Cancer in Idaho by Race and Ethnicity

A Report of the Cancer Data Registry of Idaho

1990 - 2001

CDRI
CANCER DATA REGISTRY OF IDAHO

IHA
IDAHO HOSPITAL ASSOCIATION

Cancer in Idaho by Race and Ethnicity: 1990-2001

PREFACE

"Cancer in Idaho by Race and Ethnicity: 1990-2001" is the first report of the Cancer Data Registry of Idaho (CDRI) to contain detailed cancer statistics, including incidence rates, for Idaho's minority populations. These data can be used by public health officials, hospital administrators, physicians, population group advocates and others to effectively plan services, prioritize health resource allocations, develop and measure prevention and intervention strategies, and identify high-risk populations within the state of Idaho.

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The statewide cancer registry database is a product of collaboration among many report sources including: hospitals, physicians, surgery centers, pathology laboratories, and other states in which Idaho residents are diagnosed and/or treated for cancer. Their cooperation in reporting timely, accurate, and complete cancer data is acknowledged and sincerely appreciated.

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Introduction to the Cancer Data Registry of Idaho (CDRI)

Purpose of the Registry

Population-based cancer registries are essential for assessing the extent of cancer burden in a specified geographic area. The Cancer Data Registry of Idaho (CDRI) is a population-based cancer registry that collects incidence and survival data on all cancer patients who reside in the state of Idaho or who are diagnosed and/or treated for cancer in the state of Idaho. The goals of the CDRI are to:

- Determine the incidence of cancer in the state of Idaho with respect to geographic, demographic, and social characteristics;
- Monitor trends and patterns of cancer incidence over time;
- Identify high-risk populations;
- Provide a database and serve as a resource in conducting epidemiological studies; and
- Provide data to assist public health officials, hospital administrators, and physicians to effectively plan services, prioritize health resource allocations and develop and measure prevention and intervention strategies.

History and Funding of the Registry

CDRI was established in 1969 and became population-based in 1971. The Idaho State Legislature has provided guidelines for the establishment, requirements, and funding of the statewide cancer registry. The operations of the registry are mandated by Idaho Code 57-1703 through 57-1707. Funding is appropriated in Idaho Code 57-1701 and 63-2520, which delineates a percentage of the cigarette tax to be dedicated to fund the statewide cancer registry. Additional funding has been awarded to CDRI from the Centers for Disease Control and Prevention (CDC) to enhance timely, complete and accurate data collection, computerization, and reporting of reliable data.

Collection of Data

Each Idaho hospital, outpatient surgery center, and pathology laboratory is responsible for the complete ascertainment of all data on cancer diagnoses and treatments provided in its facility within six months of diagnosis. Sources for identifying eligible cases include:

- Hospitals;
- Outpatient surgery centers;
- Private pathology laboratories;
- Free-standing radiation centers;
- Physicians (for patients not receiving cancer diagnoses and/or treatment in the above sources);
- Death certificates; and
- Other state cancer registries reporting an Idaho resident with cancer (as negotiated).

When a cancer case is reported from more than one source, the information is consolidated into one record.

Reported cases contain the following data:

- Patient demographics (including geographic place of residence at time of cancer diagnosis);
- Description of cancer (including date of diagnosis, primary site, metastatic sites, histology, extent of disease, etc.);
- First course treatment; and
- Follow-up data for purposes of calculating survival rates.

For cases diagnosed in 2001, primary site, behavior, grade, and histology were coded according to the *International Classification of Diseases for Oncology, 3rd edition (ICD-O-3) and s*tage of disease variables were coded using the Surveillance, Epidemiology, and End Results (SEER) *Summary Staging Manual 2000* and *AJCC Manual for Staging of Cancer, 5th edition.*[1-3] All other variables were coded following the rules of NAACCR, the SEER program, and the American College of Surgeons Commission on Cancer.[4-6] For cases diagnosed prior to 2001, previous editions of these manuals were used, as appropriate for the year of diagnosis.

Reportable Cases

All in-situ or malignant neoplasms are reportable to CDRI. The database includes all cases of carcinoma, sarcoma, melanoma, lymphoma, and leukemia, diagnosed by histology/ cytology, radiology, laboratory testing, clinical observation, and autopsy. Also reportable are benign tumors of the brain, meninges, pineal gland, and pituitary gland. Basal and squamous cell carcinomas of the skin are excluded except when occurring on a mucous membrane or if the AJCC stage group is II, III, or IV. Under Idaho Code and as recommended by NAACCR, cervix in-situ cases are not currently reportable.

Confidentiality of Data

Idaho state law ensures the protection of confidential data and restricts the release of identifying data. Only aggregate data are published. The same law protects report sources from any liability for reporting confidential data to CDRI. Persons with access to confidential data are required to sign a pledge of confidentiality and are subject to penalty if they, through negligence or willful misconduct, disclose confidential data.

Quality Assurance

To assure validity and reliability of data presented, CDRI has many mechanisms in place to check data for quality and completeness. CDRI uses EDITS software which has standard edits using algorithms that check the content of data fields against an encoded set of acceptable possible contents and flags the acceptability of coded data. Edits include field edits, inter-field edits, and inter-record edits. Edits check for unlikely sex/site, site/histology, or site/age combinations. In addition to computerized edits, each case is manually reviewed for errors.

Records are also routinely checked for duplicate entries. Duplicate case checking is performed both manually and electronically using various methodologies.

CDRI is recognized by NAACCR as a “Gold Standard Registry” for quality, completeness, and timeliness, and Idaho data have qualified for inclusion in all volumes of NAACCR’s publication of *“Cancer Incidence in North America.”*

Technical Notes

Age-adjusted Incidence Rates

Age-adjusted incidence rates published within this report were adjusted using the direct method and standardized to the age distribution of the 2000 US standard. Incidence rates represent the average number of new cases diagnosed annually per 100,000 persons. Age adjustment allows rates from one geographic area or race/ethnic group to be compared with rates from other geographic areas or race/ethnic groups that may have differences in age distributions. Any observed differences in age-adjusted incidence rates between populations are not due to differing age structures.

Because the 2000 US standard population was used to age-adjust rates, the age-adjusted rates published in this report are not comparable with age-adjusted rates published in CDRI annual reports for incident years prior to 1999.

Population Estimates

The computation of incidence rates requires reliable estimates of the population at risk by five-year age groups, race/ethnicity and gender during the time period being studied. Person-years, a measure of the size of a population over time, are used as the denominator in cancer incidence rates. Person-years were calculated as the sum of the annual population estimates from 1990-2001. Population estimates by race/ethnicity for 1990-2000 were obtained from the National Cancer Institute. These are a modification of the annual time series of July 1 county population estimates by age, sex, race, and Hispanic origin produced by the US Census Bureau's Population Estimates Program, with support from the National Cancer Institute through an interagency agreement.[7] The population estimates incorporate bridged single-race estimates for April 1, 2000, that are derived from the original multiple race categories in the 2000 Census (as specified in the 1997 Office of Management and Budget standards for the collection of data on race and ethnicity). In addition, the 1990-1999 intercensal estimates have been entirely revised by the US Census Bureau by distributing the difference between the original post-1990 census estimates of the 2000 population and the actual April 1, 2000 census counts. Separate population files were created for the expanded race categories of White, Black, American Indian/Alaska Native, and Asian or Pacific Islander and for the race/ethnicity categories of White non-Hispanic, White Hispanic, non-White non-Hispanic, and non-White Hispanic. At the time of the writing of this report, the US Census Bureau had released 2001 population estimates for the state of Idaho and Idaho counties, but the detailed age by sex by race/ethnicity by county estimates required for rate calculations in this text were not available. For 2001 population estimates, the race/ethnicity proportions from the 2000 population data were applied to the 2001 totals by county, sex, and age group estimates provided by the Bureau of Health Policy and Vital Statistics.

In conformity with SEER guidelines, the incidence rates excluded the following:

- In-situ cases, except bladder;
- Basal and squamous cell skin cancers;
- Cases with unknown age; and
- Cases with unknown gender.

BRFSS

The Behavioral Risk Factor Surveillance System (BRFSS), an ongoing surveillance program developed and partially funded by the Centers for Disease Control and Prevention (CDC), is designed to estimate the prevalence of risk factors for the major causes of death and disability in the United States. Behavioral risk factor surveys have been conducted in Idaho since 1984 to provide state-specific estimates of the proportion of adults aged 18 and over reporting health risk behaviors. Data from the BRFSS are useful for planning, initiating, and supporting health promotion and disease prevention programs at local, state, and federal levels and for monitoring progress toward achieving health objectives.

Confidence Intervals

An estimated range of values within which the true population value lies with given probability is the confidence interval.

Cancer Case Definition

A “cancer case” is defined as a primary cancer site (where the cancer started), not a metastatic cancer site (where the cancer spread). Since an individual can have more than one primary cancer site during their lifetime, the number of incident cancer cases is greater than the number of persons who are diagnosed with cancer.

Limitations to Data Interpretation and Comparison

Rates based on population estimates: In non-census years, state and county population figures are estimates. Errors in the estimates will impact the rates.

Rate comparisons: Age-adjusted incidence rates and age-specific rates based on small numbers of cases (fewer than 10 cases) may be unstable. In comparing rates among race/ethnic groups, factors such as the absolute numbers of cases and differences in demographics should be considered. Interpretations without consideration of these factors may be misleading or inaccurate.

Race and Ethnic Group Identification Enhancements

Many source documents used to report cancer do not specify race of the patient or misclassify race. This can result in substantial bias and is the reason race-specific rates could not be published without race and ethnic group identification enhancements. The number of cancer cases treated in outpatient settings and reported only by pathology laboratories has increased over the last several years. Many such cases are reported with race missing, causing tabulation of cases by race to be skewed. CDRI is actively working to improve the data quality of cases reported by pathology laboratories only.

Ideally, the best approach to identifying cancer cases among persons who are Hispanic, Native American, or of any other race is a direct approach. Hospitals and other reporting facilities need to be encouraged to properly collect, document, and report race and ethnicity. This is the best and, perhaps, the only way to ensure that accurate race and ethnicity-specific cancer statistics can be calculated. Unfortunately, there is a body of evidence suggesting gross misclassification of race and ethnicity in central cancer registry records. For example, Becker et al. found misclassification rates exceeding 50% for American Indians and Alaska Natives in Pacific

Northwest central cancer registries.[8] This misclassification threatens the validity of estimates of disease occurrence in these populations and may undermine cancer control and other public health responses that are unlikely to be implemented due to spuriously low rates.

Despite efforts to obtain race and ethnicity information directly from the medical record, this information is often not available, and some cancer registries have implemented indirect methods. These alternate approaches have included reliance on death certificates, matching algorithms on surname and birth place, special studies, physician follow-up, and linkage with other data sources.[9]

NAACCR Hispanic Identification Algorithm (NHIA)

The NAACCR Expert Panel on Hispanic Identification evaluated a variety of approaches to Hispanic identification and created a best practice algorithm that can be applied in all cancer registries. This algorithm was made available to central cancer registries in April 2003 as part of the NAACCR Hispanic Call for Data 2003. Idaho used the algorithm on 1995-2000 cases in accordance with the call for data instructions and submitted the results to NAACCR in May 2003. These data will be used to publish the Cancer in North America (CINA) Hispanic Statistical Monograph.

The NHIA uses a combination of variables to directly or indirectly classify cases as Hispanic for analytic purposes. The goal is to classify cases as Hispanic or non-Hispanic based on an evaluation of the strength of the birthplace, race, and/or surname associations with Hispanic ethnicity status. Persons are included in the indirect identification process if they are born in birthplaces with a high probability of Hispanic ethnicity. Persons are also included as Hispanic when they are male cases with heavily Hispanic last names; female cases with heavily Hispanic maiden names; female cases with missing maiden names and heavily Hispanic last names; female cases with generally Hispanic, moderately Hispanic, or occasionally Hispanic maiden names and heavily Hispanic last names.

For the current report, a case was identified as Hispanic if either the NHIA or the direct NAACCR variable (190) showed Hispanic ethnicity. Prior to running the NHIA, there were 856 cases among Idaho resident Hispanics from 1990-2001, including in-situ cases and benign cases of the brain and central nervous system. The NHIA identified 444 cases previously listed as non-Hispanic, for a total of 1,300 Hispanic cases.

NPAIHB and Indian Health Service Data Linkages

Probabilistic record linkages between state cancer registries and Indian Health Service/Northwest Tribal Registry data have been successfully used to correct misclassified race information and calculate improved cancer incidence estimates for American Indians and Alaska Natives.[8,10] CDRI has worked with the Northwest Portland Area Indian Health Board (NPAIHB) since 1999 to link cancer and tribal registry data, and more recently with the Indian Health Service. Linkages have been performed using AutoMatch and Vality Integrity software that employ probabilistic record linkage algorithms. The algorithms use information on name, date of birth, sex, Social Security number, and city of residence to detect matches. Subsets of the pairs of records that match on some variables were clerically reviewed. CDRI records that matched Indian Health Service/Northwest Tribal Registry databases were updated for race.

Because race and ethnicity are separate variables, the sum of the race and ethnicity case totals do not match the grand total for the time period. There were 24 cases among non-White

Hispanics: 4 among American Indian/Alaska Natives, and 20 among Asian or Pacific Islanders. These cases are included in both the respective race and ethnicity groupings.

Stage at Time of Diagnosis

Staging measures the extent of disease at the time of initial diagnosis. SEER summary staging attempts to group cases with similar prognoses into categories of:

- In-situ (non-invasive);
- Localized (cancer confined to the primary site);
- Regional (direct extension of tumor to adjacent organs, and/or lymph nodes);
- Distant (metastasis to tissues or lymph nodes remote from the primary site); or
- Unknown.

SEER summary stage at time of diagnosis was analyzed by race/ethnic group for the four sites with sufficient numbers of cases: female breast, colorectal, lung, and prostate. These four sites account for more than half of all cancer diagnoses and have particular importance for public health.

Standard Site Analyses Categories

To facilitate interpretation of data and comparisons across registries, CDRI uses standardized groupings of site analysis categories. These groupings are consistent with the SEER Program and are adopted by NAACCR.[4,5] Most neoplasms are grouped by the organ where they occur. Neoplasms of the lymphatic, hematopoietic, and reticuloendothelial systems are grouped by their histologies (leukemias, lymphomas, etc.), and not by the anatomic site where they occurred. Melanoma of the skin is a combination of both anatomic site and histologic type. Incidence rates were calculated using SEER*Stat, which automatically recodes cases into site categories based upon combinations of ICD-O-2 and ICD-O-3 primary site, behavior, and histology codes.[11]

SEER

Part of the National Cancer Institute, the Surveillance, Epidemiology, and End Results (SEER) program consists of several population-based cancer registries throughout the US. SEER cancer statistics are designed to be representative of the US population, and are included for reference in this report. For more detailed comparisons between Idaho and SEER rates, see the CDRI publication *Cancer Trends in Idaho, 1971-1998*.[12]

Survival Analysis

Survival rates from all causes of death were estimated using the life table method. For survival analyses, death certificate only cases, autopsy only cases, and persons with other primary cancers were excluded. Relative survival statistics show the probability of surviving compared with a general group of persons from the US with the same ages as the cases at time of diagnosis.

Executive Summary

Introduction

Cancer is a very common grouping of diseases. It is estimated that one in two men and at least one in three women will be diagnosed with cancer sometime in their lifetime. Nonetheless, cancer is unevenly distributed by variables such as income, geography, and race/ethnicity. Disparities in cancer outcomes have increased over time due to differential access to high quality care and innovative treatments. Healthy People 2010 is an initiative by the US Department of Health and Human Services to improve the health of all people in the United States during the first decade of the 21st century. It is designed to achieve two overarching goals: increase quality and years of healthy life and eliminate health disparities. *Cancer in Idaho by Race and Ethnicity: 1990-2001* is designed to explore the issue of race and ethnicity disparities in cancer in Idaho, from risk factors and screening to survival.

Current information about the biologic and genetic characteristics of Blacks, Hispanics, American Indians, Alaska Natives, Asians, Native Hawaiians, and Pacific Islanders does not explain the health disparities experienced by these groups compared with the White, non-Hispanic population in the United States. These disparities are believed to be the result of the complex interaction among genetic variations, environmental factors, and specific health behaviors. For example, a recent article published in the American Journal of Public Health showed that receipt of preventive services supported by the US Preventive Services Task Force (including cancer screening such as Pap tests, breast examinations, mammography, and prostate examinations) was strongly associated with being insured and having a usual source of care, but that 11% of the Black population and almost 23% of the Hispanic population reported no insurance and no usual source of care, compared with fewer than 7% of Whites.[13] It is recognized that achieving health equity will require a multidisciplinary approach – an approach that involves improving health, education, housing, labor, justice, transportation, agriculture, and the environment, as well as data collection itself. Eliminating disparities is ultimately a social justice issue.

This publication can be used to inform and direct public health efforts towards eliminating disparities in cancer risk factors, screening behaviors, and other aspects of the cancer milieu, and aid future comprehensive cancer control programs in Idaho.

Data Presentation

This report is comprised of four sections. Section I provides cancer case counts by race and ethnicity for 24 common cancer sites, all sites combined, and for pediatric cancers. Section II focuses on the four most common cancer sites – breast, colorectal, lung, and prostate - and presents cancer screening and risk factor information, age-adjusted incidence rates, stage distribution information, and survival data. This detailed description is limited to the four most common cancer sites because these sites comprise over 55% of invasive cancers in Idaho; and numbers of cases for many other sites were too small for meaningful detailed comparison by race or ethnicity. By their sheer numbers, these cancers are the main targets for cancer control interventions. Section III provides information on alcohol use, including binge and chronic drinking, which is a risk factor for several cancers, including cancers of the breast, esophagus, larynx, liver, oral cavity and pharynx. Section IV provides synopses for the cancer sites not included in Section II and for pediatric cancers. Section V provides graphs of age-adjusted cancer incidence rates by race and ethnic group for Idaho and SEER by site and sex.

Cancer Risks Behaviors and Screening Guidelines

In 1996, the Harvard Report on Cancer Prevention concluded that cancer is a preventable illness.[14] They estimated that nearly two-thirds of cancer deaths in the US can be linked to tobacco use, diet, obesity, and lack of exercise -- all of which can be modified through action, both at the individual and societal level. Other preventable cancer risk factors include sun exposure, alcohol use, and Hepatitis B infection. Family history of cancer is attributable to about 5% of cancer cases. Public concern about environmental pollution is out of proportion with true risk, which is that less than 5% of cancers are attributable to environmental pollution. Collectively, occupational factors are thought to cause about 5% of all fatal cancers, mostly of the lung, bladder, and bone marrow.

A recent study published in the New England Journal of Medicine found increased body weight to be associated with increased death rates for all cancers combined and for cancers at multiple specific sites.[15] Furthermore, it was estimated that current patterns of overweight and obesity in the United States could account for 14 percent of all deaths from cancer in men and 20 percent of those in women.

The American Cancer Society (ACS) offers guidelines to reduce personal cancer risk:

- Don't smoke.
- Eat five or more servings of fruits and vegetables per day, and eat foods from other plant sources, such as breads, cereals, grain products, rice, pasta, or beans, several times a day.
- Limit your intake of high-fat foods, particularly from animal sources.
- Be physically active -- at least moderately active for 30 minutes or more on most days of the week.
- Stay within your healthy weight range.
- Limit consumption of alcoholic beverages, if you drink at all.

Early detection of many cancers can improve survival. ACS recommends a cancer-related checkup every three years for people aged 20 to 40 years old and every year for people aged 40 and older. This exam should include health counseling and, depending on a person's age, might include examinations for cancers of the thyroid, oral cavity, skin, lymph nodes, testes, and ovaries, as well as for some non-malignant diseases. In addition, screening regimens for specific cancers, such as breast, cervix, colorectal, and prostate are recommended and discussed elsewhere in this publication.

Summary Findings and Conclusions

Breast cancer screening data from the BRFSS coupled with stage distribution and stage-specific incidence rates strongly suggest that racial/ethnic discrepancies exist in Idaho in terms of diagnosing breast cancers early among younger women (aged younger than approximately 55).

National colorectal cancer screening data strongly suggest that racial/ethnic discrepancies exist in the proportion of persons aged 50 and older who are screened. While Idaho BRFSS data show no difference in screening between Hispanics and non-Hispanics and there were too few respondents from other race groups to present results, Idahoans overall need to improve colorectal cancer screening utilization. Data from the BRFSS show that American Indian/Alaska Natives and Hispanics are more likely than other race/ethnic groups to be overweight, obese,

and to live sedentary lifestyles, all of which are risk factors for colorectal and certain other cancers.

Tobacco-attributable disease accounts for 440,000 deaths per year in the United States and remains the leading cause of preventable death and disease. From Idaho BRFSS data, we may anticipate higher rates of lung cancer in the future among American Indian/Alaska Natives due to the much higher smoking rates among this population today. While tobacco prevention and cessation is important for the health of all Idahoans, it is critical to lower smoking rates among American Indian/Alaska Natives.

Screening data from the BRFSS coupled with stage distribution information suggest that racial/ethnic discrepancies exist in Idaho in terms of diagnosing prostate cancer at early stages. However, this may be an artifact of finding indolent prostate cancers among more highly screened populations, as late-stage prostate cancer rates were not different among race/ethnic groups. Decisions about prostate cancer screening and treatment are complex; patients should be given information about the risks, benefits, and limitations so they may make informed decisions. Better information on the utility of prostate specific antigen (PSA) screening on prostate cancer survival through clinical trials will become available in the next several years.

Data from the Idaho BRFSS show that American Indian/Alaska Natives and Hispanics are more likely to be binge or chronic drinkers, and Asian or Pacific Islanders are less likely to be binge or chronic drinkers than other groups. Curtailment of binge and chronic drinking among American Indian/Alaska Natives and Hispanics in Idaho needs to become a cancer prevention goal.

Some of the information presented on cancer risk factors, such as cigarette smoking, obesity, and excessive alcohol consumption, apply to multiple cancer sites and to other chronic diseases. Reducing the burden of cancer by changing risk behaviors will also reduce the burden of other diseases.

SECTION I

SUMMARY OF ALL SITES COMBINED AND CASE COUNTS BY SITE

All Sites Combined

Cancer is a term that includes more than 100 different diseases, each characterized by the uncontrolled growth and spread of abnormal cells. Carcinogenesis, the process by which normal cells are transformed into cancer cells, involves a series of changes within cells that usually occur over the course of many years. More than 10 years can go by between the beginning of carcinogenesis and the diagnosis of cancer. The long period of time between the first cellular abnormality and the clinical recognition that cancer is present often makes it difficult to pinpoint the cause of the cancer.

Cancer is a very common grouping of diseases: one in two men and one in three women will be diagnosed with cancer sometime in their lives. Cancer is the second leading cause of death, behind heart disease. In Idaho, about 22% of deaths are from cancer. While cancer may occur at any age, it is a disease of aging. About 77% of cancers are diagnosed at age 55 or older. Because cancer is more likely to occur as people get older and people are living longer, more cases of cancer can be expected in the future.

From 1971-1998, there were overall increasing trends for both cancer incidence and mortality in Idaho. The age-adjusted cancer incidence rate increased from 323.0 to 448.2 cases per 100,000 persons, 1.3% per year. The age-adjusted mortality rate increased from 172.4 to 187.4 cases per 100,000 persons, 0.5% per year. Some of the increase in cancer incidence is attributable to increases in cancer screening, e.g. the use of the prostate specific antigen (PSA) test for prostate cancer.

From 1990-2001, there were 57,337 cases of invasive cancer diagnosed among Idaho residents. Table 1 shows invasive case counts by site and race/ethnicity. The majority (96.8%) of cancers occurred among non-Hispanic Whites. Hispanics accounted for the next largest number of cancers (1,225). There were 270 cases among American Indian/Alaska Natives, 272 cases among Asian or Pacific Islanders, and 84 cases among Blacks. Table 1 also shows in-situ breast cancer counts and pediatric (age 0-19) case counts. As such, the sums by site category do not match the totals. It is evident from Table 1 that the pattern of cancers differs by race/ethnicity. The remainder of this report presents detailed information by cancer site. For the most common cancer sites, information on cancer screening, risk factors, incidence rates, SEER summary stage distributions, and relative survival is presented. For less common cancer sites, information on incidence rates is presented.

Cancer Incidence

Figures 1-2 show cancer incidence rates for all sites combined. Males had higher rates of cancer incidence than females for all race/ethnic groups. Among males, Blacks had the highest cancer incidence rates and American Indian/Alaska Natives had the lowest. Among females, Hispanics had the highest cancer incidence rates and American Indian/Alaska Natives had the lowest. In SEER regions, non-Hispanic Whites had significantly higher rates than Hispanics. In Idaho, the rates were more similar. Due to small numbers of cases, the incidence rates among Blacks in Idaho had substantial variability.

Table 1. Idaho Invasive Cancer Case Counts by Primary Site and Race/Ethnic Group, 1990-2001.

Primary Site Category	Race/Ethnic Group					
	American Indian/Alaska Native	Asian or Pacific Islander	Black	Hispanic	Non-Hispanic White	Total
All Invasive Sites	270	272	84	1225	55508	57337
Bladder	4	13	3	31	2680	2729
Brain	5	1	1	35	890	932
Breast	37	46	9	205	8201	8494
Breast in situ	6	6	0	26	1332	1370
Cervix	5	8	1	38	476	528
Colorectal	31	39	9	113	5818	6008
Endometrium	13	8	0	39	1513	1573
Esophagus	1	3	1	5	475	485
Hodgkin Lymphoma	0	0	2	11	376	389
Kidney and Renal Pelvis	12	2	2	43	1278	1337
Larynx	3	0	1	9	454	467
Leukemia	10	3	0	68	1551	1631
Liver and Bile Duct	6	13	1	19	307	346
Lung and Bronchus	31	36	11	102	6999	7178
Melanoma of the Skin	7	3	0	25	2264	2299
Myeloma	5	1	5	13	625	649
Non-Hodgkin Lymphoma	13	12	3	61	2186	2275
Oral Cavity and Pharynx	6	6	2	26	1477	1516
Ovary	7	0	1	24	1102	1134
Pancreas	7	6	3	28	1182	1224
Prostate	29	31	22	145	9847	10071
Stomach	12	9	4	36	688	749
Testis	5	3	0	14	395	415
Thyroid	1	7	1	28	815	850
Pediatric Age 0 to 19	7	5	1	56	683	751

SECTION II

DETAILED DESCRIPTIONS FOR FOUR MOST COMMON CANCER SITES: BREAST, COLORECTAL, LUNG, AND PROSTATE

Female Breast Cancer

Breast cancer is the most common cancer among females. One in eight women in the US will be diagnosed with breast cancer sometime in her life. Breast cancer incidence rates have continued to increase since 1980, although the rate of increase slowed in the 1990s. In Idaho, breast cancer accounted for 8,434 of 26,548 invasive cancer cases among females from 1990-2001 (31.8%). Breast cancer incidence rates increase steadily with age, with age being the single most important risk factor. For example, a 60-year old White American woman's risk of developing breast cancer is about 14 times that of a 30-year old. Whites have higher incidence rates of breast cancer, as do women in higher income groups. Specific genes associated with breast cancers have been identified and are being studied. The inherited susceptibility genes, BRCA1 and BRCA2, account for approximately 5% of all cases. Identical twins of women with breast cancer have triple the risk of getting the disease themselves. There is evidence of hormonal influence in the risk of developing breast cancer. Longer intervals of menarche to the first full-term pregnancy and menarche to menopause, as well as menarche before age 13, have been associated with higher risks of breast cancer. High dietary fat intake, obesity, sedentary life style, alcohol use, and having a mother or sister with breast cancer have all been implicated as associated risk factors. While the vast majority of breast cancer cases occur among females, breast cancer also occurs among males. From 1990 to 2001, there were 60 cases of invasive breast cancer among male Idahoans.

Breast Cancer Screening

ACS recommends that women aged 40 and over be screened for breast cancer with a clinical breast exam and mammogram annually. Among women aged 40 years and older, American Indian/Alaska Natives were the most likely to have not been screened for breast cancer with a clinical breast exam in the past year, but due to the small number of respondents in this category, the difference was not statistically significant. Among women aged 50 and older, Hispanics were more likely than non-Hispanics to have not been screened for breast cancer with a clinical breast exam in the past year (33.3% versus 26.3%, respectively); estimates for the other race groups are not available due to too few respondents.

Table 2. Percent of Idaho Females Aged 40 Years and Older Who Have NOT Had a Clinical Breast Exam in the Past Year.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	41.0	4949	39.4	42.6
Hispanic	39.2	121	29.3	49.1
Non-Hispanic	41.0	4828	39.4	42.7

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	40.9	4884	39.3	42.6
White	40.8	4787	39.1	42.4
Black or African American	*	*	*	*
Asian or Pacific Islander	*	*	*	*
American Indian or Alaska Native	49.1	64	34.3	63.9

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (1999, 2000, and 2002).

The Healthy People 2010 target is for 70% or more of women aged 40 and older to have received a mammogram in the past two years. Among women aged 40 years and older, American Indian/Alaska Natives were the most likely to have not been screened for breast cancer with a mammogram in the past year. Among women aged 50 and older, Hispanics were more likely than non-Hispanics to have not been screened for breast cancer with a mammogram in the past year (32.9% versus 29.1%, respectively); estimates for the other race groups are not available due to too few respondents.

Table 3. Percent of Idaho Females Aged 40 Years and Older Who Have NOT Had a Mammogram in the Past Year.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	49.4	5211	47.8	51.0
Hispanic	48.4	133	38.3	58.5
Non-Hispanic	49.4	5078	47.8	51.0

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	49.3	5142	47.7	50.9
White	49.1	5042	47.5	50.8
Black or African American	*	*	*	*
Asian or Pacific Islander	*	*	*	*
American Indian or Alaska Native	61.3	66	46.4	76.1

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (1999, 2000, and 2002).

Breast Cancer Incidence

As shown in Figures 3 and 4, age-adjusted breast cancer incidence rates (2000 US standard) differ by race/ethnic group within Idaho. These differences in breast cancer incidence rates are partially due to differences in breast cancer screening rates and individual risk factors, such as diet, obesity, sedentary life style, hormonal influences, use of alcohol and tobacco, and family history.

In SEER regions, non-Hispanic Whites had significantly higher rates of breast cancer incidence than other race/ethnic groups. In Idaho, Hispanics and non-Hispanic Whites had about the same rates of breast cancer incidence, higher than among the remaining race groups. These patterns existed for both invasive and in-situ cases. Among women aged 20-54 in Idaho, Hispanics compared with non-Hispanic Whites had lower rates of early stage breast cancer (43.4 versus 64.6 cases per 100,000 women) and higher rates of late stage breast cancer (49.8 versus 35.3 cases per 100,000 women).

Breast Cancer Staging

Early detection through breast self-exams and mammography can help identify breast cancers at earlier stages and improve long-term prognosis and survival time. In both Idaho and SEER regions, approximately 70 percent of total breast cancers are diagnosed at the local or in-situ stage, before the cancer has spread to other tissues or organs of the body, and 30 percent are diagnosed at the regional or distant stage, after the cancer has already spread to surrounding tissues and/or lymph nodes or has metastasized to other organs of the body (Figure 5).

For Idaho cases, stage was divided into early (in-situ and localized) and late (regional and distant) cases. There were significant differences among race/ethnic groups in the proportion of female breast cancer cases diagnosed late stage ($p<0.0001$). Asian or Pacific Islanders, Blacks, and Hispanic women were significantly more likely to be diagnosed with late stage breast cancer (42.0%, 62.5%, and 42.9% respectively) compared with American Indian/Alaska Native and non-Hispanic White women (23.3% and 30.0%).

Breast Cancer Survival

Breast cancer survival is strongly related to the stage at time of diagnosis. Five-year relative survival rates for Idaho resident females diagnosed with breast cancer were 100% for in-situ cases, 96% for localized cases, 79% for regional cases, and 15% for distant cases. Stage-specific survival rates were quite similar between Idaho resident females and females residing in SEER regions. By race/ethnic group, 5-year and subsequent relative survival was numerically highest among non-Hispanic White women, but the survival rates were not statistically significantly different due to small numbers of cases (Figure 6). The survival curve for Blacks is based on very few cases and has high standard error.

Public Health Implications

Screening data from the BRFSS coupled with stage distribution and stage-specific incidence rates strongly suggest that racial/ethnic discrepancies exist in Idaho in terms of diagnosing breast cancers early among younger women (aged less than approximately 55).

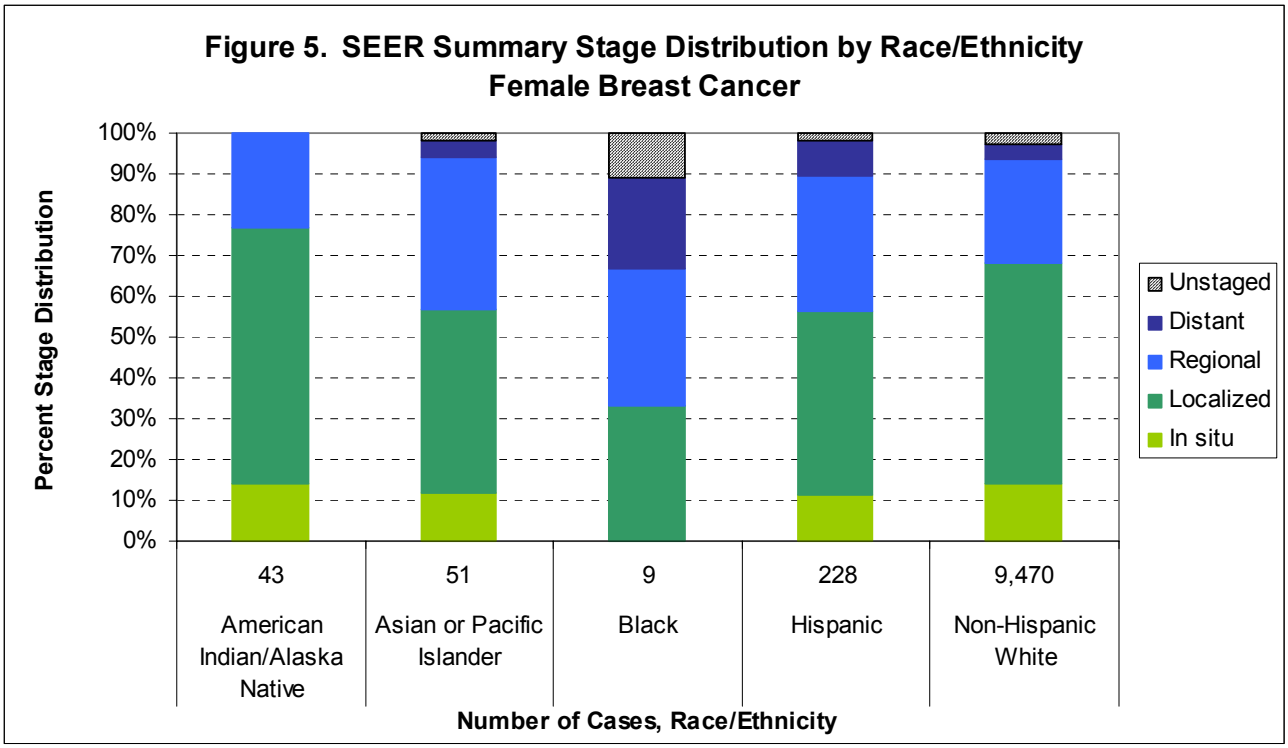


Figure 5. SEER Summary Stage Distribution by Race/Ethnicity
Female Breast Cancer
Percent Stage Distribution
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Unstaged
Distant
Regional
Localized
In situ
43
American Indian/Alaska Native
51
Asian or Pacific Islander
9
Black
228
Hispanic
9,470
Non-Hispanic White
Number of Cases, Race/Ethnicity

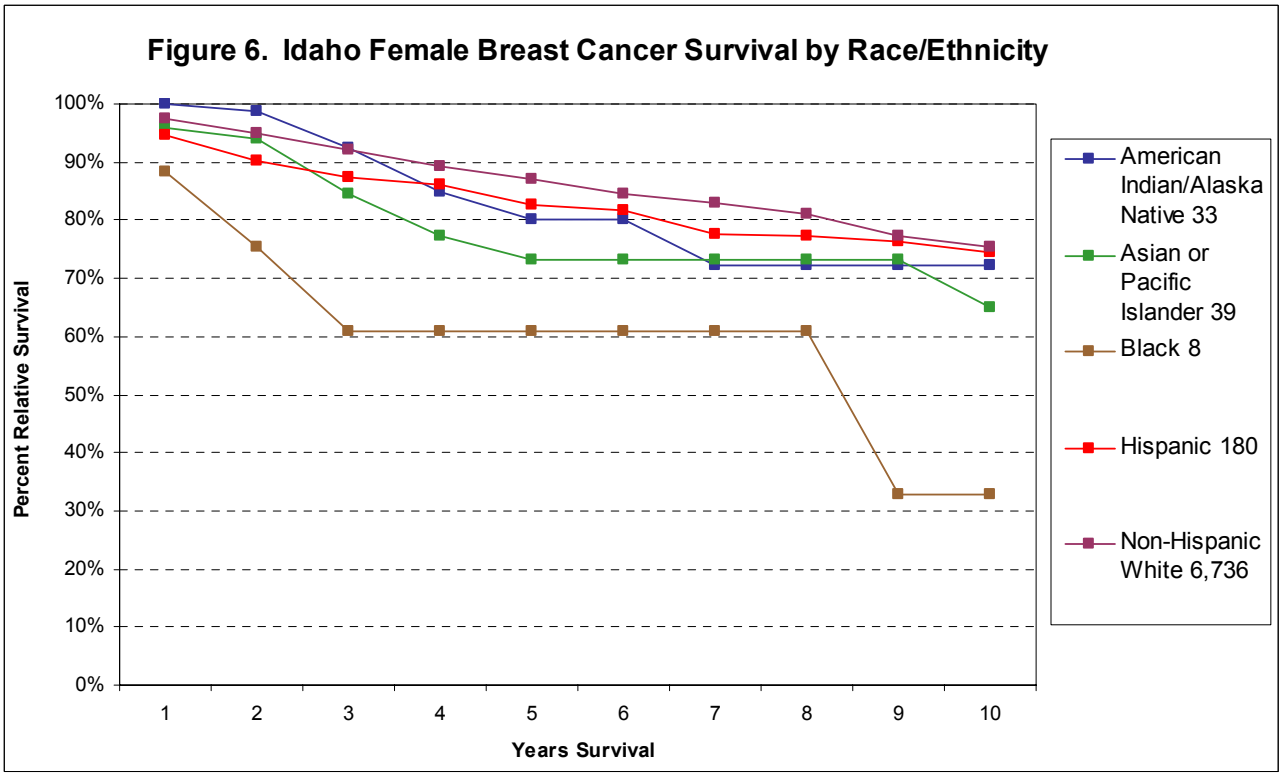


Figure 6. Idaho Female Breast Cancer Survival by Race/Ethnicity
Percent Relative Survival
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1
2
3
4
5
6
7
8
9
10
Years Survival
American Indian/Alaska Native 33
Asian or Pacific Islander 39
Black 8
Hispanic 180
Non-Hispanic White 6,736

Colorectal Cancer

Colorectal cancer is the fourth most common cancer in Idaho and the second most common cause of cancer-related deaths in Idaho. In the US, death from colorectal cancer has declined steadily among women since about 1950 and among men since around 1985. The reasons for these decreases are not well understood. Increased polyp removal, advances in treatment protocols, and other behaviors, including changes in dietary practices, daily use of aspirin, or estrogen replacement therapy, may be contributing factors. In Idaho, colorectal cancer accounted for 6,008 of 57,337 invasive cancer cases from 1990-2001 (10.5%). The risk of developing colorectal cancer increases with age. The rate of colorectal cancer is six times higher among persons 65 years of age and older than among persons aged 40-64 years. Almost 75% of newly diagnosed colorectal cancers occur in persons aged 65 and older. Men are more likely to develop colorectal cancer than women. Other risk factors include a personal history of intestinal adenomatous polyps or inflammatory bowel disease. Specific genetic alterations have been recognized in several hereditary conditions with high risk of colon cancer, such as familial polyposis. Familial conditions account for about 6% of colon cancer cases. Strong evidence has been shown that diets high in fat and low in fiber contribute to increased risk. Regular, moderate physical activity is associated with lower rates of this cancer.

Colorectal Cancer Screening and Risk Factors

The American Cancer Society recommends that adults aged 50 or older at average risk for colorectal cancer be screened with some combination of fecal occult blood test, sigmoidoscopy, or colonoscopy at a frequency appropriate for the test or procedure. Data from the BRFSS show no difference between Hispanics and non-Hispanics in the percent of persons aged 50 years and older who have never been screened for colorectal cancer via sigmoidoscopy or colonoscopy (approximately 55% have never been screened). Due to small numbers of respondents, other race-specific estimates of colorectal cancer screening are not available for Idaho. National data do show disparities with low rates of sigmoidoscopy screening in particular among American Indian/Alaska Natives (29%) and Hispanics (27%) compared to Whites (38%). The Healthy People 2010 target is to increase the proportion of adults aged 50 years and older who have ever received a sigmoidoscopy to 50%.

Table 4. Percent of Idaho Adults Aged 50 Years and Older Who Have NEVER Had a Sigmoidoscopy or Colonoscopy.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	55.0	4077	53.2	56.8
Hispanic	55.1	77	42.3	67.9
Non-Hispanic	55.0	4000	53.1	56.8

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	54.9	4007	53.0	56.7
White	54.9	3938	53.1	56.8
Black or African American	*	*	*	*
Asian or Pacific Islander	*	*	*	*
American Indian or Alaska Native	*	*	*	*

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (2000-2002).

Being overweight or obese can increase the risk of colon cancer (less so for rectal cancer). Risk increases progressively with increasing body fat. Those who are obese are at about twice the risk for colorectal cancer than those who have normal weight (for example, someone 5'7" would be considered overweight if they weighed more than 160 lbs, and obese if they weighed more than 190 lbs). Data from the BRFSS show that Hispanics are statistically significantly more likely to be obese than non-Hispanics (26.2% versus 19.8%, respectively). BRFSS data also show American Indian/Alaska Natives more likely to be obese (24.6%), but the difference was not statistically significant due to a small number of respondents. Idaho data are not available for Blacks, but national data show obesity prevalence to be 30%.

Table 5. Percent of Idaho Adults Who are Obese.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	20.1	13977	19.3	20.8
Hispanic	26.2	580	22.1	30.3
Non-Hispanic	19.8	13397	19.0	20.5

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	19.8	13627	19.1	20.6
White	19.9	13266	19.1	20.7
Black or African American	*	*	*	*
Asian or Pacific Islander	6.6	117	2.4	10.9
American Indian or Alaska Native	24.6	210	18.1	31.1

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (2000-2002).

Physical activity may reduce colon cancer risk (less so for rectal cancer). The benefits of physical activity are not limited only to weight control and improved overall health. The relationship between increased physical activity may be related to improved bowel function and to the beneficial effects of physical activity on metabolism. Hispanics were significantly more likely to be sedentary than non-Hispanics (29.8% versus 19.7%, respectively). BRFSS data also show American Indian/Alaska Natives more likely to be sedentary (25.0%), but the difference was not statistically significant due to a small number of respondents. Idaho data are not available for Blacks, but national data show 50% of Blacks engaged in no leisure-time physical activity in 1997.

Table 6. Percent of Idaho Adults Who Live a Sedentary Lifestyle.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	20.2	14595	19.4	20.9
Hispanic	29.8	602	25.5	34.1
Non-Hispanic	19.7	13993	18.9	20.5

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	19.9	14223	19.2	20.7
White	19.8	13842	19.1	20.6
Black or African American	*	*	*	*
Asian or Pacific Islander	19.2	125	10.4	28.0
American Indian or Alaska Native	25.0	220	18.3	31.7

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (2000-2002).

Colorectal Cancer Incidence

As shown in Figures 7 and 8, age-adjusted incidence rates (2000 US standard) differ by race/ethnic group within Idaho. Males had higher rates of colorectal cancer than females. Blacks had the highest rates of colorectal cancer, and American Indian/Alaska Natives the lowest. In SEER regions, non-Hispanic Whites had significantly higher rates than Hispanics. In Idaho, these rates were higher among Hispanics, but the differences were not statistically significant.

Colorectal Cancer Staging

Nationally, when colorectal cancer is diagnosed at an early, localized stage, the five-year survival rate is 90%. Unfortunately, only about 35% of cases are diagnosed at the local stage. Declines over time in the proportion of colorectal cancers diagnosed in late stages may reflect an increase in screening practices. The same methods used to screen for colorectal cancers can also be used to remove polyps, preventing the growths from becoming cancerous in many cases. For Idaho cases, stage was divided into in-situ, localized, regional, and distant cases (Figure 9). There was no significant difference among race/ethnic groups in the distribution of colorectal cancer cases by stage ($p=0.4448$).

Colorectal Cancer Survival

Colorectal cancer survival is strongly related to the stage at time of diagnosis. Five-year relative survival rates for Idaho residents diagnosed with colorectal cancer were 90% for localized cases, 69% for regional cases, and 7% for distant cases. Stage-specific survival rates were quite similar between Idaho and SEER cases. Idaho resident colorectal cancer relative survival curves were similar by race/ethnic group, but may mask real differences due to small numbers of cases (Figure 10). The survival curve for Blacks is based on very few cases and has high standard error.

Public Health Implications

National colorectal cancer screening data strongly suggest that racial/ethnic discrepancies exist in the proportion of persons aged 50 and older who are screened. While Idaho BRFSS data show no difference in screening between Hispanics and non-Hispanics and there were too few respondents from other race groups to present results, Idahoans overall need to improve colorectal cancer screening utilization. Data from the BRFSS show that American Indian/Alaska Natives and Hispanics are more likely than other race/ethnic groups to be overweight, obese, and to live sedentary lifestyles, all of which are risk factors for colorectal and certain other cancers.

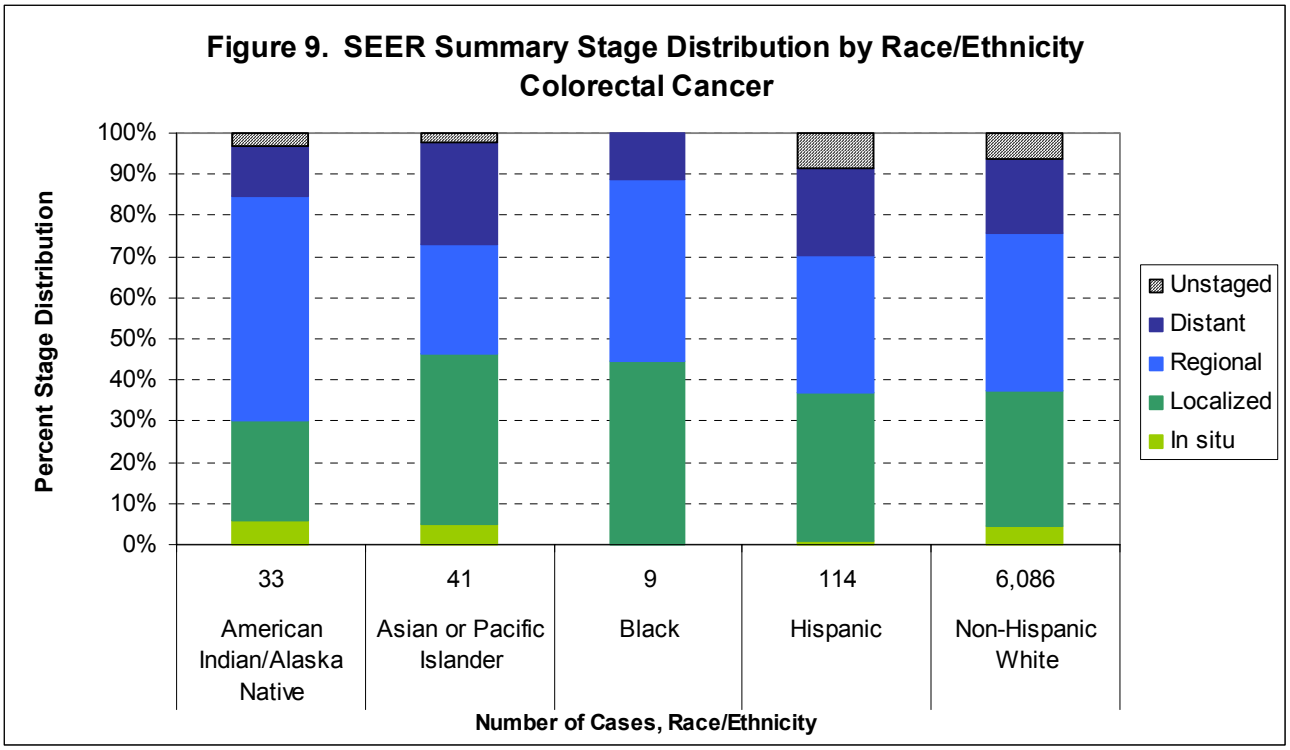


Figure 9. SEER Summary Stage Distribution by Race/Ethnicity
Colorectal Cancer
Percent Stage Distribution
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Unstaged
Distant
Regional
Localized
In situ
33
41
9
114
6,086
American Indian/Alaska Native
Asian or Pacific Islander
Black
Hispanic
Non-Hispanic White
Number of Cases, Race/Ethnicity

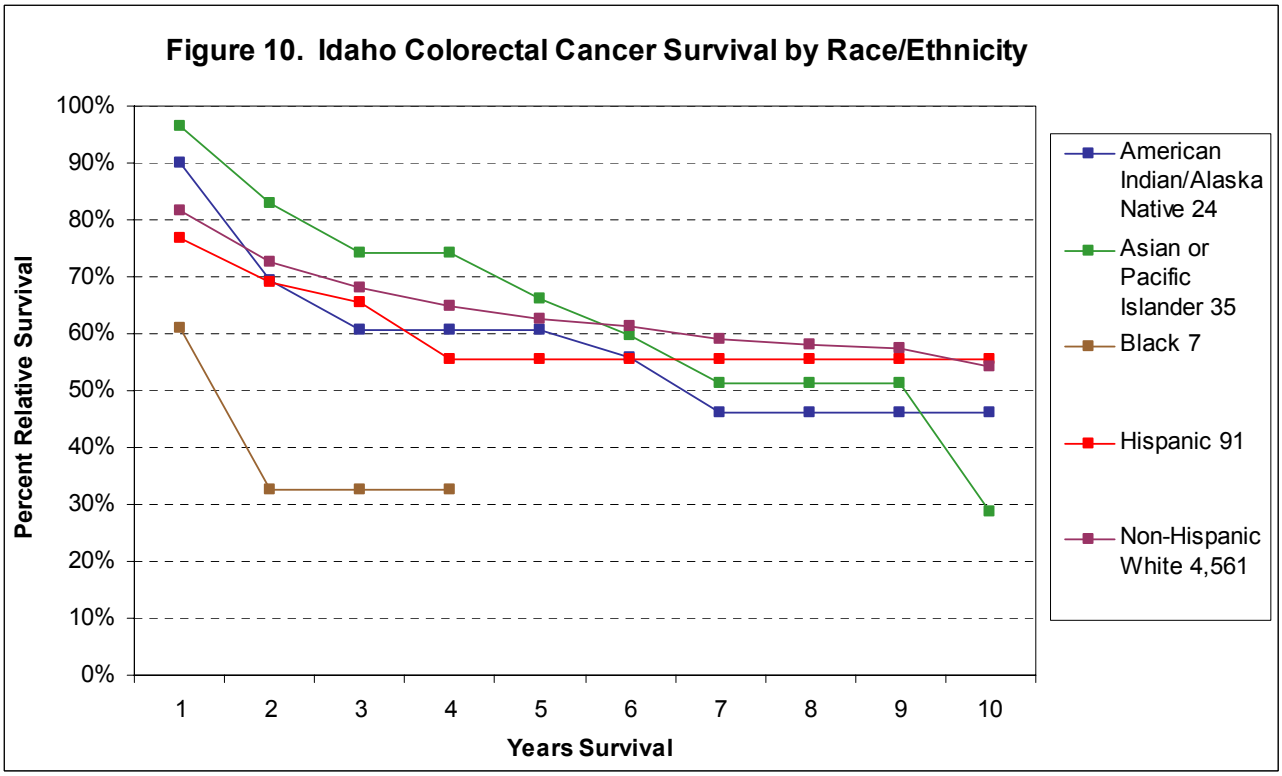


Figure 10. Idaho Colorectal Cancer Survival by Race/Ethnicity
Percent Relative Survival
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1
2
3
4
5
6
7
8
9
10
Years Survival
American Indian/Alaska Native 24
Asian or Pacific Islander 35
Black 7
Hispanic 91
Non-Hispanic White 4,561

Lung Cancer

Lung cancer is the third most common cancer, and the leading cause of cancer death among both males and females. In Idaho, lung cancer accounted for 7,178 of 57,337 invasive cancer cases from 1990-2001 (12.5%). Lung cancer rates increase with age. Generally, incidence is higher among Blacks than other racial groups and is also higher in lower income groups. Nationally, lung cancer incidence and mortality rates have been declining among men. Among women, incidence and mortality rates increased for decades and leveled off in the 1990s, but not among Black women. Decreasing lung cancer incidence and mortality rates are mostly from decreased smoking rates over the past 30 years. However, decreasing smoking patterns among women are lagging behind those of men.

Cigarette smoking is by far the most important risk factor in the development of lung cancer. Other risk factors include occupational or environmental exposures to substances such as arsenic; some organic chemicals; radon and asbestos (particularly among smokers); radiation exposure from occupational, medical, and environmental sources; air pollution; tuberculosis; and, for nonsmokers, environmental tobacco smoke. Cigarette smoking, including exposure to second-hand smoke, accounts for over 85% of lung cancer deaths.

Smoking

Data from the Idaho BRFSS show that American Indian/Alaska Natives have a significantly higher smoking rate than other race/ethnic groups (Table 7). The smoking rate among American Indian/Alaska Natives (37.9%) was twice as high as the rate among Asian or Pacific Islanders (18.2%), and nearly twice as high as for other groups. The Healthy People 2010 target is to decrease smoking prevalence to 12% or lower.

Table 7. Percent of Idaho Adults Who Currently Smoke.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	20.8	14572	20.0	21.6
Hispanic	21.8	600	17.7	25.8
Non-Hispanic	20.7	13972	19.9	21.5

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	20.6	14202	19.8	21.4
White	20.3	13821	19.5	21.1
Black or African American	*	*	*	*
Asian or Pacific Islander	18.2	125	11.1	25.2
American Indian or Alaska Native	37.9	220	30.3	45.4

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (2000-2002).

Lung Cancer Incidence

Historically, Idaho's lung cancer incidence rates have been significantly lower than the rates in the US. Rates for females in Idaho are on the rise due to higher smoking rates among women in recent years. As shown in Figures 11 and 12, males had higher rates of lung and bronchus cancer than females. Among males in SEER regions, Blacks had the highest rates of lung

cancer and Hispanics had the lowest. Among males in Idaho, rates were highest among Hispanics and non-Hispanic Whites, and lowest among American Indian/Alaska Natives. Among females in SEER regions, Blacks and non-Hispanic Whites had higher rates of lung cancer than for other race/ethnic groups. Among females, Hispanic and non-Hispanic Whites had more similar rates of lung and bronchus cancer in Idaho than in SEER regions.

Lung Cancer Staging

There is currently no effective screening tool for lung cancer. Early detection of lung cancer has not yet been proven to improve survival. Chest x-ray, analysis of cells in sputum, and fiberoptic examination of the bronchial passages have shown limited effectiveness in early lung cancer detection. Newer tests, such as low-dose helical CT scans and molecular markers in sputum, can detect lung cancer earlier. The impact of these screening tests on survival is being evaluated. For Idaho cases, SEER summary stage was divided into localized, regional, and distant cases (Figure 13). There was no significant difference among race/ethnic groups in the distribution of lung cancer stage ($p=0.7752$).

Lung Cancer Survival

Survival from lung cancer is among the poorest of all cancer sites. Nationally, the 1-year relative survival rate for lung cancer increased from 34% in 1975 to 42% in 1998. However, the 5-year rate for all stages combined is only 15%. The 5-year survival rate is 49% for cases detected when the disease is still localized, but only 15% of cases are diagnosed at this early stage. Stage-specific lung cancer survival rates were slightly lower in Idaho than in SEER regions. Idaho resident lung cancer relative survival curves were similar for all race/ethnic groups except American Indian/Alaska Natives, whose survival was lower (Figure 14).

Public Health Implications

Tobacco-attributable disease (lung cancer, heart disease, chronic obstructive pulmonary disease, etc.) accounts for 440,000 deaths per year in the United States and remains the leading cause of preventable death and disease. From Idaho BRFSS data, we may anticipate higher rates of lung cancer in the future among American Indian/Alaska Natives due to the much higher smoking rates among this population today. While tobacco prevention and cessation is important for the health of all Idahoans, it is critical to lower smoking rates among American Indian/Alaska Natives.

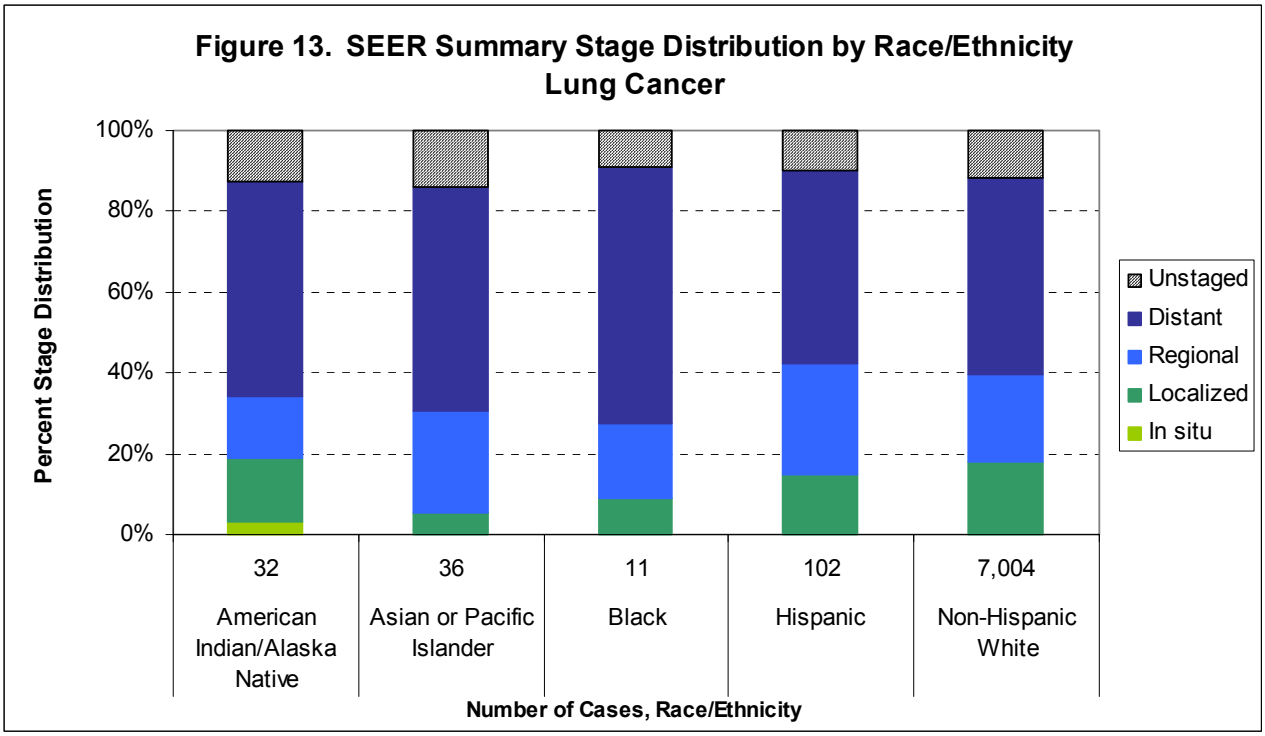


Figure 13. SEER Summary Stage Distribution by Race/Ethnicity
Lung Cancer
Percent Stage Distribution
100%
80%
60%
40%
20%
0%
Unstaged
Distant
Regional
Localized
In situ
32
36
11
102
7,004
American Indian/Alaska Native
Asian or Pacific Islander
Black
Hispanic
Non-Hispanic White
Number of Cases, Race/Ethnicity

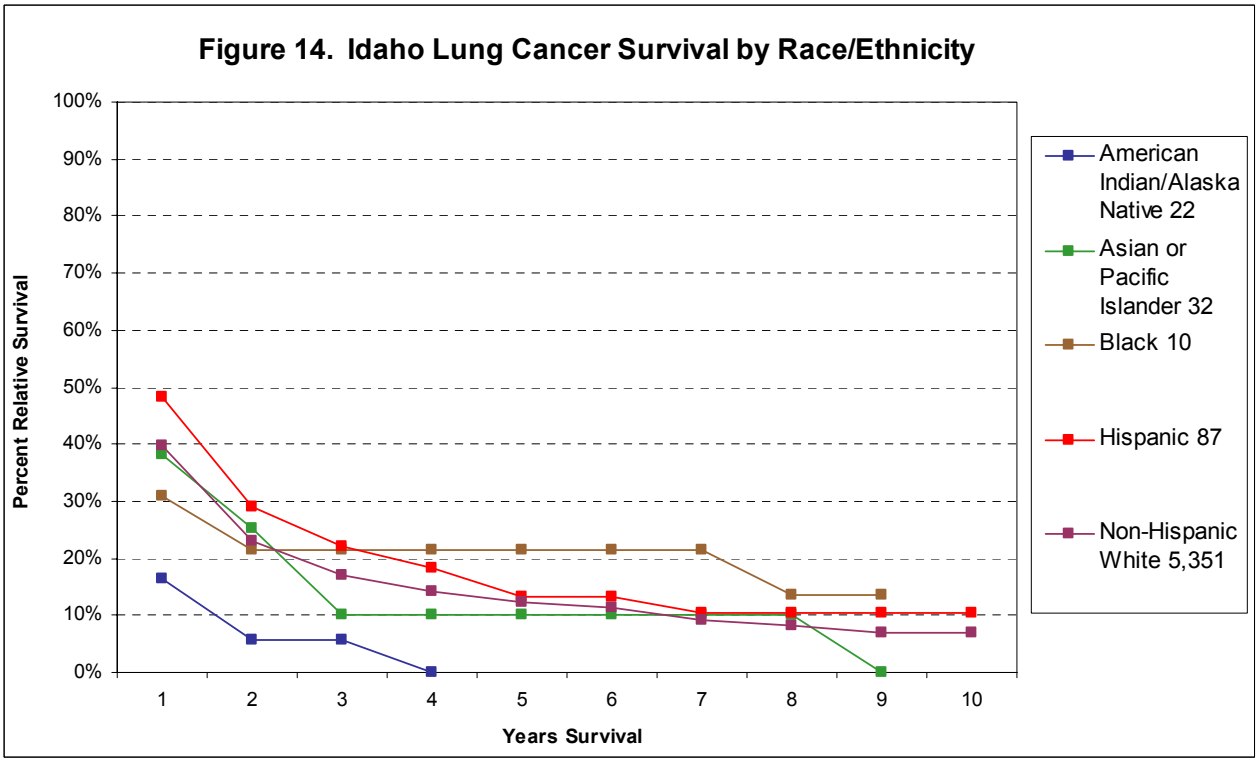


Figure 14. Idaho Lung Cancer Survival by Race/Ethnicity
Percent Relative Survival
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1
2
3
4
5
6
7
8
9
10
Years Survival
American Indian/Alaska Native 22
Asian or Pacific Islander 32
Black 10
Hispanic 87
Non-Hispanic White 5,351

Prostate Cancer

Prostate cancer is the most common cancer among males. About one in six men in Idaho will be diagnosed with prostate cancer sometime in his life. In Idaho, prostate cancer accounted for 10,071 of 30,780 invasive cancer cases among males from 1990-2001 (32.7%). Three risk factors are well established: age, family history, and race/country of residence. Prostate cancer is primarily a disease of older men; it is rarely diagnosed before age 50. Black men in the US have the highest rates of prostate cancer in the world. Farming is the most consistent occupational risk factor for prostate cancer. Methyl bromide pesticide application has been identified as a risk factor by the Agricultural Health Study.[16] Recent genetic studies suggest that strong familial predisposition may be responsible for 5-10% of prostate cancers. International studies suggest that dietary fat may also be a risk factor.

Prostate Cancer Screening

Between 1988 and 1992, prostate cancer incidence rates increased dramatically in the US due to earlier diagnosis in men without symptoms using the prostate specific antigen (PSA) blood test. Prostate cancer incidence rates subsequently declined and have leveled off, especially in the elderly. The ACS recommends that both the PSA blood test and the digital rectal examination be offered annually, beginning at age 50, to men who have a life expectancy of at least 10 years and to younger men who are at high risk. Idaho BRFSS data show a marked disparity in PSA screening prevalence, with 71.5% of Hispanic men aged 40 and older having not been screened in the past 2 years, compared with 50.6% of non-Hispanic men. Due to small numbers of respondents, PSA screening estimates are not available for other race/ethnic groups.

Table 8. Percent of Idaho Men Aged 40 and Older Who Have NOT Had a PSA Exam in the Past 2 Years.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	51.1	2435	48.9	53.4
Hispanic	71.5	58	57.6	85.4
Non-Hispanic	50.6	2377	48.3	52.9

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	50.8	2368	48.5	53.1
White	50.7	2314	48.4	53.0
Black or African American	*	*	*	*
Asian or Pacific Islander	*	*	*	*
American Indian or Alaska Native	*	*	*	*

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (2000-2002).

Prostate Cancer Incidence

In both SEER regions and Idaho, Blacks had the highest rates of prostate cancer incidence, and American Indian/Alaska Natives the lowest (Figure 15). There was less variation in rates among race/ethnic groups in Idaho than in SEER regions.

Prostate Cancer Staging

Stage was divided into early (localized) and late (regional and distant) cases. There were borderline significant differences among race/ethnic groups in the proportion of prostate cancer cases diagnosed late stage ($p<0.0565$). As shown in Figure 16, American Indian/Alaska Natives, Asian or Pacific Islanders, and Hispanic men were significantly more likely to be diagnosed with late stage prostate cancer (35.7%, 31.0%, and 31.3% respectively) compared with Blacks and non-Hispanic White men (15.8% and 22.9%).

Prostate Cancer Survival

Prostate cancer survival is related to the stage at time of diagnosis. Five-year relative survival rates for Idaho resident males diagnosed with prostate cancer were near 100% for localized and regional cases, and 30% for distant cases. Stage-specific survival rates were quite similar between Idaho resident males and males residing in SEER regions. By race/ethnic group, 4-year and subsequent relative survival was lowest among American Indian/Alaska Natives (Figure 17).

Public Health Implications

Screening data from the BRFSS coupled with stage distribution information suggest that racial/ethnic discrepancies exist in Idaho in terms of diagnosing prostate cancer at early stages. However, this may be an artifact of finding indolent prostate cancers among more highly screened populations, as late-stage prostate cancer rates were not different among race/ethnic groups. Decisions about prostate cancer screening and treatment are complex; patients should be given information about the risks, benefits, and limitations so they may make informed decisions. Better information on the utility of PSA screening on prostate cancer survival through clinical trials will become available in the next several years.

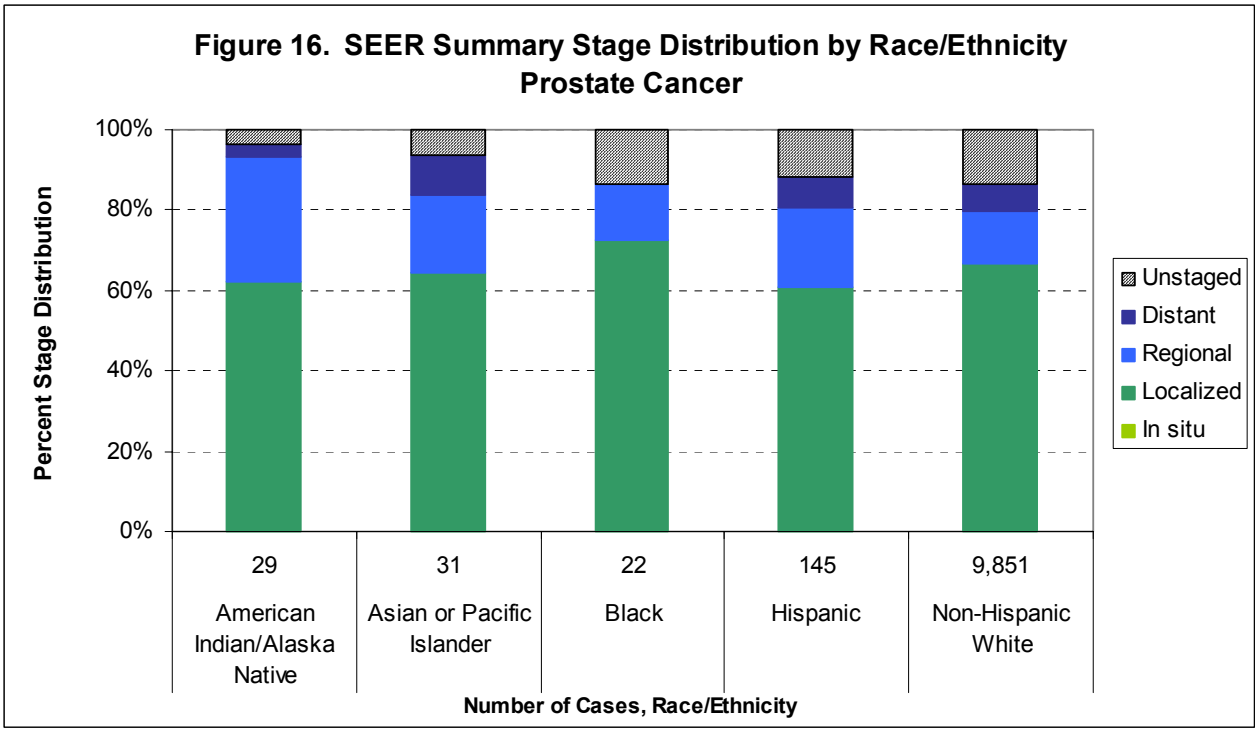


Figure 16. SEER Summary Stage Distribution by Race/Ethnicity
Prostate Cancer
Percent Stage Distribution
100%
80%
60%
40%
20%
0%
Unstaged
Distant
Regional
Localized
In situ
29
American Indian/Alaska Native
31
Asian or Pacific Islander
22
Black
145
Hispanic
9,851
Non-Hispanic White
Number of Cases, Race/Ethnicity

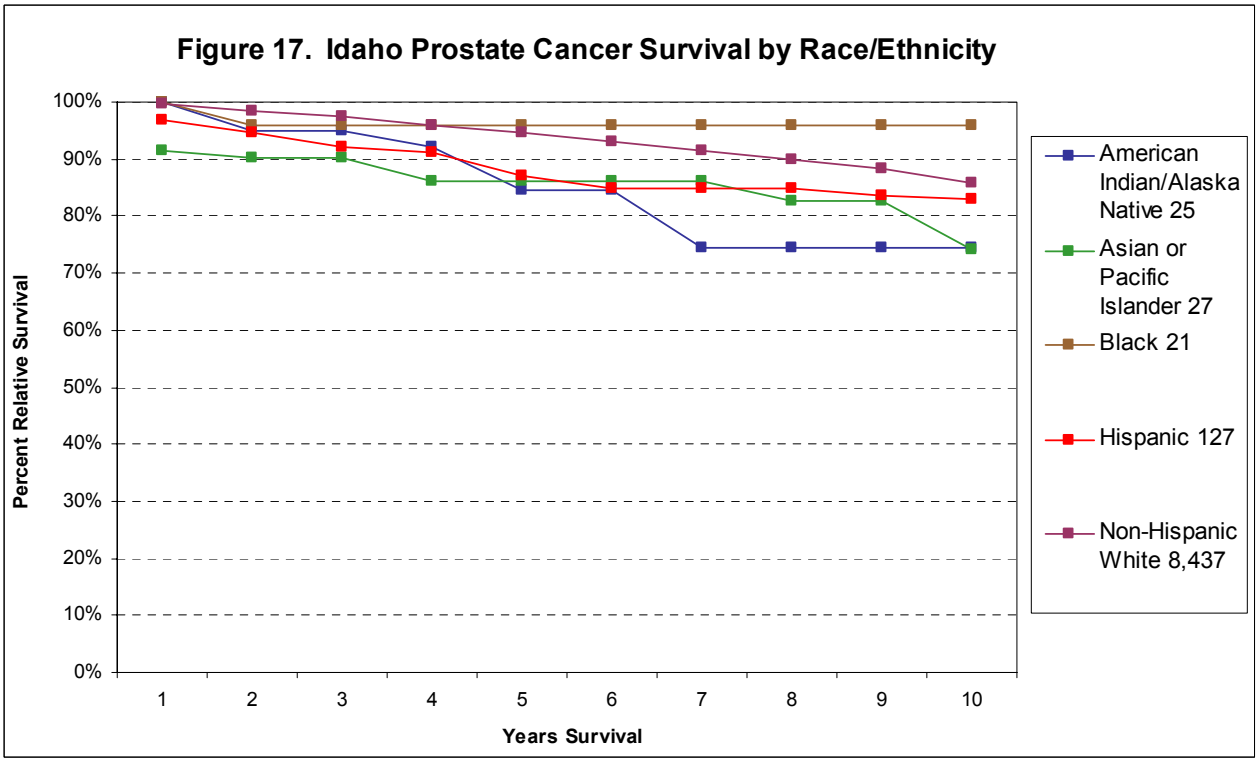


Figure 17. Idaho Prostate Cancer Survival by Race/Ethnicity
Percent Relative Survival
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1
2
3
4
5
6
7
8
9
10
Years Survival
American Indian/Alaska Native 25
Asian or Pacific Islander 27
Black 21
Hispanic 127
Non-Hispanic White 8,437

SECTION III

ALCOHOL USE

Alcohol Consumption

Excessive alcohol consumption is a known or suspected risk factor for several cancers, including cancers of the esophagus, larynx, liver, oral cavity and pharynx. As with cancers due to cigarette smoking, cancers due to excessive alcohol use may be completely prevented. Data from the Idaho BRFSS show that American Indian/Alaska Natives and Hispanics are more likely to be binge or chronic drinkers, and Asian or Pacific Islanders are less likely to be binge or chronic drinkers than other groups.

Table 9. Percent of Idaho Adults Who are at Risk for Binge Drinking.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	14.4	14484	13.7	15.0
Hispanic	22.8	593	18.3	27.3
Non-Hispanic	14.0	13891	13.3	14.6

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	14.1	14120	13.5	14.8
White	14.1	13746	13.4	14.8
Black or African American	*	*	*	*
Asian or Pacific Islander	7.8	123	2.1	13.4
American Indian or Alaska Native	19.0	216	12.9	25.2

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (2000-2002).

Table 10. Percent of Idaho Adults Who are at Risk for Chronic Drinking.

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	4.8	14453	4.4	5.3
Hispanic	5.7	594	2.6	8.8
Non-Hispanic	4.8	13859	4.3	5.2

			95% CI	
	PERCENT	N	LOWER	UPPER
Total	4.8	14089	4.3	5.2
White	4.8	13715	4.4	5.3
Black or African American	*	*	*	*
Asian or Pacific Islander	1.5	123	0.0	3.1
American Indian or Alaska Native	5.4	216	1.6	9.1

* Estimates not shown due to too few respondents (<50).
Data from aggregated BRFSS Data Set (2000-2002).

Public Health Implications

Curtailment of binge and chronic drinking among American Indian/Alaska Natives and Hispanics in Idaho needs to become a cancer prevention goal.

SECTION IV

SYNOPSES FOR OTHER CANCER SITES

Synopses for Other Cancer Sites

Bladder Cancer

Bladder cancer incidence rates increase steadily with age and are substantially higher in males than females. Occupational exposures, most prominently aniline dye used in textile, rubber, and cable industries, are associated with a large proportion of bladder cancer cases. Exposure to permanent hair dyes increases risk. Tobacco consumption has been associated with a six-fold higher incidence of bladder tumor. Nitrate and arsenic in drinking water have each been shown to increase the risk of bladder cancer.

As seen in Figures 18-19, males had significantly higher rates of bladder cancer than females. Among males and females, non-Hispanic Whites had significantly higher rates of bladder cancer than other race/ethnic groups.

Brain Cancer

Brain cancer is the second most common cancer among children, following leukemia. Adult malignant brain tumors are most common after age 60. The incidence rate is higher among persons with higher social class. Certain genetic factors may cause an increased risk of some malignant brain tumors, including gliomas. Vinyl chloride is a known human carcinogen with exposure causing brain cancer and other types of cancer. Many occupational and environmental exposures have shown suggestive associations with elevated rates of brain cancer, including radiation and agricultural chemicals.

As seen in Figures 20-21, males had higher rates of brain cancer than females. In SEER regions, non-Hispanic Whites had significantly higher rates of brain cancer than other race/ethnic groups. In Idaho, Hispanics and non-Hispanic Whites had about the same rates of brain cancer incidence, higher than among the remaining race groups.

Cervical Cancer

The Pap test is the greatest success story for cancer screening. Cervical cancer used to be the leading cause of cancer deaths in women, but since the widespread use of this diagnostic procedure in the early 1940s, the death rate has decreased by 70%. The Pap test detects about 95% of cervical cancer. The majority of invasive cervical cancers are diagnosed in older women. Risk factors include human papilloma virus infection and cigarette smoking.

In SEER regions and Idaho (Figure 22), Hispanic women had the highest rates of cervical cancer, and American Indian/Alaska Native women had the lowest. Hispanic women had significantly higher rates of cervical cancer than non-Hispanic Whites.

Endometrium

Endometrial cancers occur predominantly after menopause with median age at diagnosis around 60 years. Obesity and hypertension are common associated conditions of endometrial cancer. Factors that elevate levels of estrogen or decrease progesterone enhance risk. An increased incidence of endometrial cancer has been found in association with prolonged, unopposed estrogen as well as with tamoxifen treatment of breast cancer.

In SEER regions (see Figure 23), non-Hispanic Whites had significantly higher rates of endometrium cancer incidence than other race/ethnic groups. In Idaho, Hispanic women had numerically the highest rate of endometrium cancer, but there were no significant differences among race/ethnic groups.

Esophagus

The incidence of esophageal cancer is highest after about age 55. Chimney sweeps exposed to soot are at higher risk. Tobacco use (cigarettes or spit tobacco) and heavy alcohol consumption are major risk factors for cancer of the esophagus. The risk is particularly increased when these two factors are both present.

As seen in Figures 24-25, males had higher rates of esophagus cancer than females. For both males and females, Blacks had significantly higher rates of esophagus cancer than other race/ethnic groups.

Hodgkin Lymphoma

The incidence of Hodgkin lymphoma is typically bimodal with respect to age, usually with a peak in the late twenties to early thirties, and another peak in the ninth decade of life. Hodgkin lymphoma is more common in higher income groups. Genetic factors and certain viral infections are thought to play a role in the etiology of Hodgkin lymphoma, but these are yet to be adequately defined. With current treatment, Hodgkin lymphoma, which was once highly fatal, is among the most curable of all cancers.

In SEER regions (see Figures 26-27), non-Hispanic Whites had higher rates of Hodgkin lymphoma than other race/ethnic groups. Idaho rates for most race/ethnic groups were based on small numbers of cases and had substantial variability.

Kidney and Renal Pelvis

Both adults and children are at risk for kidney cancer. Renal cell carcinoma accounts for 80% of all adult kidney cancers. Wilm's tumor (nephroblastoma) often occurs with congenital defects, affects predominantly children under age five, and accounts for the majority of childhood kidney cancers. Certain occupations, such as laundry and leather workers, have an increased risk due to chemical exposure. Cigarette smoking is strongly associated with adult kidney cancer with smokers at twice the risk of developing kidney cancer as non-smokers.

As seen in Figures 28-29, males had higher rates of kidney and renal pelvis cancer than females. In SEER regions, Blacks had the highest rates of kidney and renal pelvis cancer, and Asian or Pacific Islanders had the lowest. In Idaho, rates for most race/ethnic groups were similar within sex strata.

Larynx

Rates of cancer of the larynx increase with age with the vast majority of cases occurring after age 55. Lower income groups experience higher rates. Laryngeal cancer has been associated with exposures such as asbestos and wood dust. Diets low in fresh fruit and vegetables may increase the risk. Cigarette smoking and alcohol use are both major risk factors. The combination of alcohol consumption and tobacco use (smoking or spit tobacco) acts greatly to increase the risk.

As seen in Figures 30-31, males had higher rates of larynx cancer than females. In SEER regions, Blacks had the highest rates of larynx cancer.

Leukemia

Leukemia is the most common form of cancer in children. Incidence usually increases with age in adults. The highest rates occur in individuals over age 60. Children with certain congenital defects are at increased risk for various types of leukemia. Benzene is a known cause of leukemia (predominantly acute myelogenous leukemia [AML]). Ionizing radiation exposure increases the risk of leukemia. Environmental exposure to low frequency, non-ionizing radiation is being investigated as a risk factor. Exposure to herbicides used during the Vietnam War, including Agent Orange, has been associated with increased incidence of chronic lymphocytic leukemia (CLL).

As seen in Figures 32-33, males had higher rates of leukemia than females. In SEER regions, non-Hispanic Whites had the highest rates of leukemia. In Idaho, Hispanics had the highest rates, but they were not significantly different than rates for other race/ethnic groups.

Liver and Bile Duct

The incidence of liver cancer increases with age. Aflatoxins, which are present in certain foods such as peanut butter, are classified as a known human carcinogen, causing liver cancer. Exposure to vinyl chloride used in plastic production is associated with an increased risk of angiosarcoma of the liver. Cigarette smoking increases the risk for liver cancer. Hepatitis B and C infections are significant causes of hepatocellular carcinoma. Cirrhosis of the liver due to viral hepatitis, alcoholism, or toxic chemical exposure accounts for 50-80% of liver cancers.

As seen in Figures 34-35, males had higher rates of liver and bile duct cancer than females. In SEER regions, Asian or Pacific Islanders had the highest rates of liver and bile duct cancer and non-Hispanic Whites had the lowest. Similar patterns were observed for Idaho, although Idaho rates for most race/ethnic groups were based on small numbers of cases and had substantial variability.

Melanoma of the Skin

Incidence rates of melanoma increase with age, and melanoma is extremely uncommon before puberty. Ultra-violet light exposure, especially blistering sunburns during childhood, is a major risk factor. Melanoma has been on the increase nationally for several decades. People with light skin and individuals with numerous or atypical moles are at increased risk.

As seen in Figures 36-37, males had higher rates of melanoma than females. For both Idaho and SEER regions, non-Hispanic Whites had significantly higher rates of melanoma than other race/ethnic groups.

Myeloma

Multiple myeloma is an age-dependent cancer. It increases with age and rarely occurs before age 40. Studies have suggested several possible viral etiologies, and other potential risk factors including computer use and breast implants are currently being investigated. Specific environmental exposures, such as herbicides and radiation, may also play an important role in the incidence of multiple myeloma. Farm work is a known risk factor.

Blacks had the highest rates of myeloma in Idaho and SEER regions for both males and females (Figures 38-39).

Non-Hodgkin Lymphoma

Rates of non-Hodgkin lymphoma increase with age reaching the highest levels in the eighth and ninth decades of life. Rates are higher in upper income groups. Non-Hodgkin lymphoma occurs with increased frequency in individuals infected with certain viruses, particularly human immunodeficiency virus (HIV). Exposure to agricultural chemicals, polychlorinated biphenyls (PCBs), and high-dose radiation exposures have also been implicated.

As seen in Figures 40-41, males had higher rates of non-Hodgkin lymphoma than females. In SEER regions, non-Hispanic Whites had higher rates of non-Hodgkin lymphoma than other race/ethnic groups. Idaho rates for most race/ethnic groups were based on small numbers of cases and had substantial variability.

Oral Cavity and Pharynx

Most cases of oral and pharyngeal cancer occur in persons aged over 60 years. Rates are higher among lower income groups. Increased risk is associated with diets low in fresh fruit and vegetables. There is increased risk among workers in the textile and leather manufacturing industries. Smoking and spit tobacco are major risk factors for cancers of the oral cavity and pharynx. Over 90% of cases are associated with tobacco use. Alcohol use, especially excessive, is a major risk factor. Combined exposure to tobacco and alcohol results in substantially higher risk.

As seen in Figures 42-43, males had higher rates of cancer of the oral cavity and pharynx than females. Among males in SEER regions, Blacks had the highest rates of cancer of the oral cavity and pharynx and Hispanics the lowest. Among males in Idaho, non-Hispanic Whites had the highest rate. Among females in SEER regions, Blacks and non-Hispanic Whites had the highest rates of cancer of the oral cavity and pharynx, and American Indian/Alaska Natives and Hispanics had the lowest. This pattern was similar for Idaho except Hispanics and non-Hispanic Whites had similar rates, and the rates for other race/ethnic groups were based on small numbers of cases and had substantial variability.

Ovary

The rate of ovarian cancer increases with age, and it is primarily a disease of older women. The rate is higher among upper income groups. The most important risk factor for ovarian cancer is a family history of a first-degree relative (mother, daughter, or sister) with the disease. The risk is higher still in women with two or more first-degree relatives with ovarian cancer. Dietary fat may increase the risk. Risk of ovarian cancer is significantly reduced among women having at least one live-born child, a history of breast-feeding, or sustained oral contraceptive use.

In both SEER regions and Idaho, non-Hispanic Whites had the highest rates of ovarian cancer (Figure 44).

Pancreas

Rates of cancer of the pancreas increase with age, and it is rare in people younger than 40 years old. High dietary fat has been implicated as a potential risk factor. Pancreatic cancer is

more common among smokers than non-smokers. Familial clustering has been observed in some studies. Pancreatic cancer usually progresses to an advanced stage before symptoms develop; it is rapidly fatal in over 90% of cases.

In SEER regions, Blacks had the highest rates of pancreas cancer, and American Indian/Alaska Natives had the lowest (Figures 45-46). Patterns were generally similar between SEER regions and Idaho.

Stomach

Rates of stomach cancer increase with age. Incidence is higher in lower income groups. Increased risk has been attributed to diets high in smoked foods and foods high in nitrates. Diets high in fresh fruits and vegetables seem to be protective in reducing the risk of stomach cancer. Elevated rates have been found in certain occupational groups, especially coal miners and asbestos workers. Stomach cancer has been recently linked to peptic ulcer disease and to certain bacteria associated with increased risk for both diseases.

As seen in Figures 47-48, males had higher rates of stomach cancer than females. In SEER regions, Asian or Pacific Islanders had the highest rates of stomach cancer, and non-Hispanic Whites the lowest. Patterns were generally similar between SEER regions and Idaho, except some of the rates for Idaho were based on small numbers of cases and had substantial variability.

Testis

Testicular cancer is the most common cancer in young adult males, especially between the ages of 20 and 34. Undescended testis, a minor abnormality that can usually be detected and corrected with surgery in childhood, is responsible for a substantially high risk for testicular cancer when uncorrected. Some evidence suggests that males exposed in utero to diethylstilbestrol (DES) are at increased risk. With current treatment, the cure rates for testicular cancer are greater than 80%.

In both SEER regions and Idaho, non-Hispanic Whites had the highest rates of testis cancer incidence (Figure 49). Patterns were generally similar between SEER regions and Idaho, but there was generally less variation in rates among race/ethnic groups in Idaho than in SEER regions.

Thyroid

Thyroid cancer is one of the most common malignancies affecting adolescents and adults up to 50 years of age. Hormonal factors are believed to contribute to the increased risk in females. This is demonstrated by the sharp increase in incidence among women after menarche. Occupational and environmental exposures to ionizing radiation have been associated with higher rates of thyroid cancer. Family history of thyroid cancer substantially increases the risk. Death due to thyroid cancer under age 40 is rare. Prognosis worsens with age at diagnosis for each decade of age over 50.

As seen in Figures 50-51, females had higher rates of thyroid cancer than males. In SEER regions, Asian or Pacific Islanders and non-Hispanic Whites had higher rates of thyroid cancer. Patterns were generally similar between SEER regions and Idaho except some of the rates for Idaho were based on small numbers of cases and had substantial variability.

Pediatric Cancer (Ages 0-19)

Although relatively rare in comparison with cancer in older adults, cancer is the second leading cause of death in persons aged 1-14 years. The epidemiology of cancer among children differs markedly from that of adults, both in the patterns of anatomic sites involved and the predominant histologic types. Most notably, the tumors diagnosed in children frequently involve the hematopoietic and central nervous systems or are of mesenchymal origin. In contrast, malignancies of epithelial tissues, which are predominant in adults, are uncommon in children. Similar to adult cancers, the etiology of many childhood cancers remains unclear.

In both SEER regions and Idaho, non-Hispanic Whites had the highest rates of pediatric cancer, and American Indian/Alaska Natives the lowest (Figures 52-53). Patterns were generally similar between SEER regions and Idaho except some of the rates for Idaho were based on small numbers of cases and had substantial variability.

SECTION V

FIGURES OF AGE-ADJUSTED CANCER INCIDENCE RATES BY RACE/ETHNIC GROUP FOR IDAHO AND SEER BY SITE AND SEX

(Organized alphabetically, except testis is on the same page as prostate.)

Figure 1. All Sites Cancer Incidence, 1990-2001
Males

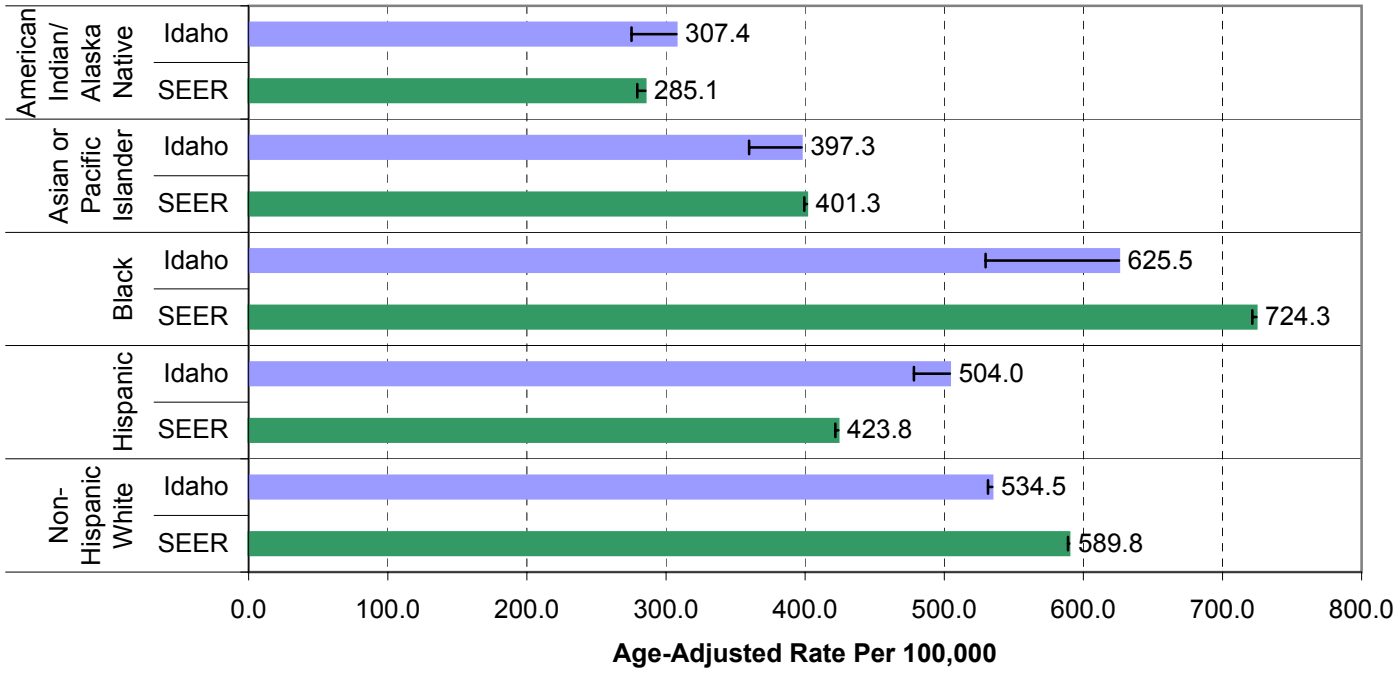
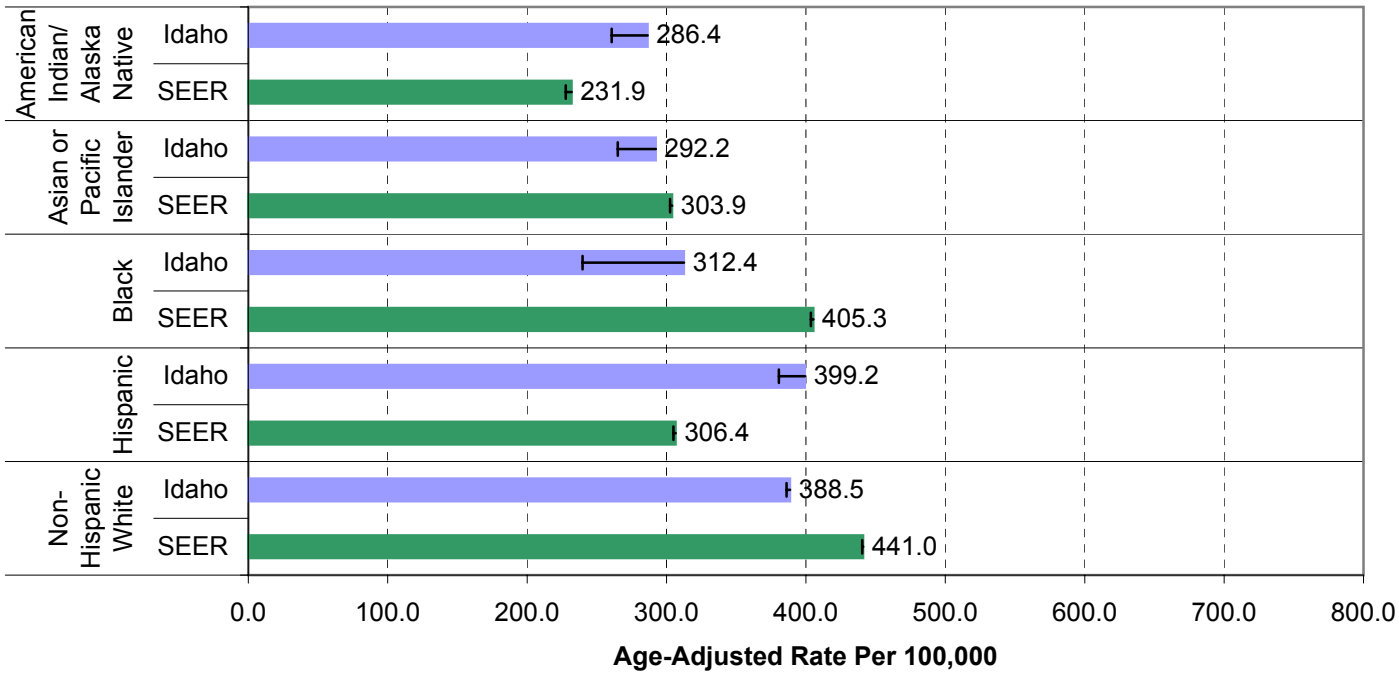


Figure 2. All Sites Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 18. Bladder Cancer Incidence, 1990-2001
Males

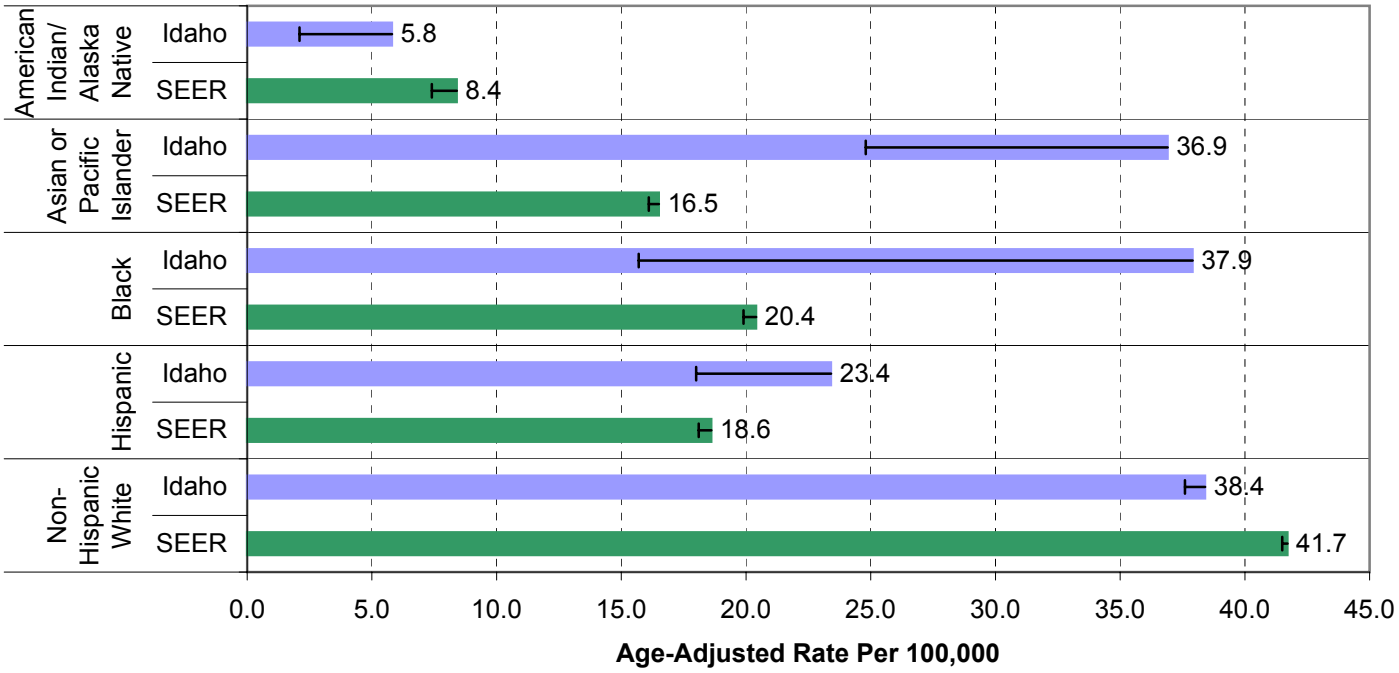
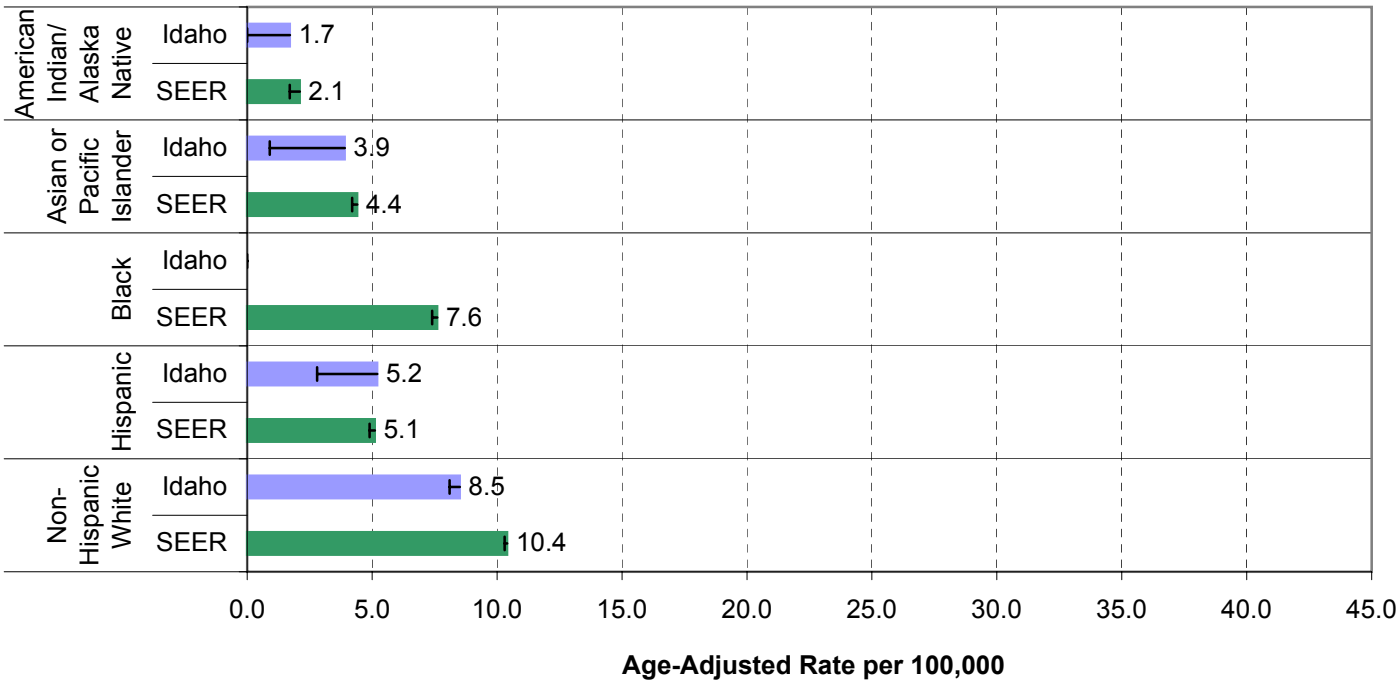


Figure 19. Bladder Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 20. Brain Cancer Incidence, 1990-2001
Males

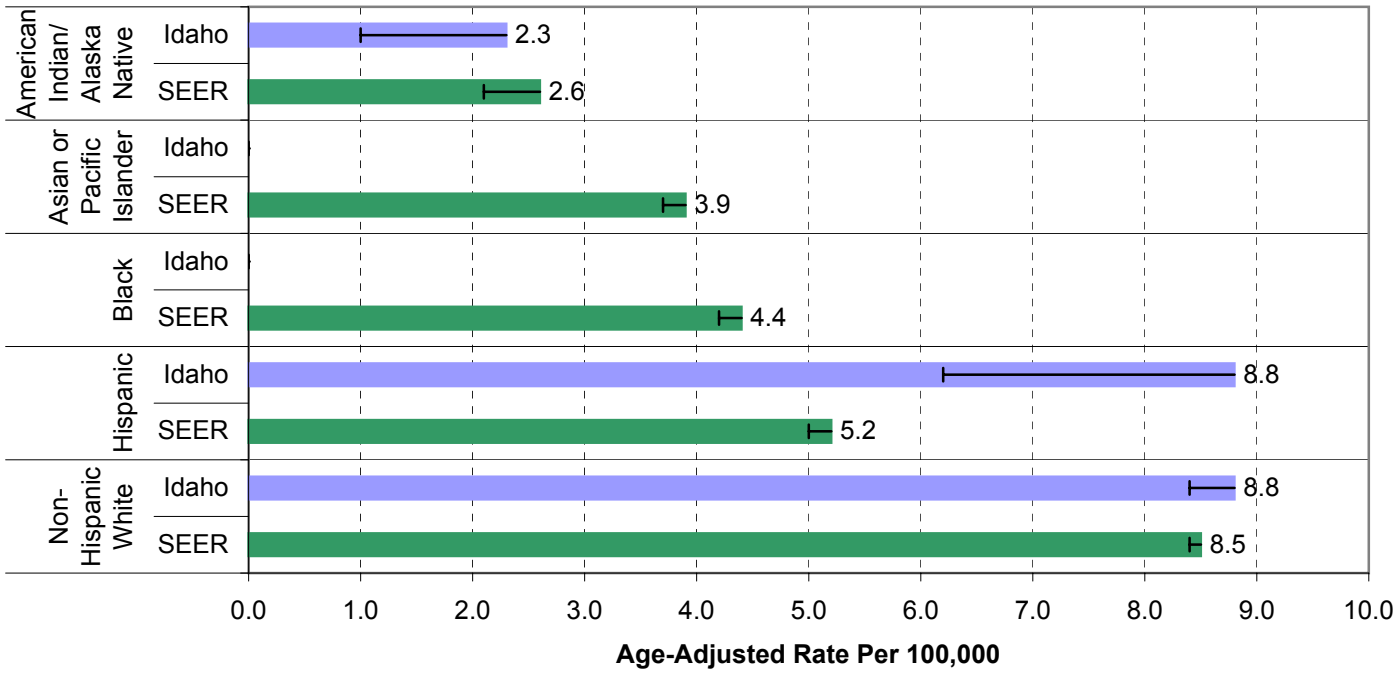
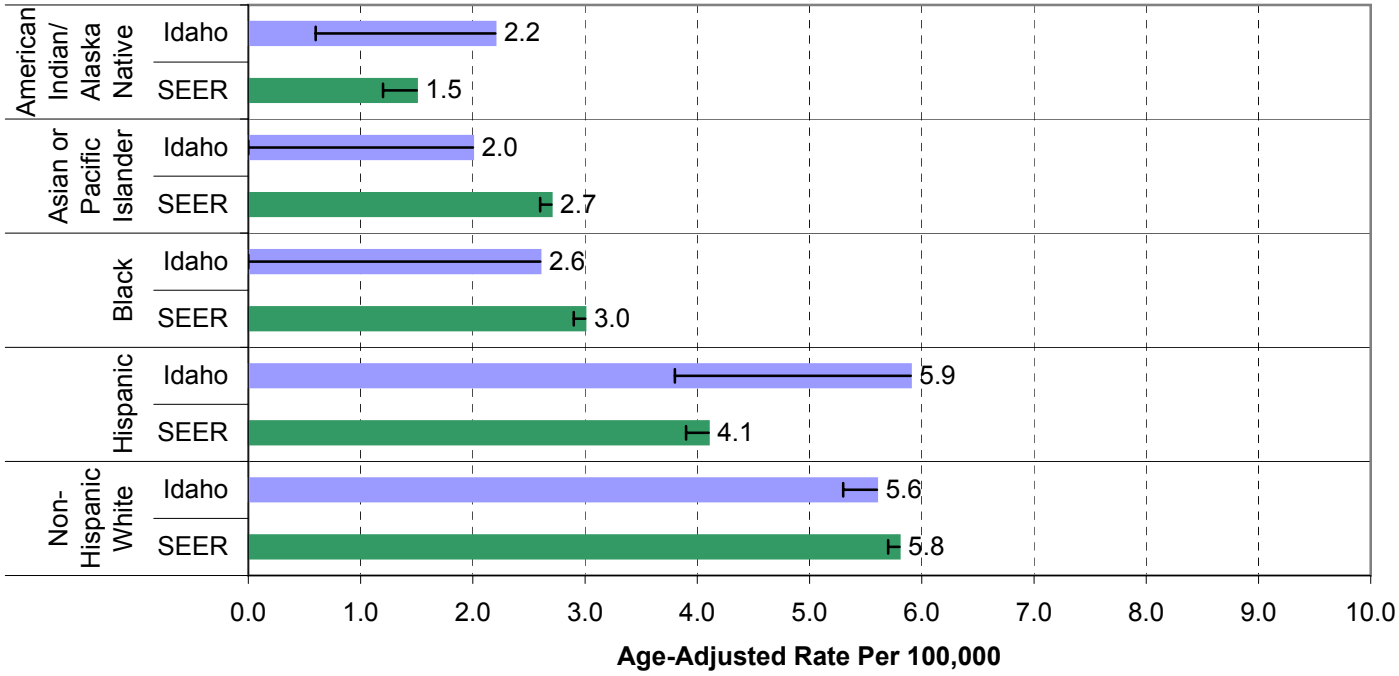


Figure 21. Brain Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 3. Breast Cancer Incidence, 1990-2001
Females

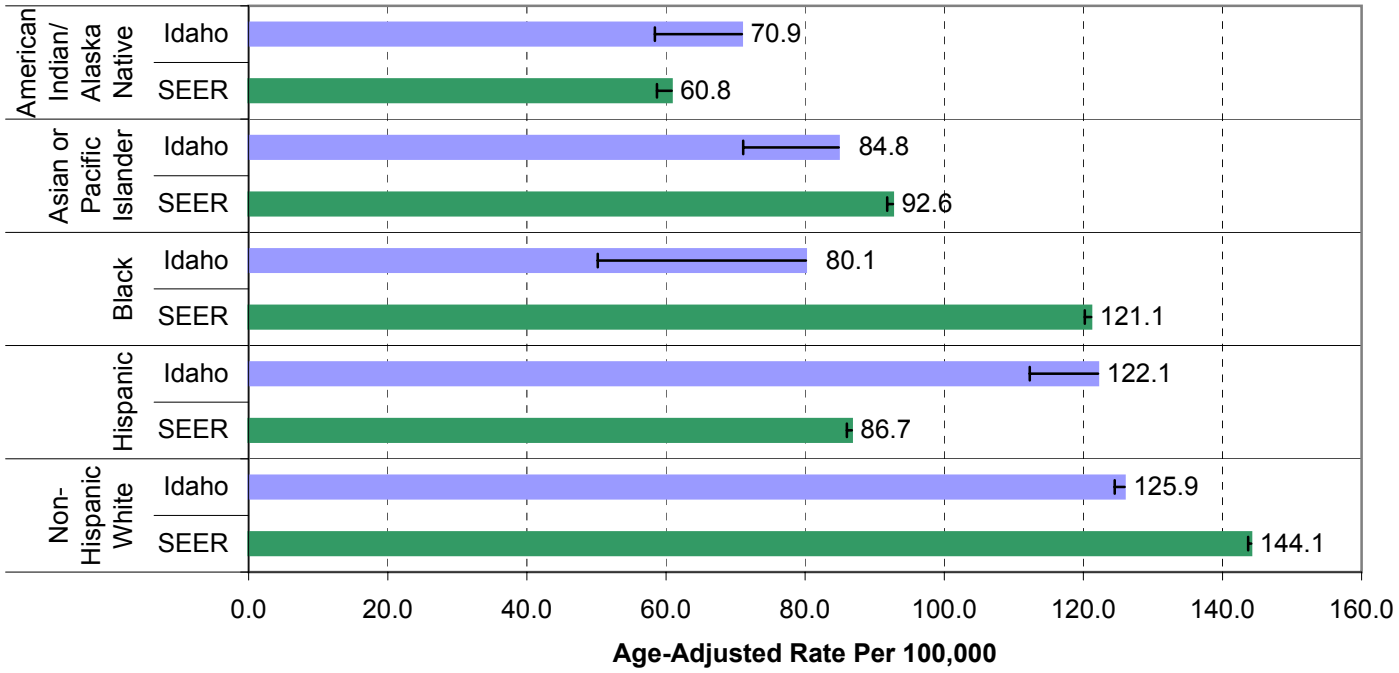
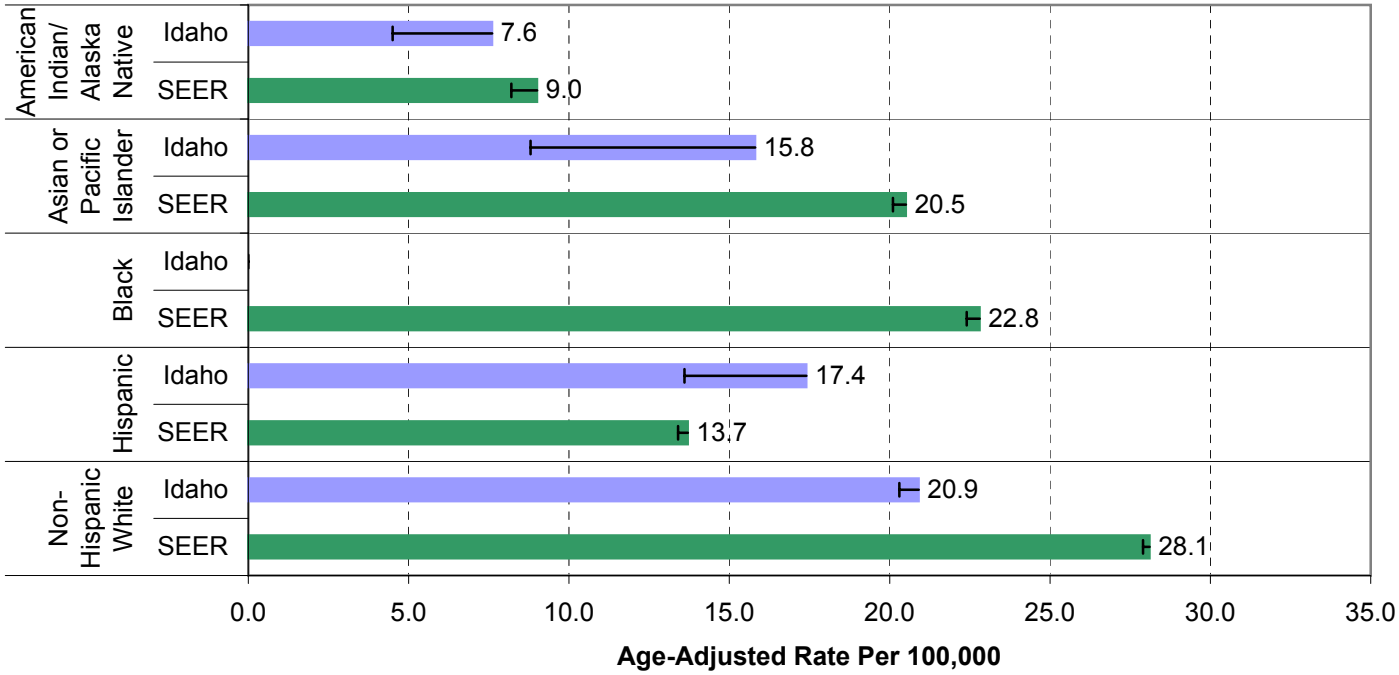


Figure 4. In-Situ Breast Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 22. Cervical Cancer Incidence, 1990-2001
Females

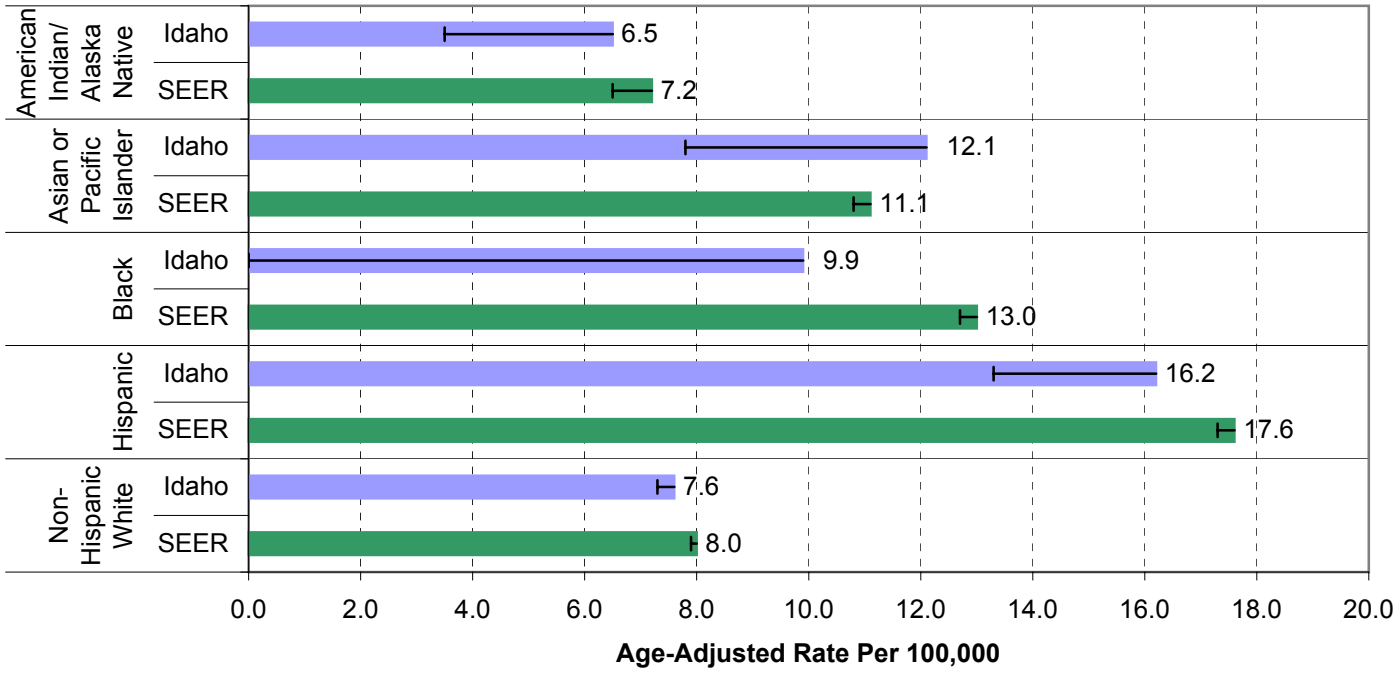
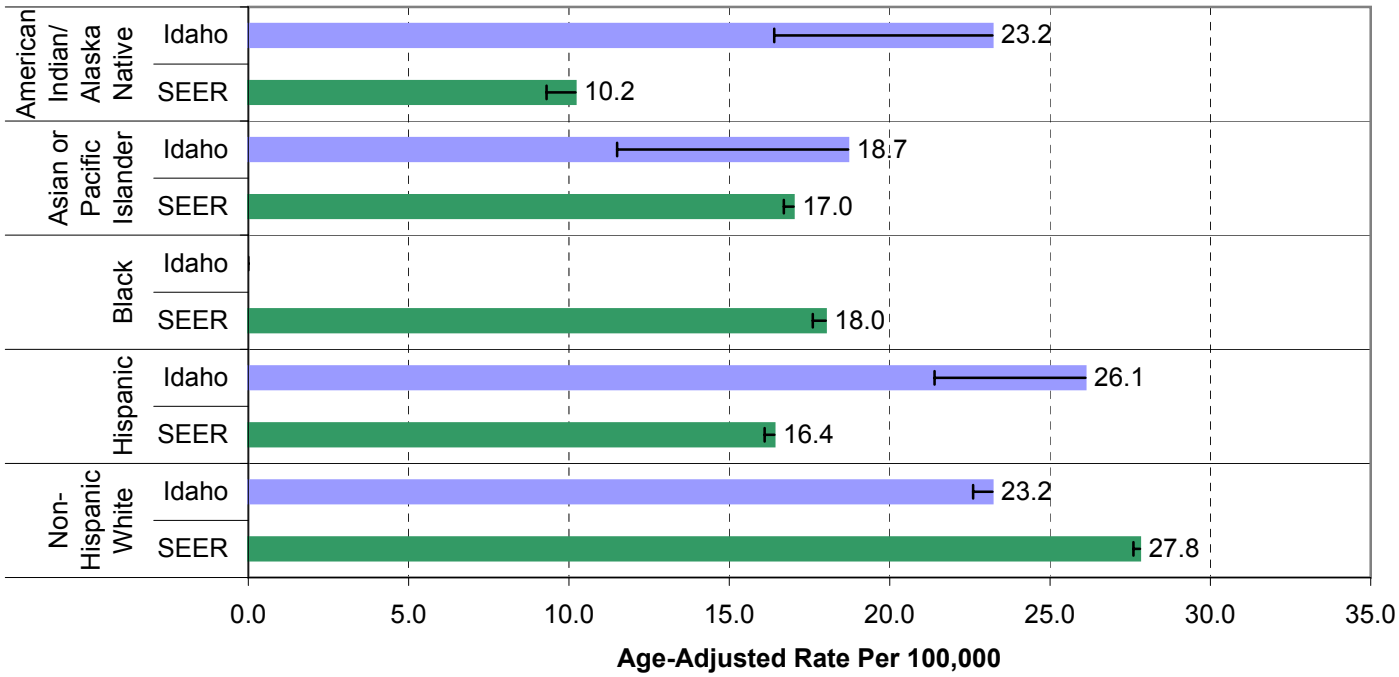


Figure 23. Endometrium Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 7. Colorectal Cancer Incidence, 1990-2001
Males

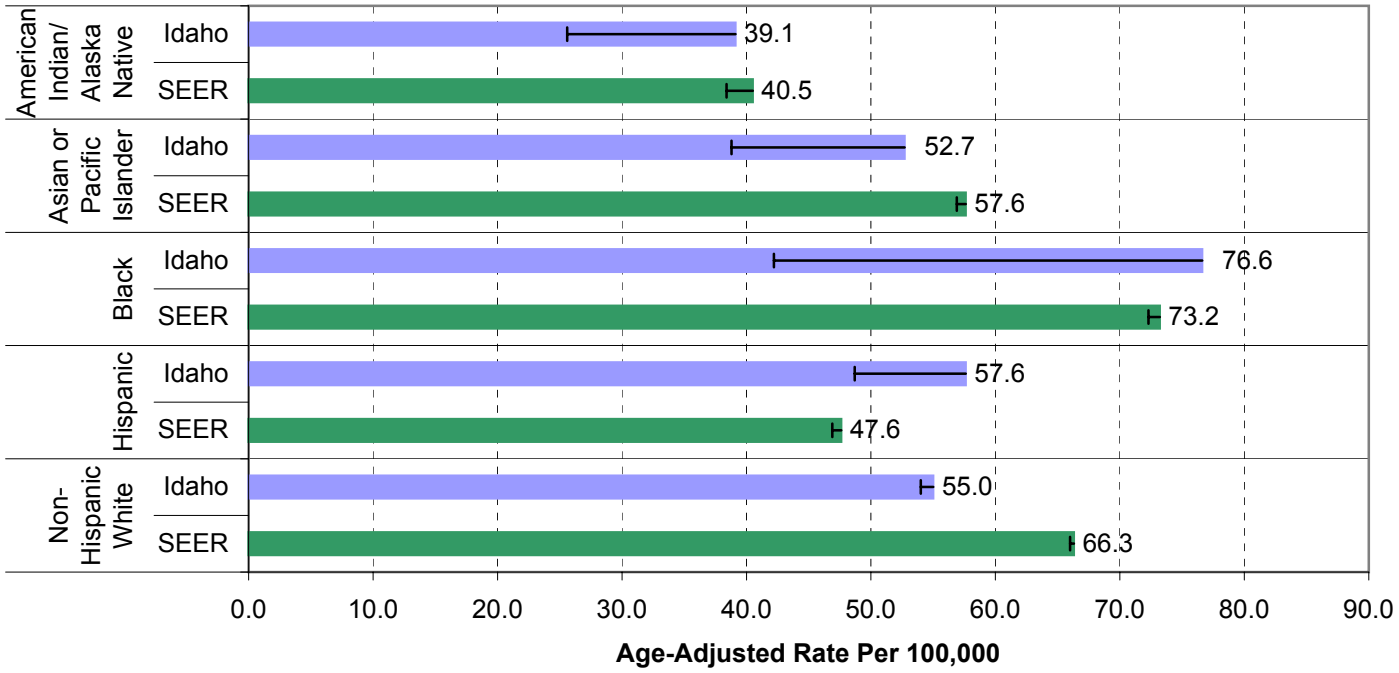
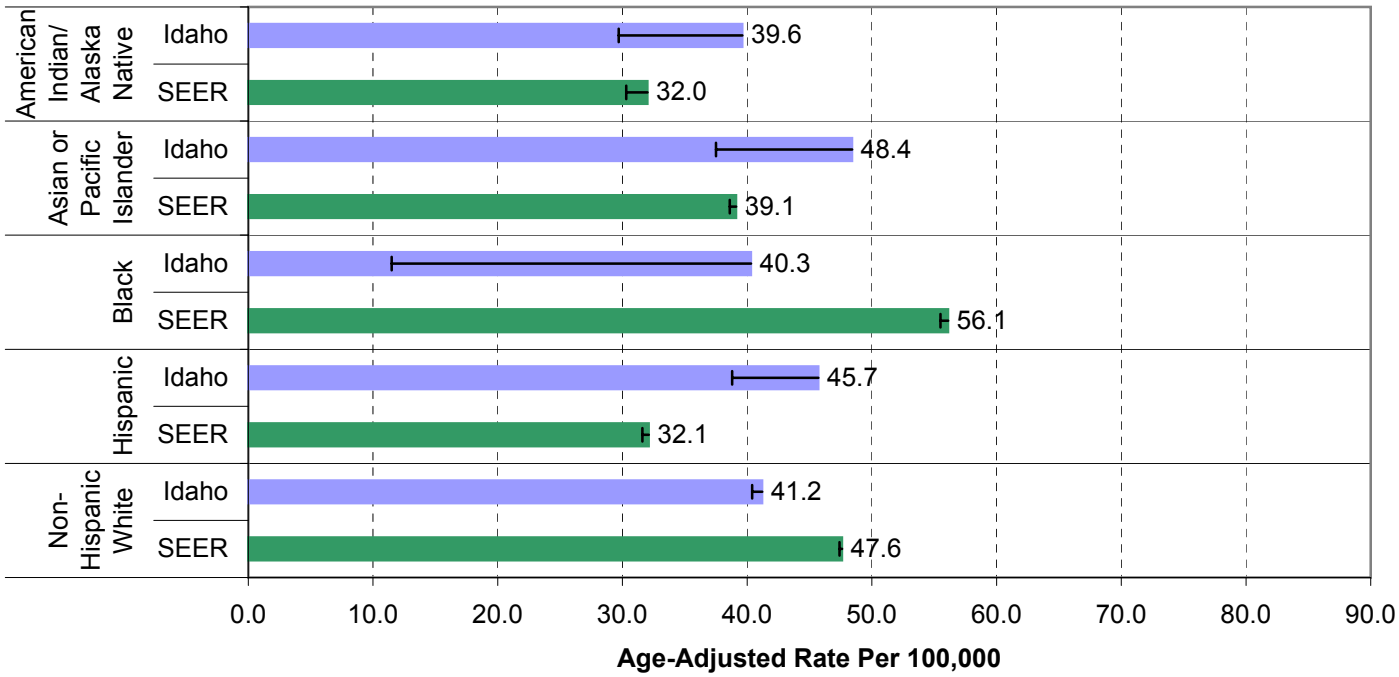


Figure 8. Colorectal Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 24. Esophagus Cancer Incidence, 1990-2001
Males

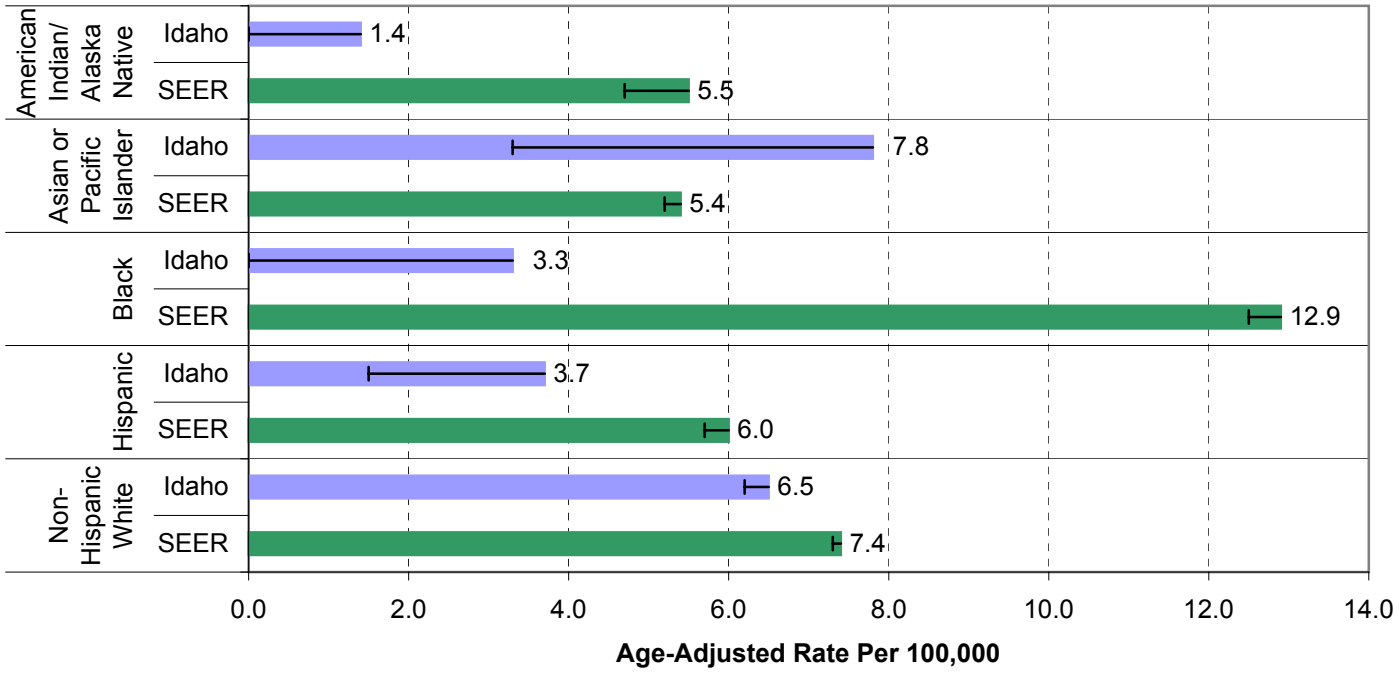
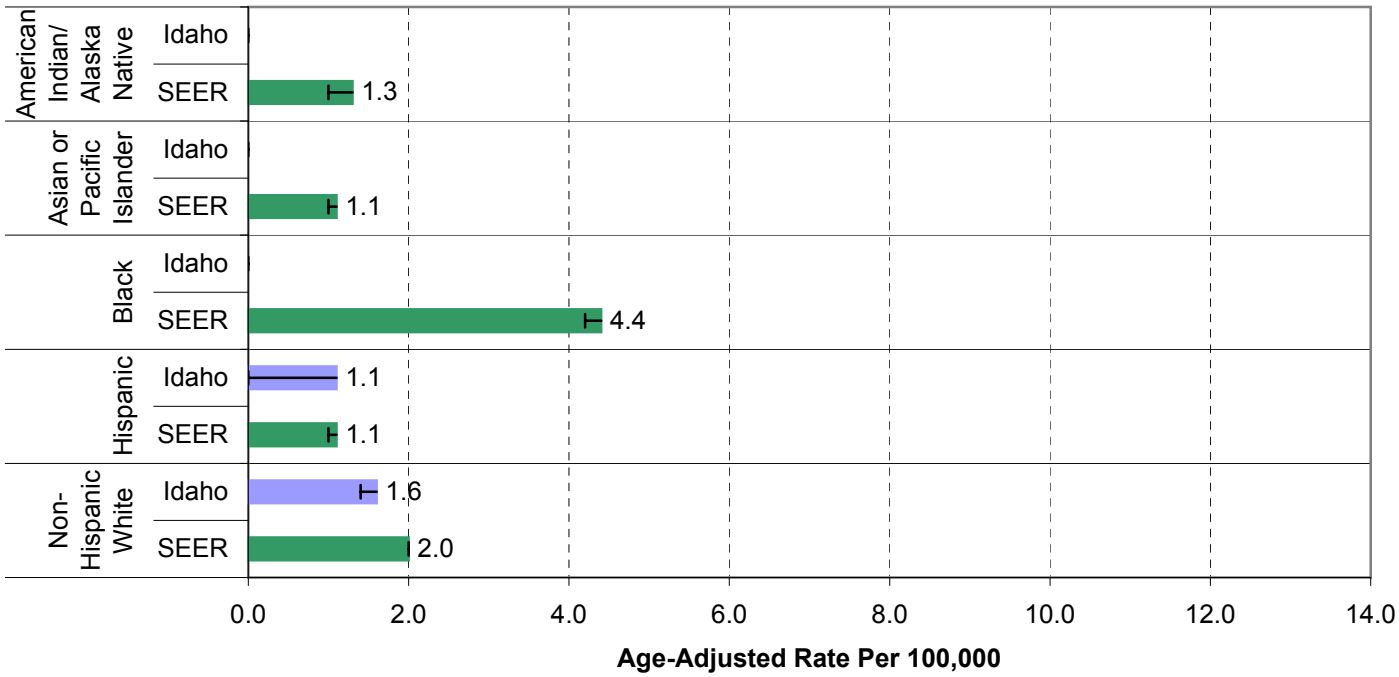


Figure 25. Esophagus Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 26. Hodgkin Lymphoma Incidence, 1990-2001
Males

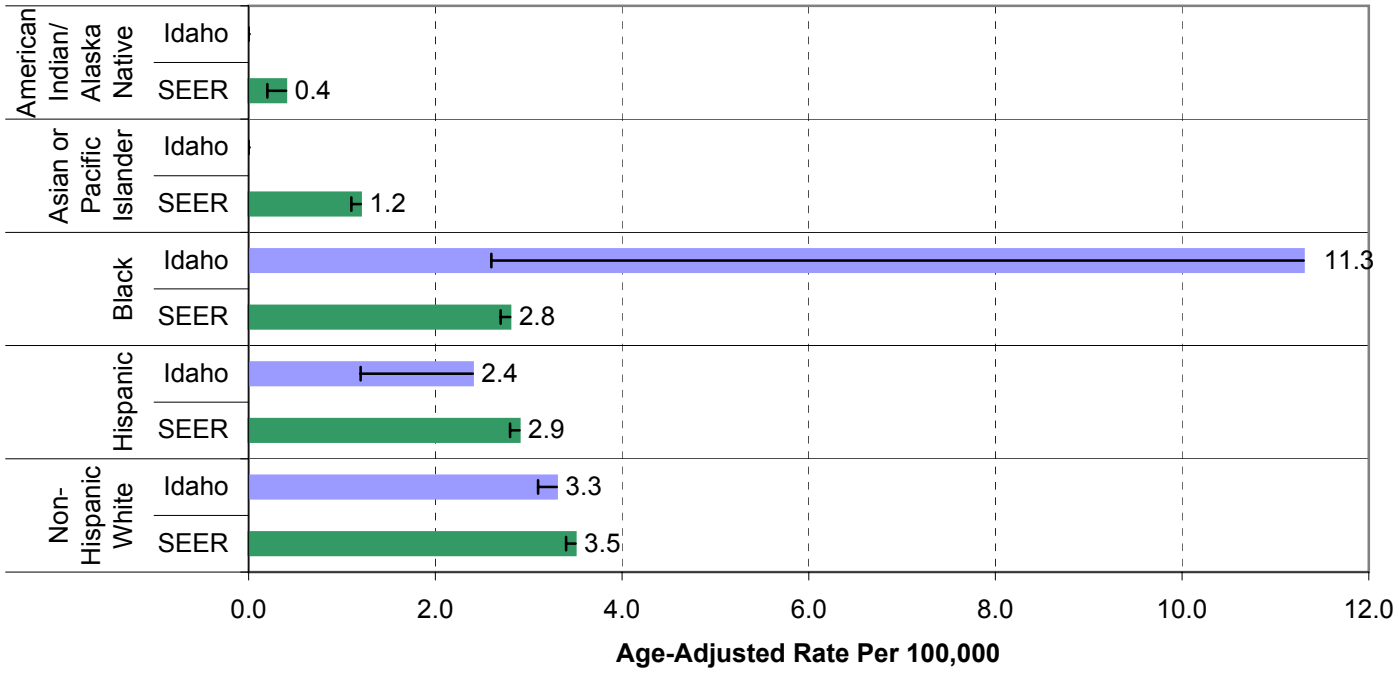
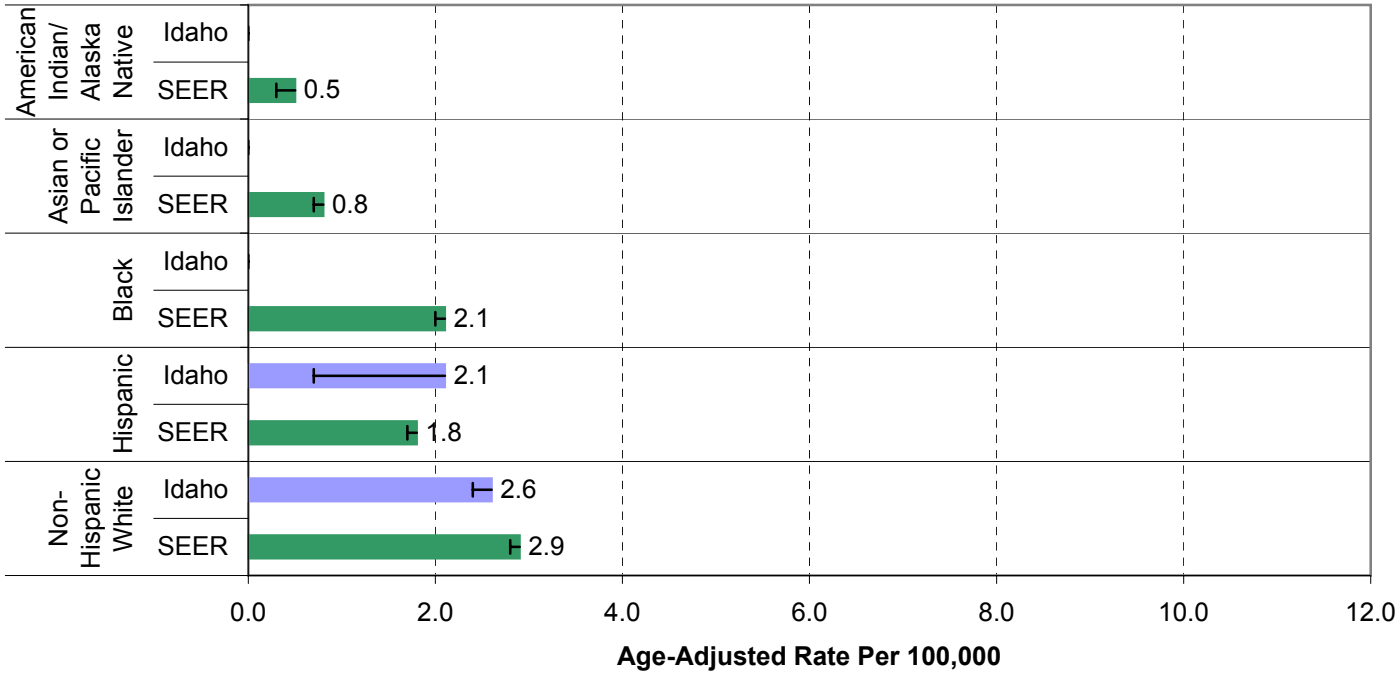


Figure 27. Hodgkin Lymphoma Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 28. Kidney and Renal Pelvis Cancer Incidence, 1990-2001
Males

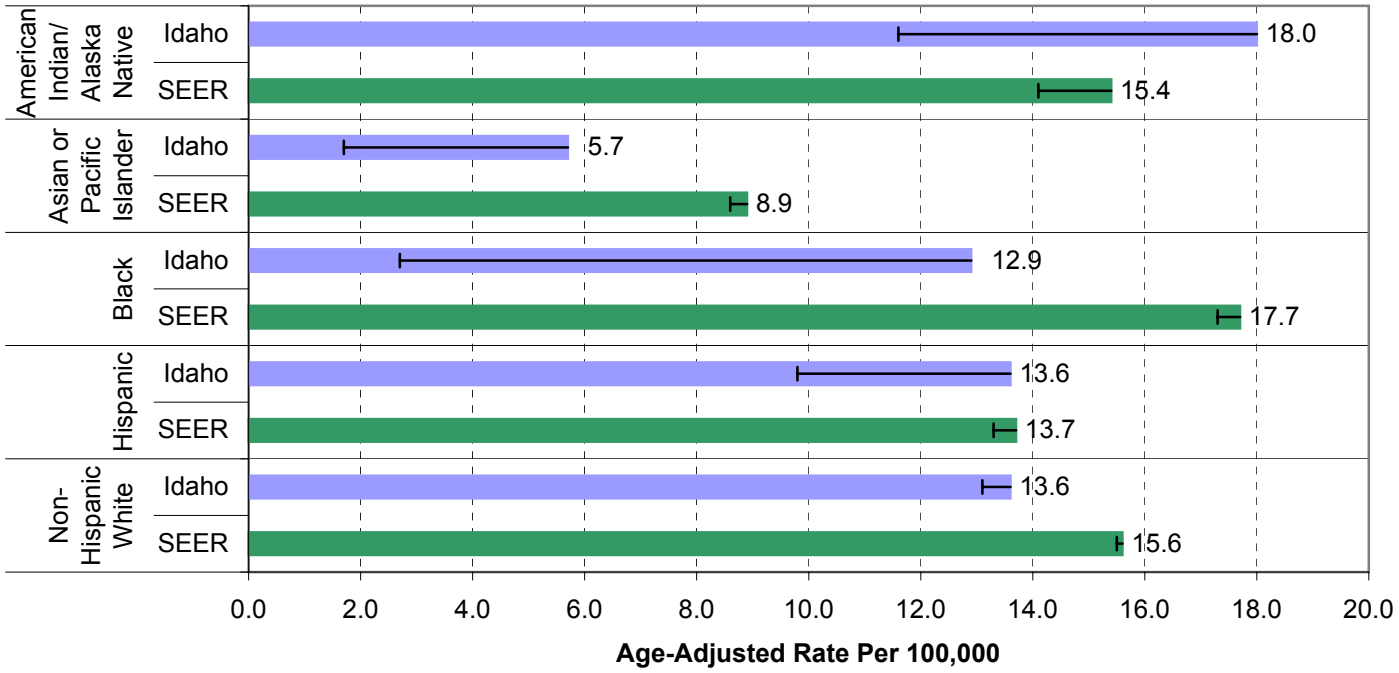
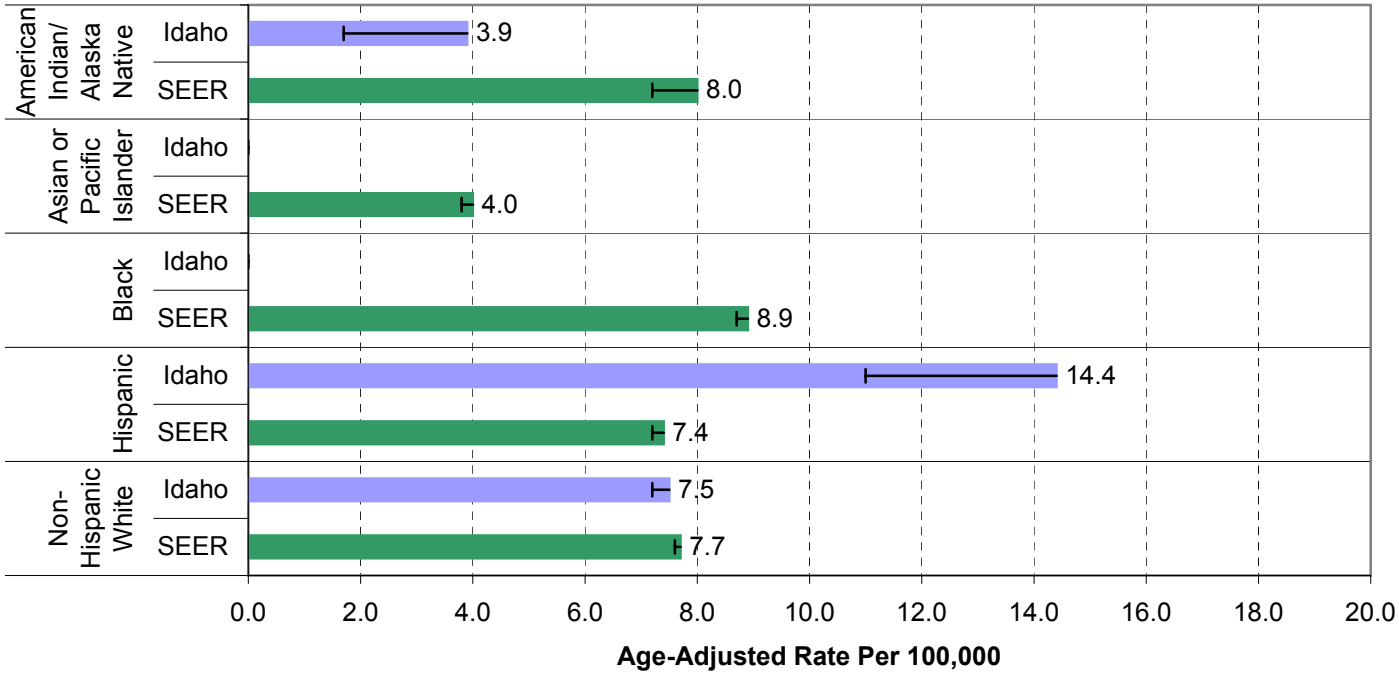


Figure 29. Kidney and Renal Pelvis Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 30. Larynx Cancer Incidence, 1990-2001
Males

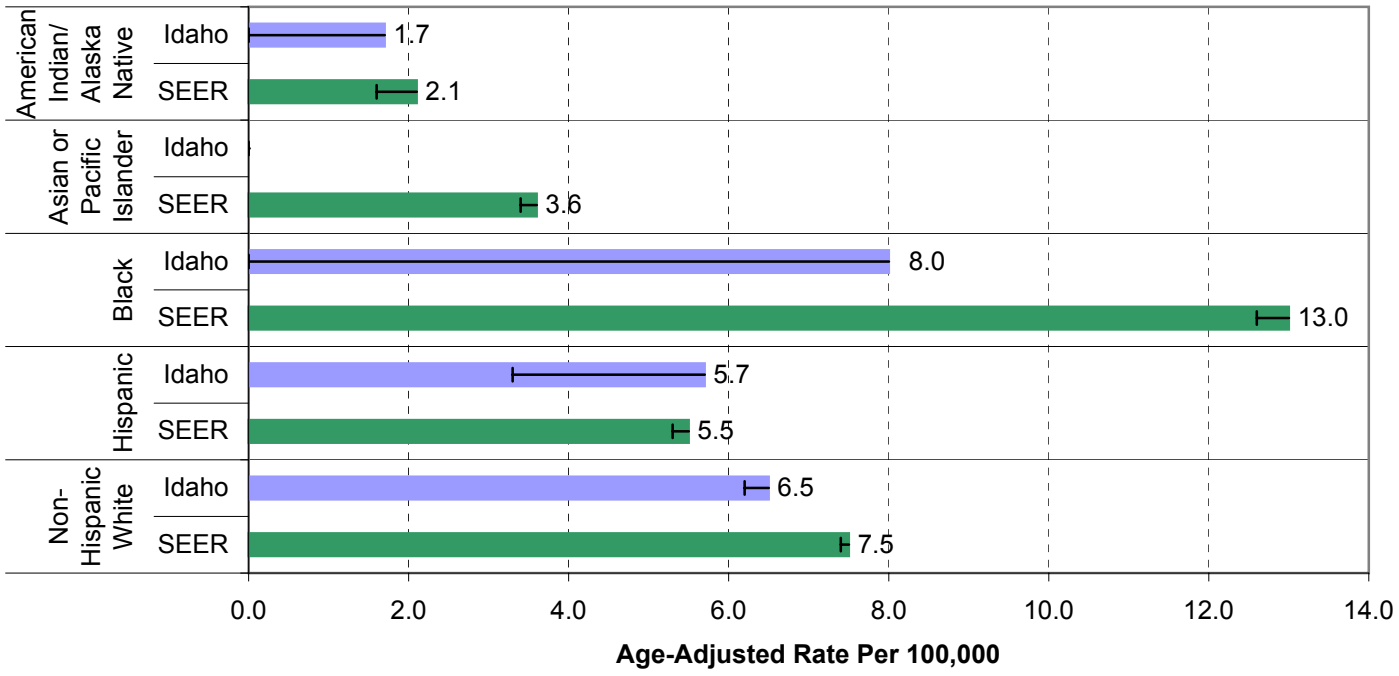
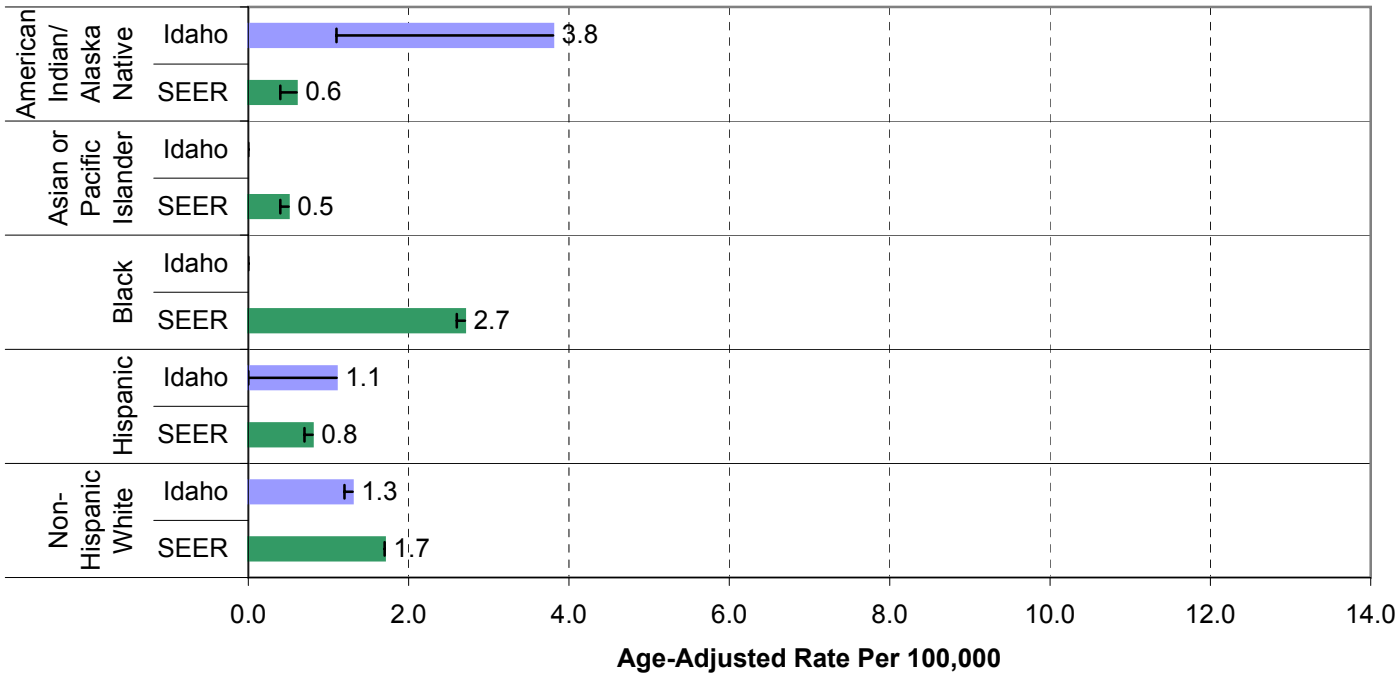


Figure 31. Larynx Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 32. Leukemia Incidence, 1990-2001
Males

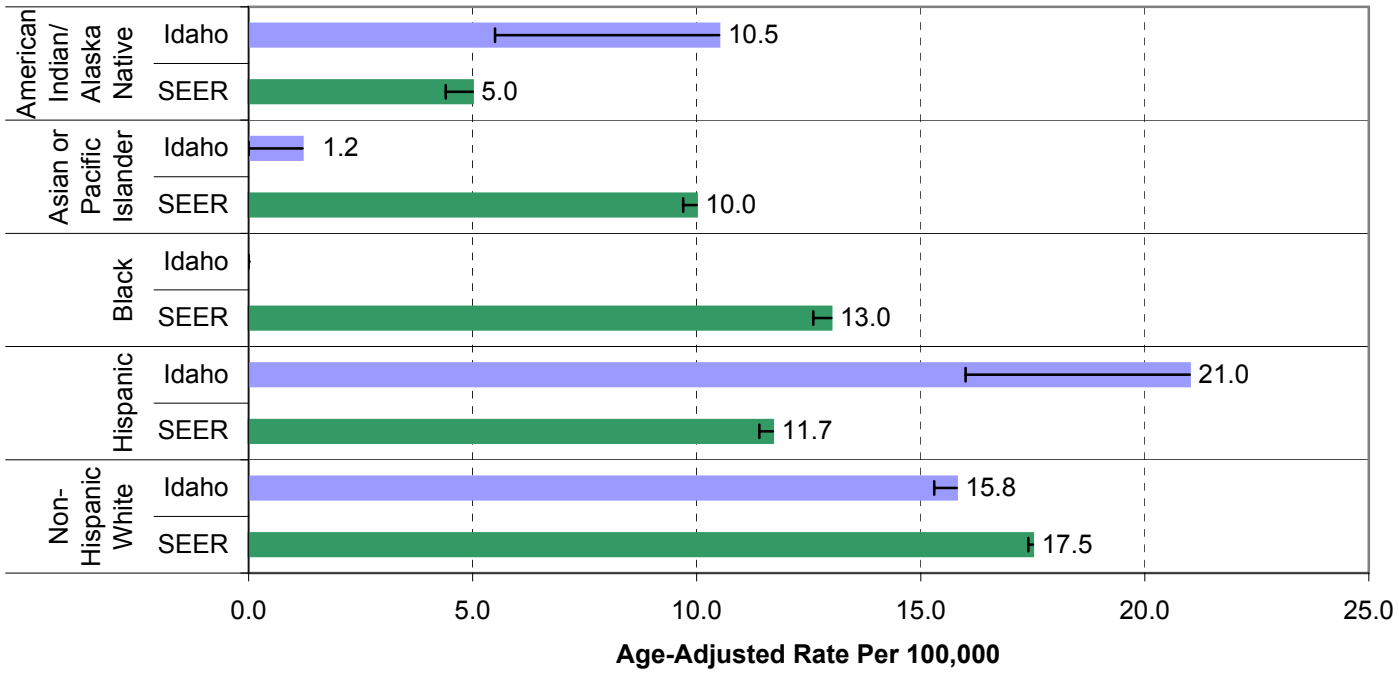
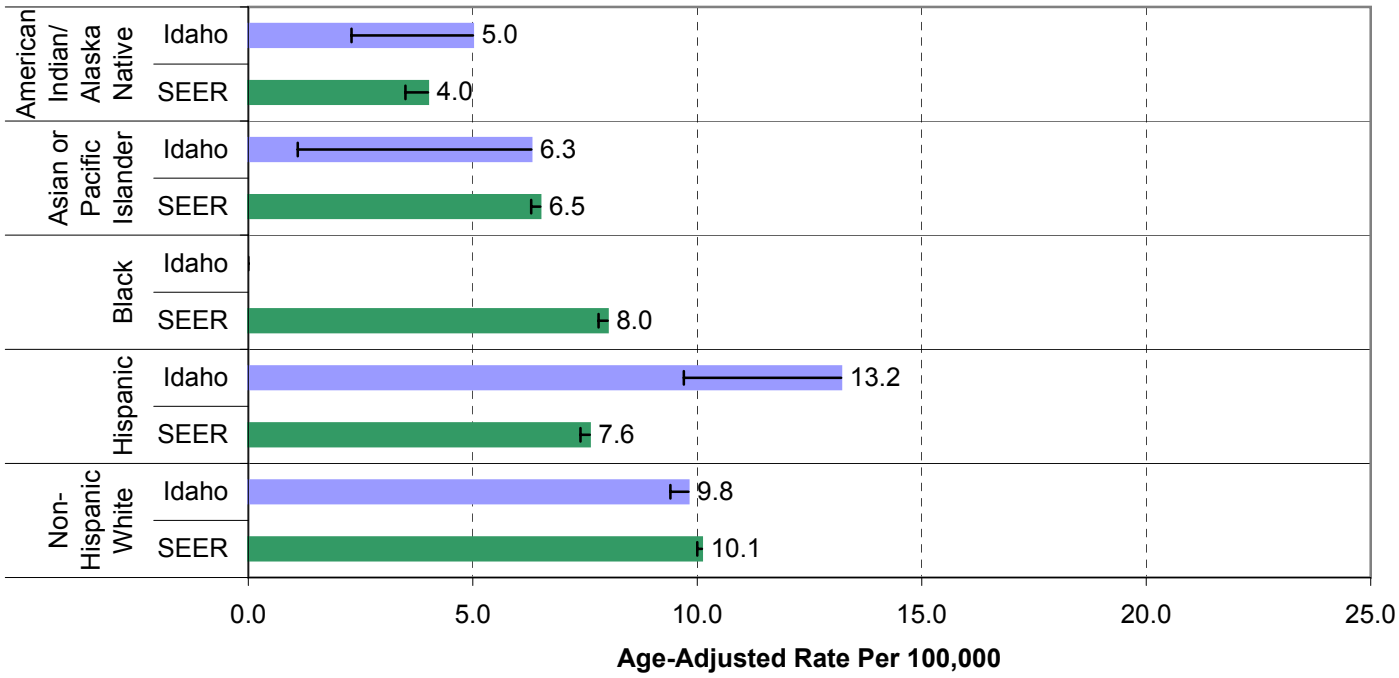


Figure 33. Leukemia Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 34. Liver and Bile Duct Cancer Incidence, 1990-2001
Males

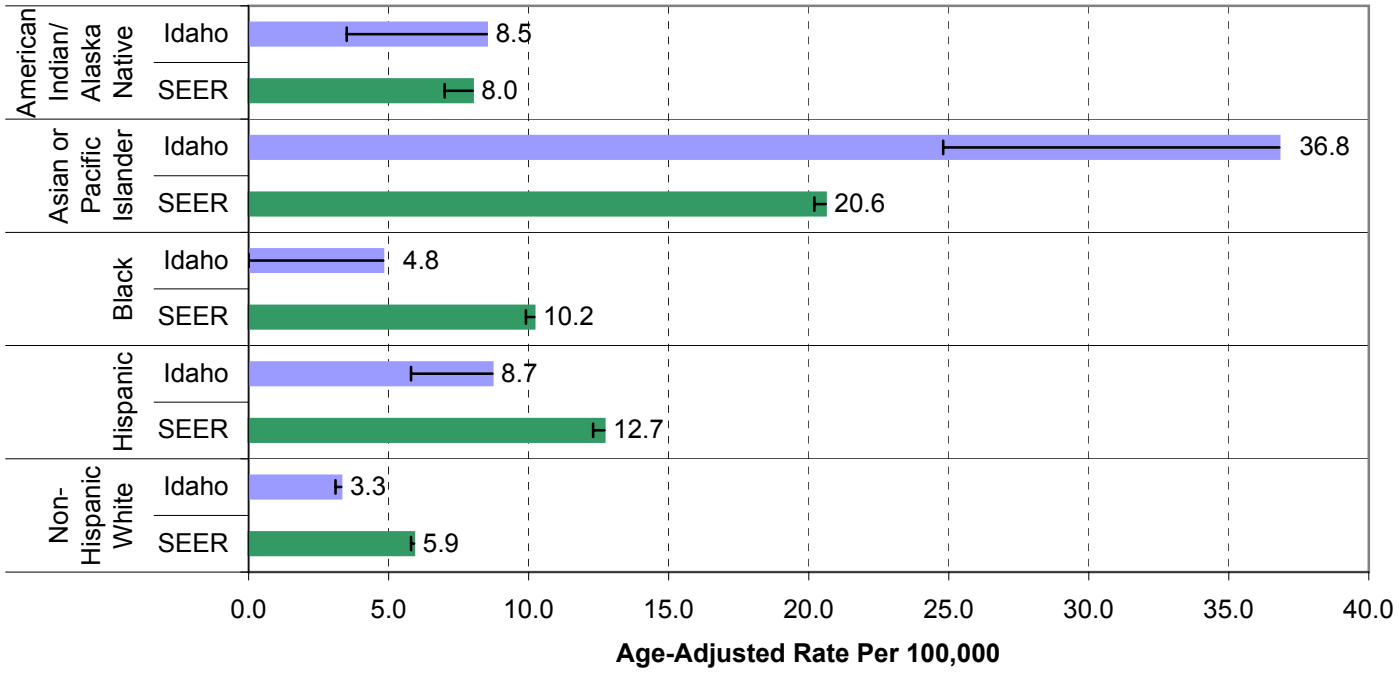
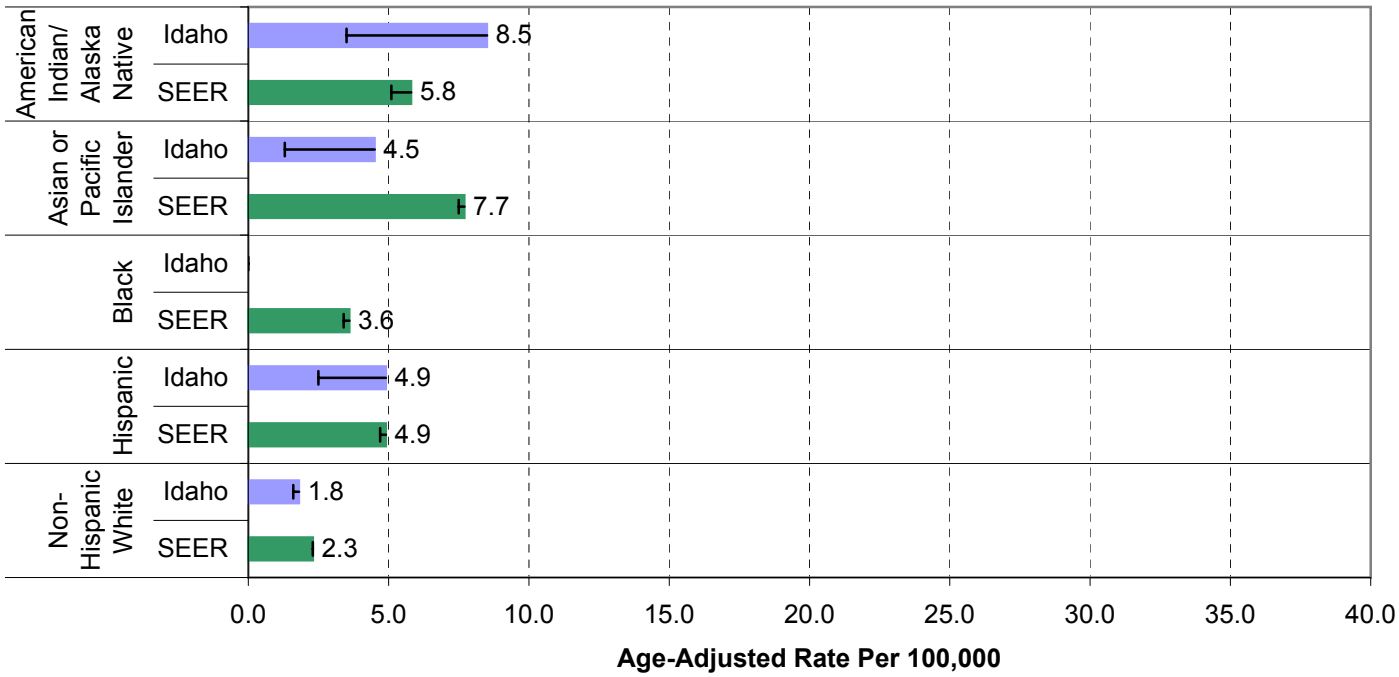


Figure 35. Liver and Bile Duct Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 11. Lung and Bronchus Cancer Incidence, 1990-2001
Males

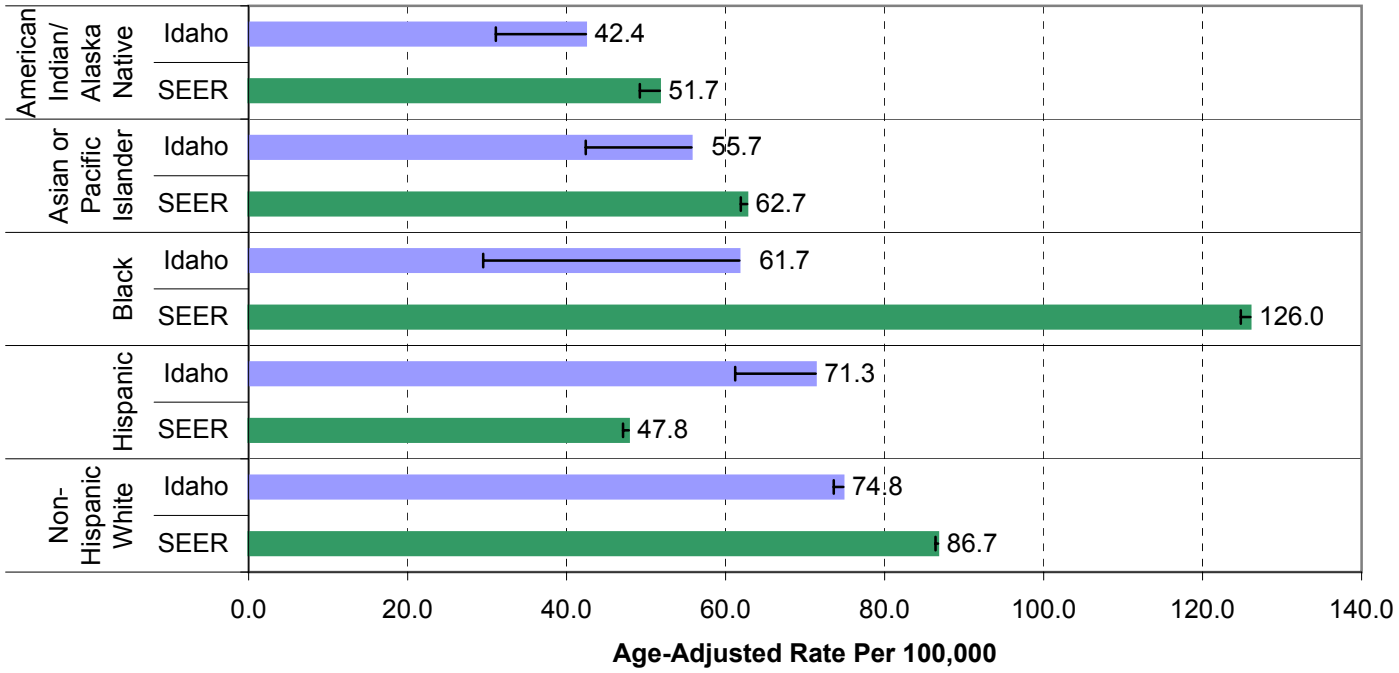
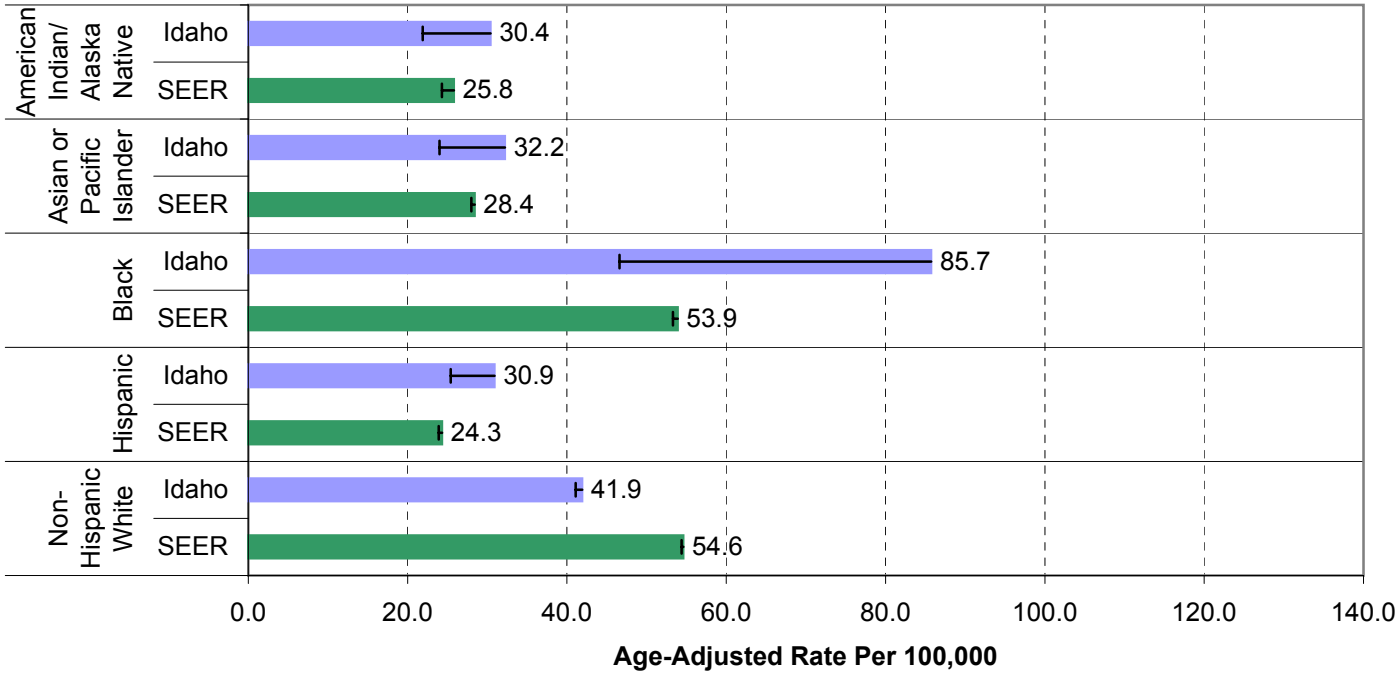


Figure 12. Lung and Bronchus Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 36. Melanoma of the Skin Incidence, 1990-2001
Males

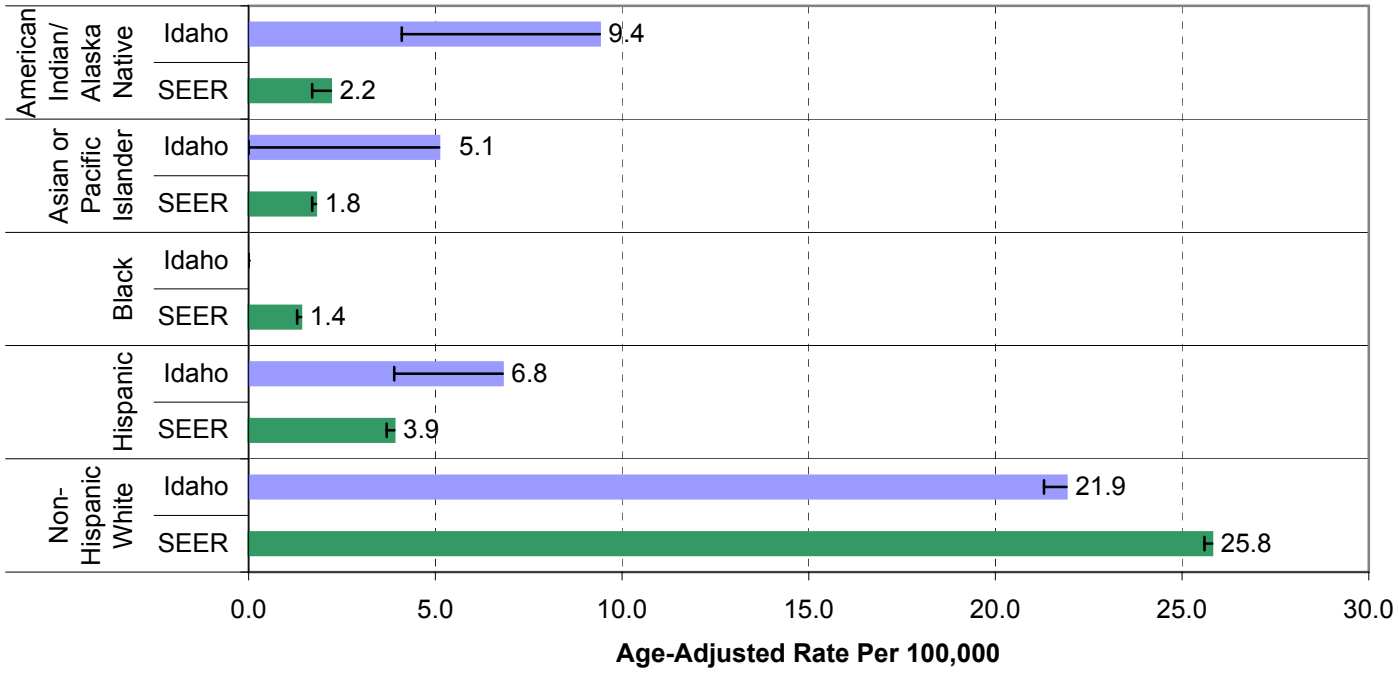
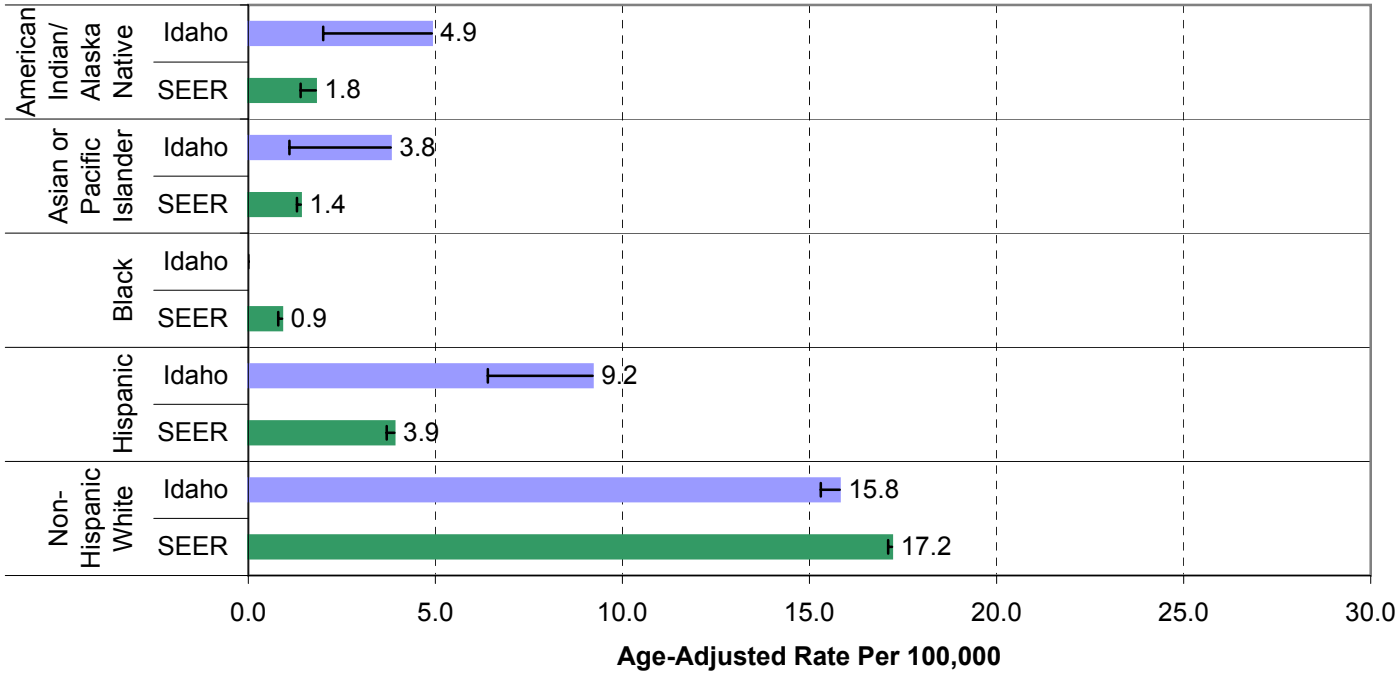


Figure 37. Melanoma of the Skin Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 38. Myeloma Incidence, 1990-2001
Males

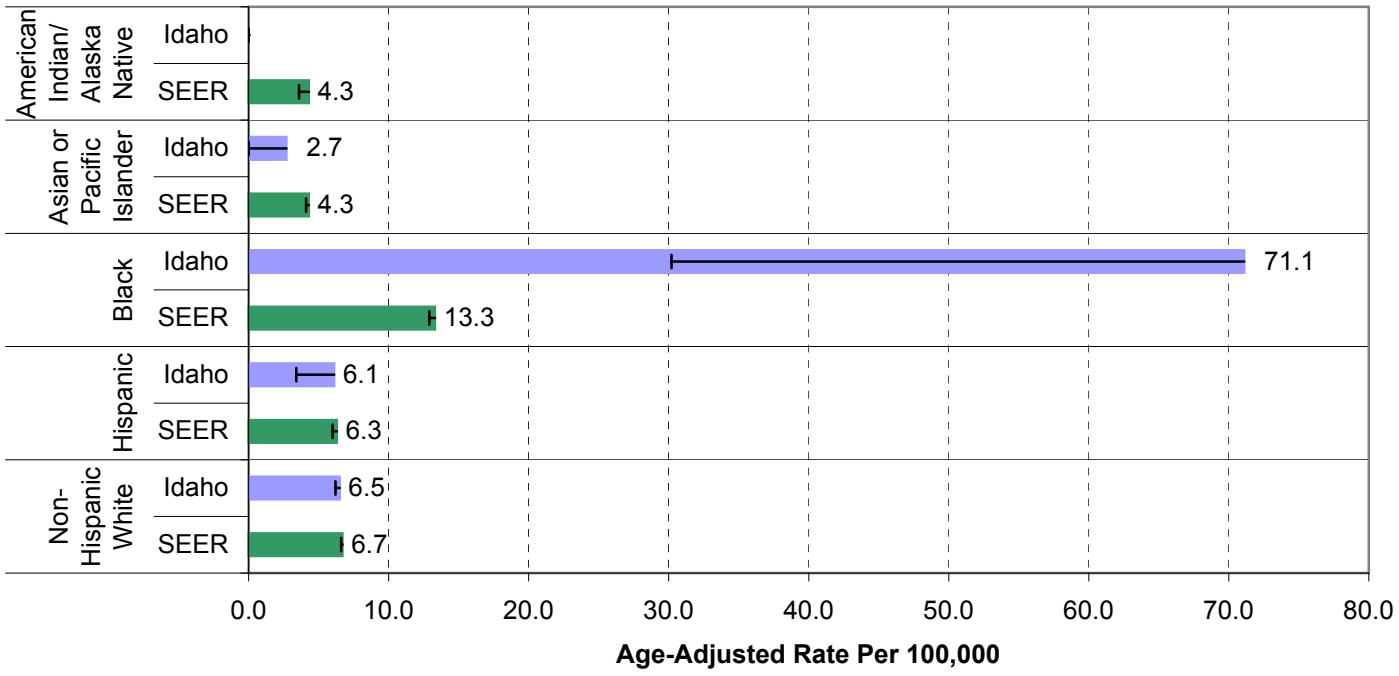
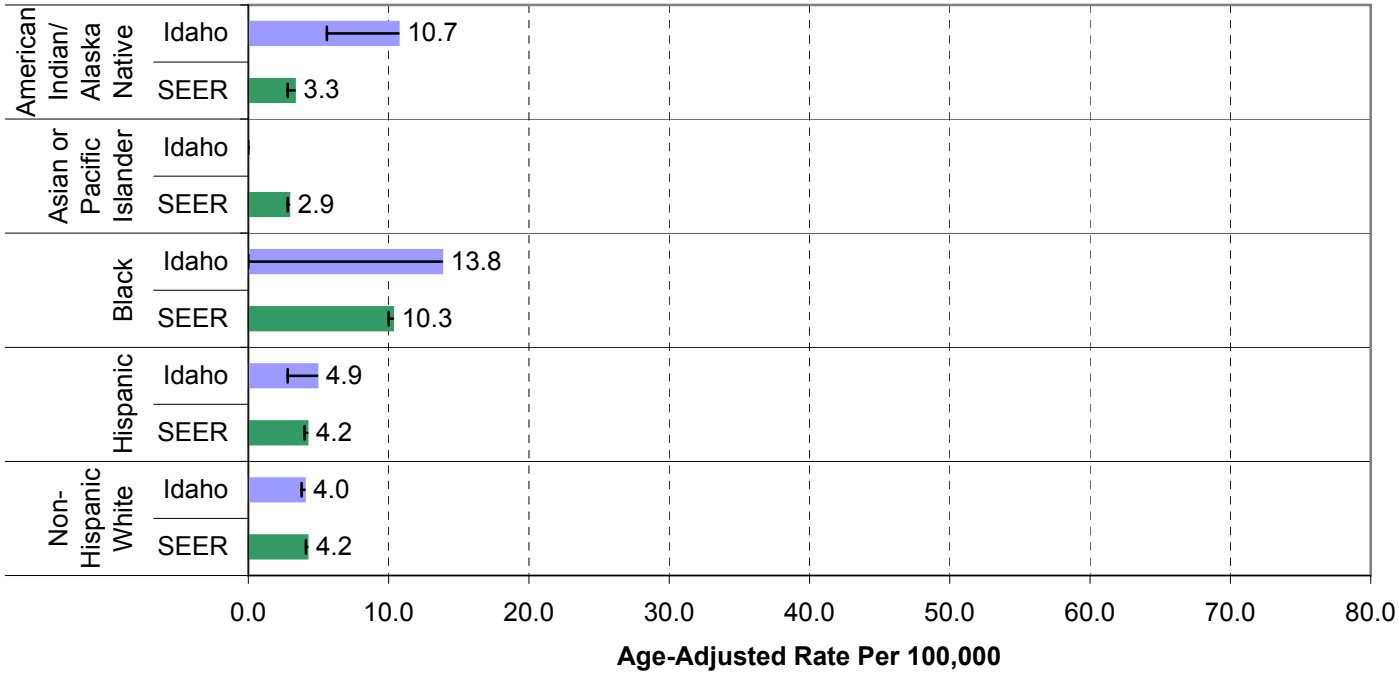


Figure 39. Myeloma Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 40. Non-Hodgkin Lymphoma Incidence, 1990-2001
Males

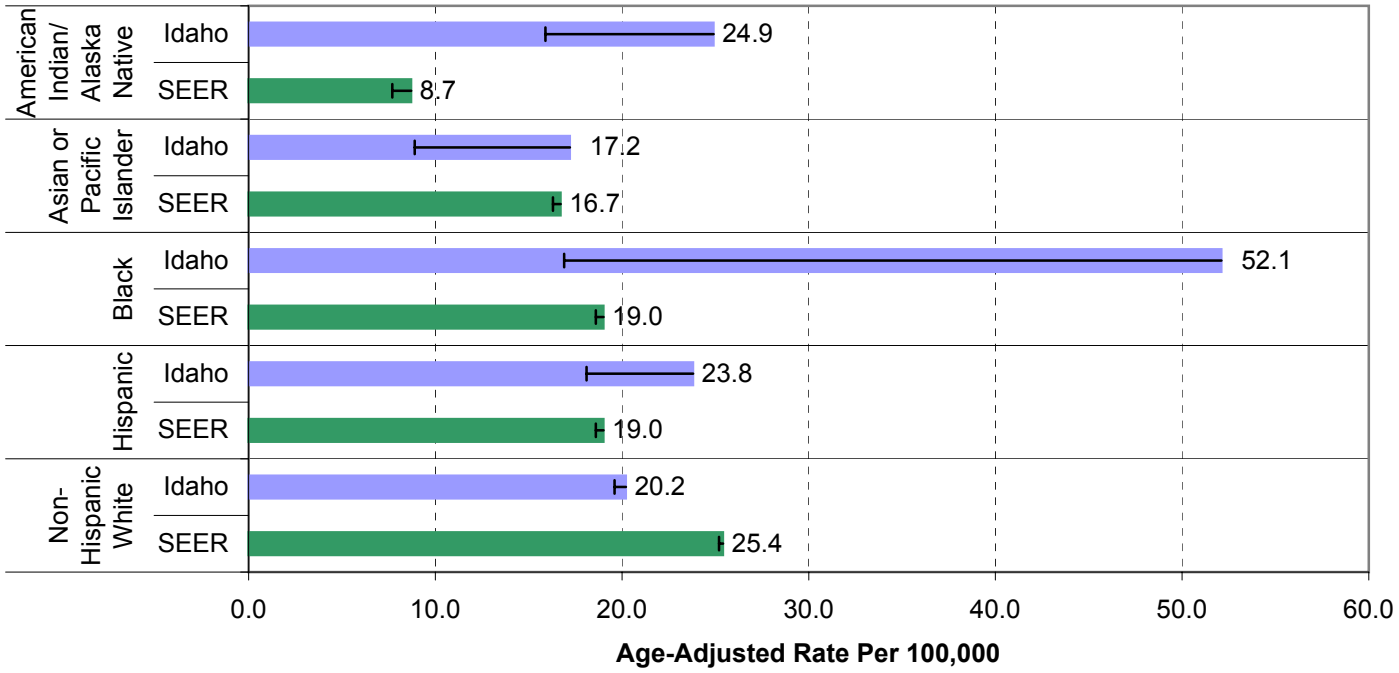
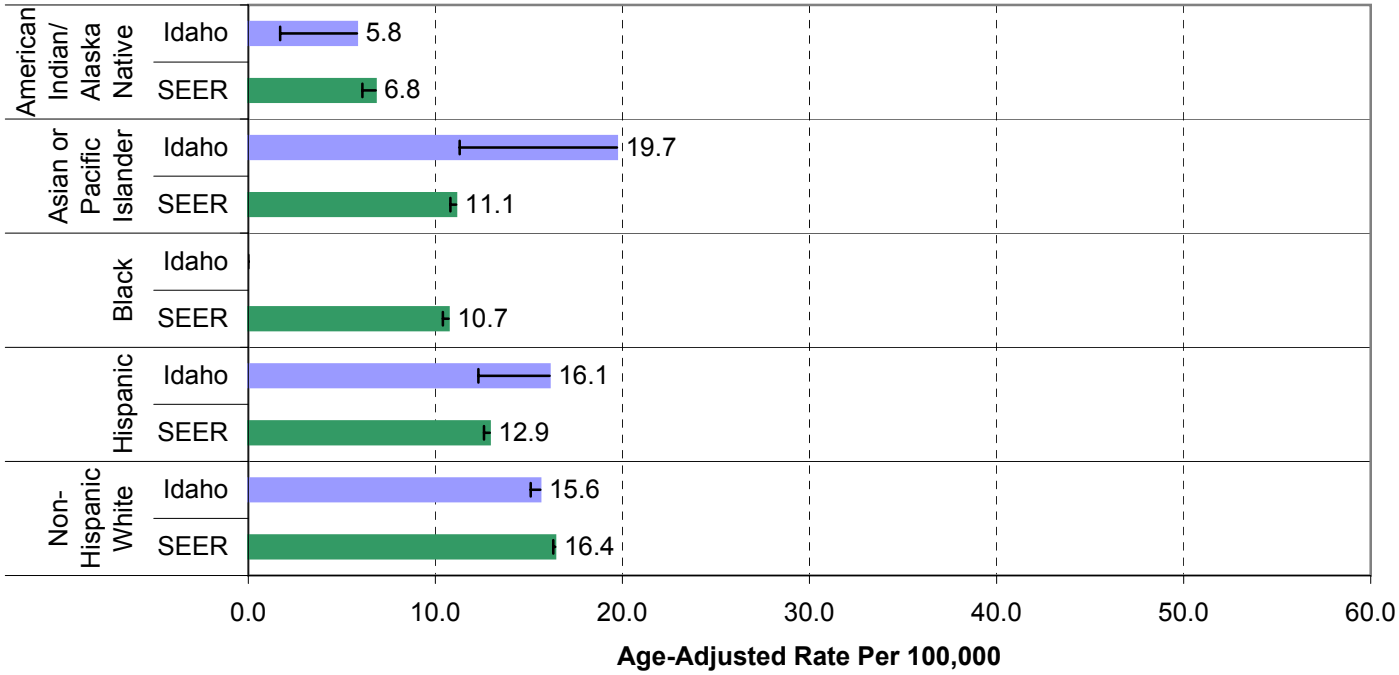


Figure 41. Non-Hodgkin Lymphoma Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 42. Oral Cavity and Pharynx Cancer Incidence, 1990-2001
Males

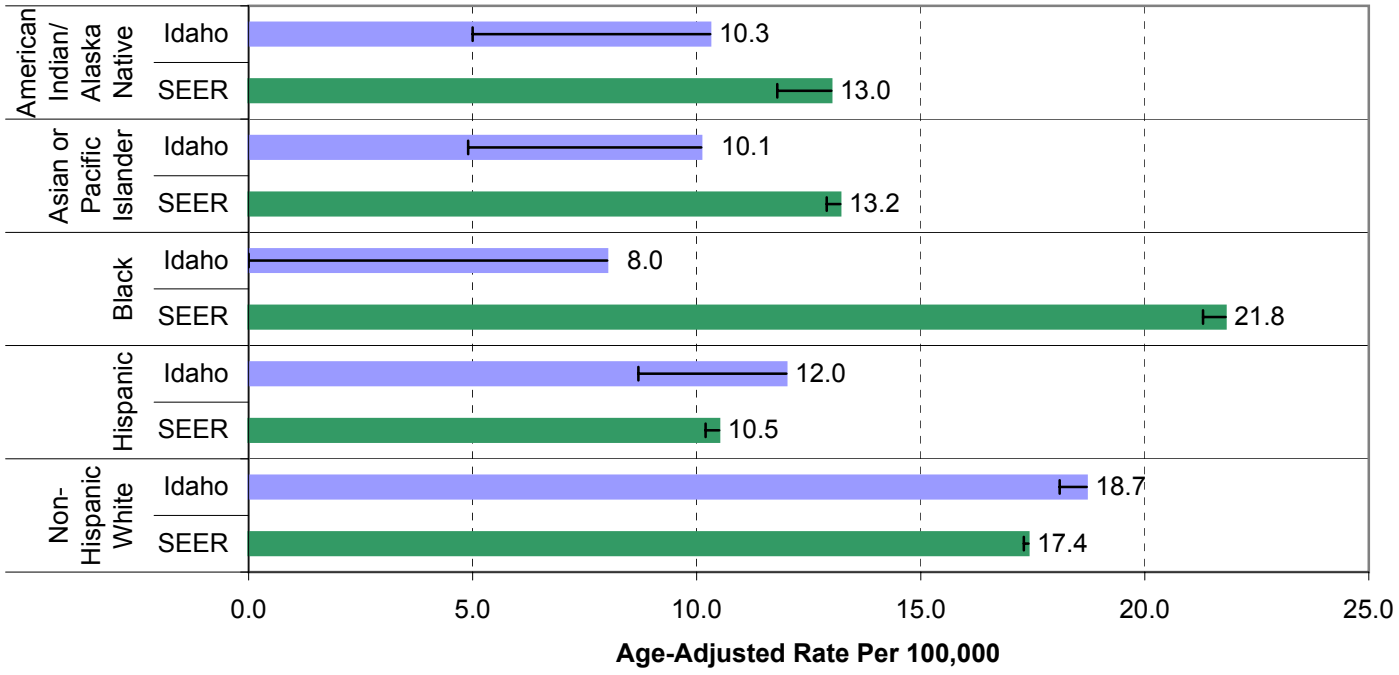
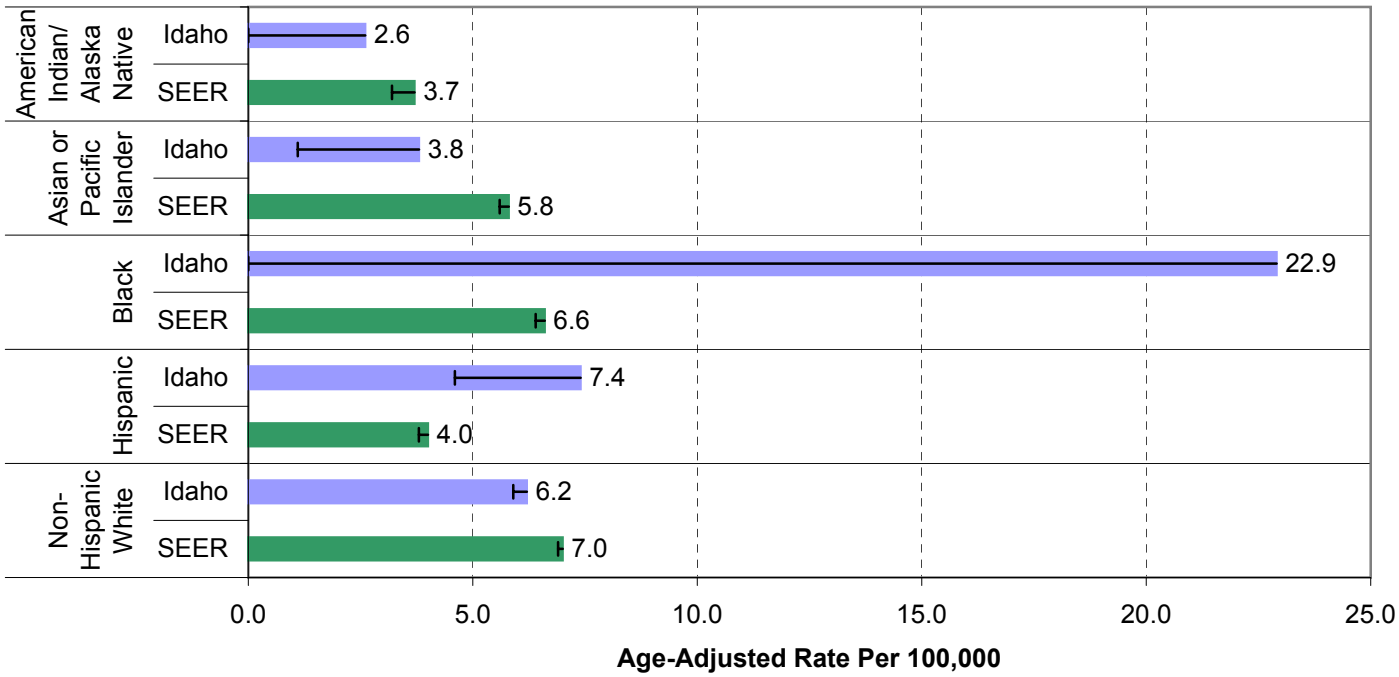
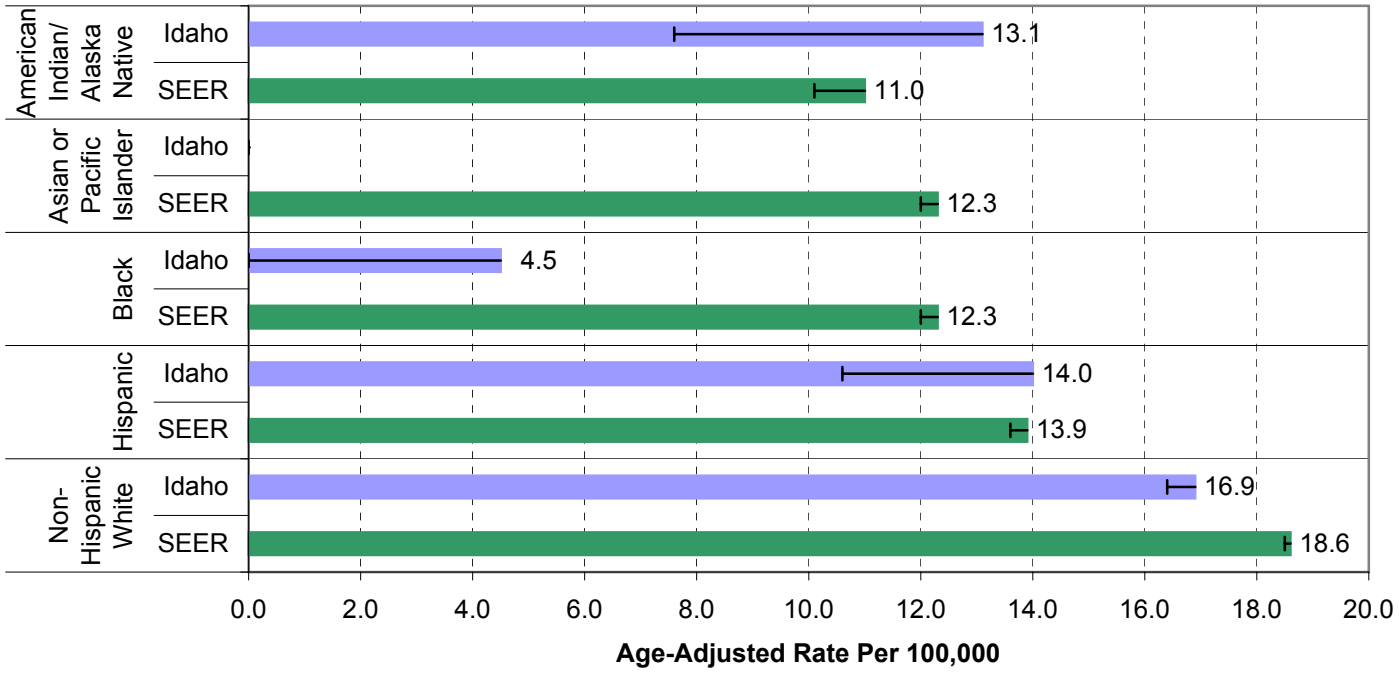


Figure 43. Oral Cavity and Pharynx Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 44. Ovary Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 45. Pancreas Cancer Incidence, 1990-2001
Males

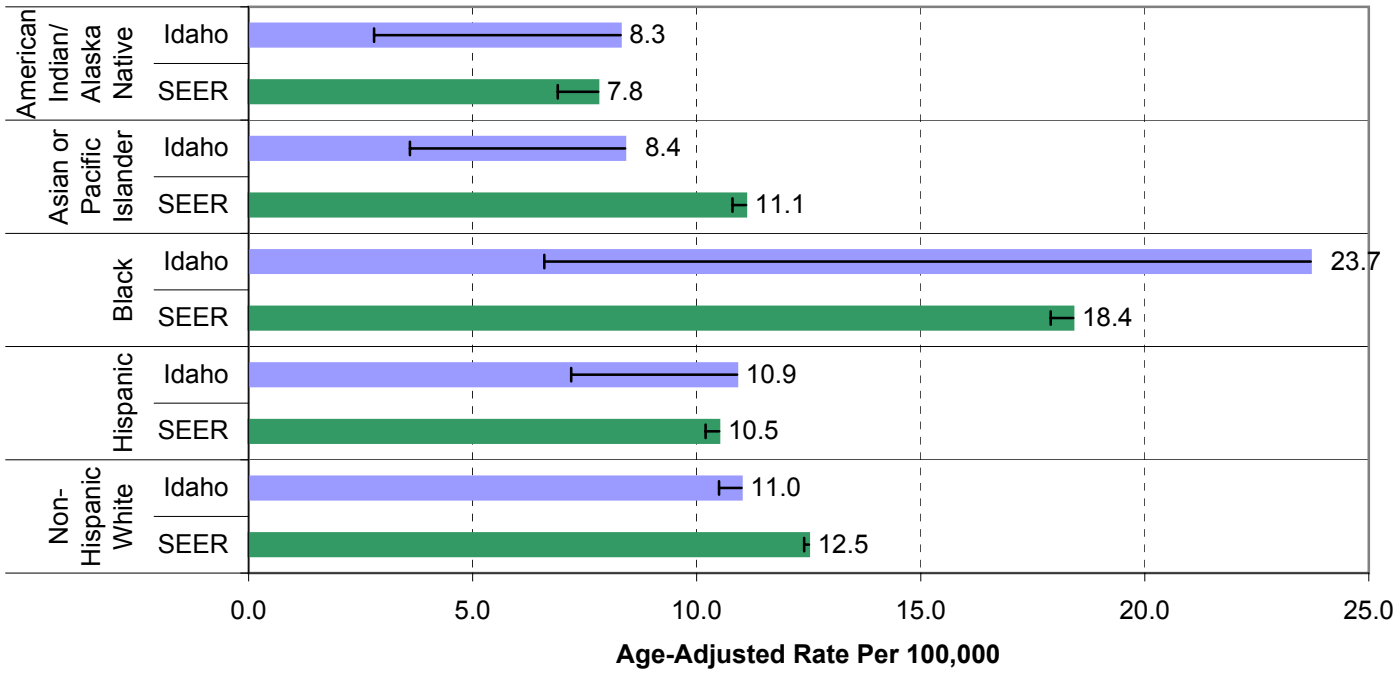
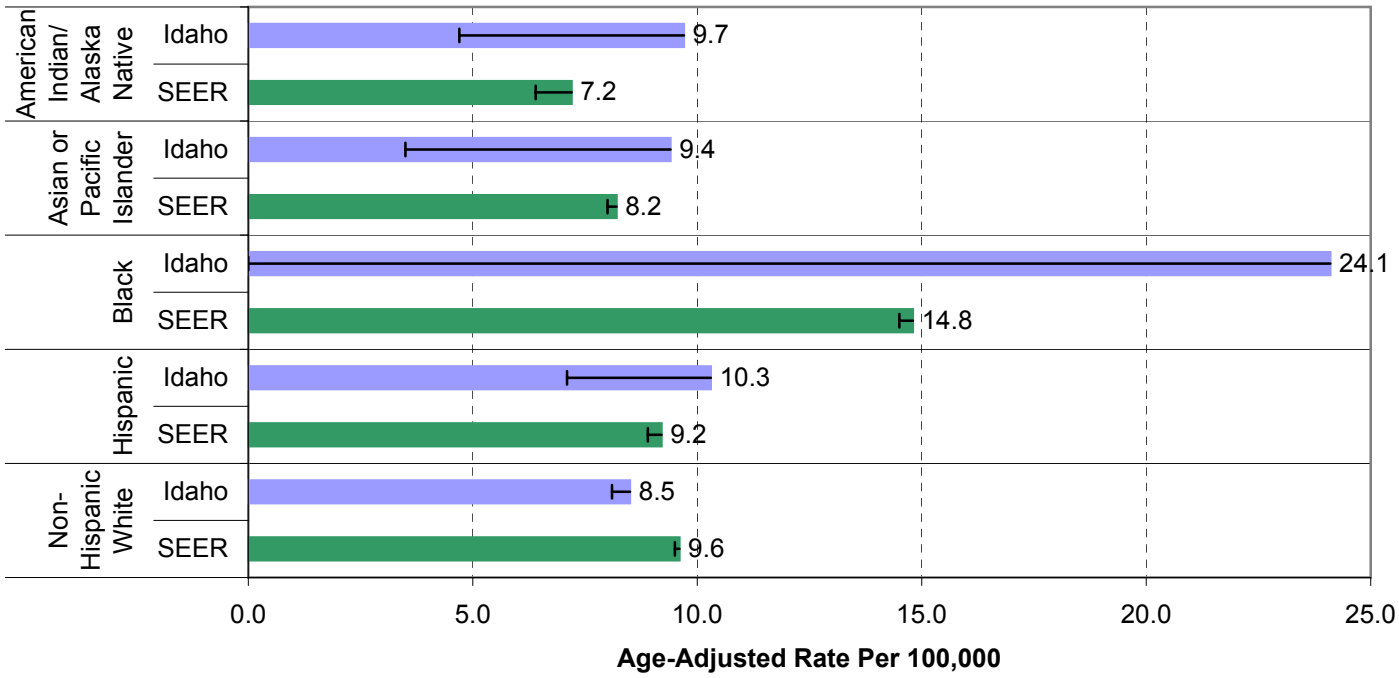


Figure 46. Pancreas Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 15. Prostate Cancer Incidence, 1990-2001
Males

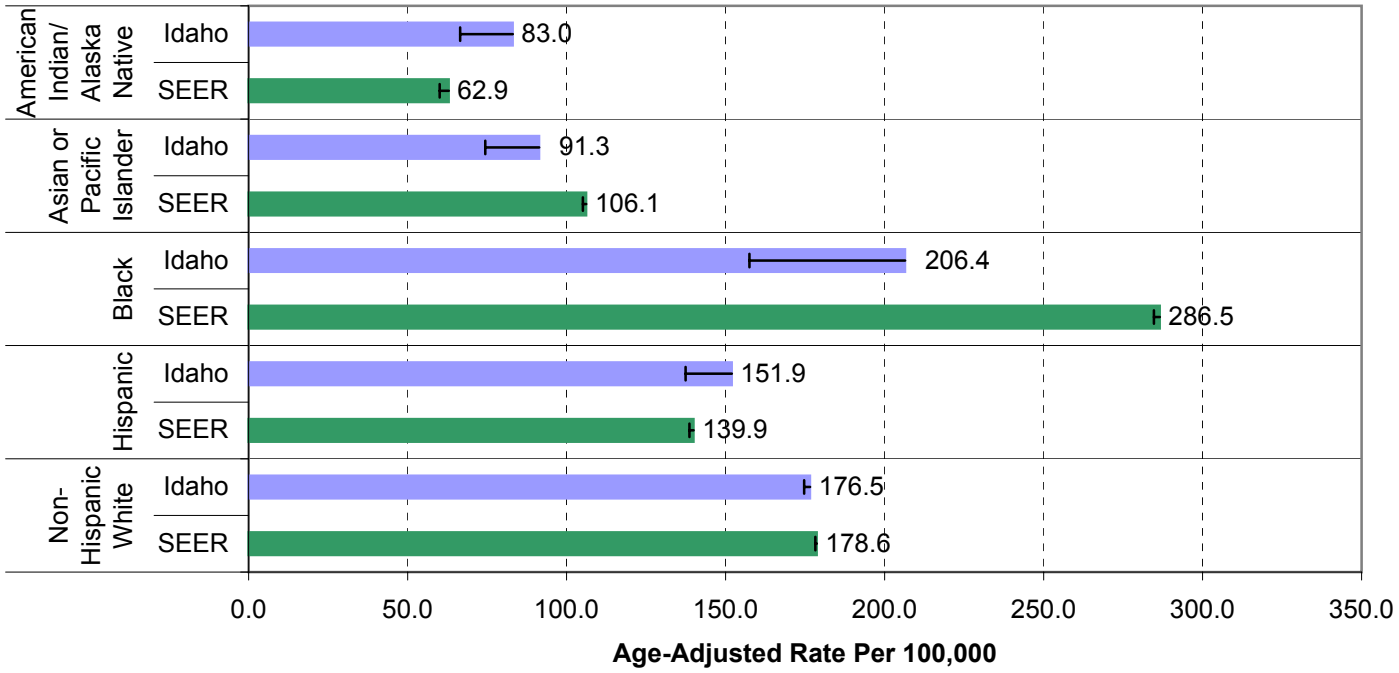
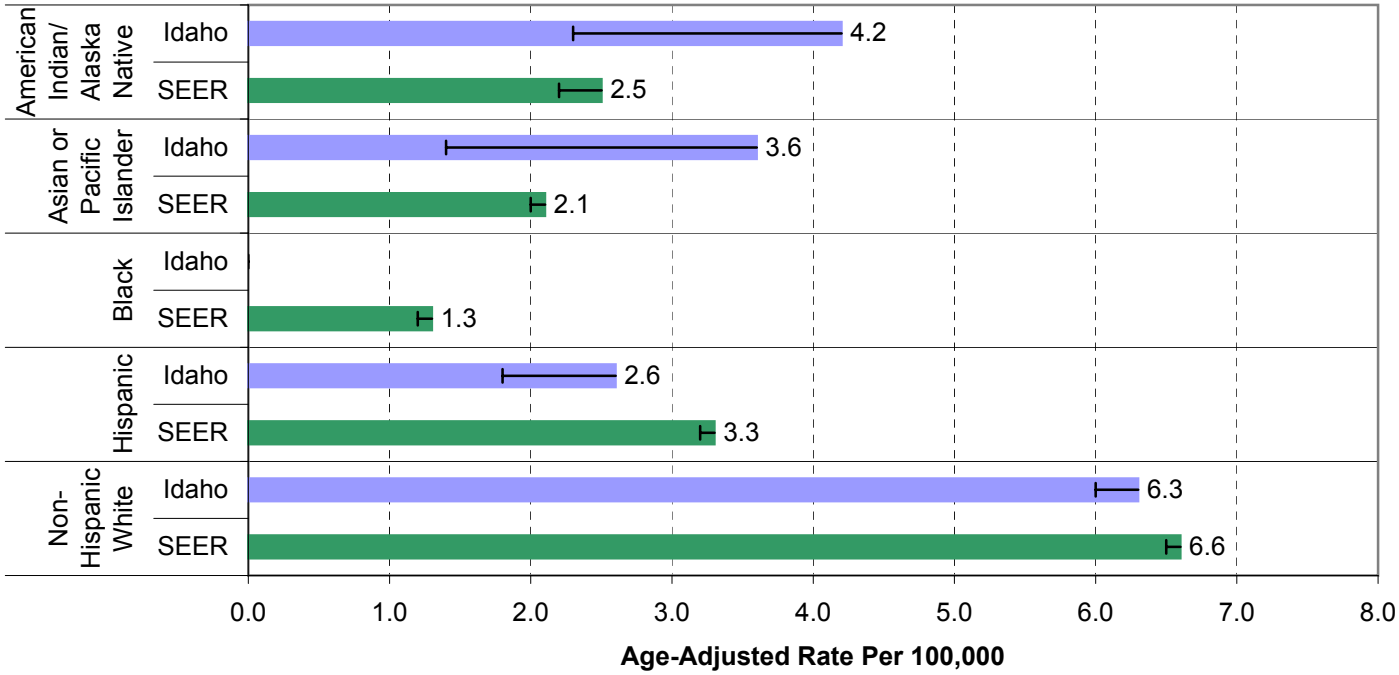


Figure 49. Testis Cancer Incidence, 1990-2001
Males



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 47. Stomach Cancer Incidence, 1990-2001
Males

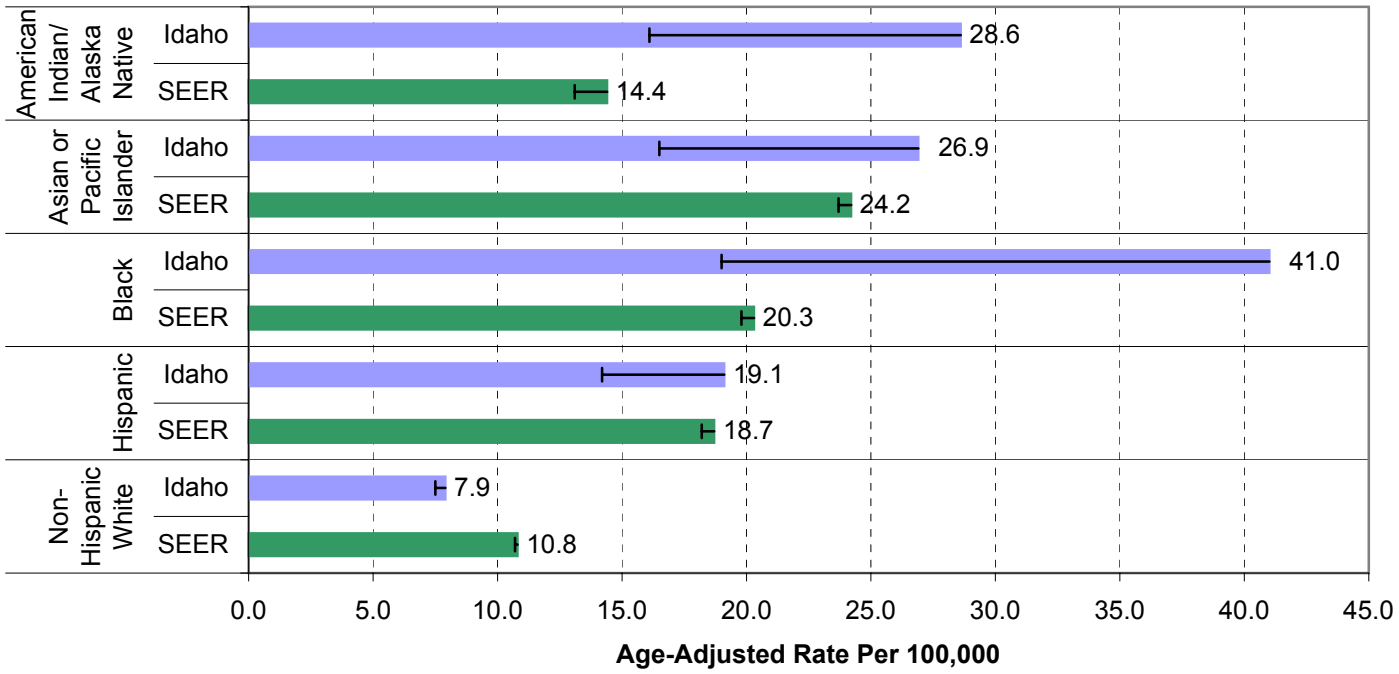
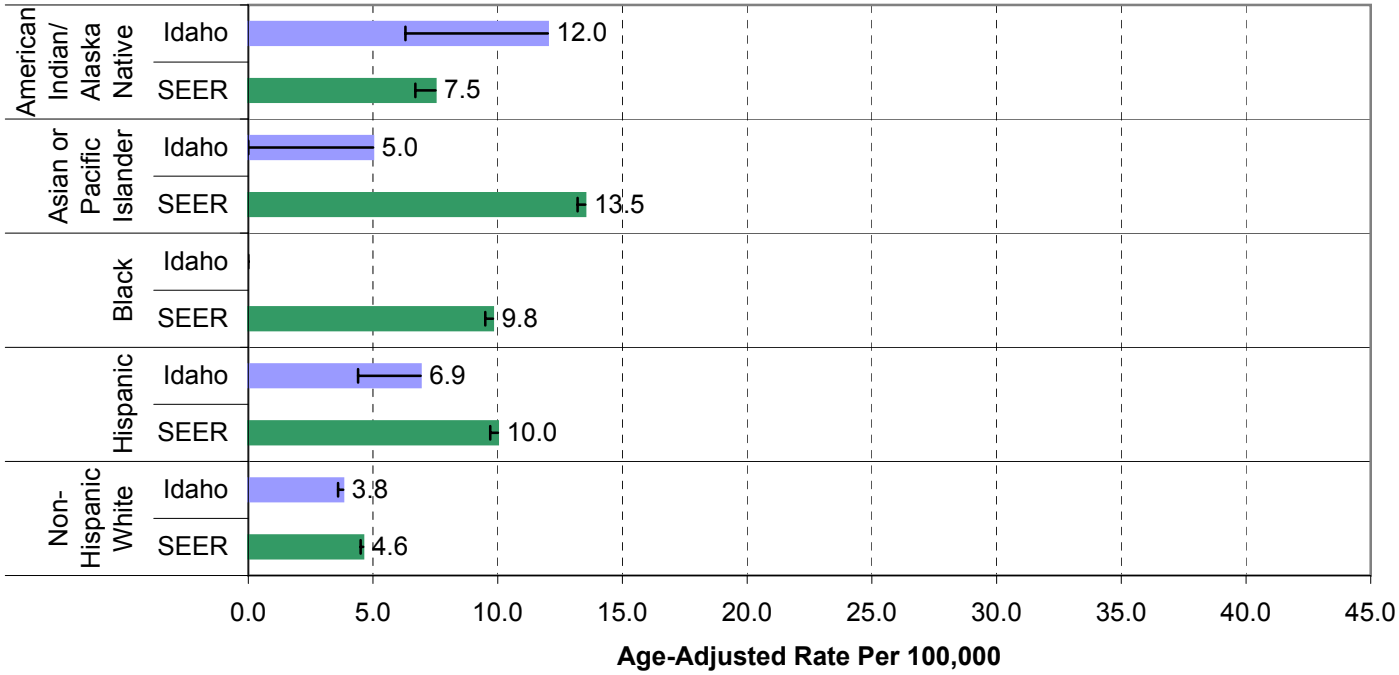


Figure 48. Stomach Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 50. Thyroid Cancer Incidence, 1990-2001
Males

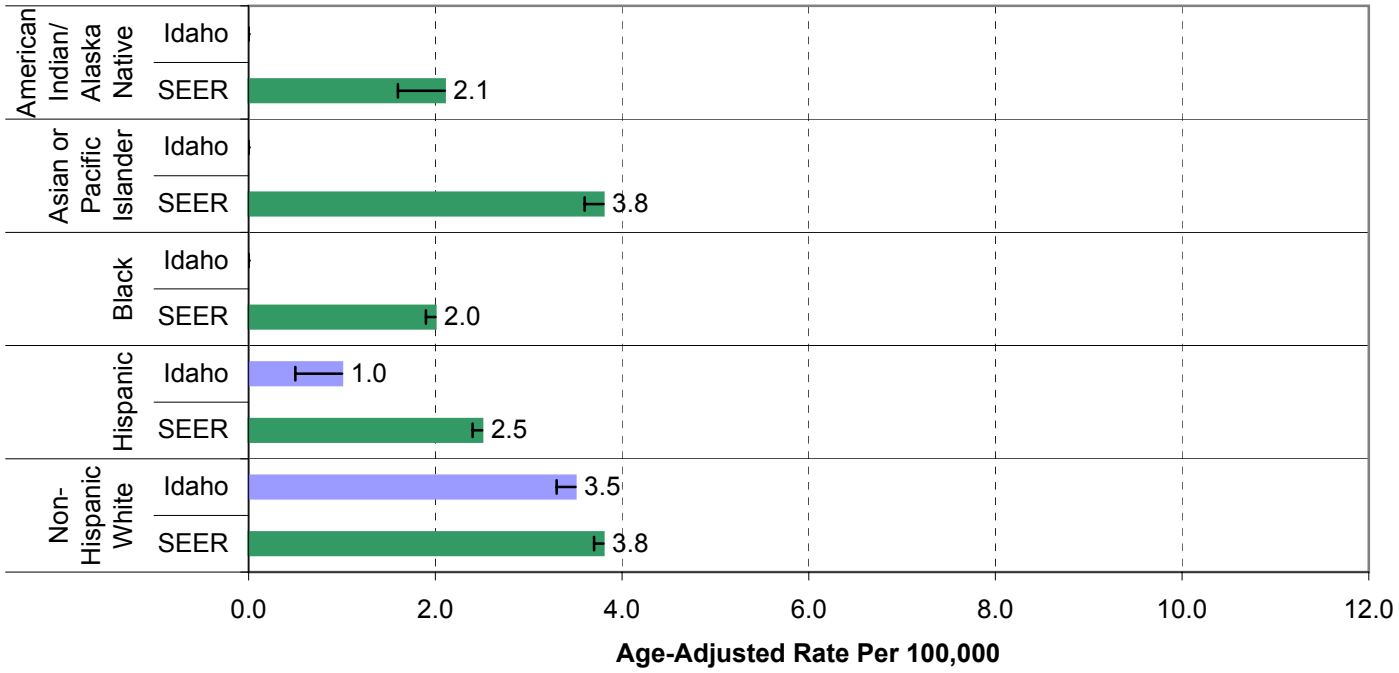
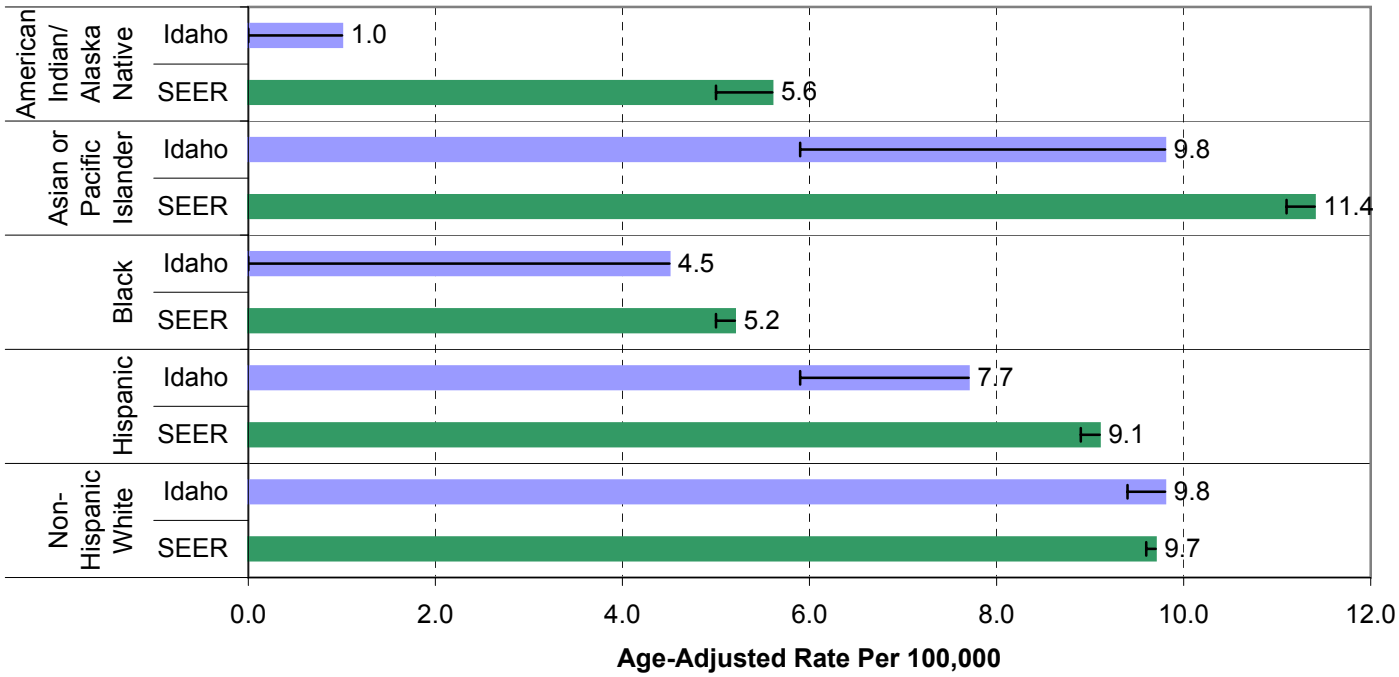


Figure 51. Thyroid Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

Figure 52. Pediatric (Ages 0-19) Cancer Incidence, 1990-2001
Males

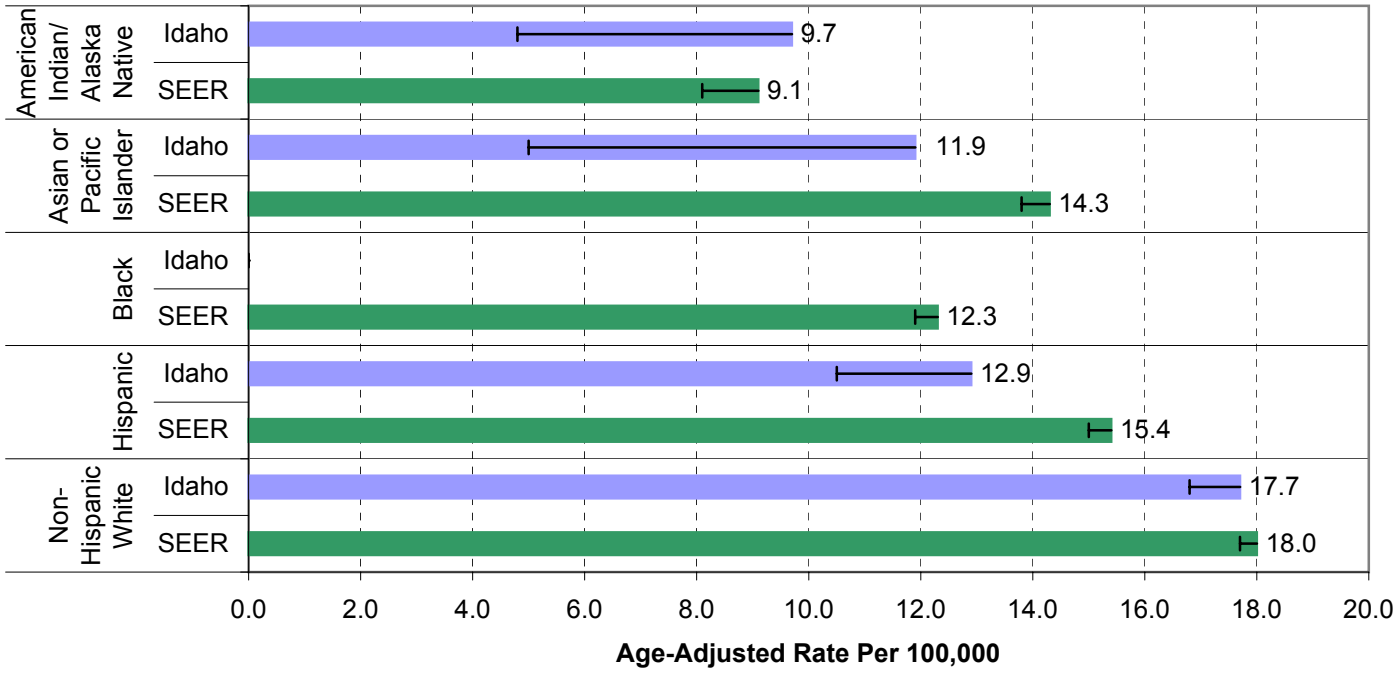
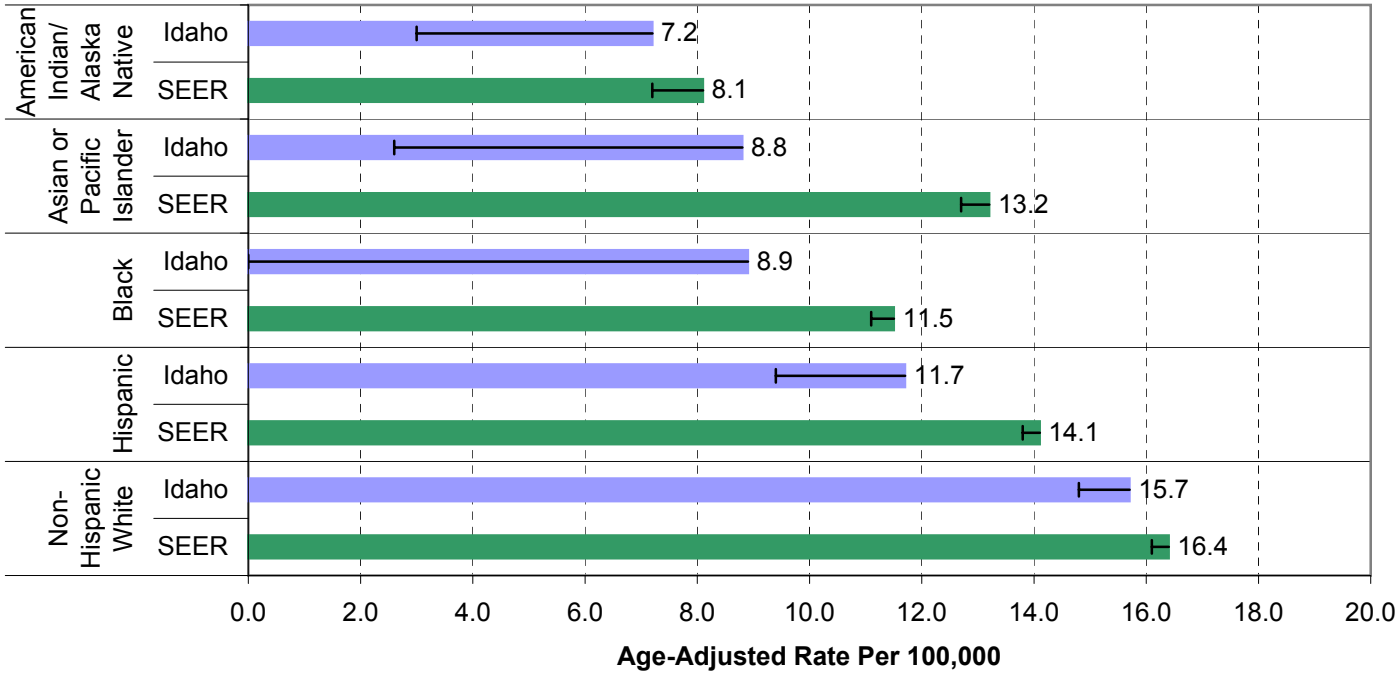


Figure 53. Pediatric (Age 0-19) Cancer Incidence, 1990-2001
Females



Notes: SEER Rates are for 1992-2000.
Error bars (|-----)show standard error of rates. Confidence intervals are approximately twice as wide in both directions.

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