Diseases</i> (ICD)-9-CM codes 430–434 and 436–438 of Medicare-eligible resident persons aged ≥65 years 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 persons hospitalized. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 18†) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2001, stroke was the third leading cause of death in the United States, accounting for approximately 164,000 deaths.
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.
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. Indicator is limited to Medicare-eligible population.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, principal payer, charges, residence, or discharge status.

\* The term *unduplicated* means that persons with multiple admissions during the calendar year should only be counted once.

† See 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.

## Indicator 56 — Cholesterol Screening Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report having their cholesterol checked within the previous 5 years.
Denominator	Respondents aged $\geq 18$ years who report having or not having their cholesterol checked within the previous 5 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 9*) — with 95% confidence interval.
Period for case definition	Previous 5 years.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	Although rates of cholesterol screening have doubled in the past 15 years, 25% of adults aged $\geq 35$ years still have not had their cholesterol checked within the previous 5 years. Approximately 50% of U.S. adults have elevated serum cholesterol ( $\geq 200$ mg/dL).
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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	12.15: Increase the proportion of adults who have had their blood cholesterol checked within the preceding 5 years.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 57 — Prevalence of High Blood Pressure Awareness Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report having been told by a doctor, nurse, or other health professional of having high blood pressure.
Denominator	Respondents aged $\geq 18$ 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 9*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2001, a total of 26% of adults reported having been told by a health-care provider that they have high blood pressure. Although the rate of recent blood pressure screening was relatively high (approximately 90% of adults have been screened in the previous year), the prevalence of controlled hypertension among persons with high blood pressure was much lower (approximately 25%–35%).
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 who currently have diagnosed high blood pressure.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
Healthy People 2010 objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## **Indicator 58 — Taking Medicine for High Blood Pressure Control Among Adults Aged $\geq 18$ Years**

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report taking medicine for high blood pressure.
Denominator	Respondents aged $\geq 18$ 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	Annual prevalence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 9*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2001, a total of 26% of adults reported having been told by a health-care provider that they have high blood pressure. Although the rate of recent blood pressure screening was relatively high (approximately 90% of adults have been screened in the previous year), the prevalence of controlled hypertension among persons with high blood pressure was much lower (approximately 25%–35%).
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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.



## Overarching Conditions



## Indicator 59 — 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.
Period for case definition	Calendar year.
Data resources	Current Population Survey.
Background	In 2002, a total of 12.1% (34.6 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.
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).
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

## Indicator 60 — 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.
Period for case definition	Calendar year.
Data resources	Current Population Survey.
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.
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).
<i>Healthy People 2010</i> objectives	7-1: Increase high school completion.
Additional data items	Age, sex, race, or ethnicity.

## Indicator 61 — 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.
Period for case definition	Calendar year.
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).
Background	During 2000, approximately 401,200 persons aged 45–64 years died in the United States. The rate among males (808.6/100,000) was greater than the rate among females (495.0/100,000).
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.
Limitations of data resources	Reporting of age at death varies in quality, especially for older persons.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

## Indicator 62 — 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.)
Period for case definition	Lifetime.
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. Bureau of the Census or suitable alternative.*
Background	In 2001, life expectancy among U.S. residents aged 65 years was 18.1 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.
Limitations of data resources	Reporting of age at death varies in quality, especially for older persons.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Sex, race, or ethnicity.

\* See Arias E. United States life tables, 2001. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2004. National vital statistics reports, vol 52, no. 14.

## Indicator 63 — Life Expectancy at Birth

Demographic group	All resident persons.
Numerator	Not applicable.
Denominator	Not applicable.
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.)
Period for case definition	Lifetime.
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. Bureau of the Census or suitable alternative.*
Background	In 2001, life expectancy among U.S. residents was 77.2 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.
Limitations of data resources	Reporting of age at death varies in quality, especially for older persons.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Sex, race, or ethnicity.

\* See Arias E. United States life tables, 2001. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics, 2004. National vital statistics reports, vol 52, no. 14.

## Indicator 64 — 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*) — with 95% confidence interval.
Period for case definition	Current.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2001, a total of 16% of adults aged 18–64 years had no health insurance. 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 $\geq 65$ years are eligible for Medicare.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	1.1: Increase the proportion of persons with health insurance.
Additional data items	Age, sex, race, ethnicity, income, or education.

\* See 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.

## Indicator 65 — Self-Assessed Health Status Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report their general health status as “fair” or “poor.”
Denominator	Respondents aged $\geq 18$ 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*) — with 95% confidence interval.
Period for case definition	Current.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, a total of 14% 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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	Goal 1: Increase quality and years of healthy life.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 66 — Recent Physical Health Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Sum of the number of days during the previous 30 days for which respondents aged $\geq 18$ years report that their physical health (including physical illness and injury) was not good.
Denominator	Total number of respondents aged $\geq 18$ years who report $\geq 0$ 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*) — with 95% confidence interval.
Period for case definition	Previous 30 days.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	During 1993–2000, the mean reported number of physically unhealthy days (i.e., days when physical health was not good) during the previous 30 days was 3.1. 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 physical health is used with recent mental health 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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	Goal 1: Increase quality and years of healthy life.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 67 — Recent Mental Health Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Sum of the number of days during the previous 30 days for which respondents aged $\geq 18$ years report that their mental health (including stress, depression, and problems with emotions) was not good.
Denominator	Total number of respondents aged $\geq 18$ years who report $\geq 0$ 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*) — with 95% confidence interval.
Period for case definition	Previous 30 days.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	During 1993–2000, the mean number of mentally unhealthy days (days when mental health was not good) during the previous 30 days was 3.0. During this period, 8.8% of adults reported “frequent mental distress” (i.e., $\geq 14$ 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 mental health is used with recent physical health 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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	Goal 1: Increase quality and years of healthy life.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 68 — Recent Activity Limitation Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Sum of the number of days during the previous 30 days for which respondents aged $\geq 18$ 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 $\geq 18$ years who report (or for whom it can be imputed*) $\geq 0$ 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†) — with 95% confidence interval.
Period for case definition	Previous 30 days.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	During 1993–2000, the mean number of days of recent activity limitation because of poor physical or mental health during the previous 30 days was 1.8. In 1999, a total of 6.2% of adult U.S. residents experienced $\geq 14$ 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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	Goal 1: Increase quality and years of healthy life.
Additional data items	Age, sex, race, ethnicity, or education.

\* For respondents who previously report 0 “unhealthy days” for recent physical health and recent mental health, this question is not asked, and 0 days of recent activity limitation are imputed.

† See 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.

## **Other Diseases and Risk Factors**



## Indicator 69 — Mortality with Diabetes

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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 mortality rate — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 4*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2002, diabetes was the sixth leading cause of death in the United States, resulting in approximately 73,000 deaths. Diabetes is three times as likely to be listed as a contributing cause of death than as the underlying cause of death. The leading underlying cause of death for deaths with diabetes listed as contributing cause is cardiovascular disease.
Significance	Multiple long-term complications of diabetes can be prevented through glucose, lipid, and blood pressure regulation, 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 third of cases of diabetes are undiagnosed. Diabetes is listed on the death certificates of only approximately half 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.
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.
<i>Healthy People 2010</i> objectives	5.5: Reduce the diabetes death rate.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 70 — Mortality with Diabetic Ketoacidosis

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	During 2000, diabetic ketoacidosis (DKA) was listed as the underlying cause of death for approximately 1,700 persons. DKA is more frequent among persons with type 1 diabetes than among persons with type 2. Diabetes is three times as likely to be listed as a contributing cause of death than as the underlying cause of death. The leading underlying cause of death for deaths with diabetes listed as a contributing cause is cardiovascular disease.
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 awareness of diabetes is higher among persons with type 1 diabetes than among those with type 2 diabetes, approximately one third of all cases of diabetes are undiagnosed. Also, although DKA is an acute event and would be expected to be listed more frequently as the underlying cause of death than other forms of diabetes, diabetes is listed on the death certificates of only approximately half of decedents who actually had diabetes.
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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 71 — Diabetes Prevalence Among Adults Aged $\geq 18$ Years

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report ever having physician-diagnosed diabetes other than diabetes during pregnancy.
Denominator	Respondents aged $\geq 18$ years who report or do not report ever having physician-diagnosed 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*) — with 95% confidence interval.
Period for case definition	Lifetime (ever diagnosed).
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, a total of 8.7% of the adult population aged $\geq 20$ years had 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 third of cases of diabetes are undiagnosed.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	5-3: Reduce the overall rate of diabetes that is clinically diagnosed.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 72 — Amputation of a Lower Extremity Attributable to Diabetes

Demographic group	All resident persons.
Numerator	Hospitalizations (unduplicated*) with a principal or contributing diagnosis of <i>International Classification of Diseases</i> (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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 4†) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	Diabetes is the leading cause of nontraumatic amputation in the United States, causing approximately 82,000 amputations/year.
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 third of cases of diabetes are undiagnosed, years might pass before changes in behavior or clinical practice affect the total incidence of amputation.
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. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete. If this estimate is calculated within the diabetes population, restrict the denominator to only persons with diabetes.
<i>Healthy People 2010</i> objectives	5-10: Reduce the rate of lower extremity amputations among persons with diabetes. (However, 5-10 does not exclude ICD-9-CM 895–897 and uses an estimate of the number of persons with diabetes as the denominator.)
Additional data items	Age, sex, race, ethnicity, education, payer, or insurance.

\* The term *unduplicated* means that persons with multiple admissions during the calendar year should only be counted once.

† See 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.

## Indicator 73 — Influenza Vaccination Among Adults Aged $\geq 18$ Years with Diabetes

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ 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 $\geq 18$ years ever told by a doctor or 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*) — with 95% confidence interval.
Period for case definition	Previous 12 months.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2001, approximately 54% of adults with diabetes reported receiving an influenza vaccination in the previous 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 $\geq 7$ 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.
Limitations of indicator	Respondents might not distinguish between influenza and pneumococcal ( <i>Streptococcus pneumoniae</i> ) vaccinations.
Limitations of data resources	Data from multiple years might be aggregated to increase the sample size. 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). 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.
Healthy People 2010 objectives	14-29: Increase the proportion of adults (noninstitutionalized adults aged $\geq 65$ years) who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease. (14-29a is specific for influenza vaccine.)
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 74 — Pneumonia Vaccination Among Adults Aged $\geq 18$ Years with Diabetes

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant) who report ever having received a pneumonia vaccination.
Denominator	Respondents aged $\geq 18$ years ever told by a doctor or 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*) — with 95% confidence interval.
Period for case definition	Lifetime (ever vaccinated).
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2001, approximately 46% of adults with diabetes reported ever receiving a pneumococcal vaccination.
Significance	Compared with persons without diabetes, mortality from pneumonia and influenza has been demonstrated to be $\geq 7$ 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. A pneumonia vaccination might prevent or attenuate the clinical course of respiratory illness attributable to <i>Streptococcus pneumoniae</i> .
Limitations of indicator	Respondents might not distinguish between influenza and pneumococcal ( <i>Streptococcus pneumoniae</i> ) vaccinations. The reliability and validity of this measure is unknown.
Limitations of data resources	Data from multiple years might be aggregated to increase the sample size. 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). 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.
Healthy People 2010 objectives	14-29: Increase the proportion of adults (noninstitutionalized adults aged $\geq 65$ years) who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease. (14-29b is specific for pneumococcal vaccine.)
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 75 — Foot Examination Among Adults Aged $\geq 18$ Years with Diabetes

Demographic group	Resident persons aged $>18$ years.
Numerator	Respondents aged $\geq 18$ 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 at least one clinical foot examination within the previous year.
Denominator	Respondents aged $\geq 18$ years ever told by a doctor or 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*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, approximately 68% of adults with diabetes reported having received at least one foot examination within the previous year.
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 82,000 amputations/year.
Limitations of indicator	The reliability and validity of this indicator are unknown.
Limitations of data resources	Data from multiple years might be aggregated to increase the sample size. 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). 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.
Healthy People 2010 objectives	5-14: Increase the proportion of adults who have at least an annual foot examination.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 76 — Self Blood-Glucose Monitoring Among Adults Aged $\geq 18$ Years with Diabetes

Demographic group	Resident persons aged $\geq 18$ years with diabetes.
Numerator	Respondents aged $\geq 18$ years ever told by a doctor or health professional that they have diabetes (excluding women who were told only when pregnant) who report self-blood glucose monitoring at least once daily.
Denominator	Respondents aged $\geq 18$ years ever told by a doctor or 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*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, approximately 57% of adults with diabetes reported self-blood glucose monitoring at least once daily.
Significance	Glycemic control among adults with diabetes is important in preventing or delaying the onset or progression of diabetes-related complications (e.g., retinopathy, lower extremity amputations, and end-stage renal disease). Self-monitoring of blood glucose assists persons with diabetes in controlling their blood glucose.
Limitations of indicator	The reliability and validity of this indicator is unknown.
Limitations of data resources	Data from multiple years might be aggregated to increase the sample size. 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). 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.
Healthy People 2010 objectives	5-17: Increase the proportion of adults with diabetes who perform self blood-glucose monitoring at least once daily.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 77 — Dilated Eye Examination Among Adults Aged $\geq 18$ Years with Diabetes

Demographic group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ 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 a dilated eye exam within the previous year.
Denominator	Respondents aged $\geq 18$ years ever told by a doctor or 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*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, approximately 70% 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 and those that are not.
Limitations of data resources	Data from multiple years might be aggregated to increase the sample size. 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). 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.
Healthy People 2010 objectives	5-13: Increase the proportion of adults with diabetes who have an annual dilated eye examination.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 78 — Hospitalization with Diabetes

Demographic group	All resident persons.
Numerator	Hospitalizations (not unduplicated*) with a principal or contributing diagnosis of <i>International Classification of Diseases</i> (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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 4†) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	Approximately 500,000 hospitalizations/year have diabetes listed as the principal diagnosis, and 3.5 million have diabetes listed as at least one diagnosis on the hospital discharge abstract. Cardiovascular disease, kidney failure, amputations, 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 third 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.
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 hospitalized. Because no universal availability of state hospital discharge data exists, aggregation of state data to produce nationwide estimates will be incomplete. If calculating this estimate within the diabetes population, restrict the denominator to only persons with diabetes.
Healthy People 2010 objectives	No objective.
Additional data items	Age, sex, race, ethnicity, education, payer, or insurance.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 79 — Mortality from End-Stage Renal Disease

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (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 593.9) as the underlying cause of death among residents during a calendar year.
Denominator	Midyear resident population for the same calendar year.
Measures of frequency	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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
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.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 80 — Mortality with End-Stage Renal Disease

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 codes N03–N05, N13.0–N13.3, N17–N19, N25–N26, N28.0, N28.8 (ICD-9 codes 581–588, 591, 593.8, 593.9) as the 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 1*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
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 by improved patient education and self-management, and the 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.
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.
<i>Healthy People 2010</i> objectives	No objective.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 81 — 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).
Period for case definition	Calendar year.
Data resources	End-stage renal disease (ESRD) incidence data in the U.S. Renal Data System (USRDS).
Background	In 2001, >96,000 incident cases of 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 by improved patient education and self-management, and the 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.
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.
<i>Healthy People 2010 objectives</i>	4-1: Reduce the rate of new cases of ESRD.
Additional data items	Age, sex, race, ethnicity, or education.

## Indicator 82 — 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).
Period for case definition	Calendar year.
Data resources	End-stage renal disease (ESRD) incidence data in the U.S. Renal Data System (USRDS).
Background	In 2001, >96,000 incident cases of ESRD were reported. Diabetes is the leading cause (44%) of ESRD.
Significance	The incidence of ESRD among persons with diabetes 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.
Limitations of data resources	Despite using multiple sources of information to learn of and verify patients who have ESRD, USRDS might not have complete counts. For example, patients who die of renal failure without first receiving dialysis or a transplant might not be verified as an ESRD patient 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 of the states and territories.
<i>Healthy People 2010</i> objectives	4-7: Reduce kidney failure caused by diabetes.
Additional data items	Age, sex, race, ethnicity, or education.

## Indicator 83 — Mortality with Chronic Obstructive Pulmonary Disease Among Adults Aged $\geq 45$ Years

Demographic group	Resident persons aged $\geq 45$ years.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 code J40-J47 (ICD-9 code 490-496) as the underlying or contributing cause of death among resident persons aged $\geq 45$ years during a calendar year.
Denominator	Midyear resident population aged $\geq 45$ years 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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	In 2000, chronic obstructive pulmonary disease (COPD) caused approximately 120,400 deaths in the United States. Mortality from COPD has increased by 40% in the past 2 decades. COPD affects approximately 6% of the general U.S. population.
Significance	Elimination of tobacco use is the most effective way to reduce COPD because approximately 90% of COPD is attributable to smoking. Other risk factors for COPD include occupational exposure and ambient air pollution.
Limitations of indicator	Because COPD is a chronic disease, years might pass before changes in behavior or clinical practice affect population mortality. Other surveillance reports have used different groupings of ICD rubrics to define COPD. The accuracy of the listing of the cause of death for chronic lung diseases, including COPD and asthma, might be low, especially among decedents aged $\geq 35$ years.
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.
<i>Healthy People 2010</i> objectives	24-10: Reduce deaths from COPD among adults.
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 84 — Pneumonia Vaccination Among Adults Aged $\geq 65$ Years

Demographic group	Resident persons aged $\geq 65$ years.
Numerator	Respondents aged $\geq 65$ years who report ever having received a pneumonia vaccination.
Denominator	Respondents aged $\geq 65$ years who report having or not ever having received a pneumonia vaccination (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, master list) — with 95% confidence interval.
Period for case definition	Ever vaccinated.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	Although vaccination rates have been increasing, in 2002, only 63% of adults aged $\geq 65$ years were ever vaccinated against pneumococcal disease. In 1999, >3000 adults aged $\geq 65$ years died from bacteremic pneumococcal pneumonia or other forms of invasive pneumococcal disease.
Significance	Ever having received a pneumococcal vaccination might prevent or attenuate the clinical course of respiratory illness attributable to <i>Streptococcus pneumoniae</i> . With the aging of the population, increasing numbers of adults will be at risk for these diseases and their complications.
Limitations of indicator	Respondents might not distinguish between influenza and pneumococcal ( <i>Streptococcus pneumoniae</i> ) vaccinations. The reliability and validity of this measure is unknown. Indicator does not measure vaccination rates among other populations at high risk, including persons with chronic illness who should also be vaccinated.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	14-29: Increase the proportion of adults (noninstitutionalized adults aged $\geq 65$ years) who are vaccinated annually against influenza and are ever vaccinated against pneumococcal disease. (14-29b is specific for pneumococcal vaccine.)
Additional data items	Age, sex, race, ethnicity, comorbidities, education, income, or health-care access.

## Indicator 85 — Influenza Vaccination Among Adults Aged $\geq 50$ Years

Demographic Group	Resident persons aged $\geq 50$ years.
Numerator	Respondents aged $\geq 50$ years who report having received an influenza vaccination within the previous year.
Denominator	Respondents aged $\geq 50$ 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) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	Although vaccination rates have increased, in 2002, only 68% of adults aged $\geq 65$ years were vaccinated against influenza. Influenza vaccination rates are even lower among adults aged 50–64 years.
Significance	Each year in the United States, influenza infections result in an average of 36,000 deaths (>90% of deaths occur among adults aged $\geq 65$ years) and 110,000 pneumonia and influenza hospitalizations. An annual influenza vaccination might prevent or attenuate the clinical course of respiratory illness attributable to influenza. With the aging of the population, increasing numbers of adults will be at risk for these diseases and their complications. To increase influenza vaccination among persons aged 50–64 years with medical conditions associated with increased risk of complications from influenza infection, the Advisory Committee on Immunization Practices has recommended that the age for annual influenza vaccination be lowered from age 65 years to 50 years.
Limitations of indicator	Respondents might not distinguish between influenza and pneumococcal ( <i>Streptococcus pneumoniae</i> ) vaccinations. Indicator does not measure vaccination rates among persons at high risk (e.g., persons with chronic illness) aged $<50$ years who should also be immunized.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	14-29: Increase the proportion of adults (noninstitutionalized adults aged $\geq 65$ years) who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease. (14-29a is specific for influenza vaccine.)
Additional data items	Age, sex, race, ethnicity, education, income, or health-care access.

## Indicator 86 — Hospitalization with Asthma

Demographic group	All resident persons.
Numerator	Hospitalizations (unduplicated*) with a principal or contributing diagnosis (search all diagnostic fields) of <i>International Classification of Diseases</i> (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.
Measures of Frequency	Annual number of persons hospitalized. Annual incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1†) — with 95% confidence interval.
Period for case definition	Calendar year.
Data resources	State hospital discharge data (numerator) and population estimates from the U.S. Bureau of the Census or suitable alternative (denominator).
Background	Each year, approximately 500,000 hospitalizations related to asthma occur in the United States. Hospitalization rates are highest in the northeastern region of the United States. An estimated 15 million U.S. residents have asthma, which is an 82% increase in the past 15 years. Although institutional care is used less frequently, its cost is substantially higher than the cost of outpatient and pharmaceutical services.
Significance	The majority of problems associated with asthma, including hospitalization, 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.
Limitations of Indicator	Because asthma is a chronic disease, years might pass before changes in behavior or clinical practice affect the number or rate of hospitalizations. Measurement of the indicator should be stratified into three age groups: <5 years; 5–64 years; and ≥65 years.
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 hospital's data set. Multiple admissions for one person might falsely elevate the number of persons hospitalized. Because universal state hospital discharge data are not available, aggregation of state data to produce nationwide estimates will be incomplete.
Healthy People 2010 objectives	24-2: Reduce hospitalizations for asthma. (24-2a is specific for children aged <5 years; 24-2b is specific for children and adults aged 5–64 years; 24-c is specific for adults aged ≥65 years.)
Additional data items	Age, sex, race, ethnicity, education, insurance, or payer.

\* The term *unduplicated* means that persons with multiple admissions during the calendar year should only be counted once.

† See 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.

## Indicator 87 — Mortality from Asthma

Demographic group	All resident persons.
Numerator	Deaths with <i>International Classification of Diseases</i> (ICD)-10 code J45-J46 (ICD-9 code 493) 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*) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	In 2000, approximately 4,500 persons died from asthma in the United States, and death rates have been increasing during the past decade. An estimated 15 million U.S. residents have asthma, which is an 82% increase in the past 15 years.
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.
Limitations of indicator	Because asthma is a chronic disease, years might pass before changes in behavior or clinical practice affect population mortality. The accuracy of the listing of the cause of death for chronic lung diseases (e.g., COPD and asthma) might be low, especially among decedents aged $\geq 35$ years.
Limitations of data resources	Causes of death and other variables listed on the death certificate might be inaccurate.
<i>Healthy People 2010</i> objectives	24-1: Reduce asthma deaths. (24-1a is specific for children aged $<5$ years; 24-1b is specific for children aged 5–14 years; 24-1c is specific for adolescents and adults aged 15–34 years; 24-1d is specific for adults aged 35–64 years; 24-1e is specific for adults aged $\geq 65$ years.)
Additional data items	Age, sex, race, ethnicity, or education.

\* See 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.

## Indicator 88 — Hospitalization for Hip Fracture Among Medicare-Eligible Persons Aged $\geq 65$ Years

Demographic group	Medicare-eligible resident persons aged $\geq 65$ years.
Numerator	Hospitalizations (not unduplicated*) with an <i>International Classification of Diseases</i> (ICD)-9-CM code 820 (search all diagnostic fields) among Medicare-eligible persons aged $\geq 65$ years among residents during a calendar year.
Denominator	Residents aged $\geq 65$ 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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1†) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	Approximately 212,000 hip fractures occur each year in the United States. The rate of hospitalization for hip fracture among females is approximately three times higher than the rate among males. Approximately 5–8 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).
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.
<i>Healthy People 2010</i> objectives	15-28: Reduce hip fractures among older adults. (15-28a is specific for females aged $\geq 65$ years; 15-28b is specific for males aged $\geq 65$ years.)
Additional data items	Age, sex, race, ethnicity, education, insurance, or payer.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 89 — Hospitalization for Vertebral Fractures Among Medicare-Eligible Persons Aged $\geq 65$ Years

Demographic group	Medicare-eligible resident persons aged $\geq 65$ years.
Numerator	Hospitalizations (not unduplicated*) with an <i>International Classification of Diseases</i> (ICD)-9-CM codes 805.0, 805.2, 805.4, 805.8 (search all diagnostic fields) among Medicare-eligible resident adults aged $\geq 65$ years during a calendar year.
Denominator	Residents aged $\geq 65$ 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 incidence — crude and age-adjusted (standardized by the direct method to the year 2000 standard U.S. population, distribution 1†) — with 95% confidence interval.
Period for case definition	Calendar year.
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).
Background	Each year, approximately 17.5/10,000 adults aged $\geq 65$ years are hospitalized in the United States for vertebral fractures. Approximately 30%–50% of women and 20%–30% of men will experience a vertebral fracture in their lifetime. The rate of hospitalization for vertebral fractures for persons aged $\geq 65$ years is 50% higher among females than males.
Significance	Vertebral fracture is a serious consequence of osteoporosis. Approximately 5–8 million U.S. residents have 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	Hospitalization for vertebral fractures is a proxy measure for osteoporosis. Changes in patient behavior or clinical practice might not affect the hospitalization rate for years. The indicator excludes persons aged $< 65$ years who might be at risk for osteoporosis through steroid treatment or early menopause.
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.
<i>Healthy People 2010</i> objectives	2-10: Reduce the proportion of adults who are hospitalized for vertebral fractures associated with osteoporosis.
Additional data items	Age, sex, race, ethnicity, education, insurance, or payer.

\* The term *not unduplicated* refers to the fact that one person might account for multiple admissions.

† See 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.

## Indicator 90 — Visits to Dentist or Dental Clinic Among Adults Aged $\geq 18$ Years

Demographic Group	Resident persons aged $\geq 18$ years.
Numerator	Respondents aged $\geq 18$ years who report having been to the dentist or dental clinic in the previous year.
Denominator	Respondents aged $\geq 18$ 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*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, approximately 69% of adults reported having had a dental visit in the past year.
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 of 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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objectives	21-10: Increase the proportion of children and adults who use the oral health-care system each year.
Additional data items	Age, sex, race, ethnicity, education, income, or insurance status.

\* See 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.

## Indicator 91 — Teeth Cleaning Among Adults Aged $\geq 18$ Years

Demographic Group	Resident persons aged $\geq 18$ years who ever visited a dentist or dental clinic and have not had all teeth removed because of tooth decay or gum disease.
Numerator	Respondents aged $\geq 18$ years who ever visited a dentist or dental clinic and have not had all teeth removed because of tooth decay or gum disease and report having had their teeth cleaned in the previous year.
Denominator	Respondents aged $\geq 18$ years who ever visited a dentist or dental clinic and have not had all teeth removed because of tooth decay or gum disease (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*) — with 95% confidence interval.
Period for case definition	Previous year.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	In 2002, approximately 69% of adults reported having had their teeth cleaned in the past year.
Significance	Having teeth cleaned by a dentist or dental hygienist has been demonstrated to prevent or delay the progression of periodontal diseases.
Limitations of indicator	Indicator does not convey reason for cleaning or whether complete dental care was actually received.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
<i>Healthy People 2010</i> objective	No objective.
Additional data items	Age, sex, race, ethnicity, education, income, or insurance status.

\* See 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.

## Indicator 92 — All Teeth Lost Among Adults Aged ≥65 Years

Demographic Group	Resident persons aged ≥65 years.
Numerator	Respondents aged ≥65 years who report having no remaining natural teeth.
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*) — with 95% confidence interval.
Period for case definition	Current.
Data resources	Behavioral Risk Factor Surveillance System (BRFSS).
Background	Data from the National Health and Nutrition Examination Survey (NHANES) III indicated that 9.7% of person aged ≥18 years in the United States were edentulous (i.e., having no natural teeth). For persons aged 65–74 years, 28.6% were edentulous. For persons aged ≥75 years, 40.3% 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.
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 socio-economic status), nonresponse (e.g., refusal to participate in the survey or to answer specific questions), or measurement (e.g., social desirability or recall bias).
Healthy People 2010 objectives	21-4: Reduce the proportion of older adults who have had all their natural teeth extracted.
Additional data items	Age, sex, race, ethnicity, education, income, or insurance status.

\* See 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.







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