CANCER STATISTICS REVIEW 1975-2006: INTRODUCTION

The annual *SEER Cancer Statistics Review* (***CSR***) contains incidence, mortality, prevalence, and survival statistics from 1975 through the most recent year for which data are available. This report is published by the Surveillance Research Program of the National Cancer Institute, which manages the Surveillance, Epidemiology, and End Results (SEER) Program. The scope and purpose of the ***CSR*** follow a report to the Senate Appropriations Committee (Breslow, 1988), which recommended that a broad profile of cancer be presented regularly to the American public.

The SEER program is an authoritative source of information on cancer incidence and survival in the United States. SEER collects and publishes these statistics from population-based registries covering 26% of the US population. The 17 SEER registries routinely collect data on patient demographics, primary tumor site, tumor morphology, extent of disease, first course of treatment, and active follow-up for vital status. Detailed information describing these fields can be found at *http://seer.cancer.gov/resources/*.

This report presents statistics on 27 primary sites and subsites, organized into site-specific chapters. Detailed statistics on cancer incidence, mortality, survival, and prevalence are reported by sex, race and ethnicity, age, stage at diagnosis, and geographic area. Information on tumor morphology is also presented. In addition, the ***CSR*** features chapters exclusively focusing on adolescent and young adult cancers and on childhood cancers. Information on some rare cancers can be found in the summary tables of section I. For a detailed list of primary sites, the summary tables provide incidence and death rates for the most recent 5-year period, trends from 1975 to the most recent year, median age at diagnosis, median age at death, and survival rates.

Delay-adjusted cancer incidence rates are a distinctive feature of the ***CSR***. Delay-adjustment corrects the current case count to account for underreporting and corrections to the data. The final delay-adjusted rates are valuable in more precisely estimating trends.

New features recently added to the ***CSR*** include detailed histology breakdowns for lymphomas and for cancers of the oral cavity and pharynx, soft tissue, and pancreas; cause-specific survival by expanded race and ethnic groups; SEER 13 delay-adjustment; and adjustments for Veterans' Administration (VA) underreporting.

The ***CSR*** files are provided in both PDF and HTML formats. The HTML format is provided as an alternative and accessible version of the *SEER Cancer Statistics Review*. The current edition of the ***CSR*** is available on the web at *http://seer.cancer.gov/csr/*. Statistics from SEER may also be obtained via ***FastStats*** (*http://seer.cancer.gov/faststats*) or ***Cancer Query Systems*** (*http://seer.cancer.gov/canques*), which allow the user to access over 10,000,000 cancer statistics. The SEER Limited-Use Data file may be accessed by the public, either through

SEER*Stat software or in an ASCII text format that can be analyzed with your own statistical software.

While most of the rates in this publication have been age-adjusted to the 2000 US standard population, some previous SEER publications have used the 1970 US standard million population. Therefore, rates given in this publication cannot be compared to rates given in those publications. This change conforms to a federal policy for reporting disease rates; it allows for the age-adjusted rate to more accurately reflect the current age distribution and burden of cancer.

INTERPRETATION OF CANCER STATISTICS

A number of factors may affect the interpretation of various cancer incidence, mortality, and survival statistics provided in this report,

Survival rates for all cancers combined: The mix of cancers changes over time as the incidence of some cancers increases and the incidence of others decreases. The overall cancer survival rate can fluctuate even when the survival rates for site-specific cancers remain unchanged. (While it is possible to adjust the survival rate for all cancers combined on the basis of the relative frequencies of the component cancers, rates adjusted in this manner differ by only a small amount from unadjusted rates. In the future, such an adjustment may become more important if there are substantial changes in the incidence of various cancers.)

Early detection/screening: The improved earlier detection and diagnosis of cancers—caused by new screening procedures--may produce an *increase* in both incidence rates and survival rates. These increases can occur as a result of the introduction of a new procedure to screen subgroups of the population for a specific cancer; they need not be related to whether use of the screening test results in a decrease in mortality from that cancer. As the proportion of cancers detected at screening increases, presumably as a result of increased screening of the population, patient survival rates will *increase*, because they are based on survival time *after diagnosis*. The interval between the time a cancer is diagnosed by a screening procedure and the time when the cancer would have been diagnosed in the absence of screening is called **lead-time** (Zelen, 1976). (Screening for breast cancer has been demonstrated to result in increased survival over and above that resulting from lead-time alone and to reduce breast cancer mortality. The benefit of screening is being studied for some other cancers.)

If a new screening procedure consistently detects cancer in a *preinvasive* phase, it may result in a *decrease* in survival rates for *invasive* cancer. In this case, **length-biased sampling** (Zelen, 1976) may be operating. Length-biased sampling would result in the preferential detection—in a preinvasive phase—of those cancers that would have had a relatively good prognosis had they progressed to invasive disease; these potentially invasive cancers would be systematically eliminated. If this occurs, the mix of cancers that are not detected at screening and then

progress to invasive behavior may become less prognostically favorable, resulting in a *decrease* in survival rates for patients with invasive cancers. (Length-biased sampling may at least partially explain survival trends for cervical cancer. Other cancers possibly affected include breast, colon, rectum, and prostate.)

Changes in diagnostic criteria: Early detection of cancer--resulting from either screening or earlier response to symptoms--may result in the increasing diagnosis of small tumors that are not yet life-threatening. This may have the effect of raising the incidence and survival rates without changing the mortality rates. Breast, colon, prostate, cervix uteri, bladder, and skin (melanoma) are the cancer sites most likely to be affected.

Technological advances in diagnostic procedures: In this report, trends in survival by stage at diagnosis are not presented for specific cancers; trends in stage distributions are presented rarely. However, it is possible to compare survival rates by stage.

The assignment of a given stage to a particular cancer may change over time due to advances in diagnostic technology. Introduction of new technology can give rise to a phenomenon known as **stage migration**. Stage migration occurs when diagnostic procedures change over time, resulting in an *increase* in the probability that a given cancer will be diagnosed in a *more advanced* stage. For example, certain distant metastases that would have been undetectable a few years ago can now be diagnosed by a computer tomography (CT) scan or by magnetic resonance imaging (MRI). Therefore, some patients who would have been diagnosed previously as having cancer in a *localized* or *regional* stage are now diagnosed as having cancer in a *distant* stage. The likely result would be to remove the worst survivors—those with previously undetected distant metastases—from the localized and regional categories and put them into the distant category. As a result, the stage-at-diagnosis distribution for a cancer may become less favorable over time, but the survival rates for each stage may improve: the early stage will *lose* cases that will survive *shorter* than those remaining in that category, while the advanced stage will *gain* cases that will survive *longer* than those already in that category. However, *overall survival would not change* (Feinstein et al., 1985). Stage migration is an important concept to understand when examining temporal trends in survival by stage at diagnosis as well as temporal trends in stage distributions; it could affect the analysis of virtually all solid tumors.

Evolution of stage classifications: Every few years, the American Joint Committee on Cancer produces a new cancer-staging manual (Greene et al, 2002). The evolution of such classifications reflects the identification of new prognostic factors that may influence choice of treatment. Historically, the SEER Program has only collected data on **extent of disease** (**EOD**), rather than stage. EOD is *more specific* than stage and usually determines stage, even when stage definitions change. Thus, SEER easily adapts to changes in stage definitions; moreover, trends in a newly redefined stage can usually be calculated. Recently the SEER Program has begun collecting Collaborative Stage. Collaborative Stage has the advantage of being a consolidated data collection system of three main staging systems (TNM, EOD, and

Summary Stage) and allows combined pathological and clinical stage to be captured. For those cancers for which new prognostic variables are introduced into staging, so that previously collected EOD data cannot determine new stage categories, there can be problems in assessing trends in stage of disease. Only by reviewing the evolution of staging for a given cancer is it possible to determine what effect changes in stage definitions have had on stage-specific survival and on stage-at-diagnosis distributions. Stage migration (mentioned above) and EOD migration need also be taken into account. For some sites, the historic stage (*localized*, *regional*, or *distant*) is not shown, either because of inconsistencies in its definition over time or because stage isn't appropriate (such as for leukemias, which are all considered to be distant at diagnosis).

Interpreting relative survival rates: The relative survival rate is the ratio of the observed survival rate to the expected survival rate for a given patient cohort. The expected survival rate is based on mortality rates for the entire population, taking into account, as appropriate, the age, sex, race, and year of diagnosis of the patients. Assuming that the presence of cancer is the only factor that distinguishes the cancer patient cohort from the general population, the relative survival rate approximates the probability that a patient will *not* die of the diagnosed cancer within the given time interval. This is the same as the probability that the patient will either survive the interval or die of a different cause.

A factor related to the risk of a cancer may also be related to the risk of dying from causes unrelated to the cancer. An example of such a factor is smoking. Smoking is a major risk factor for lung cancer; therefore, a cohort of lung cancer patients will contain a much higher proportion of smokers than does the general population. However, smoking is also a risk factor for other diseases, resulting in smokers having a shorter life expectancy than nonsmokers. For this reason, expected survival rates for lung cancer patients that are based on the life tables for the general population will be unduly optimistic; they will result in relative rates that are *lower* than they would be if the population consisted only of smokers. The problem cannot be easily corrected because separate life tables for smokers and nonsmokers are not available. Moreover, amount of smoking (usually measured in pack-years) is clearly an important variable and can't be easily quantified. The possibility that expected rates may not be appropriate for a given patient cohort should also be considered when examining relative survival rates for patients with cancers of the cervix uteri or breast, because the risk of these cancers has been associated with socioeconomic status (Baquet et al., 1991), which may be related to life expectancy.

Previous to the *CSR* for 1973–1996, the expected rate tables used were for 1970 and 1980; there were separate tables for whites, blacks, American Indians, Chinese, Japanese, Filipinos, white Hispanics, and Hawaiians. In updating the tables for 1990, several problems emerged. The US life tables are based on age, race, and sex information from death certificates. The information on race on the death certificate may not be accurate (Rosenberg et al., 1999). One reason is that funeral directors may inaccurately report race on a death certificate. Also, reported age at death, especially for those older than 85, may not be accurate because birth

certificates were not issued with as much regularity in the early 1900s as they are today. Although race misclassification and age-at-death misreporting exist across all races, they may be more problematic for races other than white or black because of those races' smaller population sizes. Therefore, life tables were generated for 1970, 1980, 1990, and 2000 only for white, black, and other; these life tables were used to produce the relative survival rates in this book. There may be small variations among survival rates calculated in this *CSR* and those in *CSR*s prior to 1973–1996.

Comparison with other databases: The SEER data are obtained from population-based cancer registries covering about 26 percent of the US population. It is sometimes of interest to compare cancer statistics for SEER areas with those from other registries both in the US and worldwide. In making such comparisons, one must carefully consider the factors considered above for both data sources. In addition, one should assess all of the following: (1) completeness of case ascertainment, (2) rules used to determine multiple primaries, (3) follow-up, (4) rules used in assigning and coding cause of death, and (5) the sources and procedures used in obtaining population estimates. Depending on the rates being compared, there could be other confounding factors which should be considered. The same standard or standard million population should be used for the age-adjustment of each group being compared; most statistics from outside the US are based on the 2000 world standard million population. Examples of other databases are US Cancer Statistics (*http://apps.nccd.cdc.gov/uscs*) and CINA+ Online (*http://www.naaccr.org/cinap/index.htm*).

It is sometimes interesting to compare survival data for cancer patients in SEER areas with data from clinical trials. *This must be done with great caution.* Survival data from clinical trials may have been obtained from a patient population that differs from that of SEER patients in prognostic factors for the given cancer; any survival comparisons would have to adjust for such differences. Also, it is necessary to verify that the methodology used in computing survival rates is the same for both data sources. Furthermore, clinical-trials patients may differ from SEER patients in characteristics that may be related to survival but are not recorded in either database. If this were true for a given cancer, it would not be possible to make valid comparisons of this type.

Errors in data collection: In the process of registering cancer patients, errors may be made in abstracting and coding the data, which include demographic information, cancer site, histology, extent of disease, treatment, and patient survival. Quality control studies are periodically carried out to detect and correct this type of error, but no attempt is made to incorporate this source of error into the variance estimates of cancer rates reported here.

Comparison of this report with previous reports: The cancer registries that participate in the SEER Program submit data on all cancers diagnosed in their coverage areas to the NCI each

year. Because of the dynamic nature of the registries' databases, *the reported number of new cancer cases in a particular race, sex, age, cancer category in a given calendar year may change from that which has been reported in a previous publication.* For a given diagnosis year, additional cancer cases that were previously overlooked may have been found and reported to the central registry. There may have been follow-back of cancers diagnosed by death certificate only; successful efforts to establish the dates of diagnosis for such patients will change the number of patients reported for a given diagnosis year. Code changes may occur when a patient dies; for example, information on race is generally available on the death certificate and may be used to update a previously unknown value. There may have been elimination of duplicate records for the same patient, often due to name changes or misspellings.

Thus, a recent report may have a different number of cases for a given diagnosis year than an earlier report, with resulting effects on incidence and possibly survival rates. Population estimates may also change from one report to another for some calendar years. This occurs because the NCI receives population estimates that are regularly revised and updated by the Bureau of the Census (**BOC**). Such changes may result in some differences between incidence and mortality rates for a given calendar period as published in different reports. See our website for the most current information about the population estimates (*http://seer.cancer.gov/popdata/*).

REFERENCES

Baquet CR, Horm JW, Gibbs T, Greenwald P. Socioeconomic factors and cancer incidence among blacks and whites. J Natl Cancer Inst 1991; 83:551-557.

Breslow L (Chairman, Extramural Committee to Assess Measures of Progress Against Cancer). Measurement of progress against cancer: Final report to the Senate Appropriations Committee. Bethesda: National Cancer Institute; 1988.

Greene FL, Page DL, Fleming ID, Fritz AG, Balch CM, Haller DG, Morrow M, editors. AJCC Cancer Staging Manual, 6th ed. New York (NY): Springer; 2002.

Feinstein AR, Sosin DM, Wells CK. The Will Rogers phenomenon: Stage migration and new diagnostic techniques as a source of misleading statistics for survival of cancer. New Engl J Med 1985;312:1604-1608.

Rosenberg HM, Maurer JD, Sorlie PD, Johnson NJ, MacDorman MF, Hoyert DL, Spitler JF, Scott C. Quality of death rates by race and Hispanic origin: A summary of current research. Hyattsville (MD): National Center for Health Statistics; Vital and Health Statistics, Series 2, No. 128, 1999.

Zelen M. Theory of early detection of breast cancer in the general population. In: Heuson J-C, Mattheiem WH, Rozencweig M, editors. Breast Cancer: Trends in Research and Treatment. New York (NY): Raven Press; 1976. p. 287-299.

TECHNICAL NOTES

There are four measures that are commonly used to assess the impact of a cancer in the general population. The **incidence rate** is the number of new cases per year per 100,000 persons. The **death** (or **mortality**) **rate** is the number of deaths per year per 100,000 persons. The **survival rate** is the proportion of patients alive at some point subsequent to the diagnosis of their cancer. The **prevalence count** is the number of people alive that have ever been diagnosed with a cancer. All four measures are employed in this report. The Surveillance, Epidemiology, and End Results (**SEER**) Program (*http://seer.cancer.gov*) (based within the Surveillance Research Program (**SRP**) at the National Cancer Institute (**NCI**)) collects incidence and survival data for all areas that participate in the Program. The National Center for Health Statistics (**NCHS**) provides mortality data for the entire United States (**US**). All incidence and mortality rates in this report are age-adjusted (see below) to the 2000 US standard population (see Appendix) unless otherwise specified. Age-adjustment minimizes the effect of a difference in age distributions when comparing rates.

THE SEER PROGRAM

The National Cancer Act of 1971 mandated the collection, analysis, and dissemination of data useful in the prevention, diagnosis, and treatment of cancer. This mandate led to the establishment of the SEER Program. The population-based cancer registries participating in NCI's SEER Program routinely collect data on all cancers occurring in residents of the participating areas. Trends in cancer incidence and patient survival in the US are derived from this database.

The SEER Program is a sequel to two earlier NCI programs—the End Results Program and the Third National Cancer Survey. The initial SEER reporting areas were the States of **Connecticut**, **Iowa**, **New Mexico**, **Utah**, and **Hawaii**; the metropolitan areas of **Detroit**, Michigan, and **San Francisco-Oakland**, California; and the Commonwealth of Puerto Rico. Case ascertainment began with January 1, 1973, diagnoses.

In 1974-1975, the program was expanded to include the metropolitan area of New Orleans, Louisiana, the thirteen-county **Seattle-Puget Sound** area in the State of Washington, and the metropolitan area of **Atlanta**, Georgia. New Orleans participated in the program only through the 1977 data collection year. In 1978, ten predominantly African-American counties in **rural Georgia** were added. **American Indian residents of Arizona** were added in 1980. In 1983, four counties in New Jersey were added with coverage retrospective to 1979. New Jersey and Puerto Rico participated in the program until the end of the 1989 reporting year. The National Cancer Institute also began funding a cancer registry that, with technical assistance from SEER, collects information on cancer cases among **Alaska Native** populations residing in Alaska. In 1992, the SEER Program was expanded to increase coverage of minority populations, especially Hispanics, by adding **Los Angeles County** and four counties in the **San Jose-Monterey** area south of San Francisco. In 2001, the SEER Program expanded coverage to

include **Kentucky, Greater California** (the counties of California that were not already covered by SEER), **New Jersey,** and **Louisiana**.

The long-term incidence trends and survival data for this report are from five states (Connecticut, Hawaii, Iowa, New Mexico, and Utah) and four metropolitan areas (Detroit, Atlanta, San Francisco-Oakland, and Seattle-Puget Sound) (Fig. I-1); this set of registries is called the **SEER 9**. Additional tables show more recent incidence trends for the **SEER 13** areas (the 9 areas above plus Los Angeles, San Jose-Monterey, Alaska Native Registry, and rural Georgia) since 1992 and additional information on race and ethnicity. Other tables give statistics for the **SEER 17** areas; these are the SEER 13 plus Kentucky, Greater California, New Jersey, and Louisiana.

The participating regions were selected principally for their ability to operate and maintain a population-based cancer reporting system and for their epidemiologically significant population subgroups. With respect to selected demographic and epidemiologic factors, they are when combined a reasonably representative subset of the US population. Data from the 9, 13, or 17 SEER geographic areas are used in this report; the given areas contain, respectively, approximately 9,14, or 26 percent of the US population. By the end of the 2006 diagnosis year, the database of 13 SEER and 4 expansion registries (plus Arizona Indians) contained information on over 7 million cases diagnosed since 1973. New cases added in the most recent data year numbered over 385,000.

The goals of the SEER Program are:

1) to assemble and report, on a periodic basis, estimates of cancer incidence, mortality, survival, and prevalence in the US;
2) to monitor annual cancer incidence trends to identify unusual changes in specific forms of cancer occurring in population subgroups defined by geographic and demographic characteristics;
3) to provide continuing information on trends over time in the extent of disease at diagnosis, trends in therapy, and associated changes in patient survival; and
4) to promote studies designed to identify factors amenable to cancer control interventions, such as: (a) environmental, occupational, socioeconomic, dietary, and health-related exposures; (b) screening practices, early detection and treatment; and (c) determinants of the length and quality of patient survival.

DATA SOURCES

INCIDENCE AND SURVIVAL DATA

The SEER Program contracts with nonprofit, medically-oriented organizations having statutory responsibility for registering diagnoses of cancer among residents of their respective geographic coverage areas. Each SEER contractor:

1) maintains a cancer information reporting system;

2) abstracts records for *resident* cancer patients seen in every hospital both inside and outside the coverage area;
3) abstracts all death certificates of *residents* (dying both inside and outside the coverage area) on which cancer is listed as a cause of death;
4) strives for complete ascertainment of cases by searching records of private laboratories, radiotherapy units, nursing homes, and other health services units that provide diagnostic service;
5) registers all in situ and malignant neoplasms (with the exceptions of certain histologies for cancer of the skin and—beginning in 1996—in situ neoplasms of the cervix uteri);
6) records data on all newly diagnosed cancers, including selected patient demographics, primary site, morphology, diagnostic confirmation, extent of disease, and first course of cancer-directed therapy;
7) provides active follow-up on all living patients (except for those with in situ cancer of the cervix uteri);
8) maintains confidentiality of patient records;
9) at least annually submits electronically to NCI data on all reportable diagnoses of cancer made in residents of the coverage area.

For 1992 to 2000 diagnoses, the SEER program codes site and histology by the *International Classification of Diseases for Oncology*, second edition (**ICD-O-2**) (Percy, Van Holten, & Muir, 1990). All cases before 1992 were machine-converted to ICD-O-2. Beginning with 2001 diagnoses, cases have been coded according to the third edition (**ICD-O-3**) (Fritz et al., 2000). The primary site groupings used for incidence are found in the Appendix. Changes were made to the site recode for ICD-O-2 for comparability with cases coded to ICD-O-3. Follow-up rates are also in the Appendix.

A recent policy change of the Department of Veterans Affairs (VA) regarding sharing of VA cancer data has resulted in incomplete reporting of VA hospital cases in some central cancer registries. The issue began to affect reporting in the 3rd quarter of 2004 diagnosis year and continues to be a concern through the 2006 diagnosis year. The section on VA reporting quantifies the missing number of VA patients in the SEER registries and provides adjustments of new case counts for 2005 and 2006 based on prior years information. These VA adjustment factors may be used to correct for underreporting of 2005 and 2006 age-specific incidence rates or age-adjusted incidence rates for SEER-9 and SEER-17 regions. Additional details can be found in Howlader et al, 2009.

Excluded cancers: Some cancers were excluded from most of the analyses. Myelodysplastic syndrome (MDS), for example, was reclassified in ICD-O-3 (effective diagnosis year 2001) from nonmalignant to malignant; other cancers so reclassified include endometrial stromal sarcoma (low grade), papillary ependymoma, papillary meningioma, polycythemia vera, chronic myeloproliferative disease (NOS), myelosclerosis with myeloid metaplasia, essential thrombocythemia, refractory anemia, refractory anemia with sideroblasts, refractory anemia with excess blasts, and refractory anemia with excess blasts in transformation. In contrast, borderline tumors of the ovary were reclassified from malignant to nonmalignant at the same

time. In addition, benign brain/CNS tumors were collected beginning for 2004 diagnoses. All of these cancers were excluded from most of the analyses, especially time trends. Pilocytic astrocytoma, although reclassified in ICD-O-3, was not excluded. Separate tables for MDS and benign brain/CNS are shown.

MORTALITY DATA

The SEER Program annually obtains from the National Center for Health Statistics (NCHS) a file containing information on all deaths occurring in the US by calendar year. Information on each death includes age at death, sex, geographic area of residence, and underlying and contributing causes of death. For this publication, only the underlying cause of death is used in the calculation of death rates. Cause of death for 1969-1978 was coded according to ICD-8; for 1979-1998, ICD-9 was used; beginning with deaths in 1999, ICD-10 was used. Mortality rates for the SEER geographic areas, for each state, and for the entire US are obtained from these data. A list of the mortality site groupings used in this publication is in the Appendix and reflects updates made in 2004.

POPULATION DATA

The population estimates used in the SEER*Stat software to calculate cancer incidence and mortality rates for this report are a modified version of the annual time series of July 1 county population estimates by age, sex, race, and Hispanic origin that are produced by the Population Estimates Program of the US Census Bureau (http://www.census.gov/popest/estimates.php) with support from the NCI through an interagency agreement. Descriptions of the methodologies employed by the Census Bureau for various sets of estimates may be found on the same website. County population estimates for 2000 and later years must be bridged from 31 race categories used in Census 2000 to the four race categories specified under earlier OMB standards in order to report long-term cancer trends. The bridging methodology was developed by the National Center for Health Statistics and is described in a report (Ingram et al., 2003) and on their website http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm.

Modifications made by the NCI to the population estimates are documented in “Population Estimates Used in NCI’s SEER*Stat Software” (http://seer.cancer.gov/popdata/methods.html) and the population data files are available for download (see “Download US Population Data” from http://seer.cancer.gov/popdata/download.html). Several of the modifications pertaining to the grouping of specific counties needed to assure the compatibility of all incidence, mortality and population datasets. Another modification affects only population estimates for the State of Hawaii. The Epidemiology Program of the Hawaii Cancer Research Center has developed its own set of population estimates, based on sample survey data collected by the Hawaii Department of Health. This effort grew out of a concern that the native Hawaiian population has been vastly undercounted in previous censuses. The "Hawaii-adjustment" to the Census Bureau’s estimates has the net result of reducing the estimated white population and increasing

the estimated Asian and Pacific Islander population for the state. The estimates for the total population, black population, and American Indian and Alaska Native populations in Hawaii are not modified.

The 2001-2006 cancer incidence and mortality rates for American Indians and Alaska Natives (AI/AN) are based on the geographic areas (counties) included in the Indian Health Service's Contract Health Service Delivery Area (CHSDA). This reflects a concern that previously reported AI/AN rates were underestimated due to racial/ethnic misclassification of American Indian cases in geographic areas outside of CHSDA. This change has the net effect of higher, and more accurate, incidence and mortality rates for this population.

Usually the use of a population estimate for July 1 of a particular year reflects the average population of that area for the year. Both Hurricane Katrina and Hurricane Rita struck the Gulf Coast area of the United States in 2005. This had the effect of displacing large populations. Since there weren't any population estimates by age, race, sex, and county for time periods just after the hurricanes, it is very difficult to estimate the actual population at risk for certain areas along the Gulf Coast for 2005. For Louisiana, only the first six months of incidence data for 2005 coupled with ½ of the population estimate for July 1, 2005, were used to calculate cancer incidence. For death rate calculations, no adjustments were made to the total U.S. population, but for the Gulf area, an adjustment for displaced populations was made for 2005 state rates. For more details, see http://seer.cancer.gov/popdata/methods.html .

2000 US STANDARD POPULATION

Starting with the November 2004 SEER submission of data (diagnoses through 2002), the SEER Program age-adjusts using the 2000 US standard population based on single years of age from the Census P25-1130 series estimates of the 2000 US population (Day, 1996). For the *CSR*, 19 age groupings were used for age-adjustment: <1, 1–4, 5–9, … , 80–84, 85+.

STATISTICAL METHODS

ESTIMATED CANCER CASES AND DEATHS IN 2009

The American Cancer Society (**ACS**) projects of the numbers of cancer cases and cancer deaths in the US each year. The 2009 ACS report has not yet become available due to the late release of the US final mortality data by the National Center for Health Statistics. For further ACS updates see http://www.cancer.org/docroot/STT/STT_0.asp

LONG-TERM TRENDS, 1950-2006

Trends in cancer mortality from 1950 to 2006 are summarized by age both for all cancers combined and for lung cancer (Table I-2). These cancer mortality trends are based on the

mortality experience in the entire US. Summaries of long-term trends back to 1950 in cancer survival are also shown for whites.

Use caution when interpreting these statistics. Evaluating trends over a long period of time may hide recent changes in the trends.

YEARS OF LIFE LOST DUE TO PREMATURE DEATH FROM VARIOUS CAUSES

Death rates alone give an incomplete picture of the burden that deaths impose on the population. Another measure, which adds a different dimension, is the years of life lost due to premature death. This shows the extent to which life is cut short by a particular cause or disease.

This measure is estimated by linking life table data to each death of a person of a given age and sex. The life table permits a determination of the number of additional years an average person of that age, race, and sex would be expected to live. In this report, the age groups used in the calculation were 1-year intervals. These remaining years of life left are summed over all deaths due to a particular cause, yielding the estimate of the number of person-years of life lost (**PYLL**). The average years of life lost (**AYLL**) is obtained by dividing the PYLL by the number of deaths. Both of these measures can be calculated for any cause of death.

CAUSE-SPECIFIC SURVIVAL

Cancer survival rates differ substantially among race and ethnic groups in the United States. Evaluation of these differences via the relative survival method, however, is hampered by the non-availability of expected life tables for races other than White or Black. The relative survival method assumes a valid life-table for each race and ethnic group. Furthermore, the U.S. National Center for Health Statistics estimates (Rosenberg et al, 1999) that the published mortality rates are overstated for Whites (1%) and Blacks (5%), and grossly under-stated for American Indians (21%) and Asian Pacific Islanders (11%). Cause-specific can serve as an alternative method to estimate survival within diverse subgroups of the U.S. populations. However, this measure has not been systematically used in population-based registries because of misclassification of cause of death on death-certificates. For example, the site of metastasis might be reported as the cause of death as opposed to the original site of disease (Percy et al, 1981) creating ambiguity when attempting to define endpoints for reliable survival estimates.

Here we describe a new endpoint for calculating cause-specific survival that uses a broad definition of cause of death (COD) based on death certificate. The COD chosen varies depending on the sequence of the tumor and the site of the original cancer diagnosis. For those with one and only one cancer (i.e., sequence number 00), the end point of death is any cancer or HIV/AIDS with cancer. The rationale for including all malignant cancers or an AIDS/HIV diagnosis with cancer is that the among patients diagnosed with only one cancer, cause of

death coded to another cancer site is likely to be a misclassification, such as one due to metastatic disease (Percy et al, 1981). For those individuals who had more than one cancer, (i.e., sequence number 01, 02, 03, and beyond) cause-specific survival was calculated only for the first cancer diagnosed (sequence number 01) and the cause of death was limited to deaths due to that cancer, site-specific disorders, and to multiple cancers of known or unknown site. The cause of death classification and detailed ICD codes by primary cancer site can be found in the Appendix.

CANCER PREVALENCE

Methods: In this report prevalence is calculated at 1/1/2006. ***Limited-duration prevalence*** is calculated using the counting method implemented in the SEER*Stat software. This method calculates the number or proportion of people alive at the prevalence date who had a diagnosis of the disease within the past *x* years (e.g., *x* = 5, 10, 20, or the full history of the registry). Because SEER has available information for the various racial/ethnic groups for different numbers of years, different years and registries were used to estimate limited duration prevalence. Prevalence estimates for all races combined, for whites, and for blacks use cases from 1975 through 2005 from the SEER 9 registries; prevalence estimates for Asian Pacific Islanders and Hispanics use cases diagnosed from 1990 through 2005 from the SEER 11 areas and rural Georgia.

The limited duration prevalence method includes a correction for people lost to follow-up. For each individual lost to follow-up, a probability of being alive at the prevalence date is estimated from an appropriate survival function stratified by age at diagnosis (0–59, 60–69, 70+), sex, cancer site, year of diagnosis, and race, conditional on being alive at the time of loss to follow-up. Year of diagnosis is stratified into 5-year groups from the prevalence date, with the least recent interval being of varying length (4-8 years), depending on the length of years used to calculate prevalence. Race is stratified into white, black, other (American Indian/Alaska Native, Asian/Pacific Islander), and unknown/other-unspecified. When we use the SEER 11 registries, the same stratification as before is used, with American Indian/Alaska Native separated from Asian/Pacific Islander. Prevalence calculations for Hispanics use race stratified into: white, non-white, and unknown.

Different methods can be used to determine which tumors are to be included for people diagnosed with multiple tumors. Unless otherwise specified, prevalence calculations included only the *first malignant tumor per person*; that is, in situ cancers and second-or-later primary cancers were not included. Thus, if a woman had a melanoma prior to a breast cancer diagnosis, her melanoma would contribute to the prevalence of melanoma and to the prevalence of all sites, but the breast cancer would not contribute to the prevalence of breast cancer. Counting only one cancer per individual avoids some ambiguity in prevalence counts, and allows the counts for individual sites to sum to the all sites total. Prevalence using different selection criteria is compared in a table in the overview chapter. For more information on tumor selection criteria refer to http://srab.cancer.gov/prevalence/methods.html.

Complete prevalence is an estimate of the number of persons (or the proportion of population) alive on a specified date who had been diagnosed with the given cancer, no matter how long ago that diagnosis was. It was estimated for all races, whites, and blacks by applying the *completeness index method* (Capocaccia & De Angelis, 1997; Merrill et al., 2000; Mariotto et al., 2002) to limited-duration prevalence. The completeness index method is implemented in the COMPREV software which can be found at http://srab.cancer.gov/comprev/. Validation of the completeness index for all races and for whites was made by using data from the Connecticut Tumor Registry (CTR) beginning with 1940; for blacks, SEER 9 data beginning with 1975 were used. Identification of blacks is not possible in the CTR data prior to 1970. To validate the completeness index for blacks, we have compared the performance of the method to obtain 24-year prevalence from 10-year limited-duration prevalence. For all races combined and for whites, in cases where the validation indicated some lack of fit of the model, an approximation to the completeness index was derived from the CTR data. If there was a lack of fit for blacks, no estimate of complete prevalence was reported. Complete prevalence for Asian/Pacific Islanders and Hispanics is not available at this time. Complete prevalence by age for all races combined was validated by comparing estimated 10-year complete prevalence with observed prevalence from the CTR data. Prevalence by age is reported for the sites that validated well.

The US cancer prevalence counts at 1/1/2006 *were estimated* by multiplying the SEER age- and race-specific prevalence proportions by the corresponding US population estimates based on the average of 2005 and 2006 population estimates from the US Bureau of the Census. US cancer prevalence counts for all races were estimated by summing the US estimated counts for whites/unknown, blacks, and other races. For Hispanics, the estimates for Hispanics of white or unknown race and for Hispanics of other races were summed.

Complete prevalence estimates of the number of individuals in the U.S. diagnosed with cancer as children (ages 0-19), including those surviving for more than 31 years, is introduced this year using a statistical method that estimates the number of childhood survivors diagnosed before 1975 (Simonetti et al. 2008, Mariotto et al 2009). Limited-duration prevalence proportions by age at prevalence are not shown for childhood cancers (age at diagnosis 0-19) since many of these estimates are not informative. For example, the number of people diagnosed with childhood cancers in the last 25 years and who are currently age 50-59 is zero by definition. For more details on available prevalence estimates, see http://srab.cancer.gov/prevalence/index.html.

The overview chapter contains two prevalence tables. The first table reports US complete prevalence counts by age at prevalence and sex for some main cancer sites. The second table reports US prevalence counts for people diagnosed in the 5 years and 30 years prior to the prevalence date using different tumor inclusion criteria. Each site-specific chapter contains a prevalence table that reports limited-duration US prevalence counts by time since diagnosis for different racial/ethnic groups. US complete prevalence estimates are also reported when

available. The second part of the site-specific tables displays the percent of the population in the SEER 11 areas diagnosed in the previous 15 years with the specific cancer by 10-year age groups for the different racial/ethnic groups.

PROBABILITY OF BEING DIAGNOSED WITH OR DYING FROM CANCER

Lifetime and interval risks of being diagnosed with cancer: The probability of being diagnosed with cancer is computed by applying cross-sectional age-specific 2003-2005 incidence rates from the SEER 17 areas and death rates from those same areas to a hypothetical cohort of 10,000,000 live births. This cohort is considered to be at risk for two mutually exclusive events: (1) developing the specified cancer, and (2) dying of other causes without developing the specified cancer. Using these two types of events, a standard **multiple decrement life table** (with 20 age groups from 0-4 to 90-94 and 95+) is derived. For each age interval, the number alive and free of the specified cancer at the beginning of the interval is decremented by the number who develop the specified cancer and the number who die of other causes. The lifetime risk of being diagnosed with the specified cancer is derived by summing all cancer cases from age 0-4 through age 95+ and dividing by 10,000,000. This calculation does not assume that an individual lives to any particular age; rather, it is the sum over all age intervals of the probability of living to the beginning of that interval without developing the given cancer times the probability of developing the cancer in that interval. The probability of developing cancer during any time period (e.g., between age 50 and age 60) is calculated by adding up all the cancers in the life table over the specified age range and dividing by the number of individuals alive and free of the specified cancer at the beginning of the period. The methodology is described in detail in Fay (2003, 2004). To improve the precision of the calculations, rates were calculated beyond the usual last open ended age interval (i.e. 85+) for the age groups 85-89, 90-94, and 95+.

Lifetime risk of dying from cancer: The lifetime risk of dying from a specified cancer is derived using a standard multiple decrement life table (Elandt-Johnson & Johnson, 1980). For each age, the risks of dying of the specified cancer and of all other causes are calculated, based on mortality data from the entire United States.

Software: The estimates of developing and dying from cancer are implemented in DevCan (Probablity of DEVeloping or dying from CANcer software). More details on the software, various databases, and the methodology can be found at http://srab.cancer.gov/devcan/.

U.S. CANCER DEATH RATES BY STATE

Each cancer-site-specific section presents the death rate for the given cancer for each state and the District of Columbia, specifying the five highest and the five lowest death rates by state for the most recent 5-year period for all persons, males only, and females only. The rates are per 100,000 persons; they are age-adjusted to the 2000 US standard million population. (In some

previous editions of the CSR, the 1970 US standard million population was used; *death rates standardized to the 2000 US standard million population cannot be compared to death rates standardized to the 1970 US standard million population.*)

The **percent difference (PD)** between a state rate and the rate for the total US is given by the formula:

$$\mathbf{PD = [(State\ Rate - Total\ US\ Rate)/Total\ US\ Rate] * 100}$$

The **standard error** for each age-adjusted state death rate is calculated, based on the assumptions that (1) for each age-specific rate, the number of deaths is a Poisson random variable (Keyfitz, 1966) and (2) the variance of the age-adjusted rate is a linear combination of the variances of the age-specific rates (Snedecor & Cochran, 1980; pp. 188-9).

The **standard error of the difference (SE_d)** between a state rate and the total US rate is given by the formula

$$\mathbf{SE_d = Square\ Root\ of\ [SE_S^2 + SE_U^2 - 2 * Cov_{S,U}]}$$

where SE_S and SE_U are the standard errors of a state rate and of the total US rate, respectively, and $Cov_{S,U}$ is the covariance between the two rates. The variance of each rate (i.e., the square of the standard error) and the covariance between the two rates are based on the Poisson assumption. The standard error does not represent the total error that may be present in the age-adjusted rate; it is merely the square root of the variance associated with the rates. In addition to this variance, there also exist potential biases and errors in the measurement of the rate that are difficult to assess accurately and probably impact differently on the error calculations for different states.

The difference between each age-adjusted state rate and the age-adjusted US rate is tested for statistical significance (see below) by calculating a ***Z*** (standard normal) statistic from the formula:

$$\mathbf{Z = (State\ rate - Total\ US\ rate) / SE_d}$$

Although the rates being compared are not independent because each state is part of the US, the statistical test may not be substantially affected if the state represents a small proportion of the total US. There is also an adjustment for multiple comparisons; see below under *Statistical Significance*.

JOINPOINT REGRESSION ANALYSIS OF CANCER TRENDS

An advance in the presentation of cancer trends is the use of joinpoint models (Kim et al., 2000). In some past issues of the *Cancer Statistics Review*, certain time intervals (e.g., 1973–1996) were specified and the annual percent changes (APC) were computed over those intervals. The choices of where to start and where to end an interval were arbitrary and

sometimes did not give an accurate picture of the trend for a given cancer site. For example, the rates might be increasing and decreasing in different parts of the same interval. For some sites, increases occurred in the earlier years, followed by declines in more recent years.

To achieve greater descriptive accuracy, a statistical algorithm finds the optimal number and location of places where a trend changes. The point (in time) where a trend changes is called a **joinpoint**. Trends may change in different ways at a joinpoint: from up to down, from down to up, from up to up at a different rate, or from down to down at a different rate. A **joinpoint regression model** describes the trends by a sequence of connected segments where each segment is connected by a straight line on a log scale. Adjacent segments are connected at a joinpoint. The segments are connected because we assume that rates generally change smoothly, rather than "jump" abruptly. The rates are assumed to grow or decay exponentially, i.e., to change by a constant percentage each year. Thus the slope in each segment can be associated with a fixed annual percent change (**APC**).

Joinpoint analysis first assumes no joinpoints are needed to describe the data accurately, i.e., the trend over the entire interval 1975-2005 does not change. Joinpoints are added in turn if they are statistically significant. Thus, in the final model, each joinpoint represents a significant change in trend. Computational considerations currently limit the maximum possible number of segments to be no larger than four, with three joinpoints. Smoother polynomial models may provide a good fit overall, but are less sensitive to what is occurring at the ends of the data.

In running the Joinpoint program, we set the program parameters as follows: maximum number of joinpoints 3, minimum interval between joinpoints 2 years, minimum interval between a joinpoint and an endpoint 2 years, joinpoints occurring only at exact years. These restrictions provide some added stability to the resultant models. Different values for these parameters may yield a different joinpoint model. Since the test statistic to determine if additional joinpoints are necessary cannot be compared against any known standard distribution to determine significance, (e.g., the normal, t, or f) a permutation test is used which simulates the distribution of the test statistic under the null hypothesis. Thus an element of randomness is introduced by the random number stream used. However, for greater consistency in the p-values obtained if one were to change the random seed for each run, we run the program for 4499 permutations.

Average Annual Percent Change (AAPC) is a summary measure of a trend over a pre-specified fixed interval based on an underlying joinpoint model. It allows us to use a single number to describe the average trend over a period of multiple years. It can be estimated even if the joinpoint model indicates that there were changes in trends during those years, since it is estimated as a geometric weighted average of the joinpoint APCs, with the weights equal to the lengths of each segment over the pre-specified fixed interval. In this report, we have included AAPCs as an addendum to the underlying joinpoint trends, and as a summary measure to compare fixed interval trends by race/ethnicity. For more information on how the AAPC is calculated and the advantages of reporting an AAPC over APCs, see http://srab.cancer.gov/joinpoint/aapc.html.

A Windows-based program, *Joinpoint*, is freely available at http://srab.cancer.gov/joinpoint/; it accepts data from the *SEER*Stat* program, as well as user defined data. Further details on joinpoint regression may be found at the web site.

REPORTING DELAY

Timely and accurate calculation of cancer incidence rates is hampered by **reporting delay**, the time lapse before a diagnosed cancer case is reported to the NCI or the delay in receiving updated information for an existing case. Currently, the NCI allows a standard delay of 22 months between the end of the diagnosis year and the time the cancers are reported to the NCI in November, almost two years later. The data are released to the public in the spring of the following year. For example, cases diagnosed in 2006 were first reported to the NCI in November 2008 and released to the public in April 2009. However, in each subsequent release of the SEER data, *records from all prior diagnosis years* (e.g., diagnosis years 2005 and earlier in the 2008 submission to the NCI) *are updated* as either new cases are found or new information is received about previously submitted cases.

The submissions for the most recent diagnosis year are, in general, about two percent below the total number of cancers that will eventually be submitted for that year, although this varies by cancer site and other factors.

The idea behind modeling reporting delay is *to adjust the recent rates to anticipate future corrections (additions, changes, and deletions) to the data*. These adjusted rates and the associated delay model are valuable in more precisely determining current cancer trends, as well as in monitoring the timeliness of data collection—an important aspect of quality control (Clegg et al., 2002). Reporting delay models have been previously used in the reporting of AIDS cases (Brookmeyer & Damiano, 1989; Pagano et al., 1994; Harris, 1990).

In this report, we show SEER age-adjusted incidence rates and trends, along with their calculated delay adjustments for SEER 9 and SEER 13 areas. The adjusted rates, factors, and trends are available for all cancers combined (malignant only except for urinary bladder), for female breast in situ, for urinary bladder (in situ and malignant), and for 22 malignant cancer sites: melanoma (for all races combined and whites only), lung/bronchus, colon/rectum, prostate, female breast, liver and intrahepatic bile duct, pancreas, cervix uteri, corpus and uterus, ovary, testis, kidney and renal pelvis, brain and other nervous system, Hodgkin lymphoma, non-Hodgkin lymphoma, all leukemias, esophagus, larynx, myeloma, oral cavity and pharynx, thyroid, and stomach.

Estimates of observed incidence rates, delay-adjusted incidence rates, and delay-adjustments factors may be found in the Cancer Query Systems at http://seer.cancer.gov/canques/

The SEER 9 delay model

For each cancer site, many combinations of covariates were considered in prediction models of delay probabilities. Potential covariates included delay time, year of diagnosis, age at diagnosis, sex, race, and reporting year effect [Zou et al, 2009]. Models were evaluated by fitting the SEER 9 models using 1983 and 2007 annual submissions, with a maximum 26 year delay, then predicting the counts for the 2008 submission. For each cancer site, the model that minimized the sum of squared prediction errors was chosen as the default final model. However, to choose a more parsimonious model, we added an additional selection step in which possible competing models were selected using the following criteria:

- the competing model had fewer number of parameters of the default model, and
- the percent change between the prediction errors of the competing and the default models per extra parameter (i.e., percent change in prediction errors divided by the difference in the numbers of parameters between the two models) was less than 1 percent.

If more than one competing model met the criteria, the model with the smallest percentage change per extra parameter was generally selected. However, if there are other competing models that had fewer parameters and the differences between their percentage changes per extra parameter and the smallest one did not exceed 0.02, the competing model with the fewest number of parameters (rather than the model with the smallest percentage change per extra parameter) was selected. The chosen model was then refitted using all data (1983-2008 submissions, 1981-2006 diagnosis years) to estimate delay distributions and calculate delay adjusted estimates of the cancer counts.

Age-adjusted (using the 2000 US standard million population) cancer incidence rates were then calculated with and without adjusting for reporting delay. Joinpoint linear regression was used to obtain the annual percentage changes for the 1975-2006 incidence rates for the data series with and without delay adjustment. Because the delay distribution was assumed complete after 26 years, incidence rates for diagnosis years prior to 1982 were not reporting-adjusted. In joinpoint regression analyses, up to four change points (i.e, 5 trend-line segments) were allowed, and these were modeled to fall at either whole years or midway between diagnosis years. Change points were constrained to be at least 2 years away from both the beginning and the end of the data series and at least 2 years apart. Models were fitted using weighted least squares (weighted by appropriate variances of age-adjusted incidence rates) of the joinpoint regression software.

Results show that adjusting for delay tends to raise cancer incidence rates in more current reporting years. While this adjustment increases the rate of change over the most recent diagnosis years, it probably will only rarely cause the detection of a new joinpoint, although this is possible. See Clegg et al. (2002) for details on the impact of reporting-delay adjustment to SEER cancer incidence rates.

The SEER 13 Delay Model

Starting with the April 2009 release of the *Cancer Statistics Review* we estimated delay adjusted rates for SEER 13 registries. SEER 13 consists of SEER 9 registries, covering diagnosis years 1975 through the present, plus 4 newer registries (Los Angeles, San Jose-Monterey, Rural Georgia, Alaska Native Tumor Registry) covering diagnosis years 1992 through the present. These four registries will be referred to here as SEER 13-9.

Delay-adjusted rates for SEER 13 were obtained through a 2 step process. First, the delay adjustment factors are derived separately for SEER 9 and SEER13-9. Delay adjusted age specific case counts are computed for SEER 9 and SEER 13-9 using their respective delay adjustment factors. Weighted averages of the SEER 9 and SEER 13-9 age specific cancer case counts (with the weights equal to the populations in each registry group) are combined to compute the delay adjusted case counts for SEER 13. These adjusted case counts are then paired with the appropriate denominator to obtain age-specific rates, and are age-adjusted in the usual manner. The formula to compute the age-adjusted combined SEER 13 rates is:

$$\text{Delay adjusted rate for } i\text{th age group} =$$

$$\frac{\sum_j \text{delay counts for SEER 9 for age/stratum (i, j)} + \sum_j \text{delay counts for SEER 13-9 for age/stratum (i, j)}}{\sum_j \text{population for age/stratum (i, j)}}$$

$$\text{AAR} = \sum_i \frac{\text{Standard Population in } i\text{th age group}}{\text{Total Standard Population}} \times (\text{delay adjusted rate for } i\text{th age group})$$

i is for age, j is for stratum defined by multiple variables included in the delay model.

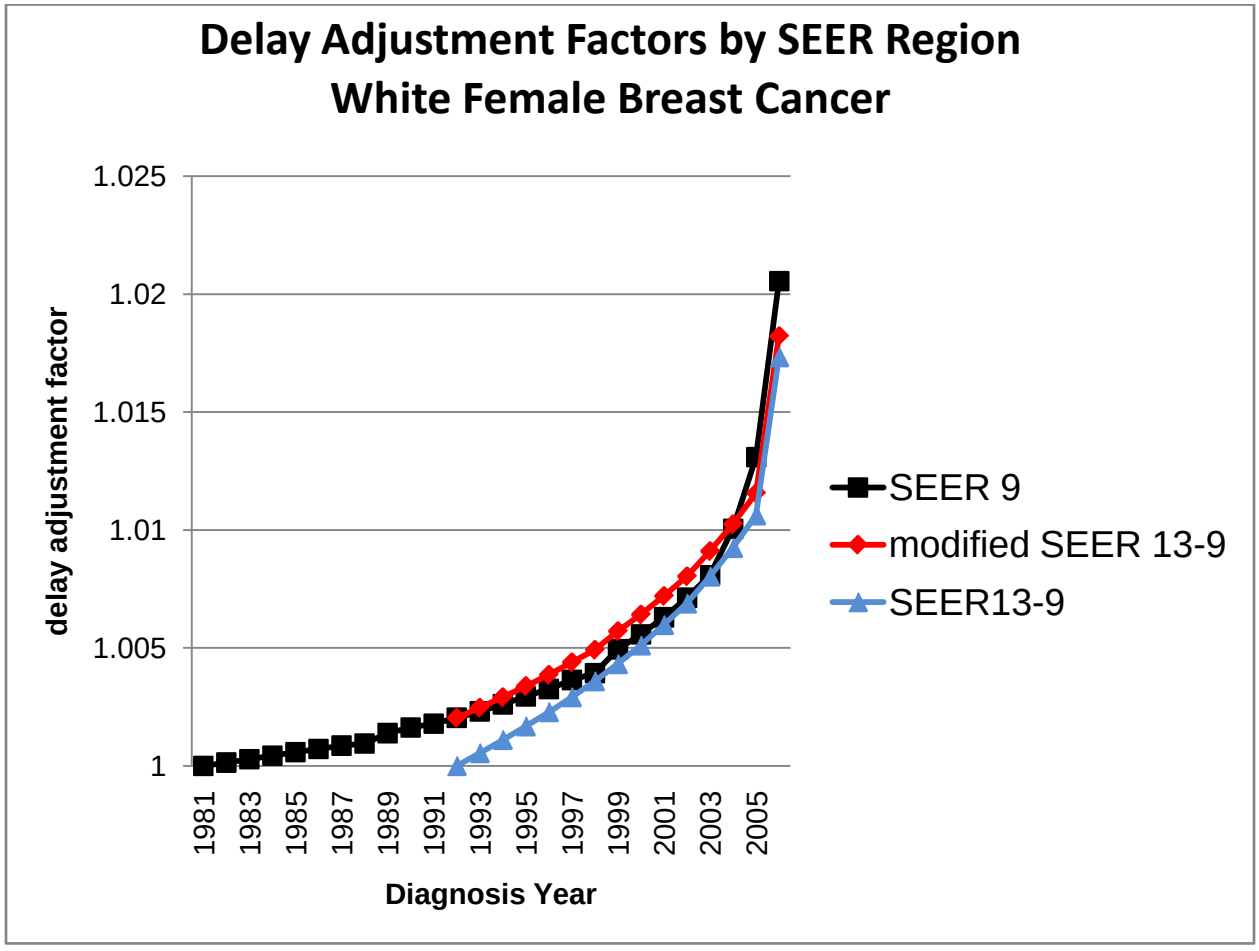
Future developments will include an application program to allow the computation of SEER 13 combined delay adjusted rates based on this formula.

Consecutive data submissions were not available for the Alaska Native Tumor Registry for the entire period of interest. Modeling SEER 13-9, therefore, was conducted using only Los Angeles, San Jose-Monterey and Rural Georgia though the final delay-adjustment factors were applied across the four registries.

In creating the SEER 13-9 model, we first followed the same process of model selection and delay adjustment factor estimation as is used in SEER 9. We then modified the SEER 13-9 factors to share the same delay adjustment factors as SEER 9 under the assumption that the data have the same delay distribution prior to 1992. The modified delay adjusted factors are then the final estimated factors for SEER 13-9. As with SEER 9, we also assume that in SEER 13-9 there is no delay after 26 year of reporting.

The example in the graph below shows white female breast cancer delay adjustment factors for

SEER 9, SEER 13-9, and modified SEER 13-9 for diagnosis years 1981 through 2006. The maximum delay time for the registries in SEER13-9 is only 15 years. We assume that the delay adjustment factors for SEER 13-9 are the same as those for SEER 9 factors when delay time is greater than 15 years.



The black line represents the fit to the SEER 9 registries and assumes there is no delay after 26 years. The 26 year maximum delay was set using all of the currently available data submissions (1983- present) in our archive and also because updates to case information beyond 26 years is deemed minimal. The blue line represents the fit to SEER 13-9 registries and has a maximum 15 year delay which corresponds to the first NCI data submission for these registries in 1994.

The SEER 9 line shows that at 15 years there is a delay adjustment of 1.002 (0.02% further adjustment from 15 to 26 years). Finally, the red line corresponds to the modified delay adjustment factors for SEER 13-9, assuming that 0.02% also remains to be reported by SEER 13-9 after 15 years. The combined SEER 13 delay adjusted rates for 2006 are obtained by utilizing the delay adjustment factors for both SEER 9 (1.021) and SEER 13-9 (1.018).

Cancer Sites and Variables

Delay-adjusted incidence rates and trends are reported for all cancers combined (malignant only except for urinary bladder), for female breast in situ, for urinary bladder (in situ and malignant), and for 22 malignant cancer sites: melanoma (for all races combined and whites only), lung/bronchus, colon/rectum, prostate, female breast, liver and intrahepatic bile duct, pancreas, cervix uteri, corpus and uterus, ovary, testis, kidney and renal pelvis, brain and other nervous system, Hodgkin lymphoma, non-Hodgkin lymphoma, all leukemias, esophagus, larynx, myeloma, oral cavity and pharynx, thyroid, and stomach.

A delay distribution models the probability of a cancer being reported after a delay of *d* years (*d* = 2, 3, ...25). The number of cancers reported at each delay year is assumed to follow a Poisson distribution. Cases are removed as corrections to the data are made, and the probability of removing cases is modeled as a binomial distribution. To reduce the number of parameters that have to be estimated and to achieve stability in the tails of the delay distributions, an assumption is made that all cancer cases will be reported within 25 years of diagnosis.

The delay distributions were modeled as a function of covariates using a discrete-time proportional hazards model. The following potential covariates are included: age at diagnosis, sex, diagnosis year, delay times, and race/ethnicity. For each cancer site, a delay distribution was calculated for all races combined and a separate delay distribution was calculated for whites and blacks. In the distributions for all races combined, if a patient's race value changed between two submission years the change of value does not contribute to the delay model. For melanoma, only all races combined and whites were analyzed because melanoma is rare for blacks. A complete list of covariates and as well this year's models for each cancer site can be found at http://srab.cancer.gov/delay/covariates.html

STATISTICAL SIGNIFICANCE

Errors may be made in the estimation of a given statistic. In order to test whether two groups (such as the populations of a state and the entire US) have the same or different *actual* rates, the *observed* rates for the groups are compared. Statisticians consider that a difference in observed rates can be explained by one of two hypotheses: (H_0) The actual rates are really the same, but the observed rates are different because of some combination of error-causing factors, or (H_1) the actual rates of the groups are really different. H_0 is called the **null hypothesis** (because it says there is *no* real difference); H_1 is called the **alternate hypothesis**. Typically, H_0 is rejected only if there is strong evidence in favor of H_1. (Thus, if the observed rates are equal, we cannot reject H_0.)

Using statistical theory, one can determine the distribution of the rate difference under the assumption that H_0 is true. Then values of the rate difference that are very unlikely to occur if

H_0 is true are identified. More specifically, a small positive number, called **alpha** (α), is chosen; usually, α is 0.05 or 0.01. (Alpha is called the **significance level** of the hypothesis test.) One can then identify limits for the difference in rates such that, if H_0 is true, the probability of the difference being outside of those limits is α. If the observed difference is *outside* of these limits, then the observed result is *very unlikely* to happen if H_0 is true, so H_0 is rejected.

Another way of looking at the same process is to calculate, assuming H_0 is true, the probability that the observed difference or any greater observed difference would occur; this number is called the ***P*-value** of the observed result. If the *P*-value of a comparison is less than α (that is, the observed difference is *very unlikely* to happen if the null hypothesis is true), H_0 will be rejected. If the *P*-value of a test is greater than the significance level α, H_0 will not be rejected. When a difference in rates is sufficiently large to cause the null hypothesis to be rejected for a given value of α (usually 0.05), it is called a **statistically significant** difference.

When a null hypothesis is rejected, there remains a small chance that a wrong decision has been made. If many statistical comparisons are done, even with $\alpha = 0.01$, the chance of making at least one wrong decision becomes a concern. In testing the differences between the total US rate and the rate for each state (or for the District of Columbia) for a given cancer, 51 statistical comparisons of the type described above are performed. Based on one of Bonferroni's inequalities (if there are n events and p_i is the probability of success in event i, then $P(\text{at least 1 success}) < p_1 + ... + p_n$) (Snedecor & Cochran,1980; p. 115-117), the significance level α for each individual comparison was set equal to $0.01/51 \approx 0.0002$. Thus, only individual-state-to-total-US comparisons with an associated *P*-value less than 0.0002 are considered to be statistically significant. That is, a *very small* significance level α (0.0002) is used in order to minimize the total risk (0.01) of falsely deciding that some pair of equal rates are unequal.

Use caution in assessing statistically significant differences. Population size has an important role in any calculation of statistical significance. Some states may have estimated rates that are very close to the estimated total US rate, but because of their large population, the difference between their estimated rate and the estimated total US rate is found to be statistically significant. In this case, the true state rate and the true US rate are almost certainly different, because the observed difference, though small, is nearly impossible if the null hypothesis (equal rates) is true. A small difference in rates, however, may have no practical importance. On the other hand, some smaller states may have estimated rates that differ substantially from the estimated total US rate, but because of their relatively small population, the differences are found to be statistically nonsignificant. When this happens, if the true state rate and the true US rate were equal, the probability of obtaining a difference at least as large as what has been observed is greater than $\alpha \approx 0.0002$. Therefore, *because the evidence against it isn't strong enough, the null hypothesis (equal rates) is not rejected.*

If the percent difference (PD) between the two rates is small, there may be some question about the importance of the difference. It is difficult to specify a minimally significant absolute PD, below which the difference would always be unimportant, because the observed PD will depend on the populations of the areas involved. It may be of value to consider the size of the PD

between a state rate and the US rate in assessing the importance of a statistically significant difference.

Comparing individual state rates with the US rate and assessing statistical significance is not an appropriate procedure for assessing geographic clustering of state rates. Identification of states which may represent regional clusters of high or low rates would require additional statistical and graphical analyses.

For a number of cancers, the District of Columbia has the highest death rates. *Use caution when comparing cancer rates for the District with those from the 50 states.* The District is an entirely urban area, whereas a state includes urban, suburban, and rural areas. Mortality rates for many cancers are higher in urban areas. Also, the District has a higher percentage of blacks (58% of the total population in 2005) than any state. In addition, their higher mortality rates for several types of cancer elevate the overall rate for the District.

STANDARD ERRORS OF RATES

Survival rates: In the tables presenting survival rates, the magnitude of the standard error is given as a clue to the reliability of a given rate: the greater the standard error, the less reliable the rate. In addition, if there were fewer than 25 diagnoses in the first interval of the life table constructed to calculate survival, or if all cases became lost to follow-up within an interval, a valid survival rate could not be calculated, as is noted in the table footnotes.

The **standard error** (**SE**) of a relative survival rate is obtained as follows (Ederer et al., 1961):

$$\mathbf{SE(CR_t) = CR_t * \text{square root of } [q_1/(e_1-d_1) + q_2/(e_2-d_2) + \ldots + q_t/(e_t-d_t)]}$$

where CR_t is the t-year relative survival rate, and for $i = 1, \ldots, t$,
q_i is the probability of dying in year i after diagnosis,
e_i is the effective number of patients at risk in year i after diagnosis, and
d_i is the number of deaths in year i after diagnosis.

Incidence and mortality rates: The standard errors of age-adjusted incidence and mortality rates are often not specified. However, the reader can approximate the SE of a particular incidence or mortality rate by the SE of a crude incidence or mortality rate (Keyfitz, 1966), that is, the SE can be approximated by the rate divided by the square root of the number of cancer cases (or the number of deaths).

Appendix tables provide numbers of cancer diagnoses within SEER areas and numbers of deaths in the entire US, respectively, by race and sex for the most recent 5-year period. These can be used to obtain approximations of the standard errors for associated age-adjusted rates for the same time period using the above formula. To approximate the standard error of a rate

for a single year, use the formula but replace the number of cancer cases or deaths with the number of cancer cases or deaths divided by 5.

DEFINITIONS

Several technical terms are used in presenting the data in this report. Their definitions are presented here to clarify them for the reader.

Incidence rate: The cancer incidence rate is the number of new cancers of a specific site/type occurring in a specified population during a year, usually expressed as the number of cancers per 100,000 persons at risk. That is,

Incidence rate = (New cancers / Population) * 100,000.

The *numerator* of the incidence rate is the number of new cancers; the *denominator* of the incidence rate is the size of the population. The number of new cancers may include multiple primary cancers occurring in one patient. The primary site reported is the site of origin and not the metastatic site. In general, the incidence rate would not include recurrences. *The population used depends on the rate to be calculated.* For cancer sites that occur in only one sex, the sex-specific population (e.g., females for cervical cancer) is used.

The incidence rate can be computed for a given type of cancer or for all cancers combined. Except for 5-year age-specific rates, all incidence rates in this report are *age-adjusted* (see below) to the 2000 US standard population (or, where appropriate, to the world standard million population). (In some previous editions of the *CSR*, the 1970 US standard million population was used; therefore, *incidence rates in this edition cannot be compared to rates published in those editions.*) Incidence rates are for *invasive cancer only*, unless otherwise specified. (Exceptions are the incidence rate for cancer of the urinary bladder (where both in situ and invasive cancers are counted) and breast cancer in situ, which is shown separately.)

Death rate: The cancer death (or mortality) rate is the number of deaths with cancer given as the underlying cause of death occurring in a specified population during a year, usually expressed as the number of deaths due to cancer per 100,000 persons. That is,

Death Rate = (Cancer Deaths / Population) ∗ 100,000.

The *numerator* of the death rate is the number of deaths; the *denominator* of the death rate is the size of the population. As with the incidence rate, *the population used depends on the rate to be calculated.* The death rate can be computed for a given cancer site or for all cancers combined. Except for 5-year age-specific rates, all death rates in this report are *age-adjusted* (see below) to the 2000 US standard million population (or, where appropriate, to the world standard million population). (In some previous editions of the *CSR*, the 1970 US standard million population was used; therefore, *death rates in this edition cannot be compared to rates published in those editions.*)

Age distribution: A table showing a partition of the entire lifespan into disjoint age intervals, along with the proportion of the population in each interval.

Median age: The age at which half of a population is younger and half is older.

Standard population: A **standard population** for a geographic area, such as the US or the world, is a table giving the proportions of the population falling into the age groups 0, 1-4, 5-9, ..., 80-84, and 85+. A **standard million population** for a geographic area is a table giving the number of persons in each age group 0, 1-4, ... , 85+ out of a theoretical cohort of 1,000,000 persons that is distributed by age in the same proportions as the standard population. Table A-7 shows the US 2000 standard population and the world standard million population. (Some World Health Organization mortality publications use a different world standard million population.)

Age-adjusted rate: An age-adjusted incidence or mortality rate is a weighted average of the age-specific incidence or mortality rates, where the weights are the counts of persons in the corresponding age groups of a standard million population. The potential confounding effect of age is reduced when comparing age-adjusted rates based on the same standard million population. For this report, the 2000 US standard million population (or, where appropriate, the world standard million population) is used in computing age-adjusted rates, unless otherwise noted.

Percent change: The percent change (**PC**) in a statistic over a given time interval is

Percent change = (Final value – Initial value) / Initial value * 100.

A positive PC corresponds to an increasing trend, a negative PC to a decreasing trend.

Annual percent change: The annual percent change (**APC**) is calculated by first fitting a regression line to the natural logarithms of the rates (*r*) using calendar year (*x*) as a regressor variable. In this report the method of *weighted least squares* is used to calculate the regression equation. If **ln(r) = mx + b** is the resulting regression equation (with slope *m*), then **APC = 100 * (e^m – 1)**. A positive APC corresponds to an increasing trend, a negative APC to a decreasing trend.

Because the methods used in their calculation are mathematically different, *the signs of the PC and the APC for a given statistic and time interval may differ*, as occurs in a few of the tables presented. That is, one of these statistics may show an increasing trend, the other a decreasing trend.

Testing the hypothesis that the actual mean annual percent change is 0 is equivalent to testing the hypothesis that the theoretical slope estimated by the slope *m* of the line representing the equation **ln(r) = mx + b** is 0. The latter hypothesis is tested using the *t* distribution of m / SE_m

with $n - 2$ degrees of freedom. The standard error of m, called SE_m, is obtained from the fit of the regression (Kleinbaum et al., 1988). (This calculation assumes that the rates increased or decreased at a constant rate over the entire calendar year interval; the validity of this assumption was not assessed.) In those few instances where at least one of the rates was 0, the linear regression was not calculated.

Average Annual Percent Change: The average annual percent change (**AAPC**) is a summary measure of a trend over a pre-specified fixed interval based on an underlying joinpoint model. It allows us to use a single number to describe the average trend over a period of multiple years. It can be estimated even if the joinpoint model indicates that there were changes in trends during those years, since it is estimated as a weighted average of the joinpoint APCs, with the weights equal to the lengths of each segment over the pre-specified fixed interval.

Life table: A table for a given population listing, for each sex and each age from 0 to 120, how many members die at that age and how many survive one more year.

Observed survival rate: The observed survival rate represents the proportion of cancer patients surviving for a specified time interval after diagnosis. Note that some of those not surviving died of the given cancer and some died of other causes.

Relative survival rate: The relative survival rate is calculated using a procedure (Ederer et al., 1961) whereby the observed survival rate is adjusted for expected mortality. The relative survival rate approximates the likelihood that a patient cohort will not die from causes associated specifically with the given cancer before some specified time after diagnosis. It is always larger than the observed survival rate for the same group of patients.

Standard error: The standard error of a rate is a measure of the sampling variability of the rate.

Person-years of life lost: The person-years of life lost (**PYLL**) is calculated as follows: For each individual who dies of the cancer of interest, the number of years of expected additional life for an average person of that age, race, and sex is obtained from life tables for the US population (available from the NCHS). The PYLL in the general population associated with a particular cancer for a given year is simply the sum of this expectation over all those individuals who died of that cancer in that year.

Average years of life lost: The average years of life lost (**AYLL**) associated with a particular cancer for a given year is the PYLL associated with that cancer in the general population divided by the number of deaths from that cancer in the general population in that year.

Prevalence: Prevalence is defined as the number or percent of people alive on a certain date in a population who previously had a diagnosis of the disease. It includes new (incident) and pre-existing cases and is a function of past incidence, past survival, and the size and age structure of the population**.** *Limited-Duration Prevalence* represents the proportion of people alive on a certain day who had a diagnosis of the disease within the past *x* years (e.g. *x* = 5, 10, or 20 years). *Complete prevalence* is an estimate of the number of persons (or the proportion of the population) alive on a specified date who had been diagnosed with the given disease, no matter how long ago that diagnosis was. For more details on cancer prevalence definitions and methods, refer to *http://srab.cancer.gov/prevalence/*.

Stage of disease at diagnosis: Extent-of-disease information determines stage of disease at diagnosis. The **SEER summary stage** presented has four levels. An invasive neoplasm confined entirely to the organ of origin is said to be **localized**. A neoplasm that has extended beyond the limits of the organ of origin, either directly into surrounding organs or tissues or into regional lymph nodes, is said to be **regional**. A neoplasm that has spread to parts of the body remote from the primary tumor, either by direct extension or by discontinuous metastasis, is said to be **distant**. When information is not sufficient to assign a stage, a neoplasm is said to be **unstaged**. In situ tumors (except those of the cervix uteri) are also collected by SEER but generally are not published in this series. For some cancers and diagnosis years, the extent of disease information can also be converted to Stages 0-IV as defined by the American Joint Committee on Cancer (Greene et al, 2002).

SOFTWARE USED TO GENERATE THE SEER CANCER STATISTICS REVIEW

The SEER Cancer Statistics Review includes statistics generated by a variety of statistical software including:

- SEER*Stat, statistical software for the analysis of SEER and other cancer databases, was used to generate incidence, mortality, prevalence, and survival statistics presented in the CSR.
- Analysis generated by the Joinpoint Regression Program are presented to better describe trends that are not constant over time.
- The DevCan system generated the probability of developing cancer from twelve SEER areas and the probability of dying from cancer from the total United States.
- The ComPrev software was used to calculate complete prevalence estimates.

Additional statistics can be obtained via SEER's Cancer Query Systems. These data retrieval applications provide access to pre-calculated cancer statistics stored in online databases.

REFERENCES

Baquet CR, Horm JW, Gibbs T, Greenwald P. Socioeconomic factors and cancer incidence among blacks and whites. *J Natl Cancer Inst*. 1991; 83:551-557.

Breslow L (Chairman, Extramural Committee to Assess Measures of Progress Against Cancer). Measurement of progress against cancer: Final report to the Senate Appropriations Committee. Bethesda: National Cancer Institute; 1988.

Brookmeyer R, Damiano A. Statistical methods for short-term projections of AIDS incidence. *Stat Med*. 1989;8:23-34.

Byrne J, Kessler LG, Devesa SS. The prevalence of cancer among adults in the United States: 1987. *Cancer*. 1992;68:2154-9.

Capocaccia R, De Angelis R. Estimating the completeness of prevalence based on cancer registry data. *Stat Med*. 1997;16:425-40.

Clegg LX, Feuer EJ, Midthune D, Fay MP, Hankey BF. Impact of reporting delay and reporting error on cancer incidence rates and trends. *J Natl Cancer Inst*. 2002;94:1537-1545.

Clegg L, Gail M, Feuer EJ. Estimating the variance of disease prevalence estimates from population-based registries. *Biometrics*. 2002;58(3):684-8.

Day, Jennifer Cheeseman, *Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1995 to 2050*, U.S. Bureau of the Census, Current Population Reports, P25-1130, U.S. Government Printing Office, Washington, DC, 1996. Available from: http://www.census.gov/prod/1/pop/p25-1130/p251130.pdf

Ederer F, Axtell LM, Cutler SJ. The relative survival rate: A statistical methodology. *J Natl Cancer Inst*. Monogr 1961;6:101-121.

Elandt-Johnson RC, Johnson NL. Survival Models and Data Analysis. New York (NY): Wiley; 1980.

Fay MP. Estimating age conditional probability of developing disease from surveillance data. *Popul Health Metr*. 2004 Jul 27;2(1):6. Available from: http://www.pophealthmetrics.com/content/2/1/6

Fay MP, Pfeiffer R, Cronin KA, Le C, Feuer EJ. Age-conditional probabilities of developing cancer. *Stat Med*. 2003;22(11):1837-48.

Feinstein AR, Sosin DM, Wells CK. The Will Rogers phenomenon: Stage migration and new diagnostic techniques as a source of misleading statistics for survival of cancer. *New Engl J Med*. 1985;312:1604-1608.

Feldman AR, Kessler L, Myers M, Naughton MD. The prevalence of cancer: Estimates based on the Connecticut Tumor Registry. *New Engl J Med*. 1986; 315:1394-1397.

Feuer EJ, Wun L-M, Boring CC. Probability of developing cancer. In: Miller BA, Ries LAG, Hankey BF, Kosary CL, Edwards BK, editors. Cancer Statistics Review: 1973-1989, National Cancer Institute, NIH Pub. No. 92-2789, 1992. p. 1-8.

Feuer EJ, Wun L-M, Boring CC, Flanders WD, Timmel MJ, Tong T. The lifetime risk of developing breast cancer. *J Natl Cancer Inst*. 1993;85:892-897.

Fritz A, Percy C, Jack A, Shanmugaratnam K, Sobin L, Parkin DM, Whelan S, editors. International Classification of Diseases for Oncology, 3rd ed. Geneva: World Health Organization; 2000.

Gail MH, Kessler L, Midthune D, Scoppa S. Two approaches for estimating disease prevalence from population-based registries of incidence and total mortality. *Biometrics*. 1999;55:1137-44.

Greene FL, Page DL, Fleming ID, Fritz AG, Balch CM, Haller DG, Morrow M, editors. AJCC Cancer Staging Manual, 6th ed. New York (NY): Springer; 2002.

Hahn RA, Mulinare J, Teutsch SM. Inconsistencies in coding of race and ethnicity between birth and death in U.S. infants. *JAMA*. 1992;267:259-263.

Harris JE. Reporting delays and the incidence of AIDS. *J Am Stat Assoc*. 1990;85:915-924.

Howlader H, Ries LA, Stinchcomb DG, Edwards BK. The Impact of Underreported Veterans Affairs Data on National Cancer Statistics: Analysis Using Population-Based SEER Registries. *J Natl Cancer Inst*. 2009 101(7):533-536.

Ingram DD, Parker JD, Schenker N, Weed JA, Hamilton B, Arias E, Madans JH. United States Census 2000 population with bridged race categories. *Vital Health Stat 2*. 2003 Sep;(135):1-55.

Jemal A, Siegel R, Ward E, Hao Y, Xu J, Murray T, Thun MJ. Cancer statistics, 2008. *CA Cancer J Clin*. 2008;58:71-96.

Keyfitz N. Sampling variance of standardized mortality rates. *Hum Biol*. 1966;38:309-317.

Kim H-J, Fay MP, Feuer EJ, Midthune DN. Permutation tests for joinpoint regression with applications to cancer rates. *Stat Med*. 2000;19:335-351.

Kleinbaum DG, Kupper LL, Muller KE. Applied Regression Analysis and Other Multivariable Methods, 2nd ed. Mariotto A, Gigli A, Capocaccia R, Clegg L, Scoppa S, Ries LA, Tesauro GS, Rowland JS, Feuer EJ. Complete and limited duration prevalence estimates. SEER Cancer Statistics Review, 1973-1999. 2002;19.

Merrill RM, Feuer EJ, Capocaccia R, Mariotto A. Cancer prevalence estimates based on tumor registry data in the SEER Program. *Int J Epidemiol*. 2000;29:197-207.

Midthune DN, Fay MP, Clegg LX, Feuer EJ. Modeling reporting delays and reporting corrections in cancer registry data. *J Am Stat Assoc*. 2005;100(469):61-70.

Pagano M, Tu XM, De Gruttola V, & MaWhinney S. Regression analysis of censored and truncated data: estimating reporting-delay distributions and AIDS incidence from surveillance data. *Biometrics*. 1994;50:1203-1214.

Percy C, Ries LAG, Van Holten VD. The accuracy of liver cancer as the underlying cause of death on death certificates. *Public Health Rep*. 1990;105:361-368.

Percy C, Stanek E, Gloeckler L. Accuracy of cancer death certificates and its effect on cancer mortality statistics. 1981. *Am J Public Health*, 71: 3242-3250.

Percy C, Van Holten V, Muir C, editors. International Classification of Diseases for Oncology, 2nd ed. Geneva: World Health Organization;1990.

Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg LX, Edwards BK (eds). SEER Cancer Statistics Review, 1973-1997. National Cancer Institute. NIH Pub. No. 00-2789. Bethesda, MD, 2000.

Robinson JG, West KK, Adlakha A. Coverage of the population in Census 2000: Results from demographic analysis. *Population Res Policy Rev*. 2002;21:19-38.

Rosenberg HM, Maurer JD, Sorlie PD, Johnson NJ, MacDorman MF, Hoyert DL, Spitler JF, Scott C. Quality of death rates by race and Hispanic origin: A summary of current research. Hyattsville (MD): National Center for Health Statistics; Vital and Health Statistics, Series 2, No. 128, 1999.

Snedecor GW, Cochran WG. Statistical Methods, 7th ed. Ames (IA): Iowa State University Press; 1980.

US Cancer Statistics Working Group. *United States Cancer Statistics: 1999-2002 Incidence and Mortality Web-based Report Version*. Atlanta: Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; 2005. Available from: http://www.cdc.gov/cancer/npcr/uscs/index.htm

US Bureau of the Census. Current Population Reports; Series P-25 No. 985. Washington (DC): US Government Printing Office; 1986.

Zelen M. Theory of early detection of breast cancer in the general population. In: Heuson J-C, Mattheiem WH, Rozencweig M, editors. Breast Cancer: Trends in Research and Treatment. New York (NY): Raven Press; 1976. p. 287-299.

Zou J, Huang L, Midthune D, Horner MJ, Krapcho M, Feuer EJ. Effect of reporting year on delay modeling. Statistical Research and Applications Branch, National Cancer Institute; 2009. Technical Report #2009-01. Available from: http://srab.cancer.gov/reports/.

Table 1.3

Summary of Changes in Cancer Mortality, 1950-2006 and
5-Year Relative Survival Rates, 1950-2005
Males and Females, By Primary Cancer Site

	All Races		Whites			
			U.S. Mortality Percent Change 1950-2006[b]		5-Year Relative Survival Rates (Percent)[c]	
Primary Site	Estimated Cancer Cases in 2006[a]	Actual Cancer Deaths in 2006[b]	Total	APC	1950-1954	1999-2005
Oral cavity and pharynx	30,990				46	64.4
Esophagus	14,550				4	19.8
Stomach	22,280				12	25.3
Colon and rectum	148,610				37	68.0
Colon	106,680				41	67.4
Rectum	41,930				40	69.4
Liver and intrahepatic bile duct	18,510				1	13.0
Pancreas	33,370				1	5.7
Larynx	9,510				52	65.5
Lung and bronchus	174,470				6	16.6
Males	92,700				5	14.4
Females	81,770				9	19.1
Melanoma of the skin	62,190				49	92.9
Breast(females)	212,920				60	91.3
Cervix uteri	9,710				59	73.1
Corpus and uterus, NOS	41,200				72	86.5
Ovary	20,180				30	45.5
Prostate	234,460				43	99.9
Testis	8,250				57	96.5
Urinary bladder	61,420				53	82.6
Kidney and renal pelvis	38,890				34	69.4
Brain and nervous system	18,820				21	35.1
Thyroid	30,180				80	97.5
Hodgkin lymphoma	7,800				30	87.4
Non-Hodgkin lymphoma	58,870				33	70.1
Myeloma	16,570				6	37.5
Leukemia	35,070				10	54.8
Childhood (Ages 0-14)	9,500				20	82.4
All Sites	1,399,790				35	69.1

The APC is the Annual Percent Change over the time interval. Rates used in the calculation of the APC are age-adjusted to the 2000 U.S. standard population (18 age groups - Census P25-1130).

[a] Facts and Figures, 2006. American Cancer Society, Atlanta, Georgia, 2006.

[b] U.S. Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
Due to coding changes throughout the years: Colon excludes other digestive tract; Rectum includes anal canal;
Liver & intrahepatic bile duct includes gallbladder & biliary tract, NOS; Lung & bronchus includes trachea & pleura;
Ovary includes fallopian tube; Urinary bladder includes other urinary organs; Kidney & Renal pelvis includes ureter;
NHL and myeloma each include a small number of leukemias; NHL includes a small number of ill-defined sites.

[c] Rates for 1950-54 are from NCI Survival Report 5 with the exception of All Sites, Oral cavity & pharynx,
Colon & rectum, Non-Hodgkin lymphoma and Childhood cancers which come from historical Connecticut data.
Rates for 1999-2005 are from the SEER 9 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta). Rates are based on follow-up of patients into 2006.

Table 1.4
Age-Adjusted SEER Incidence and U.S. Death Rates and 5-Year Relative Survival Rates
By Primary Cancer Site, Sex and Time Period

All Races

Site	Incidence[a] (2002-2006) Total	Males	Females	US Mortality[b] (2002-2006) Total	Males	Females	Survival[c] (1999-2005) Total	Males	Females
All Sites	462.9	541.8	408.5				66.1	66.2	66.0
Oral Cavity & Pharynx:	10.4	15.4	6.1				61.0	59.9	63.3
Lip	0.8	1.3	0.4				91.1	90.8	91.4
Tongue	2.8	4.2	1.7				59.5	59.4	59.9
Salivary gland	1.2	1.6	1.0				73.9	68.3	81.1
Floor of mouth	0.6	0.9	0.4				53.0	51.3	56.9
Gum & other oral cavity	1.5	1.8	1.2				59.5	56.5	63.1
Nasopharynx	0.7	1.0	0.4				57.6	56.9	59.2
Tonsil	1.5	2.6	0.6				66.6	67.6	62.2
Oropharynx	0.3	0.5	0.2				39.2	39.0	39.6
Hypopharynx	0.7	1.2	0.3				29.2	28.9	30.4
Other oral cavity & pharynx	0.2	0.3	0.1				34.3	36.2	29.8
Digestive System:	87.9	107.0	72.6				45.4	43.5	47.5
Esophagus	4.5	7.7	2.0				16.8	16.6	17.3
Stomach	7.9	11.0	5.5				25.7	24.0	28.3
Small intestine	1.9	2.3	1.6				61.7	61.2	62.1
Colon & Rectum:	49.1	57.3	42.8				65.2	65.3	65.0
Colon	35.5	40.0	32.0				64.6	65.0	64.1
Rectum	13.6	17.2	10.7				66.6	65.9	67.5
Anus, anal canal & anorectum	1.6	1.4	1.7				66.3	61.4	69.6
Liver & intrahep. bile duct:	6.6	10.2	3.6				13.1	12.7	13.9
Liver	6.1	9.5	3.1				13.8	13.3	15.2
Intrahepatic bile duct	0.6	0.7	0.5				6.0	5.5	6.5
Gallbladder	1.2	0.9	1.4				15.3	13.1	16.0
Other biliary	1.8	2.1	1.5				17.2	18.5	15.7
Pancreas	11.7	13.1	10.4				5.5	5.4	5.7
Retroperitoneum	0.4	0.4	0.4				52.3	49.7	55.0
Peritoneum, omentum & mesentery	0.7	0.1	1.1				29.5	46.0	28.2
Other digestive system	0.5	0.6	0.5				10.4	9.8	10.9
Respiratory System:	67.5	85.1	54.4				18.9	18.3	19.7
Nose, nasal cavity & middle ear	0.7	0.9	0.5				55.5	53.2	58.4
Larynx	3.5	6.2	1.3				61.6	62.5	58.1
Lung & bronchus	63.1	77.7	52.5				15.6	13.4	18.1
Pleura[d]	0.0	0.1	0.0				33.5	28.0	42.6
Trachea & other respiratory organs	0.2	0.3	0.1				48.0	48.4	47.1
Bones & joints	0.9	1.0	0.8				68.4	65.0	72.5
Soft tissue (including heart)	3.1	3.8	2.7				67.2	66.9	67.5
Skin (excl. basal & squamous):	21.4	27.4	17.2				91.1	88.9	93.9
Melanoma of the skin	19.6	25.0	15.8				91.4	89.3	94.0
Other non-epithelial skin	1.8	2.4	1.4				87.9	84.5	91.6
Breast	67.1	1.2	123.8				89.1	87.0	89.1
Breast (*in situ*)	15.8	0.1	29.6				100.0	100.0	100.0

Note: Incidence and death rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

[c] SEER 17 areas. California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2005. The remaining 13 SEER Areas contribute cases for the entire period 1999-2005.

[d] Mesotheliomas of the Pleura are included in the separate group Mesothelioma for incidence but are included in the Pleura grouping for mortality.

- Statistic could not be calculated due to less than 16 cases in the time interval.

Table 1.4 - continued
Age-Adjusted SEER Incidence and U.S. Death Rates and 5-Year Relative Survival Rates
By Primary Cancer Site, Sex and Time Period

All Races

Site	Incidence[a] (2002-2006) Total	Males	Females	US Mortality[b] (2002-2006) Total	Males	Females	Survival[c] (1999-2005) Total	Males	Females
Female Genital System:	25.9	-	48.2				69.7	-	69.7
Cervix uteri	4.3	-	8.2				70.6	-	70.6
Corpus uteri	12.2	-	22.7				84.0	-	84.0
Uterus, NOS	0.3	-	0.6				29.7	-	29.7
Ovary[d]	7.1	-	13.1				45.9	-	45.9
Vagina	0.4	-	0.7				52.6	-	52.6
Vulva	1.2	-	2.2				76.1	-	76.1
Other female genital system	0.4	-	0.7				65.7	-	65.7
Male Genital System:	73.8	165.7	-				99.4	99.4	-
Prostate	70.6	159.3	-				99.7	99.7	-
Testis	2.7	5.4	-				95.3	95.3	-
Penis	0.3	0.8	-				67.5	67.5	-
Other male genital system	0.1	0.2	-				84.5	84.5	-
Urinary System:	35.5	57.0	19.3				74.8	76.2	71.7
Urinary bladder	21.0	37.1	9.3				80.0	81.5	75.7
Kidney & renal pelvis	13.6	18.6	9.5				68.4	67.9	69.0
Ureter	0.6	0.8	0.4				54.9	57.4	51.2
Other urinary system	0.3	0.4	0.2				56.9	59.6	52.6
Eye & Orbit	0.8	1.0	0.7				83.8	82.1	85.9
Brain & Nervous System:[e]	6.4	7.6	5.4				34.8	32.9	37.1
Brain	6.0	7.2	5.0				31.5	30.2	33.1
Cranial nerves & other nervous system	0.4	0.4	0.4				79.5	76.0	82.7
Endocrine System:	10.3	5.7	14.8				94.8	89.6	96.5
Thyroid	9.6	4.9	14.2				97.3	94.7	98.0
Other endocrine & thymus	0.7	0.8	0.6				62.4	62.7	62.1
Lymphoma:	22.3	26.6	18.9				69.9	68.0	72.1
Hodgkin lymphoma	2.8	3.1	2.5				84.7	83.0	86.7
Non-Hodgkin lymphoma	19.5	23.5	16.4				67.2	65.2	69.4
Myeloma	5.6	7.1	4.6				37.1	38.3	35.7
Leukemia:	12.2	15.8	9.5				53.1	53.5	52.6
Lymphocytic:	6.1	8.1	4.5				73.7	73.3	74.1
Acute lymphocytic	1.6	1.9	1.4				65.3	64.7	66.0
Chronic lymphocytic	4.1	5.6	2.9				77.5	76.3	79.3
Other lymphocytic	0.4	0.6	0.2				83.5	87.0	72.9
Myeloid & Monocytic:	5.4	6.8	4.4				32.7	31.9	33.6
Acute myeloid	3.5	4.3	2.9				22.8	21.5	24.3
Chronic myeloid	1.5	1.9	1.1				56.1	55.1	57.4
Acute monocytic	0.3	0.3	0.3				24.0	23.1	24.6
Other myeloid & monocytic	0.2	0.2	0.1				30.2	28.8	30.9
Other leukemia:	0.7	0.9	0.6				23.3	23.5	23.1
Other acute leukemia	0.3	0.4	0.2				14.3	14.4	13.9
Aleukemic, subleukemic & NOS	0.4	0.5	0.4				31.5	31.1	31.6
Kaposi Sarcoma[f]	0.6	1.2	0.1				61.4	61.2	65.2
Mesothelioma[f]	1.1	2.0	0.4				7.9	6.0	13.9
Ill-defined & unspecified	10.0	11.4	9.0				16.6	20.0	13.4

Note: Incidence and death rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

[c] SEER 17 areas. California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2005. The remaining 13 SEER Areas contribute cases for the entire period 1999-2005.

[d] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

[e] Due to coding changes, Brain & Nervous System mortality are no longer shown separately.

[f] Rate not shown for mortality. Category did not exist in mortality coding until 1999.

- Statistic could not be calculated due to less than 16 cases in the time interval.

Table 1.5
Age-Adjusted SEER Incidence and U.S. Death Rates and 5-Year Relative Survival Rates
By Primary Cancer Site, Sex and Time Period

Whites

Site	Incidence[a] (2002-2006) Total	Males	Females	US Mortality[b] (2002-2006) Total	Males	Females	Survival[c] (1999-2005) Total	Males	Females
All Sites	470.6	544.3	420.5				66.9	67.0	66.9
Oral Cavity & Pharynx:	10.5	15.6	6.1				62.8	62.4	63.8
Lip	0.9	1.5	0.4				91.2	90.8	92.0
Tongue	3.0	4.4	1.7				62.0	62.0	62.2
Salivary gland	1.2	1.7	0.9				72.9	67.9	79.9
Floor of mouth	0.7	1.0	0.4				54.1	53.0	56.7
Gum & other oral cavity	1.5	1.8	1.2				60.1	57.8	62.9
Nasopharynx	0.4	0.6	0.2				53.5	55.0	49.5
Tonsil	1.6	2.7	0.6				69.2	70.7	63.0
Oropharynx	0.3	0.5	0.2				43.1	43.2	42.9
Hypopharynx	0.7	1.1	0.3				30.5	30.6	30.3
Other oral cavity & pharynx	0.2	0.3	0.1				37.3	39.7	31.8
Digestive System:	85.3	103.9	70.4				46.5	44.8	48.5
Esophagus	4.6	7.9	1.9				17.6	17.6	17.6
Stomach	6.9	9.8	4.7				24.1	22.5	26.7
Small intestine	1.9	2.2	1.6				63.9	63.7	63.9
Colon & Rectum:	48.6	56.9	42.1				66.1	66.3	65.9
Colon	35.1	39.7	31.5				65.6	66.0	65.1
Rectum	13.5	17.1	10.6				67.2	66.7	67.8
Anus, anal canal & anorectum	1.7	1.4	1.9				67.0	61.8	70.3
Liver & Intrahep. bile duct:	5.6	8.6	3.0				12.8	12.4	13.6
Liver	5.1	8.0	2.5				13.6	13.0	15.2
Intrahepatic bile duct	0.6	0.6	0.5				5.7	5.3	6.0
Gallbladder	1.1	0.8	1.4				15.0	12.6	15.8
Other biliary	1.7	2.1	1.5				17.5	19.3	15.5
Pancreas	11.5	13.1	10.2				5.5	5.5	5.5
Retroperitoneum	0.4	0.5	0.4				53.4	50.3	56.8
Peritoneum, omentum & mesentery	0.7	0.1	1.3				29.5	43.6	28.5
Other digestive system	0.5	0.6	0.4				10.1	9.4	10.8
Respiratory System:	68.8	85.0	56.8				19.2	18.6	19.9
Nose, nasal cavity & middle ear	0.7	0.8	0.5				55.6	53.0	59.1
Larynx	3.5	6.2	1.3				63.1	64.0	59.6
Lung & bronchus	64.4	77.6	54.8				15.9	13.7	18.3
Pleura[d]	0.0	0.1	0.0				33.0	26.9	43.9
Trachea & other respiratory organs	0.2	0.3	0.1				48.5	50.4	44.2
Bones & joints	0.9	1.1	0.8				68.2	64.4	72.9
Soft tissue (including heart)	3.2	3.8	2.7				67.8	67.5	68.2
Skin (excl. basal & squamous):	24.8	31.5	20.1				90.9	88.6	93.7
Melanoma of the skin	22.9	28.9	18.7				91.2	89.0	93.9
Other non-epithelial skin	1.9	2.6	1.4				86.5	83.2	90.1
Breast	68.7	1.2	127.8				90.3	88.3	90.3
Breast (*in situ*)	16.0	0.1	30.3				100.0	100.0	100.0

Note: Incidence and death rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

[c] SEER 17 areas. California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2005. The remaining 13 SEER Areas contribute cases for the entire period 1999-2005.

[d] Mesotheliomas of the Pleura are included in the separate group Mesothelioma for incidence but are included in the Pleura grouping for mortality.

- Statistic could not be calculated due to less than 16 cases in the time interval.

Table 1.5 - continued
Age-Adjusted SEER Incidence and U.S. Death Rates and 5-Year Relative Survival Rates
By Primary Cancer Site, Sex and Time Period

Whites

Site	Incidence[a] (2002-2006) Total	Males	Females	US Mortality[b] (2002-2006) Total	Males	Females	Survival[c] (1999-2005) Total	Males	Females
Female Genital System:	26.5	-	49.8				70.8	-	70.8
Cervix uteri	4.1	-	8.1				72.0	-	72.0
Corpus uteri	12.6	-	23.7				85.7	-	85.7
Uterus, NOS	0.3	-	0.5				29.7	-	29.7
Ovary[d]	7.4	-	13.8				45.8	-	45.8
Vagina	0.4	-	0.7				54.8	-	54.8
Vulva	1.3	-	2.3				76.5	-	76.5
Other female genital system	0.4	-	0.7				64.3	-	64.3
Male Genital System:	72.1	160.4	-				99.7	99.7	-
Prostate	68.5	153.0	-				99.9	99.9	-
Testis	3.2	6.3	-				95.6	95.6	-
Penis	0.4	0.8	-				67.2	67.2	-
Other male genital system	0.1	0.2	-				86.3	86.3	-
Urinary System:	37.7	60.7	20.3				75.4	76.6	72.6
Urinary bladder	22.8	40.3	9.9				80.5	81.7	77.0
Kidney & renal pelvis	14.1	19.2	9.9				68.5	68.1	69.1
Ureter	0.6	0.9	0.4				54.9	57.6	50.4
Other urinary system	0.3	0.4	0.1				57.5	58.4	55.5
Eye & Orbit	0.9	1.1	0.8				83.4	81.6	85.5
Brain & Nervous System:[e]	7.1	8.4	5.9				34.0	32.4	36.1
Brain	6.7	8.0	5.5				30.9	29.8	32.3
Cranial nerves & other nervous system	0.4	0.4	0.4				79.9	77.4	82.2
Endocrine System:	10.8	6.0	15.6				95.1	90.1	96.8
Thyroid	10.1	5.2	15.0				97.5	94.8	98.2
Other endocrine & thymus	0.7	0.8	0.6				61.4	62.4	60.0
Lymphoma:	23.4	27.7	19.8				70.7	69.0	72.6
Hodgkin lymphoma	3.0	3.3	2.7				85.1	83.6	86.7
Non-Hodgkin lymphoma	20.4	24.4	17.2				68.0	66.3	70.0
Myeloma	5.2	6.6	4.1				36.9	38.6	34.9
Leukemia:	12.8	16.5	9.9				53.4	53.8	53.0
Lymphocytic:	6.5	8.7	4.8				74.0	73.8	74.4
Acute lymphocytic	1.7	2.0	1.5				65.6	65.2	66.0
Chronic lymphocytic	4.3	6.0	3.1				77.8	76.5	79.6
Other lymphocytic	0.4	0.7	0.2				83.8	87.6	72.6
Myeloid & Monocytic:	5.6	7.0	4.5				31.7	30.7	33.0
Acute myeloid	3.6	4.5	3.0				22.2	20.9	23.9
Chronic myeloid	1.5	1.9	1.2				54.5	53.2	56.3
Acute monocytic	0.3	0.4	0.3				24.1	21.6	26.7
Other myeloid & monocytic	0.2	0.2	0.1				29.5	28.5	29.6
Other leukemia:	0.7	0.9	0.6				22.7	23.4	21.8
Other acute leukemia	0.3	0.4	0.2				13.1	13.2	12.3
Aleukemic, subleukemic & NOS	0.4	0.5	0.3				32.1	32.7	30.8
Kaposi Sarcoma[f]	0.6	1.1	0.1				65.0	64.2	76.0
Mesothelioma[f]	1.2	2.2	0.5				7.4	5.6	13.3
Ill-defined & unspecified	10.1	11.5	9.1				17.4	21.5	13.6

Note: Incidence and death rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

[c] SEER 17 areas. California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2005. The remaining 13 SEER Areas contribute cases for the entire period 1999-2005.

[d] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

[e] Due to coding changes, Brain & Nervous System mortality are no longer shown separately.

[f] Rate not shown for mortality. Category did not exist in mortality coding until 1999.

- Statistic could not be calculated due to less than 16 cases in the time interval.

Table 1.6
Age-Adjusted SEER Incidence and U.S. Death Rates and 5-Year Relative Survival Rates
By Primary Cancer Site, Sex and Time Period

Blacks

Site	Incidence[a] (2002-2006) Total	Males	Females	US Mortality[b] (2002-2006) Total	Males	Females	Survival[c] (1999-2005) Total	Males	Females
All Sites	493.6	633.7	398.9				58.0	60.6	55.2
Oral Cavity & Pharynx:	10.5	16.7	5.8				42.6	38.2	53.2
Lip	0.1	0.2	-				86.1	85.9	-
Tongue	2.3	3.8	1.2				33.1	32.4	34.3
Salivary gland	1.0	1.2	1.0				74.5	65.7	81.6
Floor of mouth	0.7	1.2	0.4				41.9	37.3	56.2
Gum & other oral cavity	1.7	2.3	1.3				54.0	46.7	64.5
Nasopharynx	0.7	1.2	0.4				51.2	48.9	54.4
Tonsil	1.6	2.9	0.6				43.2	41.4	50.3
Oropharynx	0.6	1.1	0.3				20.8	21.0	21.1
Hypopharynx	1.2	2.2	0.4				22.3	20.9	27.7
Other oral cavity & pharynx	0.4	0.6	0.2				19.5	19.9	18.1
Digestive System:	110.5	134.6	93.2				38.5	35.3	41.7
Esophagus	5.6	9.3	3.0				10.8	9.8	13.4
Stomach	12.1	16.8	9.0				25.3	22.6	28.4
Small intestine	3.1	3.6	2.7				53.0	50.3	55.3
Colon & Rectum:	59.9	69.3	53.5				56.1	55.5	56.7
Colon	46.0	52.3	41.8				55.5	55.5	55.6
Rectum	13.9	17.0	11.7				57.9	55.5	60.4
Anus, anal canal & anorectum	1.7	1.6	1.6				59.8	53.7	65.7
Liver & Intrahep. bile duct:	8.2	13.4	4.2				8.8	8.3	10.0
Liver	7.7	12.9	3.7				9.0	8.5	10.0
Intrahepatic bile duct	0.5	0.4	0.5				5.5	3.1	7.8
Gallbladder	1.4	1.1	1.7				14.4	21.5	13.0
Other biliary	1.6	1.8	1.4				12.6	14.3	11.2
Pancreas	15.6	16.6	14.6				5.4	4.5	6.2
Retroperitoneum	0.4	0.3	0.4				42.3	42.8	42.0
Peritoneum, omentum & mesentery	0.4	0.1	0.6				29.3	-	24.8
Other digestive system	0.6	0.7	0.6				13.2	12.5	13.5
Respiratory System:	81.1	115.9	57.3				16.0	15.7	16.3
Nose, nasal cavity & middle ear	0.6	0.9	0.4				51.5	48.0	56.2
Larynx	5.6	10.5	2.0				50.5	51.6	46.1
Lung & bronchus	74.7	104.3	54.7				12.4	10.8	14.5
Pleura[d]	-	-	-				-	-	-
Trachea & other respiratory organs	0.2	0.2	0.2				37.6	32.7	48.4
Bones & joints	0.8	0.8	0.7				66.4	65.2	67.3
Soft tissue (including heart)	3.3	3.7	3.0				60.9	61.4	60.5
Skin (excl. basal & squamous):	2.1	2.1	2.1				88.9	86.2	91.1
Melanoma of the skin	1.0	1.1	1.0				77.3	73.3	80.4
Other non-epithelial skin	1.1	1.0	1.1				96.4	94.1	97.5
Breast	67.4	1.6	117.7				77.9	77.0	77.9
Breast (*in situ*)	15.1	0.2	26.6				100.0	99.1	100.0

Note: Incidence and death rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

[c] SEER 17 areas. California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2005. The remaining 13 SEER Areas contribute cases for the entire period 1999-2005.

[d] Mesotheliomas of the Pleura are included in the separate group Mesothelioma for incidence but are included in the Pleura grouping for mortality.

- Statistic could not be calculated due to less than 16 cases in the time interval.

Table 1.6 - continued
Age-Adjusted SEER Incidence and U.S. Death Rates and 5-Year Relative Survival Rates
By Primary Cancer Site, Sex and Time Period

Blacks

Site	Incidence[a] (2002-2006) Total	Males	Females	US Mortality[b] (2002-2006) Total	Males	Females	Survival[c] (1999-2005) Total	Males	Females
Female Genital System:	25.3	-	44.3				56.3	-	56.3
Cervix uteri	5.8	-	10.4				61.4	-	61.4
Corpus uteri	11.0	-	19.2				63.1	-	63.1
Uterus, NOS	0.6	-	1.1				26.2	-	26.2
Ovary[d]	5.8	-	10.1				37.4	-	37.4
Vagina	0.6	-	1.1				42.8	-	42.8
Vulva	1.0	-	1.8				70.1	-	70.1
Other female genital system	0.4	-	0.7				67.4	-	67.4
Male Genital System:	100.7	242.2	-				96.3	96.3	-
Prostate	99.6	239.8	-				96.5	96.5	-
Testis	0.6	1.3	-				88.4	88.4	-
Penis	0.4	1.0	-				67.9	67.9	-
Other male genital system	0.1	0.2	-				79.4	79.4	-
Urinary System:	28.4	42.2	18.8				65.5	67.0	63.1
Urinary bladder	12.8	20.0	7.9				66.5	71.5	57.3
Kidney & renal pelvis	15.0	21.3	10.3				65.9	64.7	67.4
Ureter	0.3	0.4	0.3				51.4	43.6	58.7
Other urinary system	0.4	0.5	0.3				36.4	39.8	33.5
Eye & Orbit	0.2	0.3	0.2				83.5	83.3	84.1
Brain & Nervous System:[e]	4.0	4.7	3.4				38.6	33.9	43.7
Brain	3.6	4.3	3.0				33.9	30.3	37.9
Cranial nerves & other nervous system	0.4	0.3	0.4				76.5	69.5	80.3
Endocrine System:	6.6	3.6	9.1				91.3	84.0	93.4
Thyroid	5.8	2.7	8.4				95.0	91.4	95.5
Other endocrine & thymus	0.8	0.9	0.7				64.8	62.4	67.1
Lymphoma:	17.4	21.2	14.5				63.1	58.4	68.6
Hodgkin lymphoma	2.6	2.9	2.3				82.1	77.3	87.4
Non-Hodgkin lymphoma	14.8	18.3	12.2				58.4	54.0	63.8
Myeloma	11.7	14.3	10.0				36.6	36.0	37.2
Leukemia:	9.8	12.7	7.8				45.8	45.5	46.1
Lymphocytic:	4.2	5.9	3.0				63.1	59.1	68.1
Acute lymphocytic	0.9	1.1	0.8				60.7	55.1	66.7
Chronic lymphocytic	3.0	4.4	2.1				64.5	60.5	69.7
Other lymphocytic	0.3	0.5	0.1				66.1	68.3	58.4
Myeloid & Monocytic:	4.7	5.8	4.0				34.6	36.5	31.8
Acute myeloid	3.0	3.6	2.6				24.5	26.4	21.5
Chronic myeloid	1.4	1.8	1.1				56.2	55.2	56.7
Acute monocytic	0.2	0.2	0.2				19.3	26.7	10.9
Other myeloid & monocytic	0.2	0.2	0.1				29.0	20.2	33.1
Other leukemia:	0.9	1.0	0.8				20.7	16.7	24.5
Other acute leukemia	0.3	0.3	0.2				20.6	18.3	20.1
Aleukemic, subleukemic & NOS	0.6	0.7	0.5				19.5	15.6	23.8
Kaposi Sarcoma[f]	1.3	2.5	0.2				45.6	46.6	24.1
Mesothelioma[f]	0.6	1.2	0.3				12.2	8.6	17.9
Ill-defined & unspecified	11.7	13.4	10.4				10.8	11.2	10.4

Note: Incidence and death rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.

[c] SEER 17 areas. California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2005. The remaining 13 SEER Areas contribute cases for the entire period 1999-2005.

[d] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

[e] Due to coding changes, Brain & Nervous System mortality are no longer shown separately.

[f] Rate not shown for mortality. Category did not exist in mortality coding until 1999.

- Statistic could not be calculated due to less than 16 cases in the time interval.

Table 1.7
SEER Incidence and U.S. Mortality Trends by Primary Cancer Site and Sex
All Races, 1997-2006

Site	Incidence[a] Total APC	Incidence[a] Males APC	Incidence[a] Females APC	US Mortality[b] Total APC	US Mortality[b] Males APC	US Mortality[b] Females APC
All Sites	-1.0*	-1.2*	-0.8*			
Oral Cavity & Pharynx:	-1.5*	-1.7*	-1.4*			
Lip	-6.7*	-7.3*	-5.1*			
Tongue	1.3*	1.2	1.3*			
Salivary gland	0.1	-0.1	0.2			
Floor of mouth	-6.5*	-6.0*	-7.6*			
Gum & other oral cavity	-2.3*	-2.3*	-2.3*			
Nasopharynx	-1.5	-1.6	-1.3			
Tonsil	1.8*	1.9*	0.0			
Oropharynx	-0.4	0.2	-2.3			
Hypopharynx	-5.3*	-5.7*	-4.5*			
Other oral cavity & pharynx	-7.8*	-9.0*	-5.4*			
Digestive System:	-1.2*	-1.5*	-1.1*			
Esophagus	-0.6	-0.5	-1.1			
Stomach	-1.7*	-2.1*	-1.3*			
Small intestine	1.3*	1.6*	0.7			
Colon & Rectum:	-2.4*	-2.9*	-2.1*			
Colon	-2.4*	-2.9*	-2.0*			
Rectum	-2.5*	-2.7*	-2.4*			
Anus, anal canal & anorectum	2.2*	1.9*	2.5*			
Liver & intrahep. bile duct:	2.3*	2.4*	1.5*			
Liver	3.3*	3.4*	2.5*			
Intrahepatic bile duct	-5.2*	-6.7*	-3.5*			
Gallbladder	-0.7	-0.2	-0.9			
Other biliary	2.2*	1.9	2.5*			
Pancreas	0.5	0.3	0.6*			
Retroperitoneum	-0.3	-1.8	1.2			
Peritoneum, omentum & mesentery	3.8*	2.1	3.9*			
Other digestive system	5.4*	5.7*	5.0*			
Respiratory System:	-1.6*	-2.4*	-0.7*			
Nose, nasal cavity & middle ear	-2.0	-2.6	-1.5			
Larynx	-3.3*	-3.1*	-4.4*			
Lung & bronchus	-1.5*	-2.3*	-0.6*			
Pleura	-	-	-			
Trachea & other respiratory organs	-0.4	0.6	-3.0			
Bones & joints	-0.1	-0.4	0.4			
Soft tissue (including heart)	1.2*	1.4*	0.8			
Skin (excl. basal & squamous):	1.5*	1.6*	1.5*			
Melanoma of the skin	1.6*	1.7*	1.6*			
Other non-epithelial skin	0.2	0.2	0.3			
Breast	-1.9*	0.7	-1.8*			
Breast (*in situ*)	0.3	0.8	0.5			

The APC is the Annual Percent Change over the time interval.

[a] SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

* The APC is significantly different from zero (p<.05).

\- Statistic could not be calculated. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.7 - continued
SEER Incidence and U.S. Mortality Trends by Primary Cancer Site and Sex
All Races, 1997-2006

Site	Incidence[a] Total APC	Incidence[a] Males APC	Incidence[a] Females APC	US Mortality[b] Total APC	US Mortality[b] Males APC	US Mortality[b] Females APC
Female Genital System:	-1.6*	-	-1.4*			
Cervix uteri	-3.4*	-	-3.3*			
Corpus uteri	-1.1*	-	-0.8*			
Uterus, NOS	1.2	-	1.5			
Ovary[c]	-1.8*	-	-1.6*			
Vagina	-0.7	-	-0.5			
Vulva	-1.7*	-	-1.5*			
Other female genital system	1.2	-	1.4			
Male Genital System:	-1.1	-1.5*	-			
Prostate	-1.2	-1.6*	-			
Testis	0.9*	0.7	-			
Penis	-1.5	-1.7	-			
Other male genital system	-2.9	-3.2	-			
Urinary System:	0.6*	0.3	1.0*			
Urinary bladder	-0.4	-0.4	-0.6*			
Kidney & renal pelvis	2.3*	1.8*	2.8*			
Ureter	1.0	0.4	1.7			
Other urinary system	-2.1	-2.3	-1.5			
Eye & Orbit	-0.4	-0.8	0.1			
Brain & Nervous System:[d]	-0.7*	-0.7*	-0.6			
Brain	-0.6	-0.7	-0.6			
Cranial nerves & other nervous system	-1.2	-1.4	-1.3			
Endocrine System:	5.5*	4.4*	5.9*			
Thyroid	5.9*	5.1*	6.2*			
Other endocrine & thymus	0.9	0.7	1.1			
Lymphoma:	0.2	0.0	0.4			
Hodgkin lymphoma	0.4	0.3	0.5			
Non-Hodgkin lymphoma	0.1	-0.1	0.4			
Myeloma	-0.7	-0.8	-0.8			
Leukemia:	-0.9*	-1.4*	-0.5			
Lymphocytic:	0.3	0.0	0.4			
Acute lymphocytic	0.9	1.5	0.1			
Chronic lymphocytic	0.5	0.0	1.0			
Other lymphocytic	-4.0*	-3.7*	-5.4*			
Myeloid & Monocytic:	-1.6*	-2.4*	-0.9			
Acute myeloid	-1.6*	-2.3*	-1.0			
Chronic myeloid	-1.9*	-2.4*	-1.7*			
Acute monocytic	1.2	-1.8	4.6*			
Other myeloid & monocytic	-3.3*	-4.5*	-2.1			
Other leukemia:	-4.8*	-6.4*	-3.9*			
Other acute leukemia	-9.8*	-10.3*	-9.5*			
Aleukemic, subleukemic & NOS	-0.6	-3.0	0.6			
Kaposi Sarcoma[e]	-5.2*	-5.1*	-6.5*			
Mesothelioma[e]	-1.3*	-1.9*	0.4			
Ill-defined & unspecified	-3.3*	-3.8*	-3.1*			

The APC is the Annual Percent Change over the time interval.

[a] SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[c] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

[d] Due to coding changes, Brain & Nervous System mortality are no longer shown separately.

[e] Trend not shown for mortality. Category did not exist in mortality coding until 1999.

* The APC is significantly different from zero (p<.05).

\- Statistic could not be calculated. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.8
SEER Incidence and U.S. Mortality Trends by Primary Cancer Site and Sex
Whites, 1997-2006

Site	Incidence[a] Total APC	Incidence[a] Males APC	Incidence[a] Females APC	US Mortality[b] Total APC	US Mortality[b] Males APC	US Mortality[b] Females APC
All Sites	-0.9*	-1.1*	-0.8*			
Oral Cavity & Pharynx:	-1.3*	-1.4*	-1.5*			
Lip	-6.6*	-7.1*	-4.8*			
Tongue	1.8*	1.7*	1.8*			
Salivary gland	-0.2	-0.3	-0.5			
Floor of mouth	-6.0*	-5.2*	-7.7*			
Gum & other oral cavity	-2.4*	-2.0*	-2.9*			
Nasopharynx	-1.8*	-2.0	-1.2			
Tonsil	3.0*	3.2*	0.8			
Oropharynx	-0.9	-0.1	-2.8			
Hypopharynx	-5.5*	-6.0*	-4.4			
Other oral cavity & pharynx	-7.5*	-8.9*	-5.3*			
Digestive System:	-1.3*	-1.5*	-1.2*			
Esophagus	0.1	0.1	-0.4			
Stomach	-1.5*	-2.1*	-1.0			
Small intestine	1.9*	2.1*	1.4*			
Colon & Rectum:	-2.6*	-3.1*	-2.3*			
Colon	-2.6*	-3.1*	-2.2*			
Rectum	-2.8*	-2.9*	-2.8*			
Anus, anal canal & anorectum	2.4*	2.3*	2.8*			
Liver & intrahep. bile duct:	2.3*	2.7*	0.7			
Liver	3.7*	4.0*	2.1*			
Intrahepatic bile duct	-5.9*	-7.1*	-4.6*			
Gallbladder	-0.6	-0.3	-0.7			
Other biliary	1.9*	1.6	2.2*			
Pancreas	0.6*	0.4	0.8*			
Retroperitoneum	-0.4	-1.5	0.8			
Peritoneum, omentum & mesentery	3.6*	-	3.7*			
Other digestive system	5.5*	6.2*	4.6*			
Respiratory System:	-1.5*	-2.3*	-0.7*			
Nose, nasal cavity & middle ear	-1.7	-2.6	-1.0			
Larynx	-3.0*	-2.9*	-3.7*			
Lung & bronchus	-1.5*	-2.3*	-0.7*			
Pleura	-	-	-			
Trachea & other respiratory organs	-0.9	0.1	-3.9			
Bones & joints	-0.2	-0.2	0.1			
Soft tissue (including heart)	1.4*	1.9*	0.6			
Skin (excl. basal & squamous):	2.0*	2.1*	1.9*			
Melanoma of the skin	2.1*	2.2*	2.1*			
Other non-epithelial skin	0.5	0.9	-0.1			
Breast	-2.1*	1.3	-1.9*			
Breast (*in situ*)	0.1	0.1	0.3			

The APC is the Annual Percent Change over the time interval.

[a] SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

* The APC is significantly different from zero (p<.05).

\- Statistic could not be calculated. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.8 - continued
SEER Incidence and U.S. Mortality Trends by Primary Cancer Site and Sex
Whites, 1997-2006

Site	Incidence[a] Total APC	Incidence[a] Males APC	Incidence[a] Females APC	US Mortality[b] Total APC	US Mortality[b] Males APC	US Mortality[b] Females APC
Female Genital System:	-1.7*	-	-1.4*			
Cervix uteri	-3.0*	-	-2.8*			
Corpus uteri	-1.3*	-	-1.0*			
Uterus, NOS	0.7	-	1.0			
Ovary[c]	-1.9*	-	-1.7*			
Vagina	-0.1	-	0.0			
Vulva	-1.8*	-	-1.6*			
Other female genital system	1.4	-	1.7			
Male Genital System:	-1.0	-1.5*	-			
Prostate	-1.1	-1.6*	-			
Testis	1.1*	1.0*	-			
Penis	-1.2	-1.3	-			
Other male genital system	-2.5	-2.8	-			
Urinary System:	0.6*	0.3	1.1*			
Urinary bladder	-0.3	-0.4	-0.6			
Kidney & renal pelvis	2.4*	1.9*	2.9*			
Ureter	1.1	0.5	1.8			
Other urinary system	-1.8	-2.1	-0.7			
Eye & Orbit	-0.4	-0.7	0.1			
Brain & Nervous System:[d]	-0.6	-0.6	-0.7			
Brain	-0.5	-0.5	-0.6			
Cranial nerves & other nervous system	-1.5	-1.5	-1.8			
Endocrine System:	5.8*	4.8*	6.2*			
Thyroid	6.2*	5.6*	6.5*			
Other endocrine & thymus	0.4	0.2	0.8			
Lymphoma:	0.2	0.0	0.4			
Hodgkin lymphoma	0.0	0.0	0.0			
Non-Hodgkin lymphoma	0.2	0.0	0.5			
Myeloma	-0.8	-0.8	-0.9*			
Leukemia:	-1.0*	-1.4*	-0.6			
Lymphocytic:	0.2	0.1	0.2			
Acute lymphocytic	0.7	1.7	-0.5			
Chronic lymphocytic	0.5	0.1	0.9			
Other lymphocytic	-4.1*	-3.7*	-5.5*			
Myeloid & Monocytic:	-1.7*	-2.3*	-1.0			
Acute myeloid	-1.8*	-2.4*	-1.2			
Chronic myeloid	-1.5*	-1.9	-1.6*			
Acute monocytic	1.0	-2.3	4.4*			
Other myeloid & monocytic	-2.7	-4.6	-0.3			
Other leukemia:	-5.4*	-7.2*	-4.2*			
Other acute leukemia	-9.6*	-10.4*	-9.1*			
Aleukemic, subleukemic & NOS	-1.8	-4.5*	-0.1			
Kaposi Sarcoma[e]	-5.2*	-5.1*	-			
Mesothelioma[e]	-0.6	-1.5	1.2			
Ill-defined & unspecified	-3.0*	-3.5*	-2.7*			

The APC is the Annual Percent Change over the time interval.

[a] SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[c] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

[d] Due to coding changes, Brain & Nervous System mortality are no longer shown separately.

[e] Trend not shown for mortality. Category did not exist in mortality coding until 1999.

* The APC is significantly different from zero (p<.05).

\- Statistic could not be calculated. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.9
SEER Incidence and U.S. Mortality Trends by Primary Cancer Site and Sex
Blacks, 1997-2006

Site	Incidence[a] Total APC	Incidence[a] Males APC	Incidence[a] Females APC	US Mortality[b] Total APC	US Mortality[b] Males APC	US Mortality[b] Females APC
All Sites	-1.4*	-2.4*	-0.4*			
Oral Cavity & Pharynx:	-2.7*	-3.6*	-1.1			
Lip	-	-	-			
Tongue	-2.2	-3.0*	-0.7			
Salivary gland	1.3	-1.0	3.1			
Floor of mouth	-9.1*	-10.0*	-			
Gum & other oral cavity	-2.3	-4.9*	1.8			
Nasopharynx	-0.6	-	-			
Tonsil	-3.4	-3.5	-			
Oropharynx	0.9	1.9	-			
Hypopharynx	-2.5	-3.2	-			
Other oral cavity & pharynx	-	-	-			
Digestive System:	-1.1*	-1.4*	-0.9*			
Esophagus	-4.3*	-4.1*	-4.7*			
Stomach	-3.3*	-3.2*	-3.1*			
Small intestine	-0.6	-2.1	0.2			
Colon & Rectum:	-1.5*	-1.8*	-1.3*			
Colon	-1.6*	-1.9*	-1.3*			
Rectum	-1.4*	-1.6	-1.3			
Anus, anal canal & anorectum	3.0	1.5	4.1*			
Liver & intrahep. bile duct:	3.3*	3.4*	2.4			
Liver	3.9*	4.3*	2.3			
Intrahepatic bile duct	-3.8	-	-			
Gallbladder	1.6	-	0.6			
Other biliary	4.2*	3.9	4.0*			
Pancreas	-0.2	-0.8	0.2			
Retroperitoneum	-	-	-			
Peritoneum, omentum & mesentery	-	-	-			
Other digestive system	6.1	-	-			
Respiratory System:	-1.9*	-3.3*	0.0			
Nose, nasal cavity & middle ear	-3.7	-	-			
Larynx	-3.8*	-3.2*	-5.8*			
Lung & bronchus	-1.8*	-3.3*	0.3			
Pleura	-	-	-			
Trachea & other respiratory organs	-	-	-			
Bones & joints	0.5	-2.3	4.1			
Soft tissue (including heart)	-0.9	-2.8	0.6			
Skin (excl. basal & squamous):	-3.0	-7.3*	0.8			
Melanoma of the skin	-4.4*	-8.8*	-			
Other non-epithelial skin	-2.0	-5.4	1.5			
Breast	-0.7*	-	-0.6*			
Breast (*in situ*)	1.5*	-	1.4*			

The APC is the Annual Percent Change over the time interval.

[a] SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention. Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

* The APC is significantly different from zero (p<.05).

\- Statistic could not be calculated. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.9 - continued
SEER Incidence and U.S. Mortality Trends by Primary Cancer Site and Sex
Blacks, 1997-2006

Site	Incidence[a] Total APC	Incidence[a] Males APC	Incidence[a] Females APC	US Mortality[b] Total APC	US Mortality[b] Males APC	US Mortality[b] Females APC
Female Genital System:	-1.1	-	-1.0			
Cervix uteri	-5.3*	-	-5.2*			
Corpus uteri	0.9	-	1.0			
Uterus, NOS	-	-	-			
Ovary[c]	-1.2	-	-1.0			
Vagina	-1.1	-	-0.7			
Vulva	-0.2	-	0.0			
Other female genital system	-1.6	-	-1.7			
Male Genital System:	-2.7*	-3.0*	-			
Prostate	-2.7*	-3.0*	-			
Testis	-1.8	-2.3	-			
Penis	-	-	-			
Other male genital system	-	-	-			
Urinary System:	0.6	0.2	0.9			
Urinary bladder	-0.1	-0.6	0.3			
Kidney & renal pelvis	1.5	1.4	1.6			
Ureter	-	-	-			
Other urinary system	-	-	-			
Eye & Orbit	-	-	-			
Brain & Nervous System:[d]	-0.4	-1.0	0.1			
Brain	-0.4	-1.3	0.5			
Cranial nerves & other nervous system	-	-	-			
Endocrine System:	6.1*	5.4*	6.4*			
Thyroid	6.4*	5.3*	6.8*			
Other endocrine & thymus	4.3*	-	-			
Lymphoma:	0.5	0.1	0.9			
Hodgkin lymphoma	2.0	1.9	2.3			
Non-Hodgkin lymphoma	0.3	-0.2	0.7			
Myeloma	-0.2	0.0	-0.4			
Leukemia:	-0.7	-1.1	-0.3			
Lymphocytic:	-0.1	-0.3	0.2			
Acute lymphocytic	1.0	-0.7	2.7			
Chronic lymphocytic	-0.5	-0.6	-0.1			
Other lymphocytic	-	-	-			
Myeloid & Monocytic:	-1.5	-2.6*	-0.6			
Acute myeloid	-0.7	-1.9	0.0			
Chronic myeloid	-2.8*	-4.4*	-0.7			
Acute monocytic	-	-	-			
Other myeloid & monocytic	-	-	-			
Other leukemia:	1.2	-	-			
Other acute leukemia	-	-	-			
Aleukemic, subleukemic & NOS	6.7	-	-			
Kaposi Sarcoma[e]	-5.7*	-5.5*	-			
Mesothelioma[e]	-5.9*	-	-			
Ill-defined & unspecified	-4.6*	-5.7*	-4.0*			

The APC is the Annual Percent Change over the time interval.

[a] SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[b] US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).

[c] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

[d] Due to coding changes, Brain & Nervous System mortality are no longer shown separately.

[e] Trend not shown for mortality. Category did not exist in mortality coding until 1999.

* The APC is significantly different from zero (p<.05).

\- Statistic could not be calculated. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.10

Age Distribution (%) of Incidence Cases by Site, 2002-2006

All Races, Both Sexes

	Age at Diagnosis									
Site	<20	20-34	35-44	45-54	55-64	65-74	75-84	85+	All Ages	Cases
All Sites	1.1	2.7	5.8	13.9	21.8	24.9	22.2	7.6	100.0%	1,692,617
Oral Cavity & Pharynx:	0.6	2.4	6.8	20.9	26.2	21.3	16.1	5.8	100.0%	38,632
Lip	0.0	1.8	6.7	13.7	18.7	22.6	25.4	11.0	100.0%	2,822
Tongue	0.1	2.0	6.7	22.1	28.9	21.7	14.0	4.4	100.0%	10,605
Salivary gland	1.9	7.0	8.1	15.1	18.3	18.7	20.9	9.9	100.0%	4,520
Floor of mouth	0.2	0.2	4.2	20.8	30.2	24.7	15.3	4.3	100.0%	2,355
Gum & other oral cavity	0.6	1.9	5.4	14.6	22.1	22.9	22.5	9.9	100.0%	5,459
Nasopharynx	3.2	6.8	14.4	24.9	22.7	16.3	8.6	3.0	100.0%	2,492
Tonsil	0.1	0.8	7.8	33.0	32.5	17.0	7.6	1.3	100.0%	5,832
Oropharynx	0.0	0.3	4.6	21.4	30.8	23.5	14.6	4.8	100.0%	1,251
Hypopharynx	0.0	0.1	2.2	16.7	27.9	29.8	19.0	4.2	100.0%	2,516
Other oral cavity & pharynx	0.6	1.0	3.1	17.4	29.0	23.8	18.6	6.4	100.0%	780
Digestive System:	0.2	1.0	3.8	12.5	19.5	24.9	26.9	11.3	100.0%	319,364
Esophagus	0.0	0.4	2.4	12.2	24.0	28.1	24.8	8.1	100.0%	16,427
Stomach	0.1	1.5	4.8	11.6	17.7	24.6	27.7	12.0	100.0%	28,709
Small intestine	0.2	1.8	6.0	14.9	21.9	24.8	22.2	8.1	100.0%	6,926
Colon & Rectum:	0.1	1.1	3.8	12.0	18.7	24.7	27.7	12.1	100.0%	178,384
Colon	0.1	0.9	3.2	10.2	17.2	24.9	29.9	13.6	100.0%	128,387
Rectum	0.0	1.4	5.3	16.5	22.4	24.0	22.0	8.3	100.0%	49,997
Colon & Rectum (Male)	0.0	1.1	3.9	12.9	21.1	26.8	25.6	8.5	100.0%	90,408
Colon & Rectum (Female)	0.1	1.1	3.6	11.0	16.2	22.5	29.8	15.8	100.0%	87,976
Anus, anal canal & anorectum	0.0	1.2	10.5	23.6	23.0	19.0	16.2	6.4	100.0%	5,812
Liver & intrahep. bile duct:	1.1	1.0	3.7	20.3	24.6	23.5	19.8	5.9	100.0%	24,526
Liver	1.2	1.0	3.7	21.1	25.2	23.3	19.1	5.4	100.0%	22,435
Intrahepatic bile duct	0.0	1.2	3.8	12.2	17.8	25.7	27.2	12.0	100.0%	2,091
Gallbladder	0.0	0.5	2.6	9.1	17.3	25.7	30.7	14.0	100.0%	4,271
Other biliary	0.0	0.6	3.0	8.8	17.1	25.5	30.2	14.8	100.0%	6,394
Pancreas	0.0	0.4	2.4	9.6	19.2	26.1	29.4	12.8	100.0%	42,126
Retroperitoneum	8.4	5.0	8.7	16.4	19.1	19.3	17.4	5.6	100.0%	1,515
Peritoneum, omentum & mesentery	0.5	1.0	4.0	11.2	24.5	29.3	24.6	4.9	100.0%	2,421
Other digestive system	0.1	1.3	3.2	10.7	17.5	23.4	29.5	14.3	100.0%	1,853
Respiratory System:	0.1	0.4	2.0	9.2	21.3	31.1	28.3	7.5	100.0%	242,400
Nose, nasal cavity & middle ear	2.6	5.1	8.6	15.9	19.8	21.5	19.5	7.0	100.0%	2,473
Larynx	0.0	0.5	3.4	15.5	28.7	29.0	18.1	4.7	100.0%	12,815
Lung & bronchus	0.0	0.2	1.8	8.8	21.0	31.4	29.1	7.7	100.0%	226,241
Lung & bronchus (Male)	0.0	0.2	1.6	8.8	21.8	32.1	28.7	6.8	100.0%	120,932
Lung & bronchus (Female)	0.0	0.3	2.0	8.8	20.0	30.7	29.5	8.7	100.0%	105,309
Pleura	4.0	4.0	4.8	4.8	26.2	19.8	29.4	7.1	100.0%	126
Trachea & other respiratory organs	17.3	20.4	10.2	12.6	11.9	11.5	10.1	5.9	100.0%	745
Bones & joints	29.4	16.1	10.7	12.8	10.3	8.8	8.2	3.8	100.0%	3,396
Soft tissue (including heart)	9.9	9.8	11.2	14.9	15.7	15.5	16.3	6.7	100.0%	11,687
Skin (excl. basal & squamous):	0.9	7.7	12.0	18.3	19.4	17.8	17.6	6.3	100.0%	79,398
Melanoma of the skin	0.9	7.8	12.4	18.9	19.8	17.7	16.8	5.7	100.0%	72,796
Other non-epithelial skin	1.5	6.8	7.9	11.6	14.4	18.5	26.2	13.1	100.0%	6,602
Breast (Female)	0.0	1.9	10.5	22.5	23.7	19.6	16.2	5.5	100.0%	247,782
Breast (Female -*in situ*)	0.0	0.8	11.2	28.5	25.9	19.2	12.2	2.3	100.0%	58,980

Source: SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).
Percents may not sum to 100 due to rounding.

Table 1.10 - continued

Age Distribution (%) of Incidence Cases by Site, 2002-2006

All Races, Both Sexes

Site	Age at Diagnosis <20	20-34	35-44	45-54	55-64	65-74	75-84	85+	All Ages	Cases
Female Genital System:	0.4	4.4	10.1	19.5	24.6	19.4	15.6	5.9	100.0%	96,539
Cervix uteri	0.2	14.9	26.2	23.5	15.8	10.4	6.6	2.5	100.0%	16,058
Corpus uteri	0.0	1.5	6.4	19.2	30.2	22.5	15.5	4.7	100.0%	45,601
Uterus, NOS	0.5	2.9	5.3	13.8	19.9	18.2	21.0	18.3	100.0%	1,157
Ovary[a]	1.3	3.5	7.4	18.9	22.3	19.9	19.0	7.6	100.0%	26,372
Vagina	1.0	0.8	5.5	15.5	20.9	21.3	22.1	12.8	100.0%	1,442
Vulva	0.2	2.3	8.3	16.1	16.8	17.1	24.7	14.4	100.0%	4,459
Other female genital system	0.9	8.2	8.7	16.8	22.5	19.8	17.4	5.8	100.0%	1,450
Male Genital System:	0.2	1.8	1.7	8.9	27.9	34.2	20.7	4.5	100.0%	267,411
Prostate	0.0	0.0	0.6	8.7	29.0	35.6	21.4	4.7	100.0%	255,343
Testis	5.5	46.6	28.9	13.5	3.5	1.1	0.6	0.2	100.0%	10,415
Penis	0.1	1.8	7.1	12.1	19.7	24.3	24.1	10.8	100.0%	1,253
Other male genital system	2.8	1.8	4.3	13.5	21.5	24.3	25.3	6.8	100.0%	400
Urinary System:	0.6	0.9	3.6	11.0	20.4	26.3	27.5	9.9	100.0%	128,472
Urinary bladder	0.1	0.5	2.0	7.5	17.8	27.5	32.1	12.5	100.0%	75,455
Kidney & renal pelvis	1.3	1.5	6.1	16.4	24.6	24.3	20.0	5.7	100.0%	49,970
Ureter	0.0	0.1	0.8	4.6	14.6	30.4	37.5	12.0	100.0%	2,049
Other urinary system	0.3	0.6	2.5	9.8	17.1	24.0	29.9	15.7	100.0%	998
Eye & Orbit	13.9	3.6	7.3	14.1	19.6	18.9	17.0	5.5	100.0%	3,019
Brain & Nervous System:	13.2	9.3	10.1	15.0	17.6	16.4	14.2	4.2	100.0%	23,973
Brain	12.5	9.2	10.0	14.9	17.8	16.7	14.5	4.2	100.0%	22,456
Cranial nerves & other nervous system	23.4	11.5	11.3	15.8	14.4	11.1	9.4	3.2	100.0%	1,517
Endocrine System:	3.2	16.2	21.3	23.1	16.9	11.3	6.4	1.5	100.0%	39,088
Thyroid	1.8	16.9	22.0	23.8	16.9	11.1	6.2	1.4	100.0%	36,479
Other endocrine & thymus	22.7	7.6	10.4	14.7	17.3	14.6	10.1	2.5	100.0%	2,609
Lymphoma:	3.0	7.5	8.4	13.7	17.8	20.4	21.4	7.8	100.0%	81,986
Hodgkin lymphoma	11.9	32.1	16.9	12.3	9.2	8.5	7.0	2.1	100.0%	10,522
Non-Hodgkin lymphoma	1.7	3.9	7.2	13.9	19.0	22.2	23.6	8.6	100.0%	71,464
Myeloma	0.0	0.5	3.3	11.9	20.7	26.5	27.6	9.5	100.0%	20,399
Leukemia:	11.1	4.7	5.5	10.1	15.0	19.8	23.3	10.5	100.0%	44,690
Lymphocytic:	16.8	3.1	3.7	9.1	15.6	20.1	22.0	9.6	100.0%	22,263
Acute lymphocytic	60.8	10.1	6.5	6.4	5.8	5.1	3.8	1.5	100.0%	6,116
Chronic lymphocytic	0.0	0.2	1.7	9.1	19.3	26.5	30.0	13.2	100.0%	14,653
Other lymphocytic	0.5	2.6	11.8	20.3	19.9	18.7	18.1	8.0	100.0%	1,494
Myeloid & Monocytic:	5.5	6.6	7.8	11.6	14.8	19.7	24.1	9.8	100.0%	19,868
Acute myeloid	6.4	6.4	6.8	11.1	14.9	20.1	24.6	9.8	100.0%	12,797
Chronic myeloid	2.4	7.1	10.2	12.7	14.6	19.3	23.7	9.9	100.0%	5,407
Acute monocytic	11.1	6.8	7.9	13.3	16.9	17.6	18.7	7.8	100.0%	1,065
Other myeloid & monocytic	4.0	5.7	8.5	9.7	12.7	19.2	27.0	13.2	100.0%	599
Other leukemia:	4.9	3.9	3.9	6.9	10.5	18.1	28.4	23.3	100.0%	2,559
Other acute leukemia	7.8	4.0	3.5	5.7	8.8	17.4	30.3	22.6	100.0%	1,031
Aleukemic, subleukemic & NOS	2.9	3.9	4.3	7.7	11.6	18.7	27.2	23.8	100.0%	1,528
Kaposi Sarcoma	0.1	17.9	35.6	18.2	7.2	6.2	9.2	5.6	100.0%	2,357
Mesothelioma	0.1	0.8	2.1	6.6	16.9	27.2	35.9	10.4	100.0%	3,829
Ill-defined & unspecified	0.5	1.0	2.8	9.8	16.8	22.5	29.8	16.8	100.0%	36,355

Source: SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).
Percents may not sum to 100 due to rounding.

[a] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

Table 1.11
Median Age of Cancer Patients at Diagnosis[a], 2002-2006
By Primary Cancer Site, Race and Sex

Site	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
All Sites	66.0	67.0	65.0	67.0	68.0	66.0	63.0	64.0	62.0
Oral Cavity & Pharynx:	62.0	60.0	65.0	63.0	61.0	67.0	58.0	58.0	57.0
Lip	69.0	67.0	74.0	70.0	68.0	75.0	61.5	63.0	-
Tongue	61.0	60.0	64.0	61.0	60.0	65.0	58.0	59.0	56.0
Salivary gland	64.0	67.0	60.0	66.0	68.0	63.0	55.0	56.0	52.0
Floor of mouth	63.0	61.0	67.0	64.0	62.0	69.0	57.0	57.0	61.0
Gum & other oral cavity	67.0	64.0	72.0	68.0	65.0	72.0	59.0	59.0	61.0
Nasopharynx	55.0	54.0	55.0	58.0	57.0	62.0	49.0	49.0	48.0
Tonsil	56.0	56.0	60.0	56.0	56.0	60.0	56.0	56.0	55.0
Oropharynx	62.0	61.0	67.0	63.0	61.0	67.0	60.0	59.0	62.0
Hypopharynx	66.0	65.0	66.0	66.0	66.0	67.0	62.0	62.0	61.0
Other oral cavity & pharynx	64.0	63.0	68.0	65.0	63.0	70.0	59.0	60.0	55.0
Digestive System:	70.0	68.0	73.0	71.0	69.0	73.0	66.0	64.0	68.0
Esophagus	68.0	67.0	73.0	69.0	68.0	74.0	64.0	63.0	65.0
Stomach	71.0	69.0	73.0	71.0	70.0	74.0	68.0	67.0	71.0
Small intestine	67.0	65.0	68.0	67.0	66.0	69.0	63.0	63.0	63.0
Colon & Rectum:	71.0	69.0	73.0	72.0	70.0	74.0	66.0	65.0	67.0
Colon	72.0	70.0	74.0	73.0	71.0	75.0	67.0	66.0	68.0
Rectum	66.0	65.0	68.0	67.0	66.0	69.0	63.0	61.0	63.0
Anus, anal canal & anorectum	61.0	58.0	62.0	61.0	60.0	62.0	54.0	49.0	59.0
Liver & intrahep. bile duct:	64.0	61.0	70.0	65.0	62.0	71.0	58.0	57.0	64.0
Liver	64.0	61.0	70.0	64.0	62.0	71.0	58.0	57.0	63.0
Intrahepatic bile duct	70.0	68.0	73.0	71.0	69.0	74.0	65.5	59.0	70.0
Gallbladder	73.0	72.0	73.0	73.0	73.0	74.0	69.0	69.0	69.0
Other biliary	73.0	71.0	74.0	73.0	72.0	75.0	67.0	65.0	68.0
Pancreas	72.0	69.0	74.0	72.0	70.0	75.0	68.0	66.0	71.0
Retroperitoneum	60.0	61.0	60.0	61.0	61.0	61.0	56.0	58.0	54.0
Peritoneum, omentum & mesentery	68.0	62.0	68.0	68.0	63.0	68.0	64.0	57.0	66.0
Other digestive system	72.0	71.0	74.0	73.0	71.0	75.0	67.0	64.0	69.0
Respiratory System:	70.0	70.0	71.0	71.0	70.0	71.0	66.0	65.0	67.0
Nose, nasal cavity & middle ear	63.0	62.0	65.0	65.0	63.0	66.0	56.0	56.0	59.0
Larynx	65.0	65.0	65.0	66.0	66.0	65.0	62.0	62.0	61.0
Lung & bronchus	71.0	70.0	71.0	71.0	71.0	71.0	66.0	66.0	67.0
Pleura	68.0	72.5	62.5	69.0	73.0	62.0	-	-	-
Trachea & other respiratory organs	47.0	39.0	59.0	48.0	39.0	63.0	45.0	43.0	49.0
Bones & joints	39.0	38.0	41.0	40.0	40.0	42.0	31.0	28.0	33.0
Soft tissue (including heart)	57.0	57.0	57.0	59.0	59.0	58.0	48.0	46.0	50.0
Skin (excl. basal & squamous):	60.0	63.0	55.0	60.0	63.0	56.0	53.5	55.0	51.0
Melanoma of the skin	59.0	62.0	55.0	60.0	63.0	55.0	63.0	64.0	62.0
Other non-epithelial skin	69.0	71.0	67.0	71.0	72.0	69.0	47.0	47.0	47.0
Breast	61.0	68.0	61.0	62.0	68.0	62.0	57.0	63.0	57.0
Breast (*in situ*)	58.0	59.0	58.0	58.0	60.0	58.0	58.0	63.0	58.0

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

\- Statistic could not be calculated. Less than 16 cases were diagnosed during the time interval.

Table 1.11 - continued
Median Age of Cancer Patients at Diagnosis[a], 2002-2006
By Primary Cancer Site, Race and Sex

Site	All Races			Whites			Blacks		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Female Genital System:	61.0	-	61.0	61.0	-	61.0	60.0	-	60.0
Cervix uteri	48.0	-	48.0	47.0	-	47.0	49.0	-	49.0
Corpus uteri	62.0	-	62.0	62.0	-	62.0	63.0	-	63.0
Uterus, NOS	69.0	-	69.0	70.0	-	70.0	65.0	-	65.0
Ovary[b]	63.0	-	63.0	64.0	-	64.0	61.0	-	61.0
Vagina	68.0	-	68.0	69.0	-	69.0	62.0	-	62.0
Vulva	68.0	-	68.0	70.0	-	70.0	54.0	-	54.0
Other female genital system	61.0	-	61.0	63.0	-	63.0	51.0	-	51.0
Male Genital System:	67.0	67.0	-	67.0	67.0	-	65.0	65.0	-
Prostate	68.0	68.0	-	68.0	68.0	-	65.0	65.0	-
Testis	34.0	34.0	-	34.0	34.0	-	35.0	35.0	-
Penis	68.0	68.0	-	69.0	69.0	-	65.0	65.0	-
Other male genital system	68.0	68.0	-	67.5	67.5	-	57.0	57.0	-
Urinary System:	70.0	70.0	70.0	70.0	70.0	71.0	65.0	64.0	67.0
Urinary bladder	73.0	72.0	74.0	73.0	73.0	74.0	70.0	68.0	72.0
Kidney & renal pelvis	64.0	64.0	66.0	65.0	64.0	67.0	61.0	60.0	62.0
Ureter	74.0	74.0	76.0	75.0	74.0	76.0	70.0	69.0	73.0
Other urinary system	73.0	73.0	73.0	74.0	74.0	74.0	66.5	69.0	64.0
Eye & Orbit	60.0	60.0	60.0	61.0	61.0	61.0	4.0	6.0	2.5
Brain & Nervous System:	56.0	55.0	57.0	57.0	56.0	58.0	50.0	50.0	50.0
Brain	56.0	56.0	58.0	57.0	56.0	59.0	50.0	50.0	50.0
Cranial nerves & other nervous system	47.0	44.0	49.0	46.0	44.0	49.0	49.5	49.5	49.5
Endocrine System:	48.0	53.0	47.0	48.0	53.0	47.0	49.0	52.0	49.0
Thyroid	48.0	53.0	47.0	48.0	53.0	47.0	50.0	53.0	49.0
Other endocrine & thymus	51.0	50.0	52.0	52.0	51.0	53.0	48.0	43.5	49.0
Lymphoma:	64.0	62.0	67.0	65.0	63.0	68.0	53.0	52.0	55.0
Hodgkin lymphoma	38.0	40.0	36.0	39.0	40.0	37.0	37.0	39.0	34.5
Non-Hodgkin lymphoma	67.0	65.0	69.0	68.0	66.0	70.0	56.0	54.0	58.0
Myeloma	70.0	69.0	71.0	71.0	70.0	72.0	66.0	65.5	67.0
Leukemia:	66.0	66.0	68.0	68.0	67.0	69.0	60.0	59.0	62.0
Lymphocytic:	65.0	64.0	68.0	66.0	65.0	68.0	62.0	61.0	65.0
Acute lymphocytic	13.0	13.0	12.0	13.0	14.0	12.0	14.0	12.0	15.0
Chronic lymphocytic	72.0	71.0	74.0	73.0	71.0	75.0	69.0	67.0	71.0
Other lymphocytic	61.0	59.0	66.0	62.0	60.0	67.5	61.0	62.0	57.5
Myeloid & Monocytic:	67.0	66.0	67.0	68.0	68.0	68.0	58.0	57.0	58.0
Acute myeloid	67.0	67.0	67.0	68.0	68.0	68.0	59.0	58.0	59.0
Chronic myeloid	66.0	65.0	68.0	68.0	67.0	70.0	57.0	57.0	57.0
Acute monocytic	61.0	63.0	60.0	63.0	63.0	61.0	49.0	46.0	49.5
Other myeloid & monocytic	69.5	69.0	71.5	71.0	69.0	73.0	62.0	61.0	63.0
Other leukemia:	75.0	74.0	77.0	77.0	75.0	79.0	65.0	60.0	71.0
Other acute leukemia	76.0	74.0	77.0	77.0	75.0	78.0	70.0	61.5	74.5
Aleukemic, subleukemic & NOS	75.0	73.0	77.0	77.0	75.0	79.0	62.0	58.0	67.0
Kaposi Sarcoma	43.0	42.0	79.0	45.0	44.0	80.0	39.0	38.0	44.5
Mesothelioma	73.0	74.0	72.0	74.0	74.0	73.0	70.0	70.0	70.0
Ill-defined & unspecified	73.0	71.0	76.0	74.0	71.0	76.0	67.0	64.0	70.0

[a] SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).

[b] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

\- Statistic could not be calculated. Less than 16 cases were diagnosed during the time interval.

Table 1.21
U.S. Prevalence Counts, Invasive Cancers Only, January 1, 2006[a]
Using Different Tumor Inclusion Criteria[b]

Site	Sex	5-Year Limited Duration: 1st Invasive Tumor Ever[c]	5-Year Limited Duration: 1st Per Site in Previous 31 Years[d]	5-Year Limited Duration: 1st Per Site in Previous 5 Years[e]	31-year Limited Duration: 1st Invasive Tumor Ever[c]	31-year Limited Duration: 1st Per Site in Previous 31 Years[d]
All Sites	Both Sexes	4,077,488	4,154,826	4,519,388	10,831,324	11,027,782
	Male	2,080,191	2,108,988	2,284,134	5,056,502	5,116,252
	Female	1,997,297	2,045,838	2,235,254	5,774,822	5,911,530
Oral Cavity & Pharynx	Both Sexes	88,149	100,786	104,275	229,332	251,715
	Male	59,730	67,492	69,596	148,389	161,197
	Female	28,419	33,294	34,679	80,943	90,518
Esophagus	Both Sexes	18,231	21,903	21,915	27,407	32,201
	Male	13,976	16,810	16,810	20,647	24,147
	Female	4,255	5,093	5,105	6,760	8,054
Stomach	Both Sexes	31,763	38,156	38,279	62,024	71,142
	Male	19,112	22,988	23,004	35,526	40,842
	Female	12,651	15,168	15,275	26,498	30,300
Colon & Rectum	Both Sexes	410,878	473,926	481,943	1,063,937	1,184,011
	Male	207,419	239,595	243,087	522,508	578,045
	Female	203,459	234,331	238,856	541,429	605,966
Liver & Intrahepatic Bile Duct	Both Sexes	18,570	20,914	20,914	24,536	27,242
	Male	13,017	14,616	14,616	16,411	18,199
	Female	5,553	6,298	6,298	8,125	9,043
Pancreas	Both Sexes	23,089	27,435	27,446	30,784	35,776
	Male	11,266	13,503	13,514	14,813	17,277
	Female	11,823	13,932	13,932	15,971	18,499
Larynx	Both Sexes	30,174	35,697	35,972	88,041	97,768
	Male	24,109	28,434	28,686	70,364	77,761
	Female	6,065	7,263	7,286	17,677	20,007
Lung & Bronchus	Both Sexes	209,050	260,966	266,149	354,138	426,254
	Male	98,835	124,555	126,720	165,363	199,378
	Female	110,215	136,411	139,429	188,775	226,876
Melanoma of the Skin	Both Sexes	233,089	260,265	269,851	714,792	765,882
	Male	122,409	139,106	145,296	353,155	381,997
	Female	110,680	121,159	124,555	361,637	383,885
Breast	Female	801,058	861,011	905,789	2,442,116	2,589,991
Cervix	Female	39,451	41,186	41,269	192,354	197,813
Corpus & Uterus, NOS	Female	146,768	165,629	165,699	518,293	563,072
Ovary[f]	Female	54,346	63,586	63,631	154,428	173,886

[a] U.S. 2006 cancer prevalence counts are based on 2006 cancer prevalence proportions from the SEER 9 registries and 1/1/2006 U.S. population estimates based on the average of 2005 and 2006 population estimates from the U.S. Bureau of the Census.

[b] (b) Prevalence estimates are ambiguous for those with multiple cancers, unless the tumor inclusion criteria are understood. Depending on the application, different inclusion criteria may be appropriate. This table provides three different methods of tumor inclusion:

[c] (c) First invasive tumor ever

[d] (d) First invasive tumor for each cancer site diagnosed during the previous 31 years (1975-2005)

[e] (e) First invasive tumor for each cancer site diagnosed during the previous 5 years (2001-2005)

For definitions (d) and (e) all sites is treated as a separate cancer "site".

Consider a woman who had three invasive cancers: Melanoma in 1981; Breast cancer in 2001; Melanoma in 2002.
In method (c) the melanoma is the woman's first cancer, and is counted for the melanoma and all sites 31-year limited duration prevalence. For 5-year limited duration prevalence, the woman is not counted at all since her first cancer occurred more than 5 years prior to 1/1/2006.
In method (d) the 1981 melanoma is counted for the melanoma and all sites 31-year limited duration prevalence. The 2001 breast cancer is counted for the breast 5-year and 31-year limited duration prevalence.
In method (e) the 2001 breast cancer is counted for the breast cancer and all sites 5-year limited duration prevalence. The 2002 melanoma is counted for 5-year limited duration prevalence for melanoma.

[f] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

Table 1.21 - continued
U.S. Prevalence Counts, Invasive Cancers Only, January 1, 2006[a]
Using Different Tumor Inclusion Criteria[b]

Site	Sex	5-Year Limited Duration: 1st Invasive Tumor Ever[c]	5-Year Limited Duration: 1st Per Site in Previous 31 Years[d]	5-Year Limited Duration: 1st Per Site in Previous 5 Years[e]	31-year Limited Duration: 1st Invasive Tumor Ever[c]	31-year Limited Duration: 1st Per Site in Previous 31 Years[d]
Prostate	Male	930,125	1,003,839	1,003,911	2,174,982	2,320,295
Testis	Male	39,842	40,565	41,075	172,591	174,841
Urinary Bladder	Both Sexes	188,227	231,571	235,384	508,818	586,875
	Male	140,439	173,578	176,622	376,871	433,882
	Female	47,788	57,993	58,762	131,947	152,993
Kidney & Renal Pelvis	Both Sexes	111,278	134,837	135,889	254,925	295,615
	Male	66,844	81,868	82,613	150,001	175,152
	Female	44,434	52,969	53,276	104,924	120,463
Brain & Nervous System	Both Sexes	39,632	41,635	41,953	108,661	111,711
	Male	21,221	22,407	22,579	58,031	59,668
	Female	18,411	19,228	19,374	50,630	52,043
Thyroid	Both Sexes	120,479	130,868	131,194	367,333	387,569
	Male	26,876	30,552	30,586	81,388	87,358
	Female	93,603	100,316	100,608	285,945	300,211
Hodgkin Lymphoma	Both Sexes	35,015	36,820	36,831	145,147	148,461
	Male	18,420	19,309	19,320	74,925	76,593
	Female	16,595	17,511	17,511	70,222	71,868
Non-Hodgkin Lymphoma	Both Sexes	178,216	206,582	208,073	407,962	452,723
	Male	92,687	108,381	109,127	211,075	233,951
	Female	85,529	98,201	98,946	196,887	218,772
Myeloma	Both Sexes	39,615	45,364	45,401	58,905	66,529
	Male	21,534	24,854	24,878	32,370	36,858
	Female	18,081	20,510	20,523	26,535	29,671
Leukemia	Both Sexes	96,231	108,820	108,981	225,790	245,225
	Male	55,777	63,265	63,346	127,972	139,195
	Female	40,454	45,555	45,635	97,818	106,030
Acute Lymphocytic Leukemia	Both Sexes	15,118	15,404	15,404	55,306	55,720
	Male	8,660	8,708	8,708	30,447	30,533
	Female	6,458	6,696	6,696	24,859	25,187
Childhood (Ages 0-19)	Both Sexes	60,231	60,330	60,634	259,480	259,966
	Male	32,416	32,472	32,581	133,367	133,580
	Female	27,815	27,858	28,053	126,113	126,386
Kaposi Sarcoma	Both Sexes	6,695	7,138	7,138	21,168	22,209
	Male	6,215	6,544	6,544	19,850	20,703
	Female	480	594	594	1,318	1,506
Mesothelioma	Both Sexes	2,774	3,453	3,453	4,194	5,000
	Male	2,022	2,510	2,510	2,603	3,185
	Female	752	943	943	1,591	1,815

[a] U.S. 2006 cancer prevalence counts are based on 2006 cancer prevalence proportions from the SEER 9 registries and 1/1/2006 U.S. population estimates based on the average of 2005 and 2006 population estimates from the U.S. Bureau of the Census.

[b] (b) Prevalence estimates are ambiguous for those with multiple cancers, unless the tumor inclusion criteria are understood. Depending on the application, different inclusion criteria may be appropriate. This table provides three different methods of tumor inclusion:

[c] (c) First invasive tumor ever

[d] (d) First invasive tumor for each cancer site diagnosed during the previous 31 years (1975-2005)

[e] (e) First invasive tumor for each cancer site diagnosed during the previous 5 years (2001-2005)

For definitions (d) and (e) all sites is treated as a separate cancer "site".

Consider a woman who had three invasive cancers: Melanoma in 1981; Breast cancer in 2001; Melanoma in 2002.
In method (c) the melanoma is the woman's first cancer, and is counted for the melanoma and all sites 31-year limited duration prevalence. For 5-year limited duration prevalence, the woman is not counted at all since her first cancer occurred more than 5 years prior to 1/1/2006.
In method (d) the 1981 melanoma is counted for the melanoma and all sites 31-year limited duration prevalence. The 2001 breast cancer is counted for the breast 5-year and 31-year limited duration prevalence.
In method (e) the 2001 breast cancer is counted for the breast cancer and all sites 5-year limited duration prevalence. The 2002 melanoma is counted for 5-year limited duration prevalence for melanoma.

Table 1.22
U.S. Complete Prevalence Counts, Invasive Cancers Only, January 1, 2006[a]
By Age at Prevalence

Site/Sex	Age at Prevalence								
	All Ages[c]	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+
All Sites									
Males	5,168,889	17,479	39,370	75,164	144,948	331,732	720,142	1,194,219	2,645,836
Females	6,216,003	14,832	33,518	81,003	213,538	597,268	1,130,077	1,333,585	2,812,181
Oral Cavity & Pharynx									
Males	157,250	23	492	1,318	3,276	14,407	37,003	40,095	60,638
Females	87,223	101	501	1,668	3,489	8,222	15,686	18,110	39,446
Esophagus									
Males	20,742	0	0	17	130	1,166	4,085	6,436	8,907
Females	6,861	0	0	12	50	303	909	1,550	4,037
Stomach									
Males	36,725	0	5	86	649	2,426	5,764	8,519	19,274
Females	27,397	11	23	91	491	1,896	3,966	4,776	16,143
Colon & Rectum									
Males	536,944	11	46	961	5,116	22,614	69,355	116,858	321,983
Females	567,158	0	115	1,190	4,881	20,121	58,565	96,908	385,378
Liver & Intrahep									
Males	16,484	415	403	334	382	1,391	5,714	3,821	4,025
Females	8,445	424	329	318	328	843	1,678	1,630	2,896
Pancreas									
Males	14,979	0	35	69	255	1,190	3,251	4,246	5,933
Females	16,201	0	44	114	434	1,327	2,738	4,093	7,452
Larynx									
Males	73,244	0	0	11	232	2,513	10,523	19,979	39,986
Females	18,326	0	0	46	132	1,174	3,010	4,737	9,227
Lung & Bronchus									
Males	171,522	45	46	345	1,118	6,174	24,269	49,093	90,433
Females	193,474	0	32	372	1,441	8,500	25,665	51,689	105,775
Melanoma of the Skin									
Males	367,925	72	692	5,217	16,598	46,626	83,425	86,050	129,247
Females	390,763	84	980	10,591	32,264	68,250	93,268	73,818	111,509

[a] U.S. 2006 cancer prevalence counts are based on 2006 cancer prevalence proportions from the SEER 9 registries (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta) and 1/1/2006 U.S. population estimates based on the average of 2005 and 2006 population estimates from the U.S. Bureau of the Census. Prevalence was calculated using the First Malignant Primary Only for a person.

[b] Cases diagnosed more than 30 years ago were estimated using the completeness index method (Capocaccia et. al. 1997, Merrill et. al. 2000).

[c] Due to rounding, the sum of the age specific estimates may not equal the all ages estimate.

Table 1.22 - continued
U.S. Complete Prevalence Counts, Invasive Cancers Only, January 1, 2006[a]
By Age at Prevalence

Site/Sex	Age at Prevalence								
	All Ages[c]	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+
Breast									
Males	13,132	0	0	23	75	542	2,078	3,322	7,093
Females	2,533,193	0	104	2,335	35,060	206,965	500,267	614,770	1,173,691
Cervix									
Females	248,166	11	92	2,502	18,006	43,602	57,740	48,934	77,278
Corpus & Uterus, NOS									
Females	572,603	0	55	543	4,924	23,372	76,468	124,512	342,730
Ovary[d]									
Females	176,007	45	891	3,473	7,019	20,547	37,874	39,554	66,605
Prostate									
Males	2,177,975	45	92	69	349	16,618	187,672	552,329	1,420,801
Urinary Bladder									
Males	388,965	23	143	717	2,390	12,796	41,822	85,952	245,121
Females	138,531	33	68	414	1,120	4,555	13,137	26,664	92,539
Kidney & Renal Pelvis									
Males	156,166	1,489	2,424	2,363	4,140	13,996	31,742	40,436	59,577
Females	109,902	1,565	2,655	2,595	3,885	10,133	17,631	24,085	47,353
Hodgkin Lymphoma									
Males	82,450	129	2,058	8,923	16,247	22,575	18,055	9,050	5,412
Females	77,557	101	1,477	10,135	16,381	21,291	15,813	6,811	5,549
Non-Hodgkin Lymphoma									
Males	217,143	663	3,555	6,616	12,138	26,624	42,988	48,865	75,694
Females	202,390	360	1,529	3,938	7,562	18,662	35,213	43,070	92,057
Myeloma									
Males	32,483	0	0	51	549	2,188	6,759	9,771	13,165
Females	26,720	0	0	23	222	1,661	4,882	7,103	12,830
Leukemia									
Males	130,746	6,418	11,449	10,565	9,207	10,991	17,345	23,135	41,637
Females	101,110	5,023	9,672	9,353	7,857	7,821	11,507	14,611	35,265
Acute Lymphocytic Leuk									
Males	32,255	5,310	9,965	8,164	5,276	1,976	781	520	263
Females	26,601	4,202	8,131	6,920	4,273	1,699	654	442	281

[a] U.S. 2006 cancer prevalence counts are based on 2006 cancer prevalence proportions from the SEER 9 registries (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta) and 1/1/2006 U.S. population estimates based on the average of 2005 and 2006 population estimates from the U.S. Bureau of the Census. Prevalence was calculated using the First Malignant Primary Only for a person.

[b] Cases diagnosed more than 30 years ago were estimated using the completeness index method (Capocaccia et. al. 1997, Merrill et. al. 2000).

[c] Due to rounding, the sum of the age specific estimates may not equal the all ages estimate.

Table 1.23
Age-Adjusted SEER Incidence Rates and Trends for the Top 15 Cancer Sites[a] by Race/Ethnicity

Both Sexes

All Races

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	462.9	-1.0*
Prostate[f]	70.6	-1.2
Breast	67.1	-1.9*
Lung and Bronchus	63.1	-1.5*
Colon and Rectum	49.1	-2.4*
Urinary Bladder	21.0	-0.4
Melanoma of the Skin	19.6	1.6*
Non-Hodgkin Lymphoma	19.5	0.1
Kidney and Renal Pelvis	13.6	2.3*
Corpus and Uterus, NOS[f]	12.5	-1.0*
Leukemia	12.2	-0.9*
Pancreas	11.7	0.5
Oral Cavity and Pharynx	10.4	-1.5*
Thyroid	9.6	5.9*
Stomach	7.9	-1.7*
Ovary[fh]	7.1	-1.8*

White

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	470.6	-0.9*
Breast	68.7	-2.1*
Prostate[f]	68.5	-1.1
Lung and Bronchus	64.4	-1.5*
Colon and Rectum	48.6	-2.6*
Melanoma of the Skin	22.9	2.1*
Urinary Bladder	22.8	-0.3
Non-Hodgkin Lymphoma	20.4	0.2
Kidney and Renal Pelvis	14.1	2.4*
Corpus and Uterus, NOS[f]	12.9	-1.3*
Leukemia	12.8	-1.0*
Pancreas	11.5	0.6*
Oral Cavity and Pharynx	10.5	-1.3*
Thyroid	10.1	6.2*
Ovary[fh]	7.4	-1.9*
Brain and ONS[g]	7.1	-0.6

Black

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	493.6	-1.4*
Prostate[f]	99.6	-2.7*
Lung and Bronchus	74.7	-1.8*
Breast	67.4	-0.7*
Colon and Rectum	59.9	-1.5*
Pancreas	15.6	-0.2
Kidney and Renal Pelvis	15.0	1.5
Non-Hodgkin Lymphoma	14.8	0.3
Urinary Bladder	12.8	-0.1
Stomach	12.1	-3.3*
Myeloma	11.7	-0.2
Corpus and Uterus, NOS[f]	11.7	1.2
Oral Cavity and Pharynx	10.5	-2.7*
Leukemia	9.8	-0.7
Liver & IBD[g]	8.2	3.3*
Ovary[fh]	5.8	-1.2

Asian/Pacific Islander

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	311.1	-0.9*
Breast	48.9	-0.9*
Colon and Rectum	40.0	-1.9*
Prostate[f]	39.4	-0.9
Lung and Bronchus	38.9	-0.9*
Liver & IBD[g]	14.2	0.1
Stomach	13.4	-3.2*
Non-Hodgkin Lymphoma	12.9	-0.9
Thyroid	9.4	3.6*
Urinary Bladder	9.3	0.1
Corpus and Uterus, NOS[f]	9.1	0.6
Pancreas	9.0	-0.1
Oral Cavity and Pharynx	7.8	-2.0*
Leukemia	7.3	-1.0
Kidney and Renal Pelvis	6.9	2.2*
Ovary[fh]	5.4	-0.5

American Indian/Alaska Native[d]

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	313.6	-0.3
Lung and Bronchus	44.9	0.6
Colon and Rectum	42.3	-1.7
Breast	40.2	1.4
Prostate[f]	33.6	-1.3
Kidney and Renal Pelvis	17.5	2.7
Stomach	11.2	-4.0
Non-Hodgkin Lymphoma	10.8	0.5
Liver & IBD[g]	9.9	4.6
Pancreas	9.7	-0.9
Corpus and Uterus, NOS[f]	8.8	1.6
Urinary Bladder	7.4	-
Oral Cavity and Pharynx	7.1	-4.3
Leukemia	7.0	2.1
Ovary[fh]	5.9	-2.3
Thyroid	5.8	0.3

Hispanic[e]

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	350.6	-1.0*
Prostate[f]	58.2	-1.5*
Breast	47.4	-0.9*
Colon and Rectum	38.4	-1.4*
Lung and Bronchus	32.5	-2.4*
Non-Hodgkin Lymphoma	16.7	-0.2
Kidney and Renal Pelvis	13.2	2.0*
Stomach	11.7	-2.3*
Urinary Bladder	11.4	0.0
Pancreas	10.6	-0.1
Liver & IBD[g]	10.2	1.9*
Leukemia	9.7	-0.4
Corpus and Uterus, NOS[f]	9.5	0.6
Thyroid	8.2	5.2*
Cervix Uteri[f]	6.5	-4.1*
Ovary[fh]	6.1	-1.1

[a] Top 15 cancer sites selected based on 2002-2006 age-adjusted rates for the race/ethnic group.
[b] Incidence data used in calculating the rates are from the 17 SEER areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).
Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
[c] The APC is the Annual Percent Change over the time interval. Incidence data used in calculating the trends are from the 13 SEER areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia).
Trends are based on rates age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
[d] Rates for American Indian/Alaska Native are based on the CHSDA(Contract Health Service Delivery Area) counties.
[e] Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives.
Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.
[f] The rates for sex-specific cancer sites are calculated using the population for both sexes combined.
[g] IBD = Intrahepatic Bile Duct. ONS = Other Nervous System.
[h] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.
* The APC is significantly different from zero (p<.05).
- Statistic not shown. Rate based on less than 16 cases for the time interval. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.24
Age-Adjusted SEER Incidence Rates and Trends for the Top 15 Cancer Sites[a] by Race/Ethnicity

Males

All Races

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	541.8	-1.2*
Prostate	159.3	-1.6*
Lung and Bronchus	77.7	-2.3*
Colon and Rectum	57.3	-2.9*
Urinary Bladder	37.1	-0.4
Melanoma of the Skin	25.0	1.7*
Non-Hodgkin Lymphoma	23.5	-0.1
Kidney and Renal Pelvis	18.6	1.8*
Leukemia	15.8	-1.4*
Oral Cavity and Pharynx	15.4	-1.7*
Pancreas	13.1	0.3
Stomach	11.0	-2.1*
Liver & IBD[f]	10.2	2.4*
Esophagus	7.7	-0.5
Brain and ONS[f]	7.6	-0.7*
Myeloma	7.1	-0.8

White

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	544.3	-1.1*
Prostate	153.0	-1.6*
Lung and Bronchus	77.6	-2.3*
Colon and Rectum	56.9	-3.1*
Urinary Bladder	40.3	-0.4
Melanoma of the Skin	28.9	2.2*
Non-Hodgkin Lymphoma	24.4	0.0
Kidney and Renal Pelvis	19.2	1.9*
Leukemia	16.5	-1.4*
Oral Cavity and Pharynx	15.6	-1.4*
Pancreas	13.1	0.4
Stomach	9.8	-2.1*
Liver & IBD[f]	8.6	2.7*
Brain and ONS[f]	8.4	-0.6
Esophagus	7.9	0.1
Myeloma	6.6	-0.8

Black

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	633.7	-2.4*
Prostate	239.8	-3.0*
Lung and Bronchus	104.3	-3.3*
Colon and Rectum	69.3	-1.8*
Kidney and Renal Pelvis	21.3	1.4
Urinary Bladder	20.0	-0.6
Non-Hodgkin Lymphoma	18.3	-0.2
Stomach	16.8	-3.2*
Oral Cavity and Pharynx	16.7	-3.6*
Pancreas	16.6	-0.8
Myeloma	14.3	0.0
Liver & IBD[f]	13.4	3.4*
Leukemia	12.7	-1.1
Larynx	10.5	-3.2*
Esophagus	9.3	-4.1*
Brain and ONS[f]	4.7	-1.0

Asian/Pacific Islander

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	349.1	-1.2*
Prostate	91.1	-0.8
Lung and Bronchus	53.4	-1.4*
Colon and Rectum	46.9	-2.5*
Liver & IBD[f]	21.4	-0.3
Stomach	18.0	-3.0*
Urinary Bladder	16.5	0.9
Non-Hodgkin Lymphoma	15.5	-0.9
Oral Cavity and Pharynx	10.8	-2.3*
Pancreas	10.1	-0.1
Kidney and Renal Pelvis	9.6	1.5
Leukemia	8.9	-1.8
Thyroid	4.2	1.7
Esophagus	4.0	-2.6*
Myeloma	3.9	-2.7
Brain and ONS[f]	3.9	-1.4

American Indian/Alaska Native[d]

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	331.0	-1.7
Prostate	76.1	-1.5
Lung and Bronchus	51.6	-2.1
Colon and Rectum	43.1	-2.7
Kidney and Renal Pelvis	21.7	-0.6
Stomach	15.5	-2.2
Liver & IBD[f]	13.6	-
Urinary Bladder	12.4	-
Non-Hodgkin Lymphoma	11.8	-
Pancreas	10.2	-
Oral Cavity and Pharynx	9.2	-
Leukemia	7.9	-
Esophagus	6.8	-
Testis	4.6	-
Myeloma	4.6	-
Melanoma of the Skin	3.9	-

Hispanic[e]

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	409.7	-1.5*
Prostate	133.4	-2.0*
Colon and Rectum	46.3	-2.0*
Lung and Bronchus	43.2	-2.7*
Urinary Bladder	19.8	-0.4
Non-Hodgkin Lymphoma	19.1	-0.4
Kidney and Renal Pelvis	17.6	2.0*
Liver & IBD[f]	15.2	2.3*
Stomach	14.9	-3.6*
Leukemia	11.8	-0.2
Pancreas	11.1	0.6
Oral Cavity and Pharynx	9.0	-2.8*
Myeloma	6.4	-0.1
Brain and ONS[f]	6.1	0.7
Esophagus	5.1	-3.2
Larynx	4.9	-3.0*

[a] Top 15 cancer sites selected based on 2002-2006 age-adjusted rates for the race/ethnic group.
[b] Incidence data used in calculating the rates are from the 17 SEER areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).
Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
[c] The APC is the Annual Percent Change over the time interval. Incidence data used in calculating the trends are from the 13 SEER areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia).
Trends are based on rates age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
[d] Rates for American Indian/Alaska Native are based on the CHSDA(Contract Health Service Delivery Area) counties.
[e] Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives. Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.
[f] IBD = Intrahepatic Bile Duct. ONS = Other Nervous System.
* The APC is significantly different from zero (p<.05).
- Statistic not shown. Rate based on less than 16 cases for the time interval. Trend based on less than 10 cases for at least one year within the time interval.

Table 1.25
Age-Adjusted SEER Incidence Rates and Trends for the Top 15 Cancer Sites[a] by Race/Ethnicity

Females

All Races

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	408.5	-0.8*
Breast	123.8	-1.8*
Lung and Bronchus	52.5	-0.6*
Colon and Rectum	42.8	-2.1*
Corpus and Uterus, NOS	23.3	-0.8*
Non-Hodgkin Lymphoma	16.4	0.4
Melanoma of the Skin	15.8	1.6*
Thyroid	14.2	6.2*
Ovary[g]	13.1	-1.6*
Pancreas	10.4	0.6*
Kidney and Renal Pelvis	9.5	2.8*
Leukemia	9.5	-0.5
Urinary Bladder	9.3	-0.6*
Cervix Uteri	8.2	-3.3*
Oral Cavity and Pharynx	6.1	-1.4*
Stomach	5.5	-1.3*

White

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	420.5	-0.8*
Breast	127.8	-1.9*
Lung and Bronchus	54.8	-0.7*
Colon and Rectum	42.1	-2.3*
Corpus and Uterus, NOS	24.2	-1.0*
Melanoma of the Skin	18.7	2.1*
Non-Hodgkin Lymphoma	17.2	0.5
Thyroid	15.0	6.5*
Ovary[g]	13.8	-1.7*
Pancreas	10.2	0.8*
Urinary Bladder	9.9	-0.6
Leukemia	9.9	-0.6
Kidney and Renal Pelvis	9.9	2.9*
Cervix Uteri	8.1	-2.8*
Oral Cavity and Pharynx	6.1	-1.5*
Brain and ONS[f]	5.9	-0.7

Black

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	398.9	-0.4*
Breast	117.7	-0.6*
Lung and Bronchus	54.7	0.3
Colon and Rectum	53.5	-1.3*
Corpus and Uterus, NOS	20.3	1.3
Pancreas	14.6	0.2
Non-Hodgkin Lymphoma	12.2	0.7
Cervix Uteri	10.4	-5.2*
Kidney and Renal Pelvis	10.3	1.6
Ovary[g]	10.1	-1.0
Myeloma	10.0	-0.4
Stomach	9.0	-3.1*
Thyroid	8.4	6.8*
Urinary Bladder	7.9	0.3
Leukemia	7.8	-0.3
Oral Cavity and Pharynx	5.8	-1.1

Asian/Pacific Islander

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	287.5	-0.5
Breast	89.5	-0.9*
Colon and Rectum	34.6	-1.2
Lung and Bronchus	28.1	0.3
Corpus and Uterus, NOS	16.8	0.6
Thyroid	14.2	4.1*
Non-Hodgkin Lymphoma	10.9	-0.6
Stomach	10.0	-3.3*
Ovary[g]	9.9	-0.6
Liver & IBD[f]	8.3	0.8
Pancreas	8.2	-0.2
Cervix Uteri	7.6	-4.6*
Leukemia	6.1	-0.1
Oral Cavity and Pharynx	5.4	-1.5
Kidney and Renal Pelvis	4.8	3.4*
Urinary Bladder	4.0	-1.4

American Indian/Alaska Native[d]

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	302.2	1.0
Breast	74.4	1.4
Colon and Rectum	41.2	-0.5
Lung and Bronchus	39.8	4.2
Corpus and Uterus, NOS	16.3	1.5
Kidney and Renal Pelvis	14.1	-
Ovary[g]	10.8	-2.2
Non-Hodgkin Lymphoma	10.0	-
Pancreas	9.3	-
Thyroid	8.5	-0.2
Stomach	7.9	-
Cervix Uteri	7.2	0.0
Liver & IBD[f]	6.6	-
Leukemia	6.1	-
Oral Cavity and Pharynx	5.1	-
Myeloma	5.1	-

Hispanic[e]

	Rate[b] 2002-2006	APC[c] 1997-2006
All Sites	312.5	-0.6*
Breast	88.3	-0.6
Colon and Rectum	32.2	-0.9*
Lung and Bronchus	24.7	-1.9*
Corpus and Uterus, NOS	17.8	1.0
Non-Hodgkin Lymphoma	14.6	0.2
Thyroid	12.9	5.6*
Cervix Uteri	12.7	-3.8*
Ovary[g]	11.3	-0.9
Pancreas	10.2	-0.8
Kidney and Renal Pelvis	9.6	1.9*
Stomach	9.3	-1.0
Leukemia	8.1	-0.8
Liver & IBD[f]	5.9	0.5
Urinary Bladder	5.3	0.4
Melanoma of the Skin	4.7	-1.7

[a] Top 15 cancer sites selected based on 2002-2006 age-adjusted rates for the race/ethnic group.
[b] Incidence data used in calculating the rates are from the 17 SEER areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana and New Jersey).
Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
[c] The APC is the Annual Percent Change over the time interval. Incidence data used in calculating the trends are from the 13 SEER areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia).
Trends are based on rates age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130).
[d] Rates for American Indian/Alaska Native are based on the CHSDA(Contract Health Service Delivery Area) counties.
[e] Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives.
Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.
[f] IBD = Intrahepatic Bile Duct. ONS = Other Nervous System.
[g] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.
* The APC is significantly different from zero (p<.05).
- Statistic not shown. Rate based on less than 16 cases for the time interval. Trend based on less than 10 cases for at least one year within the time interval.

Surveillance, Epidemiology, and End Results (SEER) Program: SEER 9, 13, & 17 Geographic Areas National Cancer Institute, USA

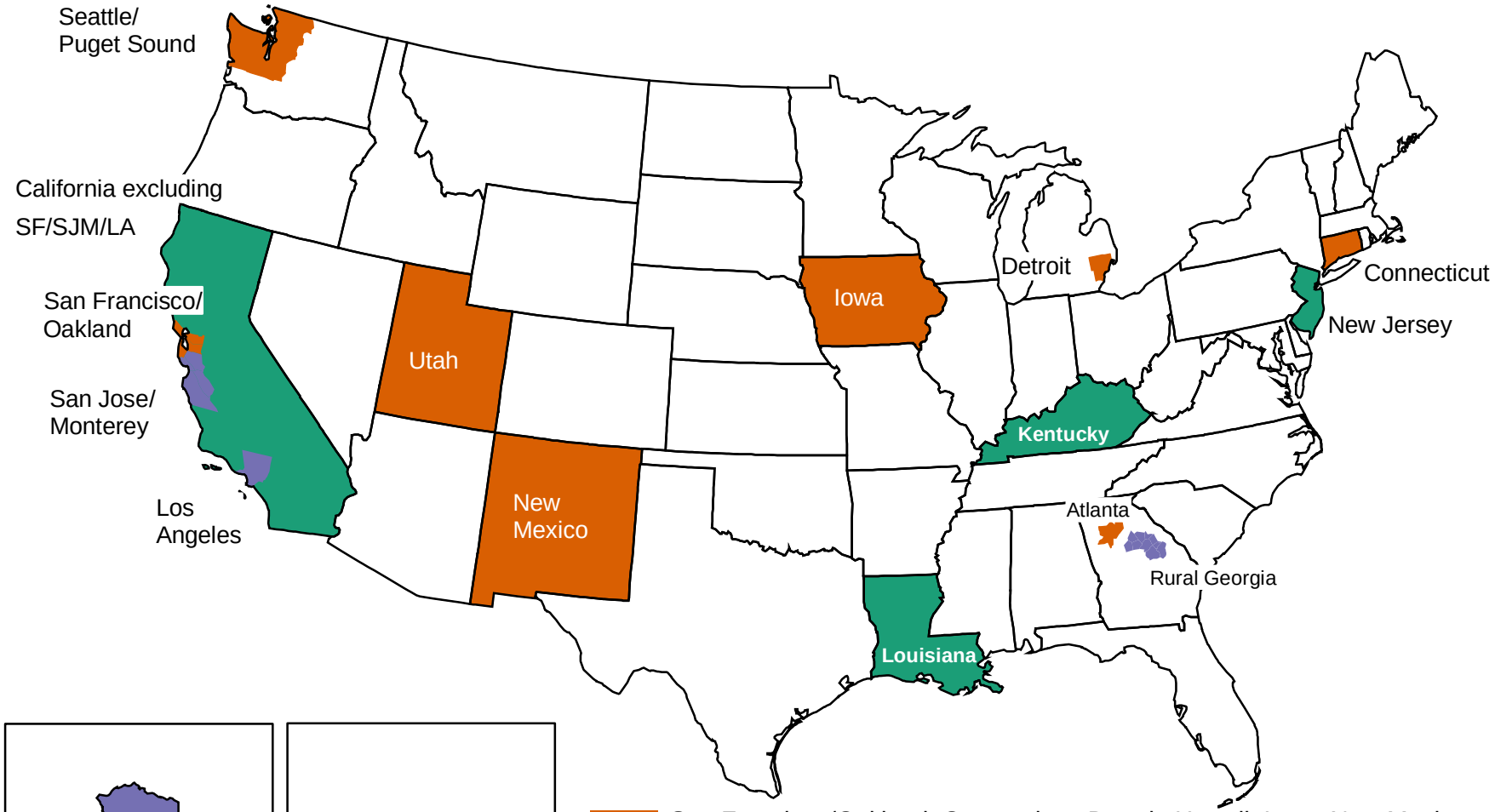
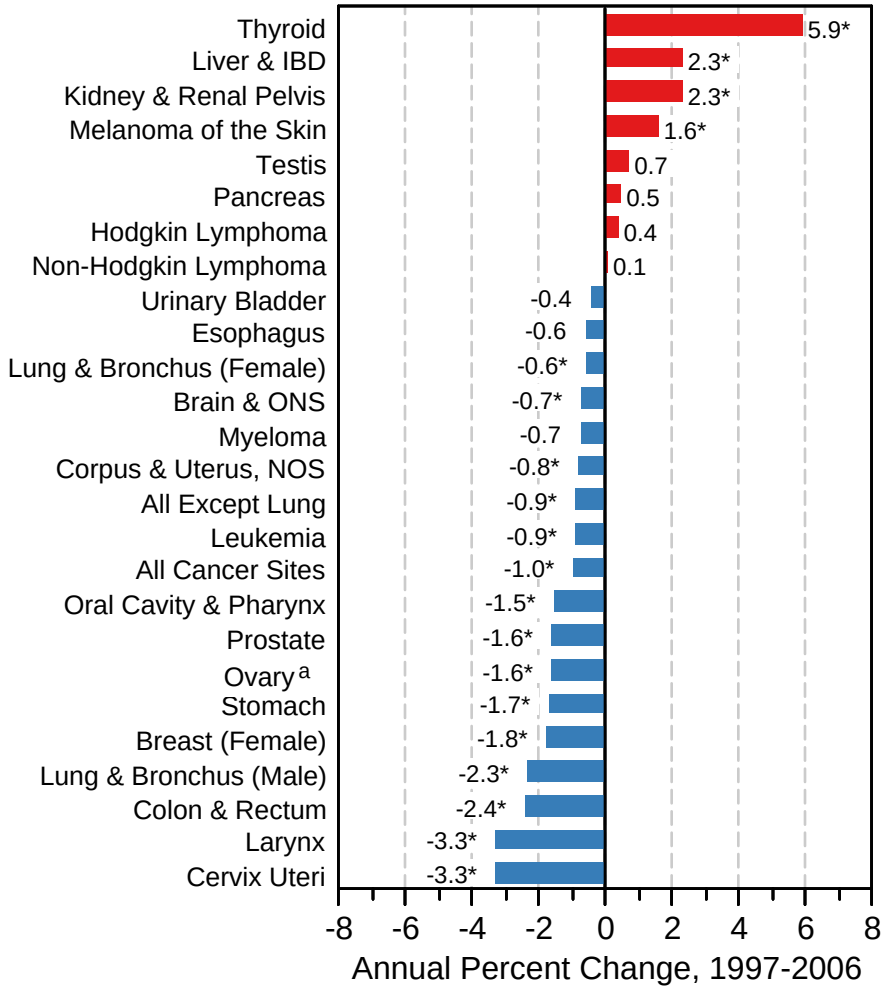


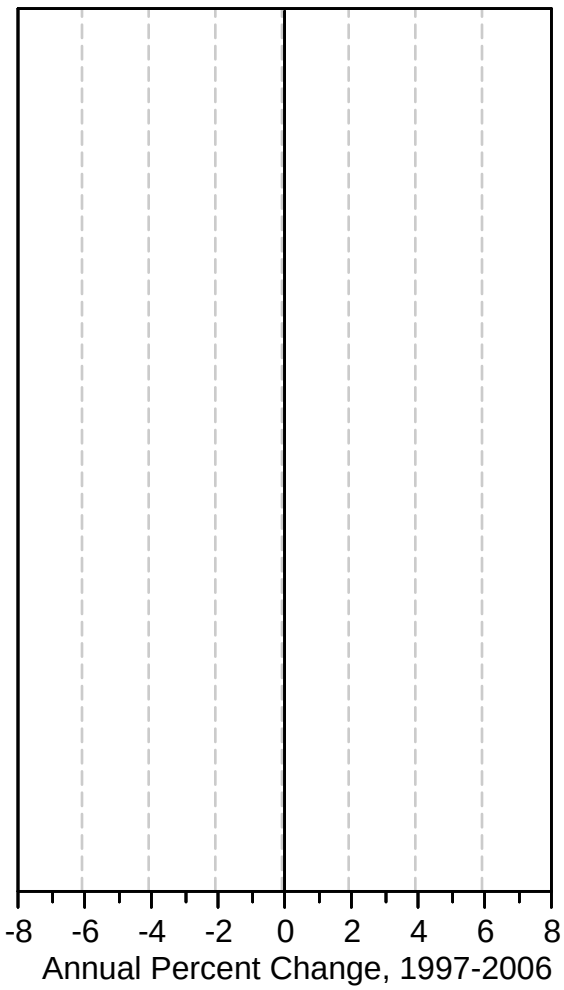
Figure 1.1

Trends in SEER Incidence & US Death Rates by Primary Cancer Site 1997-2006

Trends in SEER Incidence Rates



Trends in US Cancer Death Rates

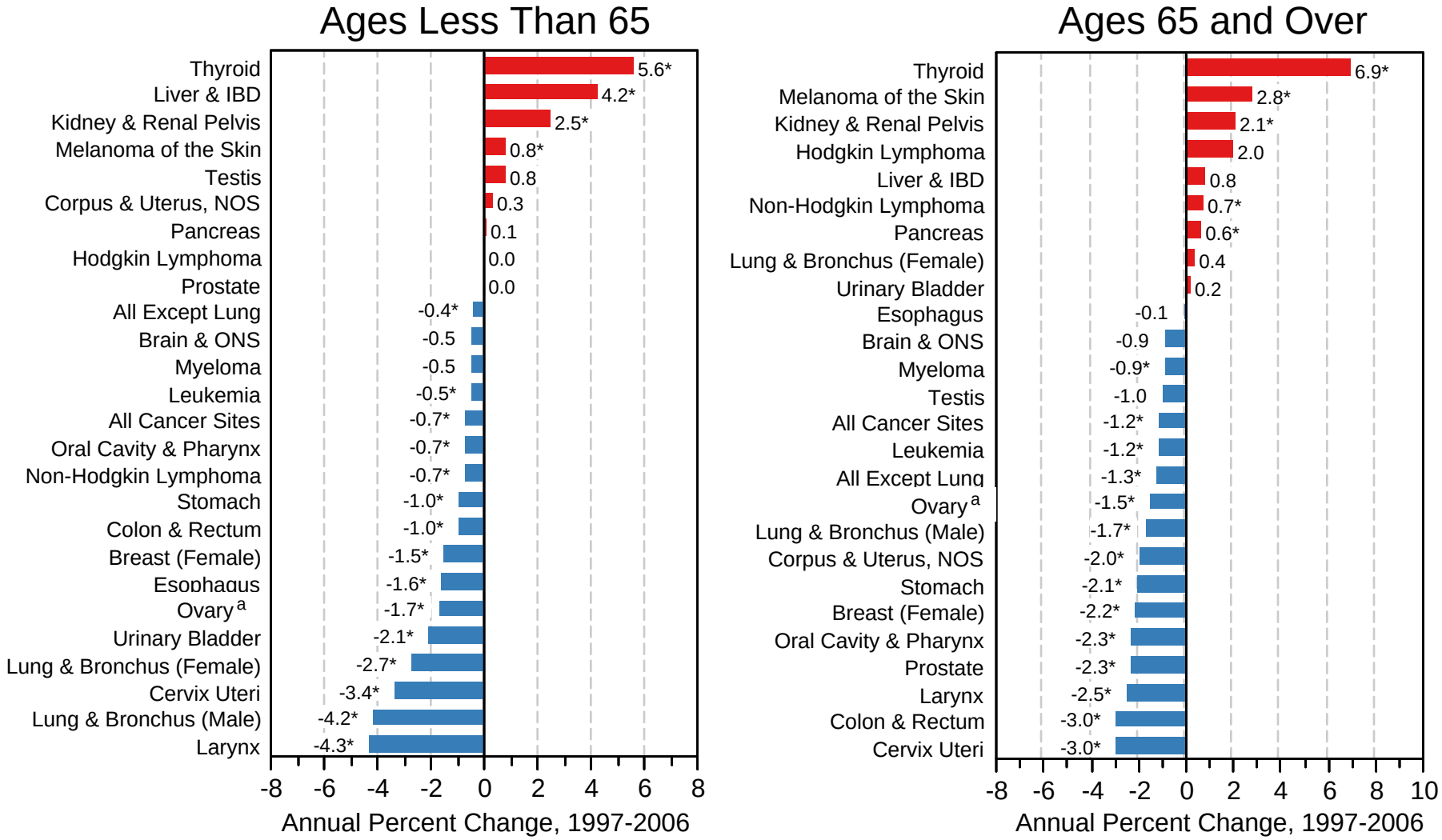


Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia) and US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
For sex-specific cancer sites, the population was limited to the population of the appropriate sex.
Underlying rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).

* The Annual Percent Change is significantly different from zero (p<.05).

[a] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

Trends in SEER Incidence Rates by Primary Cancer Site 1997-2006

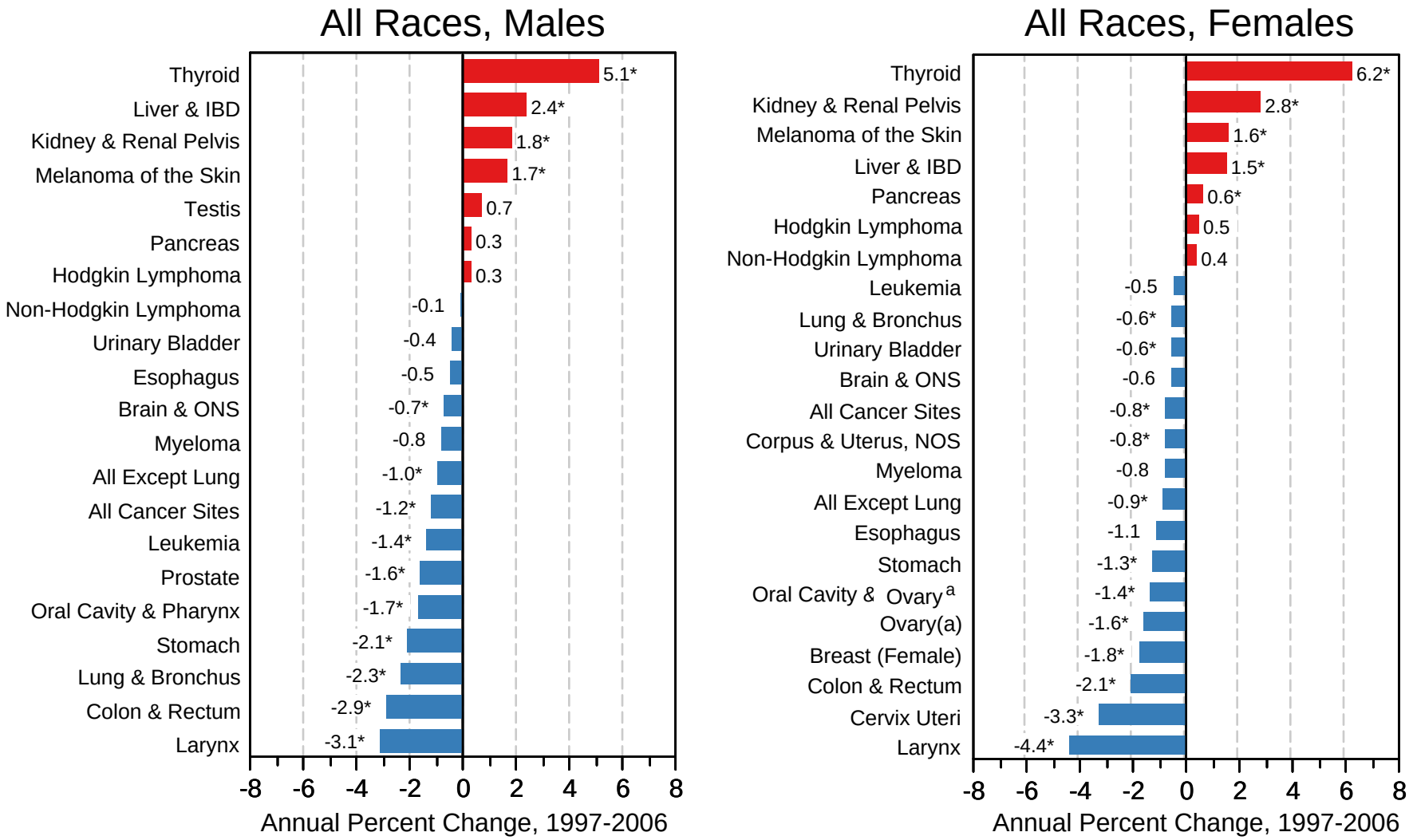


Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). For sex-specific cancer sites, the population was limited to the population of the appropriate sex. Underlying rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).

* The Annual Percent Change is significantly different from zero (p<.05).

[a] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

Trends in SEER Incidence Rates by Primary Cancer Site 1997-2006



Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia).
Underlying rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).

* The Annual Percent Change is significantly different from zero ($p<.05$).

[a] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

SEER Incidence[a] and US Death Rates[b], 2002-2006
5-Year Relative Survival Rates[c], 1999-2005
All Cancer Combined, by Race and Sex

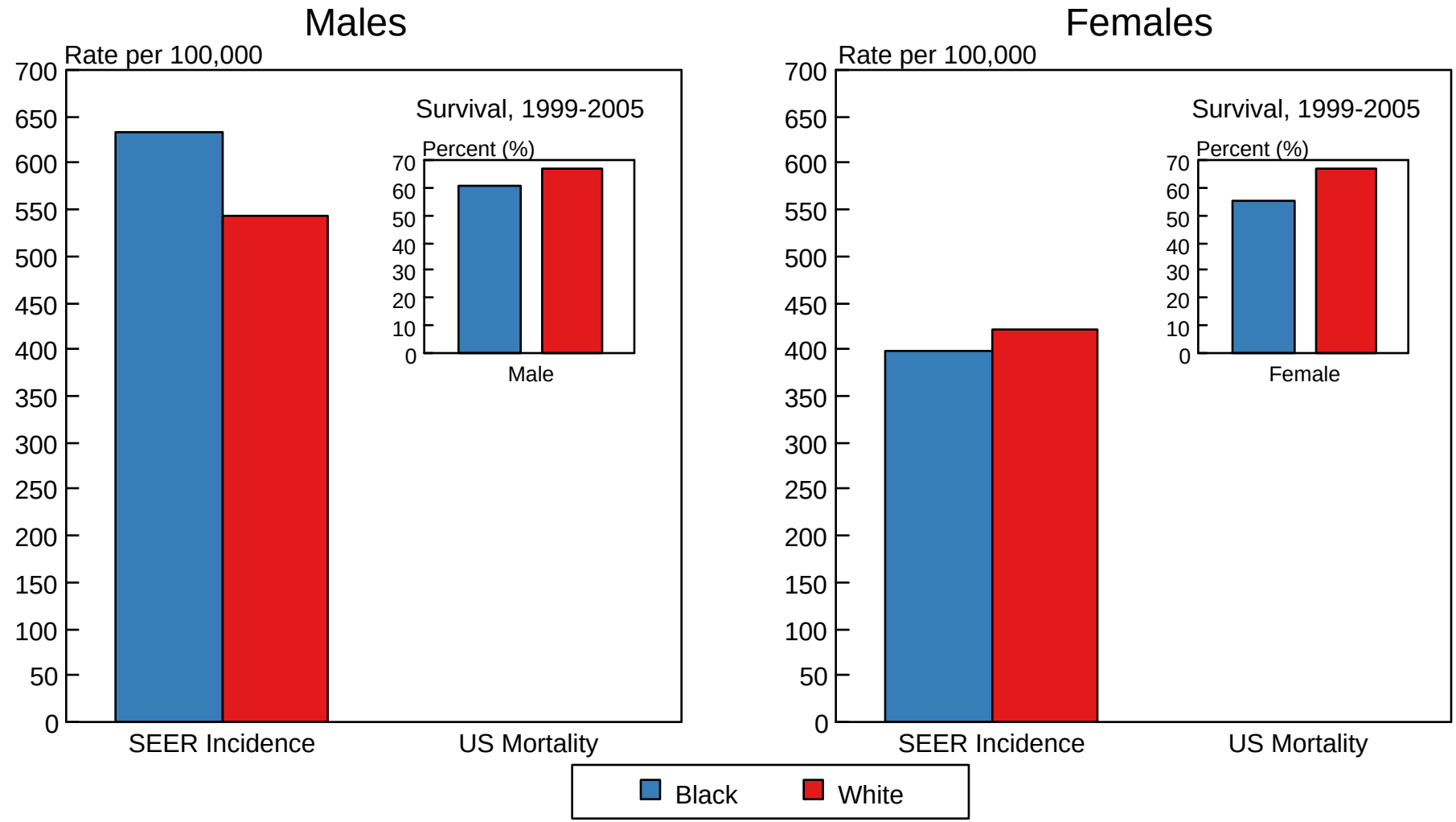


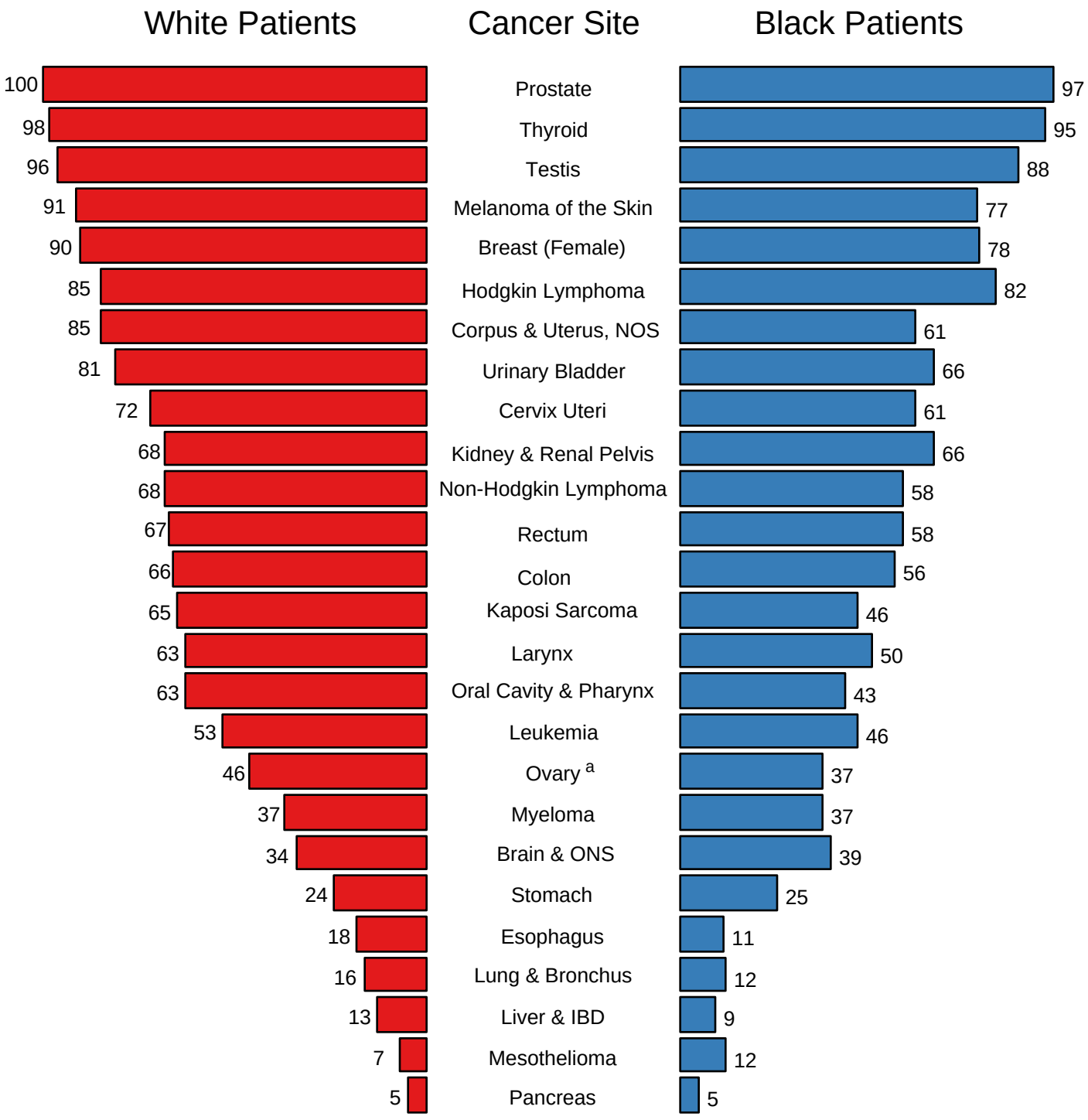
Figure 1.9

a Incidence rates are from the SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey) and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).

b Death rates are from the US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention and are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).

c Survival rates are from the SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey). California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2006. The remaining 13 SEER Areas contribute cases for the entire period 1999-2005. Relative survival rates are expressed as percents.

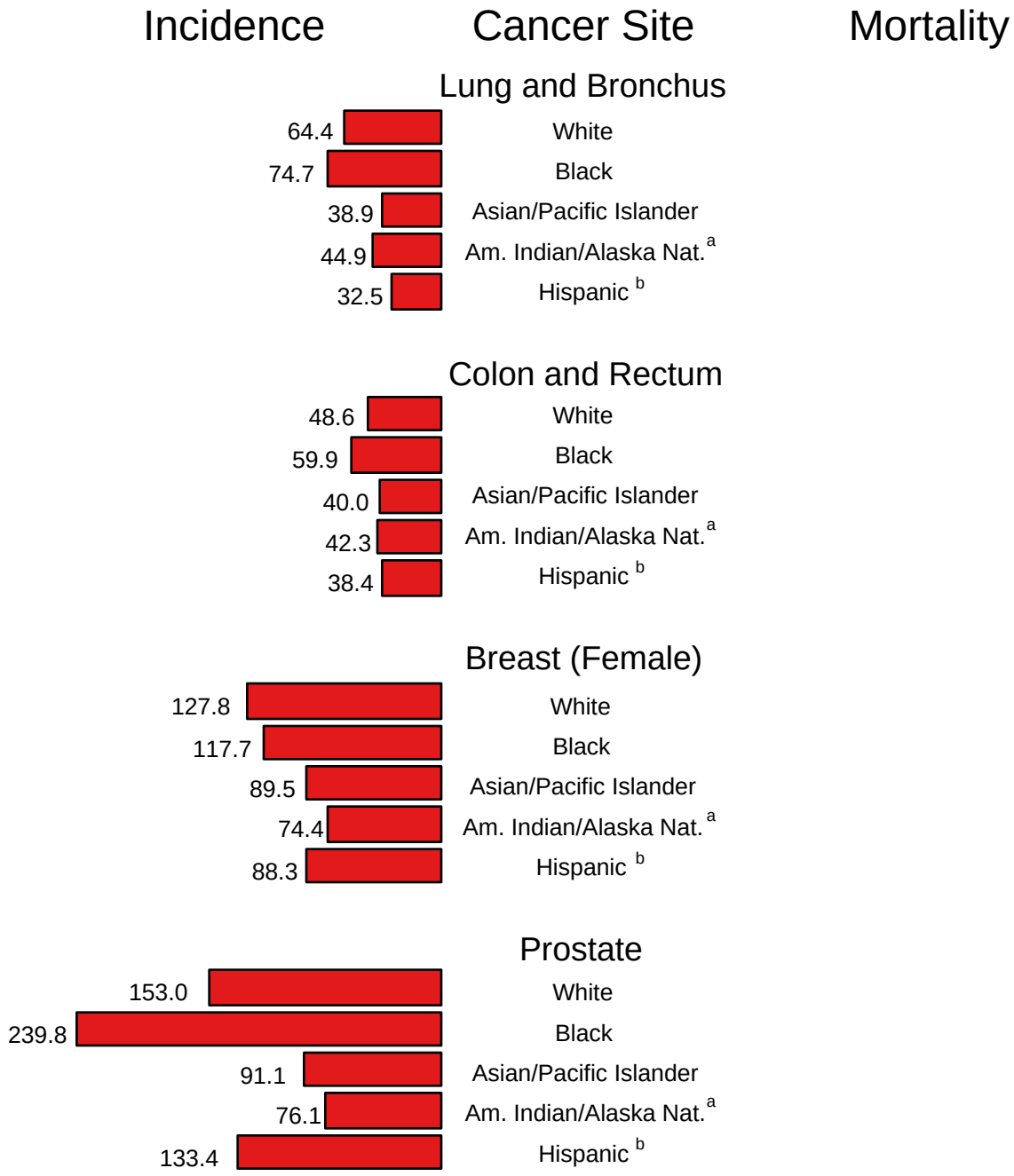
5-Year Relative Survival Rates
SEER Program, 1999-2006
Both Sexes, by Race



Source: SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey). California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey contribute cases for diagnosis years 2000-2006. The remaining 13 SEER Areas contribute cases for the entire period 1999-2006.

[a] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

SEER Cancer Incidence and US Death Rates, 2002-2006
By Cancer Site and Race



Source: SEER 17 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry, Rural Georgia, California excluding SF/SJM/LA, Kentucky, Louisiana, and New Jersey) and US Mortality Files, National Center for Health Statistics, Centers for Disease Control and Prevention.
Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).

[a] Rates for American Indian/Alaska Native are based on the CHSDA (Contract Health Service Delivery Area) counties.

[b] Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives. Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry and Kentucky. Mortality data for Hispanics exclude cases from Minnesota, New Hampshire, and North Dakota.

SEER Incidence 1997-2006
Males by Race/Ethnicity

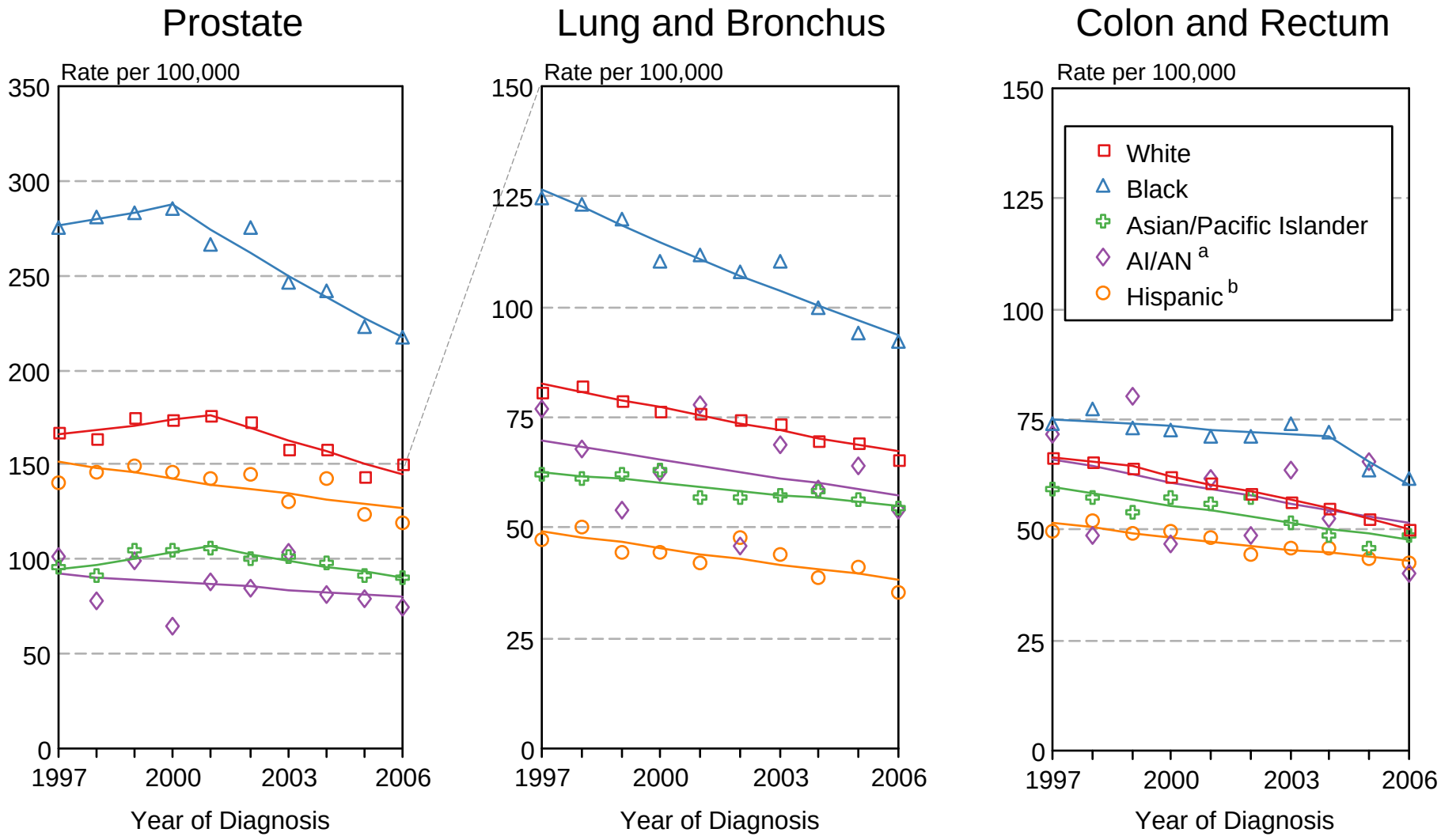


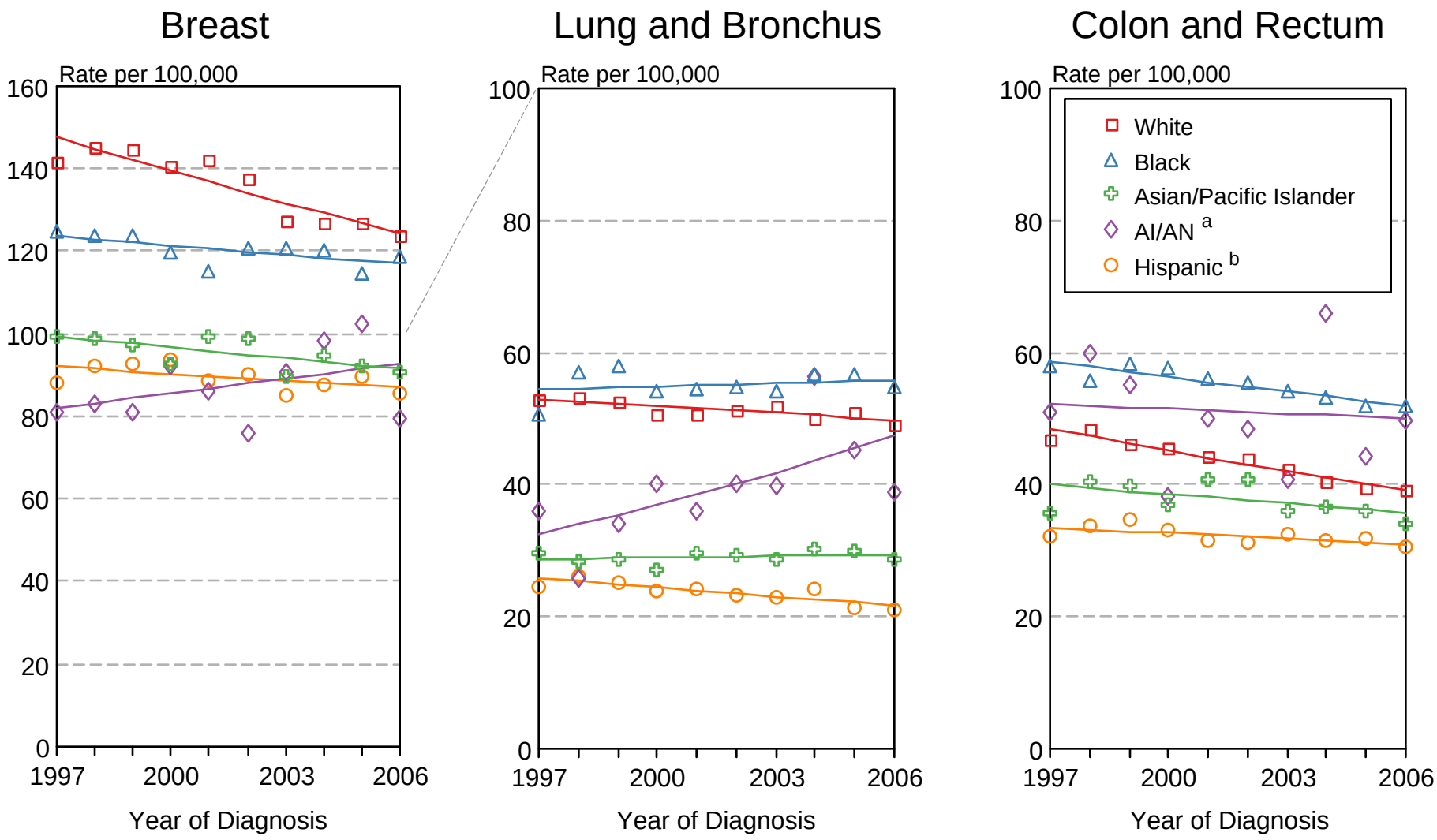
Figure 1.13

Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103). Regression lines are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute.

[a] Incidence rates for American Indian/Alaska Native (AI/AN) are based on the CHSDA(Contract Health Service Delivery Area) counties.

[b] Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives. Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

SEER Incidence 1997-2006
Females by Race/Ethnicity

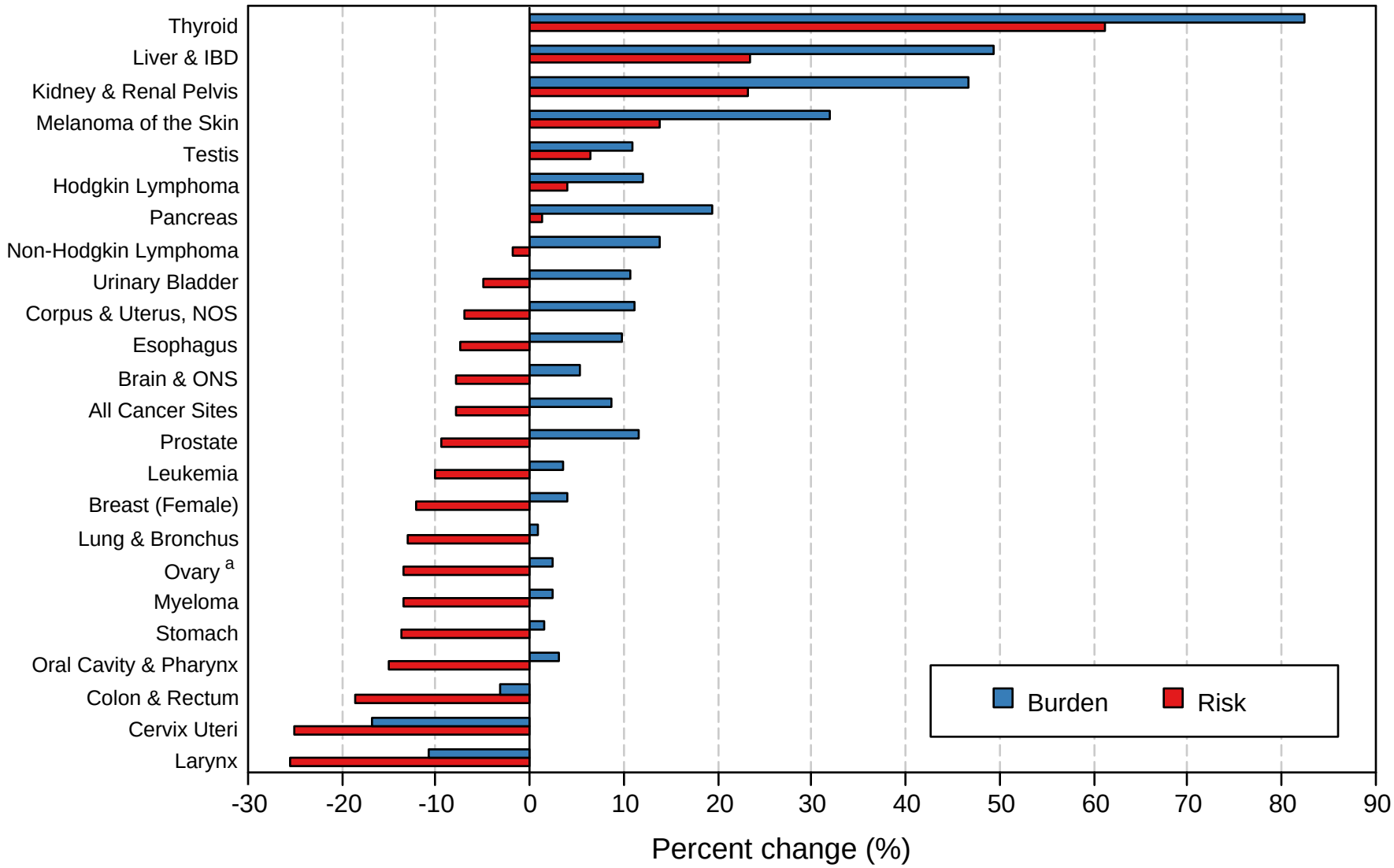


Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia). Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103). Regression lines are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute.

[a] Incidence rates for American Indian/Alaska Native (AI/AN) are based on the CHSDA(Contract Health Service Delivery Area) counties.

[b] Hispanic is not mutually exclusive from whites, blacks, Asian/Pacific Islanders, and American Indians/Alaska Natives. Incidence data for Hispanics are based on NHIA and exclude cases from the Alaska Native Registry.

Incidence Percent Change between 1997 and 2006
Numbers (burden) vs Rates (risk)
All Ages



US Incidence estimates based on SEER age-specific rates applied to US population.
Burden is the change in the number of incidence cases between 1997 and 2006.
Risk is the change in the cancer incidence rates between 1997 and 2006.
[a] Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

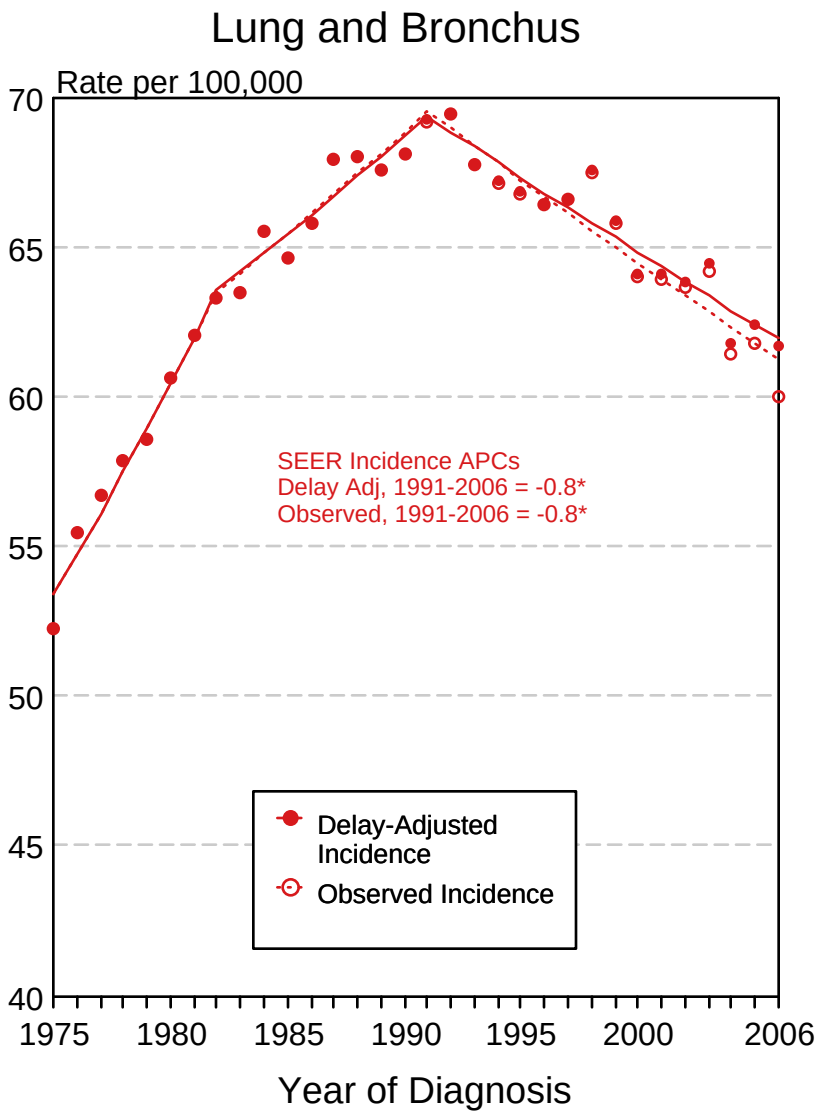
Figure I.17

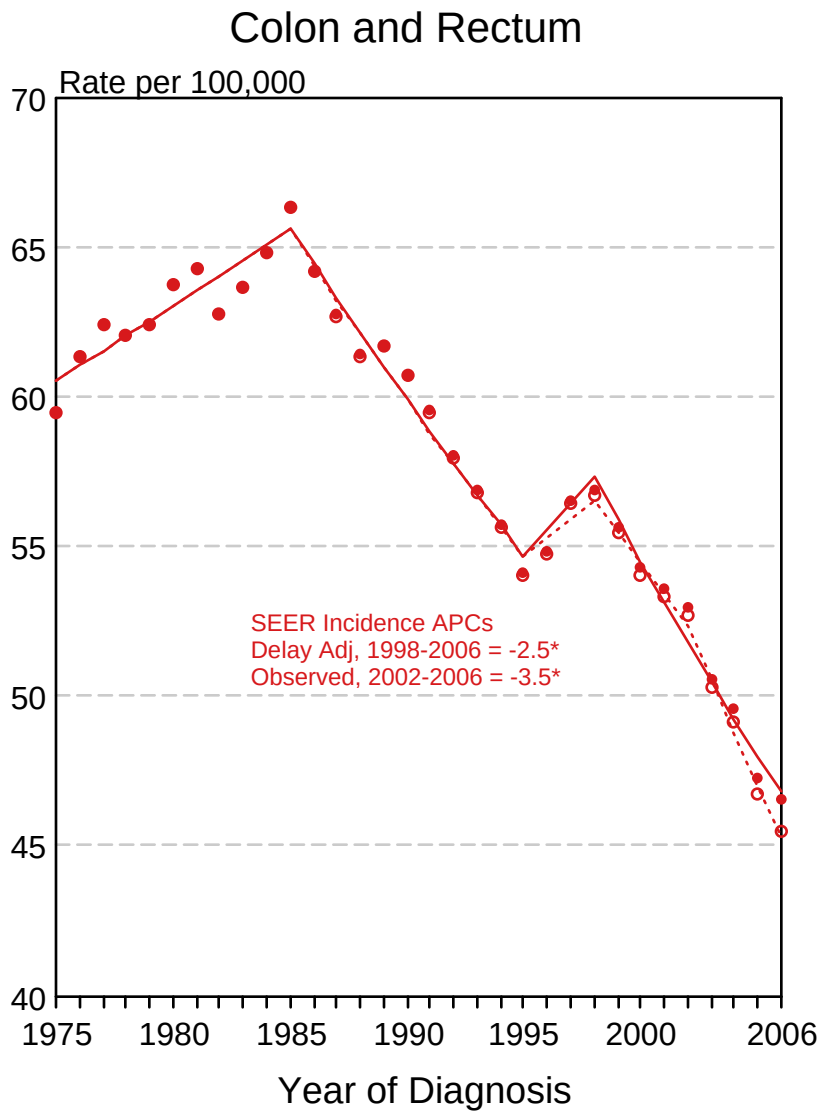
SEER Observed Incidence and Delay Adjusted Incidence Rates[a]
All Cancer Sites, By Sex

[a] Source: SEER 9 areas. Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).
Regression lines and APCs are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute.
The APC is the Annual Percent Change for the regression line segments. The APC shown on the graph is for the most recent trend.

* The APC is significantly different from zero ($p < 0.05$).

SEER Observed Incidence and Delay Adjusted Incidence Rates [a]
Both Sexes

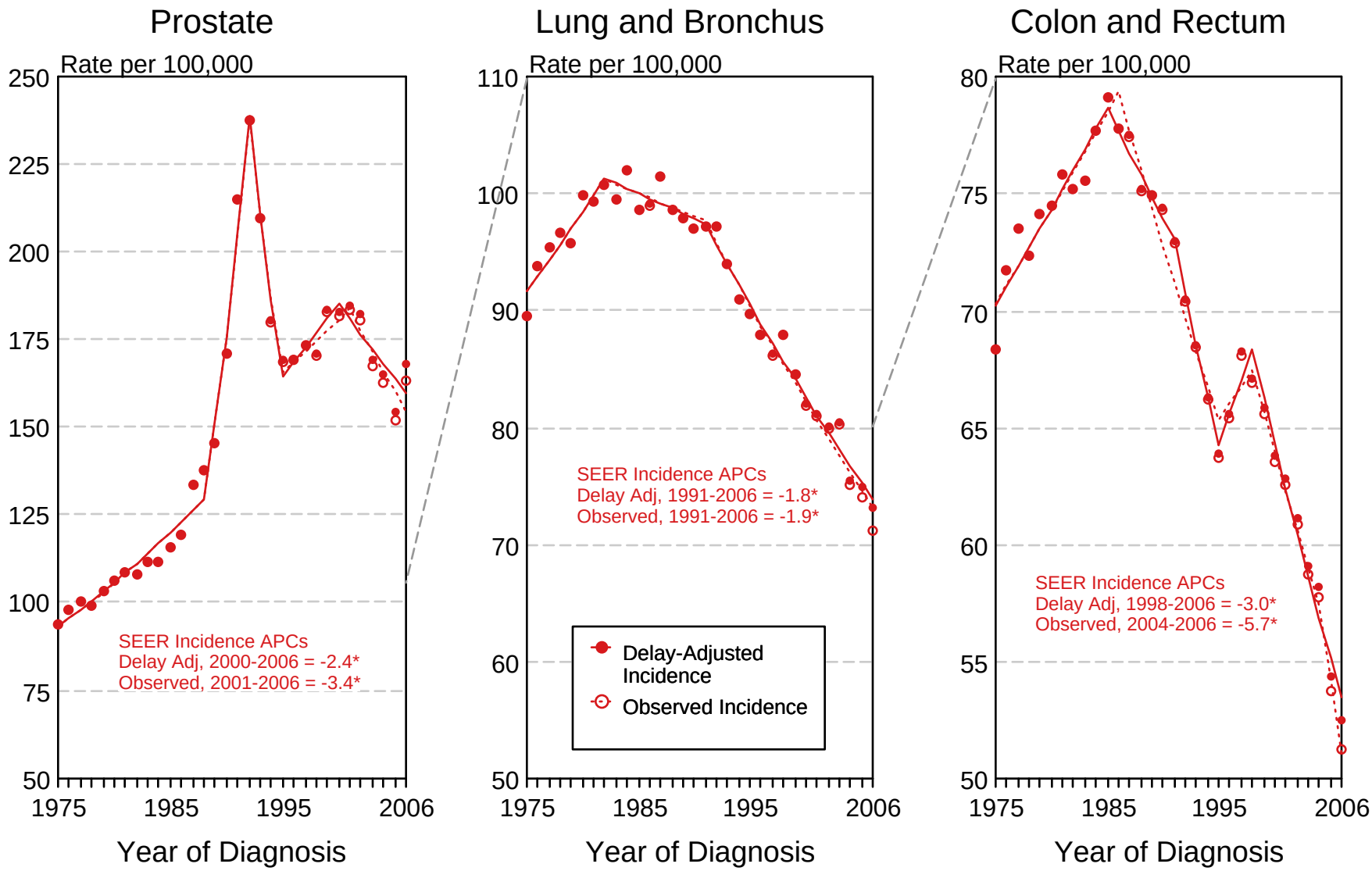




[a] Source: SEER 9 areas. Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).
Regression lines and APCs are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute.
The APC is the Annual Percent Change for the regression line segments. The APC shown on the graph is for the most recent trend.

* The APC is significantly different from zero ($p < 0.05$).

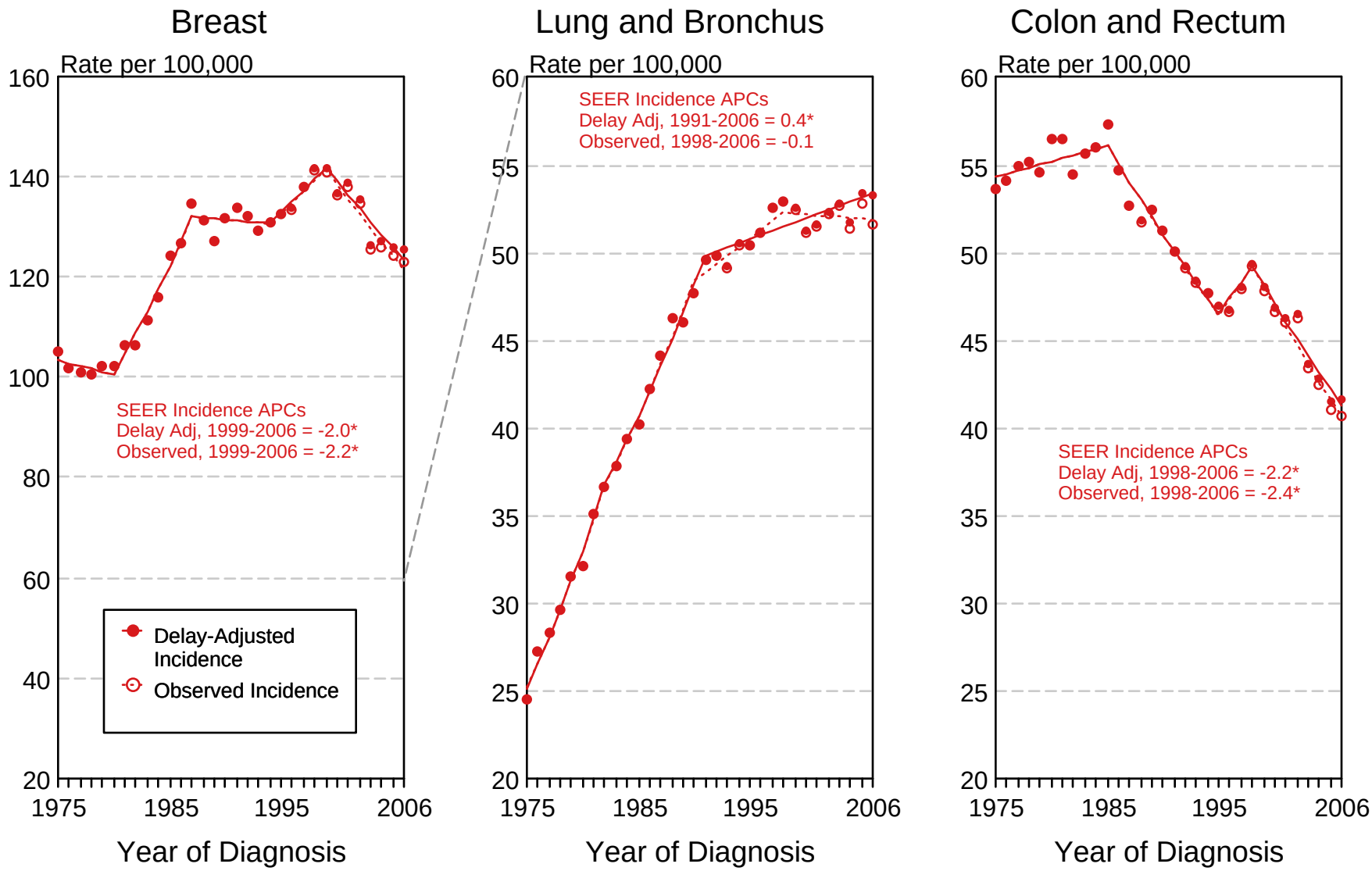
SEER Observed Incidence and Delay Adjusted Incidence Rates[a]
Males



[a] Source: SEER 9 areas. Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).
Regression lines and APCs are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute.
The APC is the Annual Percent Change for the regression line segments. The APC shown on the graph is for the most recent trend.

* The APC is significantly different from zero ($p < 0.05$).

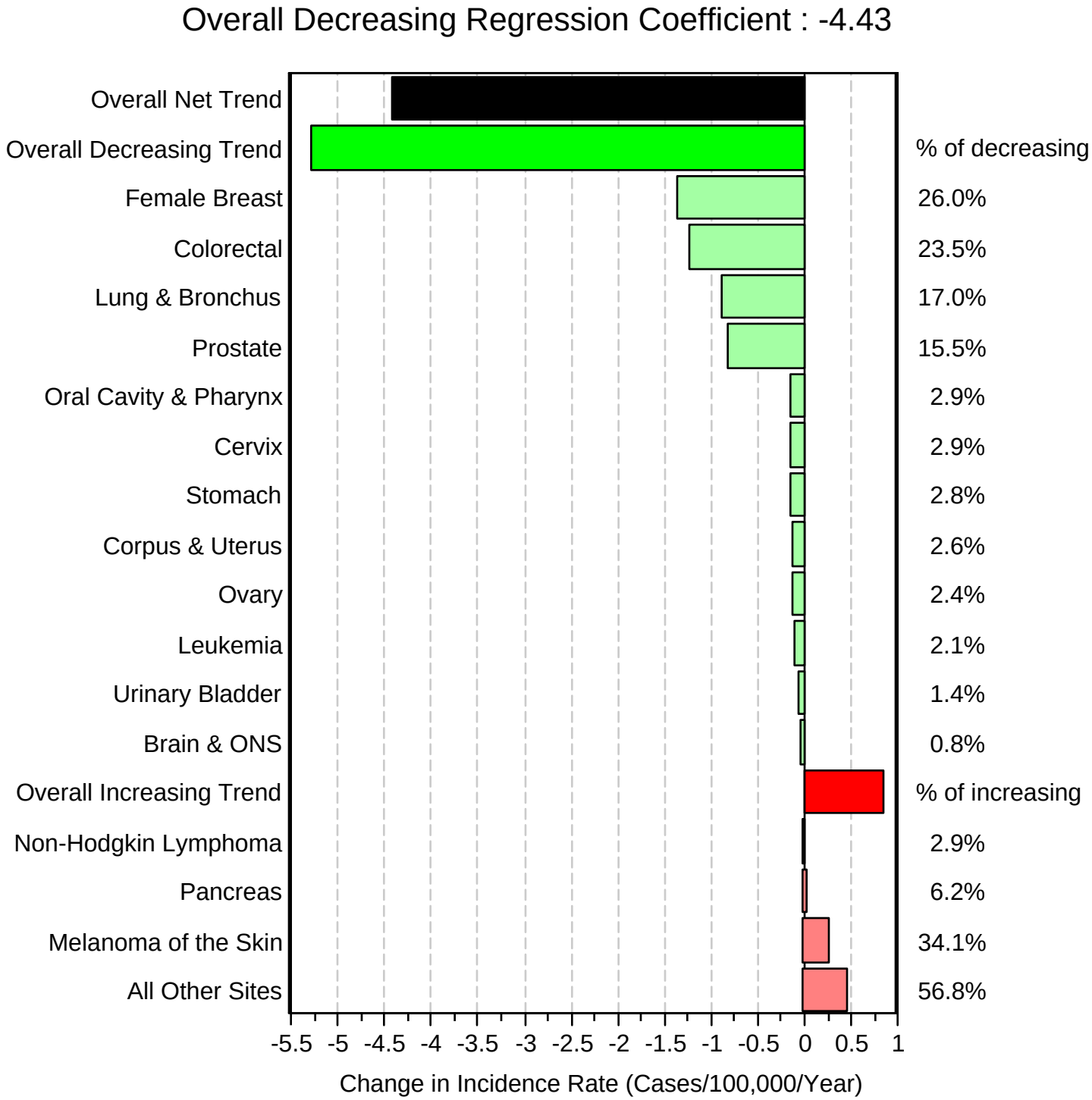
SEER Observed Incidence and Delay Adjusted Incidence Rates[a]
Females



[a] Source: SEER 9 areas. Rates are age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1103).
Regression lines and APCs are calculated using the Joinpoint Regression Program Version 3.3.1, April 2008, National Cancer Institute.
The APC is the Annual Percent Change for the regression line segments. The APC shown on the graph is for the most recent trend.

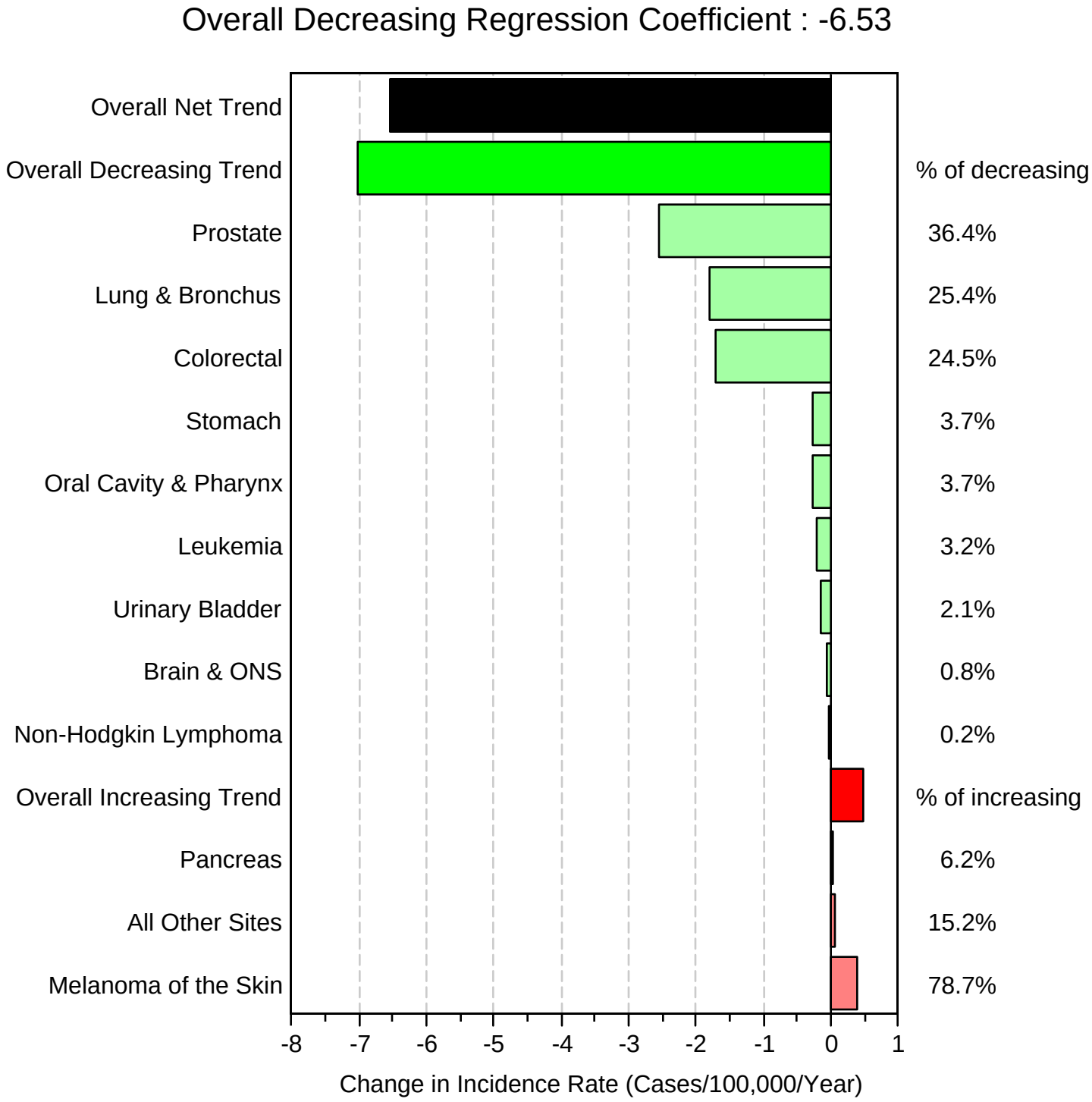
* The APC is significantly different from zero ($p < 0.05$).

Partition of Trend in Incidence Rates for the Time Period 1999-2006 All Races, Both Sexes



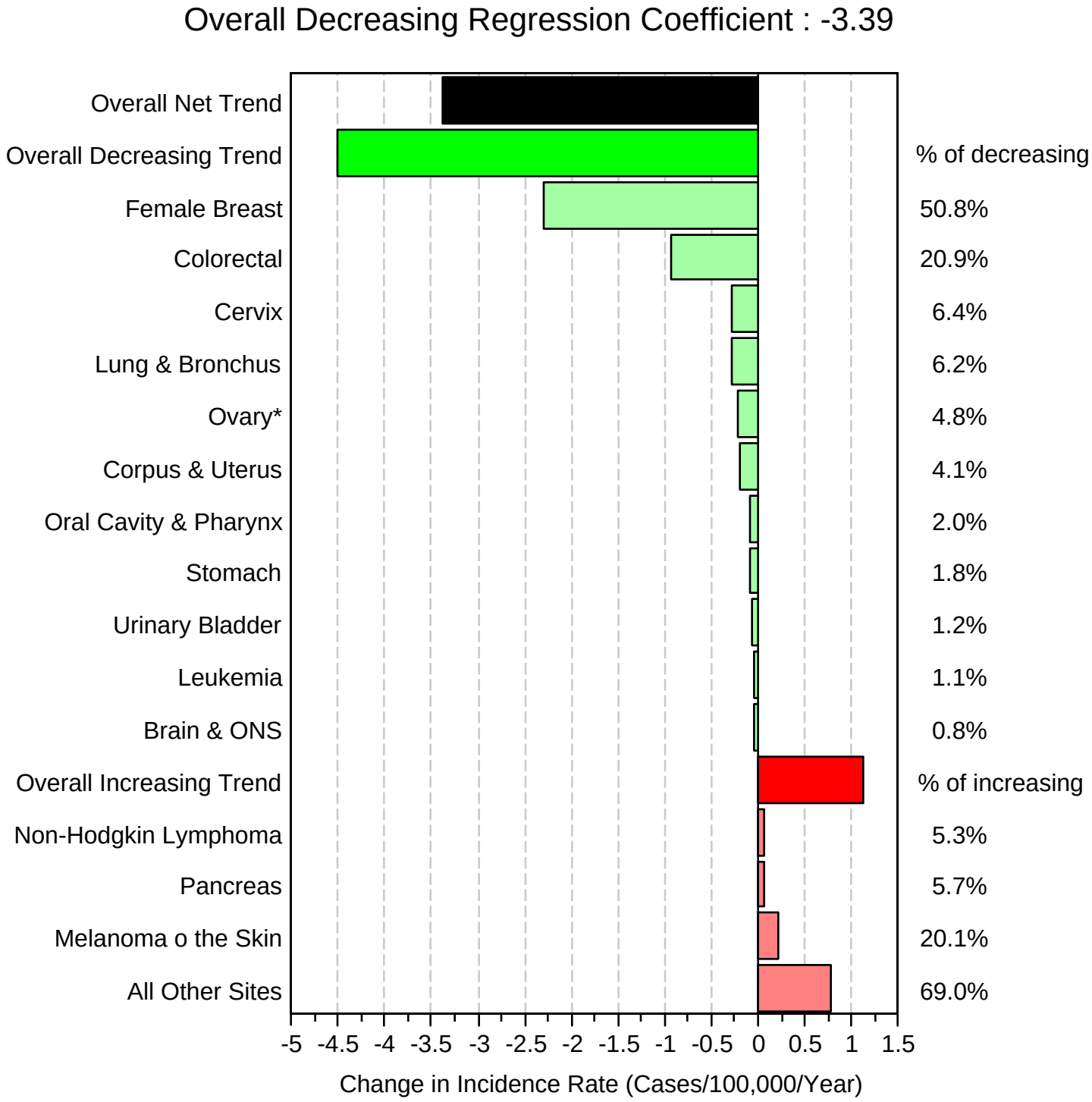
Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia).
Percents may not add to 100 due to rounding.
* Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.

Partition of Trend in Incidence Rates for the Time Period 1999-2006 All Races, Males



Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia).
Percents may not add to 100 due to rounding.

Partition of Trend in Incidence Rates for the Time Period 1999-2006 All Races, Females



Source: SEER 13 areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, Atlanta, San Jose-Monterey, Los Angeles, Alaska Native Registry and Rural Georgia).
Percents may not add to 100 due to rounding.
* Ovary excludes borderline cases or histologies 8442, 8451, 8462, 8472, and 8473.