

The Burden of Cancer in American Adults



The Burden of Cancer in American Adults

Almost 11 million American adults aged 20 and older—5.2% of the population—have a history of cancer, excluding basal and squamous cell skin cancers. This burden includes newly diagnosed cancers, active cancers diagnosed more than one year ago, cancers in remission, and cancers that have been cured. The magnitude of this population is a function of incidence rates—new cases diagnosed during the year—as well as associated mortality rates.

Each year 0.65% of adults aged 20 and older—approximately 1.37 million people in 2005—are diagnosed with cancer, including malignant melanoma but excluding other skin cancers. The most frequently diagnosed cancers are prostate cancer, accounting for 31% of new cancers in men, and breast cancer, accounting for 32% of new cancers in women. Affecting both men and women, lung and colorectal cancers are the third and fourth most commonly diagnosed cancers.

Each year cancer takes the lives of 550,000 people of all ages, a rate of 195 deaths per 100,000 population. Of the four most incident cancers, lung cancer has the highest death rate (56 deaths per 100,000 population) and lowest five-year relative survival rate (15% are alive at five years). Colorectal cancer has a death rate of 20 per 100,000 population and a five-year relative survival rate of 62%, but survival ranges from 90% to 66% to 9% depending on whether diagnosis is made at the local, regional, or distant stage, respectively. Clearly, early diagnosis is essential for colorectal cancer, as well as for most cancers. But too few adults are being screened. Although Medicare covers sigmoidoscopy or colonoscopy, 44% of women and 40% of men aged 65 and older have never had either of these screening tests.

Each year \$38.4 billion of direct medical services is consumed by community dwelling adults for cancer-associated care. Another \$59.2 billion is spent on concurrent conditions affecting cancer patients. On average, a patient with cancer incurs annual expenses of \$9,753. The costs are borne primarily by private insurers, followed by Medicare.

This issue of Pfizer Facts presents new analyses of national databases to gain insight into the burden of cancer among American adults, including cancer morbidity and mortality, coexisting conditions experienced by cancer patients and survivors, and cost of care. We also explore behavioral risk factors and prevention. We present analyses of the Surveillance, Epidemiology, and End Results (SEER) Program, the National Health Interview Survey (NHIS), the Medical Expenditure Panel Survey (MEPS), the Behavioral Risk Factor Surveillance System (BRFSS), and the Compressed Mortality File (CMF). We hope that the information presented in this report will encourage discussion and debate, and ultimately lead to the development and implementation of effective interventions.

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About the analyses

Measuring the burden of cancer among United States adults presents challenges, requiring analyses of multiple national data sources for morbidity, mortality and healthcare spending information. The most current available data from these sources are used in the analyses; consequently, overlapping years, and in some instances, different years of data are used.

The data sources analyzed to produce a comprehensive healthcare profile of cancer among adults ages 20 and older are listed below.

Morbidity and mortality

- Surveillance, Epidemiology, and End Results (SEER) Program, 1992–2001: Analyzed for cancer incidence and survival.
- National Health Interview Survey (NHIS) 2002–2003: Prevalence of concurrent medical conditions, symptoms, functional limitations.
- Compressed Mortality File (CMF) 1990–2001, Centers for Disease Control and Prevention: Death rates.

Healthcare spending

- Medical Expenditure Panel Survey (MEPS), 1998–2002: Direct medical spending for common cancers and concurrent medical conditions.

Prevention and screening

- Behavioral Risk Factor Surveillance System (BRFSS), 2002: Prevalence estimates of screening tests for selected cancers.
- NHIS, 2003: Prevalence of behavioral risk factors.

To address sample size limitations inherent when analyzing cancer data, multiple years of data are combined for some analyses to ensure reliable sample size estimates. Even so, sample size estimates for male breast cancer are unreliable; therefore, all breast cancer analyses in this report are limited to women. On the other hand, basal or squamous cell skin cancers are typically excluded from analyses of malignant neoplasms because of their high incidence and cure rates. These cancers, therefore, are excluded from this report.

Morbidity and mortality

Incidence

A projected 1.37 million new cases of cancer in adults 20 or older will be diagnosed in 2005, based on incidence data in the Surveillance, Epidemiology, and End Results (SEER) Program database for 1996 through 2001. Fifty-one percent of these new cases will occur in men.

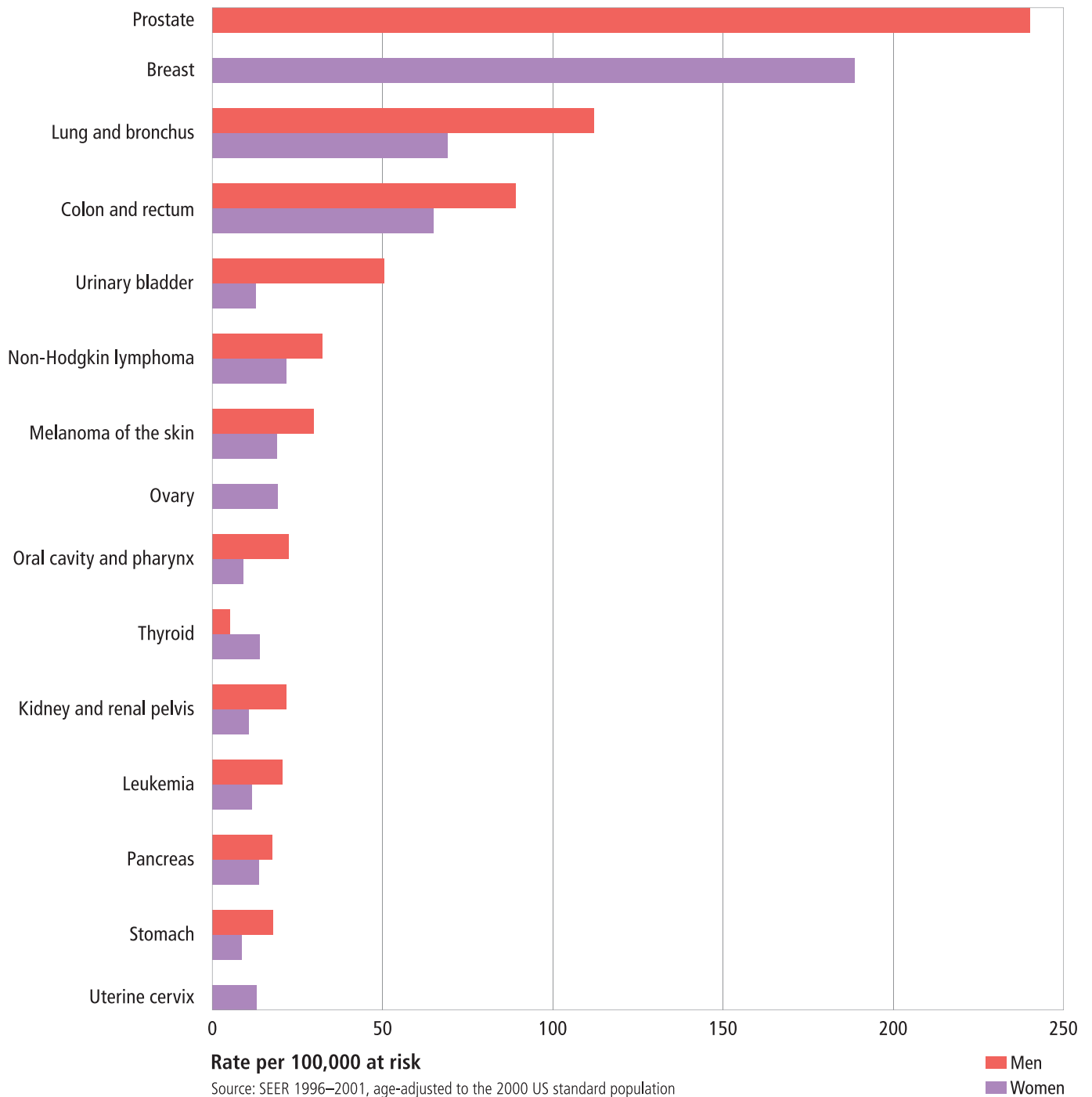
Prostate cancer is the highest incident cancer with a rate of 240 per 100,000 adult men and 247,000 new cases diagnosed per year. Prostate cancer accounts for 31% of all new cancer diagnoses in men.

The second most frequently diagnosed cancer is breast cancer, with a rate of 189 per 100,000 adult women and 206,000 new cases diagnosed per year. Breast cancer accounts for 32% of all new cancer diagnoses in women.

Lung cancer and colorectal cancer rank third and fourth as most commonly diagnosed cancers. Among men, 14% and 11% of new diagnoses are for lung and colorectal cancers, respectively, and among women each of these cancers accounts for 12% of diagnoses.

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Incidence rates for common cancers in men and women aged 20 and older

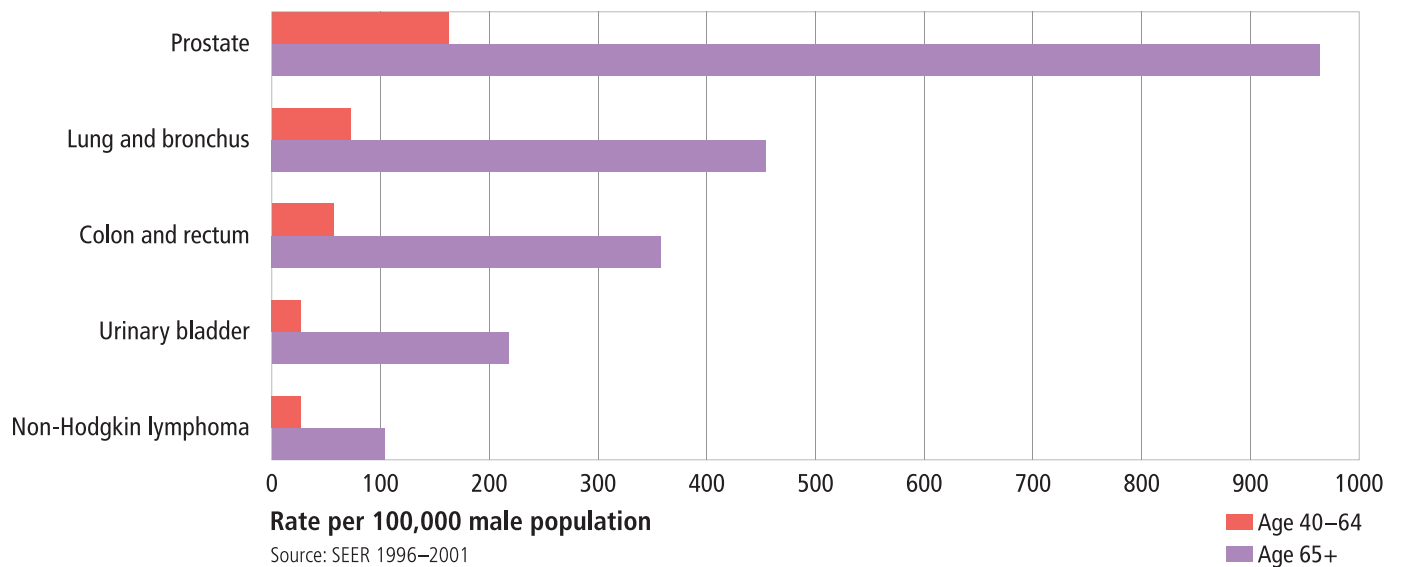


Incidence is age-related, with cancer disproportionately affecting men and women aged 65 and older. Among men, incidence rates per 100,000 escalate from about 60 to 550 to 2,900 cases for age groups 20 to 39, 40 to 64, and 65 and older, respectively. Among women, incidence rates per 100,000

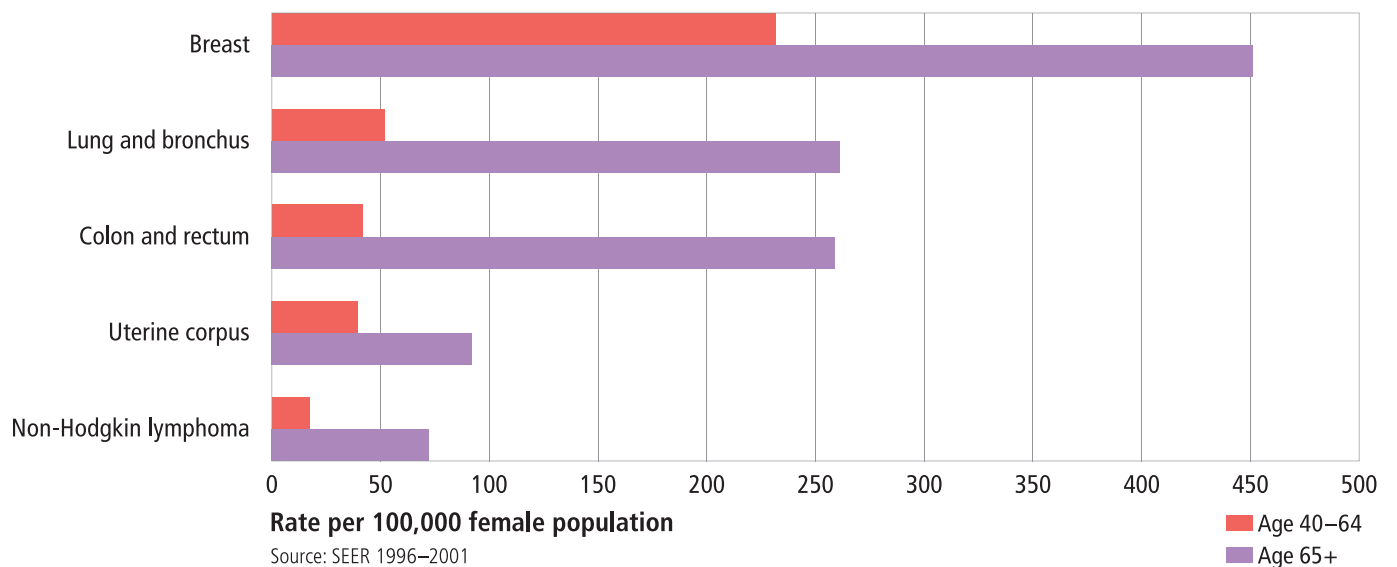
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increase from 89 to 555 to 1,700 cases across the three age groups. Breast cancer incidence in middle-aged women is slightly more than half that of women 65 and older; however, the incidence of breast cancer in middle-aged women is almost as great as the incidence of lung and colorectal cancer in older women.

Age-specific incidence rates for common cancers in men



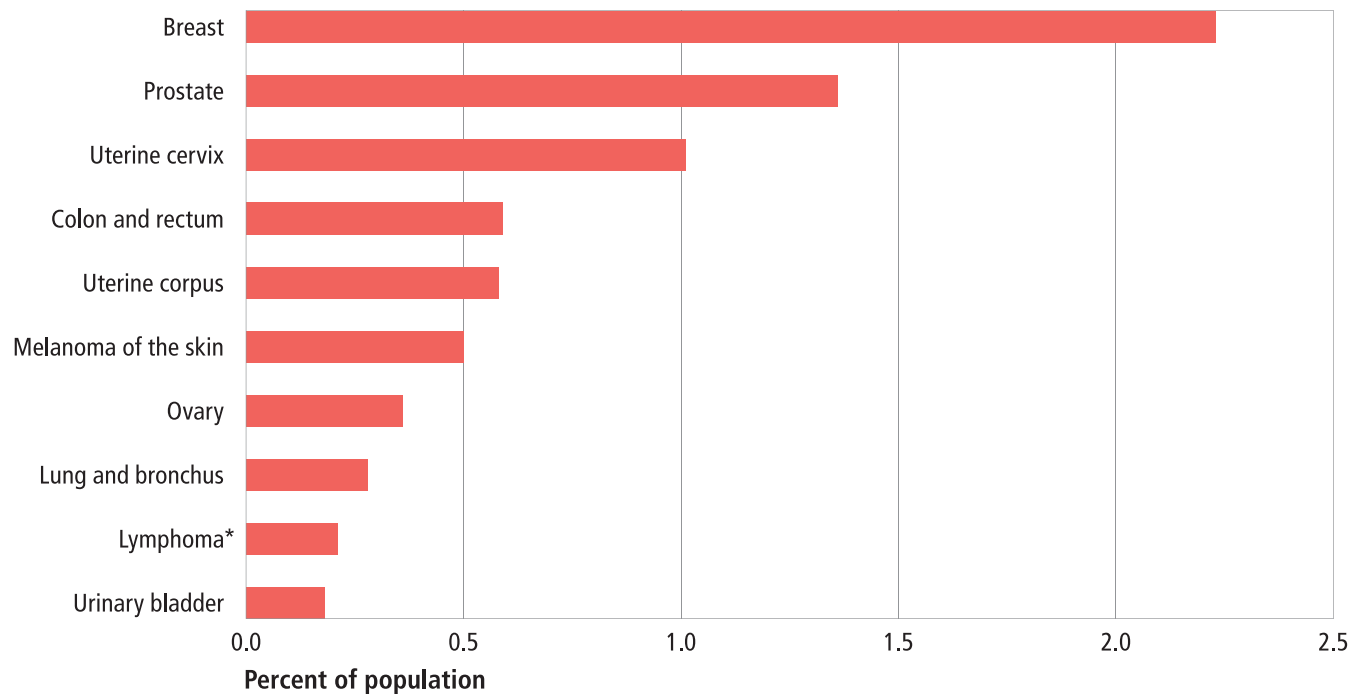
Age-specific incidence rates for common cancers in women



Prevalence

Prevalence, the percentage of the population with a history of cancer, is a function of both new cases of cancer and the survivability of cancer. Over 5% of American adults—10.6 million people—report ever having had cancer, excluding basal or squamous cell skin cancer. The most prevalent cancer in American adults is breast cancer, followed by prostate cancer, cervical cancer, colorectal cancer, and uterine cancer. Because at-risk people may include only women or only men for some cancers, and both men and women for other cancers, rank order differs somewhat based on prevalence compared with absolute numbers of persons affected. The number of American adults with a history of cancer is greatest for breast cancer, followed by prostate cancer, colorectal cancer, cervical cancer, and melanoma.

Prevalence of common cancers in adults aged 20 and older



Source: NHIS 2003

*Includes non-Hodgkin lymphoma and Hodgkin's disease

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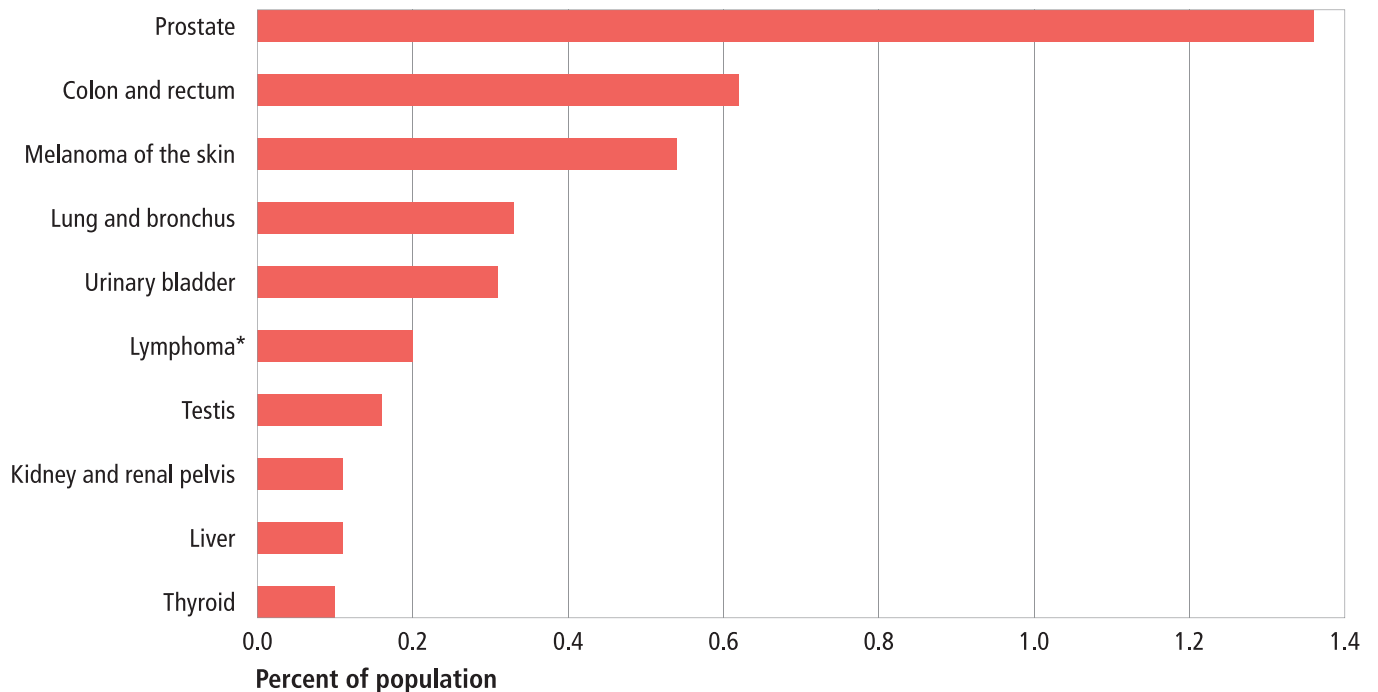
Number of adults with a history of specific common cancers

Cancer site	Women	Men	Total
Breast	2,385,480		2,385,480
Prostate		1,331,537	1,331,537
Colon and rectum	609,319	606,830	1,216,149
Uterine cervix	1,081,855		1,081,855
Melanoma of the skin	503,145	528,069	1,031,214
Uterine corpus	615,911		615,911
Lung and bronchus	239,343	326,771	566,114
Lymphoma*	220,845	200,610	421,455
Ovary	382,509		382,509
Urinary bladder	67,709	300,068	367,777

Source: NHIS 2003

* Includes non-Hodgkin lymphoma and Hodgkin's disease.

Cancer prevalence in men aged 20 and older

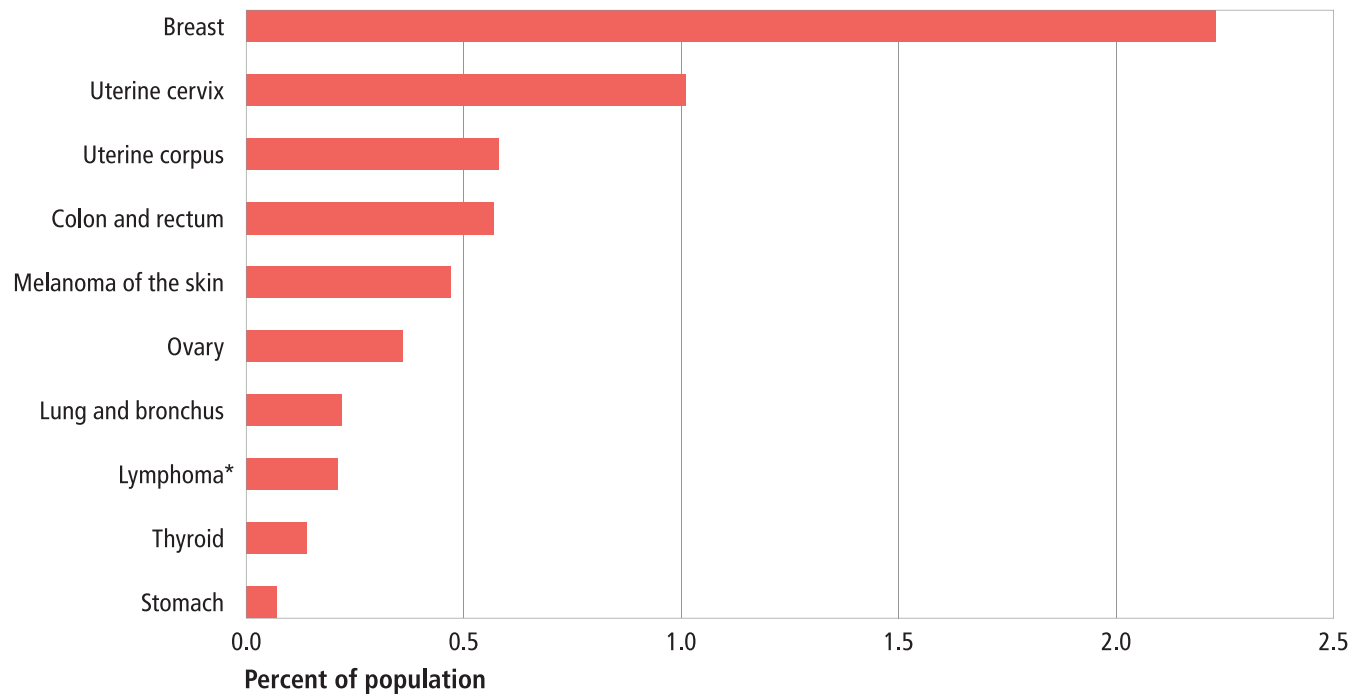


Source: NHIS 2003

* Includes non-Hodgkin lymphoma and Hodgkin's disease

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Cancer prevalence in women aged 20 and older



Source: NHIS 2003

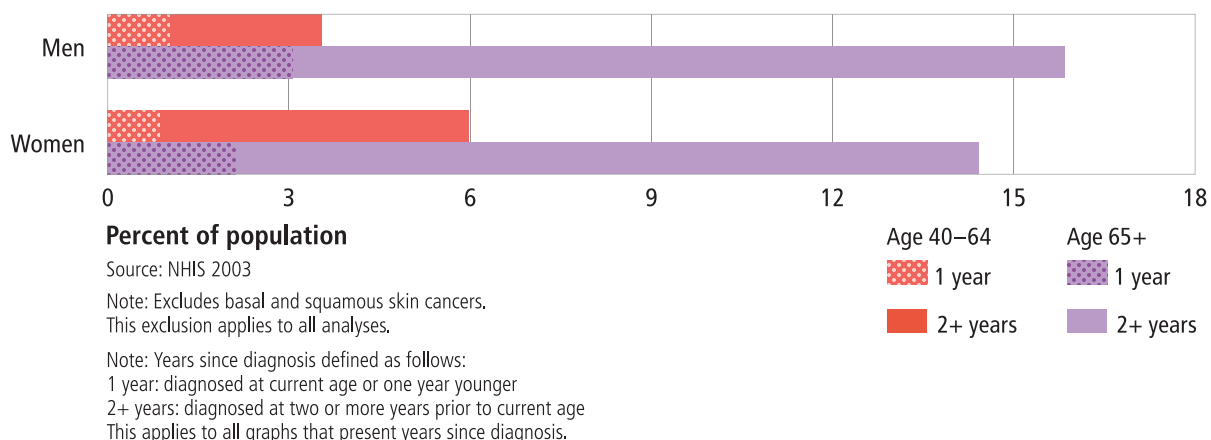
*Includes non-Hodgkin lymphoma and Hodgkin's disease

Of the estimated 4.1 million men who have been diagnosed with cancer, 22% were diagnosed within the past year. Of the estimated 6.5 million women with cancer history, 15% were diagnosed within the past year.

Among middle-aged adults, those aged 40 through 64, 4% of men and 6% of women have been diagnosed with cancer at some point in time. Among older adults—those aged 65 and older—16% of men and 15% of women have been diagnosed with cancer. The prevalence of reported cancer is four times higher among older men than middle-aged men, and twice as high among women 65 and older compared with middle-aged women.

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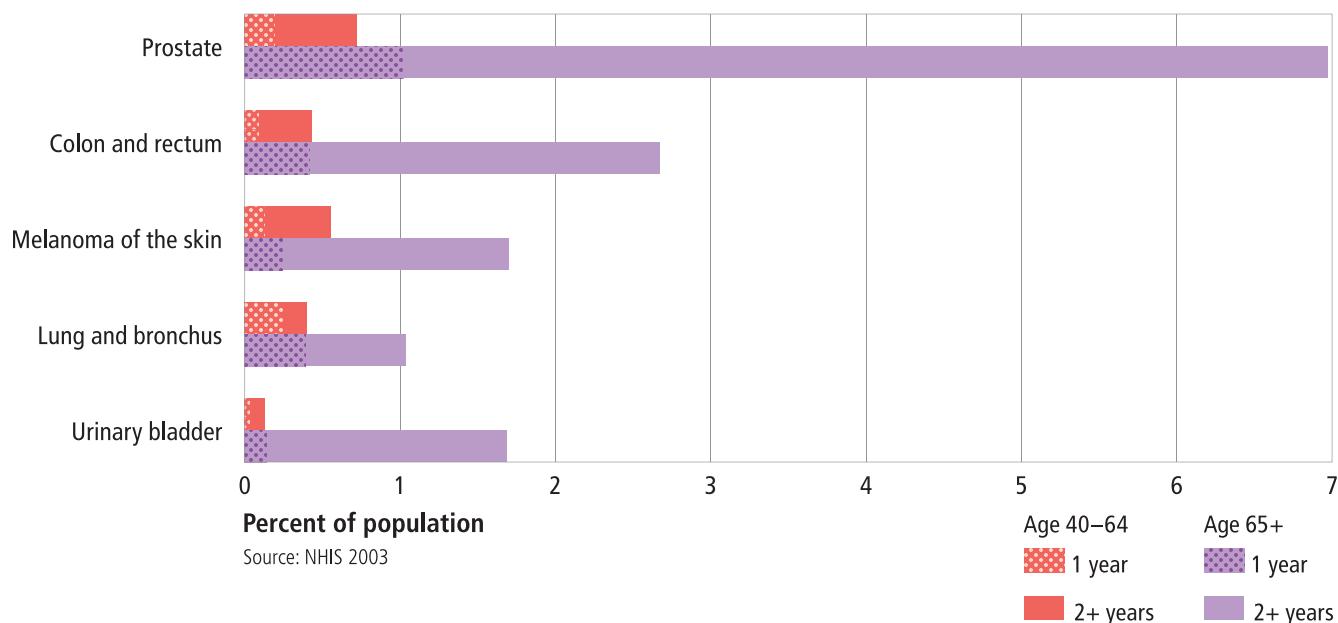
Prevalence of total cancers by age, gender and years since diagnosis



Prostate cancer is by far the most common cancer in men. The prevalence of prostate cancer is about 10 times higher in men aged 65 or older (7%) than in middle-aged men (0.7%). Fifteen percent of older men with prostate cancer were diagnosed within the past year

Less than 1% of middle-aged men have been diagnosed with colorectal cancer, melanoma, lung cancer or bladder cancer compared with 3%, 2%, 1%, and 2%, respectively, of older men.

Prevalence of specific cancers in men by age and years since diagnosis



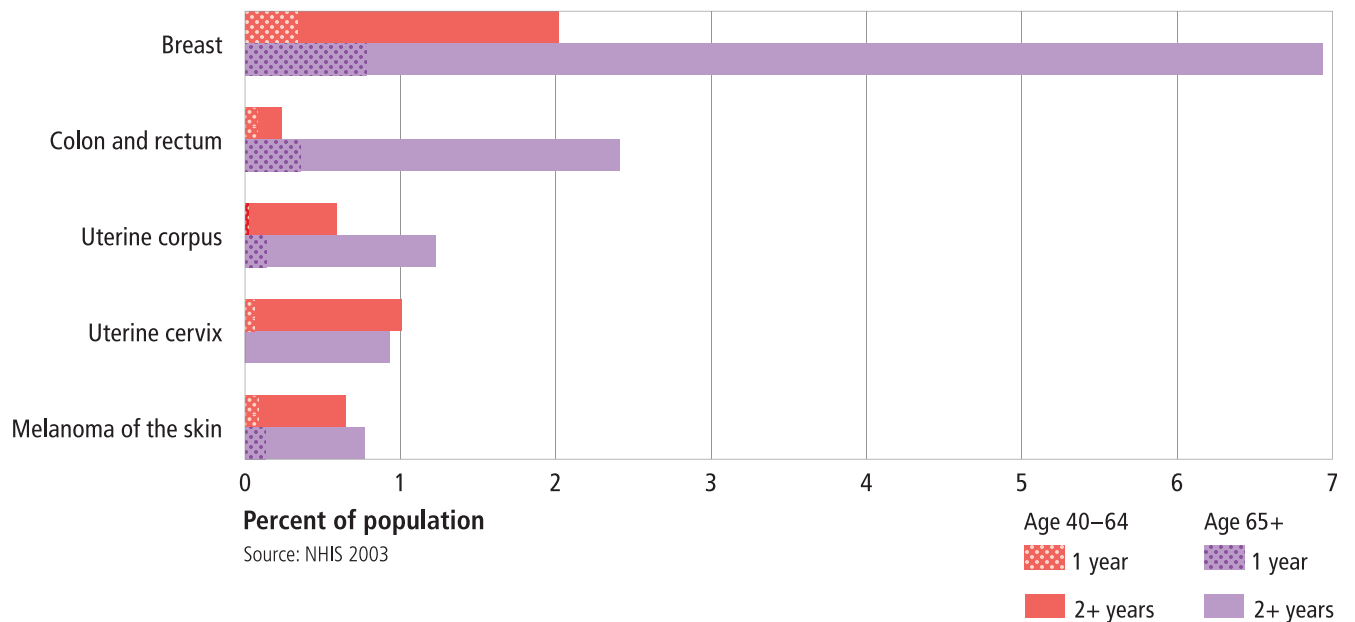
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Two percent of middle-aged and 7% of older women have a history of breast cancer, the most common cancer among women. Sixteen percent of middle-aged women with breast cancer were diagnosed within the past year compared with 11% of the older women. At 1%, cervical cancer prevalence is similar among middle-aged and older women.

Colorectal and uterine cancers are more prevalent among older women than middle-aged women: 2% and 1% vs. 0.2% and 0.6%, respectively.

Melanoma prevalence is 0.6% and 0.8% among middle-aged and older women, respectively.

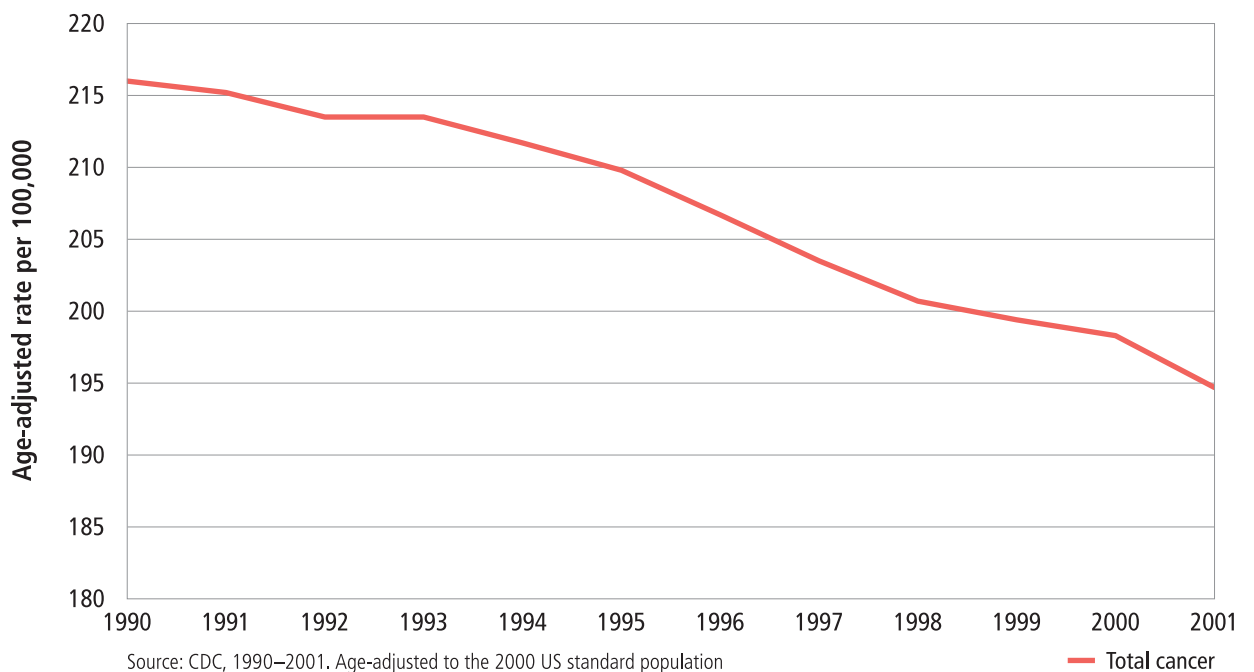
Prevalence of specific cancers in women by age and years since diagnosis

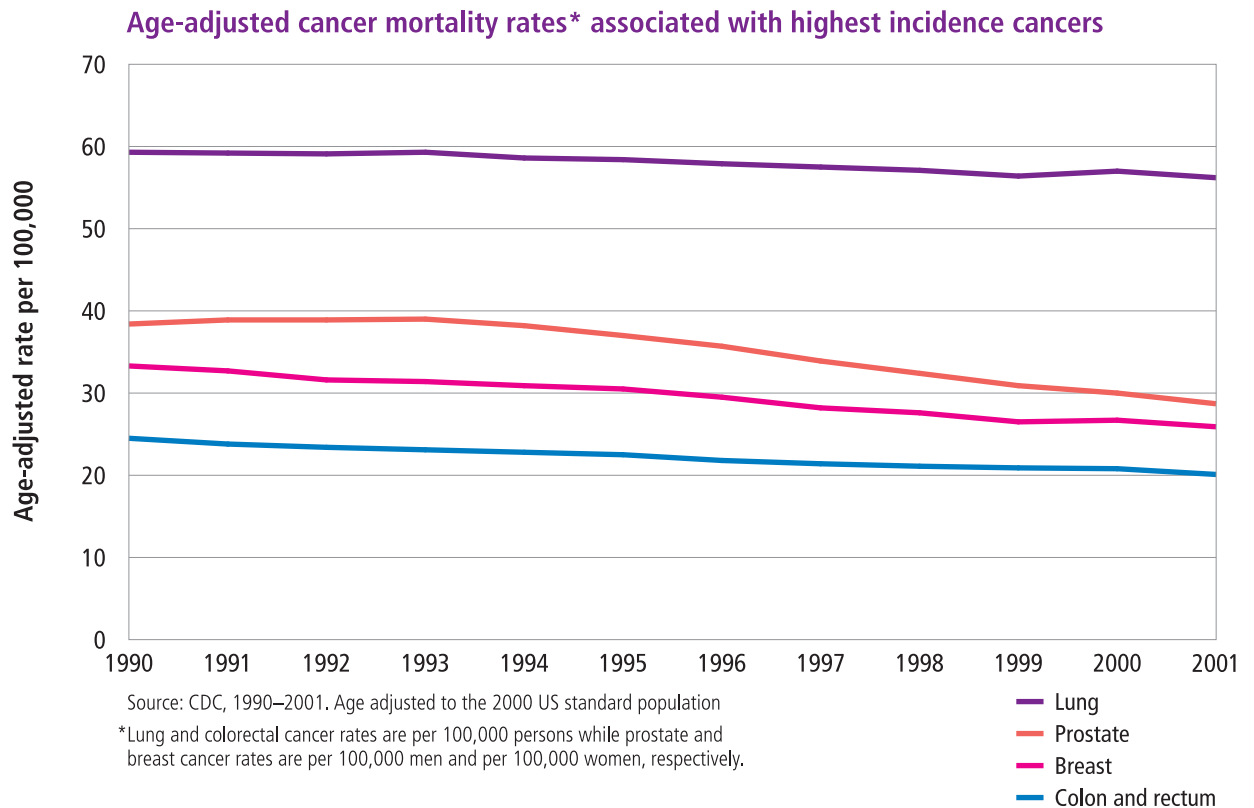


Mortality and survival

Cancer mortality is a function of both the incidence and survivability of cancer. Cancer is the second leading cause of death in the United States; however, progress is being made. Overall, the death rate from cancer is on the decline, and is decreasing for the four most incident cancers among men and women, specifically, prostate, breast, lung, and colorectal cancers. At 56.2 deaths per 100,000 population, lung cancer poses the highest mortality rate. The steepest decline is observed for prostate cancer. From 1990 to 2001, the prostate cancer mortality rate decreased 25%, from 38.4 per 100,000 men to 28.7 per 100,000 men.

Age-adjusted cancer mortality rate, all malignant neoplasms





Survival rates vary according to the specific type of cancer. By convention, five-year survival rates are considered, although living beyond five years of diagnosis does not equate to being cured. Another convention is reporting “five-year relative survival,” the likelihood of cancer patients surviving at least five years after diagnosis, relative to the expected likelihood of cancer-free persons (matched on age, sex, race, and observation year) surviving at least five years. Prostate cancer, the cancer with the highest incidence rate among US adults, and the highest prevalence rate among US males, is also the cancer with the highest five-year relative survival rate, 98%. Other cancers with high five-year relative survival rates are cancers of the thyroid and cervix, two cancers with relatively low incidence rates. In contrast, lung cancer, the cancer with the third highest incidence rate among US adults, has a low five-year relative survival rate, 15%.

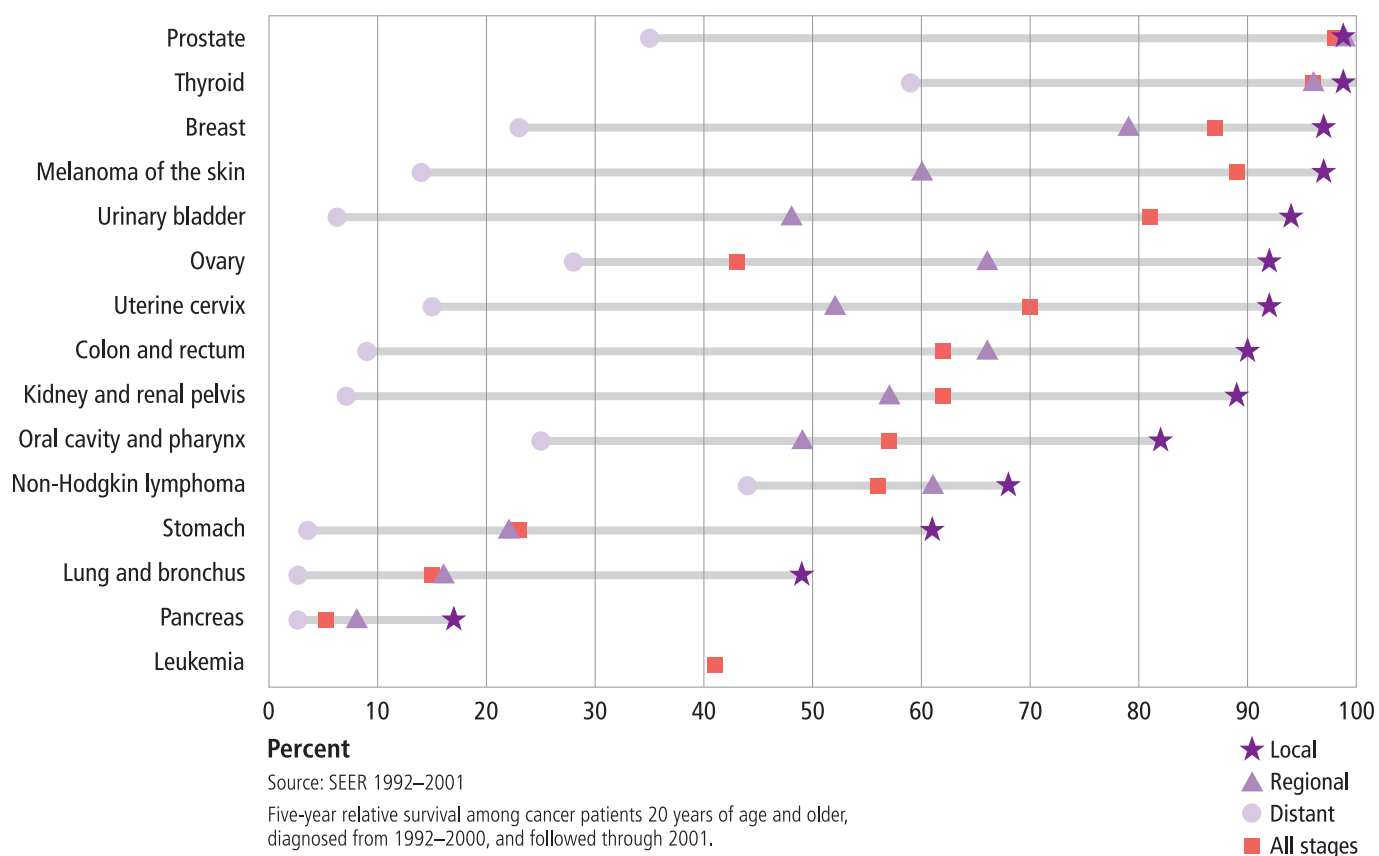
For the most common cancers that affect both men and women, there is little difference in the five-year relative survival rate. For instance, the five-year relative colorectal cancer survival rate for both men and women is 62%. Similarly, the five-year relative survival for melanoma is 88% for men and 92% for women.

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For most cancers, stage at diagnosis has a critical impact on five-year relative survival. The more localized the cancer, the better a person's chance of surviving longer. Overall, breast cancer five-year relative survival is high, 87%, and ranges from 97% to 79% to 23%, when diagnosed in the local, regional, or distant stage, respectively. Colorectal cancer relative survival ranges from 90% to 66% to 9%, respectively, depending on local, regional, or distant stage at diagnosis. Clearly, early diagnosis is beneficial to survival.

There is little difference in five-year relative survival rates for most cancers affecting both men and women. Lung cancer relative survival ranges from 45% to 15% to 2% in men when diagnosed in the local, regional, or distant stage, respectively, and from 53% to 17% to 2% in women. Similarly, the local, regional and distant five-year relative survival for pancreatic cancer ranges from 15% to 8% to 2% in men, and 19% to 7% to 2% in women.

Five-year relative survival by stage at diagnosis in adults 20 years and older





Living with cancer

Symptoms

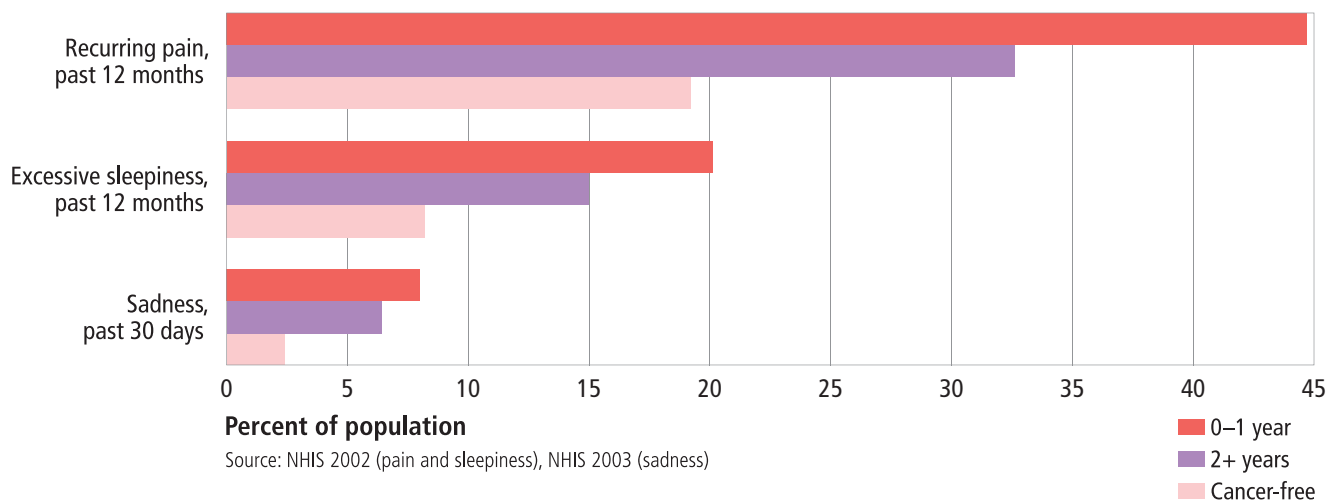
Cancer patients, even cancer survivors who have been successfully treated, may still suffer symptoms of pain, depression, and fatigue. This section compares cancer survivors to cancer-free persons with respect to the frequency of three symptoms—recurring pain in the past year, excessive feelings of sleepiness over the past year, and persistent feelings of sadness experienced over the past month.

Forty-five percent of middle-aged men diagnosed with cancer in the past year have recurring pain, versus 33% of men whose cancer was diagnosed two or more years ago. Nineteen percent of cancer-free middle-aged men report recurring pain symptoms. Middle-aged women with a history of cancer are more likely than cancer-free women to experience recurring pain, 41% vs. 24%.

Excessive sleepiness is also problematic among middle-aged men (20%) and women (22%) with a recent cancer diagnosis. The rate of this symptom among middle-aged men and women without cancer is about 9%.

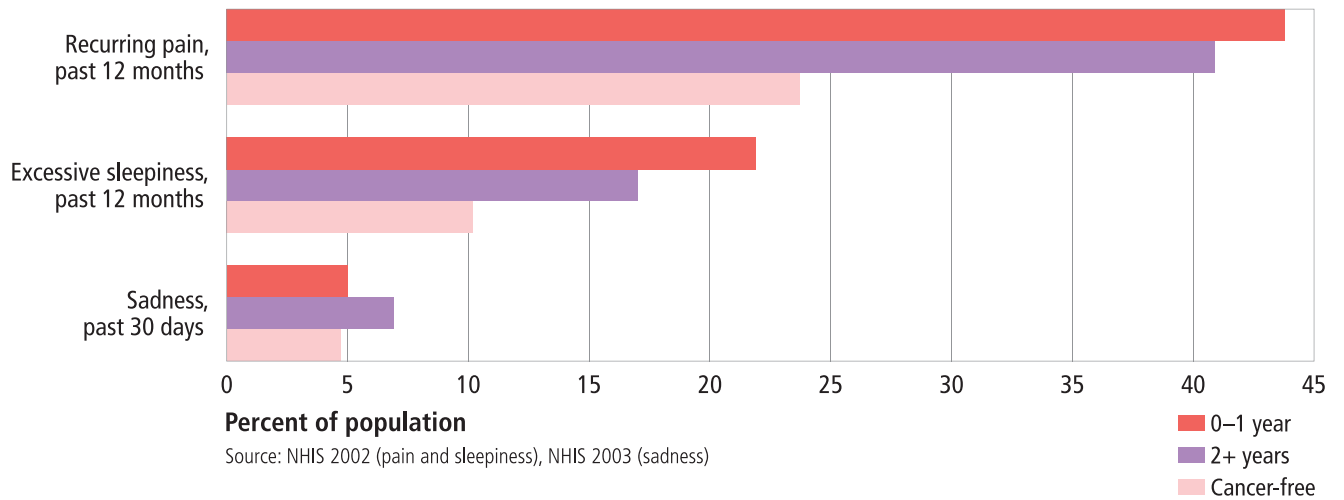
Middle-aged male cancer survivors are more likely than cancer-free men to experience excessive sadness, 7% vs. 2%. No corresponding difference exists in the prevalence of sadness among middle-aged women.

Symptoms in men aged 40 to 64 by years since diagnosis



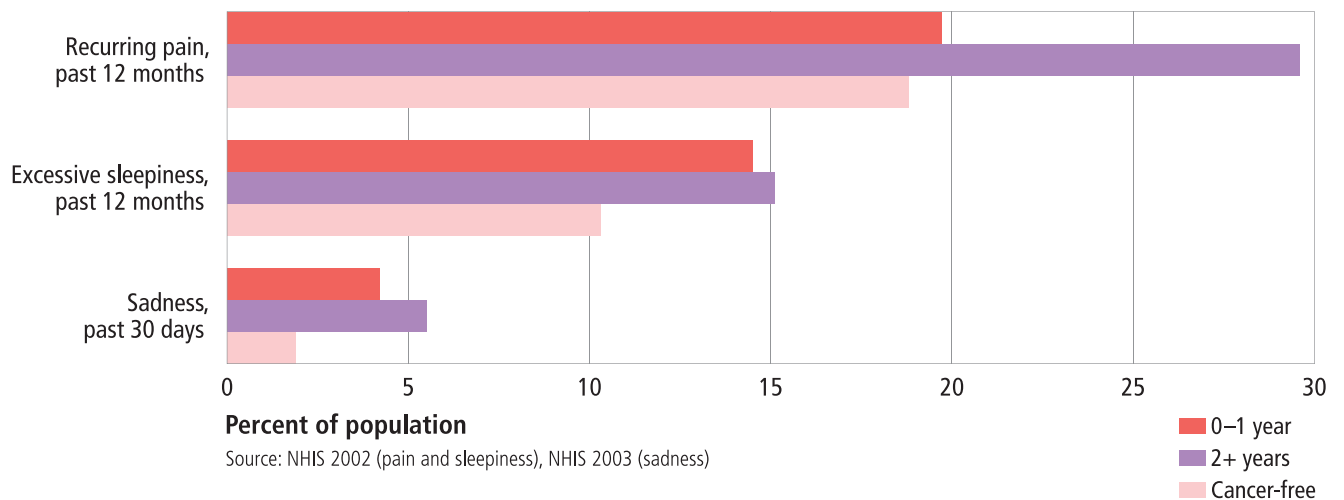
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Symptoms in women aged 40 to 64 by years since diagnosis

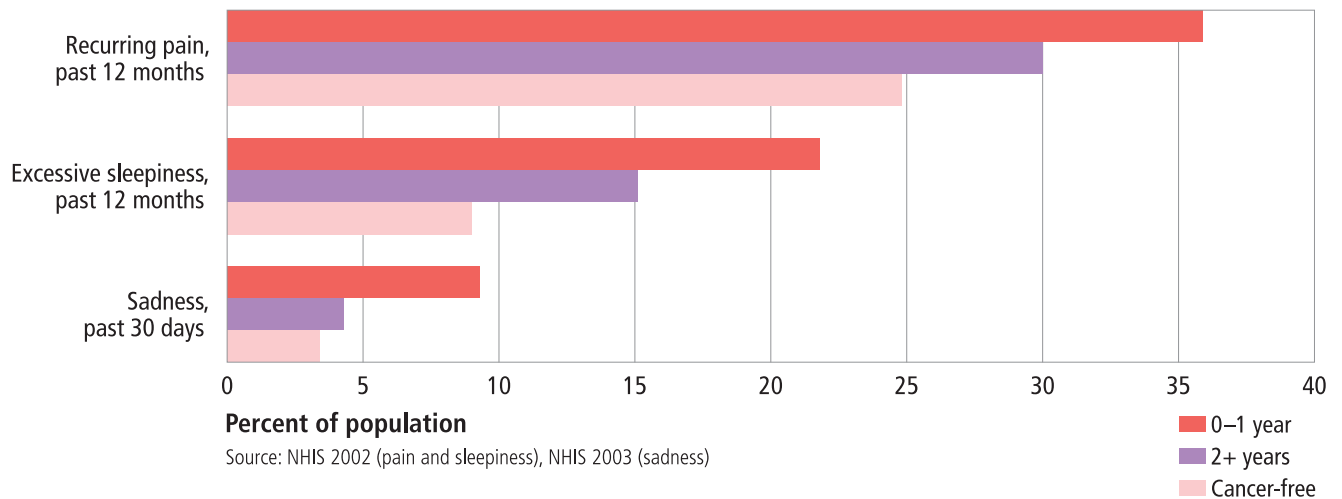


Older men and women with cancer history are less likely than middle-aged persons to report recurring pain, and the patterns are dissimilar with respect to time since diagnosis. Excessive sleepiness affects 15% of older men and 16% of older women with cancer history, and 10% and 9% of those without cancer history. Overall, 5% of older men and women with cancer history report sadness all or most of the time over the past 30 days.

Symptoms in men aged 65 and older by years since diagnosis



Symptoms in women aged 65 and older by years since diagnosis

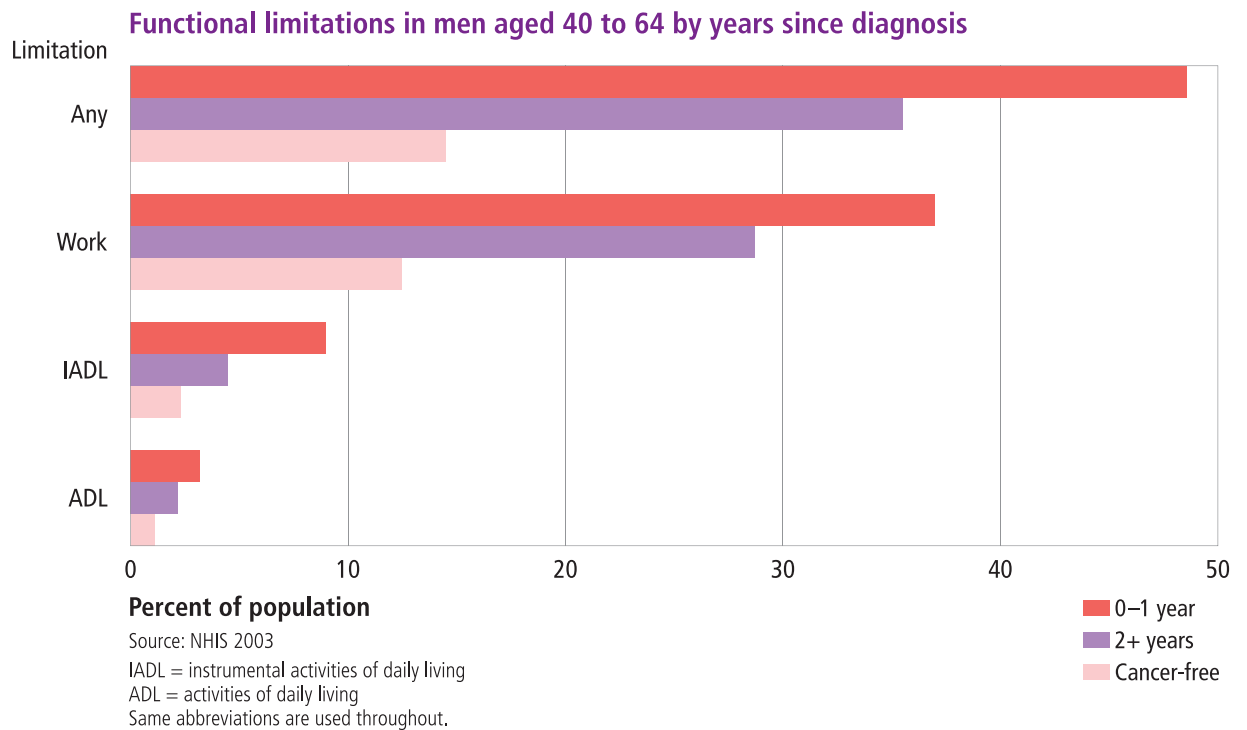


Functional limitations

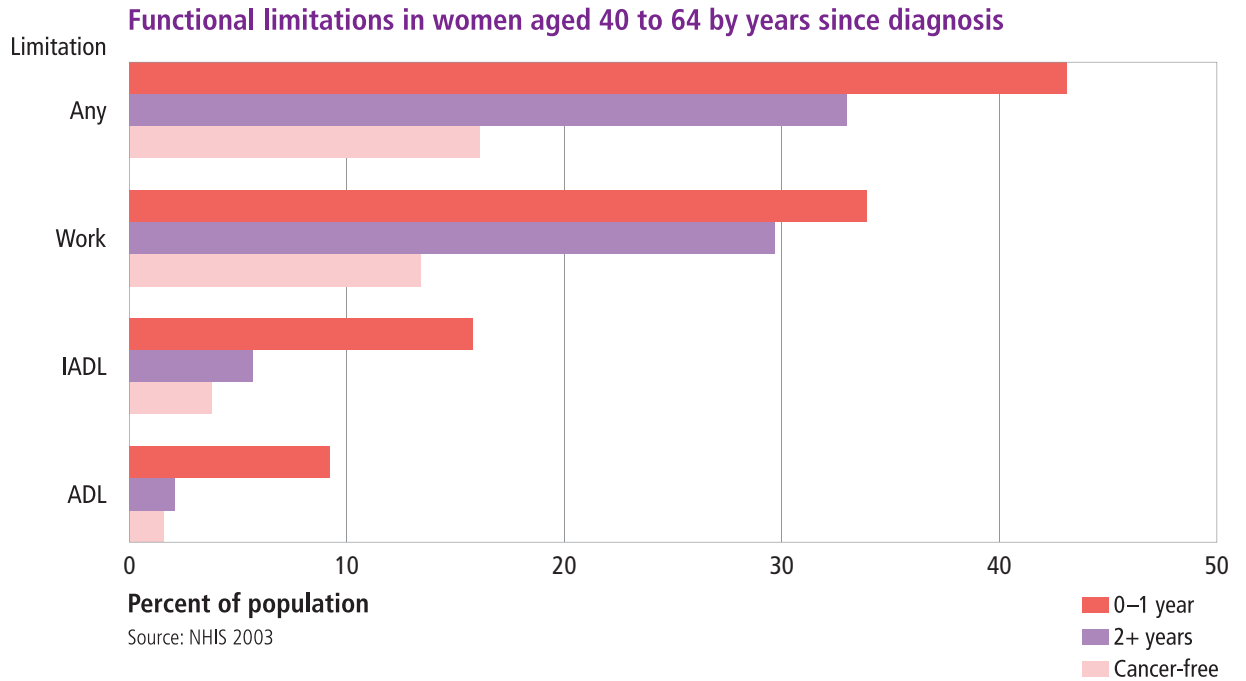
Cancer survivors generally have higher rates of functional limitations than cancer-free adults. Thirty-nine percent and 35% of middle-aged men and women with a history of cancer, respectively, report having some type of limitation. The most frequently cited type of limitation pertains to the ability to work. Thirty-one percent of middle-aged men and 30% of middle-aged women are limited in the amount or kind of work they can do, or are unable to work at all.

Among middle-aged men and women, overall limitations and limitations in ability to work are related to time since cancer diagnosis; however, even those who were diagnosed two or more years ago are more likely to report limitations than those without cancer history. Work limitations, including limitations in the amount or kind of work a person can do as well as inability to work, were reported by 37% and 29% of middle-aged men who were diagnosed within one year, and two or more years ago, respectively. Thirteen percent of middle-aged men who were cancer-free reported work limitations.

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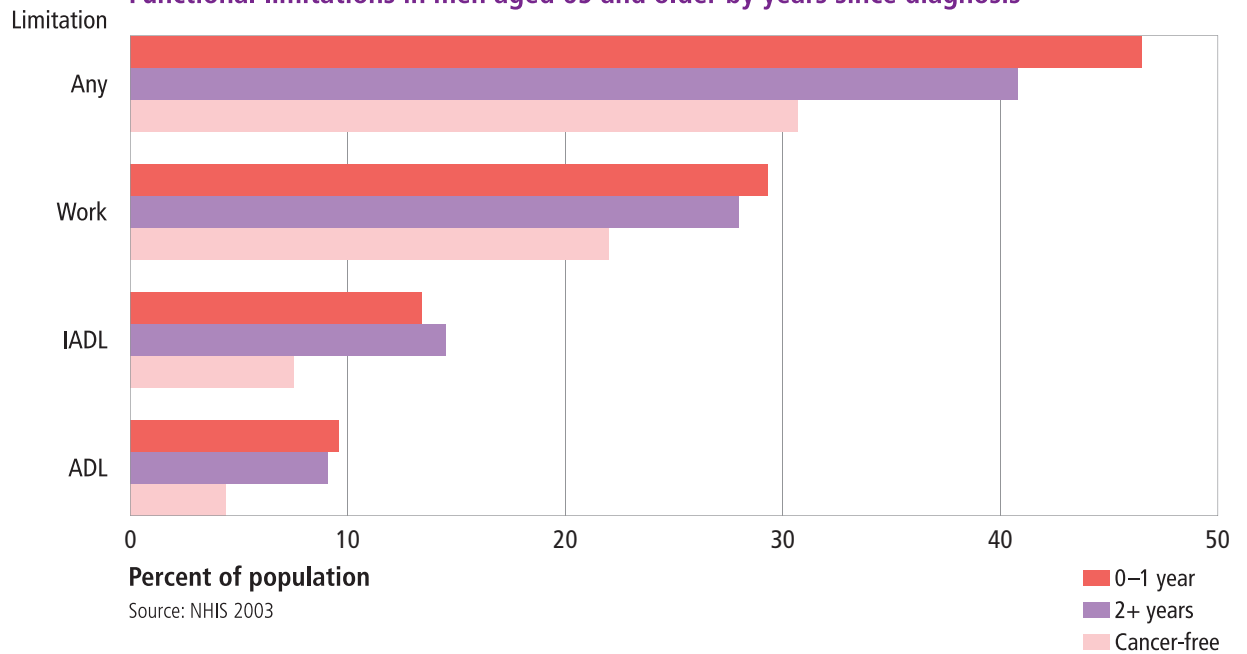
Similar patterns of limitations are observed in middle-aged women; however, the prevalence of overall limitations and work limitations is lower than that reported by men. Work limitations are experienced by 34% whose cancer diagnosis occurred within one year, and 30% of those diagnosed two or more years ago.



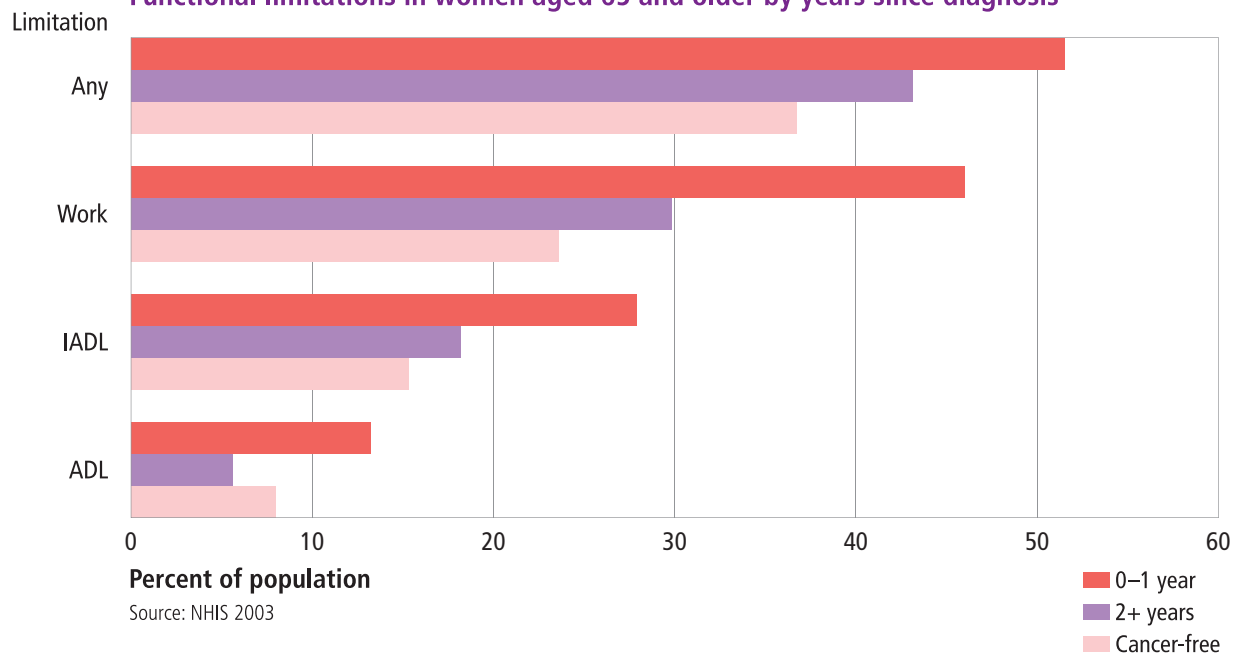
Older adults who have had cancer are also more likely than cancer-free older adults to report overall limitations and work limitations; the disparity is relatively higher among those recently diagnosed. Approximately 43% of older men and 45% of older women report some limitation. At 15%, older men who were diagnosed two or more years ago are more likely to need help with instrumental activities of daily living (IADL), such as household chores and shopping, than other men in the same age group. Overall, older women are more likely than older men to report IADL deficits.

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Functional limitations in men aged 65 and older by years since diagnosis



Functional limitations in women aged 65 and older by years since diagnosis



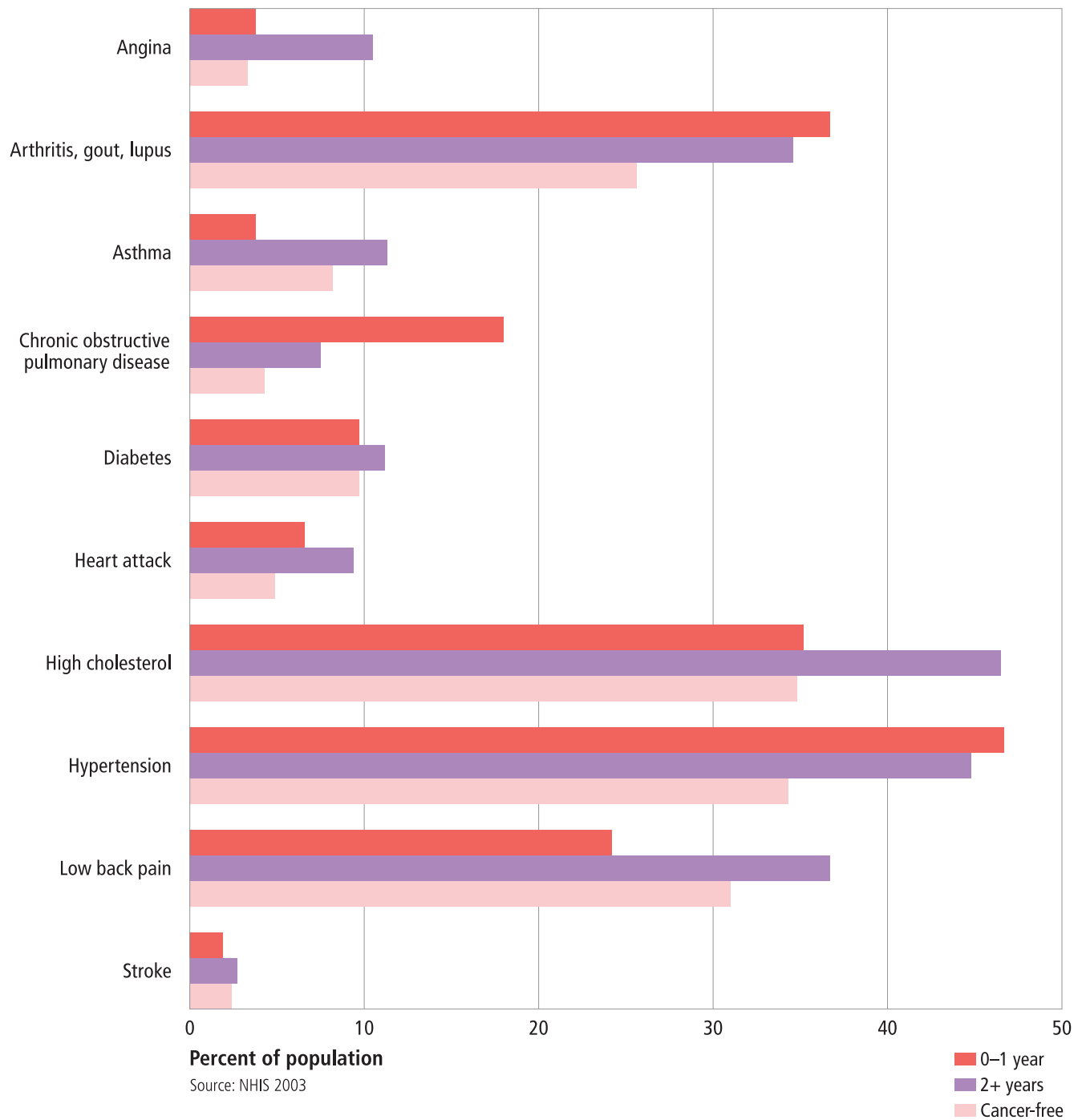
Concurrent medical conditions

Middle-aged and older adults, including those with history of cancer, frequently are burdened by a variety of chronic diseases. Some pre-existing concomitant conditions may impact cancer treatment decisions and affect patient response to treatment. Some concurrent conditions experienced by those with cancer history may be cancer-related or cancer treatment-related. However, higher rates of self-reported coexisting conditions may simply be a function of detection associated with access to and use of the healthcare system. Comparing persons with and without cancer history who report having been seen by a healthcare provider in the past year can remove some of the detection bias. Concurrent medical conditions discussed in this section are selected based on high prevalence or high costs among US adults.

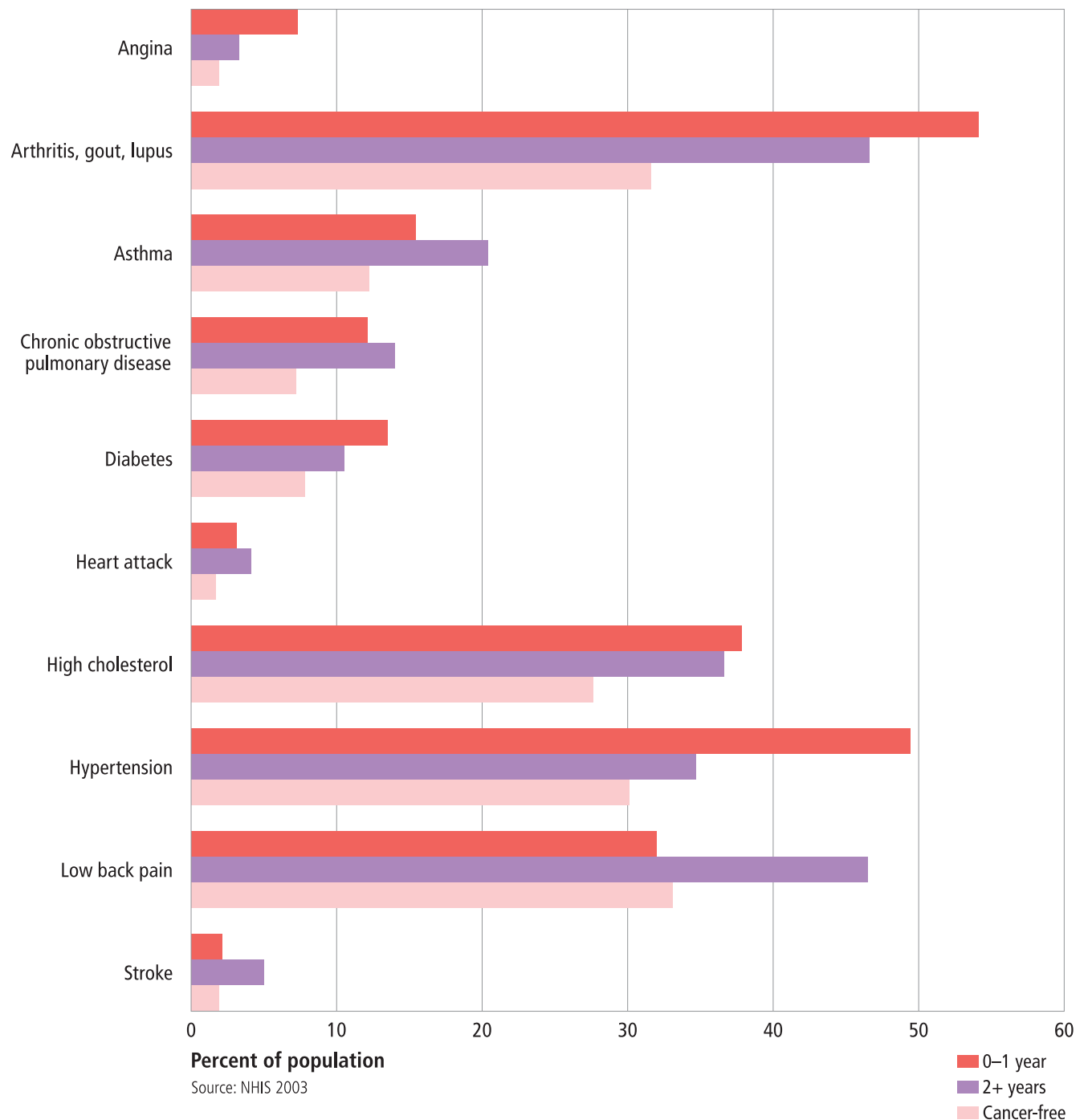
For some chronic illnesses, disease patterns vary by time since cancer diagnosis. Among middle-aged men, the prevalence of chronic obstructive pulmonary disease (COPD) in cancer survivors (11%) is more than twice the prevalence in cancer-free men (4%). The disparity is greater in recently diagnosed cases, in which the COPD prevalence of 18% is more than four times the rate in cancer-free men. The prevalence rates of hypertension (49%) and arthritis/gout/lupus (54%) are significantly higher among middle-aged women within one year of diagnosis compared with their cancer-free counterparts (30% and 32%, respectively).

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Concurrent medical conditions in men aged 40 to 64 years by years since diagnosis

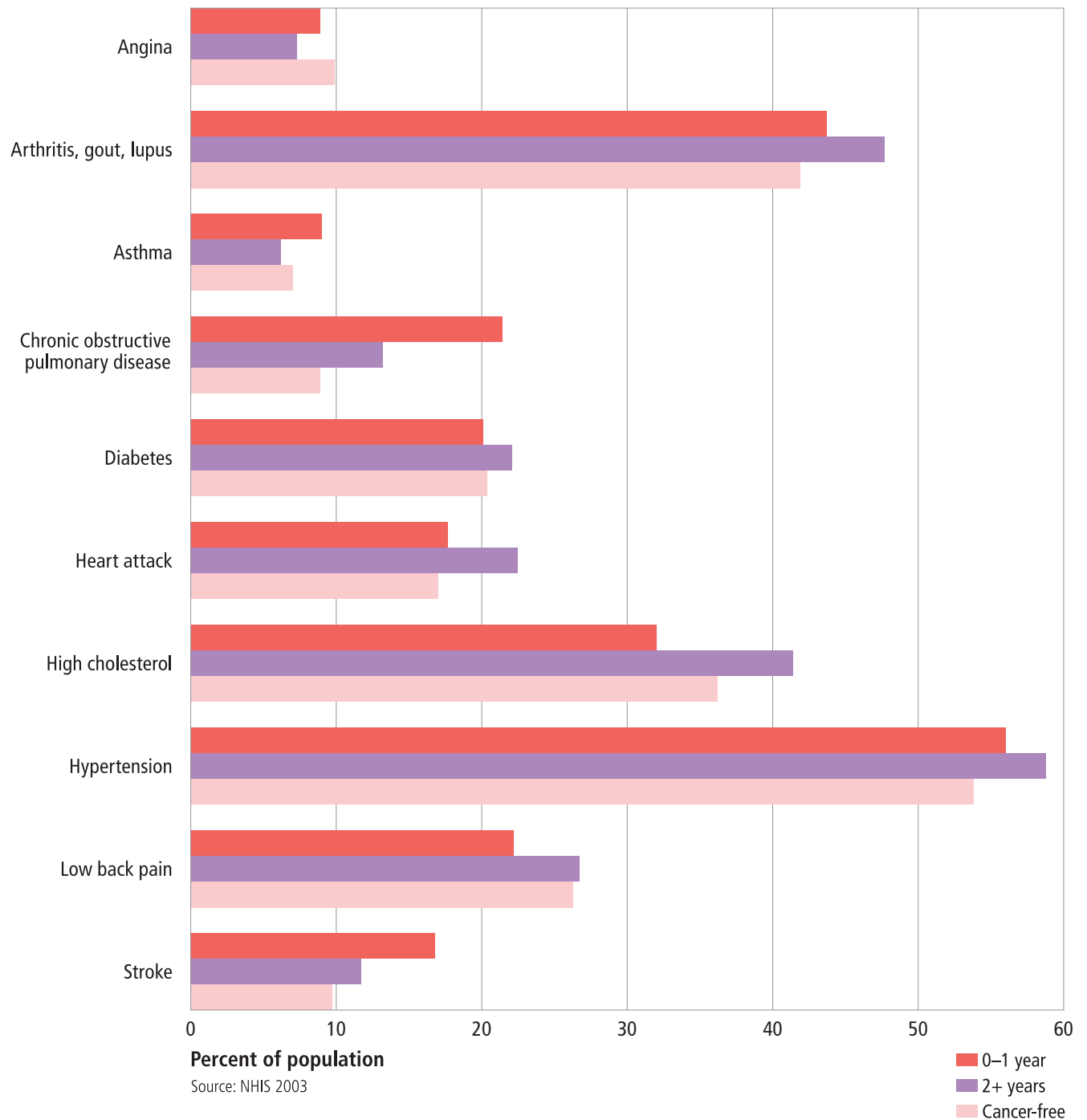


Concurrent medical conditions in women aged 40 to 64 years by years since diagnosis

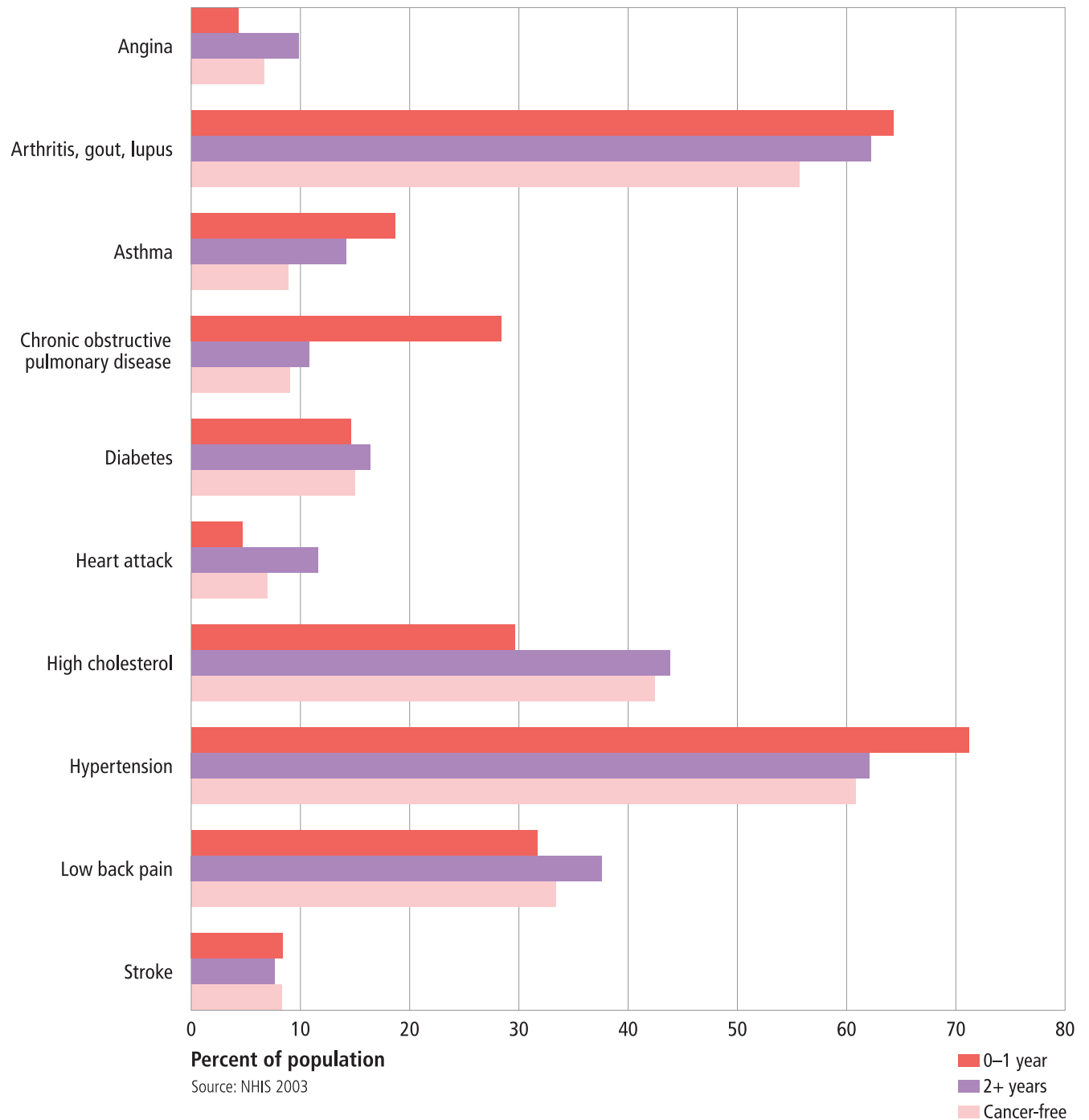


Among older adults recently diagnosed with cancer, the prevalence of COPD is significantly higher than among cancer-free persons. COPD is prevalent among 21% and 28% of recently diagnosed men and women, respectively. Older women with a cancer diagnosis have significantly higher prevalence of asthma compared with cancer-free older women.

Concurrent medical conditions in men aged 65 years and older by years since diagnosis



Concurrent medical conditions in women aged 65 years and older
by years since diagnosis





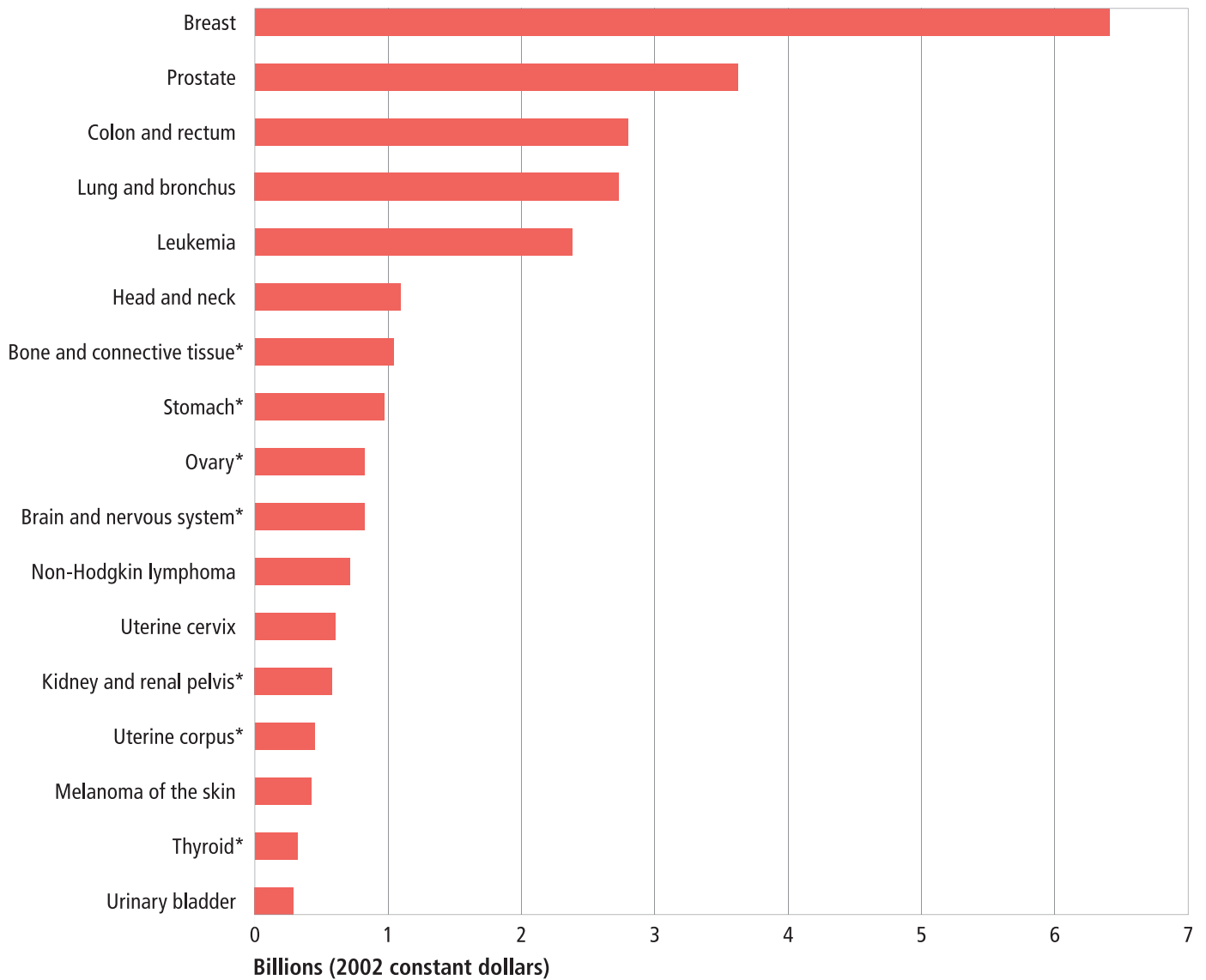
Direct medical spending

Cancer-attributable spending

An estimated 10 million adults with a history of cancer spend \$38.4 billion (B) a year on cancer treatment. With changes in therapies for some cancers since the most current time period for which the Medical Expenditure Panel Survey (MEPS) data are available, and with the exclusion from MEPS of costs associated with long-term care, this high economic burden represents an underestimate of direct expenditures associated with cancer care. Direct spending is a function of per person spending associated with the specific cancer and the number of persons seeking treatment for that cancer. Cancers with the highest direct expenditures are breast (\$6.4B), prostate (\$3.6B), colorectal (\$2.8B), and lung (\$2.7B). (Spending for squamous cell and basal cell cancers and for primary and secondary malignant neoplasms with unspecified sites is excluded from this section.)

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Annual direct cancer spending in adults aged 20 and older



Source:

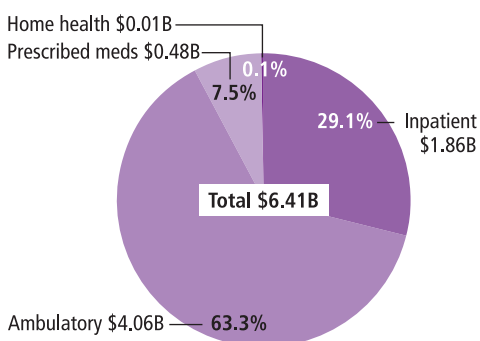
MEPS 2001–2002 except where noted by *

*MEPS 1998–2002 (to increase sample size)

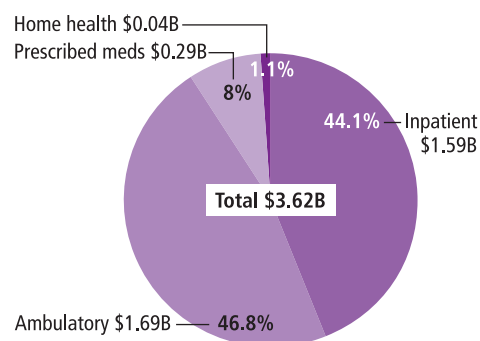
Cancer spending by site of service

Among the four cancers with the greatest direct cancer-attributable medical expenditures, healthcare spending by site of service varies by cancer type. Expenditures for colorectal cancer are largely for inpatient services; 70%. Outpatient expenditures account for the bulk of direct medical spending associated with breast (63%), prostate (47%), and lung (56%) cancers. At 8% of total direct expenditures, colorectal cancer patients incur a greater proportion of expenditures for home healthcare than patients with other cancers.

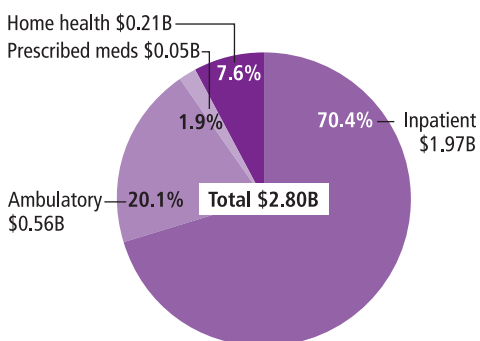
Annual direct spending for breast cancer



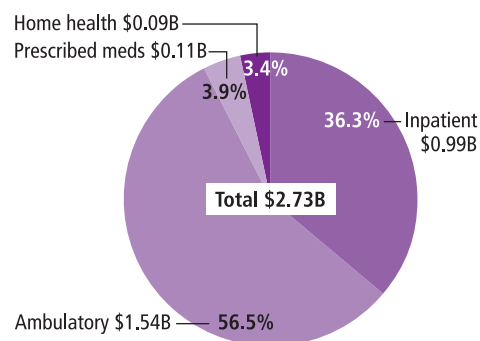
Annual direct spending for prostate cancer



Annual direct spending for colorectal cancer



Annual direct spending for lung cancer



Source: MEPS 2001–2002 average

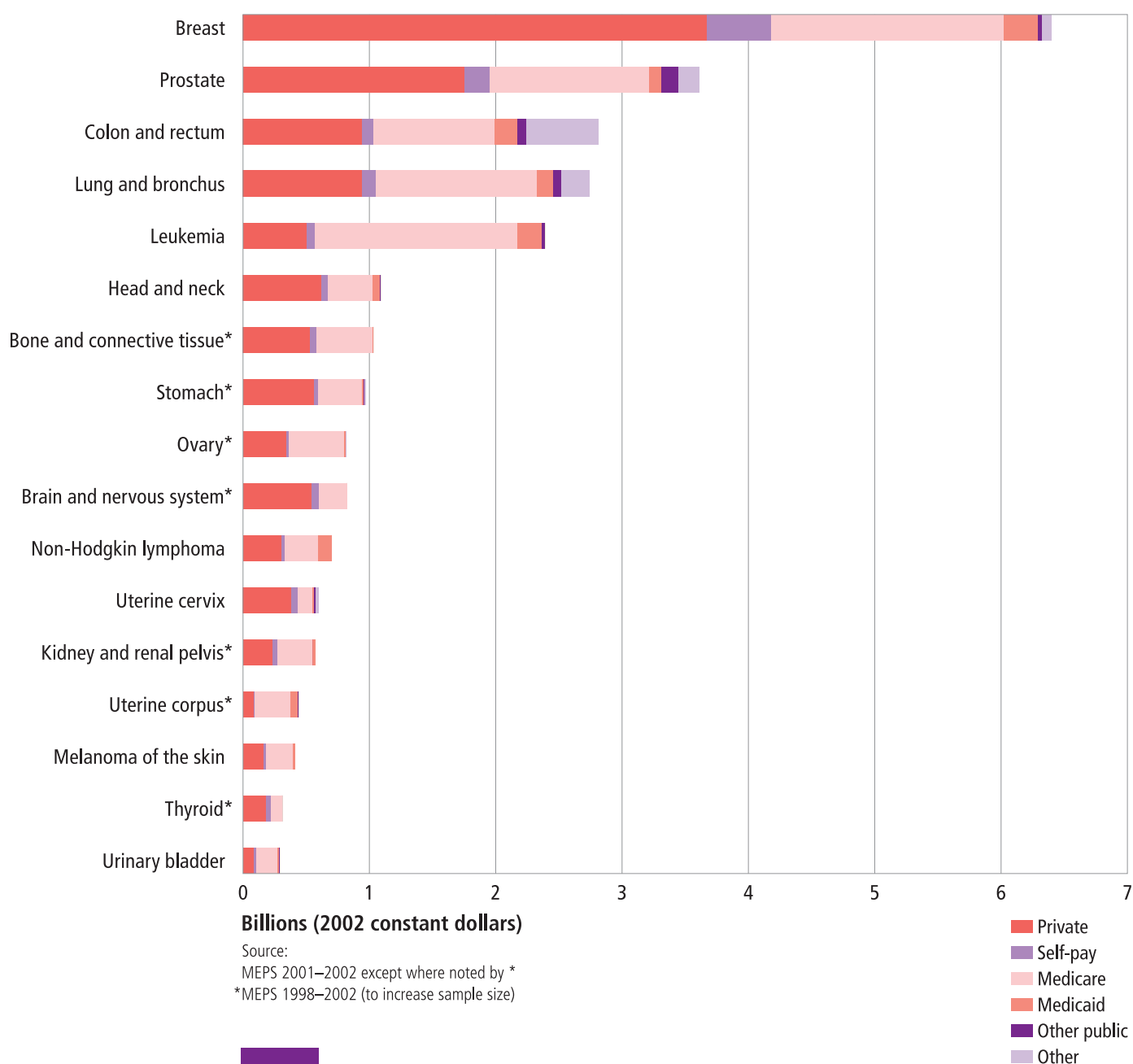
Direct medical spending adjusted to year 2002 dollars.

Note: Percents and spending may not add to totals because of rounding.

Cancer spending by payment source

Private insurers, Medicare, and Medicaid pay for 47%, 37%, and 5% of cancer-related healthcare expenditures, respectively. Private payers incur the greatest proportion of expenditures associated with breast cancer (57%), prostate cancer (48%), and cancer of the head and neck (57%). Medicare pays the largest proportion of expenditures for colorectal cancer (34%), lung cancer (46%), and leukemia (67%).

Annual direct cancer spending in adults aged 20 and older by payment source



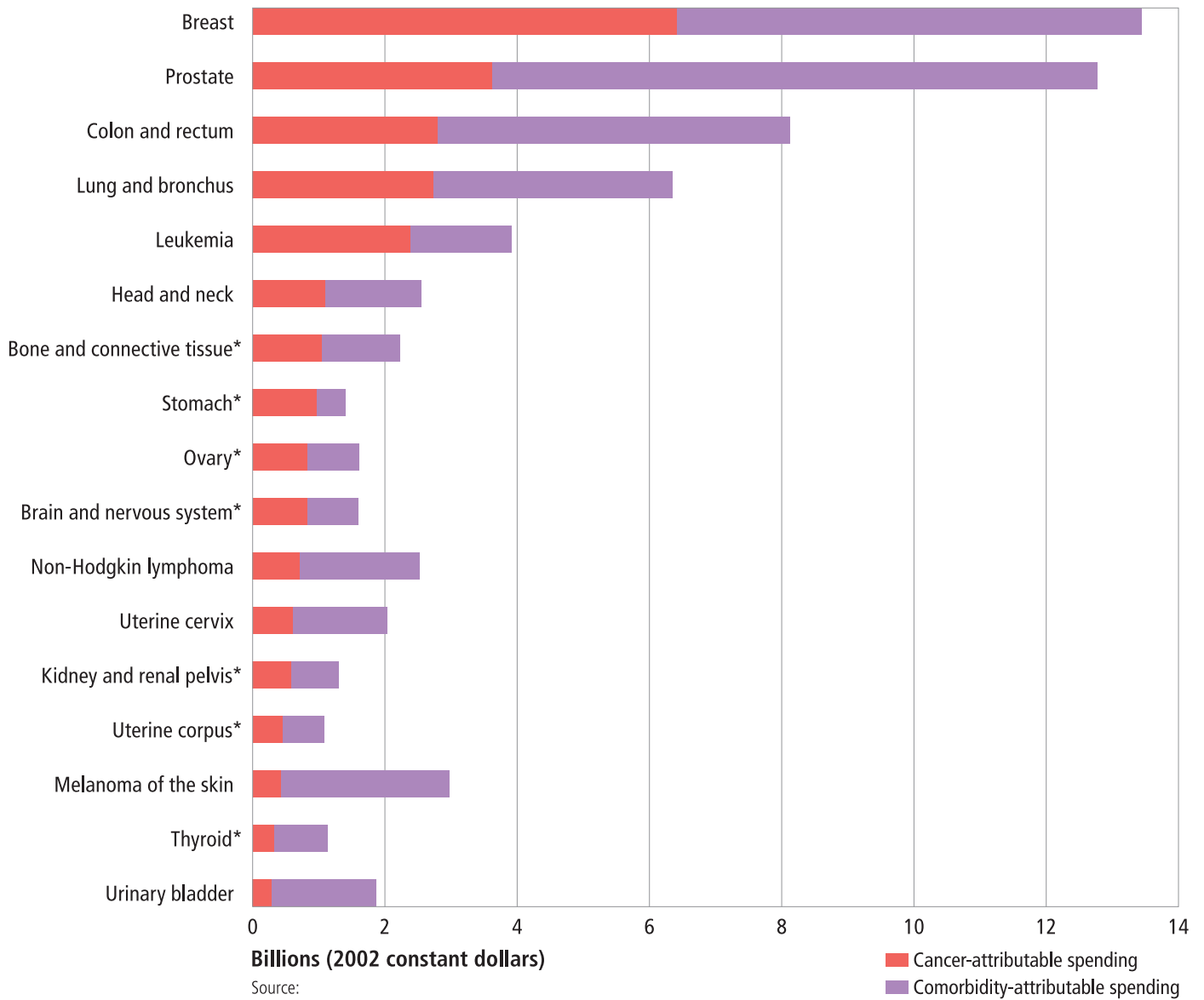
Total healthcare spending including concurrent medical conditions

Total direct medical spending among adults with cancer includes expenditures attributable to cancer treatment as well as spending for treatment of their concurrent conditions. Although annual cancer expenditures among affected adults averaged \$38.4B over 2001–2002, expenditures for other medical conditions in this population were greater, \$59.2B, producing, on average, a yearly total healthcare expenditure of \$97.6B.

Annual healthcare spending for breast cancer among women 20 years of age and older totals \$13.4B, and more than half of this expenditure, \$7.0B, is attributed to treatment of concurrent conditions. Similarly, the majority of healthcare expenditures among adults with spending for prostate, colorectal, lung, cervical, bladder, head and neck, bone and connective tissue, kidney cancers, non-Hodgkin lymphoma, and melanomas of the skin are associated with treatment for concomitant illnesses.

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Total annual direct medical spending in adults aged 20 years and older with cancer expenses



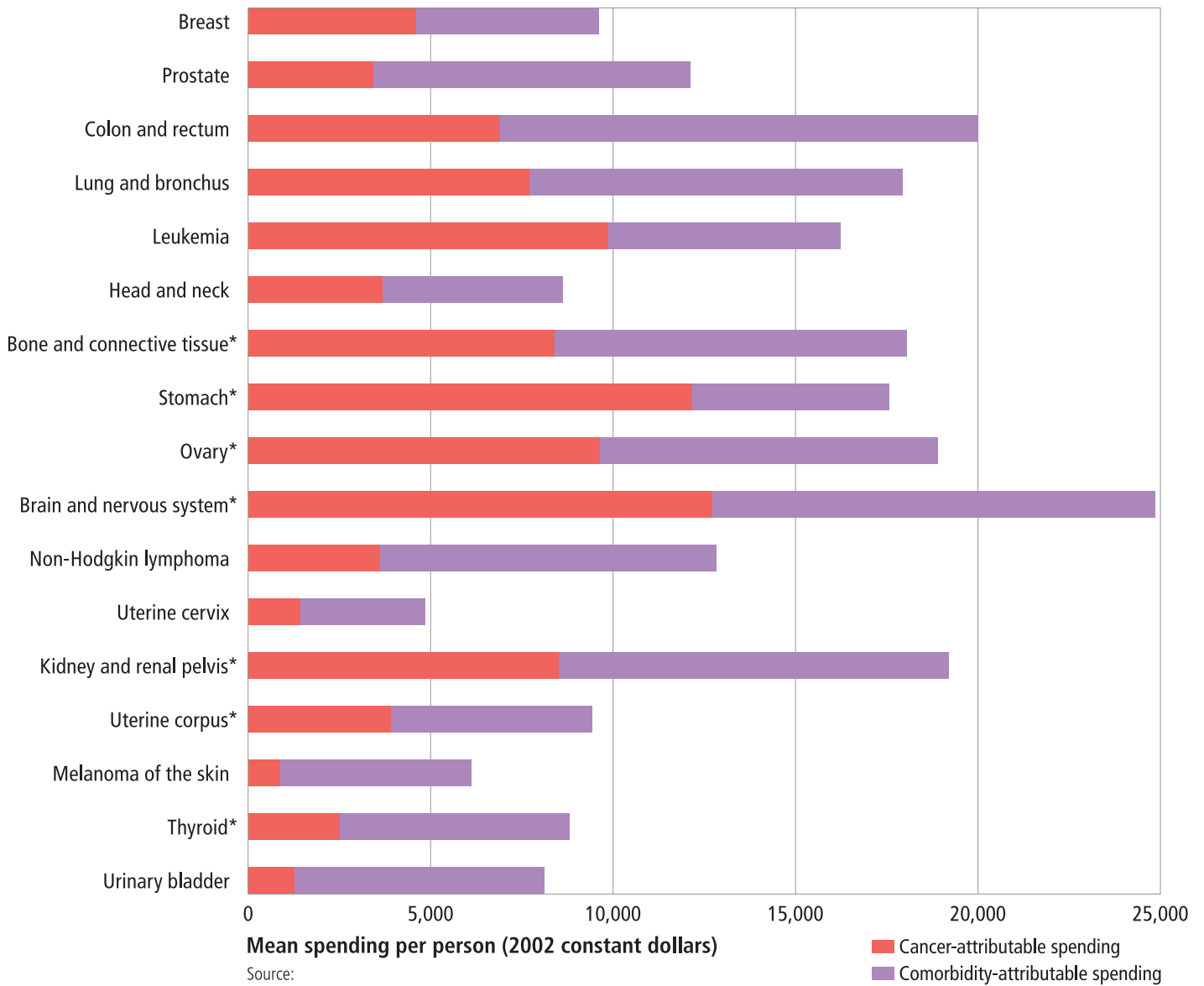
Total healthcare spending per person

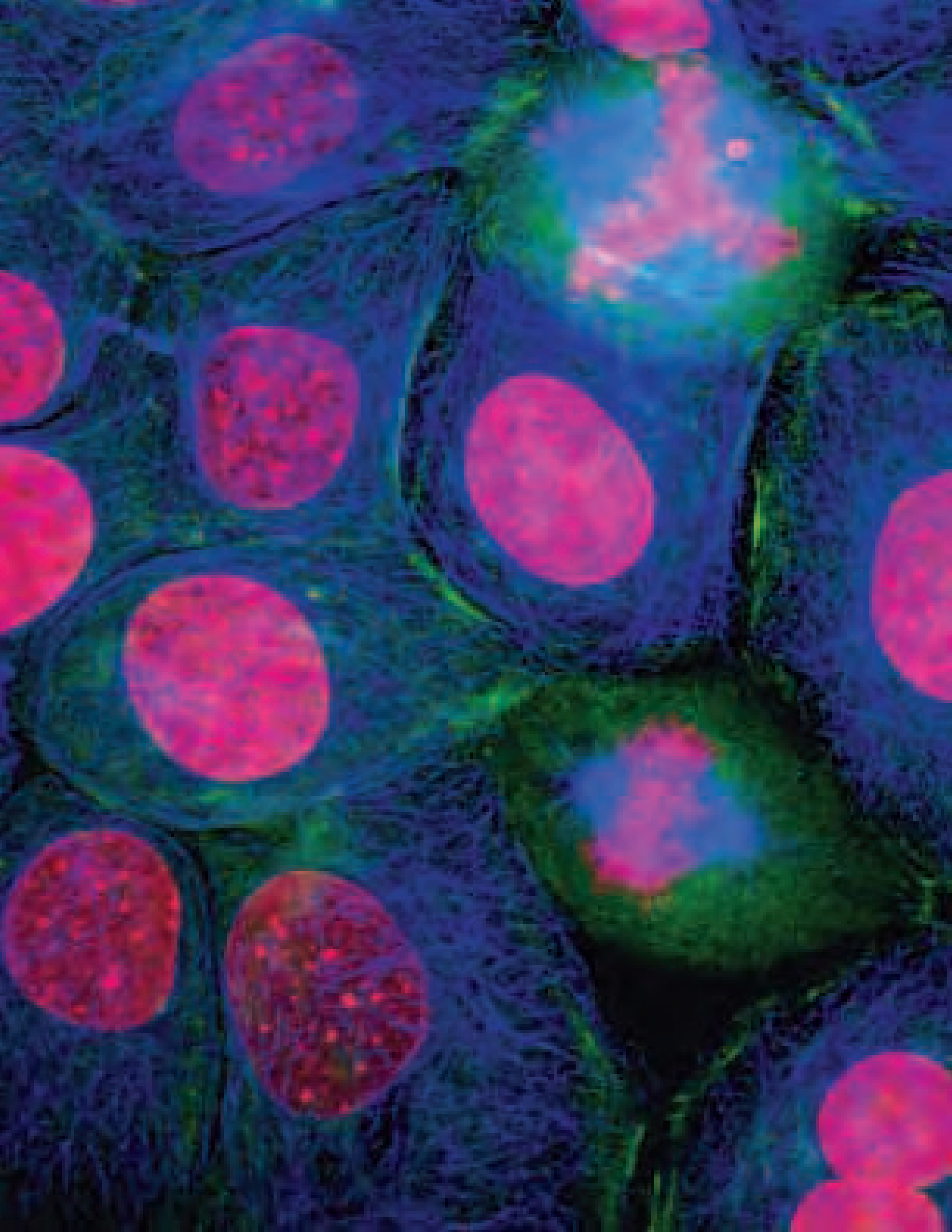
Overall, persons treated for cancer in a given year are those actively being treated and those who are seen for a one-year checkup. On average, a person aged 20 or older seeking any type of treatment for any kind of cancer spends \$3,837 for cancer and \$5,916 for concurrent medical conditions, totaling \$9,753 annually. The annual median spending per adult with cancer seeking any type of treatment is \$264 for cancer and \$4,263 for all conditions. An adult without cancer, on average, spends \$3,458 annually, with a median annual spending of \$1,230.

Average annual healthcare spending per adult with cancer expenditure ranges from \$4,850 for cervical cancer (\$1,421 cancer-attributable expenditures, \$3,429 coexisting medical expenditures) to nearly \$25,000 for cancer of the brain and nervous system (\$12,711 cancer expenditures, \$12,156 coexisting medical expenditures). Among women aged 20 and older treated for breast cancer, the average annual healthcare estimate is \$9,628 per woman, of which \$4,594 is attributable to cancer expenditures.

The Burden of Cancer in American Adults

Total annual mean healthcare spending per adult aged 20 and older with cancer expenditures





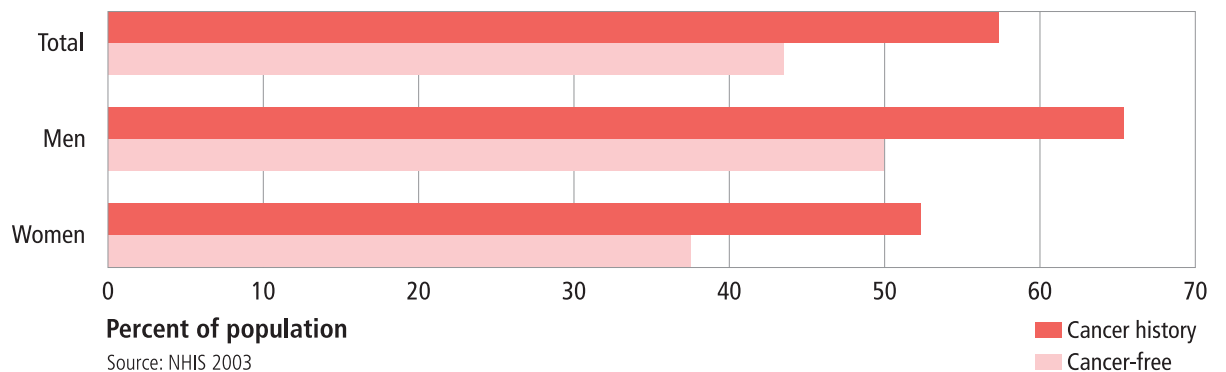


Prevention and early detection

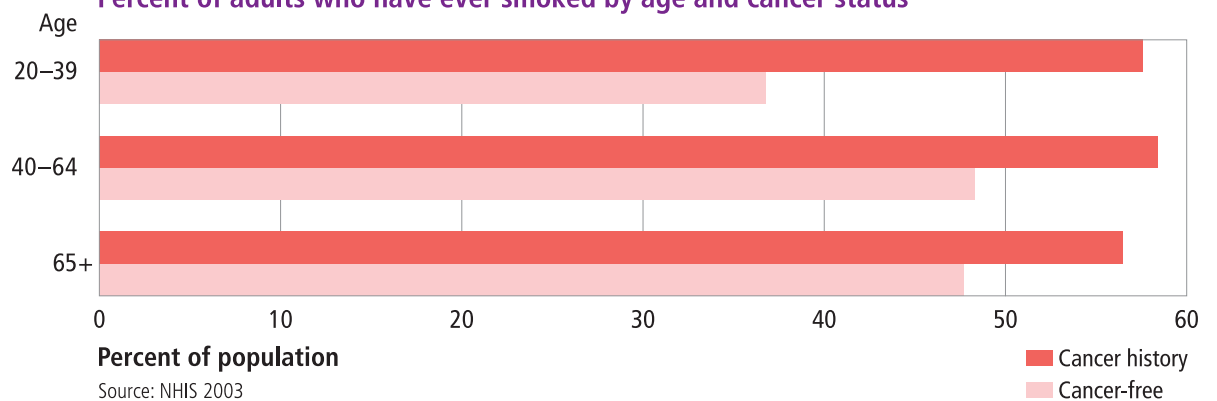
Behavioral risk factors

Smoking is a well-known risk factor for some cancers, including cancer of the lung, pharynx, esophagus, bladder, kidney and stomach. Among persons with active cancer or past history of cancer, 57% have a history of smoking, compared with 44% of cancer-free adults. The higher prevalence of smoking history among those with a history of cancer is consistent by gender and across all age groups.

Percent of adults who have ever smoked by gender and cancer status



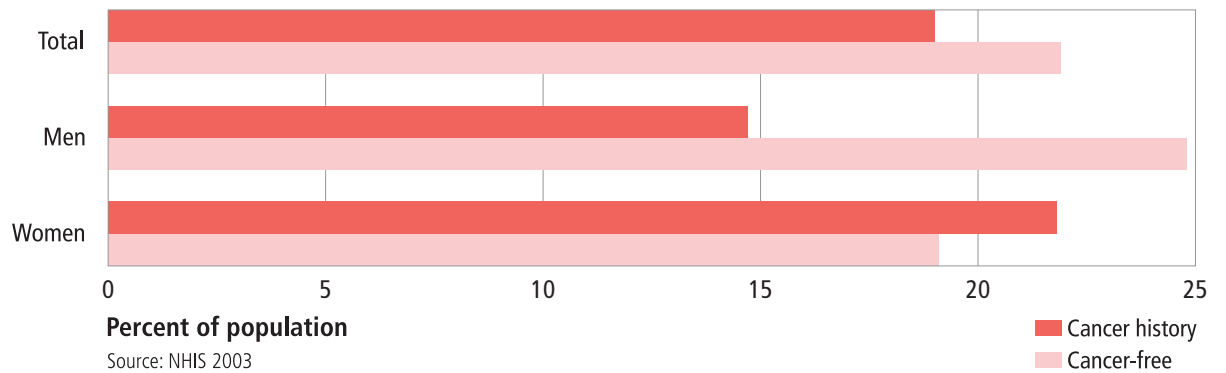
Percent of adults who have ever smoked by age and cancer status



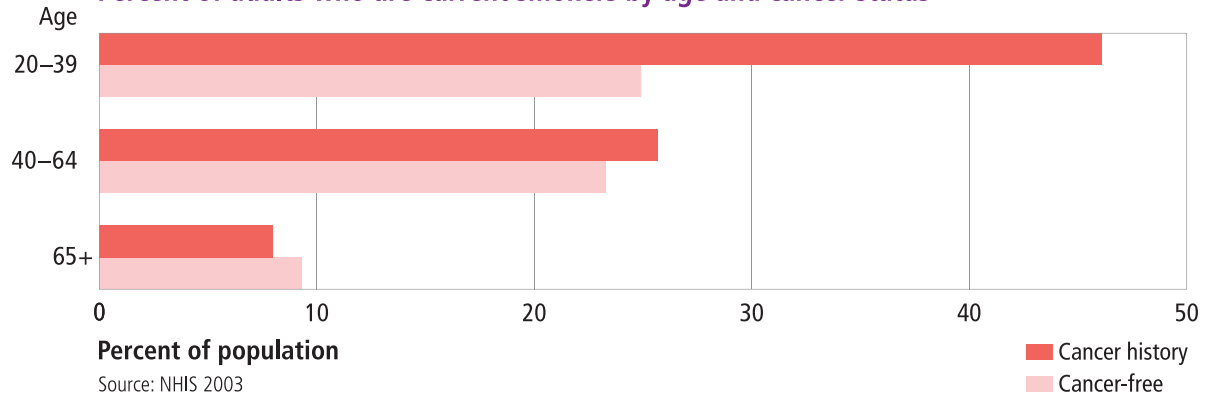
The Burden of Cancer in American Adults

Having a history of cancer does not necessarily result in current avoidance of smoking, however. The overall prevalence of current smoking is similar among adults with history of cancer and those who have never had cancer, 19% and 22%, respectively. Most striking is the fact that young adults with cancer history are twice as likely to be current smokers as same-age cancer-free adults, 46% vs. 25%. By gender, women with cancer history are more likely to be current smokers than cancer-free women. The reverse pattern is observed among men, with current smoking rates of 15% and 25% among men with and without cancer history, respectively.

Percent of adults who are current smokers by gender and cancer status



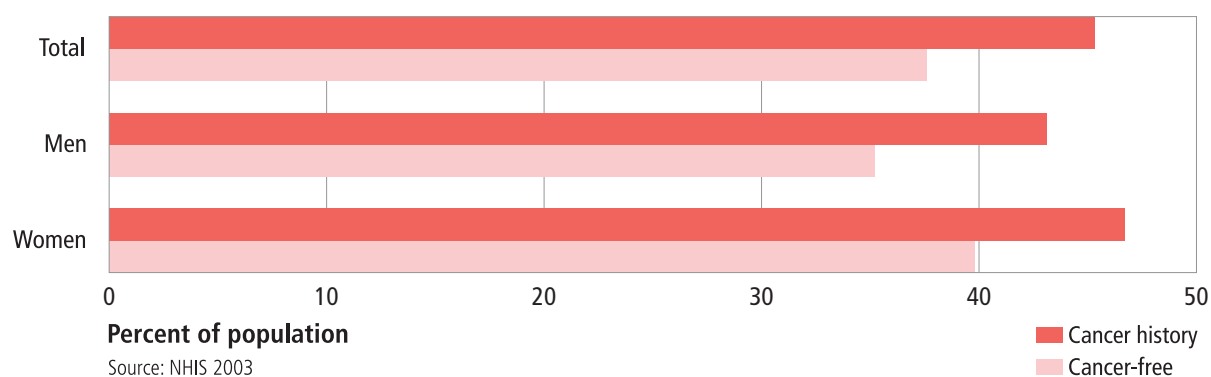
Percent of adults who are current smokers by age and cancer status



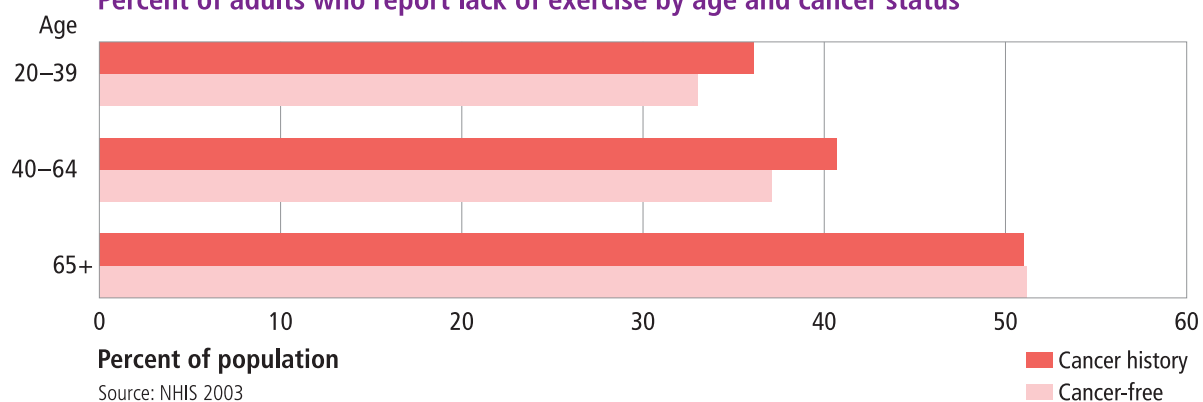
The Burden of Cancer in American Adults

Lack of physical activity is another lifestyle factor that may increase risk for certain cancers, including colorectal and breast cancer. Among the cancer-free adult population, a substantial proportion (35% of men and 40% of women) report that they do not exercise regularly. Even among the youngest age group, 33% do not engage in moderate or vigorous physical activity.

Percent of adults who report lack of exercise by gender and cancer status



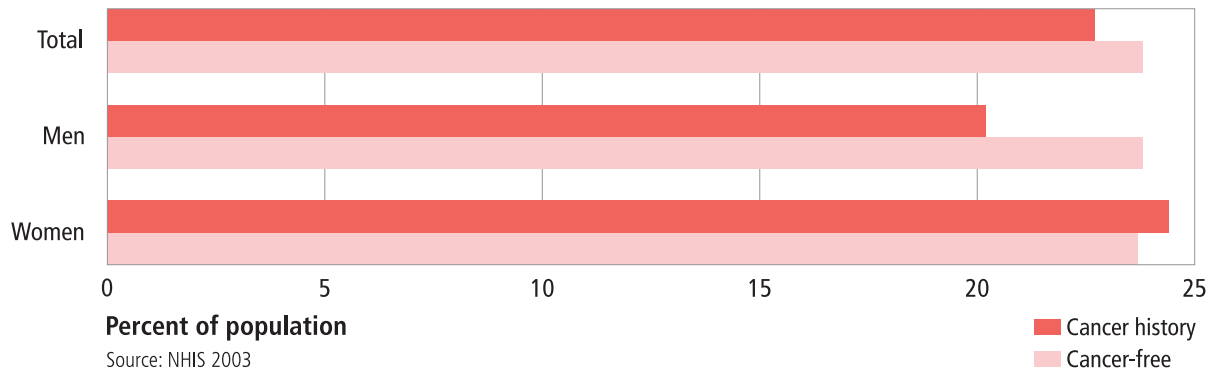
Percent of adults who report lack of exercise by age and cancer status



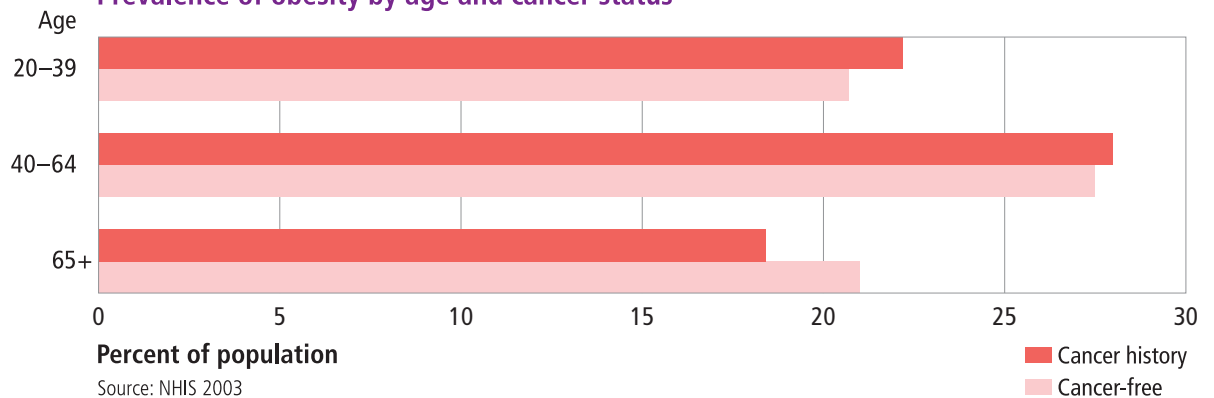
The Burden of Cancer in American Adults

Obesity may increase the risk of pancreatic cancer, and breast cancer in post-menopausal women. Among the cancer-free population, the prevalence of obesity is the same in men and women, 24%; the rate of obesity is highest among the middle-aged, 28%.

Prevalence of obesity by gender and cancer status



Prevalence of obesity by age and cancer status



Cancer screening

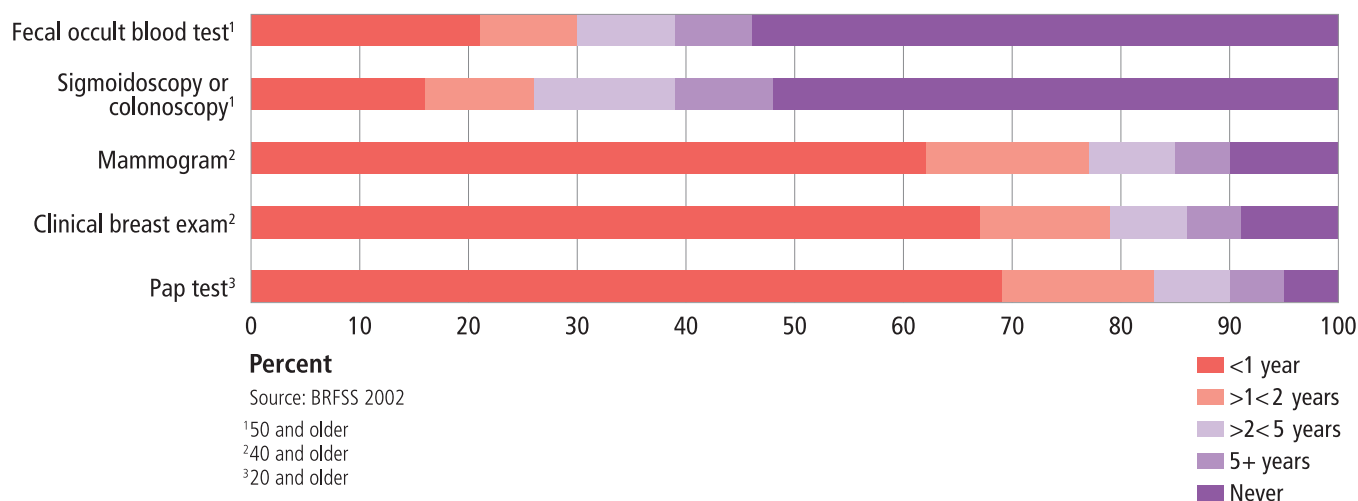
Cancer screening is the process of checking for cancer when no symptoms are present. The types of screening tests include:

- Physical examinations and procedures—e.g., clinical breast examination for breast cancer, digital rectal examination (DRE) for prostate cancer, colonoscopy/sigmoidoscopy for colorectal cancer
- Imaging tests—e.g., x-ray mammography for breast cancer
- Laboratory tests—e.g., fecal occult blood test (FOBT) for colorectal cancer, prostate-specific antigen (PSA) test for prostate cancer, Pap test for cervical cancer

Statistics presented in this section show that adherence to recommended guidelines (Appendix IV) for all types of cancer screening tests could be improved for both men and women.

Sixty-nine percent of women aged 20 or older have had a Pap test within the past year, and 5% have never had a Pap test. Sixty-two percent of women aged 40 and older have had a mammogram in the past year, and 11% have never had one. Screening for colorectal cancer presents real challenges, however. Over 50% of women aged 50 and older have never had a sigmoidoscopy or colonoscopy or a fecal occult blood test.

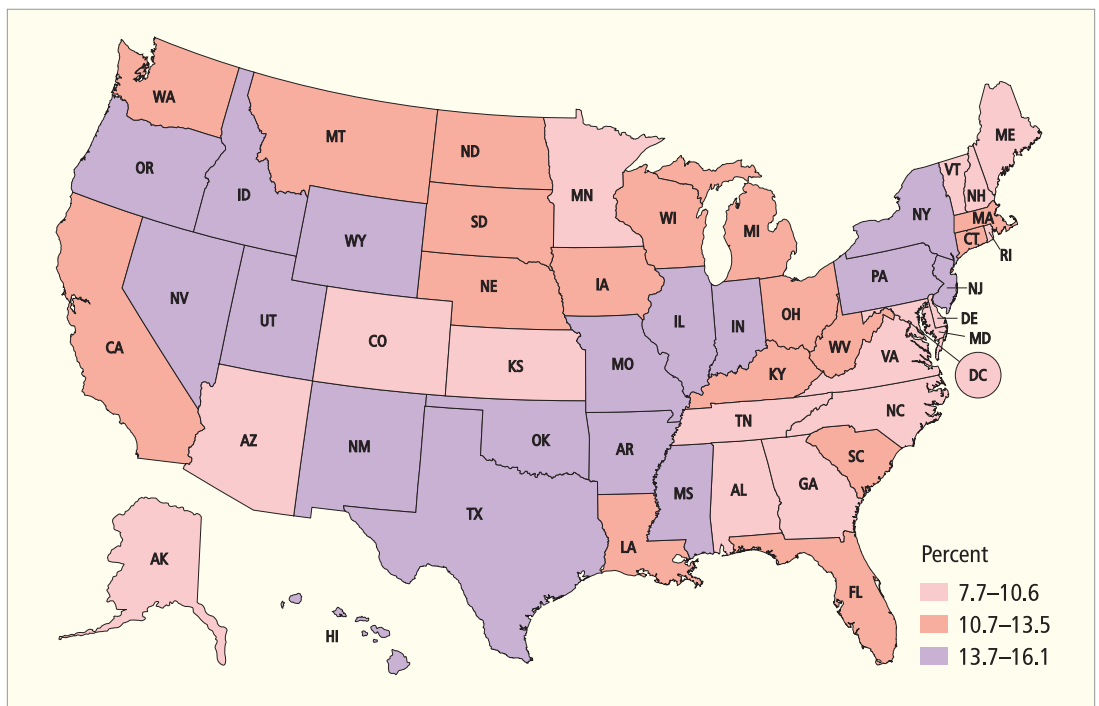
Most recent screening tests among women



The Burden of Cancer in American Adults

Considerable variation in cancer screening rates exists across the states. Rates for all types of screening among both men and women tend to be lowest in some Southwestern and Mountain states (e.g., Texas, Oklahoma, Arkansas, Idaho, Utah, Wyoming), and highest in New England and Middle-Atlantic states (e.g., Maine, New Hampshire, Massachusetts, Rhode Island, Maryland, DC, Delaware), and in Florida.

Percent of women aged 20 and older who have not had a Pap test within the past three years

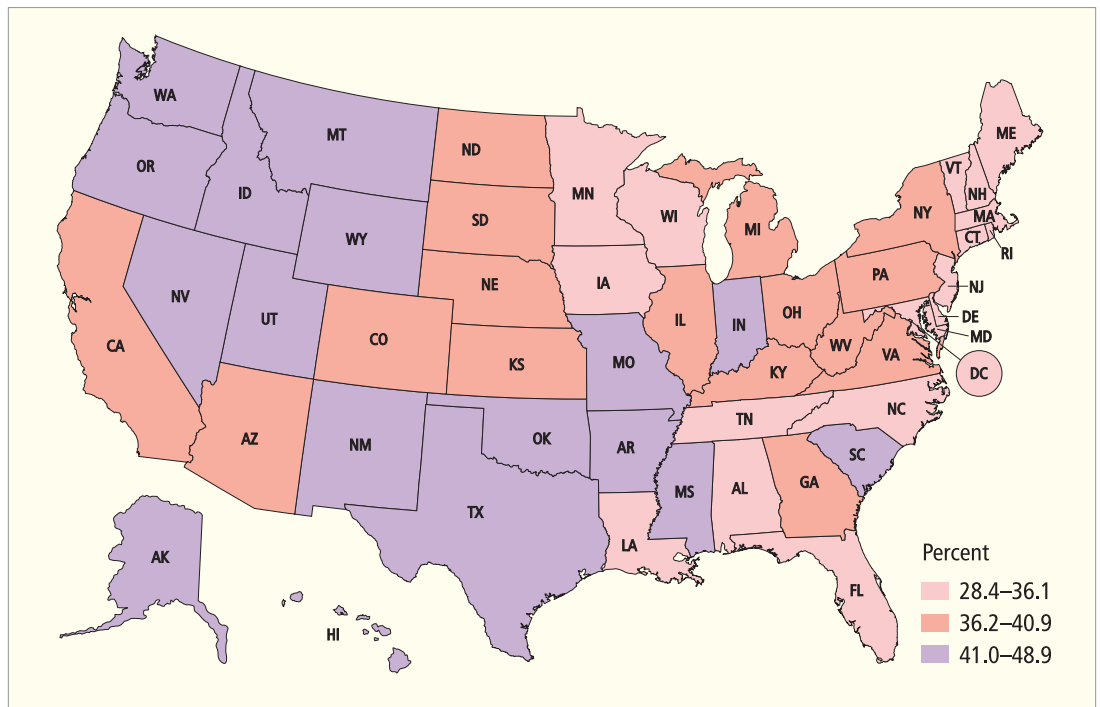


Source: BRFSS 2002

Note: State-specific data are grouped into tertiles. This applies to all state-level analyses.

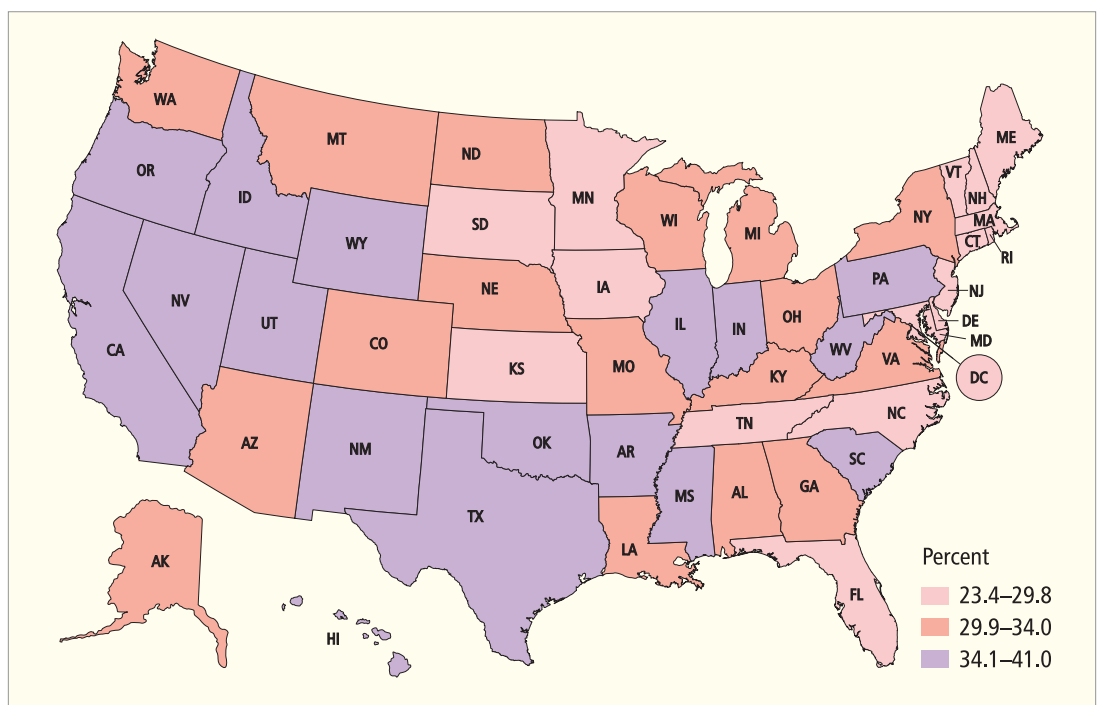
The Burden of Cancer in American Adults

Percent of women aged 40 and older who have not had a mammogram within the past year



Source: BRFSS 2002

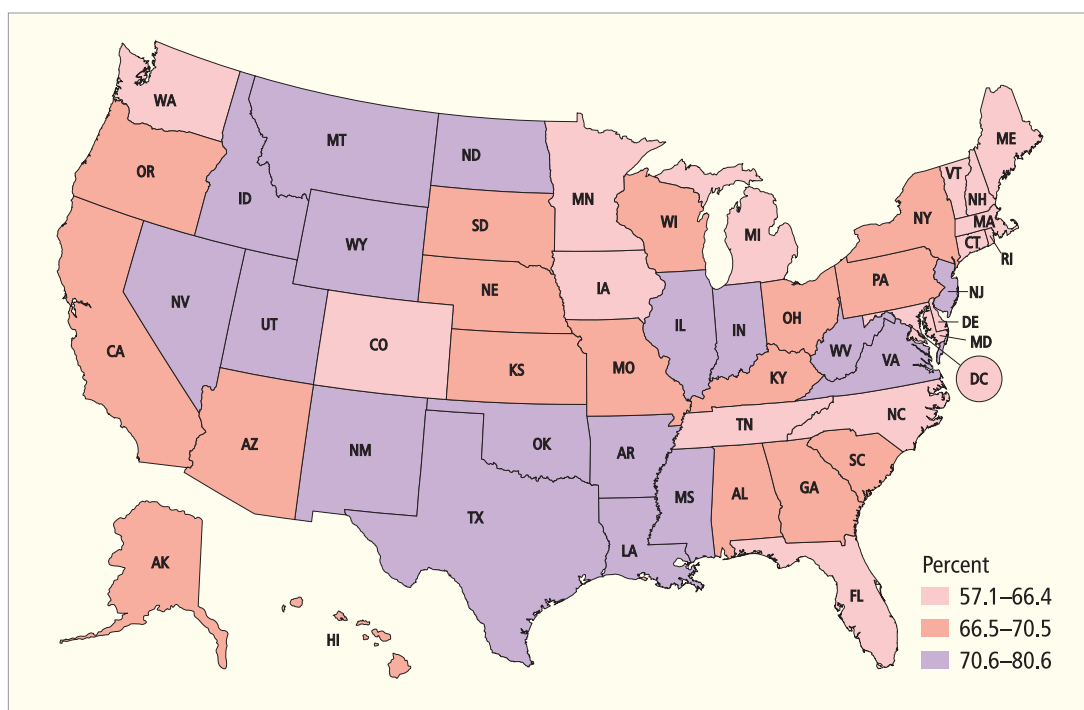
Percent of women aged 40 and older who have not had a clinical breast exam within the past year



Source: BRFSS 2002

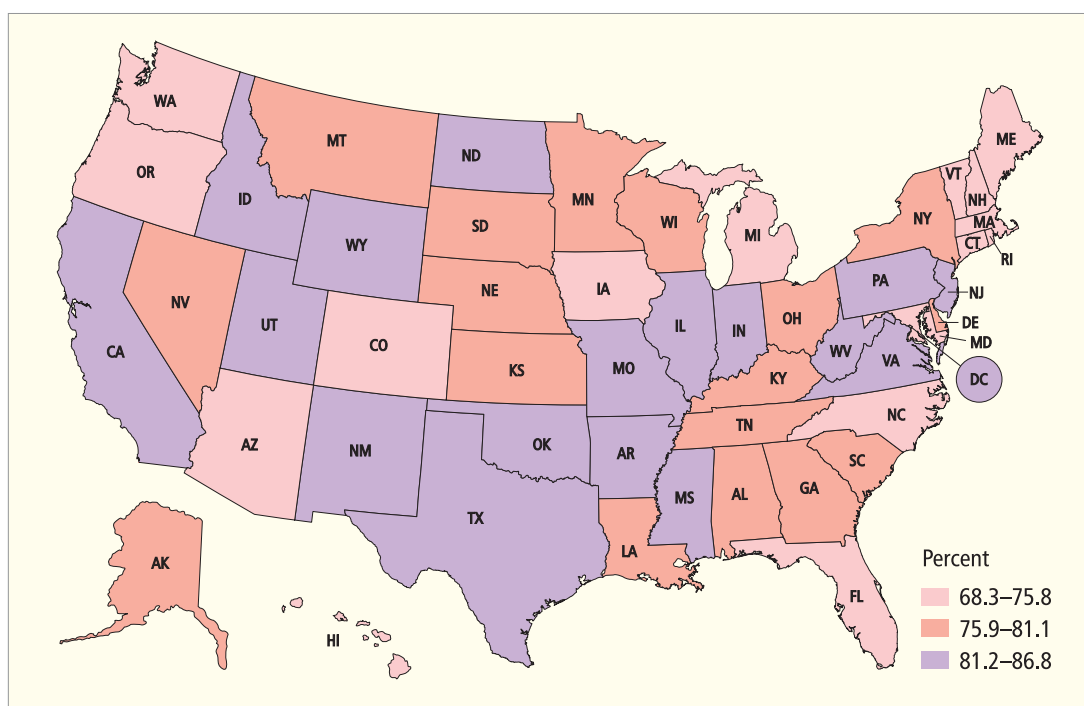
The Burden of Cancer in American Adults

Percent of women aged 50 and older who have not had a sigmoidoscopy or colonoscopy or fecal occult blood test within the past year



Source: BRFSS 2002

Percent of women aged 50 and older who have not had a fecal occult blood test within the past year

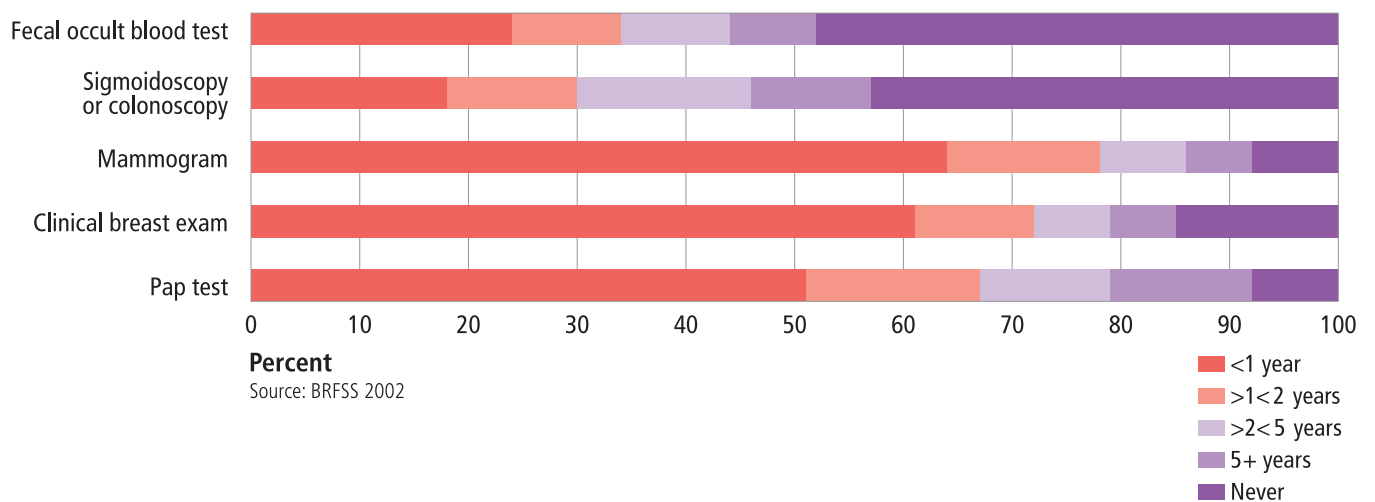


Source: BRFSS 2002

The Burden of Cancer in American Adults

Many Medicare-eligible women are not tapping into Medicare screening benefits. Although annual mammograms are covered, only 64% of women aged 65 years and older have had mammography in the past year. Periodic sigmoidoscopy and colonoscopy tests are covered by Medicare, yet 44% of Medicare-eligible women have never had either of these screening tests. Fecal occult blood tests are covered annually, yet only 24% of older women had an FOBT in the past year and 48% have never had this test.

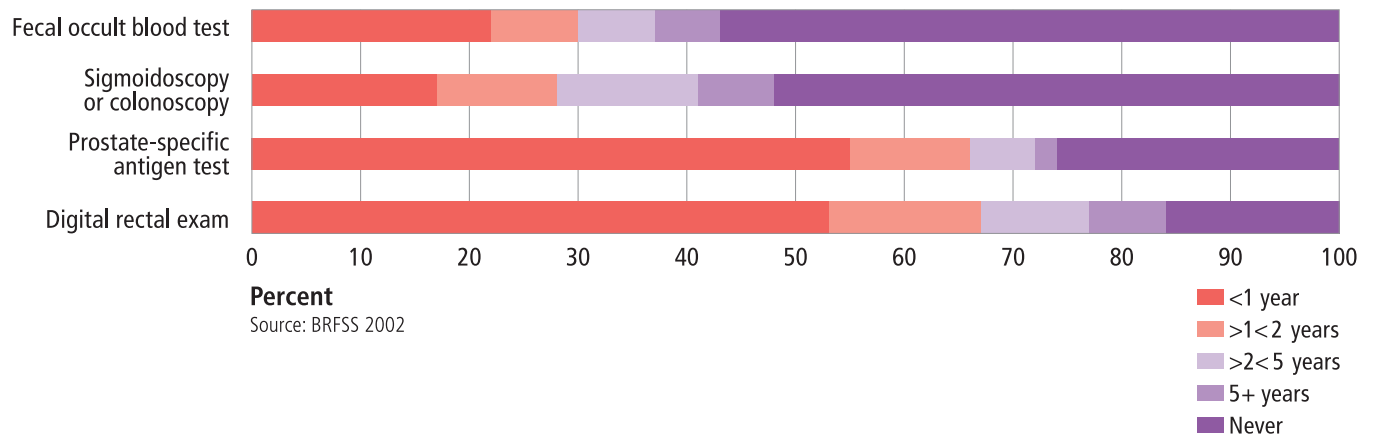
Most recent screening tests among women aged 65 and older



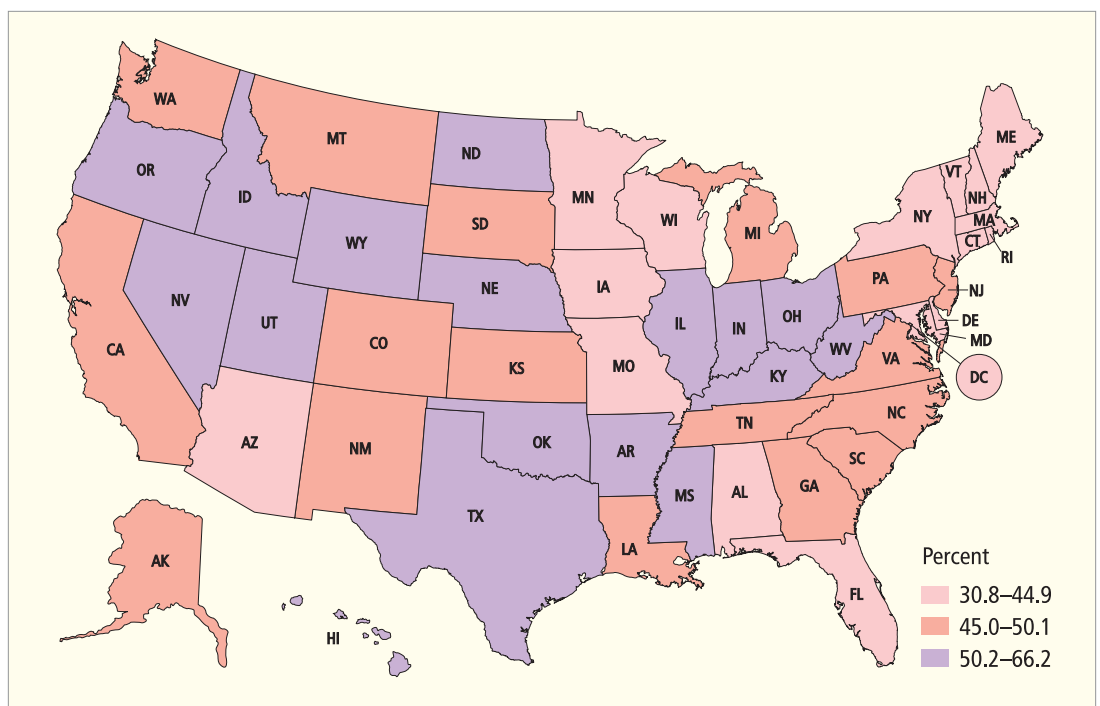
The Burden of Cancer in American Adults

Although guidelines call for annual PSA and DRE prostate cancer screening, almost half of all men 50 or older have not had these tests in the past year (44% for PSA, 47% for DRE). Fifty-one percent of men 50 or older have never had either a sigmoidoscopy or colonoscopy test for colorectal cancer, and 56% have never had an FOBT.

Most recent screening tests among men aged 50 and older

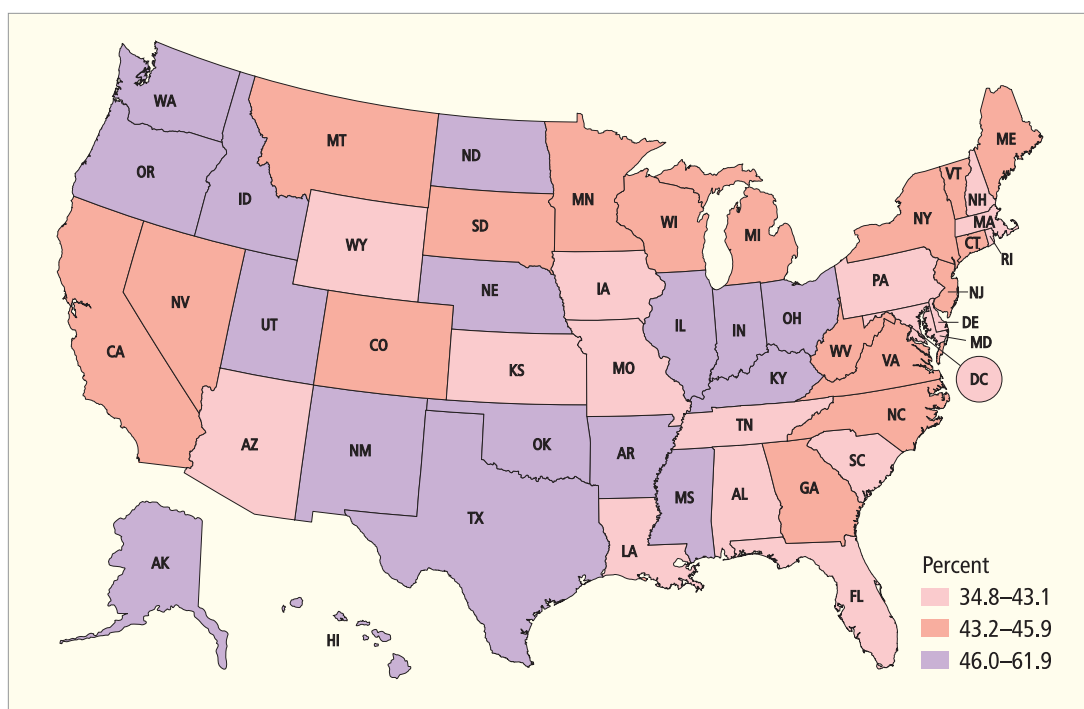


Percent of men aged 50 and older who have not had a digital rectal exam within the past year



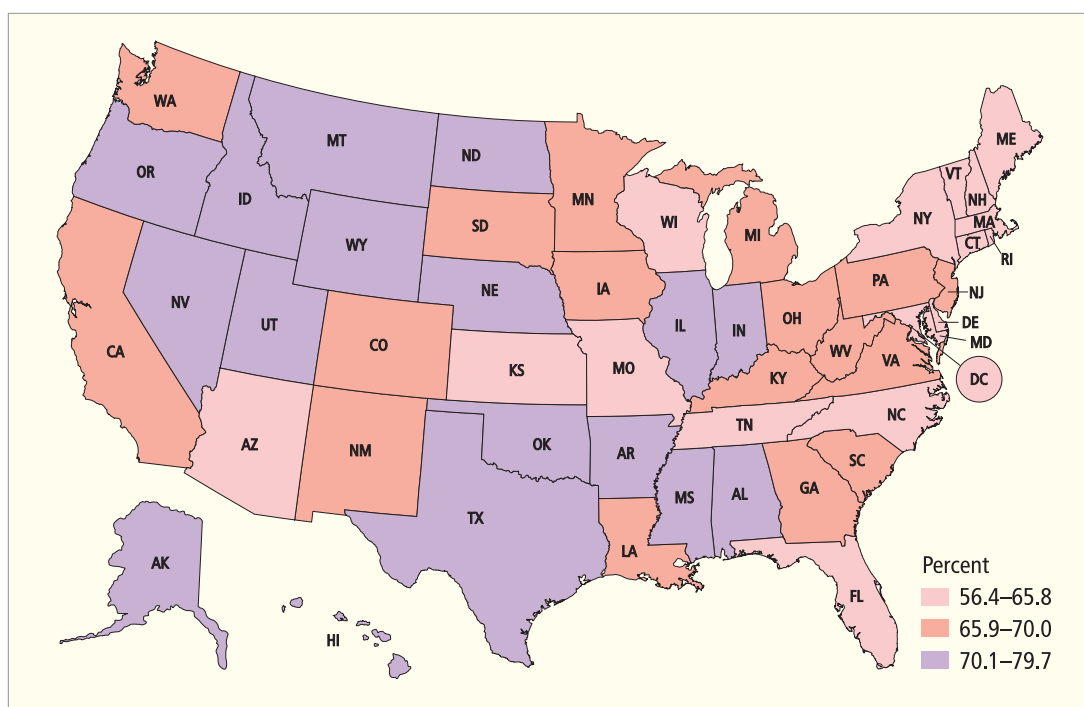
The Burden of Cancer in American Adults

Percent of men aged 50 and older who have not had a prostate-specific antigen test within the past year



Source: BRFSS 2002

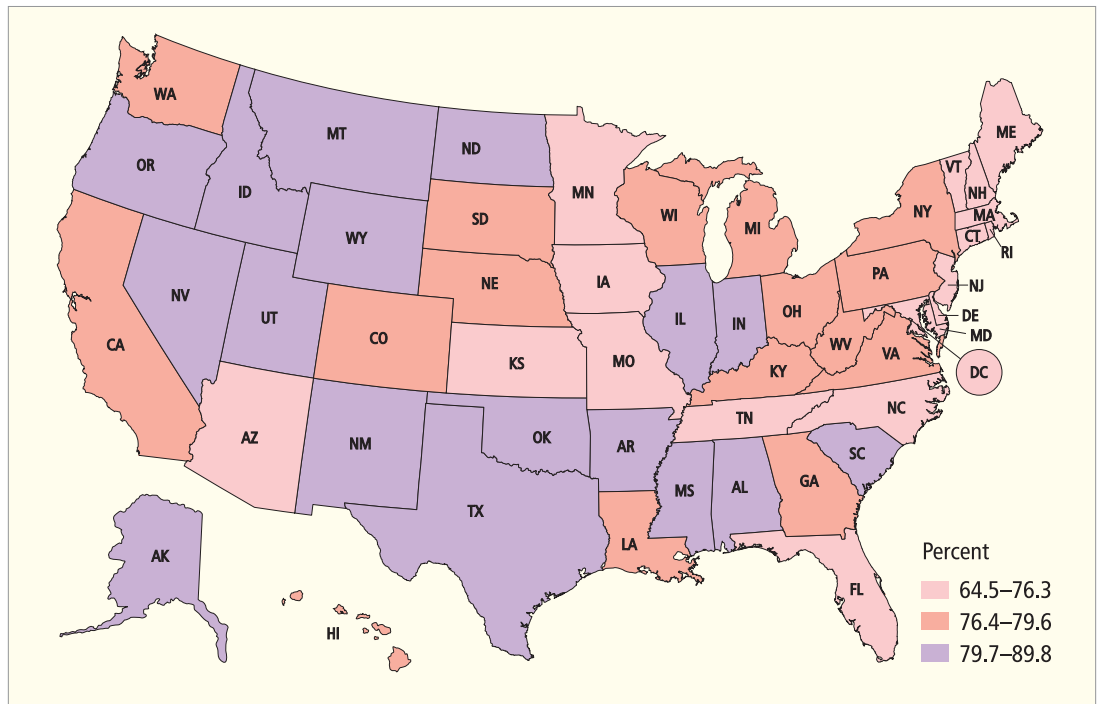
Percent of men aged 50 and older who have not had a sigmoidoscopy or colonoscopy or fecal occult blood test within the past year



Source: BRFSS 2002

The Burden of Cancer in American Adults

Percent of men aged 50 and older who have not had a fecal occult blood test within the past year

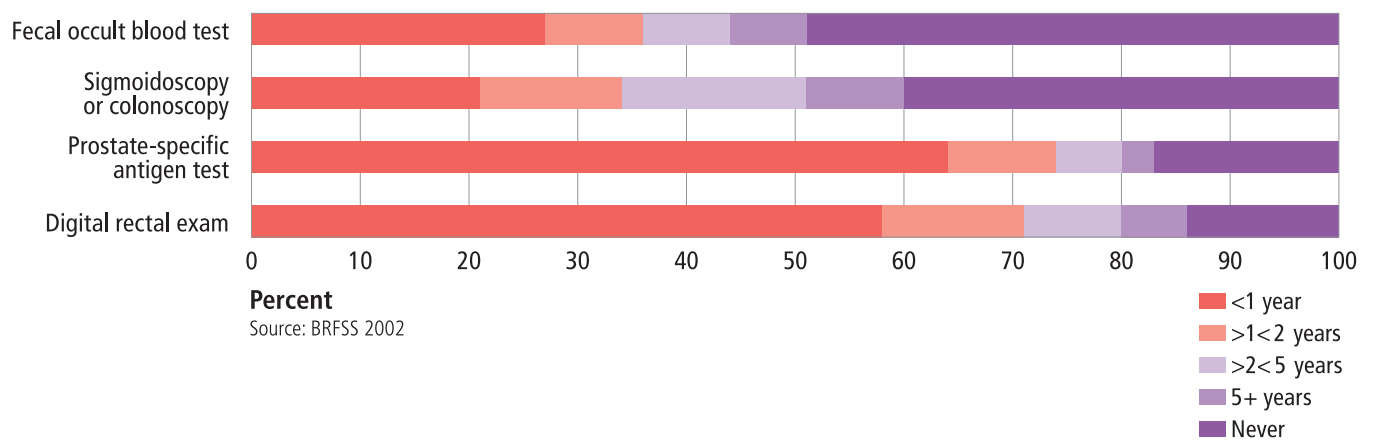


Source: BRFSS 2002

The Burden of Cancer in American Adults

Similar to women, many Medicare-eligible men are not availing themselves of cancer screening. Although DRE and PSA are covered, only 58% and 64% of men aged 65 years and older, respectively, received these tests in the past year. Forty percent of Medicare-eligible men have never had either a colonoscopy or a sigmoidoscopy to screen for colorectal cancer although the tests are covered. Annual fecal occult blood tests are covered by Medicare, but only 27% of older men had an FOBT in the past year and 49% have never had one.

Most recent screening tests among men aged 65 and older





Appendix I: Methods

Data sources

Surveillance, Epidemiology, and End Results (SEER) Program, 1992–2001

US Department of Health and Human Services
US National Institutes of Health
National Cancer Institute

The SEER Program of the National Cancer Institute is an authoritative source of information on cancer incidence and survival in the United States. The SEER Program began collecting data on cancer cases in 1973 and currently collects and publishes cancer incidence and survival data from 14 population-based cancer registries and three supplemental registries covering approximately 26 percent of the US population. The population-based data include stage of cancer at the time of diagnosis and survival rates within each stage. Information on more than 3 million in situ and invasive cancer cases is included in the SEER database, and neoplasms are coded using the International Classification of Diseases for Oncology (ICD-O). The population covered by SEER is comparable to the general US population with regard to measures of poverty and education. Approximately 170,000 new cases are added each year within the SEER coverage areas. Adults aged 20 and older were selected for these analyses, and SEER incidence rates were age-adjusted to the 2000 US standard population aged 20 and older.

National Health Interview Survey (NHIS), 2002–2003

US Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Health Statistics

NHIS is a nationally representative interview survey based on a sample of the non-institutionalized US population, including approximately 30,000 persons over the age of 20. Surveys in the series have been conducted annually since 1957, with the last major restructuring occurring in 1997. The survey consists of personal interviews in a population-based national sample. Adults aged 20 and older were selected for these analyses. Sample size = 30,236 for 2002 and 30,033 for 2003.

Compressed Mortality File (CMF), 1990–2001

US Department of Health and Human Services
Centers for Disease Control and Prevention
National Center for Health Statistics

CMF is a county-level national mortality and population database. Counts and rates of death can be obtained by place of residence (US, state, and county), age (16 groups), race (white, black, American Indian/Alaskan Native, Asian/Pacific Islander and other), gender, year, and underlying cause of death. Death rates shown in this fact book reflect the total population and are age-adjusted to the 2000 US standard population. Diagnostic classifications for malignant neoplasms were based on the International Classification of Diseases,

Ninth Revision, Clinical Modification (ICD-9-CM) codes 140 through 208 for years 1990 through 1998, and ICD-10-CM codes C00 through C97 for years 1999 through 2001. CDC WONDER online mortality database <http://wonder.cdc.gov/>
Accessed: January 19, 2005.

Medical Expenditure Panel Survey (MEPS), 1998–2002

US Department of Health and Human Services
Public Health Service
Agency for Healthcare Research and Quality

MEPS, conducted by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS), collects data on healthcare use, expenditures, sources of payment, and insurance coverage. MEPS combines household-reported information with information obtained from providers, primarily on expenditures by source of payment. Provider data are obtained through a supplemental follow-back survey of hospital events, physician office visits, and home healthcare. Payment information for prescription medications is obtained directly from pharmacies. MEPS panel participants comprise a national probability sample representative of the US civilian non-institutionalized population, selected from households interviewed in the National Health Interview Survey (NHIS). The total number of adults aged 20 years and older that participated in the surveys from 1998 through 2002 is 57,600. Direct medical expenses reported in this fact book are adjusted to year 2002 dollars.

Because MEPS does not distinguish between primary and secondary diagnoses at an associated event, there is a possibility of double-counting expenses when the event has more than one condition coded. As a result, when spending estimates are totaled over all conditions, some expenses will be double-counted.

Behavioral Risk Factor Surveillance System (BRFSS), 2002

US Department of Health and Human Services
Centers for Disease Control and Prevention

The BRFSS is an ongoing system of surveys conducted by state health departments in cooperation with the CDC. The methods used are generally comparable from state to state and from year to year, allowing states to compare their risk factor prevalence with national data and monitor the effects of interventions over time. The national probability sample interviews are conducted by telephone, and interview questions cover selected health issues and preventive health measures. In 2002 screening completion rates ranged from 86.7% for Nevada to 45.8% for New Jersey; the median screening completion rate was 70%. In order to provide adequate sample sizes for smaller geographically defined populations of interest, some states are sampled disproportionately.

Definitions

Disease and risk factor definitions

Behavioral risk factors

Ever-smoked: A person has “ever-smoked” if he/she smoked 100 or more cigarettes in his/her lifetime.

Current smoker: A current smoker is defined as someone who has smoked 100 or more cigarettes in his/her lifetime and smokes every day or some days.

Obesity: A person was classified as obese if his/her body mass index (BMI) (weight in kilograms divided by height in meters squared), based on self-reported measurements, was greater than or equal to 30.

Lack of exercise: A person was classified as lacking exercise if he/she responded “never” to the questions “How often do you do VIGOROUS activities for at least 10 minutes that cause heavy sweating or large increases in breathing or heart rate?” and “How often do you do LIGHT OR MODERATE activities for at least 10 minutes that cause only light sweating or a slight to moderate increase in breathing or heart rate?”

Cancer stages

The extent of cancer spread at the time of diagnosis:

In situ: Refers to a pre-invasive cancer, confined to the site of origin.

Local: An invasive malignant cancer confined entirely to the organ where the cancer began.

Regional: Refers to a cancer that has spread to the body area adjacent to the primary tumor.

Distant: Refers to cancer that has spread from the original (primary) tumor to distant organs or distant lymph nodes; also known as distant metastasis.

All stages: Refers to local, regional, and distant as well as unstaged cancers.

Concurrent medical conditions and cancers (from NHIS)

These were self-reported in response to the following questions:

For concurrent medical conditions—“Have you ever been told by a doctor or other health professional that you have X?” with two exceptions:

Low back pain: Persons who reported having had low back pain in the past three months.

Chronic obstructive pulmonary disease: Persons who reported being told by a doctor or other health professional that they had emphysema or chronic bronchitis.

For cancers—“Have you ever been told by a doctor or other health professional that you had cancer or a malignancy of any kind?”

Other definitions

Disease or condition rates

Age-adjusted incidence: The incidence percentage adjusted for differences in the age distribution between the population of interest and a standard population.

Incidence: The number of new cases of a disease in a given time period among the population at risk of the disease.

Prevalence percentage: Persons diagnosed with the disease or condition as a percentage of the population.

Relative survival rate: The ratio of the observed survival rate for the patient group to the expected survival rate for persons in the general population similar to the patient group with respect to age, sex, race, and calendar year of observation. The relative survival rate is an estimate of the chance of surviving the effects of cancer.

Functional limitations

Activities of daily living (ADL) are related to personal care and include bathing or showering, dressing, getting in or out of bed or a chair, using the toilet, and eating. Persons were considered to have an ADL limitation if they reported being limited in performing personal care needs due to a physical, mental, or emotional problem.

Instrumental activities of daily living (IADL) are related to independent living and include preparing meals, managing money, shopping for groceries or personal items, performing light or heavy housework, and using a telephone. Persons were considered to have an IADL limitation if they reported being limited in handling routine IADL activities due to a physical, mental, or emotional problem.

Work limitations: Persons who reported being limited in the kind or amount of work they could do because of a physical, mental, or emotional problem.

Any limitation: Persons who reported an ADL, IADL, or work limitation because of a physical, mental, or emotional problem.

Source of payment

The payer source for medical care and health services reported in the Medical Expenditure Panel Survey:

Private: Private insurance.

Medicaid: A jointly funded federal and state program that pays for medical and health-related services for eligible individuals and families with low incomes.

Medicare: The national health insurance program for adults 65 years of age and older, and other eligible adults who are disabled or have end-stage renal disease.

Other insurance: Primarily Workers' Compensation and other insurance, such as homeowners'.

Other public insurance: Department of Veterans Affairs, Department of Defense, Tricare, Indian Health Service, and other federal, state, and local government, and other public insurance types.

Self-pay: Co-pays and other out-of-pocket expenses.

Symptoms

Recurring pain: Persons who reported recurring pain in the past 12 months.

Excessive sleepiness: Persons who reported having excessive sleepiness in the past 12 months.

Sadness: Persons who reported being so sad that nothing cheered them up all or most of the time in the past 30 days.

Years since diagnosis: Years since diagnosis is calculated as current age (years) minus age at diagnosis (years).

The Burden of Cancer in American Adults

Agency for Healthcare Research and Quality (AHRQ) clinical classification codes for cancer and equivalent codes from the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)

Cancer site	AHRQ Clinical Classification Code	ICD-9-CM
Bone and connective tissue	21	170, 171
Brain and nervous system	35	191-192, V10.85, V10.86
Breast	24	174-175, 233.0, V10.3
Colon and rectum	14, 15	153-154, 159.0, 230.3-230.6, V10.05, V10.06
Head and neck	11	140-149, 160-161, 195.0, 230.0, 231.0, V10.01, V10.02, V10.21
Hodgkin's disease	37	201, V10.72
Kidney and renal pelvis	33	189.0-189.1, V10.52
Leukemia	39	202.4, 203.1, 204-208, V10.6
Liver and intrahepatic bile duct	16	155, 230.8, V10.07
Lung and bronchus	19	162.2, 162.3, 162.4, 162.5, 162.8, 162.9, 231.2, V10.11
Melanoma of the skin	22	172, V10.82
Non-Hodgkin lymphoma	38	200, 202.0-202.2, 202.8-202.9, V10.71, V10.79
Oral cavity and pharynx		140-149
Ovary	27	183.0, V10.43
Pancreas	17	157
Prostate	29	185, 233.4, V10.46
Stomach	13	151, 230.2, V10.04
Testis	30	186, V10.47
Thyroid	36	193, V10.87
Urinary bladder	32	188, 233.7, V10.51
Uterine cervix	26	180, 233.1, 795.0, V10.41
Uterine corpus	25	179, 182, 233.2, V10.42

Appendix II: Direct medical spending: total, mean and median

Cancer site	Total spending for cancer and concurrent medical conditions		
	Annual total spending (\$ billions)	Mean spending per person (\$)	Median spending per person (\$)
Breast	13.44	9,628	4,732
Prostate	12.77	12,104	6,265
Colon and rectum	8.13	19,989	11,119
Lung and bronchus	6.35	17,931	11,360
Leukemia	3.92	16,228	7,889
Melanoma of the skin	2.98	6,128	2,564
Head and neck	2.54	8,613	5,009
Non-Hodgkin lymphoma	2.52	12,831	7,183
Bone and connective tissue*	2.23	18,052	6,206
Uterine cervix	2.03	4,850	2,788
Urinary bladder	1.87	8,110	3,345
Ovary*	1.61	18,890	4,335
Brain and nervous system*	1.60	24,867	15,700
Stomach*	1.40	17,572	7,074
Kidney and renal pelvis*	1.30	19,192	9,895
Thyroid*	1.13	8,824	3,973
Uterine corpus*	1.08	9,421	6,091
Total cancer	97.58	9,753	4,263
Cancer-free	566.93	3,458	1,230

Source:

MEPS 2001–2002 except where noted by *

*MEPS 1998–2002 (to increase sample size)

Appendix III: Incidence and prevalence of common cancers

Incidence rates per 100,000 at risk

Cancer site	Men				Women				Men and women			
	Total	20–39	40–64	65+	Total	20–39	40–64	65+	Total	20–39	40–64	65+
Breast	NA	NA	NA	NA	188.7	25.3	231.7	451.2	NA	NA	NA	NA
Colon and rectum	89.1	3.6	56.7	358.0	64.9	3.2	41.6	259.0	75.2	3.4	48.9	299.4
Kidney and renal pelvis	21.7	1.4	20.6	69.5	10.6	1.0	9.9	33.7	15.5	1.2	15.1	48.4
Leukemia	20.5	3.3	13.0	77.1	11.7	2.4	8.3	40.5	15.4	2.9	10.6	55.1
Liver	11.1	0.5	11.2	34.4	3.8	0.3	2.8	14.0	7.1	0.4	6.9	22.4
Lung and bronchus	112.1	1.6	72.5	454.4	69.1	1.7	51.9	261.3	87.1	1.6	61.9	339.0
Lymphoma	32.4	6.7	26.7	103.5	21.7	3.6	17.4	72.3	26.4	5.2	21.9	84.8
Melanoma of the skin	29.7	6.5	29.4	82.4	19.0	10.1	21.2	33.6	23.4	8.3	25.2	53.2
Oral cavity and pharynx	22.4	2.3	24.4	62.4	9.1	1.4	8.6	27.2	15.1	1.8	16.3	41.7
Ovary	NA	NA	NA	NA	19.3	2.9	21.5	NA	NA	NA	NA	NA
Pancreas	17.6	0.4	12.0	69.5	13.7	0.4	7.9	57.6	15.5	0.4	9.9	62.5
Prostate	240.1	0.2	162.4	963.7	NA	NA	NA	NA	NA	NA	NA	NA
Stomach	17.9	1.0	11.2	72.0	8.6	0.8	5.4	33.9	12.6	0.9	8.2	49.2
Testis	6.9	11.1	5.3	0.9	NA	NA	NA	NA	NA	NA	NA	NA
Thyroid	5.2	2.5	6.4	8.2	13.9	11.9	16.3	13.0	9.6	7.1	11.4	11.0
Urinary bladder	50.5	1.2	26.9	217.9	12.7	0.5	7.7	51.9	28.5	0.8	17.0	118.0
Uterine cervix	NA	NA	NA	NA	13.3	8.8	16.6	15.3	NA	NA	NA	NA
Uterine corpus	NA	NA	NA	NA	34.3	2.9	39.6	92.0	NA	NA	NA	NA
All sites (excluding non-melanoma skin)	771.9	59.9	552.2	2893.3	574.6	89.1	555.3	1707.4	653.2	74.3	552.6	2190.5

Source: SEER 1996–2001, age-adjusted to the 2000 US standard population

NA = not applicable

The Burden of Cancer in American Adults

Prevalence rates (percent)

Cancer site	Men				Women				Men and women			
	Total	20–39	40–64	65+	Total	20–39	40–64	65+	Total	20–39	40–64	65+
Breast	NA	NA	NA	NA	2.23	0.09	2.06	7.02	NA	NA	NA	NA
Colon and rectum	0.62	0.02	0.43	2.81	0.57	0.05	0.24	2.41	0.59	0.03	0.34	2.58
Kidney and renal pelvis	0.11	0.00	0.16	0.30	0.06	0.02	0.02	0.26	0.09	0.01	0.09	0.28
Leukemia	0.10	0.03	0.09	0.29	0.06	0.04	0.04	0.14	0.08	0.04	0.07	0.20
Liver	0.11	0.02	0.11	0.35	0.04	0.00	0.07	0.03	0.07	0.01	0.09	0.16
Lung and bronchus	0.33	0.00	0.40	1.04	0.22	0.01	0.13	0.87	0.28	0.01	0.26	0.94
Lymphoma	0.20	0.00	0.27	0.57	0.21	0.08	0.15	0.59	0.21	0.04	0.21	0.58
Melanoma of the skin	0.54	0.11	0.54	1.70	0.47	0.12	0.65	0.77	0.50	0.11	0.60	1.16
Oral cavity and pharynx	0.09	0.01	0.13	0.19	0.07	0.02	0.02	0.29	0.08	0.01	0.07	0.25
Ovary	NA	NA	NA	NA	0.36	0.18	0.52	0.32	NA	NA	NA	NA
Pancreas	0.04	0.00	0.01	0.20	0.02	0.00	0.02	0.07	0.03	0.00	0.02	0.12
Prostate	1.36	0.00	0.72	7.01	NA	NA	NA	NA	NA	NA	NA	NA
Stomach	0.05	0.02	0.01	0.25	0.07	0.00	0.07	0.20	0.06	0.01	0.04	0.22
Testis	0.16	0.17	0.18	0.12	NA	NA	NA	NA	NA	NA	NA	NA
Thyroid	0.10	0.06	0.14	0.12	0.14	0.08	0.21	0.09	0.12	0.07	0.18	0.10
Urinary bladder	0.31	0.00	0.12	1.69	0.06	0.03	0.01	0.27	0.18	0.01	0.06	0.87
Uterine cervix	NA	NA	NA	NA	1.01	1.02	1.03	0.95	NA	NA	NA	NA
Uterine corpus	NA	NA	NA	NA	0.58	0.23	0.59	1.25	NA	NA	NA	NA
All sites (excluding non-melanoma skin)	4.20	0.58	3.53	16.04	6.11	2.05	6.03	14.60	5.20	1.33	4.82	15.21

Source: NHIS 2003

NA = not applicable

Appendix IV: Screening guidelines* for selected cancers

Cancer site	Screening examination	Recommendation
Breast	Mammography	Annually, age 40 and older
	Clinical breast examination	Every 3 years, ages 20–39 Annually, age 40 and older
Colon and rectum[†]	Fecal Occult Blood Test (FOBT) or Fecal Immunochemical Test (FIT)	Annually, age 50 and older
	Flexible sigmoidoscopy	Every 5 years
	Yearly FOBT or FIT plus flexible sigmoidoscopy every 5 years	
	Colonoscopy	Every 10 years
Uterine cervix	Pap test (conventional or liquid-based)	Annually (if conventional test, every 2 years if liquid-based test) beginning 3 years after women begin having vaginal intercourse, or no later than age 21.
		Every 2–3 years, women aged 30 to 69 with 3 consecutive normal Pap test results
		Discontinuation, women 70 and older with 3 consecutive normal Pap test results and no abnormal Pap tests in last 10 years
Prostate	Digital Rectal Exam (DRE) and Prostate-Specific Antigen (PSA)	Annually, age 50 and older (for men with at least 10-year life expectancy). Men at high risk should begin testing at age 45, those at highest risk should begin at age 40.

*American Cancer Society 2005 guidelines are presented for those cancers with screening results shown in the Prevention and Screening section of this report. The complete list of cancer screening guidelines can be found in: The American Cancer Society. Cancer Facts & Figures 2005. Atlanta, GA: American Cancer Society; 2005.

The guidelines are also available at: http://www.cancer.org/docroot/PED/content/PED_2_3X_ACS_Cancer_Detection_Guidelines_36.asp

[†] Adults should begin colorectal cancer screening earlier and/or undergo screening more often if they have any of the following colorectal cancer risk factors.

- a personal history of colorectal cancer or adenomatous polyps
- a strong family history of colorectal cancer or polyps (cancer or polyps in a first-degree relative younger than 60 or in two first-degree relatives of any age) Note: a first-degree relative is defined as a parent, sibling, or child.
- a personal history of chronic inflammatory bowel disease
- a family history of a hereditary colorectal cancer syndrome (familial adenomatous polyposis or hereditary non-polyposis colon cancer)



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