Annual Report of the Cancer Data Registry of Idaho

Cancer in Idaho – 2018

December 2020

CDRI Cancer Data Registry of Idaho

Idaho Hospital Association

IDAHO DEPARTMENT OF HEALTH & WELFARE

CANCER IN IDAHO – 2018

December 2020

A Publication of the
Cancer Data Registry of Idaho

Editors:

Christopher J. Johnson, MPH, Epidemiologist
Bożena M. Morawski, PhD, MPH, Epidemiologist
Randi K. Rycroft, MSPH, CTR, Registry Manager

Contributors:

Denise Jozwik, RHIT, CTR, Director of Data Quality
Shannon Makinen, RHIT, CTR, Data Quality & Collection Coordinator
Tessa Morrison, CTR, Data Quality & Collection Coordinator
Patti Rose, RHIT, CTR, Data Quality & Collection Coordinator
Regina Eck, Database Administrator

CANCER DATA REGISTRY OF IDAHO
P.O. Box 1278
Boise, Idaho 83701-1278
Phone: 208-489-1380
Fax: 208-344-0180
http://www.idcancer.org

PREFACE

"Cancer in Idaho – 2018," the forty-second annual report of the Cancer Data Registry of Idaho (CDRI), describes the state of cancer among Idaho residents, with a focus on cancer cases diagnosed during 2018. The data can be used by public health officials, hospital administrators, physicians, the Comprehensive Cancer Alliance for Idaho, and others to effectively plan services, appropriately allocate health resources, develop and measure prevention and intervention strategies, and identify high-risk populations in Idaho.

ACKNOWLEDGMENTS

The Idaho Hospital Association (IHA) contracts with, and receives funding from, the Idaho Department of Health and Welfare, Division of Public Health, to provide a statewide cancer surveillance system.

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 or treated for cancer. Their cooperation in reporting timely, accurate, and complete cancer data is acknowledged and sincerely appreciated.

CDRI also thanks the Division of Public Health, Idaho Department of Health and Welfare, and the Comprehensive Cancer Alliance for Idaho for their continued partnership and for using CDRI data as a tool in cancer control and prevention.

This project has been funded in whole or in part with Federal funds from the National Cancer Institute, National Institutes of Health, Department of Health and Human Services, under Contract No. HHSN261201800006I and the Centers for Disease Control and Prevention, Department of Health and Human Services, under Cooperative Agreement 1NU58DP006270. The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the National Cancer Institute.

SUGGESTED CITATION:
Johnson CJ, Morawski BM, Rycroft RK. *Cancer in Idaho – 2018*. Boise, ID: Cancer Data Registry of Idaho; December 2020.

TABLE OF CONTENTS

Page

1. Foreword i

2. Preface and Acknowledgments ii

3. Background 1

   Introduction to the Cancer Data Registry of Idaho 2
   Executive Summary 4
   Technical Notes 7

4. Section I: 2018 Summary on All Sites Combined and 23 Most Common Sites 11
   All Sites 12
   Bladder 14
   Brain 16
   Brain and other Central Nervous System, non-malignant 18
   Breast 20
   Cervix 22
   Colorectal 24
   Corpus Uteri 26
   Esophagus 28
   Hodgkin Lymphoma 30
   Kidney and Renal Pelvis 32
   Larynx 34
   Leukemia 36
   Liver and Bile Duct 38
   Lung and Bronchus 40
   Melanoma of Skin 42
   Myeloma 44
   Non-Hodgkin Lymphoma 46
   Oral Cavity and Pharynx 48
   Ovary 50
   Pancreas 52
   Prostate 54
   Stomach 56
   Testis 58
   Thyroid 60

5. Section II: Incidence Data by Site and Gender — State of Idaho, 2018 63

6. Section III: Mortality Rates by Site and Gender — State of Idaho, 2018 67

7. Section IV: 2014–2018 Age-specific Incidence Rates per 100,000 Population by Site and Gender 69

8. Section V: 2018 Observed vs. Expected Numbers by Health District 73
   All Sexes 74
   Males 75
   Females 76

TABLE OF CONTENTS

Page

9. Section VI: Risks of Being Diagnosed with and Dying from Cancer 77
   - All Sites, Invasive 78
   - Female Breast/Prostate 79
   - Colon/Rectal Cancer 80
   - Melanoma 81

10. Section VII: Cancer Trends in Idaho, 1975–2018 83

11. Section VIII: Cancer Incidence by Race and Ethnicity, 2014–2018 97

12. Section IX: Cancer Survival, 2011–2017 99

13. Section X: Maps and Charts of Age-Adjusted Incidence and Mortality Rates by County, 2014–2018 103
   - All Sites 104
   - Bladder 106
   - Brain – malignant 108
   - Breast 110
   - Cervix 112
   - Colorectal 114
   - Corpus Uteri 116
   - Esophagus 118
   - Hodgkin Lymphoma 120
   - Kidney and Renal Pelvis 122
   - Larynx 124
   - Leukemia 126
   - Liver and Bile Duct 128
   - Lung and Bronchus 130
   - Melanoma of Skin 132
   - Myeloma 134
   - Non-Hodgkin Lymphoma 136
   - Oral Cavity and Pharynx 138
   - Ovary 140
   - Pancreas 142
   - Prostate 144
   - Stomach 146
   - Testis 148
   - Thyroid 150

14. References 152

15. Appendices 154

   A. Map of Idaho Health Districts and Counties 155
   B. 2000 United States Standard Population 156
   C. 2018 State of Idaho Population 157

BACKGROUND

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 are Idaho residents or patients who are diagnosed or treated for cancer in the state of Idaho. The goals of CDRI are to:

- determine the incidence of cancer in the state of Idaho with respect to geographic, demographic, and community characteristics;
- monitor trends and patterns of cancer incidence over time;
- identify high-risk populations;
- serve as a resource for conducting epidemiologic studies; and
- provide data to assist public health officials, hospital administrators, and physicians to effectively plan services, appropriately allocate health resources, and develop and measure prevention and intervention strategies.

CDRI works closely with the Comprehensive Cancer Alliance for Idaho (CCAI), the Idaho Comprehensive Cancer Control Program, and other organizations to lessen the burden of cancer in Idaho.

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 that a portion (less than one percent) of the cigarette tax be dedicated to fund the statewide cancer registry. Through the National Program of Cancer Registries (NPCR), 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. In May 2018, the National Cancer Institute (NCI) awarded the Idaho Hospital Association (IHA) a contract to operate CDRI as part of the Surveillance, Epidemiology and End Results (SEER) Program.

Collection of Data

Each Idaho hospital, outpatient surgery center, and pathology laboratory is responsible for the complete ascertainment and reporting 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 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.

Primary site, behavior, grade, and histology were coded according to the *International Classification of Diseases for Oncology, 3rd edition*.[1] Stage of disease variables were coded using *SEER's Summary Staging Manual 2018* and the *AJCC Manual for Staging of Cancer, 8th edition*.[2,3] All other variables were coded following the rules of the North American Association of Central Cancer Registries (NAACCR), the National Cancer Institute's SEER program, and the American College of Surgeons Commission on Cancer.[4–6] Rules for coding multiple primary cases and hematopoietic and lymphoid neoplasms were applied based on the year of diagnosis.[7,8]

Reportable Cases

All in situ and 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.

Benign tumors of the brain, meninges, spinal cord, any other part of the central nervous system, pineal gland, and pituitary gland are also reportable.

Basal and squamous cell carcinomas of the skin are excluded except when occurring on a mucous membrane.

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 SEER*DMS, SEER*Edits, and GenEDITS Plus software, which apply algorithms that check the values of data fields against an encoded set of acceptable possible values 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, and site/age combinations. Records are also routinely checked for duplicate entries using manual and probabilistic record linkage methods.

CDRI has met SEER and NPCR program standards and is recognized as a "gold standard registry" for data quality, completeness, and timeliness as designated by NAACCR. These designations allow Idaho data to be included in United States Cancer Statistics and all NAACCR volumes of "Cancer Incidence in North America." Idaho data have been included in SEER-21 statistics published by NCI since April 2019.

Executive Summary

Data Presentation

This report is composed of ten sections. Section I focuses on the 23 most common cancer sites and all sites combined and presents age-adjusted incidence rates, numbers of cases, numbers of deaths, case counts by county, stage of disease at time of diagnosis, risk factors, special notes, age-adjusted incidence rate comparisons by health district, and age-specific rates by gender. Comparison rates from United States Cancer Statistics (USCS) are provided, which are combined from SEER and the Centers for Disease Control and Prevention's National Program of Cancer Registries (NPCR).[9] Only registries whose data meet specified data quality criteria are included in USCS statistics. For the latest USCS data (2017 incidence), all areas of the U.S. are included. Section II describes incidence data by site, subsite, and gender for invasive and in situ cases. For completeness, site groups include categories for mesothelioma and Kaposi sarcoma histologies. Section III describes mortality data by site and gender. Section IV contains a table of age-specific cancer rates by site and gender for 2014–2018. Section V contains a table of observed versus expected numbers of cancer cases by health district.[‡] Section VI contains tables of age-specific risks of being diagnosed with and dying from cancer for males and females. Section VII shows cancer incidence trends in Idaho for the period 1975–2018. Section VIII shows cancer incidence rates by race and ethnicity for the period 2014–2018. Section IX shows cancer survival statistics for Idahoans diagnosed during the period 2011–2017 with follow-up through 2018. New this year, Section X shows maps and charts of cancer incidence and mortality rates by county for the period 2014–2018.

Descriptive Summary by Gender and Race and Ethnicity

The data presented in this report cover cancer cases diagnosed among Idaho residents from January 1, 2018 to December 31, 2018, inclusive. During this period, there were 9,576 cases of in situ and invasive cancer diagnosed among Idaho residents (4,959 among males and 4,617 among females). By race and ethnicity, there were 8,820 cases among non-Hispanic Whites, 402 among Hispanic Whites, 41 cases among Blacks, 114 cases among Native Americans, 86 cases among Asians/Pacific Islanders, and 113 cases of other or unknown race. The number of cancer cases treated in outpatient settings and reported only by pathology laboratories has increased over the last several years; these cases are more likely to have missing race and ethnicity information. To improve the accuracy of race information collected on Native Americans, CDRI has conducted matches with the Indian Health Service and Northwest Portland Area Indian Health Board. To improve the accuracy of ethnicity information, CDRI uses the NAACCR Hispanic Identification Algorithm to identify Hispanics by birthplace/race/surname. For more detailed statistics by race and ethnicity, see Section VIII of this report and *Cancer in North America: 2012-2017, Volume Two*.[10]

Trends

From 2017 to 2018, there was a 1.5% decrease in the age-adjusted cancer incidence rates in Idaho as published in CDRI's 2017 and 2018 annual reports. Changes in health policy and screening recommendations may have impacted cancer incidence since 2013. In May 2012,

[‡]For more detailed statistics by county, see Section X and CDRI's *County Cancer Profiles* at https://www.idcancer.org/ContentFiles/special/CountyProfiles/CountyMap.htm.

the United States Preventive Service Task Force issued a recommendation against Prostate Specific Antigen (PSA)-based screening for prostate cancer in all age groups. During 2007–2014, prostate cancer incidence rates decreased about 8% per year in Idaho — similar to national trends — but rebounded during 2015–2018. Low-dose CT (LDCT) screening for lung cancer among persons at higher risk due to smoking history was recommended by the United States Preventive Services Task Force in December 2013. The incidence rates of cancers of the brain, cervix, Hodgkin lymphoma, and ovary, which fluctuate annually due to relatively small case counts, rebounded from 2017. See Section VII for more detailed long-term trends in cancer incidence.

Population Description

The population of the state of Idaho on July 1, 2018, was estimated to be 1,750,536 (877,331 males and 873,205 females). Population estimates were obtained from the National Center for Health Statistics.[11] Idaho is composed of 44 counties, which are grouped into seven health districts. The composition of the health districts and their population estimates by gender as used in this report are shown below:

Health District	Counties	Male	Female
District 1	Benewah, Bonner, Boundary, Kootenai, Shoshone	119,118	120,820
District 2	Clearwater, Latah, Lewis, Idaho, Nez Perce	55,539	53,612
District 3	Adams, Canyon, Gem, Owyhee, Payette, Washington	144,411	145,937
District 4	Ada, Boise, Elmore, Valley	258,740	256,062
District 5	Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, Twin Falls	99,744	99,267
District 6	Bannock, Bear Lake, Bingham, Butte, Caribou, Franklin, Oneida, Power	87,115	87,222
District 7	Bonneville, Clark, Custer, Fremont, Jefferson, Lemhi, Madison, Teton	112,664	112,285

A map of Idaho counties and health districts can be found in **Appendix A**.

SUMMARY MEASURES OF CANCER BURDEN IN IDAHO — 2018

Primary Site	Incident Cases	Deaths	Median Age at Diagnosis	Median Age at Death	Estimated 10-Year Limited Duration Prevalence Count	Total Number of YPLL Before Age 75	Average Number of YPLL per Death, Persons Aged < 75 Years	% Change Incidence Rate, 2017 to 2018
All Sites	8,761	3,050	67.0	73.0	45,200	19,062	11.0	-1.5%
Bladder	401	102	72.0	82.0	2,400	254	7.5	-6.6%
Brain	134	99	62.0	68.0	300	1,097	15.9	10.3%
Breast	1,340	241	64.0	71.0	8,900	1,901	12.8	-3.4%
Cervix	69	14	48.0	54.0	400	274	22.8	9.5%
Colorectal	693	273	68.0	71.0	3,500	2,019	12.2	5.7%
Corpus Uteri	257	30	65.0	71.5	1,800	152	8.0	-0.4%
Esophagus	102	112	71.0	72.5	200	599	9.1	-2.2%
Hodgkin Lymphoma	38	4	56.0	-	300	-	-	-20.5%
Kidney	318	71	66.0	73.0	1,900	453	10.5	-9.6%
Larynx	37	16	68.0	67.5	200	111	10.0	-6.3%
Leukemia	319	120	68.0	76.0	1,600	832	14.6	2.7%
Liver and Bile Duct	150	122	67.5	70.0	300	859	10.7	-3.5%
Lung and Bronchus	950	633	72.0	74.0	2,100	2,979	8.3	-4.1%
Melanoma of Skin	552	48	65.0	67.5	3,600	447	14.4	3.9%
Myeloma	139	72	71.0	75.0	500	262	6.7	-3.5%
Non-Hodgkin Lymphoma	361	107	68.0	76.0	2,000	570	11.0	-1.4%
Oral Cavity and Pharynx	239	48	66.0	70.0	1,400	341	11.0	-4.1%
Ovary	110	64	64.0	69.0	500	575	13.4	12.7%
Pancreas	233	213	71.0	72.0	300	1,288	9.8	-25.9%
Prostate	1,214	203	68.0	80.0	8,800	522	7.1	1.4%
Stomach	92	36	70.0	74.5	300	230	12.1	-0.4%
Testis	50	-	34.5	-	500	-	-	6.3%
Thyroid	235	9	53.0	71.0	2,400	61	12.1	3.9%

Notes:

Incidence cases include all invasive and bladder in situ cases newly diagnosed among Idaho residents in 2018.

Years of potential life lost (YPLL) is a statistic used to measure the number of years of life lost in a population when persons in that population die prematurely (standard of 75 years of age used for this table).

Mortality-related statistics are suppressed for Hodgkin lymphoma and testis primary sites due to small number of deaths.

Technical Notes

National Program of Cancer Registries

The Centers for Disease Control and Prevention's National Program of Cancer Registries (NPCR) supports central cancer registries in 46 states (including Idaho), the District of Columbia, Puerto Rico, the U.S. Pacific Island Jurisdictions, and the U.S. Virgin Islands. These data represent 97% of the U.S. population.

Surveillance, Epidemiology and End Results Program

Part of the National Cancer Institute, the Surveillance, Epidemiology, and End Results (SEER) Program consists of several U.S. population-based cancer registries (including Idaho). SEER cancer statistics are designed to be representative of the U.S. population. SEER data used to calculate USCS statistics in Section I included data from 21 registries; statistics were calculated using SEER*Stat.[12]

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 to). Since an individual can have more than one primary cancer during their lifetime, the number of incident cancer cases is greater than the number of persons who are diagnosed with cancer.

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 those used by the SEER Program and NPCR, 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 histology (e.g. leukemias, lymphomas) and not by the anatomic site where they occurred. Melanoma of the skin is a combination of both anatomic site and histologic type. See https://seer.cancer.gov/siterecode/ for groupings of codes.

Stage at Time of Diagnosis

Staging measures the extent of disease at the time of initial diagnosis. 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, tissues, or lymph nodes);
- distant (metastasis to tissues or lymph nodes remote from the primary site); or
- unstaged.

Age-specific Incidence Rates

Age-adjusted incidence rates published in this report were calculated using the direct method and standardized to the age distribution of the 2000 U.S. population (see **Appendix B**). Incidence rates represent the average number of new cases diagnosed annually per 100,000 persons. Age adjustment allows rates from one geographic area or time period to be compared with rates from other geographic areas or time periods 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 U.S. 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.

Rate calculation requires reliable estimates of the population at risk by five-year age groups and gender during the time period being studied. Population figures used in this report were obtained from the National Center for Health Statistics (NCHS; see **Appendix C**).[11]

In conformity with NPCR and SEER Program 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.

Of the total number of invasive and in situ cases for 2018 (9,576), 8,761 cases (8,576 invasive and 185 bladder in situ) were used to calculate age-adjusted incidence rates. Of the 8,761 cases, 4,598 occurred among males and 4,163 occurred among females.

Age-specific Incidence Rates

Age-specific rates are calculated by dividing the number of cases for a given age group by the total population of that age group and are expressed as an average annual rate per 100,000 population by age group. Age-specific rates exclude the same types of cases that are excluded from age-adjusted incidence rates.

Observed vs. Expected Numbers of Cases

The expected numbers of cases were calculated using the indirect method of age adjustment. For each health district, the expected numbers of cases were calculated using rates for the remainder of Idaho. The observed and expected numbers exclude in situ cases (except bladder), basal and squamous cell skin cancers, and cases with unknown age or sex. Cases with unknown county of residence are not included in these analyses; there were no cases with unknown county in 2018. Statistically significant differences between numbers of observed and expected cases (standardized incidence ratios) were marked (+) for $p < 0.05$ and (*) for $p < 0.01$. Because statistically significant differences in observed versus expected cases can occur as a result of multiple factors, including chance, statistically significant differences do not necessarily imply that public or other health interventions are warranted.

Con idence Intervals

Confidence intervals, which are estimated from available data, provide a range of values that are likely to include the true and unknown population value. The width of a confidence interval is a measure of variability, with wider confidence intervals connoting less reliable estimates.

Mean/Median

Measures of central tendency are helpful to describe a group of individual values in a simple and concise manner.

Mean, also known as the arithmetic average, is the sum of all observations divided by the number of observations.

Median is the middle value when the observations are ranked in order from the smallest to the largest.

Factors Associated with Cancer Incidence

The “Factors Associated with Cancer Incidence” subsections in Section I were developed from extracts of *Cancer Epidemiology and Prevention*, cancer

information from the National Cancer Institute, and the International Agency for Research on Cancer.[13-15]

Limitations to Data Interpretation and Comparison

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

Rate comparisons: Age-adjusted incidence rates and age-specific rates based on small numbers (< 10) of cases may be unstable. In comparing rates among geographic areas (counties, health districts, or states), factors such as the absolute numbers of cases and differences in demographics should be considered. Interpretations of rates without consideration of these factors may be misleading or inaccurate.

Misclassification of race and/or ethnicity: Many source documents used to report cancer misclassify or do not specify the race and/or ethnicity of the patient. For detailed statistics by race and ethnicity, see Section VIII and *Cancer in North America: 2013-2017, Volume Two*.[10]

Risks of Developing and Dying from Cancer

Cancer incidence and mortality risks were estimated using DEVCAN Version 6.7.8.5 software.[16] DEVCAN was used to calculate the probability of developing or dying of cancer using Idaho-specific cancer incidence and mortality data for the years 2014-2018. The estimates generated are similar to estimates derived using incidence data from the SEER Program, mortality data from the National Center for Health Statistics, and population estimates from Census data. DEVCAN was developed by Information Management Services, Inc., in consultation with the Applied Research Branch of the National Cancer Institute.

Prevalence

Cancer prevalence is an estimate of the number of persons with a history of cancer who are alive on a certain date. Ten-year limited-duration prevalence statistics in this report estimate the number of people alive on July 1, 2018 who had a cancer diagnosis within the past 10 years.

Trend Analyses

Joinpoint Version 4.8.0.1 software was used to model trends in age-adjusted cancer incidence rates.[17] For each joinpoint time segment, the estimated annual percent change was calculated by fitting a least squares regression line to the natural logarithm of the rates using calendar year as a covariate. The Weighted Bayesian Information Criterion was used to determine the number of joinpoints (0 to 5) per primary site category and sex. Trend analyses are limited to cases considered to be malignant in both ICD-O-2 and ICD-O-3, and exclude cases only defined as malignant in 2010 or later.

Mortality

Idaho mortality data used throughout this report were provided by the Bureau of Vital Records and Health Statistics, Division of Public Health, Idaho Department of Health and Welfare.[18]

Survival

Two tables of survival estimates are included in this annual report: one table for actual prognosis, referred to as “crude” survival in the statistical literature; and one table for cancer survival, referred to as “net” survival in the statistical literature. Crude measures of survival include cancer and other competing causes of death, while net measures of

cancer survival exclude competing causes of death. Both types of survival estimates, crude and net, may be calculated using either information on cause of death or on expected survival. Policy makers, cancer control planners, and others may be interested in net deaths from cancer where the confounding effects of death from other causes are removed, such as when comparing geographic areas or population subgroups that have different background mortality rates. Crude estimates of actual patient survival are useful for cancer patients and health care providers who are interested in estimating the patients' chances of dying from cancer, dying from other competing causes of death, or surviving.[19] For younger and healthier patients, crude and net estimates of survival are similar because competing causes of death are rare. Crude and net estimates of survival may differ substantially for older and sicker patients.

Relative survival is a net measure of excess mortality experienced by cancer patients. It is calculated by dividing the observed survival from all causes of death for the patient cohort by the expected survival in a comparable group not diagnosed with cancer. Because information on cancer-free cohorts is not readily available, general population life tables are used to estimate expected survival. Relative survival based on general life tables, which include people previously diagnosed with cancer, may be overestimated for common cancers, in particular for all sites combined, breast, colorectal, and prostate cancers.[20]

The SEER cause-specific death classification variable, which provides guidance for which deaths should be attributable to a specific cancer diagnosis, was used to estimate the probabilities of dying of cancer, dying of other competing causes, and survival.[21] New this year, this variable is defined for first and subsequent primary cancers, so the tables were simplified.

Survival statistics published in this annual report include all invasive and bladder in situ cases among patients aged 15–99 at diagnosis during 2011–2017 with follow-up/death ascertainment through December 31, 2018. Cases reported solely via death certificates or autopsy were excluded. Using SEER 2007 Multiple Primary and Histology Coding Rules,[7] multiple primary cancers could be included for each patient, but only one record per patient was included in each survival estimate.

SEER*Stat (version 8.3.8) was used to perform survival calculations. The survival duration in months was calculated based on complete dates and alive patients were censored on December 31, 2018 or at their date of last contact if before December 31, 2018. Survival calculations were performed using the actuarial method on monthly intervals. Expected survival was estimated using the Ederer II method from life tables matched to the cancer patients by age, sex, year, race/ethnicity, and county-level socioeconomic status.[22, 23] Cases were censored at an achieved age of 100 years.

Because the excess mortality due to cancer is often age dependent, and age distributions of cancer patients may differ among comparison groups, net survival estimates were age standardized using the International Cancer Survival Standards (ICSS).[24] Crude survival estimates were not age standardized and reflect the actual prognosis of the cohort of Idaho cancer cases.

SECTION I

2018 SUMMARY ON ALL SITES COMBINED
AND
23 MOST COMMON SITES

ALL SITES

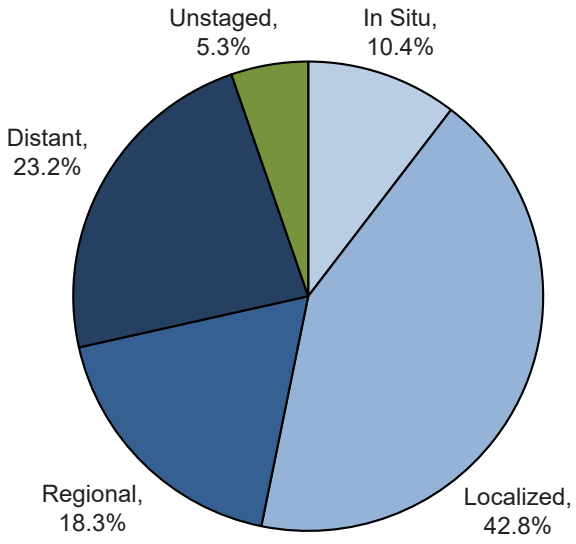
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	429.5	461.9	403.7
# of new invasive cases	8,576	4,455	4,121
# of new in situ cases	1,000	504	496
# of deaths	3,050	1,637	1,413

Total Cases by County

Ada	2,581	Cassia	109	Lewis	33
Adams	38	Clark	5	Lincoln	27
Bannock	399	Clearwater	74	Madison	96
Bear Lake	35	Custer	34	Minidoka	114
Benewah	65	Elmore	153	Nez Perce	240
Bingham	197	Franklin	65	Oneida	18
Blaine	147	Fremont	74	Owyhee	66
Boise	61	Gem	134	Payette	135
Bonner	321	Gooding	80	Power	28
Bonneville	595	Idaho	147	Shoshone	105
Boundary	74	Jefferson	133	Teton	52
Butte	19	Jerome	90	Twin Falls	451
Camas	9	Kootenai	998	Valley	65
Canyon	1,155	Latah	173	Washington	78
Caribou	42	Lemhi	61		

Stage at Diagnosis - All Sites



Factors Associated with Cancer Incidence

Age & Sex Rates usually increase with age. Approximately 50% of new cancer cases are diagnosed among people aged 66 and older. Males and females have similar cancer rates through early adulthood. Females have higher rates than males from ages 30 to 54; males have higher rates than females from age 55 onwards. Apart from breast and thyroid, males have higher rates than females for the 10 most common cancers of both sexes.

Race/Ethnicity Rates among Whites are higher than among American Indians/Alaska Natives, Asians/Pacific Islanders, and Blacks. These rates may, however, be more indicative of access to care than actual risk. Hispanics have lower rates than non-Hispanic Whites.

Occupation Increased cancer risk is associated with some workplace exposures, such as to vinyl chloride, respirable crystalline silica, asbestos, and radiation.

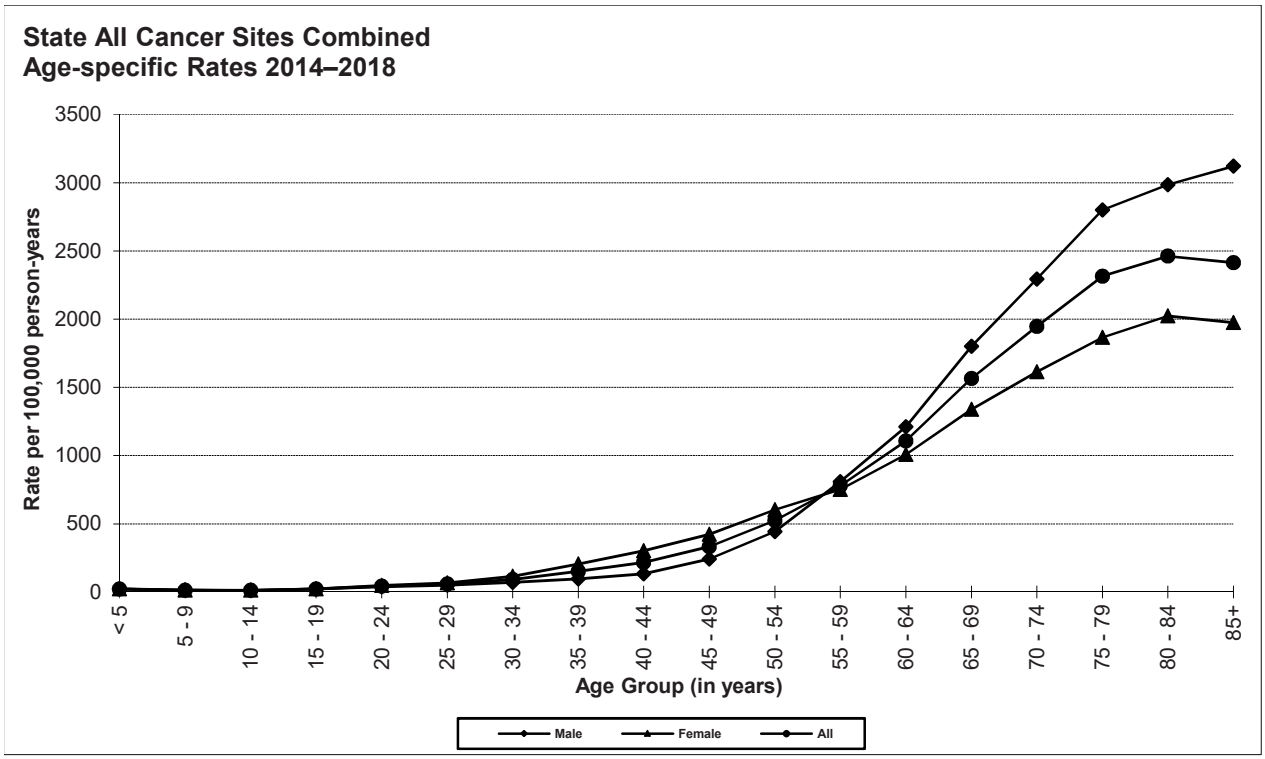
Diet Specific dietary items, such as processed meats and alcohol, increase cancer risk.

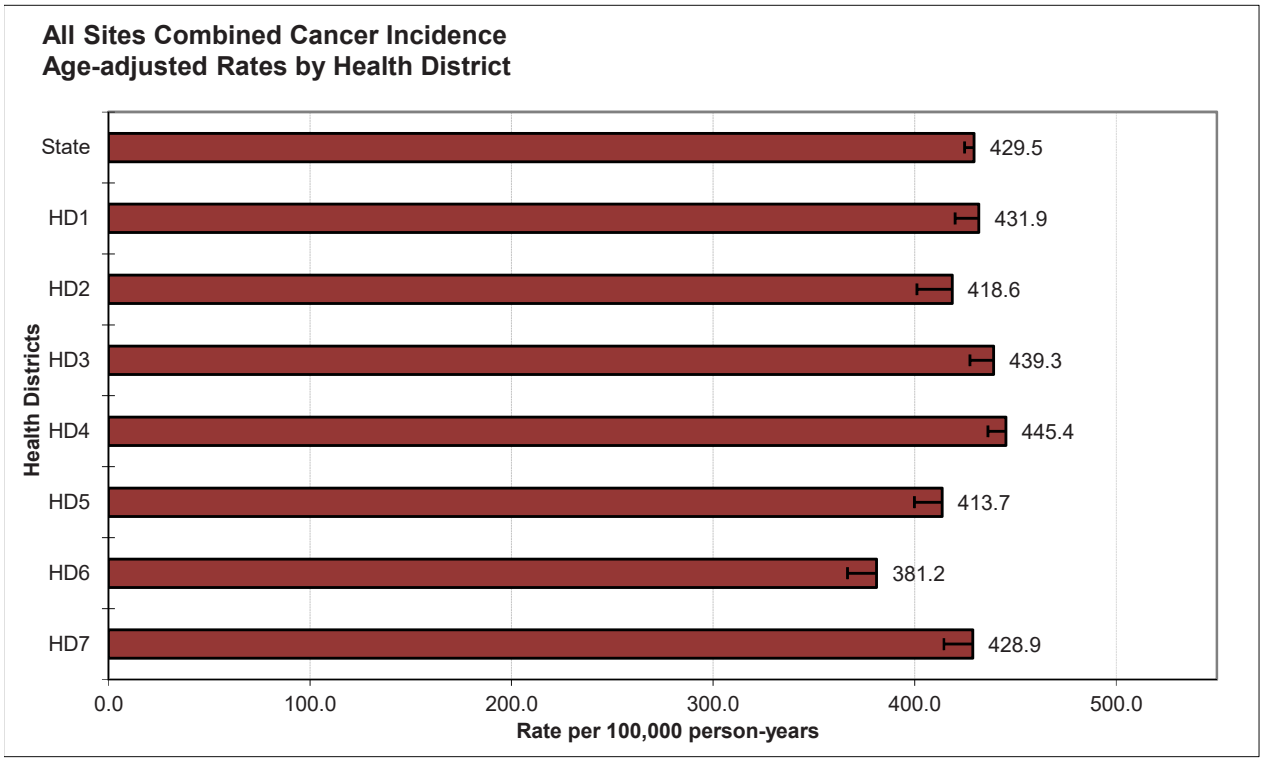
Other Tobacco use is the single most important risk factor for cancer incidence and mortality. Obesity, conditions of chronic inflammation, immunosuppression, and infection with certain infectious agents increases risk for certain cancers.

Data Summary

Mean age-adjusted incidence rate across health districts:	422.7
95% confidence interval on the mean age-adjusted incidence rate:	406.9–438.5
Median age-adjusted incidence rate of health districts:	428.9
Range of age-adjusted incidence rate for health districts:	381.2–445.4
USCS rate (2017, all races):	430.7

Incidence rates for all cancers combined are similar for males and females in Idaho until approximately age 60–64, after which rates for males rise dramatically. Rates peak for males and females in the age group 85+ and 80–84, respectively. Among total cases, Health District 4 had statistically significantly more cases of cancer than expected based upon rates for the remainder of Idaho, and Health District 6 had statistically significantly fewer cases than expected.


State All Cancer Sites Combined
Age-specific Rates 2014–2018
Rate per 100,000 person-years
3500
3000
2500
2000
1500
1000
500
0
< 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 - 79
80 - 84
85+
Age Group (in years)
Male
Female
All


All Sites Combined Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
429.5
431.9
418.6
439.3
445.4
413.7
381.2
428.9
0.0
100.0
200.0
300.0
400.0
500.0
Rate per 100,000 person-years

BLADDER

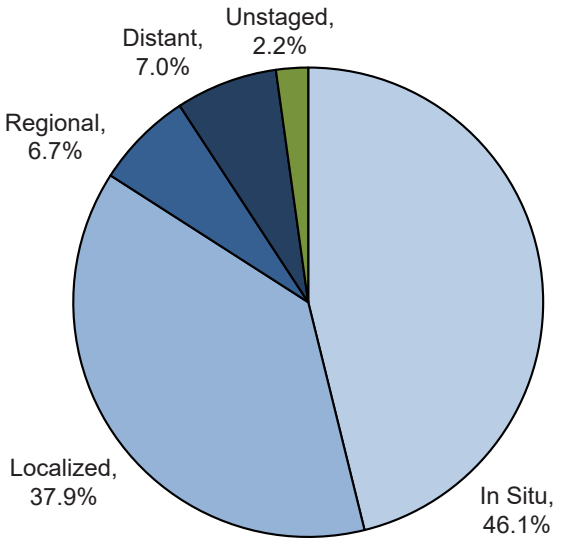
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	19.4	32.6	7.7
# of new invasive cases	216	173	43
# of new in situ cases	185	143	42
# of deaths	102	74	28

Total Cases by County

Ada	99	Cassia	6	Lewis	1
Adams	1	Clark	0	Lincoln	1
Bannock	18	Clearwater	2	Madison	1
Bear Lake	3	Custer	2	Minidoka	7
Benewah	3	Elmore	8	Nez Perce	11
Bingham	8	Franklin	2	Oneida	0
Blaine	5	Fremont	1	Owyhee	4
Boise	3	Gem	7	Payette	6
Bonner	16	Gooding	2	Power	1
Bonneville	22	Idaho	13	Shoshone	4
Boundary	-	Jefferson	8	Teton	1
Butte	2	Jerome	5	Twin Falls	27
Camas	-	Kootenai	34	Valley	4
Canyon	45	Latah	7	Washington	2
Caribou	2	Lemhi	7		

Stage at Diagnosis - Bladder



Factors Associated with Cancer Incidence

Age Rates usually increase steadily with age, with particularly marked increases among people 50 years old and older. Rates plateau among people aged 80 years and older.

Sex Rates are substantially higher in males than females. Males have at least three times the rate of females from age 50 onwards.

Race/Ethnicity Incidence rates are higher in Whites than in American Indians/Alaska Natives, Asians/Pacific Islanders, or Blacks. Non-Hispanic Whites have consistently higher rates that Hispanics.

Occupation The following occupational activities or exposures have been linked to increased bladder cancer risk: painting; manufacturing of aluminum, rubber (4-aminobiphenyl, ortho-Toluidine), auramine, magenta, leather, cloth, and paper (benzidine), and certain dyes (ortho-Toluidine, 2-naphthylamine); X-radiation and gamma-radiation.

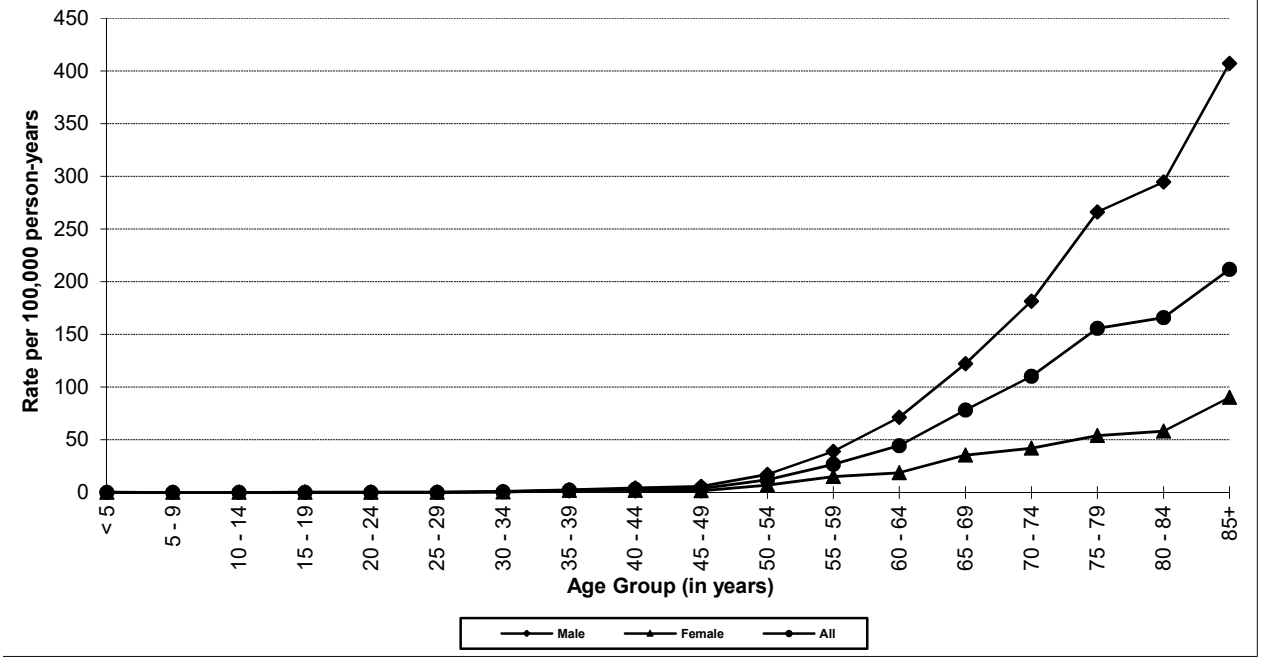
Other Tobacco consumption has been associated with a 2- to 5-fold higher incidence of bladder cancer. Arsenic and arsenic compounds – particularly in drinking water – are associated with an increased risk of bladder cancer. The chemotherapeutic agent cyclophosphamide, and parasitic infection with Schistosoma haematobium are associated with an increased risk of bladder cancer.

Special Notes

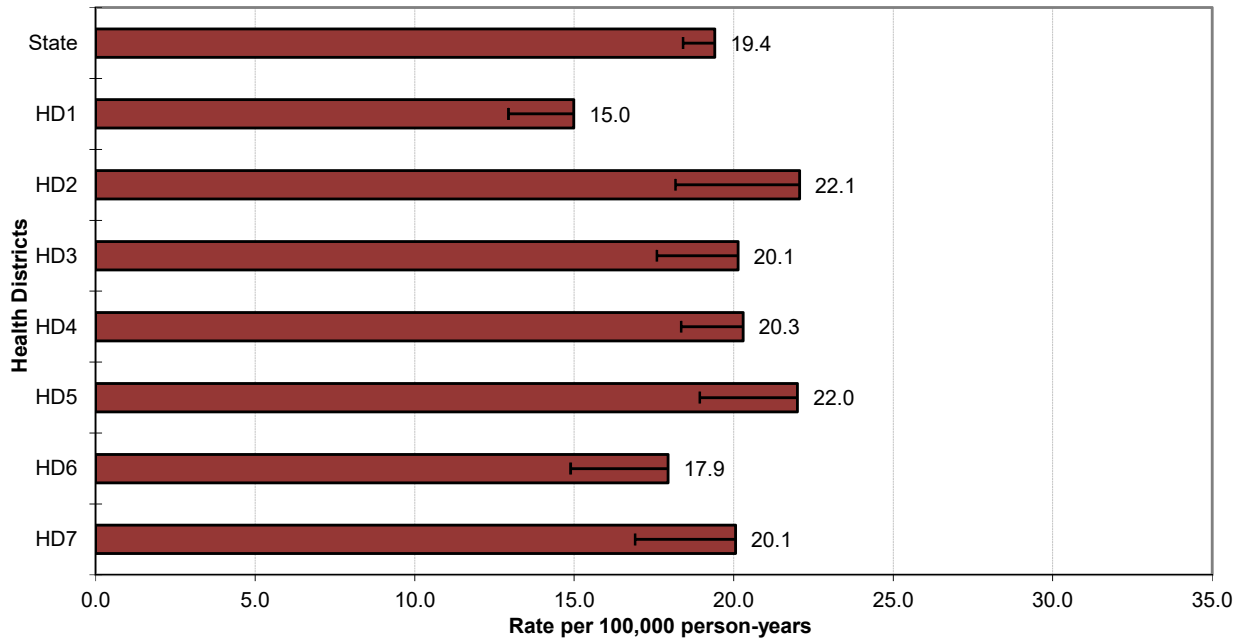
Mean age-adjusted incidence rate across health districts:	19.6
95% confidence interval on the mean age-adjusted incidence rate:	17.8–21.5
Median age-adjusted incidence rate of health districts:	20.1
Range of age-adjusted incidence rate for health districts:	15.0–22.1
USCS rate (2017, all races):	18.9

There are few incident cases of bladder cancer among persons aged less than 50 years. Bladder cancer incidence rates increase with age, peaking in the age group 85+ for males and females. Among total cases, no health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.

State Bladder Cancer Incidence
Age-specific Rates 2014–2018



Bladder Cancer Incidence
Age-adjusted Rates by Health District



BRAIN

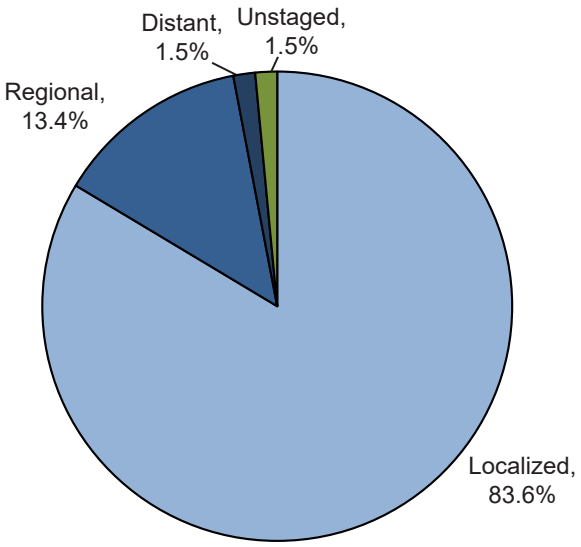
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	7.1	8.5	5.7
# of new invasive cases	134	76	58
# of new in situ cases	0	0	0
# of deaths	99	57	42

Total Cases by County

Ada	34	Cassia	1	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	8	Clearwater	1	Madison	1
Bear Lake	1	Custer	-	Minidoka	3
Benewah	1	Elmore	1	Nez Perce	2
Bingham	1	Franklin	3	Oneida	-
Blaine	3	Fremont	2	Owyhee	1
Boise	1	Gem	3	Payette	2
Bonner	3	Gooding	3	Power	-
Bonneville	10	Idaho	2	Shoshone	-
Boundary	2	Jefferson	1	Teton	2
Butte	-	Jerome	3	Twin Falls	5
Camas	-	Kootenai	13	Valley	-
Canyon	17	Latah	2	Washington	-
Caribou	1	Lemhi	1		

Stage at Diagnosis - Brain



Factors Associated with Cancer Incidence

Age Among children 0–14 years old, brain and central nervous system tumors are the second most common cancer. Incidence demonstrates a small peak in ages 1–4, a decrease and subsequent gradual rise through young adulthood, a steeper increase from age 40 onwards, and a second peak from ages 75–84.

Sex Males and females have similar rates of brain cancer until age 25, after which males have higher rates than females.

Race/Ethnicity Incidence is higher among Whites than American Indians/Alaska Natives, Asians/Pacific Islanders, and Blacks — all of which have similar incidence. Hispanics have a lower incidence than non-Hispanic Whites across the life course.

Genetics Incidence is higher among Whites than American Indians/Alaska Natives, Asians/Pacific Islanders, and Blacks — all of which have similar incidence. Hispanics have a lower incidence than non-Hispanic Whites across the life course.

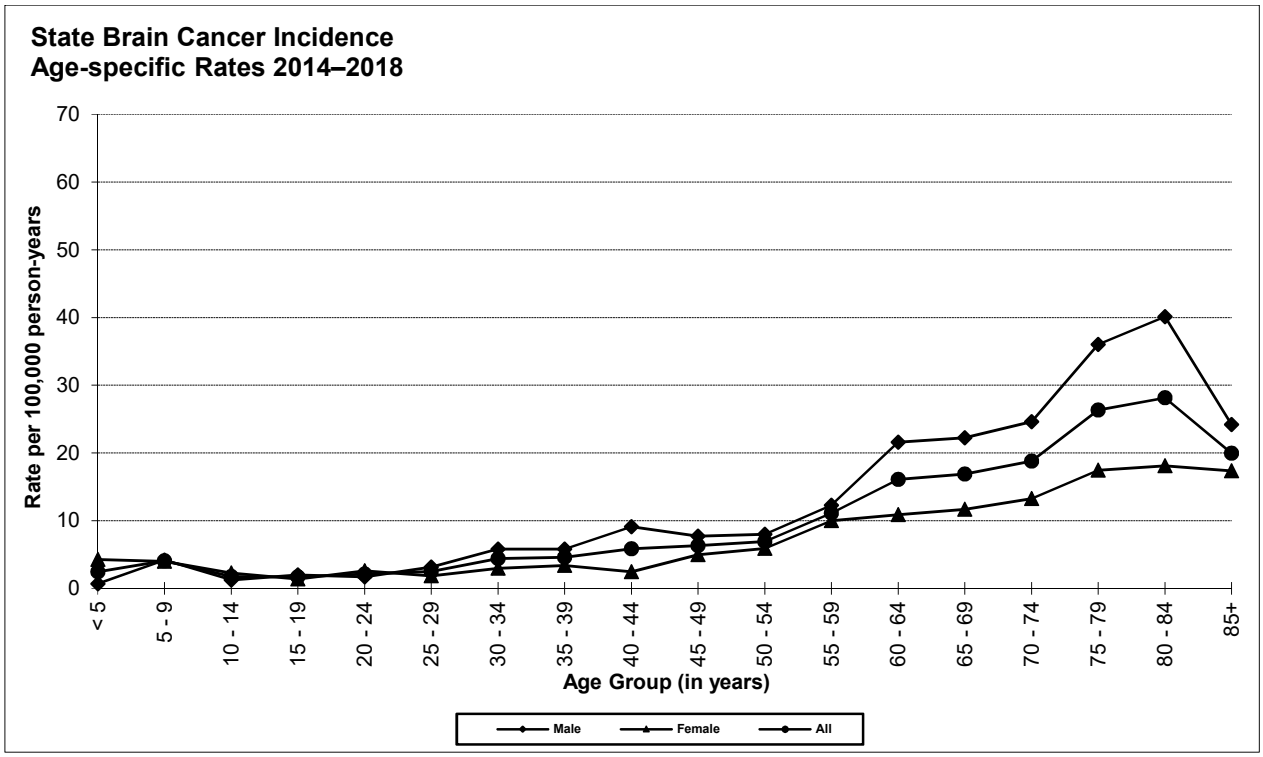
Occupation Vinyl chloride exposure is associated with increased risk for gliomas.

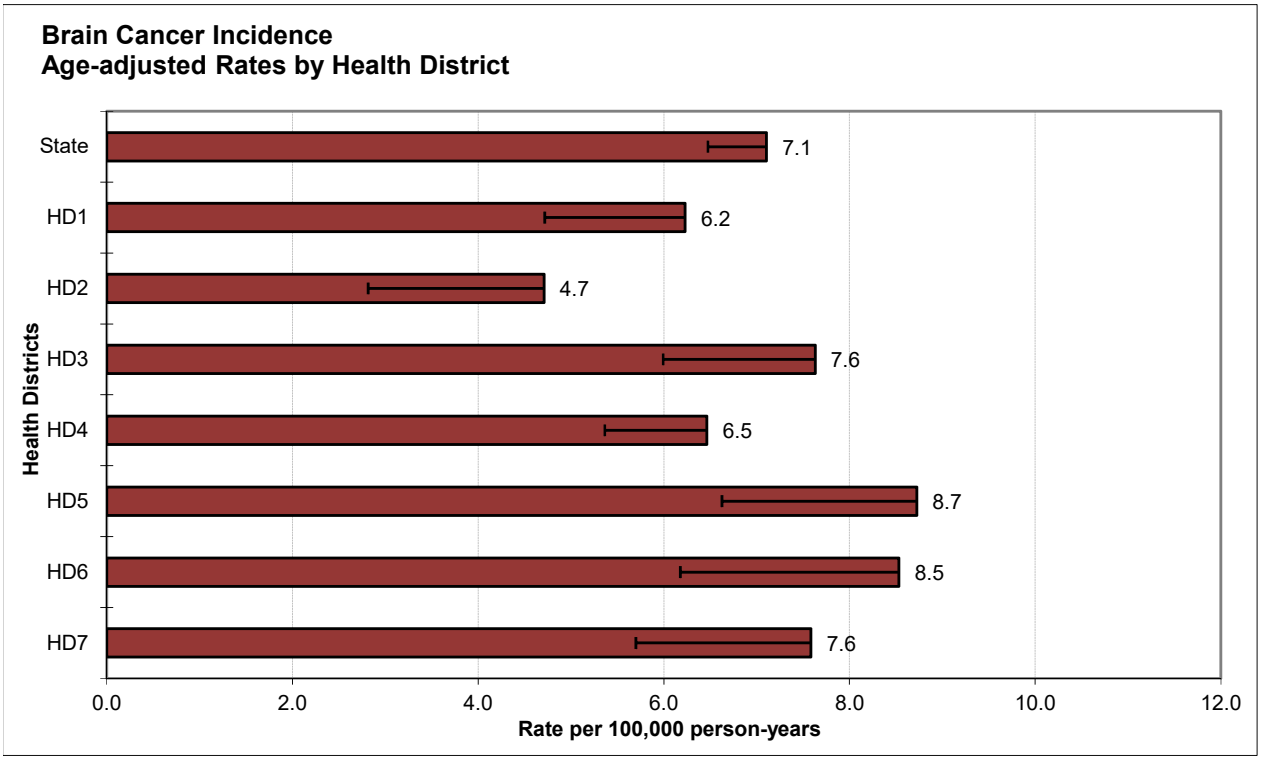
Other Incidence is higher among Whites than American Indians/Alaska Natives, Asians/Pacific Islanders, and Blacks — all of which have similar incidence. Hispanics have a lower incidence than non-Hispanic Whites across the life course.

Data Summary

Mean age-adjusted incidence rate across health districts:	7.1
95% confidence interval on the mean age-adjusted incidence rate:	6.1–8.2
Median age-adjusted incidence rate of health districts:	7.6
Range of age-adjusted incidence rate for health districts:	4.7–8.7
USCS rate (2017, all races):	5.8

Among total cases, no health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.


State Brain Cancer Incidence
Age-specific Rates 2014–2018
Rate per 100,000 person-years
70
60
50
40
30
20
10
0
< 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 - 79
80 - 84
85+
Age Group (in years)
Male
Female
All


Brain Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
7.1
6.2
4.7
7.6
6.5
8.7
8.5
7.6
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Rate per 100,000 person-years

BRAIN & OTHER CNS NON-MALIGNANT

Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	13.6	10.0	17.1
# of new cases	265	91	174

Total Cases by County

Ada	67	Cassia	9	Lewis	0
Adams	1	Clark	0	Lincoln	1
Bannock	9	Clearwater	1	Madison	4
Bear Lake	1	Custer	1	Minidoka	5
Benewah	1	Elmore	2	Nez Perce	4
Bingham	6	Franklin	1	Oneida	1
Blaine	9	Fremont	2	Owyhee	0
Boise	-	Gem	4	Payette	4
Bonner	9	Gooding	4	Power	1
Bonneville	20	Idaho	5	Shoshone	2
Boundary	3	Jefferson	4	Teton	1
Butte	-	Jerome	0	Twin Falls	10
Camas	-	Kootenai	25	Valley	0
Canyon	29	Latah	8	Washington	5
Caribou	4	Lemhi	2		

Factors Associated with Cancer Incidence

Age A small peak is observed in children < 1 year, who have higher incidence than people aged 1–24 years. Incidence increases steadily throughout the life course.

Sex Males and females have similar incidence rates of benign and borderline behavior brain tumors until age 25, after which males have higher rates than females.

Race/Ethnicity There are no differences in incidence by race. Hispanics have a lower incidence than non-Hispanic Whites across the life course.

Special Notes

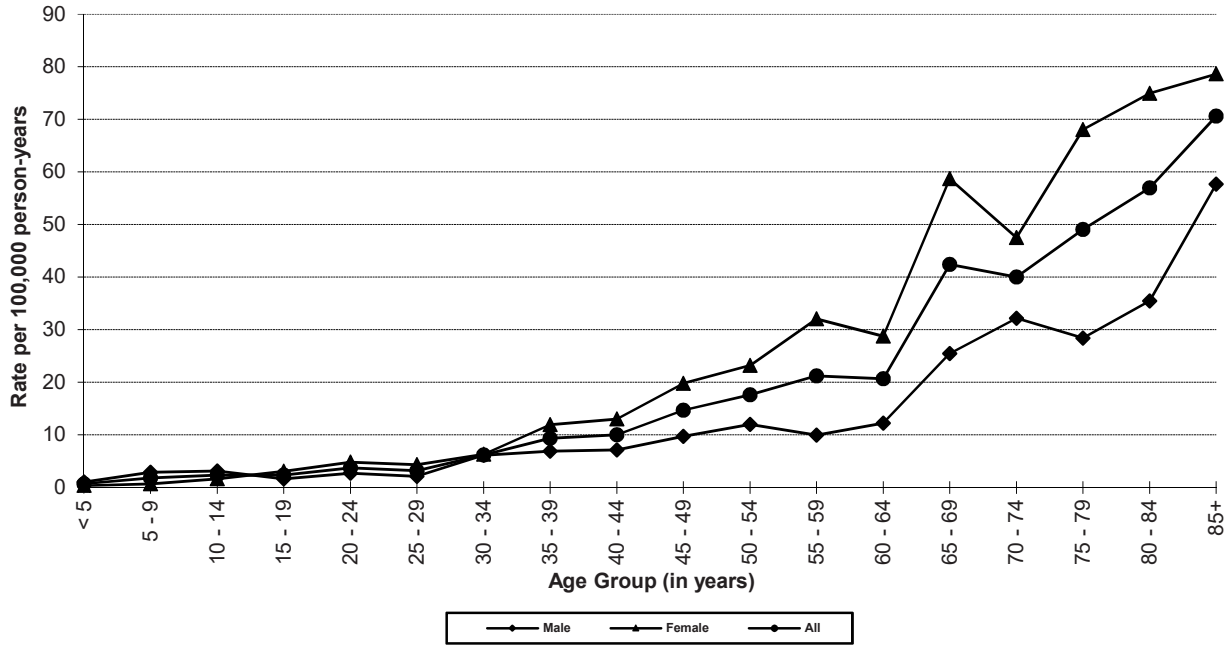
In 2007, as a result of Public Law 107-260, the publication *United States Cancer Statistics 2004 Incidence and Mortality* began to include tables for non-malignant brain tumors. Until this time, the only reference data were from the Central Brain Tumor Registry of the United States (CBTRUS; http://www.cbtrus.org), which has reported on data submitted from eighteen state central cancer registries, including Idaho.

Data Summary

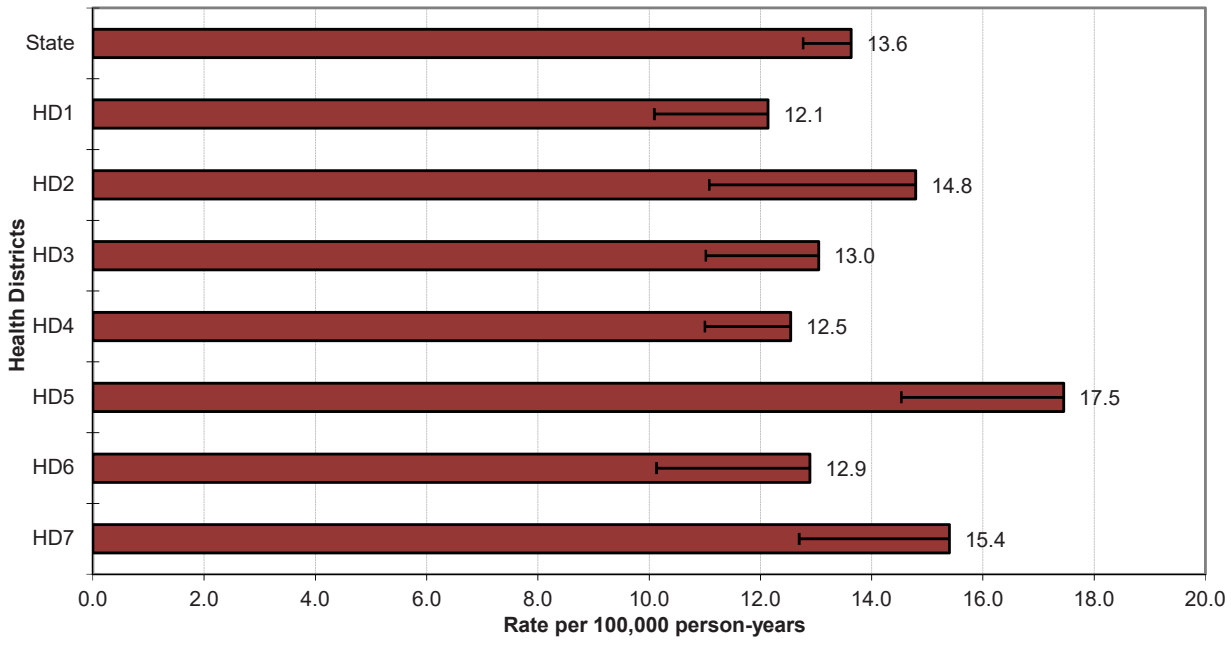
Mean age-adjusted incidence rate across health districts:	14.0
95% confidence interval on the mean age-adjusted incidence rate:	12.6–15.5
Median age-adjusted incidence rate of health districts:	13.0
Range of age-adjusted incidence rate for health districts:	12.1–17.5
USCS rate (2017, all races):	12.1

Incidence rates of benign and borderline behavior brain and other central nervous system tumors increase with age, peaking in the age group 85+ for males and females. Among total cases, no health district had statistically significantly more, or fewer, cases of non-malignant brain and other central nervous system tumors than expected based upon rates for the remainder of Idaho.

State Brain & other CNS Non-Malignant Incidence
Age-specific Rates 2014–2018



Brain & other CNS non-Malignant Incidence
Age-adjusted Rates by Health District



BREAST

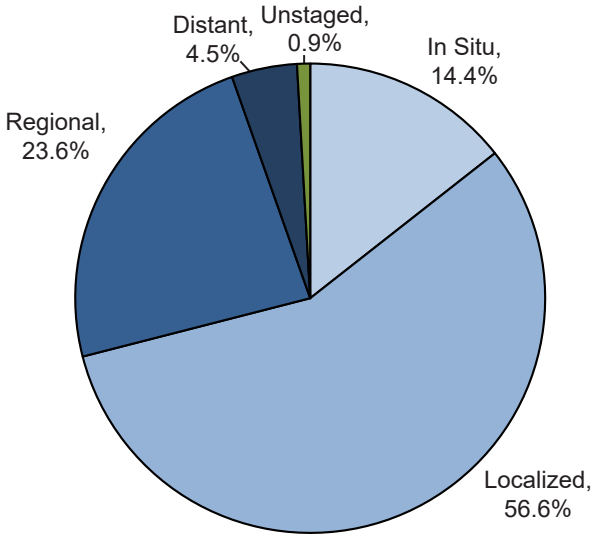
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	67.6	1.5	130.5
# of new invasive cases	1,340	13	1,327
# of new in situ cases	226	2	224
# of deaths	241	2	239

Total Cases by County

Ada	478	Cassia	24	Lewis	3
Adams	8	Clark	1	Lincoln	6
Bannock	56	Clearwater	8	Madison	16
Bear Lake	4	Custer	7	Minidoka	25
Benewah	15	Elmore	20	Nez Perce	34
Bingham	18	Franklin	14	Oneida	4
Blaine	34	Fremont	8	Owyhee	9
Boise	9	Gem	18	Payette	30
Bonner	48	Gooding	13	Power	5
Bonneville	85	Idaho	14	Shoshone	13
Boundary	11	Jefferson	23	Teton	4
Butte	4	Jerome	15	Twin Falls	62
Camas	1	Kootenai	155	Valley	9
Canyon	202	Latah	31	Washington	13
Caribou	5	Lemhi	4		

Stage at Diagnosis - Breast



Factors Associated with Cancer Incidence

Age Age is the most important risk factor for female breast cancer. Luminal A, luminal B, and triple-negative breast cancer incidence increase with age and peak among ages 65–74. HER2-enriched tumor incidence has an earlier and sustained increase in incidence from 50 to 79.

Race/Ethnicity Whites have the highest incidence rates. Whites, Blacks and Asians/Pacific Islanders have similar incidence of all breast cancers until the age of 50, when incidence for Whites and Blacks increases at a higher rate than for other races. American Indians/Alaska Natives have lower incidence than other races until age 60. Luminal A tumors, the most common breast cancer subtype, mirror breast cancer trends by race overall; triple-negative cancers are highest among Blacks across age groups; luminal B tumors have similar incidence across races; and HER2-enriched tumor incidence is highest among Blacks and Asians/Pacific Islanders.

Genetics Only 5%–10% of breast cancers are attributable to highly penetrant pathogenic genetic mutations, e.g. BRCA1/2, CDH1, PALB2. However, lifetime cancer risk for individuals with these mutations can be over 50% versus 10% in low-risk individuals. Breast cancer risk is twice as high among those with a family history (mother, sister, other first degree relative). Women with higher breast density, largely an inherited trait, are also at increased risk.

Hormonal Cumulative estrogen exposure, including use of combination hormone therapy (estrogen-progestin), early menarche, and late menopause, are associated with increased breast cancer risk.

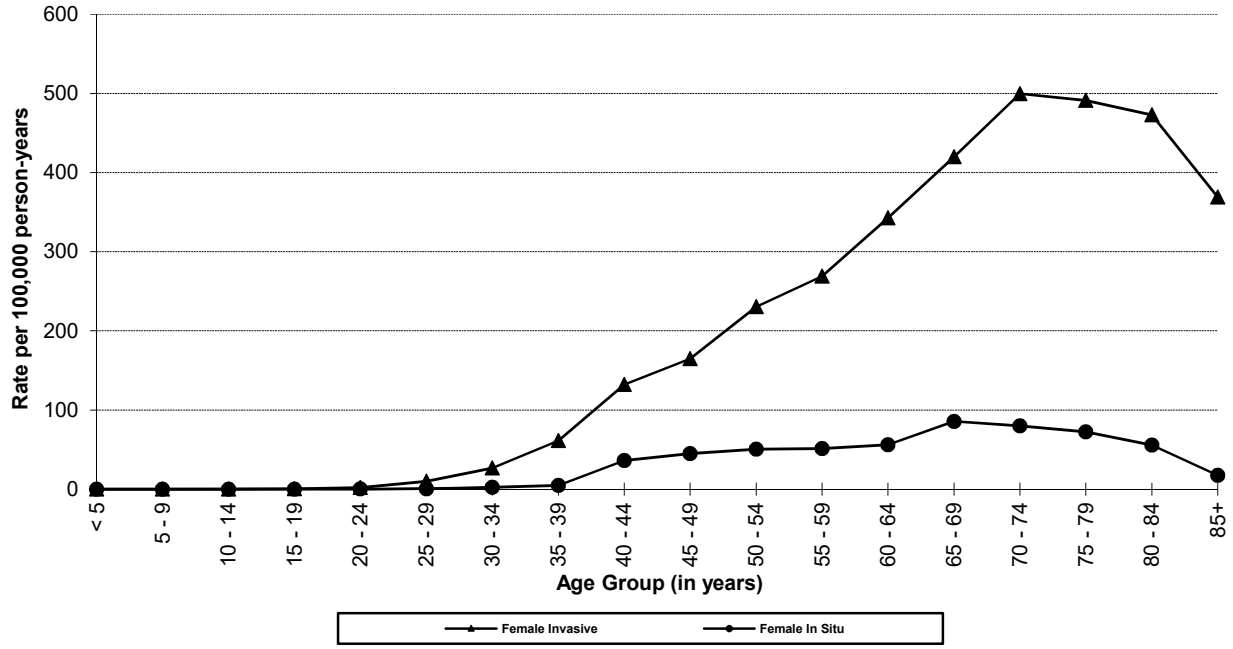
Other Heavy alcohol consumption, obesity in postmenopausal women, and exposure of breast tissue to ionizing radiation are associated with an increased risk of developing breast cancer.

Data Summary

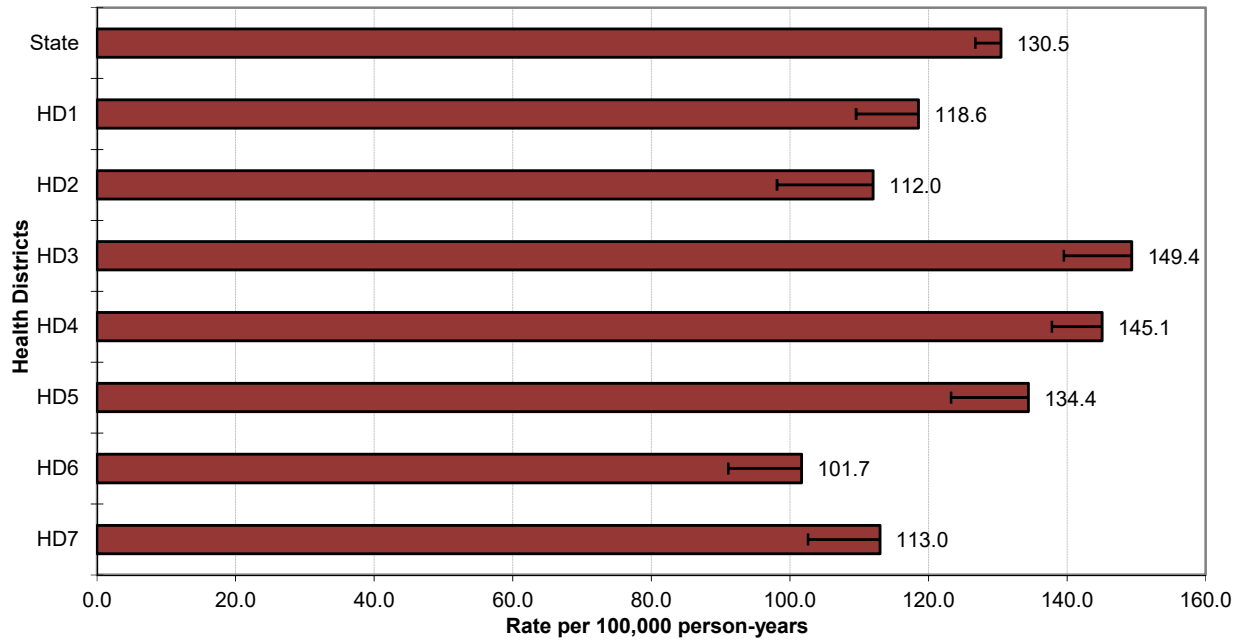
Mean age-adjusted incidence rate across health districts:	124.9
95% confidence interval on the mean age-adjusted incidence rate:	111.4–138.3
Median age-adjusted incidence rate of health districts:	118.6
Range of age-adjusted incidence rate for health districts:	101.7–149.4
USCS rate (2017, all races):	124.5

During 2018, 99.0% of invasive breast cancer cases were diagnosed among females. Age-specific incidence rates of female breast peak among 70–74-year-olds. Among total invasive cases, Health Districts 3 and 4 had statistically significantly more and Health District 6 had statistically significantly fewer cases than expected based upon rates for the remainder of Idaho.

State Female Breast Cancer Incidence
Age-specific Rates 2014–2018



Female Breast Cancer Incidence
Age-adjusted Rates by Health District



CERVIX

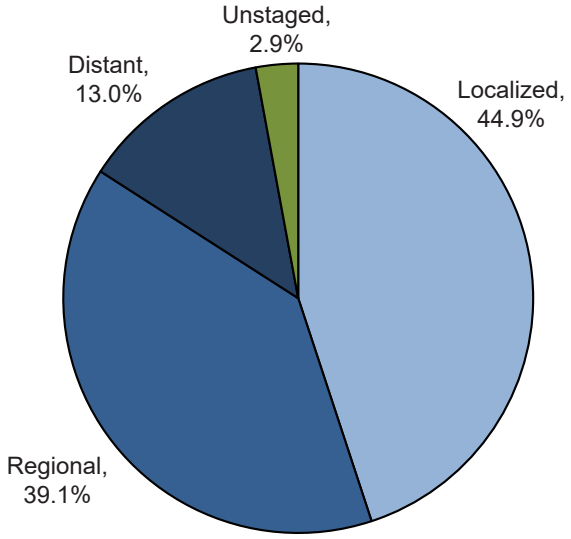
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	-	8.2
# of new invasive cases	-	-	69
# of new in-situ cases	-	-	n/a
# of deaths	-	-	14

Total Cases by County

Ada	11	Cassia	-	Lewis	-
Adams	-	Clark	-	Lincoln	1
Bannock	8	Clearwater	-	Madison	2
Bear Lake	-	Custer	-	Minidoka	1
Benewah	-	Elmore	1	Nez Perce	2
Bingham	3	Franklin	1	Oneida	-
Blaine	1	Fremont	-	Owyhee	-
Boise	1	Gem	-	Payette	3
Bonner	1	Gooding	-	Power	-
Bonneville	1	Idaho	2	Shoshone	1
Boundary	-	Jefferson	-	Teton	-
Butte	-	Jerome	2	Twin Falls	2
Camas	-	Kootenai	8	Valley	-
Canyon	14	Latah	2	Washington	1
Caribou	-	Lemhi	-		

Stage at Diagnosis - Cervix



Factors Associated with Cancer Incidence

Age Among women > 19 years, cervical cancer incidence increases sharply and steadily until it peaks among ages 40–44. Rates gradually decrease among older age groups. However, most invasive cases are diagnosed in older women.

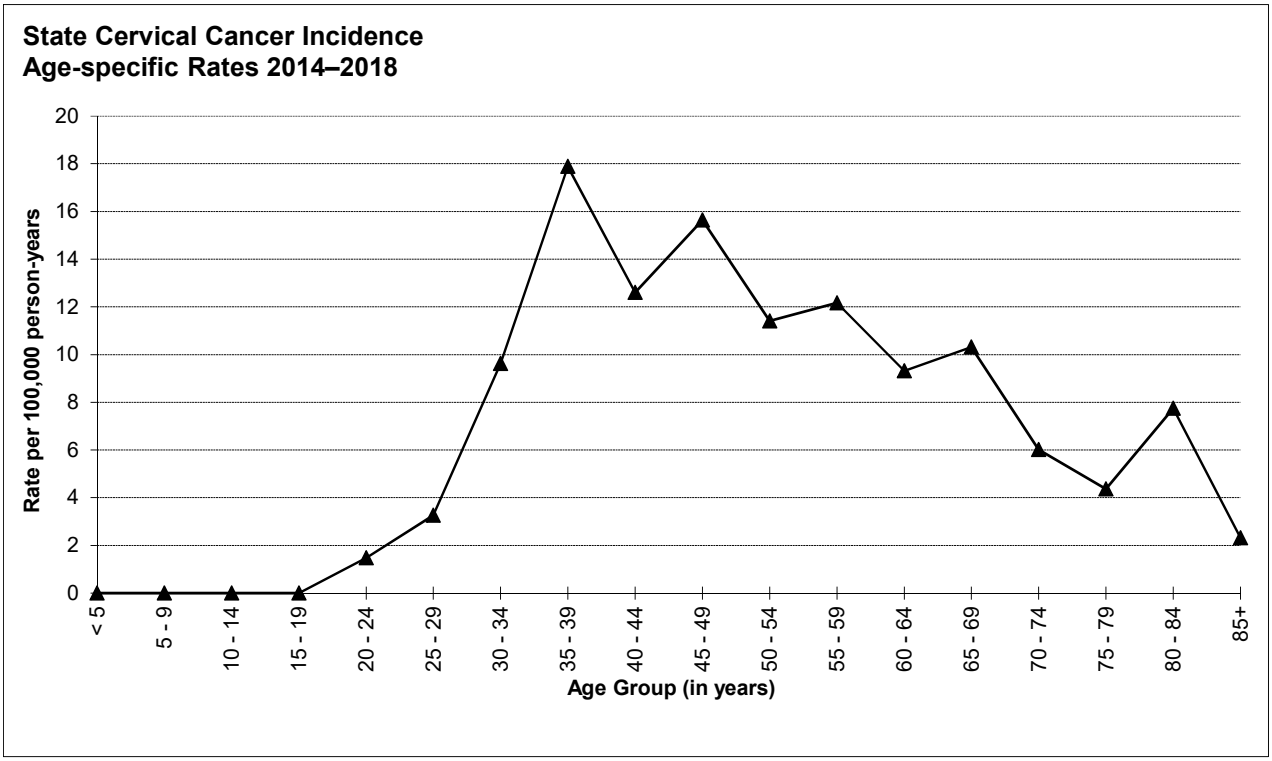
Race/Ethnicity Overall, Blacks and American Indians/Alaska Natives have higher rates of cervical cancer than Whites and Asians/Pacific Islanders, although rates among American Indians/Alaska Natives are less stable due to small case counts. From age 40 onwards, Hispanics have higher rates than non-Hispanic Whites.

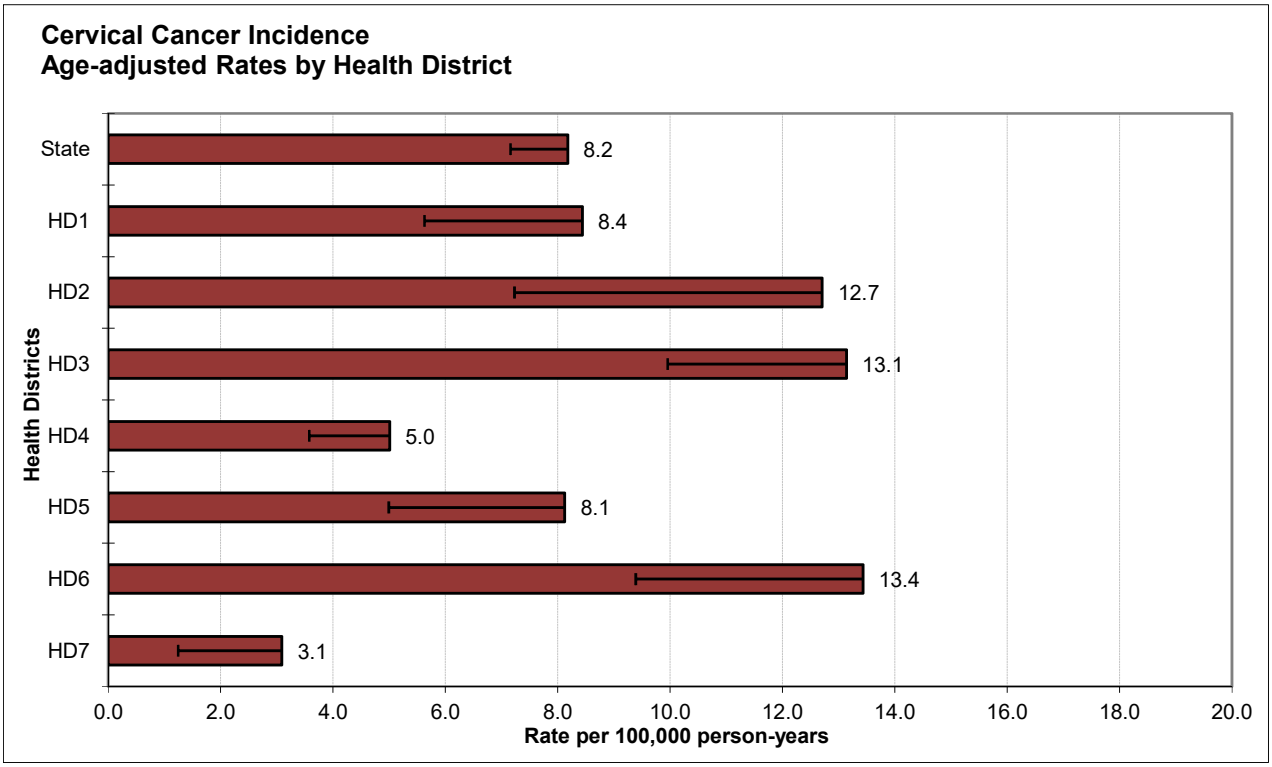
Other Human papillomavirus (HPV) is the cause of nearly all cases of cervical cancer. Of the over 100 known HPV types, types 16 and 18 are estimated to cause 70% of cervical cancers and pre-cancerous cervical lesions. Other risk factors that may be correlates or independent risk factors of HPV infection include: early age at first intercourse (< 16 years old) and a history of a higher number of lifetime sex partners. High parity and long-term oral contraceptive use are also associated with increased cervical cancer risk. Other risk factors include immunosuppression (e.g. HIV), exposure to cigarette smoke, and in utero-exposure to diethylstilbestrol (DES).

Data Summary

Mean age-adjusted incidence rate across health districts:	9.1
95% confidence interval on the mean age-adjusted incidence rate:	6.1–12.2
Median age-adjusted incidence rate of health districts:	8.4
Range of age-adjusted incidence rate for health districts:	3.1–13.4
USCS rate (2017, all races):	7.4

Increased screening with routine Pap tests has increased diagnostic rates for pre-invasive cervical disease and helped to reduce the incidence of invasive cervical cancer. Today, most cases in younger women are diagnosed before the invasive stage, with cure rates approaching 100%. For invasive cases, rates peak among 35–39-year-old females. Health District 3 and 6 had statistically significantly more cases than expected based upon rates for the remainder of Idaho, and Health District 4 had statistically significantly fewer.


State Cervical Cancer Incidence
Age-specific Rates 2014–2018
Rate per 100,000 person-years
0
2
4
6
8
10
12
14
16
18
20
< 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 - 79
80 - 84
85+
Age Group (in years)


Cervical Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
8.2
8.4
12.7
13.1
5.0
8.1
13.4
3.1
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
Rate per 100,000 person-years

COLORECTAL

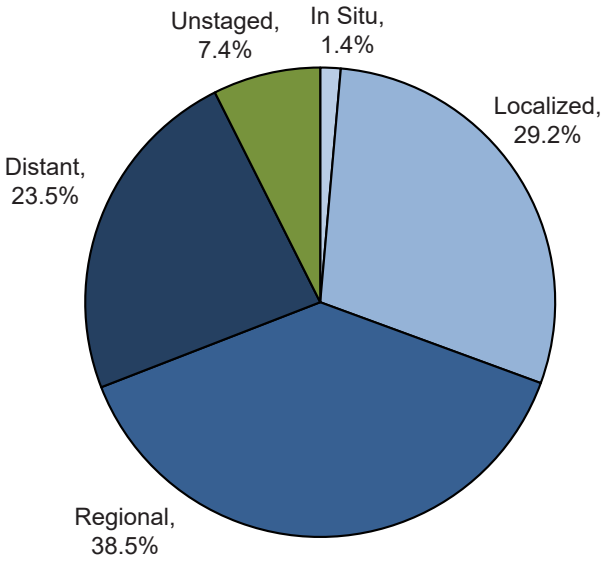
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	35.4	39.5	31.5
# of new invasive cases	693	375	318
# of new in situ cases	10	6	4
# of deaths	273	145	128

Total Cases by County

Ada	172	Cassia	7	Lewis	3
Adams	-	Clark	-	Lincoln	2
Bannock	33	Clearwater	7	Madison	9
Bear Lake	3	Custer	4	Minidoka	5
Benewah	2	Elmore	14	Nez Perce	11
Bingham	23	Franklin	6	Oneida	2
Blaine	8	Fremont	9	Owyhee	4
Boise	2	Gem	11	Payette	10
Bonner	39	Gooding	9	Power	2
Bonneville	49	Idaho	13	Shoshone	11
Boundary	7	Jefferson	11	Teton	2
Butte	-	Jerome	9	Twin Falls	27
Camas	-	Kootenai	76	Valley	5
Canyon	72	Latah	10	Washington	9
Caribou	1	Lemhi	4		

Stage at Diagnosis - Colorectal



Factors Associated with Cancer Incidence

Age Rates increase with age, and greatly increase from 50 years onwards.

Sex Males and females have similar incidence through age 49, after which males have increasingly higher rates than females.

Race/Ethnicity Blacks have higher incidence than Whites, particularly after age 50. American Indians/Alaska Natives have similar incidence to Whites and Asians/Pacific Islanders through age 69, at which point American Indians/Alaska Natives have similar incidence to Blacks. Asians/Pacific Islanders have the lowest incidence. Non-Hispanic Whites have similar incidence to Hispanics until age 70, when incidence among non-Hispanic Whites increases relative to Hispanics.

Genetics Familial adenomatous polyposis and Lynch syndrome are two forms of hereditary colorectal cancer that are associated with approximately 5%–10% of colorectal cancers. Other familial aggregation of colorectal cancer without evidence of a specific hereditary syndrome accounts for up to 25% of cases.

Diet Heavy alcohol consumption and processed meat consumption are associated with an increased risk of colorectal cancer.

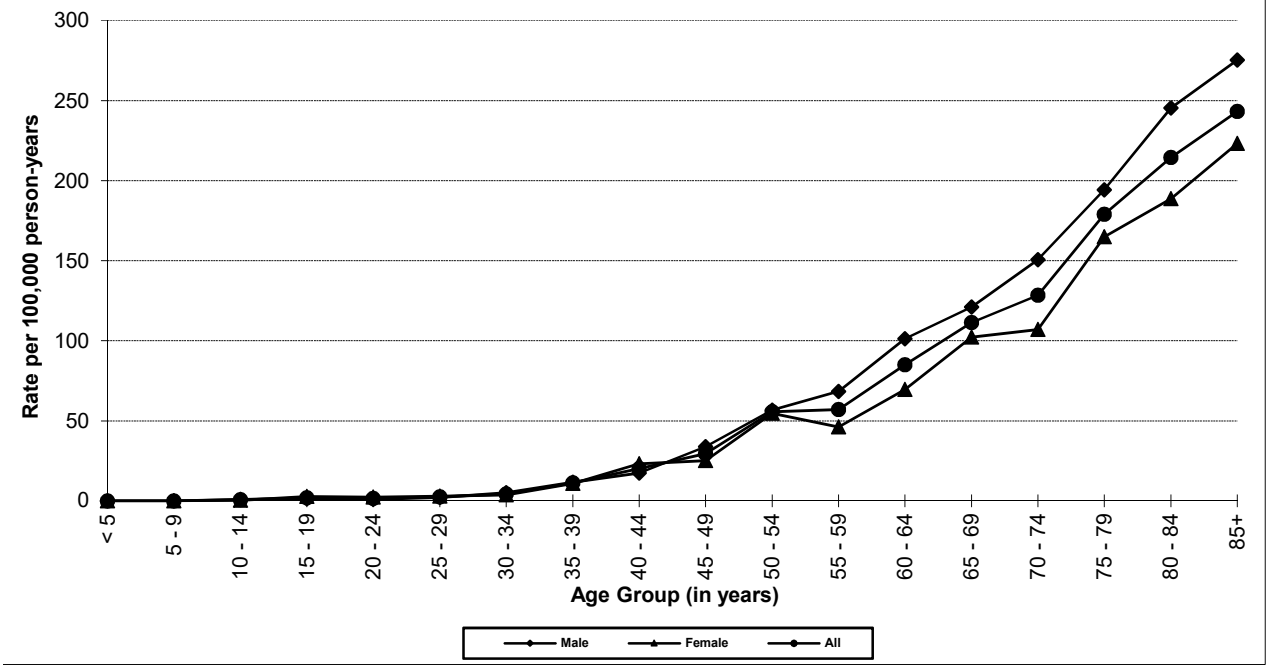
Other Cigarette smoking is significantly associated with increased colorectal cancer incidence and mortality. A sedentary lifestyle and obesity (body mass index > 29) confer increased colorectal cancer risk; colorectal cancer risk and body mass index have a positive dose-response relationship. The use of NSAIDs, including aspirin, may help prevent colon cancer.

Data Summary

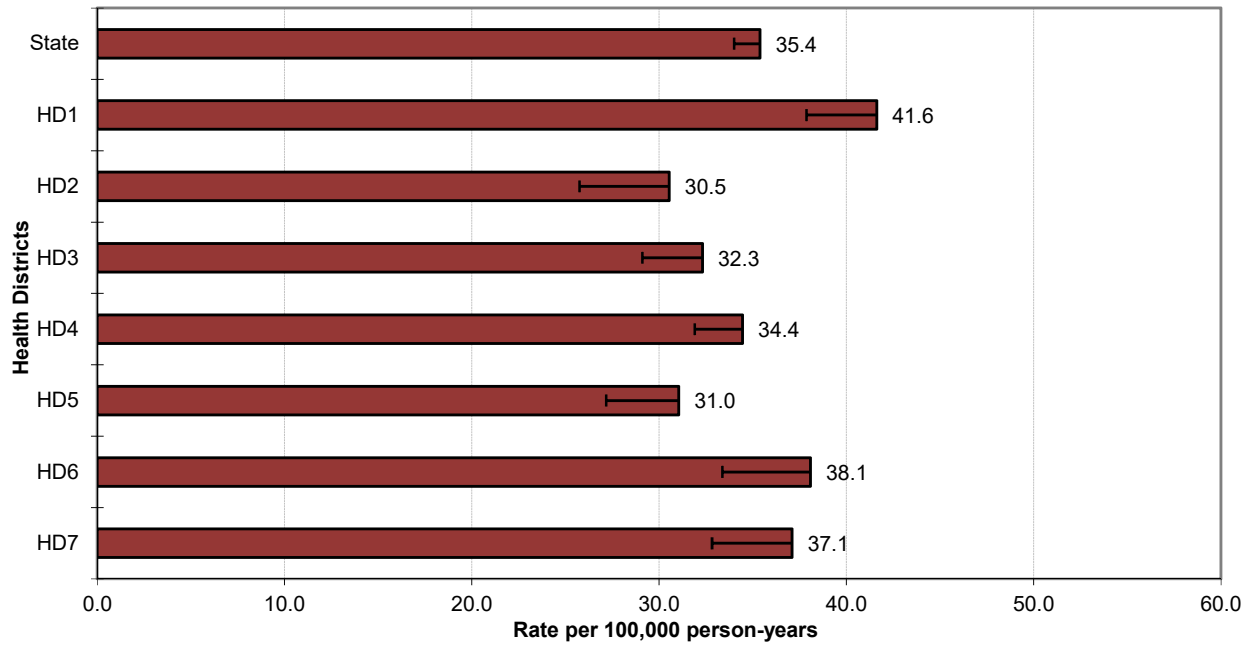
Mean age-adjusted incidence rate across health districts:	35.0
95% confidence interval on the mean age-adjusted incidence rate:	32.0–38.1
Median age-adjusted incidence rate of health districts:	34.4
Range of age-adjusted incidence rate for health districts:	30.5–41.6
USCS rate (2017, all races):	36.3

Although colorectal cancer rates are declining among adults 50 years and older, colorectal cancer rates are increasing among adults less than 50. Health District 1 had statistically significantly more cases of invasive colorectal cancer than expected based upon rates for the remainder of Idaho.

State Colorectal Cancer Incidence
Age-specific Rates 2014–2018



Colorectal Cancer Incidence
Age-adjusted Rates by Health District



CORPUS UTERI

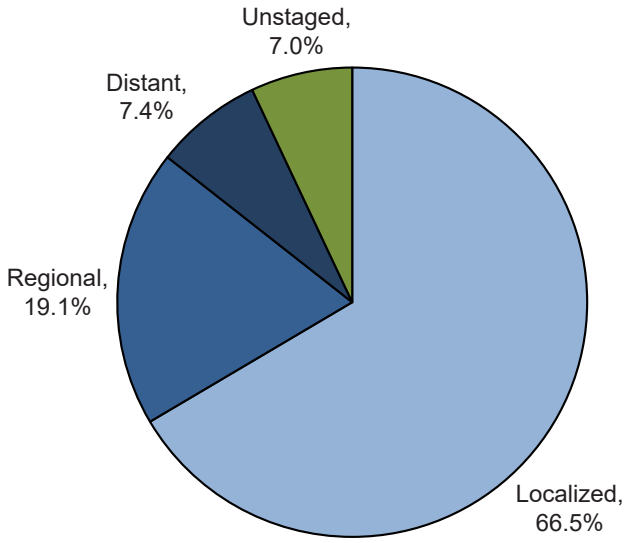
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	-	23.7
# of new invasive cases	-	-	257
# of new in situ cases	-	-	0
# of deaths	-	-	30

Total Cases by County

Ada	62	Cassia	3	Lewis	1
Adams	-	Clark	2	Lincoln	-
Bannock	10	Clearwater	-	Madison	3
Bear Lake	1	Custer	1	Minidoka	8
Benewah	-	Elmore	3	Nez Perce	5
Bingham	6	Franklin	-	Oneida	-
Blaine	3	Fremont	3	Owyhee	3
Boise	-	Gem	1	Payette	-
Bonner	5	Gooding	3	Power	2
Bonneville	18	Idaho	6	Shoshone	4
Boundary	3	Jefferson	3	Teton	1
Butte	-	Jerome	5	Twin Falls	20
Camas	-	Kootenai	30	Valley	1
Canyon	27	Latah	7	Washington	3
Caribou	3	Lemhi	1		

Stage at Diagnosis - Corpus Uteri



Factors Associated with Cancer Incidence

Age Occurs predominantly after menopause, with incidence rates above 100 per 100,000 among persons aged 60–74.

Race/Ethnicity Among adult females, Whites and Asians/Pacific Islanders have the highest incidence until age 54, when rates in Asians/Pacific Islanders decrease. Blacks have the highest incidence from age 60 through 84. American Indians/Alaska Native have the lowest rates among the race groups across age groups. Hispanics have higher rates than non-Hispanic Whites from ages 25–39, after which Non-Hispanic Whites have higher incidence than Hispanics.

Genetics Hereditary syndromes, such as Lynch syndrome, polycystic ovarian syndrome, and Cowden syndrome, are associated with increased endometrial cancer risk. Endometrial cancer risk is also elevated for individuals with a family history (mother, sister, other first degree relative).

Hormonal Hormone therapy with unopposed estrogen (versus estrogen and progestin), use of selective estrogen receptor modulators, e.g. tamoxifen, and factors contributing to increased endogenous estrogen exposure, e.g. nulliparity, early menarche, and late menopause, are associated with increased risk.

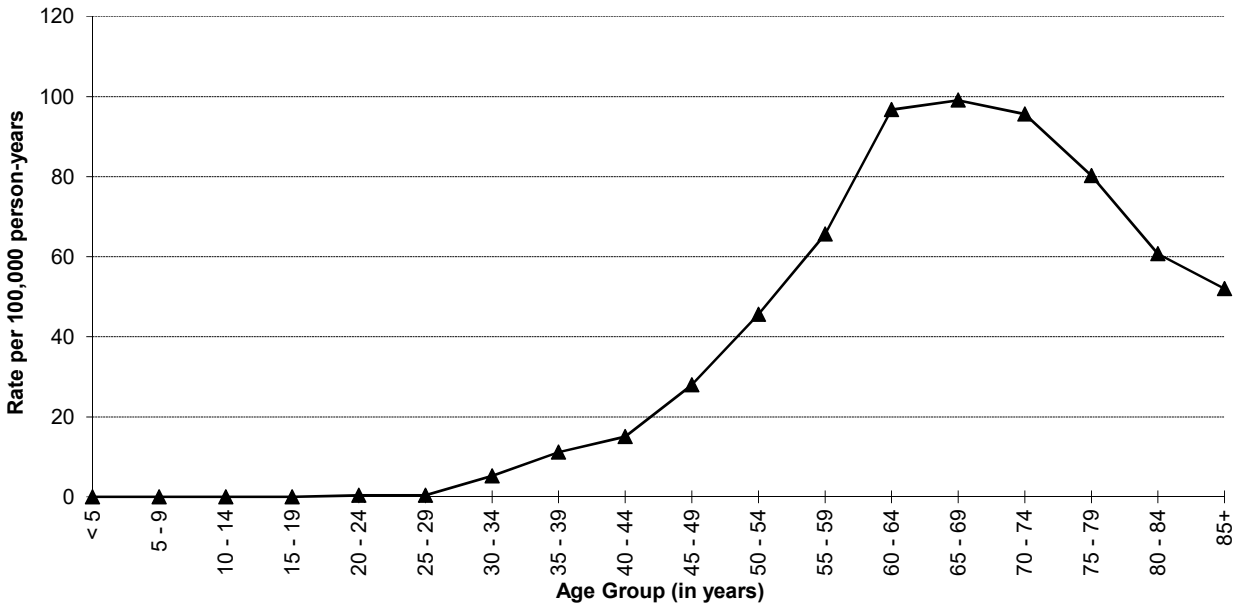
Other Endometrial hyperplasia is a common pre-cursor or concurrent condition to endometrial cancer. Obesity, high body mass index, metabolic syndrome, and post-menopausal weight gain are all associated with increased risk. Regular physical activity is associated with decreased risk.

Data Summary

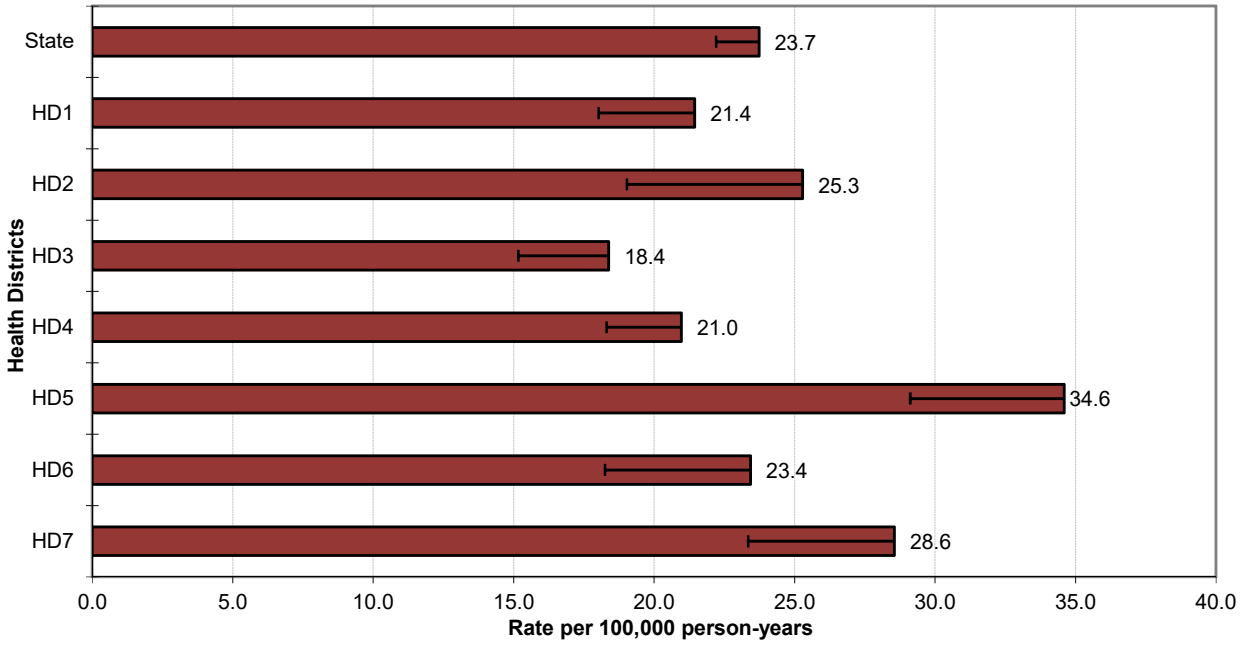
Mean age-adjusted incidence rate across health districts:	24.7
95% confidence interval on the mean age-adjusted incidence rate:	20.6–28.7
Median age-adjusted incidence rate of health districts:	23.4
Range of age-adjusted incidence rate for health districts:	18.4–34.6
USCS rate (2017, all races):	27.0

Few cases of endometrial cancer were diagnosed in persons less than 35 years of age. After age 44, there was a sharp increase in age-specific rates, peaking in the age group 65–69. Health District 5 had statistically significantly more cases of endometrial cancer than expected based upon rates for the remainder of Idaho.

State Corpus Uteri Cancer Incidence
Age-specific Rates 2014–2018



Corpus Uteri Cancer Incidence
Age-adjusted Rates by Health District



ESOPHAGUS

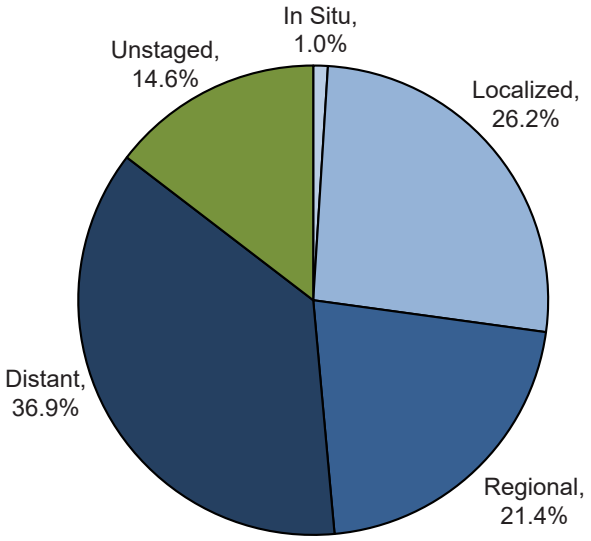
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	4.9	8.8	1.3
# of new invasive cases	102	87	15
# of new in situ cases	1	1	0
# of deaths	112	92	20

Total Cases by County

Ada	26	Cassia	-	Lewis	1
Adams	-	Clark	-	Lincoln	-
Bannock	5	Clearwater	3	Madison	-
Bear Lake	1	Custer	-	Minidoka	1
Benewah	2	Elmore	2	Nez Perce	3
Bingham	-	Franklin	-	Oneida	-
Blaine	2	Fremont	-	Owyhee	-
Boise	3	Gem	1	Payette	1
Bonner	5	Gooding	1	Power	-
Bonneville	3	Idaho	1	Shoshone	-
Boundary	2	Jefferson	1	Teton	1
Butte	1	Jerome	-	Twin Falls	4
Camas	-	Kootenai	6	Valley	1
Canyon	19	Latah	3	Washington	4
Caribou	-	Lemhi	-		

Stage at Diagnosis - Esophagus



Factors Associated with Cancer Incidence

Age Incidence of esophageal cancer increases with age, peaking among ages 80–84.

Sex Males have higher rates of esophageal cancer overall and adenocarcinoma and squamous cell carcinoma types; male-to-female incidence ratios are 3:1 or higher.

Race/Ethnicity Whites and Blacks have similar rates through age 64, when rates in Whites demonstrate steeper increases until rates peak among ages 80–84. Blacks and Whites experience higher rates of squamous cell carcinoma and adenocarcinoma, respectively, across the life course relative to other races. Data are limited for American Indians/Alaska Natives. Incidence is higher in non-Hispanic Whites than Hispanics.

Occupation Occupations with high levels of soot exposure are at higher risk.

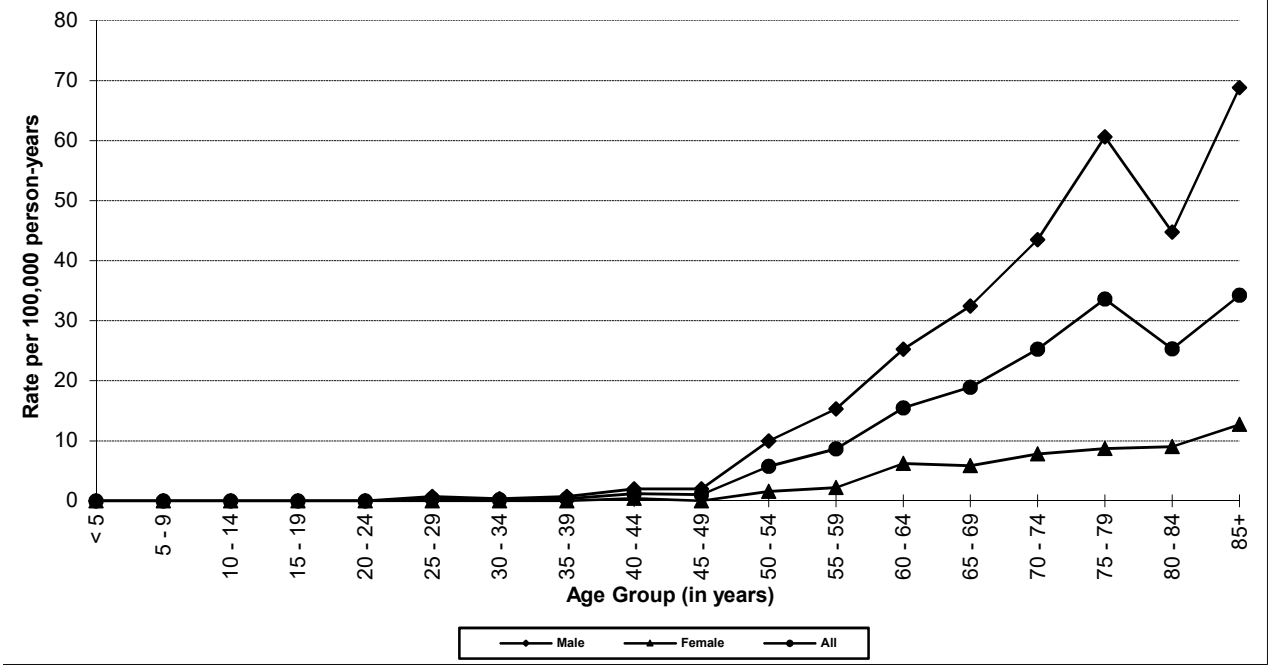
Other Tobacco use (cigarettes or spit tobacco) and heavy alcohol consumption are major risk factors for cancer of the esophagus, accounting for an estimated 90% of squamous cell carcinomas. Risk increases when both factors are present. Gastroesophageal reflux, and medications that predispose individuals to gastroesophageal reflux disease, e.g. anticholinergics, are associated with an increased risk of adenocarcinoma. Obesity is also associated with increased esophageal adenocarcinoma risk. Conversely, aspirin and nonsteroidal anti-inflammatory medications are associated with a small decrease in esophageal cancer risk.

Data Summary

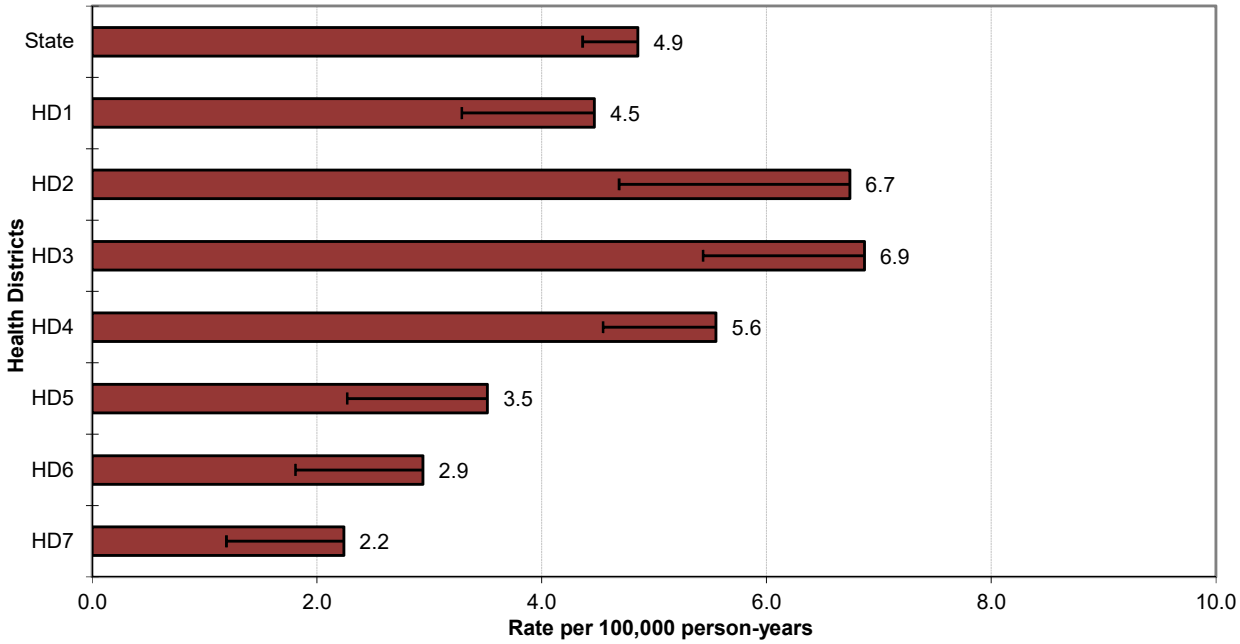
Mean age-adjusted incidence rate across health districts:	4.6
95% confidence interval on the mean age-adjusted incidence rate:	3.3–6.0
Median age-adjusted incidence rate of health districts:	4.5
Range of age-adjusted incidence rate for health districts:	2.2–6.9
USCS rate (2017, all races):	4.3

Few cases of esophageal cancer were diagnosed in persons less than 50 years of age. The age-specific incidence rates peaked in the age group 85+ for males and females. Health District 3 had statistically significantly more cases of esophageal cancer than expected based upon rates for the remainder of Idaho.

State Esophageal Cancer Incidence
Age-specific Rates 2014–2018



Esophageal Cancer Incidence
Age-adjusted Rates by Health District



HODGKIN LYMPHOMA

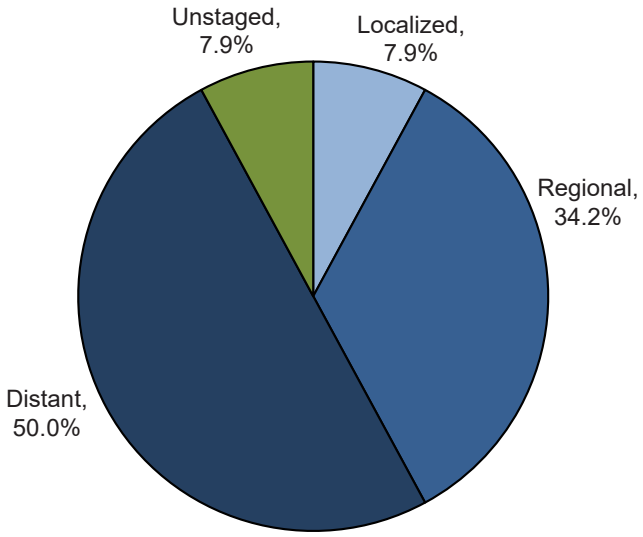
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	2.0	2.4	1.5
# of new invasive cases	38	24	14
# of new in situ cases	0	0	0
# of deaths	4	2	2

Total Cases by County

Ada	12	Cassia	-	Lewis	-
Adams	1	Clark	-	Lincoln	-
Bannock	1	Clearwater	-	Madison	-
Bear Lake	-	Custer	-	Minidoka	-
Benewah	-	Elmore	1	Nez Perce	1
Bingham	-	Franklin	1	Oneida	-
Blaine	-	Fremont	-	Owyhee	-
Boise	1	Gem	-	Payette	-
Bonner	1	Gooding	-	Power	-
Bonneville	4	Idaho	-	Shoshone	-
Boundary	-	Jefferson	2	Teton	-
Butte	-	Jerome	-	Twin Falls	3
Camas	-	Kootenai	5	Valley	-
Canyon	4	Latah	-	Washington	-
Caribou	1	Lemhi	-		

Stage at Diagnosis - Hodgkin Lymphoma



Factors Associated with Cancer Incidence

Age & Sex Hodgkin lymphoma rates are bimodal, with peaks for males and females aged 20–24 years and 75–84. Rates are higher among males among ages 5–14 and 30–85+.

Race/Ethnicity Whites have higher incidence of Hodgkin lymphoma than other races across the life course, except for Blacks from 35–54. Rates are similar to or lower among Asians/Pacific Islanders than other races. Non-Hispanic Whites have higher rates of Hodgkin Lymphoma through age 44, after which point incidence between Hispanic and Non-Hispanic Whites are similar, apart from higher incidence among Hispanics aged 75–79 years.

Genetics Hodgkin lymphoma risk is elevated for individuals with a family history, e.g. a sibling, but reasons for this increased risk are not well understood.

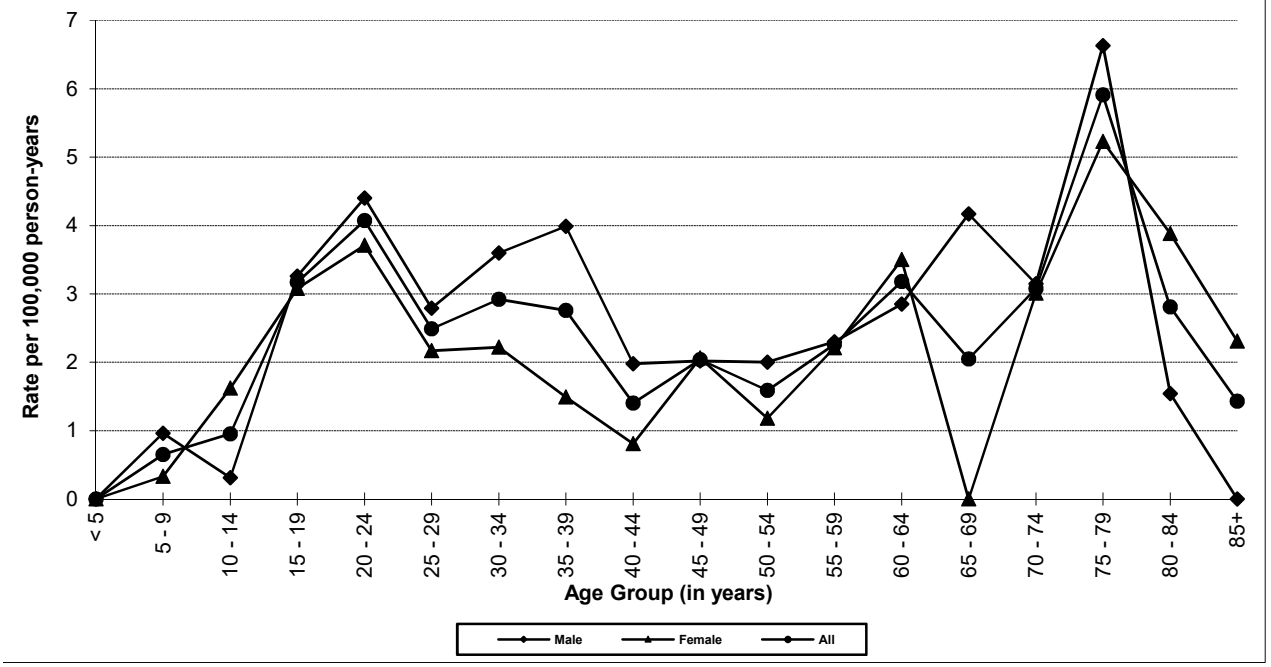
Other Epstein-Barr virus and immunosuppression (e.g. HIV infection, immunosuppressant medications related to organ transplant) are associated with increased risk of Hodgkin lymphoma.

Data Summary

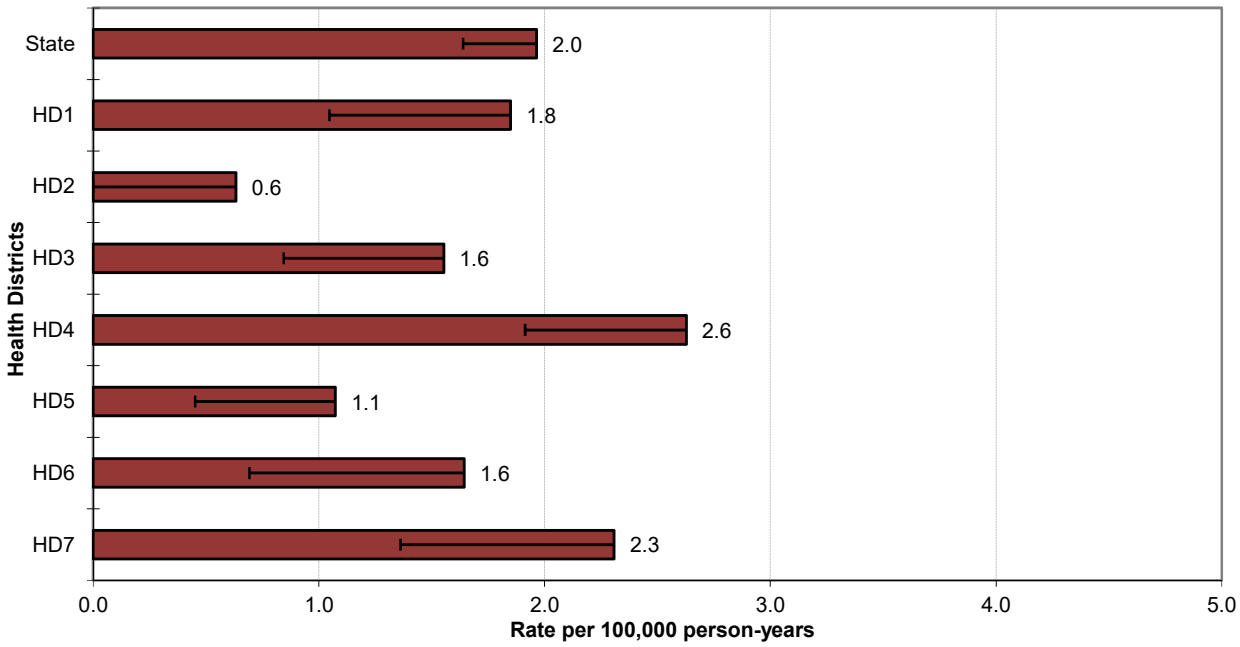
Mean age-adjusted incidence rate across health districts:	1.7
95% confidence interval on the mean age-adjusted incidence rate:	1.2–2.2
Median age-adjusted incidence rate of health districts:	1.6
Range of age-adjusted incidence rate for health districts:	0.6–2.6
USCS rate (2017, all races):	2.6

The age-related incidence of Hodgkin lymphoma is typically bimodal, usually with a peak in the late 20s to early 30s, and another peak after age 74. Among total cases, no health district had statistically significantly fewer or more cases than expected based upon rates for the remainder of Idaho.

State Hodgkin Lymphoma Incidence
Age-specific Rates 2014–2018



Hodgkin Lymphoma Incidence
Age-adjusted Rates by Health District



KIDNEY AND RENAL PELVIS

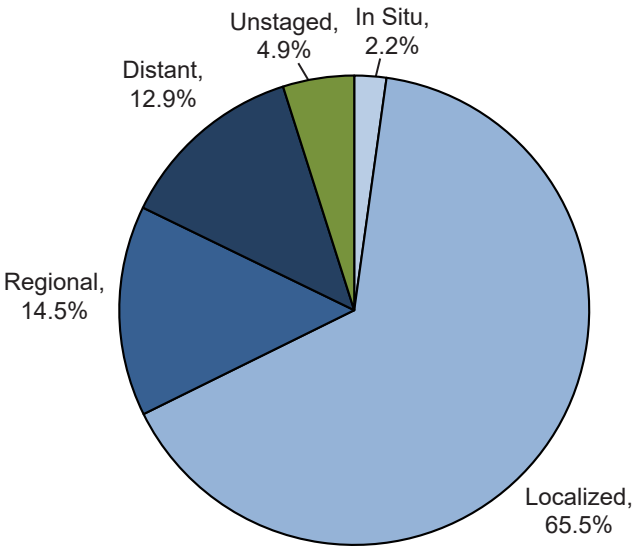
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	15.5	21.0	10.5
# of new invasive cases	318	208	110
# of new in situ cases	7	3	4
# of deaths	71	49	22

Total Cases by County

Ada	80	Cassia	3	Lewis	1
Adams	3	Clark	-	Lincoln	-
Bannock	17	Clearwater	6	Madison	2
Bear Lake	2	Custer	2	Minidoka	6
Benewah	4	Elmore	9	Nez Perce	15
Bingham	6	Franklin	2	Oneida	1
Blaine	-	Fremont	1	Owyhee	5
Boise	-	Gem	-	Payette	3
Bonner	13	Gooding	5	Power	1
Bonneville	21	Idaho	4	Shoshone	3
Boundary	-	Jefferson	1	Teton	-
Butte	1	Jerome	2	Twin Falls	13
Camas	-	Kootenai	40	Valley	2
Canyon	39	Latah	5	Washington	5
Caribou	1	Lemhi	1		

Stage at Diagnosis - Kidney and Renal Pelvis



Factors Associated with Cancer Incidence

Age Both adults and children are at risk for kidney cancer. Rates increase with age and peak during 75–79 years. 80% of all adult kidney cancers are renal cell carcinoma (RCC). Most pediatric kidney cancers are Wilms tumors, with a mean age at diagnosis of 31 or 44 months, depending on laterality.

Sex RCC incidence is approximately twice as high in males versus females.

Race/Ethnicity Asians/Pacific Islanders have lower rates of kidney and renal pelvis cancers than other races. Kidney and renal pelvis incidence is similar among Blacks, Whites, and American Indians/Alaska Natives across age groups. Incidence is similar among Hispanics and non-Hispanic Whites.

Genetics Hippel-Lindau disease, hereditary leiomyomatosis and RCC (HLRCC), Birt-Hogg-Dubé syndrome, and hereditary papillary renal carcinoma are RCC-associated syndromes, and account for < 10% of RCC. Li-Fraumeni, Frasier, and Beckwith-Wiedemann are some of the numerous Wilms tumor-associated syndromes.

Occupation Increased kidney cancer risk is associated with occupational cadmium exposure.

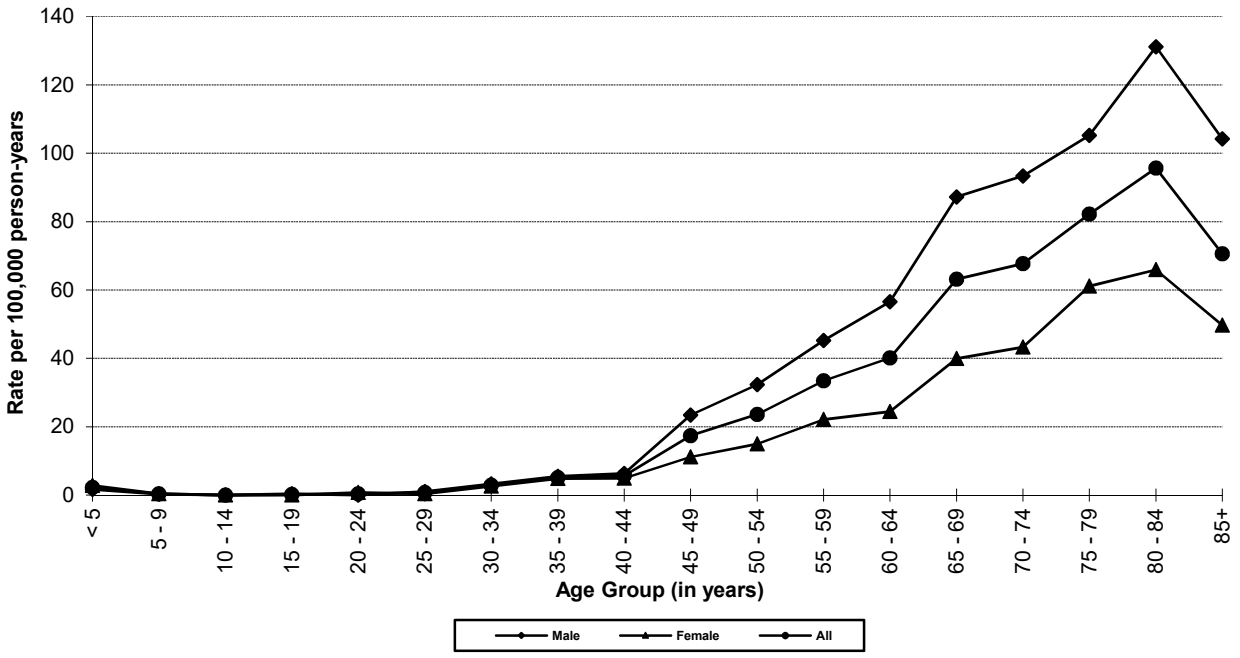
Other Cigarette smoking, obesity, and hypertension are important risk factors. Products containing aristolochic acids, which are naturally found in some plant families, are linked to increased risk for kidney and renal pelvis cancers. Trichloroethylene exposure, commonly used as a solvent or in refrigerants, is associated with increased risk.

Data Summary

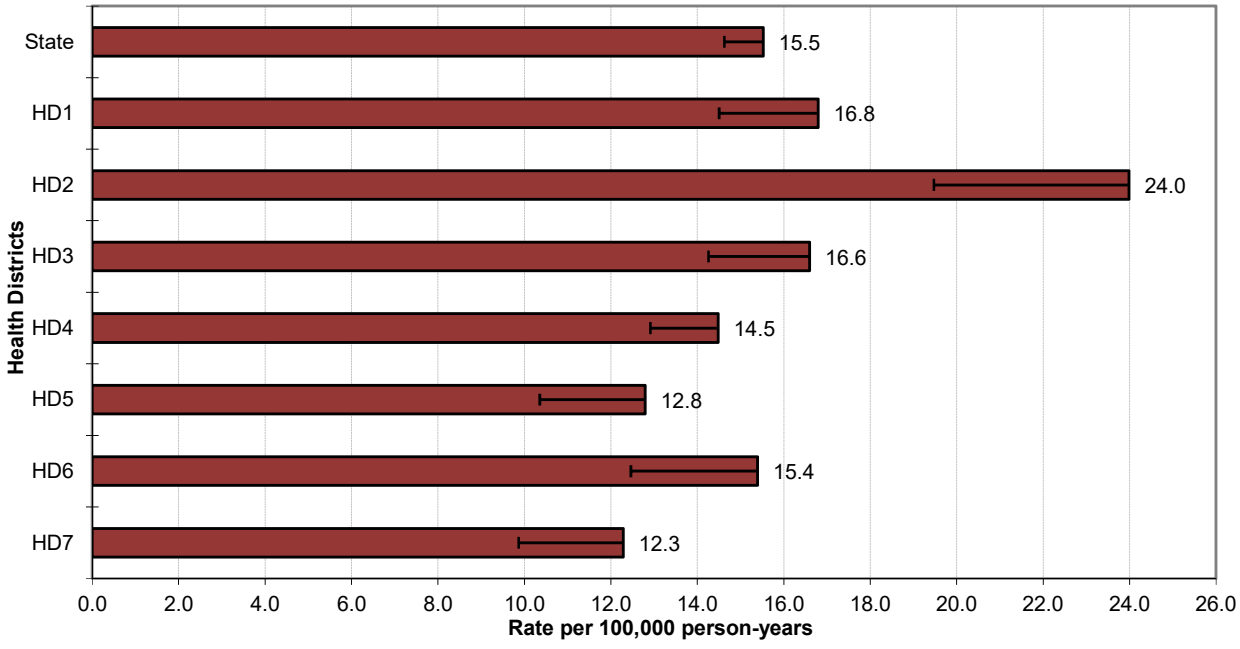
Mean age-adjusted incidence rate across health districts:	16.0
95% confidence interval on the mean age-adjusted incidence rate:	13.2–18.9
Median age-adjusted incidence rate of health districts:	15.4
Range of age-adjusted incidence rate for health districts:	12.30–24.0
USCS rate (2017, all races):	16.7

There were few cases of kidney or renal pelvis cancer among persons aged less than 40 years. The age-specific incidence rates peaked in the age group 80–84 for males and females. Among total cases, no health district had statistically significantly fewer or more cases than expected based upon rates for the remainder of Idaho.

State Kidney & Renal Pelvis Cancer Incidence
Age-specific Rates 2014–2018



Kidney & Renal Pelvis Cancer Incidence
Age-adjusted Rates by Health District



LARYNX

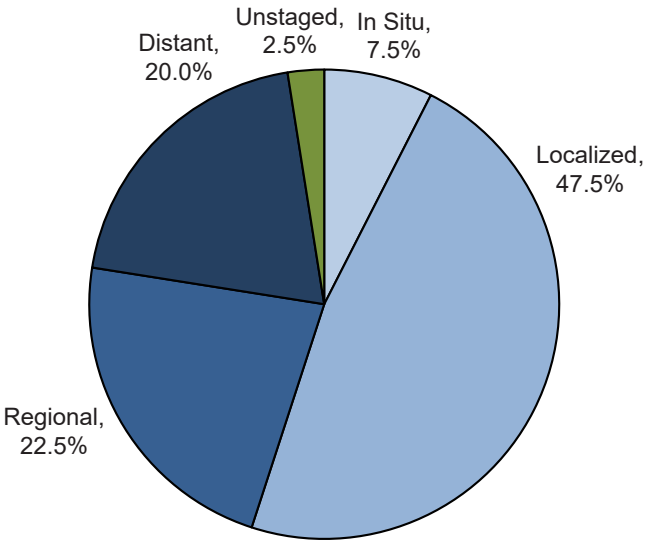
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	1.7	2.9	0.7
# of new invasive cases	37	28	9
# of new in situ cases	3	3	0
# of deaths	16	16	0

Total Cases by County

Ada	6	Cassia	1	Lewis	1
Adams	-	Clark	-	Lincoln	-
Bannock	1	Clearwater	-	Madison	-
Bear Lake	1	Custer	-	Minidoka	1
Benewah	1	Elmore	-	Nez Perce	3
Bingham	1	Franklin	-	Oneida	-
Blaine	1	Fremont	1	Owyhee	-
Boise	-	Gem	-	Payette	1
Bonner	2	Gooding	2	Power	1
Bonneville	1	Idaho	1	Shoshone	-
Boundary	-	Jefferson	-	Teton	1
Butte	-	Jerome	1	Twin Falls	3
Camas	-	Kootenai	3	Valley	-
Canyon	4	Latah	-	Washington	1
Caribou	1	Lemhi	-		

Stage at Diagnosis - Larynx



Factors Associated with Cancer Incidence

Age Rates increase with age, with most cases occurring after age 54.

Sex Laryngeal cancers are much more common in males than females.

Race/Ethnicity Generally in the United States, Blacks have higher incidence rates than Whites. Hispanics have lower rates than non-Hispanic Whites.

Occupation Laryngeal cancer has been associated with exposures to asbestos and wood dust.

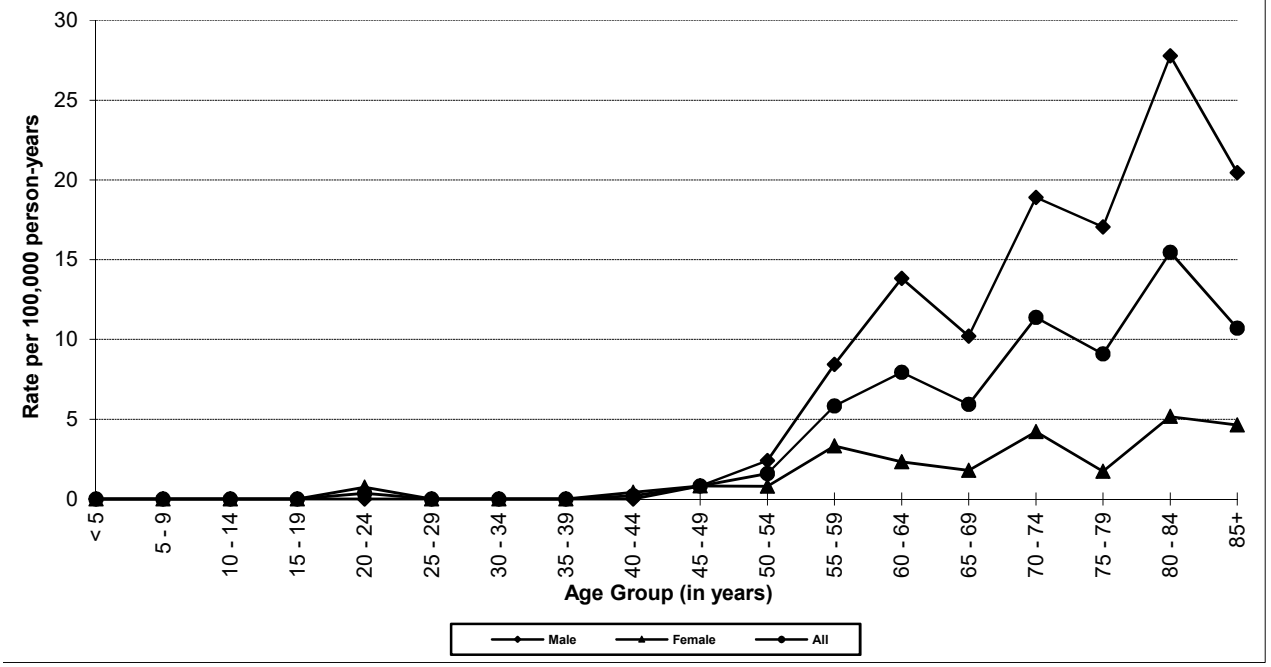
Other Cigarette smoking and excess alcohol use are both major risk factors. The combination of alcohol consumption and tobacco use (smoking or spit tobacco) acts greatly to increase the risk. A patient with a single laryngeal cancer who continues to smoke and drink alcohol has an enhanced risk of developing a second laryngeal tumor.

Data Summary

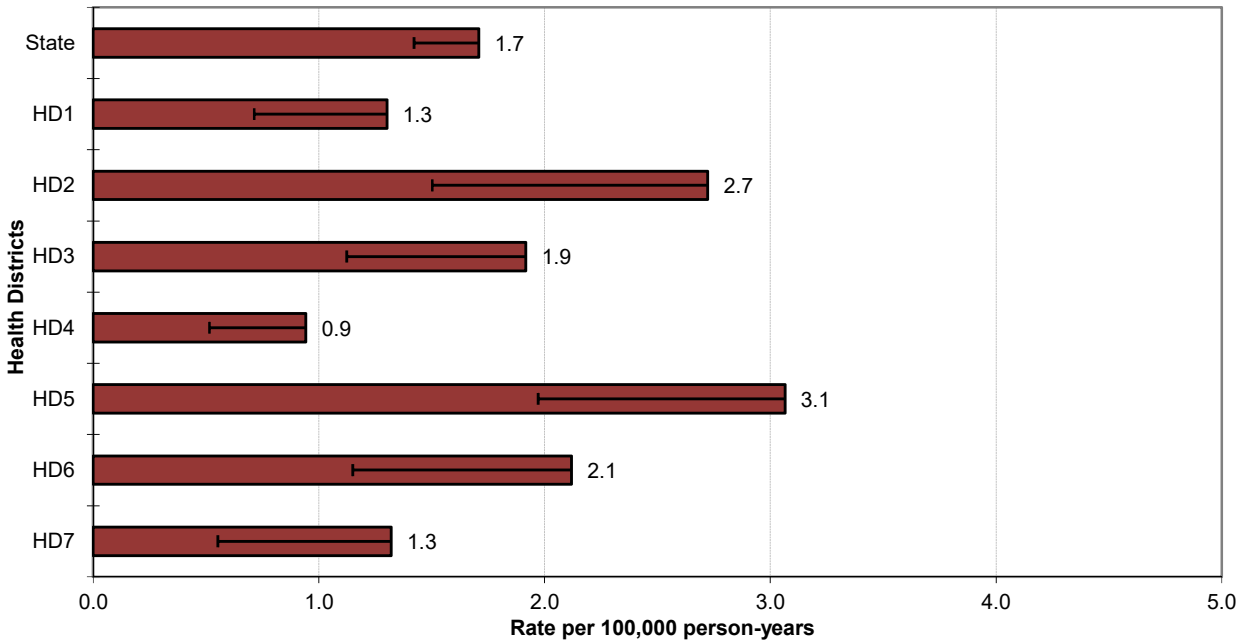
Mean age-adjusted incidence rate across health districts:	1.9
95% confidence interval on the mean age-adjusted incidence rate:	1.3–2.5
Median age-adjusted incidence rate of health districts:	1.9
Range of age-adjusted incidence rate for health districts:	0.9–3.1
USCS rate (2017, all races):	3.0

There were few cases of laryngeal cancer among persons aged less than 50 years. The age-specific incidence rates for males were more than twice those for females after age 54. The age-specific incidence rates peaked in the age group 80–84 for males and females. Health District 4 had statistically significantly fewer cases of laryngeal cancer than expected based upon rates for the remainder of Idaho.

State Laryngeal Cancer Incidence
Age-specific Rates 2014–2018



Laryngeal Cancer Incidence
Age-adjusted Rates by Health District



LEUKEMIA

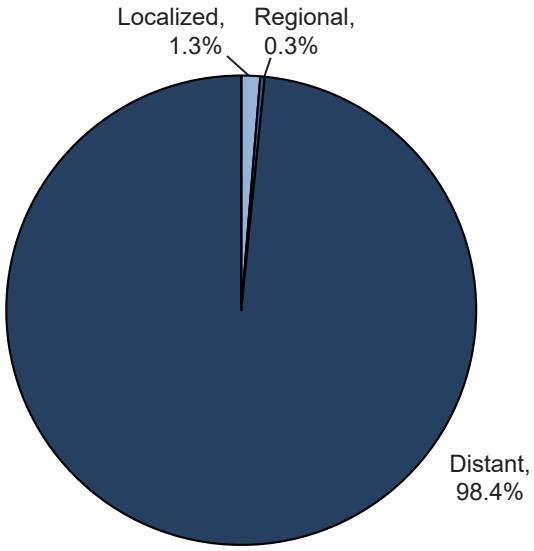
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	16.3	19.7	13.2
# of new invasive cases	319	183	136
# of new in situ cases	0	0	0
# of deaths	120	60	60

Total Cases by County

Ada	82	Cassia	3	Lewis	1
Adams	-	Clark	-	Lincoln	-
Bannock	10	Clearwater	5	Madison	1
Bear Lake	-	Custer	1	Minidoka	1
Benewah	1	Elmore	2	Nez Perce	8
Bingham	6	Franklin	4	Oneida	2
Blaine	3	Fremont	3	Owyhee	1
Boise	2	Gem	3	Payette	3
Bonner	16	Gooding	-	Power	1
Bonneville	21	Idaho	9	Shoshone	2
Boundary	4	Jefferson	3	Teton	5
Butte	-	Jerome	2	Twin Falls	21
Camas	-	Kootenai	39	Valley	4
Canyon	41	Latah	5	Washington	3
Caribou	-	Lemhi	1		

Stage at Diagnosis - Leukemia



Factors Associated with Cancer Incidence

Age 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.

Sex Males have higher incidence rates than females for acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL), acute myeloid leukemia (AML), chronic myeloid leukemia (CML), acute monocytic leukemia (AML-M5), and chronic myelomonocytic leukemia (CMML).

Race/Ethnicity ALL is less common among Blacks. CLL is rare in Asian/Pacific Islanders. Hispanics and non-Hispanic Whites have higher rates of AML-M5 than other race/ethnic groups.

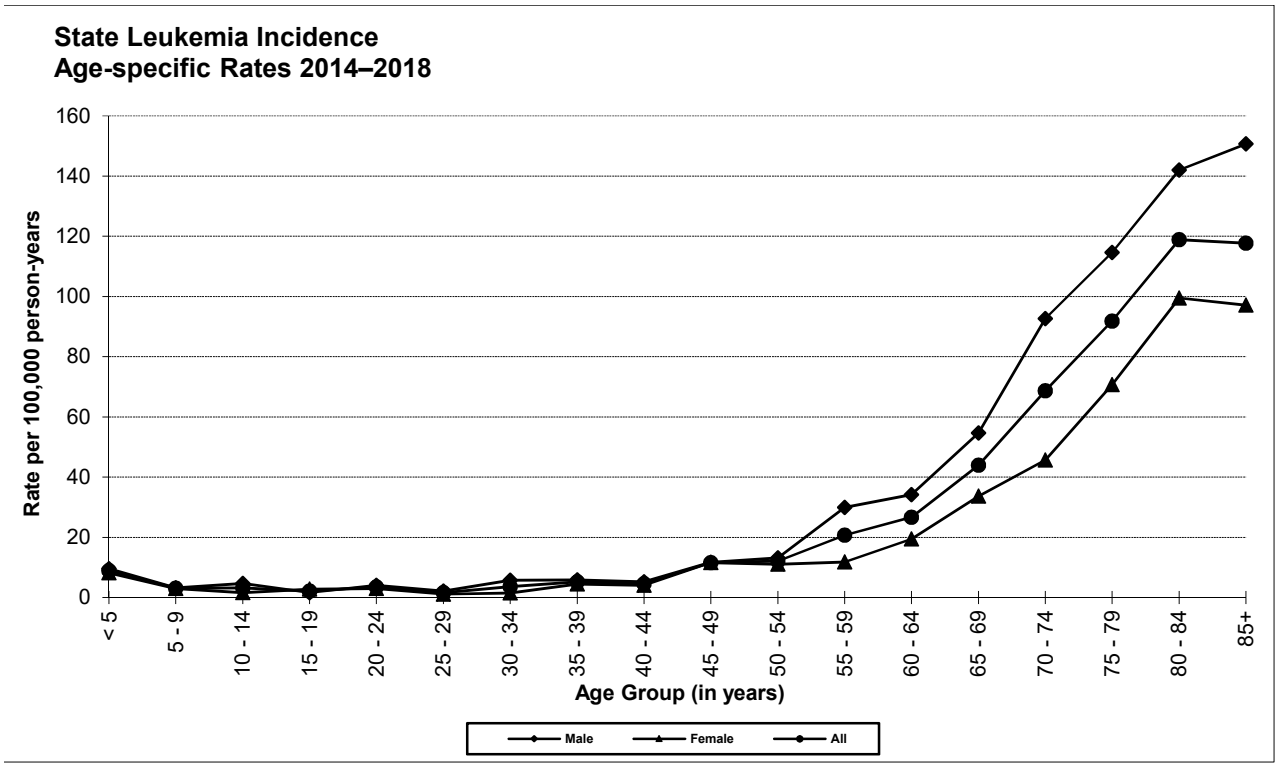
Genetics Certain congenital defects (e.g. trisomy 21, Fanconi's anemia, Bloom syndrome, ataxia-telangiectasia) increase risk for various types of leukemia in children.

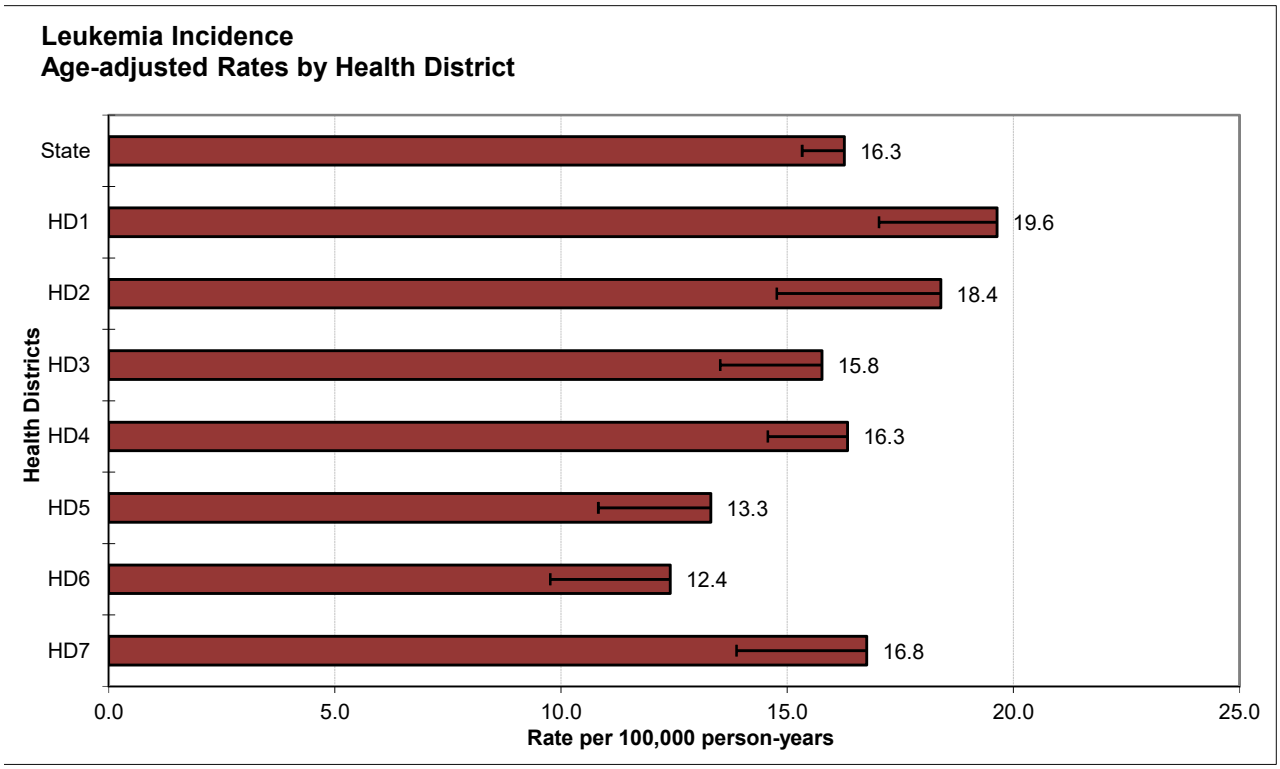
Other Ionizing radiation exposure increases leukemia risk, except for CLL. Benzene is a known cause of leukemia (predominantly AML). Treatment with some chemotherapeutic agents for other cancers increases the risk of leukemia. Exposure to herbicides used during the Vietnam War, including Agent Orange, has been associated with increased incidence of CLL. Autoimmune diseases and several viruses, including HTLV-I and Epstein-Barr virus, are associated with certain types of leukemia.

Data Summary

Mean age-adjusted incidence rate across health districts:	16.1
95% confidence interval on the mean age-adjusted incidence rate:	14.2–18.0
Median age-adjusted incidence rate of health districts:	16.3
Range of age-adjusted incidence rate for health districts:	12.4–19.6
USCS rate (2017, all races):	13.0

The age-specific incidence distribution of leukemia for Idaho is quite similar to the typical pattern seen in SEER or NPCR data. The rates are higher for males than females for all types of leukemia apart from AML, which has no predilection for age or sex. Among total cases, no health district had statistically significantly fewer or more cases than expected based upon rates for the remainder of Idaho.


State Leukemia Incidence
Age-specific Rates 2014–2018
Rate per 100,000 person-years
160
140
120
100
80
60
40
20
0
< 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 - 79
80 - 84
85+
Age Group (in years)
Male
Female
All


Leukemia Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
16.3
19.6
18.4
15.8
16.3
13.3
12.4
16.8
0.0
5.0
10.0
15.0
20.0
25.0
Rate per 100,000 person-years

LIVER AND BILE DUCT

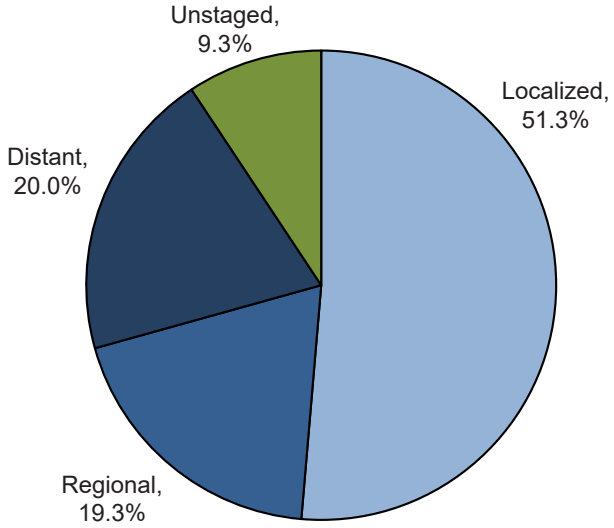
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	6.8	9.6	4.2
# of new invasive cases	150	101	49
# of new in situ cases	0	0	0
# of deaths	122	86	36

Total Cases by County

Ada	45	Cassia	1	Lewis	1
Adams	1	Clark	-	Lincoln	1
Bannock	5	Clearwater	1	Madison	-
Bear Lake	1	Custer	-	Minidoka	1
Benewah	4	Elmore	3	Nez Perce	3
Bingham	9	Franklin	-	Oneida	-
Blaine	1	Fremont	3	Owyhee	1
Boise	1	Gem	3	Payette	4
Bonner	4	Gooding	1	Power	-
Bonneville	6	Idaho	3	Shoshone	2
Boundary	-	Jefferson	-	Teton	1
Butte	-	Jerome	1	Twin Falls	3
Camas	-	Kootenai	16	Valley	-
Canyon	15	Latah	3	Washington	3
Caribou	2	Lemhi	1		

Stage at Diagnosis - Liver and Bile Duct



Factors Associated with Cancer Incidence

Age The incidence rate of liver cancer increases with age.

Sex Rates are usually higher among males than females.

Race/Ethnicity Incidence is higher among Asian/Pacific Islanders, American Indians/Alaska Natives and Hispanics.

Diet Aflatoxins, which are present in certain foods such as peanut butter, are classified as a known human carcinogen causing liver cancer.

Occupation Thorium dioxide (an x-ray contrast medium) exposure increases liver cancer risk. Exposure to vinyl chloride used in plastic production is associated with an increased risk of angiosarcoma of the liver.

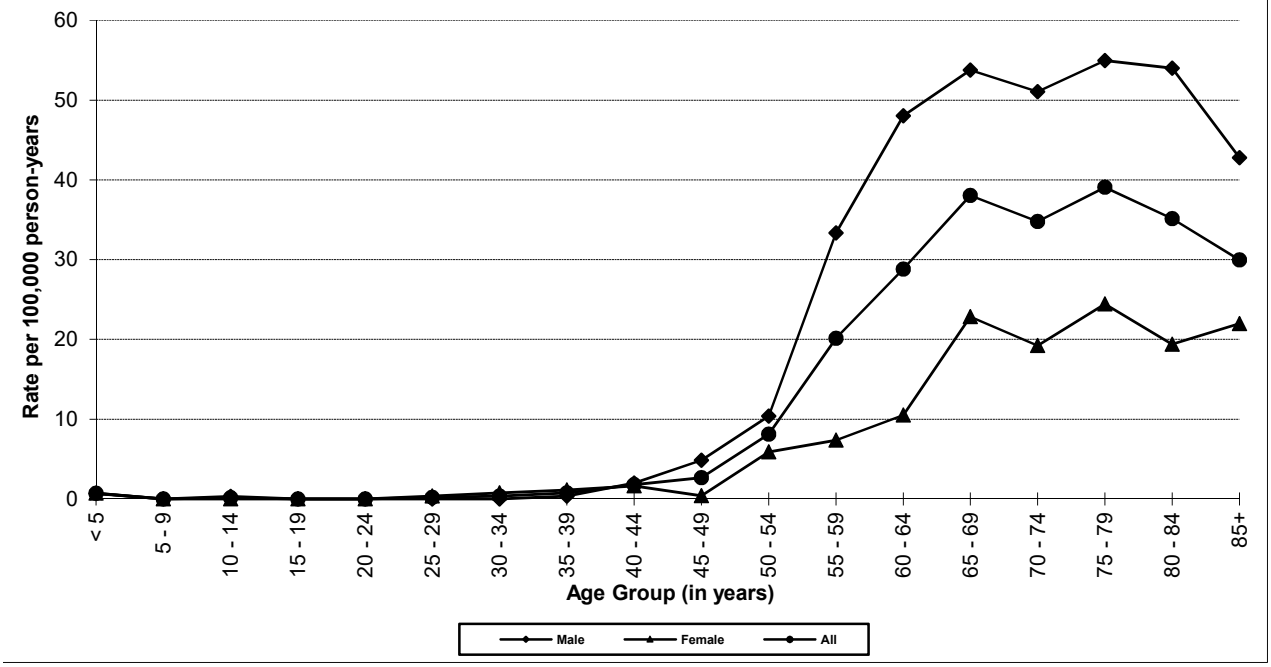
Other Hepatitis B and Hepatitis C infections are significant causes of hepatocellular carcinoma. Cirrhosis of the liver due to viral hepatitis, alcoholism, or toxic chemical exposure accounts for 50–80% of liver cancer cases. Long-term use of estrogen-progestogen contraceptives increases risk of hepatocellular carcinoma.

Data Summary

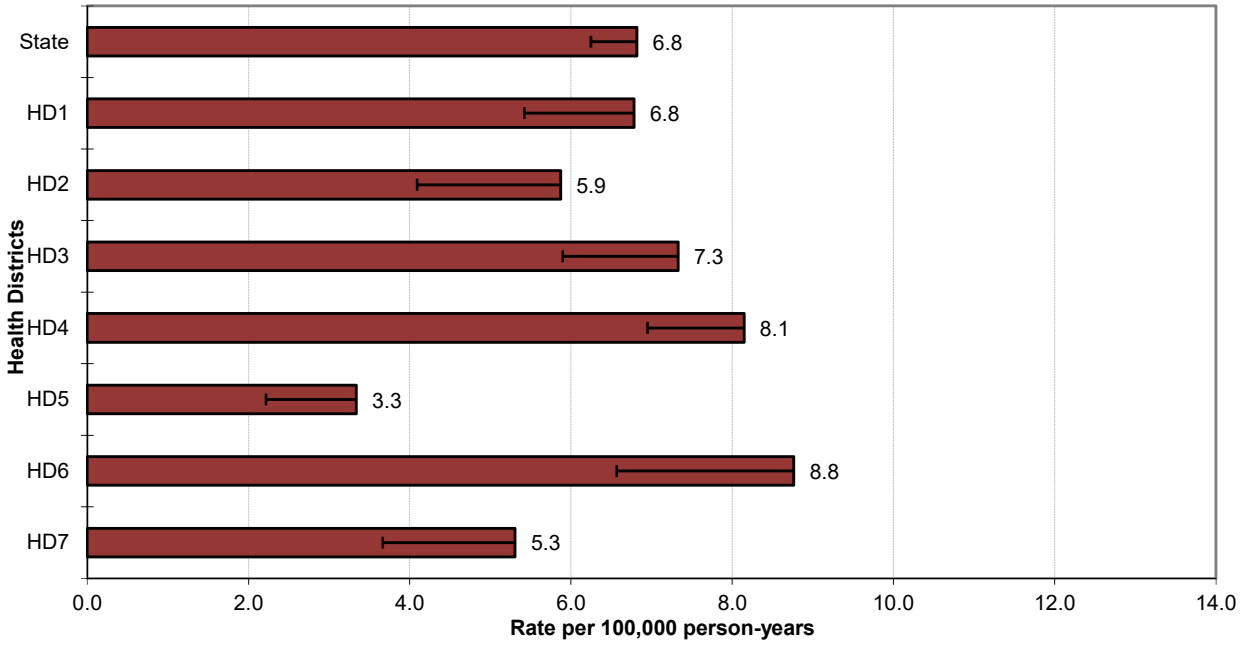
Mean age-adjusted incidence rate across health districts:	6.5
95% confidence interval on the mean age-adjusted incidence rate:	5.1–7.9
Median age-adjusted incidence rate of health districts:	6.8
Range of age-adjusted incidence rate for health districts:	3.3–8.8
USCS rate (2017, all races):	7.9

There were few cases of liver and bile duct cancer among persons less than 55 years of age. Age-specific incidence rates generally increased with age, peaking in the age group 75–79 for males and females. Health District 5 had statistically significantly fewer cases of liver and bile duct cancer than expected based upon rates for the remainder of Idaho.

State Liver & Bile Duct Cancer Incidence
Age-specific Rates 2014–2018



Liver and Bile Duct Cancer Incidence
Age-adjusted Rates by Health District



LUNG AND BRONCHUS

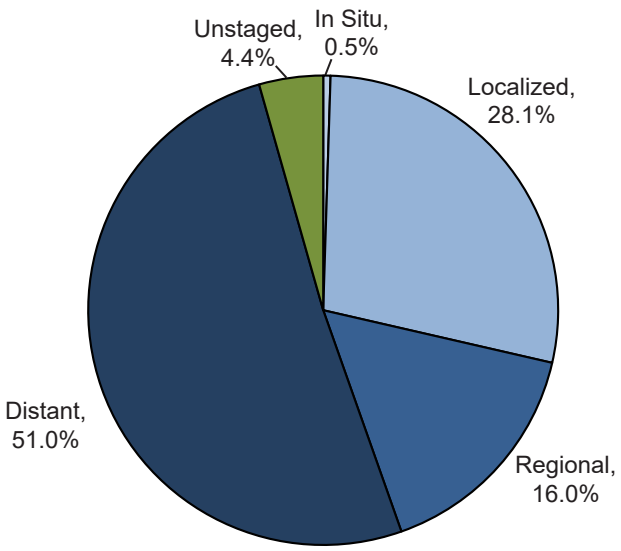
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	45.0	49.5	41.2
# of new invasive cases	950	495	455
# of new in situ cases	5	3	2
# of deaths	633	325	308

Total Cases by County

Ada	234	Cassia	12	Lewis	4
Adams	3	Clark	-	Lincoln	5
Bannock	35	Clearwater	12	Madison	4
Bear Lake	1	Custer	1	Minidoka	9
Benewah	7	Elmore	28	Nez Perce	40
Bingham	14	Franklin	1	Oneida	3
Blaine	6	Fremont	7	Owyhee	8
Boise	5	Gem	11	Payette	11
Bonner	30	Gooding	6	Power	4
Bonneville	40	Idaho	14	Shoshone	23
Boundary	8	Jefferson	7	Teton	3
Butte	4	Jerome	6	Twin Falls	51
Camas	4	Kootenai	137	Valley	3
Canyon	120	Latah	17	Washington	6
Caribou	2	Lemhi	9		

Stage at Diagnosis - Lung and Bronchus



Factors Associated with Cancer Incidence

Age Lung cancer incidence rates increase with age.

Sex The incidence is currently higher in males than in females, but the gap is narrowing due to increased smoking rates among women in recent decades.

Race/Ethnicity Incidence is highest among non-Hispanic Whites and Blacks and lowest among Hispanics and Asian and Pacific Islanders.

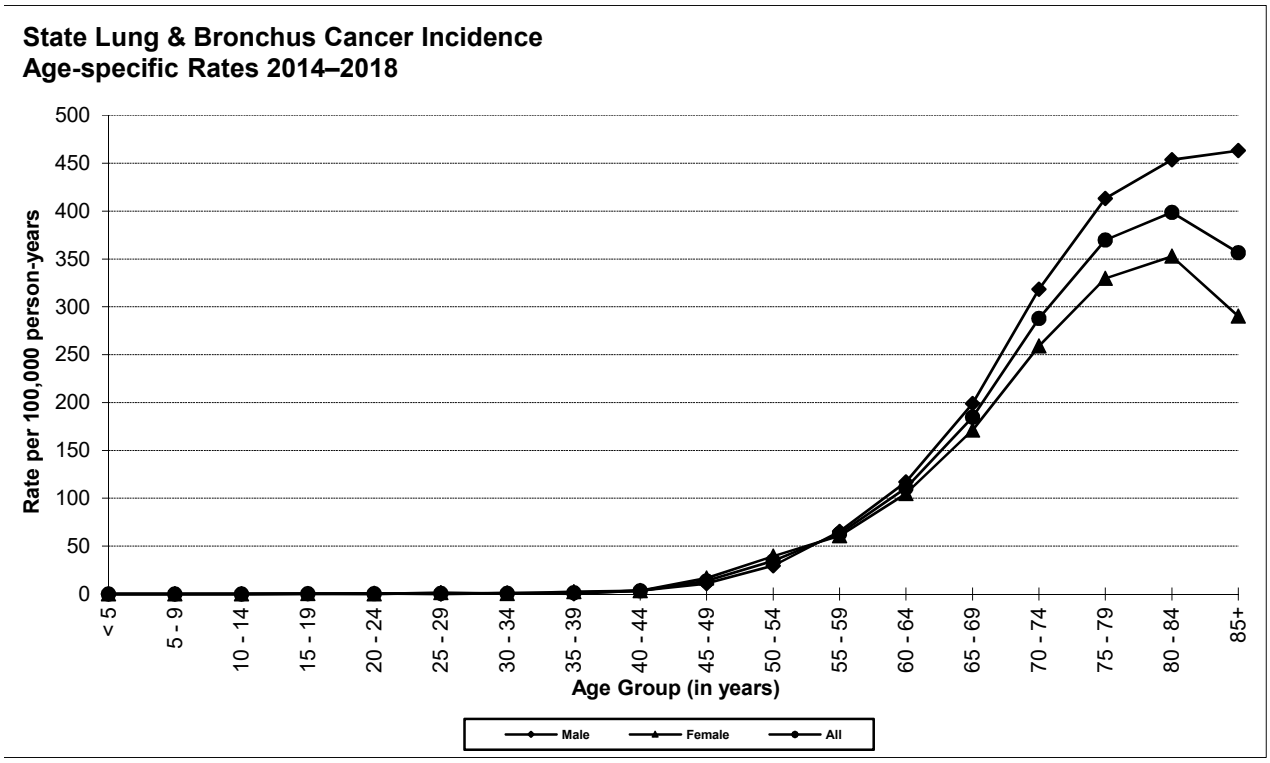
Occupation Occupational or environmental exposures to asbestos, cadmium, chromium, coal tars, crystalline silica dust, polycyclic aromatic hydrocarbons, radon, soot, chlorpyrifos insecticides, ionizing radiation, and other substances increase the risk.

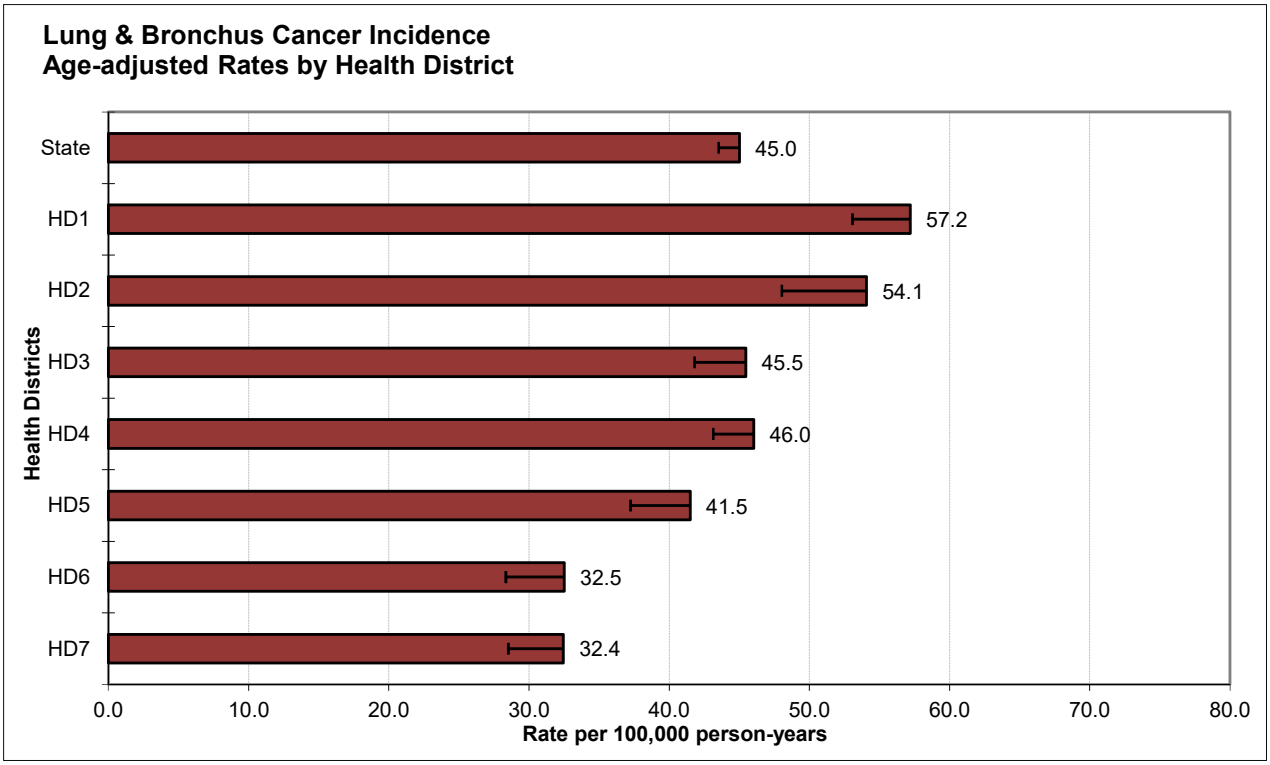
Other Cigarette smoking, including exposure to second-hand smoke, is the most important risk factor, accounting for about 80% of lung cancer deaths. Evidence exists that rates are about 1.3 times higher, adjusted for smoking, in urban areas than rural areas due to air pollution, mostly from motor vehicles.

Data Summary

Mean age-adjusted incidence rate across health districts:	44.2
95% confidence interval on the mean age-adjusted incidence rate:	37.1–51.3
Median age-adjusted incidence rate of health districts:	45.5
Range of age-adjusted incidence rate for health districts:	32.4–57.2
USCS rate (2017, all races):	53.6

There were few cases of lung cancer among persons less than 50 years of age. The age-specific incidence rates for males were uniformly higher than the rates for females after age 64. The incidence rates increased with age, peaking in the age group 85+ for males and 80–84 for females. Among total cases, Health District 1 had statistically significantly more cases of lung cancer than expected based upon rates for the remainder of Idaho, and Health Districts 6 and 7 had statistically significantly fewer.


State Lung & Bronchus Cancer Incidence
Age-specific Rates 2014–2018
Rate per 100,000 person-years
500
450
400
350
300
250
200
150
100
50
0
< 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 - 79
80 - 84
85+
Age Group (in years)
Male
Female
All


Lung & Bronchus Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
45.0
57.2
54.1
45.5
46.0
41.5
32.5
32.4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Rate per 100,000 person-years

MELANOMA OF SKIN

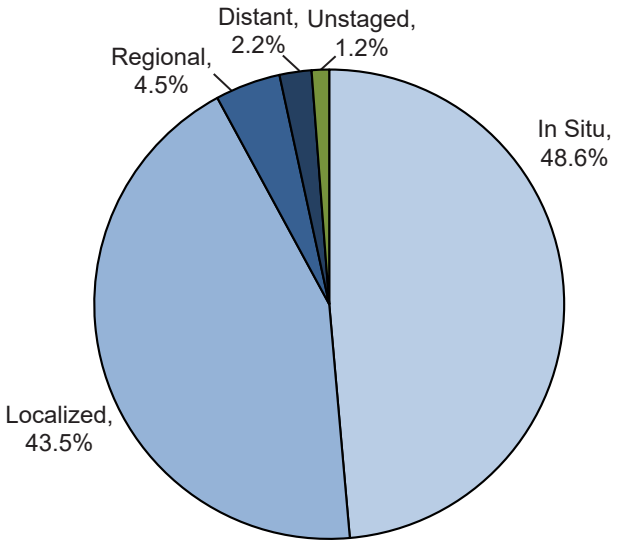
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	28.3	36.1	21.8
# of new invasive cases	552	346	206
# of new in situ cases	522	326	196
# of deaths	48	34	14

Total Cases by County

Ada	349	Cassia	12	Lewis	3
Adams	5	Clark	1	Lincoln	5
Bannock	54	Clearwater	4	Madison	17
Bear Lake	6	Custer	3	Minidoka	8
Benewah	3	Elmore	17	Nez Perce	22
Bingham	21	Franklin	6	Oneida	3
Blaine	26	Fremont	9	Owyhee	7
Boise	7	Gem	17	Payette	16
Bonner	26	Gooding	3	Power	4
Bonneville	71	Idaho	12	Shoshone	1
Boundary	6	Jefferson	16	Teton	15
Butte	4	Jerome	8	Twin Falls	50
Camas	-	Kootenai	65	Valley	11
Canyon	130	Latah	11	Washington	7
Caribou	6	Lemhi	7		

Stage at Diagnosis - Melanoma of Skin



Factors Associated with Cancer Incidence

Age Melanoma is extremely uncommon before puberty. Rates increase with age.

Sex Incidence rates are higher among females than males in younger age groups, and higher in males than females in older age groups.

Race/Ethnicity Incidence rates are over 5-fold higher for non-Hispanic Whites than American Indian/Alaska Natives or Hispanics and lowest among Asian/Pacific Islanders and Blacks.

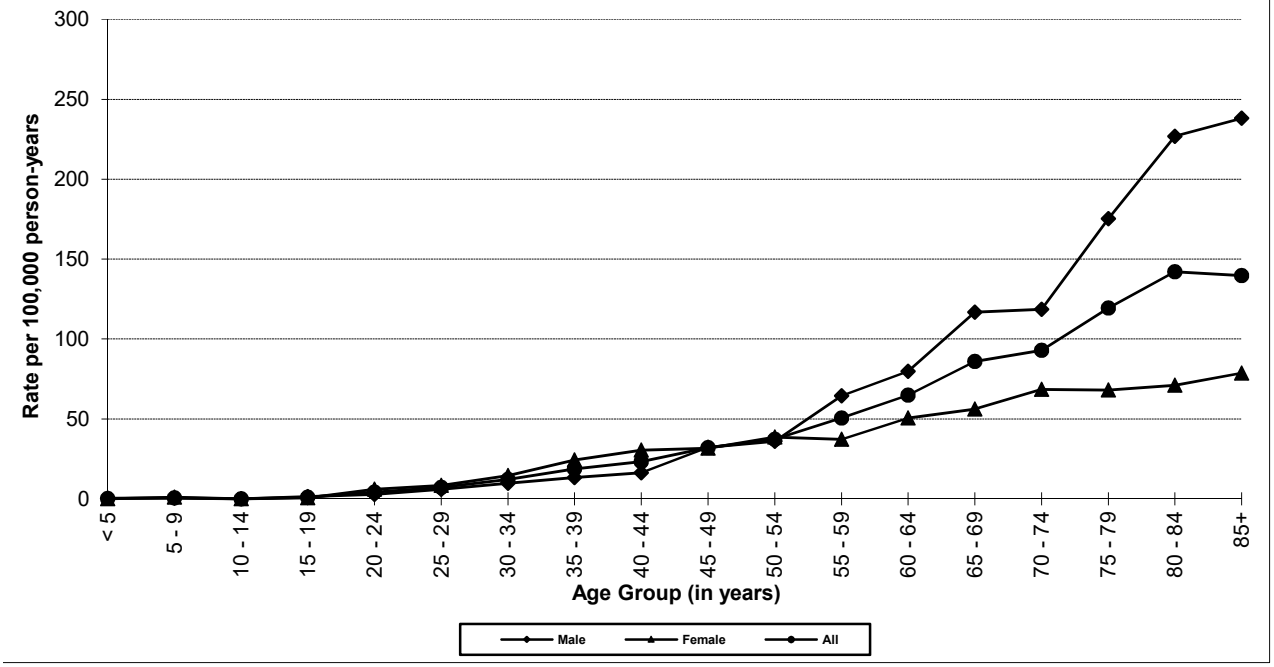
Other Ultraviolet light exposure, especially blistering sunburns during childhood and intermittent exposure of untanned skin to intense sunlight, is a major risk factor. Melanoma incidence rates are increasing around the world. Blue eyes, fair or red hair, and pale complexion are well-known risk factors for melanoma. Apart from race and age, the number of melanocytic nevi is the strongest known risk factor for melanoma.

Data Summary

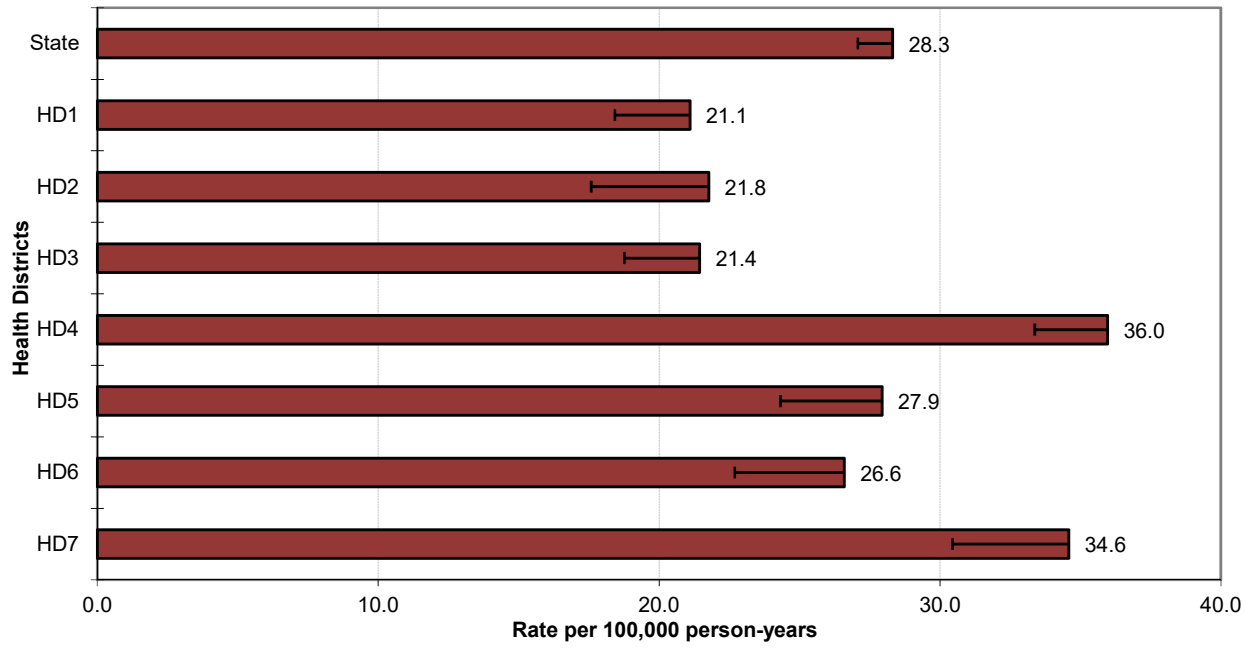
Mean age-adjusted incidence rate across health districts:	27.1
95% confidence interval on the mean age-adjusted incidence rate:	22.5–31.7
Median age-adjusted incidence rate of health districts:	26.6
Range of age-adjusted incidence rate for health districts:	21.1–36.0
USCS rate (2017, all races):	22.6

There were few cases of melanoma of the skin among persons less than 25 years of age. The age-specific incidence rates were higher among males after age 54. Among total cases, Health District 4 had statistically significantly more cases of melanoma than expected based upon rates for the remainder of Idaho, and Health Districts 1 and 3 had statistically significantly fewer.

State Melanoma of the Skin Incidence
Age-specific Rates 2014–2018



Melanoma of the Skin Incidence
Age-adjusted Rates by Health District



MYELOMA

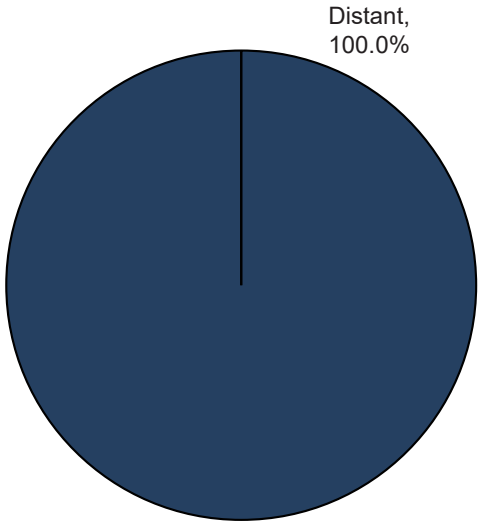
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	6.6	8.7	4.7
# of new invasive cases	139	86	53
# of new in situ cases	0	0	0
# of deaths	72	44	28

Total Cases by County

Ada	36	Cassia	2	Lewis	1
Adams	1	Clark	-	Lincoln	-
Bannock	5	Clearwater	-	Madison	1
Bear Lake	-	Custer	1	Minidoka	-
Benewah	3	Elmore	2	Nez Perce	5
Bingham	2	Franklin	2	Oneida	-
Blaine	5	Fremont	1	Owyhee	1
Boise	-	Gem	-	Payette	-
Bonner	3	Gooding	4	Power	-
Bonneville	9	Idaho	1	Shoshone	1
Boundary	1	Jefferson	1	Teton	1
Butte	-	Jerome	-	Twin Falls	6
Camas	-	Kootenai	24	Valley	2
Canyon	15	Latah	2	Washington	1
Caribou	-	Lemhi	-		

Stage at Diagnosis - Myeloma



Factors Associated with Cancer Incidence

Age Multiple myeloma is an age-dependent cancer; incidence rates increase with age, and it rarely occurs before age 40.

Sex Rates for males are somewhat higher than for females.

Race/Ethnicity Blacks have substantially higher incidence rates than other race/ethnicity groups and Hispanics have the second highest rates.

Genetics There appears to be a slight increase in the incidence of the disease in first-degree relatives (parents or siblings) of people with multiple myeloma.

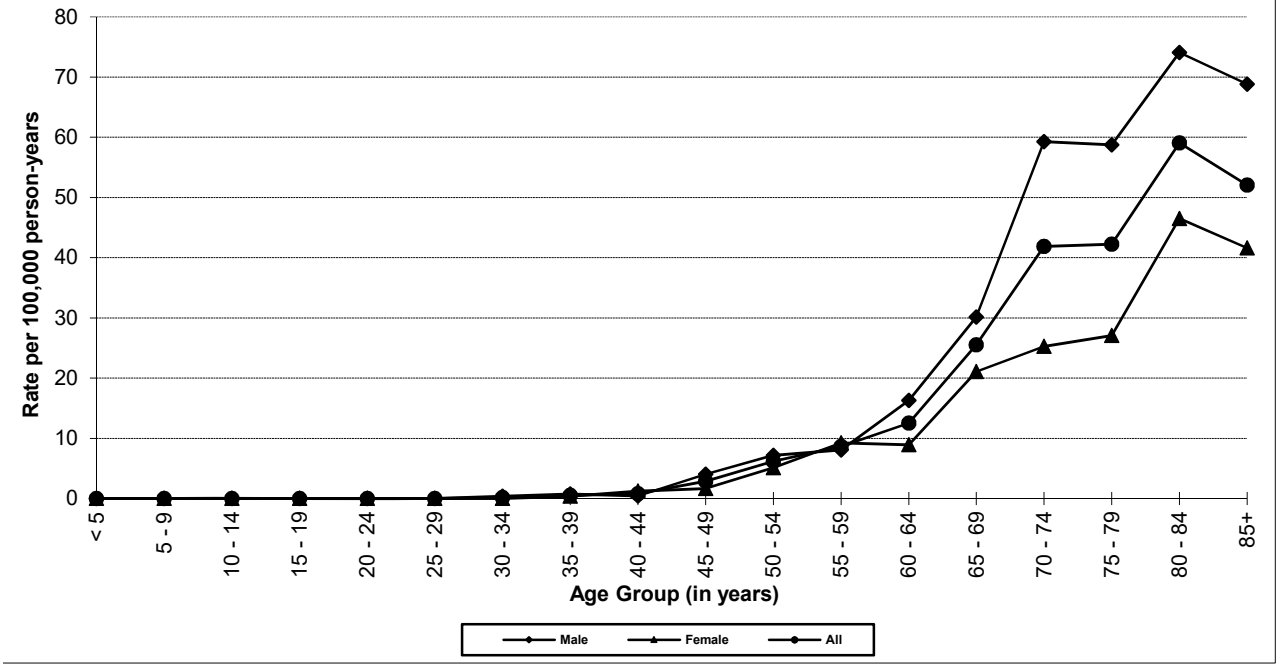
Other Being overweight or obese increases a person's risk of developing myeloma. Several specific chemical and physical substances have been linked to myeloma risk in one or more studies. Truck drivers, painters, and agricultural workers are at increased risk for multiple myeloma. Individuals with monoclonal gammopathy of unknown significance or solitary plasmacytoma are at higher risk of developing multiple myeloma.

Data Summary

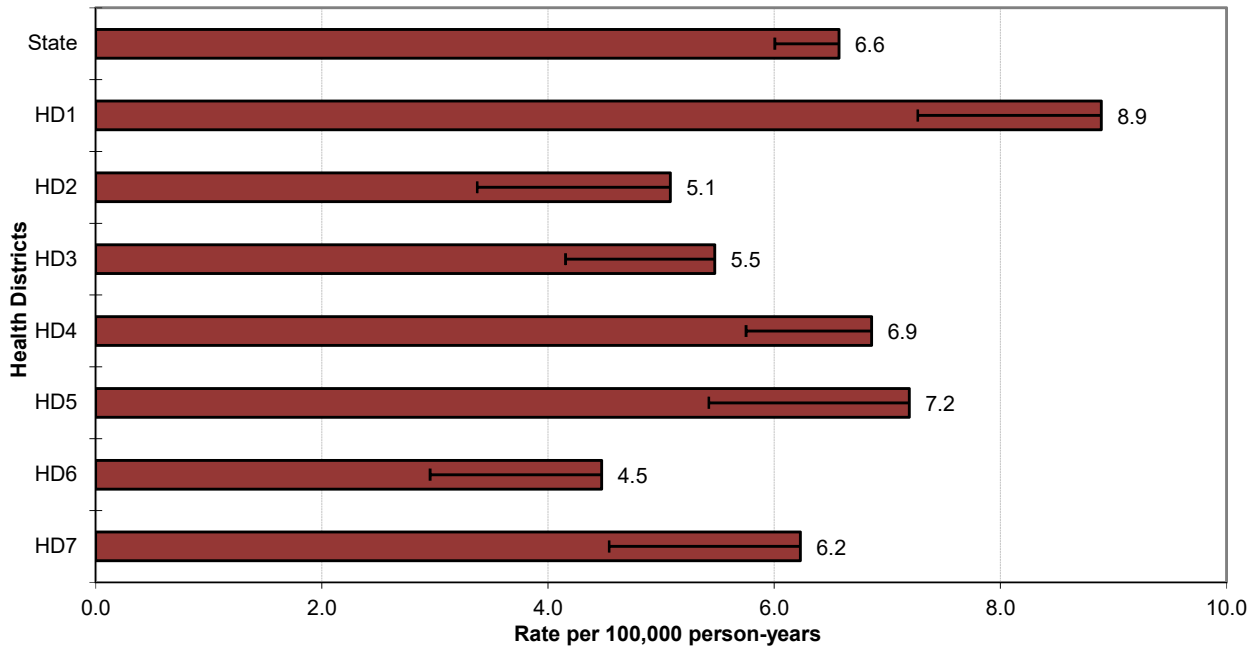
Mean age-adjusted incidence rate across health districts:	6.3
95% confidence interval on the mean age-adjusted incidence rate:	5.2–7.4
Median age-adjusted incidence rate of health districts:	6.2
Range of age-adjusted incidence rate for health districts:	4.5–8.9
USCS rate (2017, all races):	6.6

There were no cases of myeloma among persons less than 30 years of age. The age-specific incidence rates increased rapidly for males and females after age group 60–64. Among total cases, no health district had statistically significantly fewer or more cases than expected based upon rates for the remainder of Idaho.

State Myeloma Incidence
Age-specific Rates 2014–2018



Myeloma Incidence
Age-adjusted Rates by Health District



NON-HODGKIN LYMPHOMA

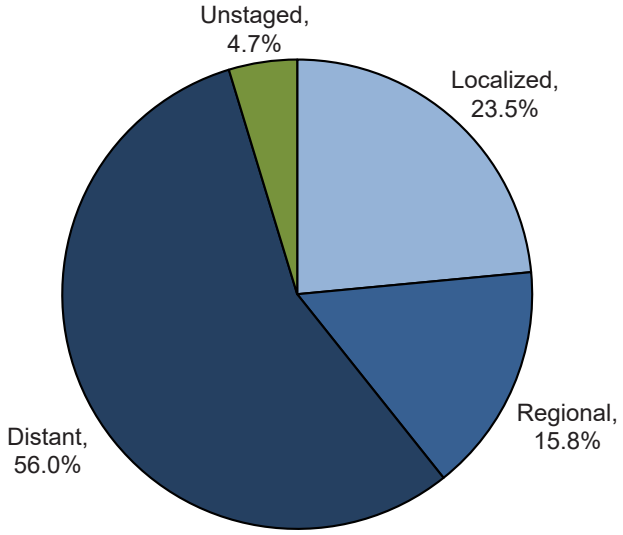
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	17.7	21.6	14.0
# of new invasive cases	361	210	151
# of new in situ cases	0	0	0
# of deaths	107	61	46

Total Cases by County

Ada	90	Cassia	2	Lewis	-
Adams	3	Clark	1	Lincoln	1
Bannock	16	Clearwater	4	Madison	2
Bear Lake	2	Custer	-	Minidoka	4
Benewah	2	Elmore	3	Nez Perce	9
Bingham	6	Franklin	2	Oneida	-
Blaine	2	Fremont	3	Owyhee	3
Boise	3	Gem	9	Payette	5
Bonner	7	Gooding	1	Power	-
Bonneville	19	Idaho	4	Shoshone	2
Boundary	2	Jefferson	6	Teton	-
Butte	1	Jerome	3	Twin Falls	22
Camas	1	Kootenai	51	Valley	3
Canyon	48	Latah	12	Washington	3
Caribou	3	Lemhi	1		

Stage at Diagnosis - Non-Hodgkin Lymphoma



Factors Associated with Cancer Incidence

Age Rates increase with age, reaching the highest levels in the eighth and ninth decades of life.

Sex Males have higher rates than females.

Race/Ethnicity In the United States, incidence rates are generally higher for non-Hispanic Whites and Hispanics than for other race/ethnicity groups.

Occupation Exposure to ethylene oxide, such as through commercial production or use as a sterilant in the manufacture of medical and pharmaceutical products or production of food spices, has been identified as a risk factor.

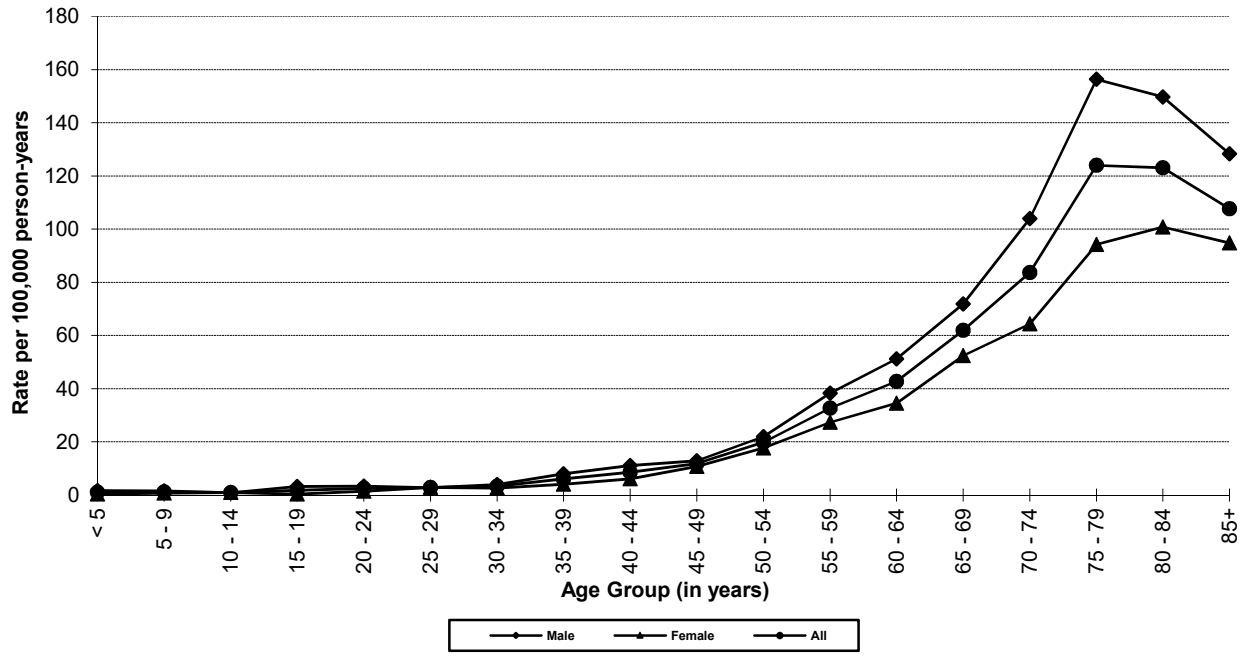
Other Non-Hodgkin lymphoma (NHL) develops with increased frequency in individuals infected with certain viruses, including HTLV-I, HIV, and Epstein-Barr virus. Treatment with some immunosuppressants increases the risk of NHL among organ transplant patients.

Data Summary

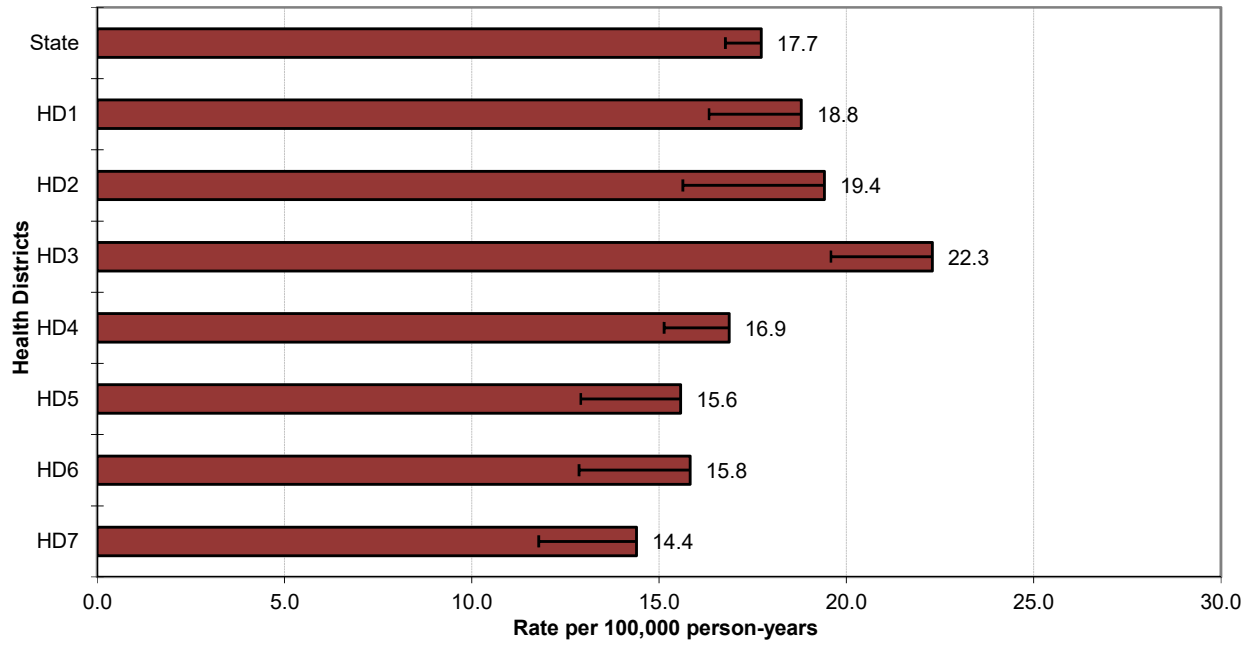
Mean age-adjusted incidence rate across health districts:	17.6
95% confidence interval on the mean age-adjusted incidence rate:	15.6–19.6
Median age-adjusted incidence rate of health districts:	16.9
Range of age-adjusted incidence rate for health districts:	14.4–22.3
USCS rate (2017, all races):	18.3

The age-specific incidence rates of NHL increased with age, peaking in the age group 75–79 for males and 80–84 for females. Among total cases, no health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.

State Non-Hodgkin Lymphoma Incidence
Age-specific Rates 2014–2018



Non-Hodgkin Lymphoma Incidence
Age-adjusted Rates by Health District



ORAL CAVITY AND PHARYNX

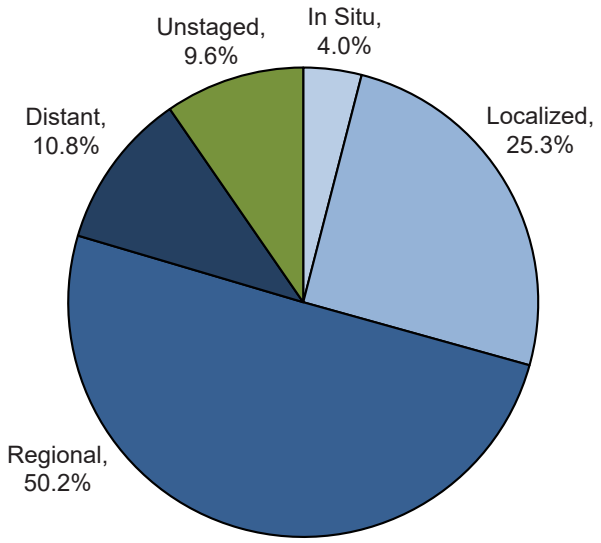
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	11.0	15.9	6.4
# of new invasive cases	239	170	69
# of new in situ cases	10	4	6
# of deaths	48	31	17

Total Cases by County

Ada	59	Cassia	4	Lewis	1
Adams	1	Clark	-	Lincoln	1
Bannock	10	Clearwater	3	Madison	-
Bear Lake	2	Custer	1	Minidoka	6
Benewah	3	Elmore	3	Nez Perce	7
Bingham	5	Franklin	2	Oneida	-
Blaine	4	Fremont	4	Owyhee	3
Boise	1	Gem	3	Payette	2
Bonner	8	Gooding	3	Power	-
Bonneville	16	Idaho	8	Shoshone	5
Boundary	1	Jefferson	2	Teton	3
Butte	-	Jerome	4	Twin Falls	14
Camas	-	Kootenai	23	Valley	5
Canyon	19	Latah	8	Washington	2
Caribou	-	Lemhi	3		

Stage at Diagnosis - Oral Cavity and Pharynx



Factors Associated with Cancer Incidence

Age Incidence rates increase with age, markedly after age 44.

Sex Males have higher incidence rates than females, 2–6 times higher in most parts of the world.

Race/Ethnicity Rates are highest for non-Hispanic Whites and lowest for Hispanics.

Diet Diets low in fresh fruit and vegetable consumption are associated with increased risk.

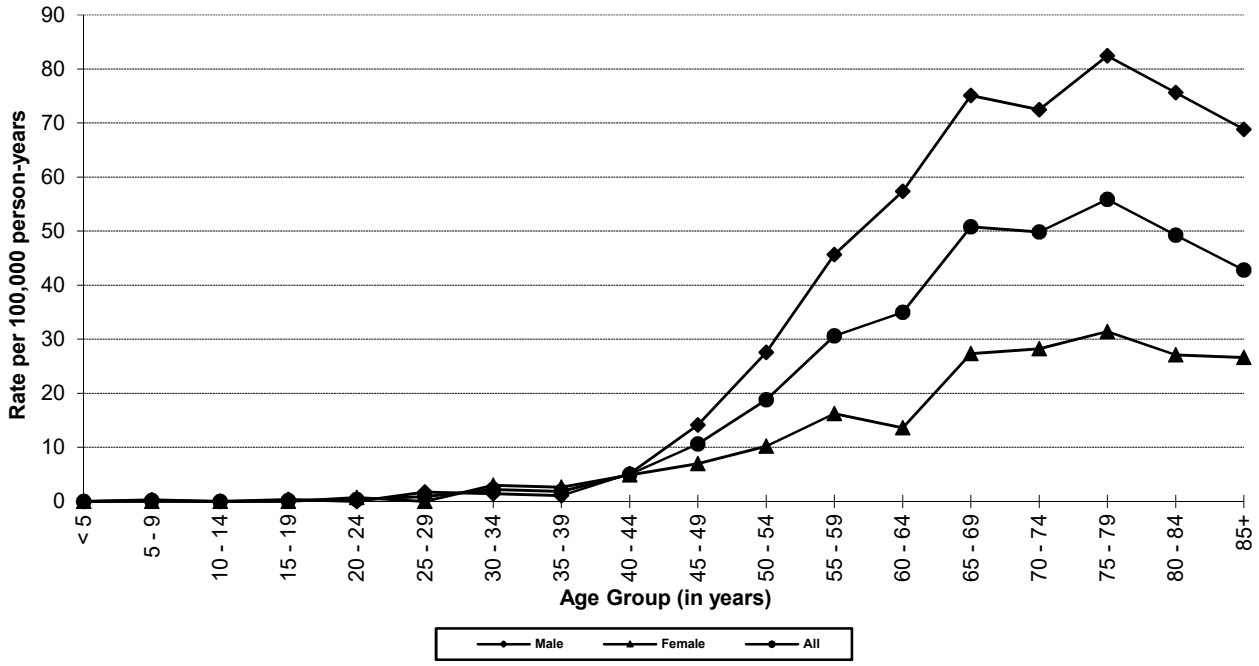
Other Smoking and spit tobacco use are major risk factors for cancers of the oral cavity and pharynx. Alcohol use, especially excessive, is a major risk factor. Combined exposure to tobacco and alcohol multiply the risks of each other. Smoking and drinking are estimated to account for 75% of all oral cancers in the United States. Approximately 15% of oral cavity and pharyngeal cancers in the United States are attributable to infection with oncogenic human papillomavirus (HPV) types. Patients with late stage oropharyngeal cancer have better outcomes if their tumors were linked to HPV versus tobacco and alcohol.

Data Summary

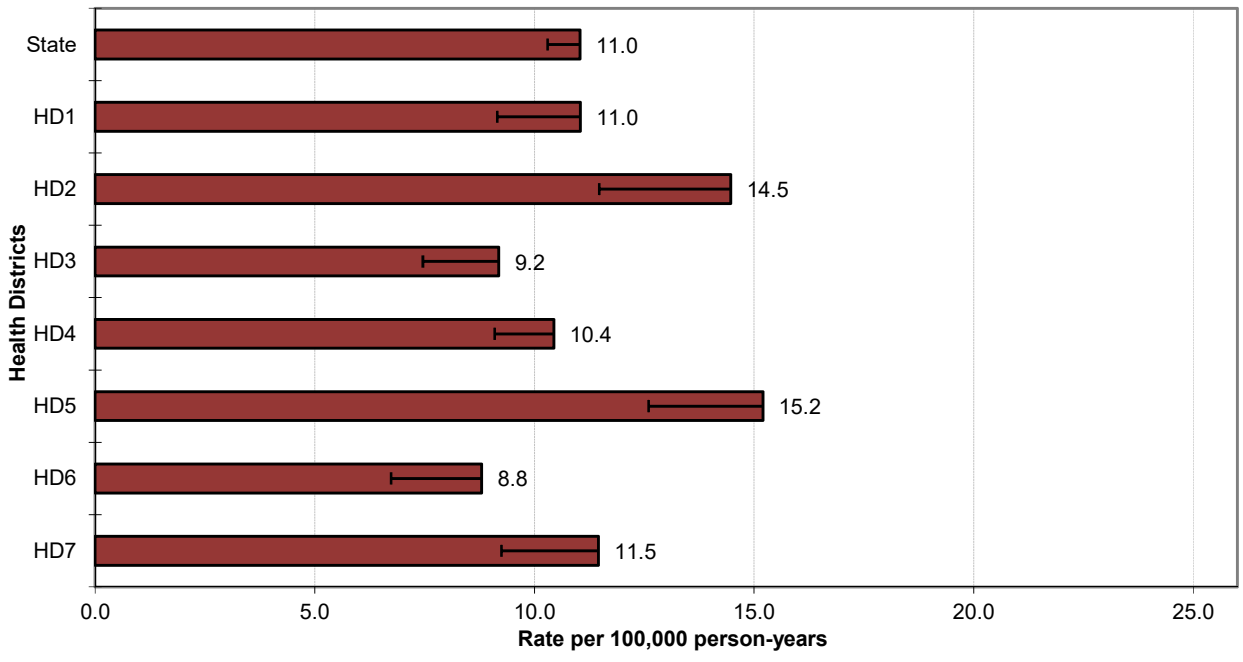
Mean age-adjusted incidence rate across health districts:	11.5
95% confidence interval on the mean age-adjusted incidence rate:	9.7–13.3
Median age-adjusted incidence rate of health districts:	11.0
Range of age-adjusted incidence rate for health districts:	8.8–15.2
USCS rate (2017, all races):	11.6

There were few cases of oral cavity and pharyngeal cancers among persons less than 45 years of age. The age-specific incidence rates generally increased with age after age 44, peaking in the age group 75–79 for males and females. Among total cases, no health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.

State Oral Cavity & Pharyngeal Cancer Incidence
Age-specific Rates 2014–2018



Oral Cavity & Pharyngeal Cancer Incidence
Age-adjusted Rates by Health District



OVARY

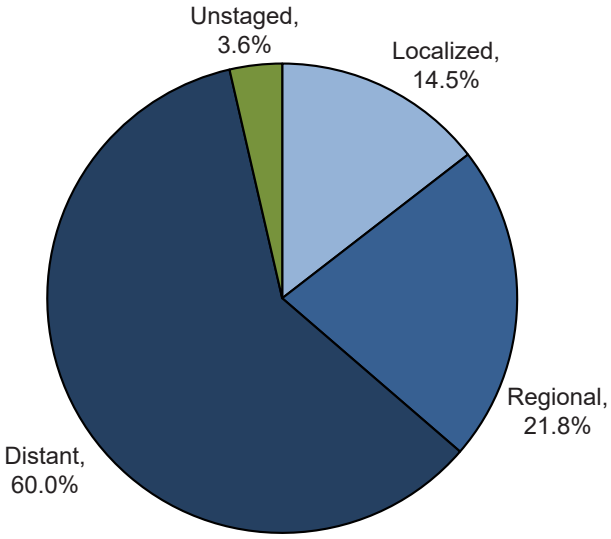
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	-	11.0
# of new invasive cases	-	-	110
# of new in situ cases	-	-	-
# of deaths	-	-	64

Total Cases by County

Ada	30	Cassia	-	Lewis	-
Adams	-	Clark	-	Lincoln	1
Bannock	4	Clearwater	1	Madison	1
Bear Lake	-	Custer	-	Minidoka	2
Benewah	1	Elmore	1	Nez Perce	2
Bingham	5	Franklin	2	Oneida	-
Blaine	6	Fremont	1	Owyhee	1
Boise	1	Gem	3	Payette	-
Bonner	5	Gooding	1	Power	-
Bonneville	4	Idaho	1	Shoshone	1
Boundary	2	Jefferson	-	Teton	-
Butte	-	Jerome	3	Twin Falls	4
Camas	-	Kootenai	9	Valley	1
Canyon	15	Latah	1	Washington	-
Caribou	1	Lemhi	-		

Stage at Diagnosis - Ovary



Factors Associated with Cancer Incidence

Age The rate of ovarian cancer increases with age, markedly after age 39.

Race/Ethnicity Incidence rates are slightly higher among non-Hispanic Whites and Hispanics than other race/ethnicity groups.

Genetics 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. The lifetime ovarian cancer risk for women with a BRCA1 mutation is estimated to be between 35% and 70%.

Hormonal Ovarian cancer is most frequently diagnosed in post-menopausal women. However, the strongest predictors of reduced ovarian cancer risk occur in pre-menopausal women, specifically suppression of ovulation through pregnancy or oral contraceptive use. Hormone replacement therapy is also associated with increased ovarian cancer risk.

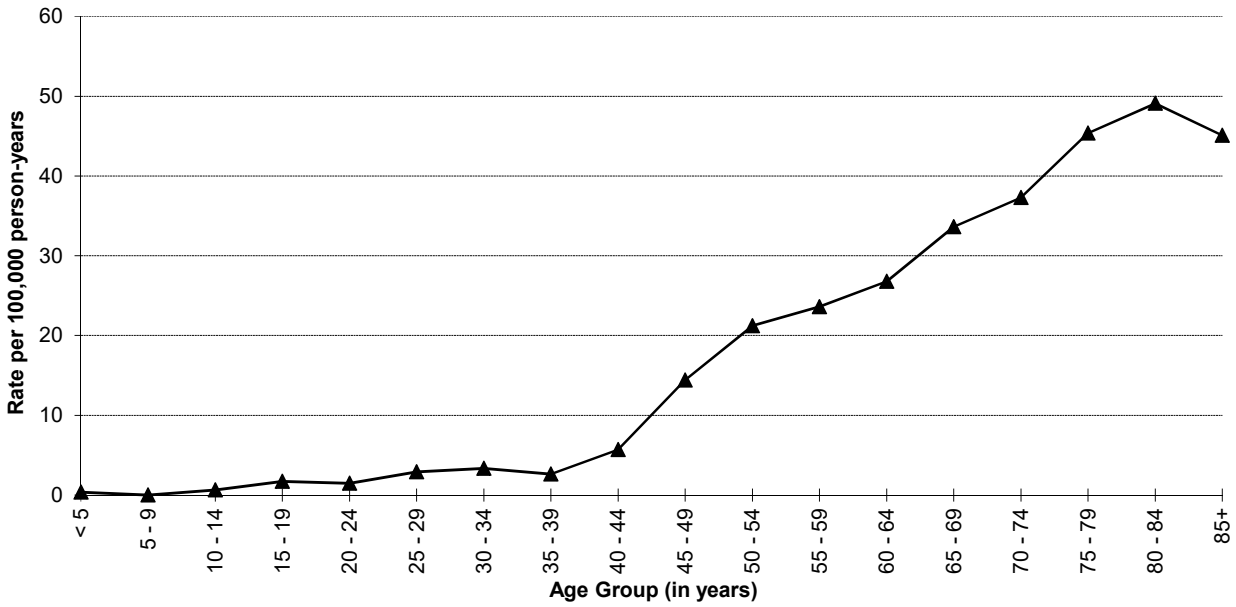
Other Exposure to asbestos and tobacco smoking increase ovarian cancer risk. Other risk factors for ovarian cancer include obesity, tall height, and endometriosis.

Data Summary

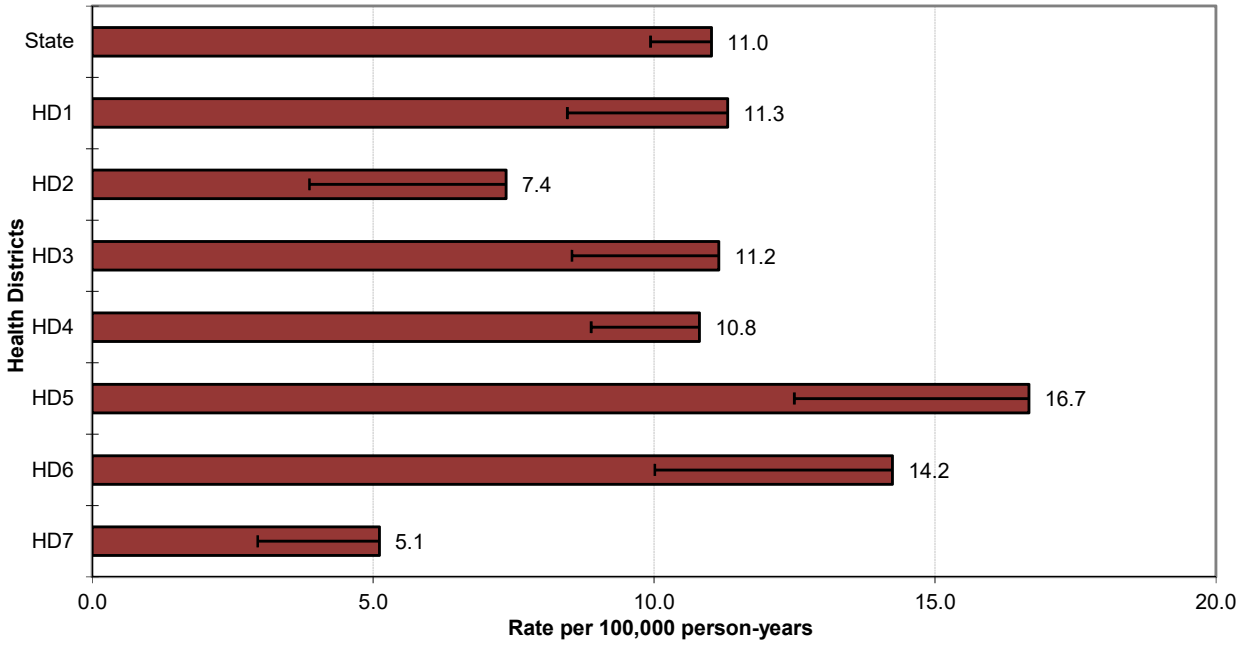
Mean age-adjusted incidence rate across health districts:	11.0
95% confidence interval on the mean age-adjusted incidence rate:	8.1–13.8
Median age-adjusted incidence rate of health districts:	11.2
Range of age-adjusted incidence rate for health districts:	5.1–16.7
USCS rate (2017, all races):	10.0

There were few cases of ovarian cancer among females aged less than 40 years. The age-specific incidence rates of ovarian cancer generally increased with age. The highest age-specific rate was for women aged 80–84. No health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.

State Ovarian Cancer Incidence
Age-specific Rates 2014–2018



Ovarian Cancer Incidence
Age-adjusted Rates by Health District



PANCREAS

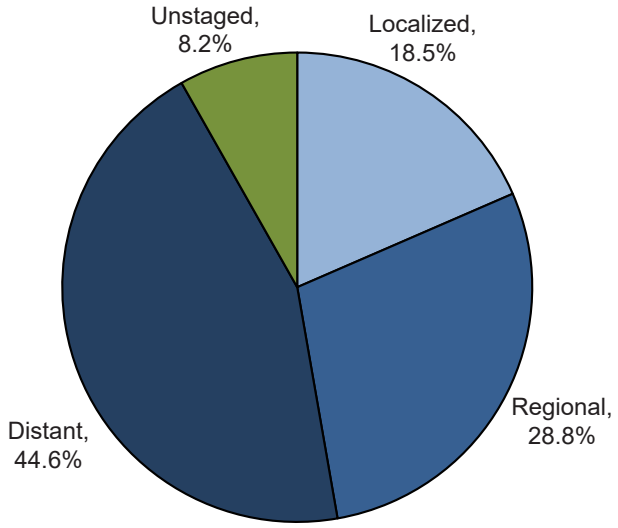
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	11.2	14.5	8.2
# of new invasive cases	233	141	92
# of new in situ cases	0	0	0
# of deaths	213	122	91

Total Cases by County

Ada	57	Cassia	1	Lewis	3
Adams	1	Clark	-	Lincoln	-
Bannock	15	Clearwater	3	Madison	1
Bear Lake	-	Custer	2	Minidoka	4
Benewah	2	Elmore	2	Nez Perce	12
Bingham	5	Franklin	2	Oneida	-
Blaine	3	Fremont	2	Owyhee	4
Boise	4	Gem	3	Payette	6
Bonner	7	Gooding	2	Power	1
Bonneville	13	Idaho	4	Shoshone	4
Boundary	1	Jefferson	2	Teton	1
Butte	-	Jerome	1	Twin Falls	8
Camas	-	Kootenai	25	Valley	-
Canyon	24	Latah	2	Washington	1
Caribou	2	Lemhi	3		

Stage at Diagnosis - Pancreas



Factors Associated with Cancer Incidence

Age Pancreatic cancer incidence increases with age, with rates notably increasing at age 50 and a median age at diagnosis ranging from 68–72.

Sex Incidence is approximately 20%–30% higher in males than females among people aged 55 to 84 years.

Race/Ethnicity Incidence is highest among Blacks, followed by Whites. Asians/Pacific Islanders and American Indians/Alaska Natives have similar and the lowest incidence rates in the United States. Hispanics have lower incidence than non-Hispanic Whites.

Diet Heavy alcohol consumption is an important risk factor for pancreatic cancer.

Occupation Occupational exposures to chlorinated hydrocarbon solvents as used in dry cleaning, nickel and nickel compounds, benzene, asbestos, and pesticides are associated with increased risk.

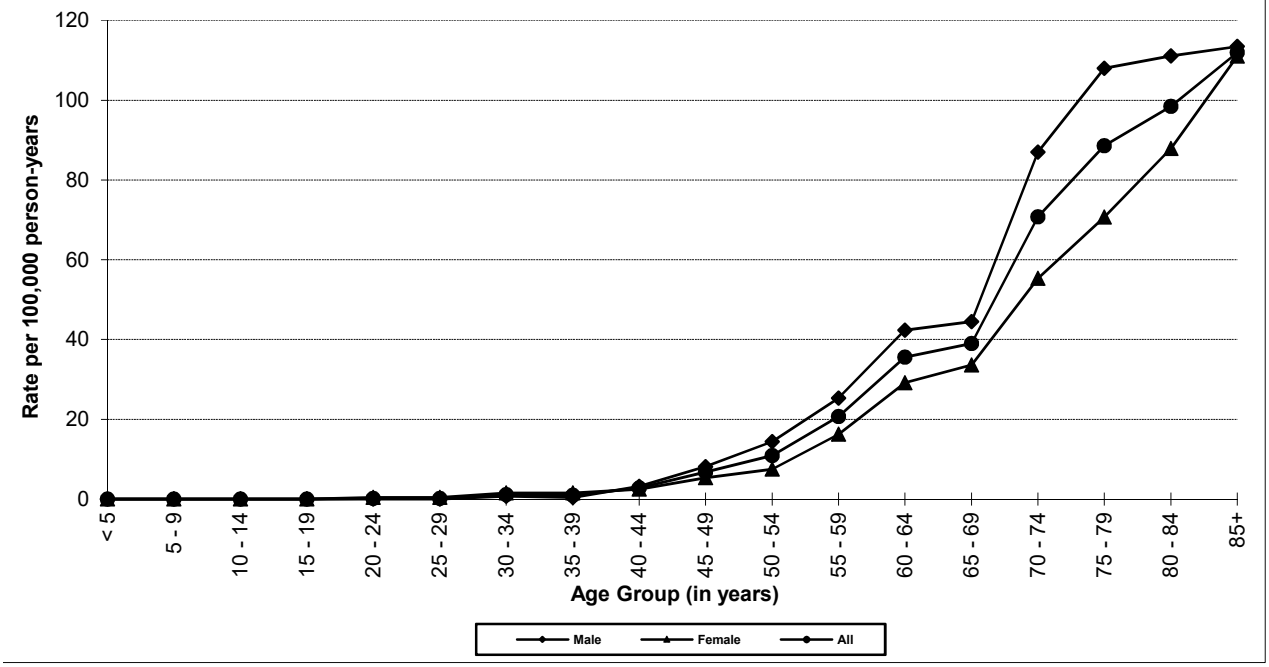
Other Smoking is the most important risk factor for pancreatic cancer. Hereditary and genetic factors, such as family history of pancreatic cancer, gene mutations (e.g. BRCA2, p16/CDKN2A gene), and inherited genetic syndromes (e.g. familial pancreatitis, Lynch syndrome) are associated with increased risk. Co-morbidities such as obesity, diabetes, and chronic pancreatitis also confer increased risk.

Data Summary

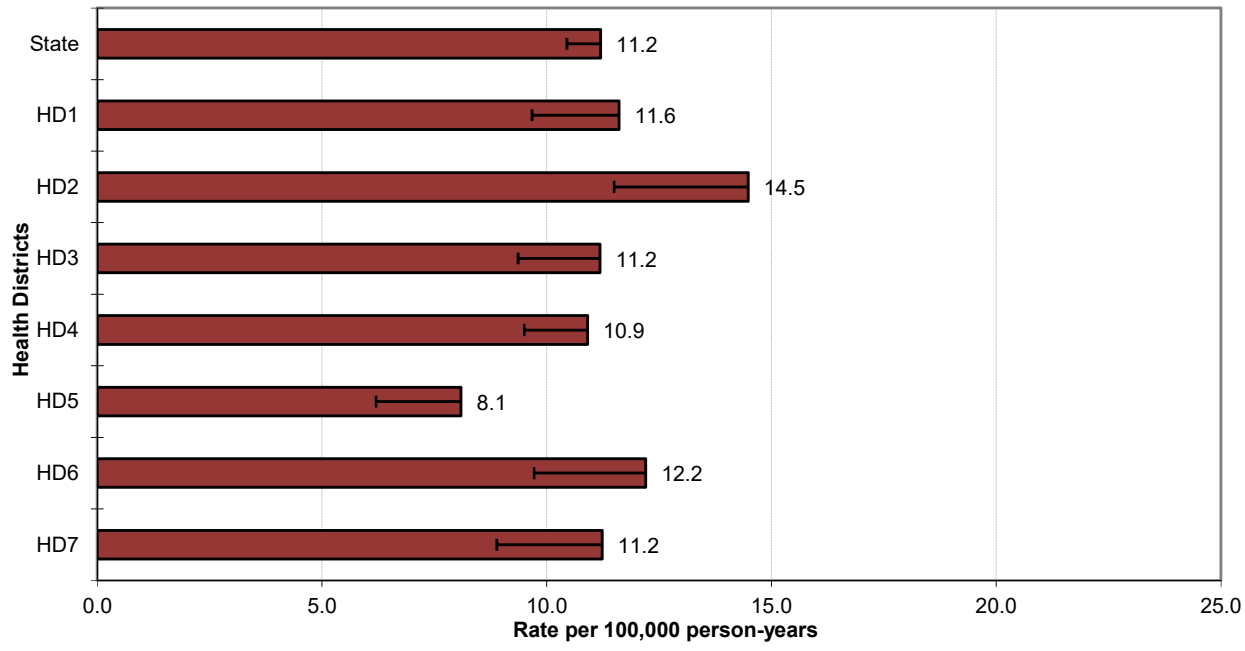
Mean age-adjusted incidence rate across health districts:	11.4
95% confidence interval on the mean age-adjusted incidence rate:	10.0–12.8
Median age-adjusted incidence rate of health districts:	11.2
Range of age-adjusted incidence rate for health districts:	8.1–14.5
USCS rate (2017, all races):	12.3

There were few cases of pancreatic cancer among persons aged less than 45 years. The age-specific incidence rates of pancreatic cancer generally increased after age 44, peaking in the age group 85+ for males and females. Among total cases, no health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.

State Pancreas Cancer Incidence
Age-specific Rates 2014–2018



Pancreas Cancer Incidence
Age-adjusted Rates by Health District



PROSTATE

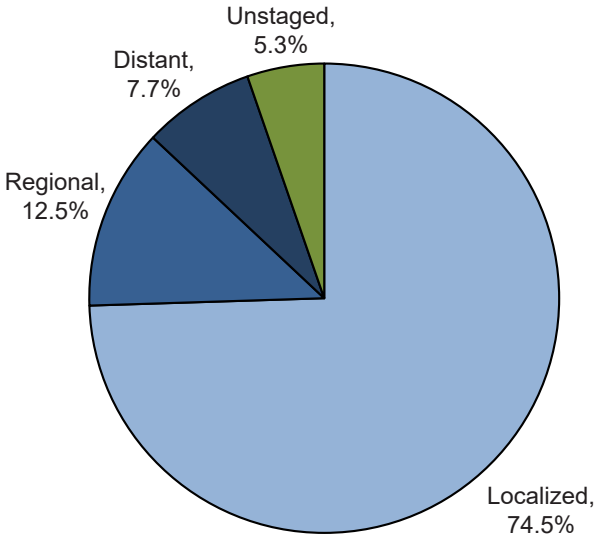
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	112.3	-
# of new invasive cases	-	1,214	-
# of new in situ cases	-	0	-
# of deaths	-	203	-

Total Cases by County

Ada	354	Cassia	14	Lewis	4
Adams	6	Clark	-	Lincoln	2
Bannock	44	Clearwater	9	Madison	15
Bear Lake	4	Custer	4	Minidoka	10
Benewah	7	Elmore	14	Nez Perce	19
Bingham	22	Franklin	7	Oneida	-
Blaine	18	Fremont	9	Owyhee	7
Boise	13	Gem	20	Payette	16
Bonner	45	Gooding	13	Power	4
Bonneville	80	Idaho	25	Shoshone	14
Boundary	8	Jefferson	21	Teton	5
Butte	1	Jerome	8	Twin Falls	41
Camas	1	Kootenai	122	Valley	9
Canyon	150	Latah	24	Washington	8
Caribou	4	Lemhi	13		

Stage at Diagnosis - Prostate



Factors Associated with Cancer Incidence

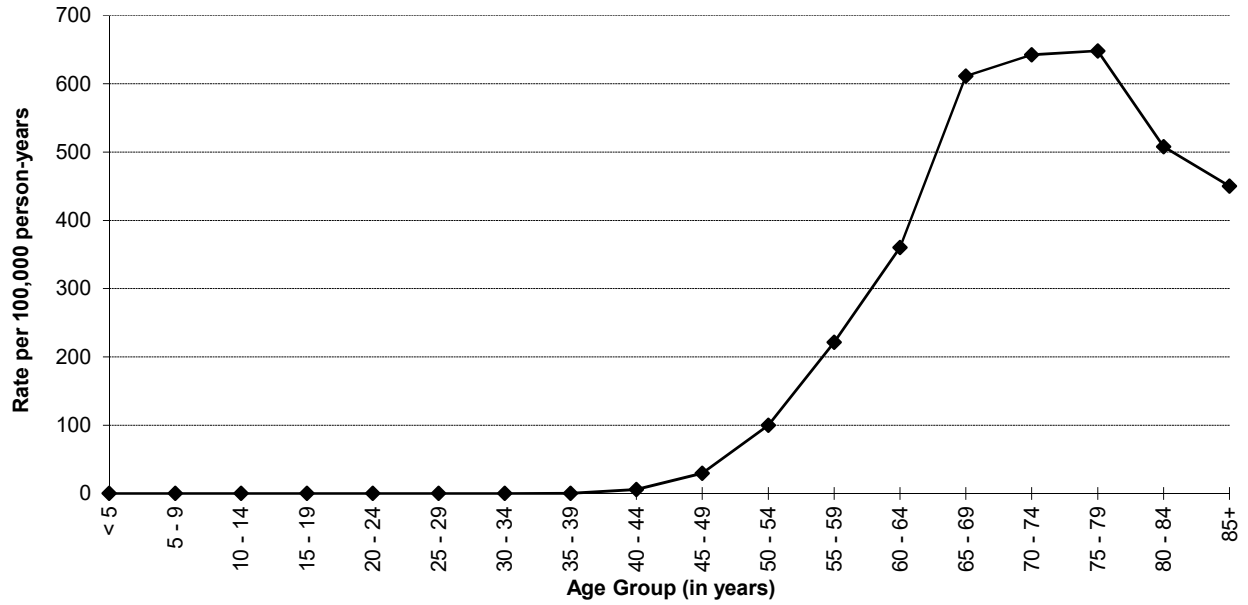
Age	Prostate cancer is primarily a disease of older males, and is rarely diagnosed before age 50.
Race/Ethnicity	Black males have substantially higher incidence and mortality rates than other race/ethnicity groups, with non-Hispanic Whites and Hispanic males having higher rates than American Indian/Alaska Natives or Asian and Pacific Islanders.
Genetics	A family history of prostate cancer is associated with increased risk.
Diet	Dietary fat has been implicated in several international, regional, and case-control studies.
Other	Prostate cancer is most common in North America, northwestern Europe, Australia, and on Caribbean islands. It is less common in Asia, Africa, Central America, and South America.

Data Summary

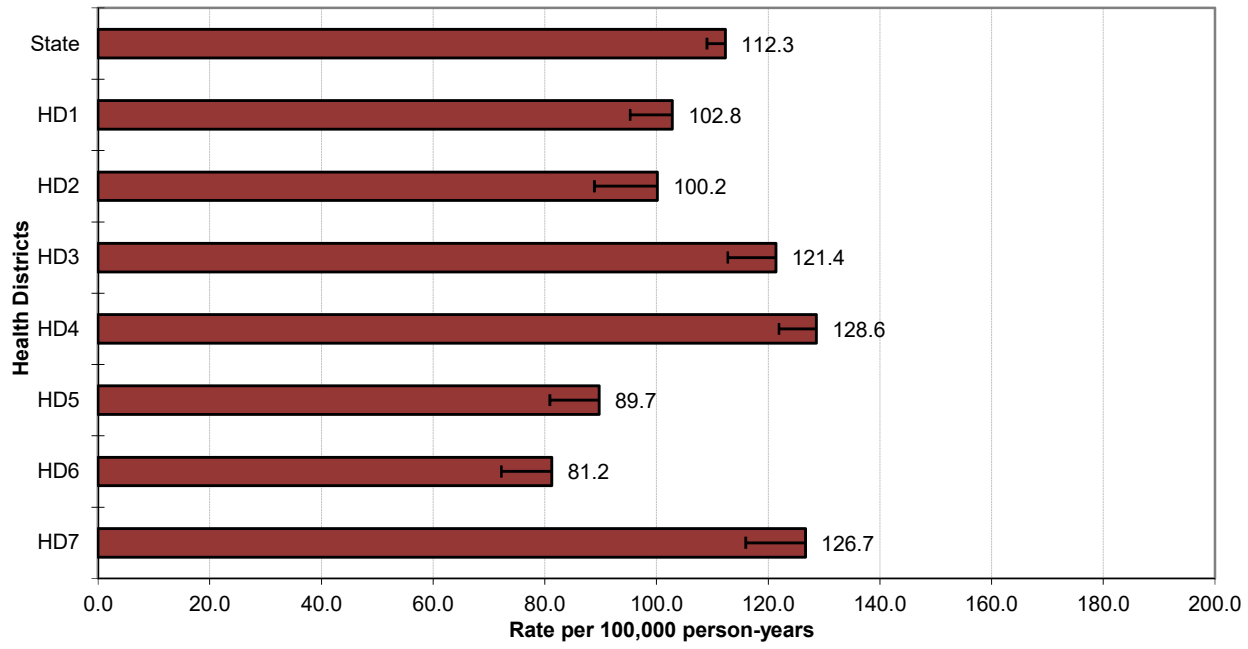
Mean age-adjusted incidence rate across health districts:	107.2
95% confidence interval on the mean age-adjusted incidence rate:	93.4–121.1
Median age-adjusted incidence rate of health districts:	102.8
Range of age-adjusted incidence rate for health districts:	81.2–128.6
USCS rate (2017, all races):	105.3

There were few cases of prostate cancer among men aged less than 50 years. The age-specific incidence rates of prostate cancer increased with age, peaking in the 75–79 age group. Health District 4 had statistically significantly more cases than expected based upon rates for the remainder of Idaho and Health Districts 5 and 6 had statistically significantly fewer.

State Prostate Cancer Incidence
Age-specific Rates 2014–2018



Prostate Cancer Incidence
Age-adjusted Rates by Health District



STOMACH

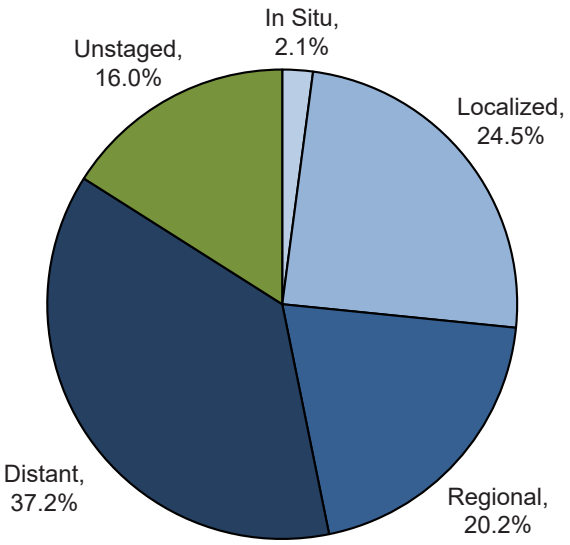
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	4.5	6.8	2.4
# of new invasive cases	92	65	27
# of new in situ cases	2	1	1
# of deaths	36	20	16

Total Cases by County

Ada	20	Cassia	2	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	4	Clearwater	1	Madison	2
Bear Lake	-	Custer	1	Minidoka	2
Benewah	-	Elmore	1	Nez Perce	4
Bingham	2	Franklin	-	Oneida	1
Blaine	2	Fremont	-	Owyhee	1
Boise	-	Gem	1	Payette	1
Bonner	1	Gooding	1	Power	-
Bonneville	8	Idaho	-	Shoshone	-
Boundary	2	Jefferson	2	Teton	-
Butte	-	Jerome	1	Twin Falls	3
Camas	-	Kootenai	14	Valley	-
Canyon	15	Latah	1	Washington	-
Caribou	-	Lemhi	1		

Stage at Diagnosis - Stomach



Factors Associated with Cancer Incidence

Age Stomach cancer incidence rates increase with age.

Sex Incidence rates for males are about twice as high as for females.

Race/Ethnicity Incidence rates are highest among Asian and Pacific Islanders and lowest among non-Hispanic Whites.

Diet Dietary risk factors include low consumption of fruits and vegetables and consumption of salted, smoked, or poorly preserved foods.

Occupation Workers in the rubber and coal industries are at increased risk of stomach cancer.

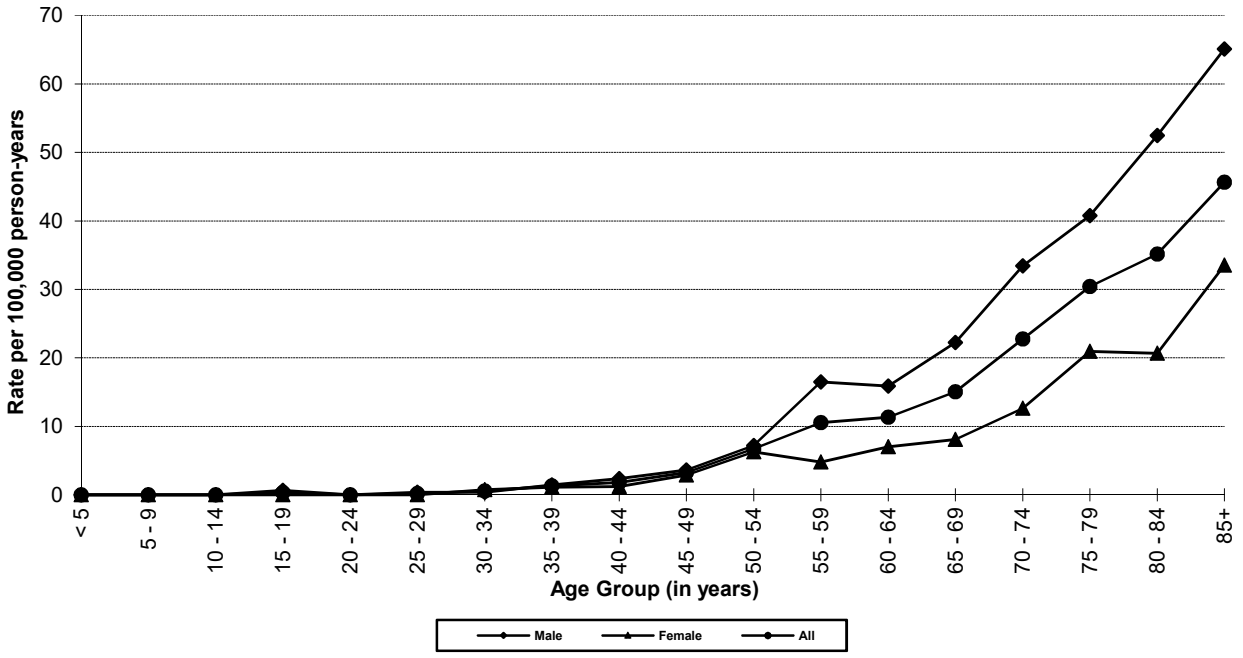
Other *Helicobacter pylori* infection and smoking are associated with increased risk of stomach cancer. Genetic risk factors include a family history of stomach cancer, Li Fraumeni syndrome, and type A blood type. Worldwide, stomach cancer is more common in Japan, China, Southern and Eastern Europe, and South and Central America.

Data Summary

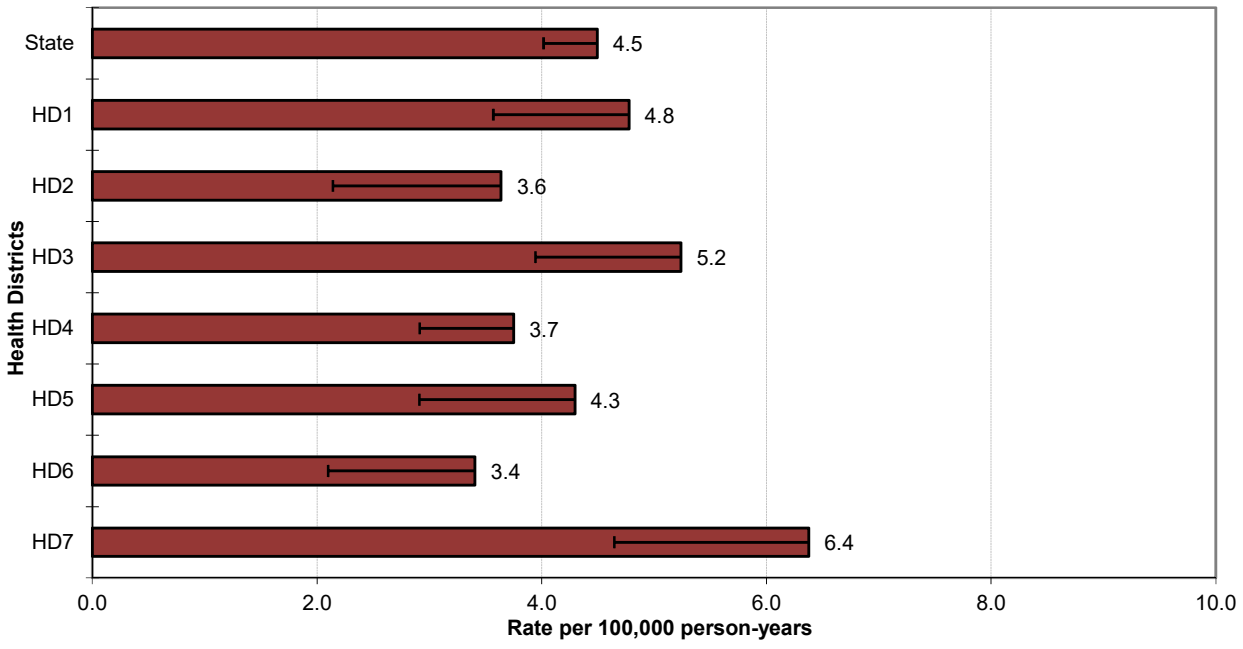
Mean age-adjusted incidence rate across health districts:	4.5
95% confidence interval on the mean age-adjusted incidence rate:	3.7–5.3
Median age-adjusted incidence rate of health districts:	4.3
Range of age-adjusted incidence rate for health districts:	3.4–6.4
USCS rate (2017, all races):	6.2

There were few cases of stomach cancer among persons aged less than 50 years. The age-specific incidence rates of stomach cancer increased with age, peaking in the 85+ age group for males and females. Among total cases, no health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.

State Stomach Cancer Incidence
Age-specific Rates 2014–2018



Stomach Cancer Incidence
Age-adjusted Rates by Health District



TESTIS

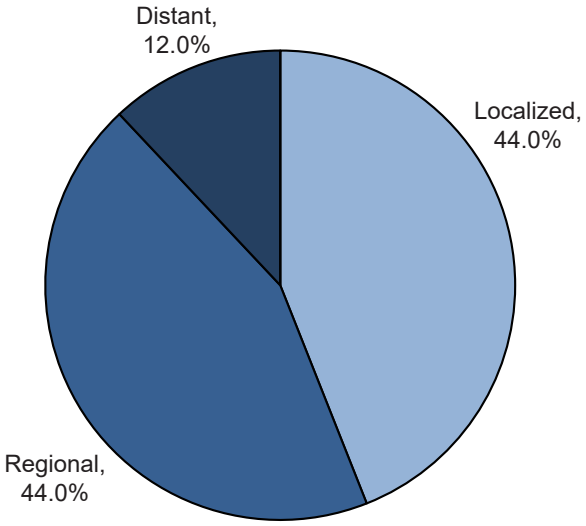
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	6.2	-
# of new invasive cases	-	50	-
# of new in situ cases	-	0	-
# of deaths	-	0	-

Total Cases by County

Ada	14	Cassia	1	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	2	Clearwater	-	Madison	1
Bear Lake	-	Custer	-	Minidoka	1
Benewah	-	Elmore	2	Nez Perce	1
Bingham	2	Franklin	-	Oneida	-
Blaine	1	Fremont	1	Owyhee	-
Boise	-	Gem	-	Payette	1
Bonner	-	Gooding	-	Power	-
Bonneville	6	Idaho	-	Shoshone	1
Boundary	1	Jefferson	-	Teton	-
Butte	-	Jerome	1	Twin Falls	3
Camas	-	Kootenai	4	Valley	1
Canyon	5	Latah	1	Washington	-
Caribou	-	Lemhi	-		

Stage at Diagnosis - Testis



Factors Associated with Cancer Incidence

Age Testicular cancer is the most common cancer in young males, especially males between the ages of 20 and 34.

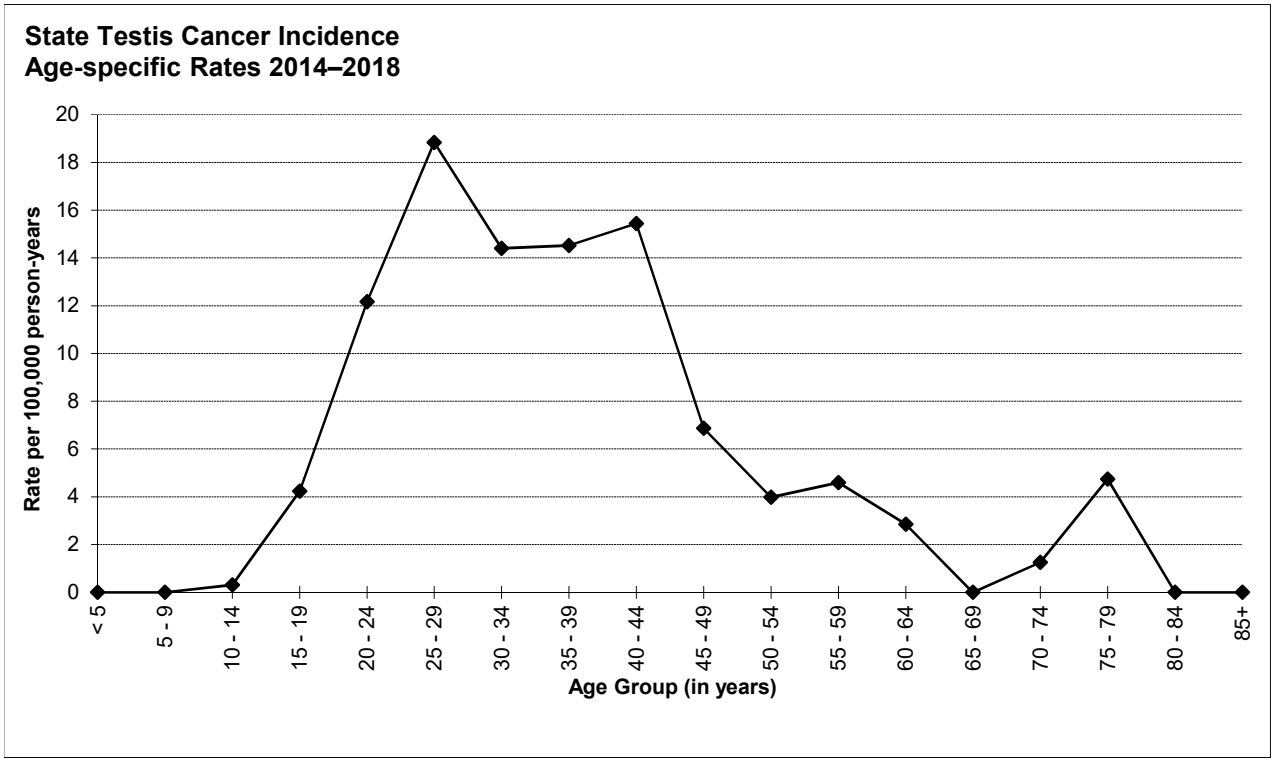
Race/Ethnicity Incidence rates are higher in non-Hispanic Whites, Hispanics, and American Indian/Alaska Natives and lower in Asian and Pacific Islanders and Blacks.

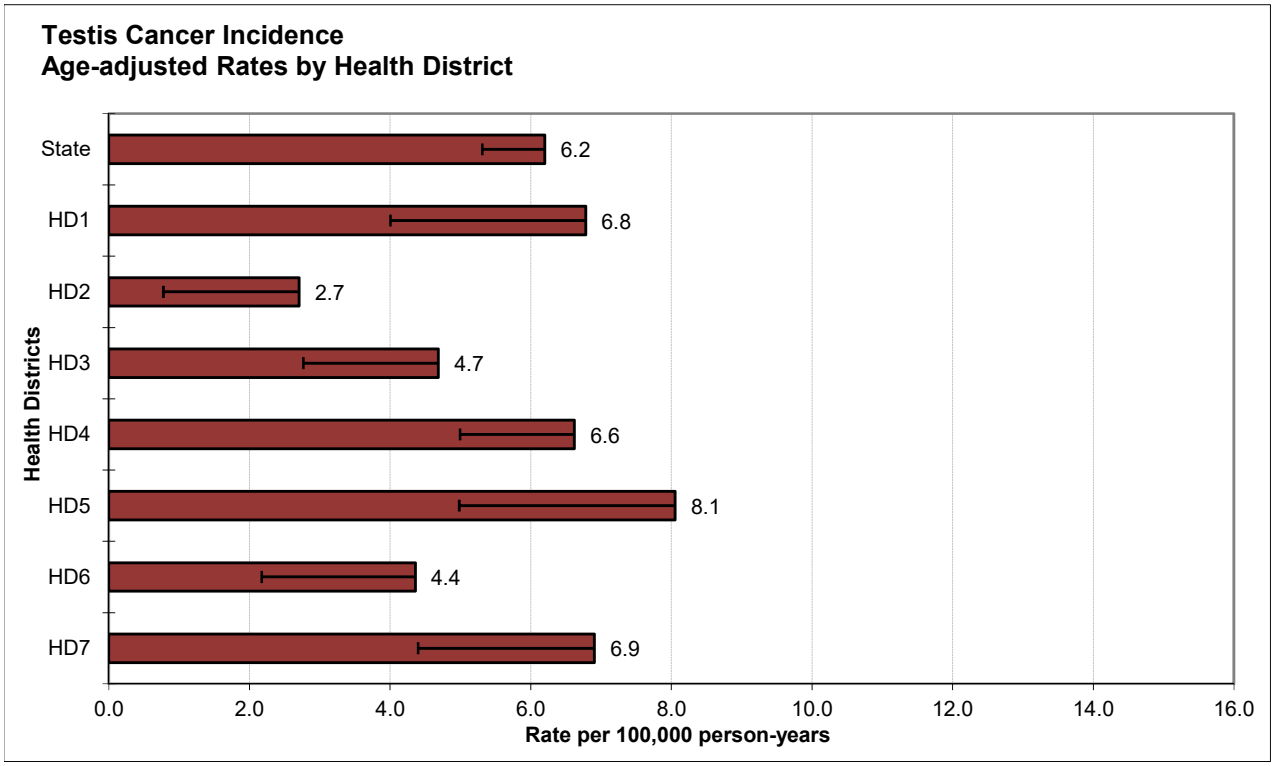
Other Undescended testis, a minor abnormality that can usually be detected and corrected with surgery in childhood, is responsible for a substantially higher risk for testicular cancer when uncorrected. With current treatment, long term survival rates for testicular cancer are about 95%.

Data Summary

Mean age-adjusted incidence rate across health districts:	5.7
95% confidence interval on the mean age-adjusted incidence rate:	4.4–7.1
Median age-adjusted incidence rate of health districts:	6.6
Range of age-adjusted incidence rate for health districts:	2.7–8.1
USCS rate (2017, all races):	5.6

The highest age-specific incidence rates were in the 25–44 age range. No health district had statistically significantly more, or fewer, cases than expected based upon rates for the remainder of Idaho.


State Testis Cancer Incidence
Age-specific Rates 2014–2018
Rate per 100,000 person-years
20
18
16
14
12
10
8
6
4
2
0
< 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 - 79
80 - 84
85+
Age Group (in years)


Testis Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
6.2
6.8
2.7
4.7
6.6
8.1
4.4
6.9
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
Rate per 100,000 person-years

THYROID

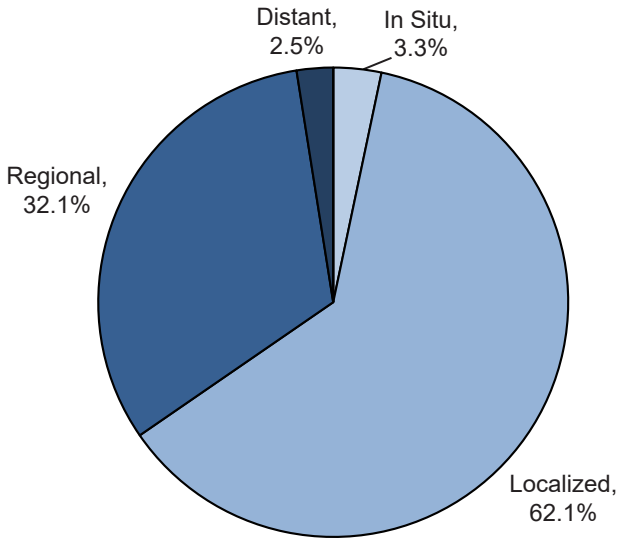
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	12.9	6.7	19.3
# of new invasive cases	235	61	174
# of new in situ cases	10	6	4
# of deaths	9	4	5

Total Cases by County

Ada	70	Cassia	5	Lewis	3
Adams	-	Clark	-	Lincoln	-
Bannock	10	Clearwater	-	Madison	6
Bear Lake	1	Custer	-	Minidoka	2
Benewah	-	Elmore	4	Nez Perce	2
Bingham	11	Franklin	4	Oneida	-
Blaine	3	Fremont	-	Owyhee	1
Boise	3	Gem	6	Payette	4
Bonner	4	Gooding	1	Power	1
Bonneville	31	Idaho	4	Shoshone	-
Boundary	1	Jefferson	10	Teton	1
Butte	-	Jerome	2	Twin Falls	7
Camas	1	Kootenai	16	Valley	2
Canyon	21	Latah	5	Washington	-
Caribou	1	Lemhi	-		

Stage at Diagnosis - Thyroid



Factors Associated with Cancer Incidence

Age Thyroid cancer is one of the most common malignancies affecting adolescents and adults up to 50 years of age.

Sex Incidence rates are nearly three times higher among females than males

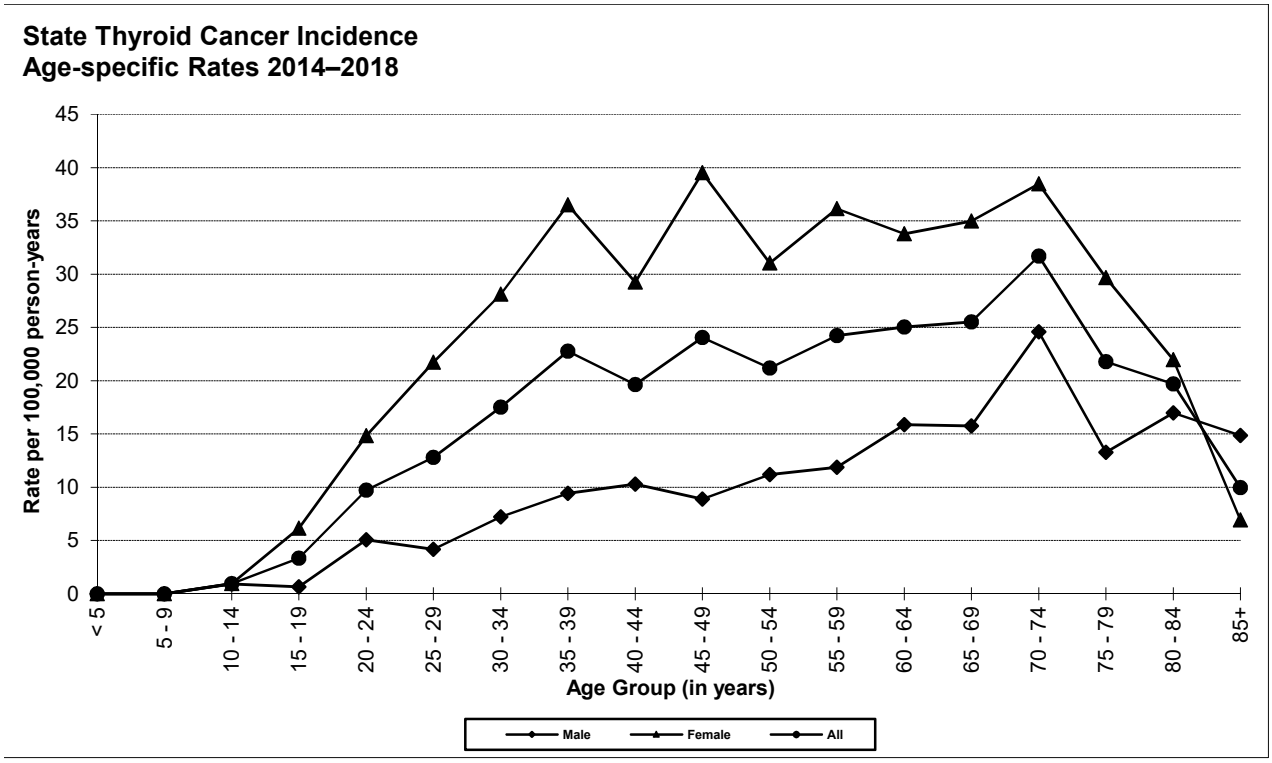
Race/Ethnicity Incidence rates are higher among non-Hispanic Whites, Asian and Pacific Islanders, and Hispanics and lower among American Indian/Alaska Natives and Blacks.

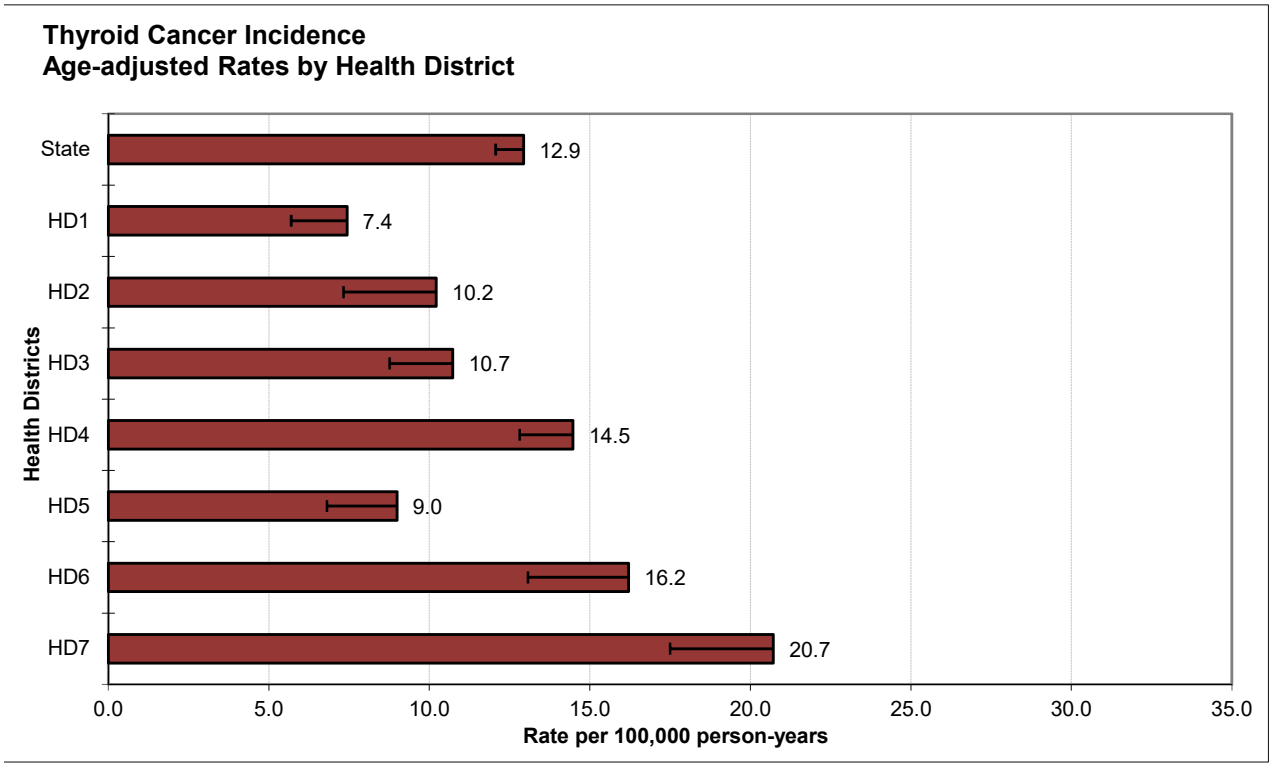
Other Occupational and environmental exposures to ionizing radiation have been associated with higher rates of thyroid cancer. Radiation exposure to the head and neck in childhood is a well-known risk factor. About 2 out of 10 medullary thyroid carcinomas result from inheriting an abnormal gene. Thyroid cancer prognosis worsens with each decade of age over 50, partially because anaplastic thyroid cancer, which has a higher fatality rate, occurs more often among older patients. In the U.S., thyroid cancer incidence rates have tripled in the past 30 years. Some clinicians believe that use of imaging technologies such as ultrasound, CT, and MRI scanning is fueling an epidemic in diagnosis of thyroid cancers that are unlikely to progress to cause symptoms or death, while others argue that the trend is in part real and involves both small and large tumors.

Data Summary

Mean age-adjusted incidence rate across health districts:	12.7
95% confidence interval on the mean age-adjusted incidence rate:	9.2–16.1
Median age-adjusted incidence rate of health districts:	10.7
Range of age-adjusted incidence rate for health districts:	7.4–20.7
USCS rate (2017, all races):	13.2

The age-specific incidence rates of thyroid cancer were typically higher for females than males. Among total cases, Health District 7 had statistically significantly more cases and Health District 1 had statistically significantly fewer cases than expected based upon rates for the remainder of Idaho.


State Thyroid Cancer Incidence
Age-specific Rates 2014–2018
Rate per 100,000 person-years
45
40
35
30
25
20
15
10
5
0
< 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 39
40 - 44
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
70 - 74
75 - 79
80 - 84
85+
Age Group (in years)
Male
Female
All


Thyroid Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
12.9
7.4
10.2
10.7
14.5
9.0
16.2
20.7
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Rate per 100,000 person-years

SECTION II

INCIDENCE DATA BY SITE AND GENDER – STATE OF IDAHO, 2018

Primary Site of Cancer	Invasive			In situ		
	Total	Male	Female	Total	Male	Female
All Sites	8,576	4,455	4,121	1,000	504	496
Oral Cavity and Pharynx	239	170	69	10	4	6
Lip	20	18	2	2	-	2
Tongue	69	47	22	5	3	2
Salivary Gland	20	14	6	-	-	-
Floor of Mouth	18	9	9	-	-	-
Gum and Other Mouth	27	10	17	2	1	1
Nasopharynx	6	5	1	-	-	-
Tonsil	47	41	6	1	-	1
Oropharynx	20	15	5	-	-	-
Hypopharynx	9	9	-	-	-	-
Other Oral Cavity and Pharynx	3	2	1	-	-	-
Digestive System	1,453	845	608	17	10	7
Esophagus	102	87	15	1	1	-
Stomach	92	65	27	2	1	1
Small Intestine	59	29	30	-	-	-
Colon and Rectum	693	375	318	10	6	4
Colon excluding Rectum	488	248	240	8	5	3
Cecum	112	49	63	2	2	-
Appendix	42	18	24	-	-	-
Ascending Colon	85	41	44	-	-	-
Hepatic Flexure	24	13	11	1	-	1
Transverse Colon	44	27	17	-	-	-
Splenic Flexure	15	7	8	-	-	-
Descending Colon	21	11	10	1	1	-
Sigmoid Colon	114	65	49	3	1	2
Large Intestine, NOS	31	17	14	1	1	-
Rectum and Rectosigmoid Junction	205	127	78	2	1	1
Rectosigmoid Junction	39	26	13	-	-	-
Rectum	166	101	65	2	1	1
Anus, Anal Canal and Anorectum	28	4	24	3	2	1
Liver and Intrahepatic Bile Duct	150	101	49	-	-	-
Liver	118	82	36	-	-	-
Intrahepatic Bile Duct	32	19	13	-	-	-
Gallbladder	21	7	14	-	-	-
Other Biliary	38	24	14	1	-	1
Pancreas	233	141	92	-	-	-
Retroperitoneum	7	3	4	-	-	-
Peritoneum, Omentum and Mesentery	8	1	7	-	-	-
Other Digestive Organs	22	8	14	-	-	-
Respiratory System	1,002	531	471	8	6	2
Nose, Nasal Cavity and Middle Ear	14	7	7	-	-	-
Larynx	37	28	9	3	3	-
Lung and Bronchus	950	495	455	5	3	2
Pleura	1	1	-	-	-	-
Trachea, Mediastinum and Other Respiratory Organs	-	-	-	-	-	-
Skin excluding Basal and Squamous	576	362	214	522	326	196
Melanoma of the Skin	552	346	206	522	326	196
Other Non-Epithelial Skin	24	16	8	-	-	-
Breast	1,340	13	1,327	226	2	224

Primary Site of Cancer	Invasive			In situ		
	Total	Male	Female	Total	Male	Female
Female Genital System	505	-	505	3	-	3
Cervix Uteri	69	-	69	-	-	-
Corpus and Uterus, NOS	264	-	264	-	-	-
Corpus Uteri	257	-	257	-	-	-
Uterus, NOS	7	-	7	-	-	-
Ovary	110	-	110	-	-	-
Vagina	4	-	4	-	-	-
Vulva	38	-	38	3	-	3
Other Female Genital Organs	20	-	20	-	-	-
Male Genital System	1,272	1,272	-	6	6	-
Prostate	1,214	1,214	-	-	-	-
Testis	50	50	-	-	-	-
Penis	6	6	-	6	6	-
Other Male Genital Organs	2	2	-	-	-	-
Urinary System	549	393	156	197	147	50
Urinary Bladder	216	173	43	185	143	42
Kidney and Renal Pelvis	318	208	110	7	3	4
Ureter	5	4	1	3	-	3
Other Urinary Organs	10	8	2	2	1	1
Brain and Other Nervous System	140	80	60	-	-	-
Brain	134	76	58	-	-	-
Cranial Nerves Other Nervous System	6	4	2	-	-	-
Endocrine System	250	69	181	8	2	6
Thyroid	235	61	174	8	2	6
Other Endocrine including Thymus	15	8	7	-	-	-
Lymphoma	399	234	165	-	-	-
Hodgkin Lymphoma	38	24	14	-	-	-
Non-Hodgkin Lymphoma	361	210	151	-	-	-
Myeloma	139	86	53	-	-	-
Leukemia	319	183	136	-	-	-
Lymphocytic Leukemia	160	95	65	-	-	-
Acute Lymphocytic Leukemia	28	16	12	-	-	-
Chronic Lymphocytic Leukemia	124	73	51	-	-	-
Other Lymphocytic Leukemia	8	6	2	-	-	-
Myeloid and Monocytic Leukemia	142	79	63	-	-	-
Acute Myeloid Leukemia	93	50	43	-	-	-
Acute Monocytic Leukemia	3	3	-	-	-	-
Chronic Myeloid Leukemia	44	24	20	-	-	-
Other Myeloid/Monocytic Leukemia	2	2	-	-	-	-
Other Leukemia	17	9	8	-	-	-
Other Acute Leukemia	3	1	2	-	-	-
Aleukemic, Subleukemic and NOS	14	8	6	-	-	-
Other or Unknown Sites	393	217	176	3	1	2
Bones and Joints	18	8	10	-	-	-
Soft Tissue including Heart	54	28	26	-	-	-
Eye and Orbit	20	13	7	3	1	2
Mesothelioma	13	12	1	-	-	-
Kaposi Sarcoma	1	1	-	-	-	-
Miscellaneous	287	155	132	-	-	-

SECTION III

MORTALITY RATES BY SITE AND GENDER – STATE OF IDAHO, 2018

Idaho Resident Cancer Mortality Rates – 2018

Cause of Death	Total			Male			Female		
	Rate	Deaths	Pop	Rate	Deaths	Pop	Rate	Deaths	Pop
All Causes of Death	731.6	14,263	1,750,536	839.1	7,537	877,331	631.0	6,726	873,205
All Malignant Cancers	150.1	3,050	1,750,536	172.2	1,637	877,331	131.8	1,413	873,205
Bladder	5.2	102	1,750,536	8.5	74	877,331	2.7	28	873,205
Brain and Other Nervous System	5.0	100	1,750,536	6.0	58	877,331	4.0	42	873,205
Breast	11.9	241	1,750,536	0.2	2	877,331	22.2	239	873,205
Cervix	0.8	14	1,750,536	-	-	877,331	1.6	14	873,205
Colorectal	13.4	273	1,750,536	15.1	145	877,331	11.7	128	873,205
Corpus Uteri	1.4	30	1,750,536	-	-	877,331	2.6	30	873,205
Esophagus	5.3	112	1,750,536	9.4	92	877,331	1.8	20	873,205
Hodgkin Lymphoma	0.2	4	1,750,536	0.3	2	877,331	0.2	2	873,205
Kidney	3.4	71	1,750,536	4.9	49	877,331	1.9	22	873,205
Larynx	0.7	16	1,750,536	1.5	16	877,331	0.0	0	873,205
Leukemia	6.3	120	1,750,536	6.7	60	877,331	6.0	60	873,205
Liver and Bile Duct	5.8	122	1,750,536	8.4	86	877,331	3.4	36	873,205
Lung and Bronchus	30.5	633	1,750,536	33.2	325	877,331	28.2	308	873,205
Melanoma of the Skin	2.4	48	1,750,536	3.3	34	877,331	1.5	14	873,205
Myeloma	3.5	72	1,750,536	4.7	44	877,331	2.6	28	873,205
Non-Hodgkin Lymphoma	5.3	107	1,750,536	6.5	61	877,331	4.2	46	873,205
Oral Cavity and Pharynx	2.3	48	1,750,536	3.2	31	877,331	1.6	17	873,205
Ovary	3.2	64	1,750,536	-	-	877,331	6.2	64	873,205
Pancreas	10.3	213	1,750,536	12.4	122	877,331	8.3	91	873,205
Prostate	10.2	203	1,750,536	22.9	203	877,331	-	-	873,205
Stomach	1.9	36	1,750,536	2.2	20	877,331	1.6	16	873,205
Testis	0.0	0	1,750,536	0.0	0	877,331	-	-	873,205
Thyroid	0.4	9	1,750,536	0.5	4	877,331	0.5	5	873,205

Data source: Bureau of Vital Records and Health Statistics (BVRHS), Idaho Department of Health and Welfare, 2019.[19]

Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard.

Cause of death categories are based on SEER cause of death recodes (https://seer.cancer.gov/codrecode/), which differ from official BVRHS cancer mortality categories. Death counts may differ from official BVRHS statistics due to late filings.

SECTION IV

2014–2018 AGE SPECIFIC INCIDENCE RATES
PER 100,000 POPULATION
BY SITE AND GENDER

IDAHO **AGE-SPECIFIC CANCER RATES, PER 100,000 POPULATION, BY SITE AND GENDER** **2014–2018**

Age (years)	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85+
All Cancers																		
All	21.8	13.7	12.4	23.4	43.2	58.7	92.4	150.9	217.2	332.0	524.5	779.1	1107.3	1565.8	1945.9	2314.4	2462.1	2414.7
Male	21.6	14.7	12.1	23.5	39.6	51.3	70.3	96.9	133.4	242.4	443.4	808.2	1211.7	1801.1	2294.9	2800.2	2986.1	3121.6
Female	21.9	12.6	12.7	23.3	47.1	66.3	115.1	206.3	303.2	423.2	604.2	751.1	1007.7	1338.2	1613.1	1867.1	2023.3	1975.3
Bladder																		
All	0.2	0.0	0.0	0.2	0.2	0.2	0.7	2.2	3.2	3.7	12.1	26.9	44.3	78.2	110.2	155.8	166.0	211.8
Male	0.3	0.0	0.0	0.3	0.3	0.4	1.1	2.5	4.4	5.7	17.2	39.1	71.2	122.4	181.6	266.3	294.8	407.4
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	2.0	1.7	7.1	15.1	18.6	35.4	42.1	54.1	58.1	90.2
Brain																		
All	2.4	4.1	1.8	1.7	2.1	2.5	4.4	4.6	5.8	6.3	6.9	11.1	16.1	16.9	18.8	26.4	28.1	20.0
Male	0.7	4.1	1.2	2.0	1.7	3.1	5.8	5.8	9.1	7.7	8.0	12.3	21.6	22.3	24.6	36.0	40.1	24.2
Female	4.2	4.0	2.3	1.4	2.6	1.8	3.0	3.4	2.4	4.9	5.9	10.0	10.9	11.7	13.2	17.5	18.1	17.4
Brain & Other Central Nervous System (Non-Malignant)																		
All	0.7	1.8	2.4	2.3	3.7	3.2	6.2	9.4	10.0	14.7	17.6	21.2	20.7	42.4	40.0	49.1	57.0	70.6
Male	1.0	2.9	3.1	1.6	2.7	2.1	6.1	6.9	7.1	9.7	12.0	10.0	12.2	25.5	32.2	28.4	35.5	57.7
Female	0.4	0.7	1.6	3.1	4.8	4.4	6.3	11.9	13.0	19.8	23.2	32.1	28.7	58.7	47.5	68.1	74.9	78.6
Breast																		
Female Invasive	0.0	0.0	0.0	0.3	1.9	10.1	26.6	61.5	132.1	164.7	230.4	269.2	342.5	420.1	499.6	491.2	472.9	368.9
Female In Situ	0.0	0.0	0.0	0.0	0.4	0.4	2.2	4.8	36.2	44.9	50.7	51.3	56.3	85.6	80.0	72.4	55.6	17.4
Cervix																		
Female	0.0	0.0	0.0	0.0	1.5	3.3	9.6	17.9	12.6	15.6	11.4	12.2	9.3	10.3	6.0	4.4	7.8	2.3
Colorectal																		
All	0.0	0.0	0.6	2.0	1.6	2.5	4.4	11.2	20.3	29.6	55.7	57.0	85.1	111.5	128.3	179.0	214.5	243.2
Male	0.0	0.0	0.9	1.3	1.0	2.1	5.0	11.6	17.4	33.9	56.7	68.3	101.4	121.0	150.7	194.3	245.4	275.3
Female	0.0	0.0	0.3	2.7	2.2	2.9	3.7	10.8	23.2	25.1	54.6	46.1	69.5	102.2	107.0	164.9	188.6	223.2
Corpus Uteri																		
Female	0.0	0.0	0.0	0.0	0.4	0.4	5.2	11.2	15.0	28.0	45.6	65.6	96.7	99.1	95.6	80.3	60.7	52.0
Esophagus																		
All	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.4	1.2	1.0	5.8	8.7	15.5	18.9	25.2	33.6	25.3	34.2
Male	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.7	2.0	2.0	10.0	15.3	25.2	32.5	43.5	60.7	44.8	68.8
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.6	2.2	6.2	5.8	7.8	8.7	9.0	12.7

Age (years)	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85+
Hodgkin Lymphoma																		
All	0.0	0.7	1.0	3.2	4.1	2.5	2.9	2.8	1.4	2.0	1.6	2.3	3.2	2.1	3.1	5.9	2.8	1.4
Male	0.0	1.0	0.3	3.3	4.4	2.8	3.6	4.0	2.0	2.0	2.0	2.3	2.9	4.2	3.2	6.6	1.5	0.0
Female	0.0	0.3	1.6	3.1	3.7	2.2	2.2	1.5	0.8	2.1	1.2	2.2	3.5	0.0	3.0	5.2	3.9	2.3
Kidney & Renal Pelvis																		
All	2.3	0.3	0.0	0.2	0.4	0.7	2.9	5.2	5.6	17.3	23.6	33.5	40.1	63.1	67.7	82.2	95.6	70.6
Male	1.7	0.3	0.0	0.3	0.0	1.1	3.2	5.4	6.3	23.4	32.4	45.3	56.6	87.2	93.3	105.2	131.2	104.2
Female	2.8	0.3	0.0	0.0	0.7	0.4	2.6	4.8	4.9	11.1	14.9	22.1	24.5	39.9	43.3	61.1	65.9	49.7
Larynx																		
All	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.2	0.8	1.6	5.8	8.0	5.9	11.4	9.1	15.5	10.7
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.4	8.4	13.8	10.2	18.9	17.1	27.8	20.5
Female	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.4	0.8	0.8	3.3	2.3	1.8	4.2	1.7	5.2	4.6
Leukemia																		
All	8.9	3.1	3.2	2.2	3.5	1.6	3.7	5.2	4.6	11.6	12.1	20.7	26.6	44.0	68.6	91.8	118.9	117.7
Male	9.6	3.2	4.7	1.6	4.1	2.1	5.8	5.8	5.2	11.7	13.2	29.9	34.2	54.7	92.7	114.7	142.0	150.7
Female	8.1	3.0	1.6	2.7	3.0	1.1	1.5	4.5	4.1	11.5	11.0	11.8	19.4	33.6	45.7	70.7	99.5	97.2
Liver & Bile Duct																		
All	0.7	0.0	0.2	0.0	0.0	0.2	0.4	0.7	1.8	2.7	8.1	20.1	28.8	38.1	34.8	39.1	35.2	30.0
Male	0.7	0.0	0.3	0.0	0.0	0.0	0.0	0.4	2.0	4.9	10.4	33.4	48.0	53.8	51.1	55.0	54.0	42.8
Female	0.7	0.0	0.0	0.0	0.0	0.4	0.7	1.1	1.6	0.4	5.9	7.4	10.5	22.9	19.2	24.4	19.4	22.0
Lung & Bronchus																		
All	0.0	0.0	0.0	0.3	0.4	0.7	0.7	1.3	3.4	13.7	34.5	63.0	110.9	184.8	288.1	369.8	398.7	356.6
Male	0.0	0.0	0.0	0.3	0.7	0.0	1.1	0.4	3.6	10.9	29.6	65.2	117.2	198.9	318.4	413.2	453.7	463.2
Female	0.0	0.0	0.0	0.3	0.0	1.5	0.4	2.2	3.3	16.5	39.3	60.8	104.9	171.3	259.1	329.8	352.7	290.3
Melanoma of the Skin																		
All	0.2	0.7	0.0	1.0	4.3	7.1	12.1	18.8	23.3	32.0	37.3	50.6	64.8	85.9	92.9	119.5	142.1	139.8
Male	0.3	0.3	0.0	1.3	2.7	5.9	9.7	13.4	16.2	32.3	36.0	64.4	79.8	116.8	118.5	175.3	226.9	238.1
Female	0.0	1.0	0.0	0.7	5.9	8.3	14.4	24.2	30.5	31.7	38.5	37.2	50.5	56.0	68.5	68.1	71.1	78.6
Myeloma																		
All	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.8	2.9	6.1	8.7	12.5	25.5	41.9	42.3	59.1	52.1
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.4	4.0	7.2	8.1	16.3	30.1	59.3	58.8	74.1	68.8
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	1.7	5.1	9.2	8.9	21.1	25.3	27.1	46.5	41.6

IDAHO **AGE-SPECIFIC CANCER RATES, PER 100,000 POPULATION, BY SITE AND GENDER** **2014–2018**

Age (years)	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	75 - 79	80 - 84	85+
Non-Hodgkin Lymphoma																		
All	1.0	1.1	1.0	1.8	2.5	2.8	3.3	6.1	8.6	11.8	19.8	32.7	42.7	62.0	83.7	124.0	123.1	107.7
Male	1.7	1.6	0.9	3.3	3.4	2.8	4.0	8.0	11.1	12.9	22.0	38.4	51.3	71.9	104.0	156.4	149.7	128.4
Female	0.4	0.7	1.0	0.3	1.5	2.9	2.6	4.1	6.1	10.7	17.7	27.3	34.6	52.5	64.3	94.2	100.8	94.8
Oral Cavity & Pharynx																		
All	0.0	0.2	0.0	0.2	0.4	0.9	2.2	1.8	5.0	10.6	18.8	30.7	35.0	50.8	49.9	55.9	49.2	42.8
Male	0.0	0.3	0.0	0.3	0.0	1.7	1.4	1.1	5.2	14.1	27.6	45.7	57.4	75.1	72.5	82.4	75.6	68.8
Female	0.0	0.0	0.0	0.0	0.7	0.0	3.0	2.6	4.9	7.0	10.2	16.2	13.6	27.4	28.3	31.4	27.1	26.6
Ovary																		
Female	0.4	0.0	0.7	1.7	1.5	2.9	3.3	2.6	5.7	14.4	21.2	23.6	26.8	33.6	37.3	45.4	49.1	45.1
Pancreas																		
All	0.0	0.0	0.0	0.0	0.2	0.2	1.1	0.9	2.8	6.7	10.9	20.7	35.6	39.0	70.8	88.6	98.5	112.0
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	3.2	8.1	14.4	25.3	42.3	44.5	87.0	108.0	111.1	113.5
Female	0.0	0.0	0.0	0.0	0.4	0.4	1.5	1.5	2.4	5.4	7.5	16.2	29.1	33.6	55.3	70.7	87.9	111.0
Prostate																		
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.9	29.5	99.9	221.3	360.2	611.0	642.4	648.2	507.7	450.2
Stomach																		
All	0.0	0.0	0.0	0.3	0.0	0.2	0.6	1.3	1.8	3.3	6.7	10.5	11.3	15.0	22.8	30.4	35.2	45.6
Male	0.0	0.0	0.0	0.7	0.0	0.4	0.4	1.5	2.4	3.6	7.2	16.5	15.9	22.3	33.4	40.8	52.5	65.1
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.1	1.2	2.9	6.3	4.8	7.0	8.1	12.6	20.9	20.7	33.5
Testis																		
Male	0.0	0.0	0.3	4.2	12.2	18.8	14.4	14.5	15.4	6.9	4.0	4.6	2.9	0.0	1.3	4.7	0.0	0.0
Thyroid																		
All	0.0	0.0	1.0	3.3	9.7	12.8	17.5	22.8	19.7	24.1	21.2	24.3	25.0	25.5	31.7	21.8	19.7	10.0
Male	0.0	0.0	0.9	0.7	5.1	4.2	7.2	9.4	10.3	8.9	11.2	11.9	15.9	15.8	24.6	13.3	17.0	14.9
Female	0.0	0.0	1.0	6.2	14.8	21.7	28.1	36.5	29.3	39.5	31.1	36.1	33.8	35.0	38.5	29.7	22.0	6.9

SECTION V

2018 OBSERVED VS. EXPECTED NUMBERS BY HEALTH DISTRICT

2018 OBSERVED VERSUS EXPECTED NUMBERS
BY
HEALTH DISTRICT

MALES AND FEMALES

	HD 1		HD 2		HD 3		HD 4		HD 5		HD 6		HD 7	
	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP
All Sites	1,481	1,458.6	627	632.1	1,450	1,400.6	2,577	2,470.2+	947	987.2	734	838.4 *	945	945.4
Bladder	57	71.4	34	30.1	65	64.4	114	110.5	53	44.6	36	38.1	42	42.6
Brain	19	21.3	7	9.3	23	21.5	36	40.1	18	14.7	14	12.8	17	15.0
Brain & CNS non-Malignant	40	43.1	18	18.7	43	42.9	69	79.7	38	28.6	23	25.3	34	28.6
Breast	203	223.8	76	95.1	247	209.8+	429	373.1 *	159	148.1	99	129.2 *	127	147.0
Breast (in situ)	39	37.3	14	15.7	33	37.0	87	57.7 *	21	25.5	11	22.2+	21	24.7
Cervix	10	10.1	6	4.1	18	9.9 +	13	25.3+	7	7.7	12	6.0+	3	8.5
Colorectal	135	110.5+	44	50.5	106	112.7	192	200.9	67	79.4	70	64.9	79	74.1
Corpus Uteri	42	42.9	19	18.0	34	42.6	66	77.7	42	26.8 *	22	24.5	32	26.9
Esophagus	15	18.1	11	7.4	24	14.9+	32	27.1	8	12.0	7	10.0	5	11.6
Hodgkin lymphoma	6	5.5	1	2.7	5	6.4	14	9.6	3	4.4	3	3.7	6	4.4
Kidney & renal pelvis	59	51.7	31	22.0	53	50.8	90	92.1	29	36.4	29	30.1	27	35.2
Larynx	5	6.6	5	2.6	6	5.8	5	12.4+	8	3.7	5	3.4	3	4.0
Leukemia	62	50.3	28	22.5	51	51.8	90	90.0	30	37.1	23	31.3	35	35.5
Liver & bile duct	26	25.8	11	10.9	27	23.5	49	40.0	9	17.7 +	17	13.8	11	16.6
Lung & bronchus	204	156.1 *	85	70.6	159	151.5	269	262.7	98	108.6	64	92.4 *	71	103.8 *
Melanoma of skin	68	94.3 *	30	39.8	67	92.9 *	201	143.3 *	63	61.8	50	52.4	73	58.6
Myeloma	32	22.3	9	10.5	18	23.2	40	38.5	17	15.5	9	13.5	14	14.8
N-H Lymphoma	64	59.6	29	25.8	71	55.7	99	104.2	36	41.2	30	34.6	32	40.0
Oral cavity & pharynx	38	41.2	25	16.5	30	39.8	63	71.4	36	25.3	19	22.9	28	25.2
Ovary	18	17.8	5	7.9	19	17.5	33	32.0	17	11.7	12	10.2	6	12.8
Pancreas	39	40.1	24	17.0	39	37.0	63	65.6	19	27.3	25	21.8	24	24.8
Prostate	196	212.8	81	89.0	207	192.1	390	324.0 *	107	138.4 *	86	117.1 *	147	126.4
Stomach	17	15.3	6	6.8	17	14.3	21	27.8	10	10.5	7	8.9	14	9.3
Testis	6	6.4	2	3.1	6	8.5	17	15.0	7	5.3	4	5.0	8	6.1
Thyroid	21	37.7 *	14	15.6	31	39.3	79	67.1	18	26.9	28	21.8	44	25.1 *
Pediatric (age 0-19)	11	8.7	0	4.3+	13	13.6	19	21.4	13	8.7	9	8.2	11	11.4

+ Statistically significant difference at p<.05.
* Statistically significant difference at p<.01.

Note: Observed and expected numbers exclude in situ cases, basal/squamous skin cases, and cases with unknown age or sex.

2018 OBSERVED VERSUS EXPECTED NUMBERS BY HEALTH DISTRICT

MALES

	HD 1		HD 2		HD 3		HD 4		HD 5		HD 6		HD 7	
	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP
All Sites	798	776.1	335	342.3	768	731.2	1,333	1,269.8	459	523.7*	389	440.3+	516	497.7
Bladder	43	57.6	25	24.5	52	50.7	90	84.9	40	35.4	30	29.8	36	33.6
Brain	13	11.4	4	5.3	13	12.1	23	22.0	9	8.5	6	7.4	8	8.8
Brain & CNS non-Malignant	18	13.4	5	6.4	12	15.3	19	29.6	15	9.6	7	8.8	15	9.7
Breast	2	2.0	1	0.9	0	2.5	6	2.8	3	1.3	0	1.4	1	1.5
Breast (in situ)	1	0.2	1	0.1	0	0.4	0	0.9	0	0.3	0	0.2	0	0.2
Colorectal	74	60.0	21	27.9	58	60.8	106	106.6	36	43.0	38	35.0	42	40.6
Esophagus	13	15.5	9	6.5	21	12.6+	28	22.3	6	10.3	6	8.5	4	10.0
Hodgkin lymphoma	3	3.7	1	1.8	4	3.8	8	6.5	3	2.6	0	2.5	5	2.7
Kidney & renal pelvis	39	33.7	23	14.5+	35	33.0	57	60.6	17	24.1	20	19.6	17	23.4
Larynx	4	4.9	4	2.0	5	4.3	5	8.6	3	3.2	5	2.4	2	3.2
Leukemia	36	29.1	15	13.2	31	29.4	52	50.8	15	21.6	12	18.1	22	20.3
Liver & bile duct	18	17.3	7	7.5	19	15.6	33	26.6	7	11.8	11	9.4	6	11.5
Lung & bronchus	108	82.0*	37	38.3	83	79.0	140	132.9	52	56.4	33	48.3+	42	54.3
Melanoma of skin	49	59.3	14	26.4+	51	56.2	122	88.4*	38	39.2	31	32.9	41	37.6
Myeloma	18	14.4	5	6.7	10	14.5	25	23.3	14	9.2	6	8.3	8	9.3
N-H Lymphoma	39	34.3	17	15.1	47	31.3+	52	62.2	21	24.0	18	20.0	16	23.9
Oral cavity & pharynx	31	28.7	18	11.9	18	28.8+	43	50.9	22	18.5	14	16.3	24	17.7
Pancreas	17	25.9	20	10.0*	25	22.2	33	41.1	14	16.2	19	12.7	13	15.4
Prostate	196	213.6	81	91.3	207	191.0	390	318.2*	107	138.5*	86	118.0*	147	128.3
Stomach	13	10.7	4	4.9	13	9.9	13	20.0	6	7.6	6	6.1	10	6.7
Testis	6	6.3	2	3.2	6	8.3	17	15.2	7	5.4	4	4.9	8	6.2
Thyroid	6	9.9	5	4.0	8	10.1	18	18.5	3	7.2	11	5.3+	10	6.6
Pediatric (age 0-19)	7	3.8	0	1.9	5	6.5	4	11.6+	8	3.8	4	3.8	7	4.8

+ Statistically significant difference at p<.05.
* Statistically significant difference at p<.01.

Note: Observed and expected numbers exclude in situ cases, basal/squamous skin cases, and cases with unknown age or sex.

2018 OBSERVED VERSUS EXPECTED NUMBERS
BY
HEALTH DISTRICT

FEMALES

	HD 1		HD 2		HD 3		HD 4		HD 5		HD 6		HD 7	
	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP	OBS	EXP
All Sites	683	685.8	292	291.8	682	670.4	1,244	1,191.9	488	462.8	345	398.8 *	429	448.6
Bladder	14	14.4	9	6.1	13	13.7	24	24.0	13	9.3	6	8.3	6	9.3
Brain	6	9.9	3	4.0	10	9.3	13	18.1	9	6.3	8	5.4	9	6.2
Brain & CNS non-Malignant	22	29.6	13	12.1	31	27.8	50	50.4	23	19.0	16	16.5	19	18.7
Breast	201	222.1	75	92.4	247	208.8 +	423	373.9 +	156	146.2	99	127.7 *	126	143.4
Breast (in situ)	38	37.2	13	15.4	33	36.9	87	57.3 *	21	25.1	11	22.0 +	21	24.0
Cervix	10	10.3	6	4.0	18	10.0 +	13	25.2 +	7	7.6	12	6.1 +	3	8.4
Colorectal	61	50.5	23	22.7	48	51.8	86	94.1	31	36.4	32	29.9	37	33.7
Corpus Uteri	42	43.1	19	17.6	34	42.9	66	78.5	42	26.7 *	22	24.4	32	26.5
Esophagus	2	2.7	2	1.1	3	2.2	4	4.3	2	1.7	1	1.5	1	1.6
Hodgkin lymphoma	3	1.8	0	0.9	1	2.6	6	3.2	0	1.8	3	1.2	1	1.8
Kidney & renal pelvis	20	18.0	8	7.7	18	17.7	33	31.2	12	12.4	9	10.5	10	12.1
Larynx	1	1.7	1	0.6	1	1.5	0	3.6	5	0.5 *	0	0.9	1	0.9
Leukemia	26	21.4	13	9.4	20	22.5	38	38.9	15	15.5	11	13.2	13	15.4
Liver & bile duct	8	8.5	4	3.5	8	7.9	16	13.3	2	5.9	6	4.4	5	5.2
Lung & bronchus	96	74.4 +	48	32.5 +	76	72.6	129	128.9	46	52.2	31	44.1 +	29	49.7 *
Melanoma of skin	19	35.4 *	16	13.7	16	36.8 *	79	53.9 *	25	22.6	19	19.6	32	21.3 +
Myeloma	14	8.0	4	3.8	8	8.7	15	15.0	3	6.3	3	5.2	6	5.5
N-H Lymphoma	25	25.4	12	10.8	24	24.3	47	41.8	15	17.3	12	14.5	16	16.1
Oral cavity & pharynx	7	12.4	7	4.7	12	10.9	20	20.0	14	6.9 +	5	6.7	4	7.7
Ovary	18	17.8	5	7.8	19	17.6	33	32.2	17	11.7	12	10.2	6	12.6
Pancreas	22	14.3	4	7.1	14	14.8	30	24.2	5	11.1	6	9.0	11	9.5
Stomach	4	4.7	2	2.0	4	4.4	8	7.5	4	2.9	1	2.7	4	2.7
Thyroid	15	27.9 +	9	11.4	23	29.5	61	48.4	15	19.7	17	16.6	34	18.4 *
Pediatric (age 0-19)	4	4.9	0	2.3	8	7.1	15	9.8	5	4.9	5	4.4	4	6.6

+ Statistically significant difference at p<.05.
* Statistically significant difference at p<.01.

Note: Observed and expected numbers exclude in situ cases, basal/squamous skin cases, and cases with unknown age or sex.

SECTION VI

RISKS OF BEING DIAGNOSED AND DYING FROM CANCER

Risks of Being Diagnosed with and Dying from Cancer

All Sites, Invasive in Females

If your current age is:	Then your risk of being diagnosed with cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 63	1 in 20	1 in 9	1 in 5	1 in 3	1 in 2
40		1 in 28	1 in 10	1 in 5	1 in 3	1 in 2
50			1 in 15	1 in 6	1 in 3	1 in 2
60				1 in 8	1 in 4	1 in 2
70					1 in 6	1 in 3
80						1 in 4

If your current age is:	Then your risk of dying from cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 651	1 in 147	1 in 48	1 in 20	1 in 10	1 in 5
40		1 in 188	1 in 51	1 in 20	1 in 10	1 in 5
50			1 in 69	1 in 22	1 in 10	1 in 5
60				1 in 31	1 in 11	1 in 6
70					1 in 16	1 in 6
80						1 in 8

All Sites, Invasive in Males

If your current age is:	Then your risk of being diagnosed with cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 121	1 in 37	1 in 12	1 in 5	1 in 3	1 in 2
40		1 in 52	1 in 13	1 in 5	1 in 3	1 in 2
50			1 in 16	1 in 5	1 in 3	1 in 2
60				1 in 7	1 in 3	1 in 2
70					1 in 4	1 in 2
80						1 in 3

If your current age is:	Then your risk of dying from cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 760	1 in 201	1 in 51	1 in 18	1 in 8	1 in 5
40		1 in 269	1 in 54	1 in 18	1 in 8	1 in 5
50			1 in 65	1 in 19	1 in 8	1 in 5
60				1 in 24	1 in 9	1 in 5
70					1 in 12	1 in 5
80						1 in 6

Risks of Being Diagnosed with and Dying from Cancer

Female Breast Cancer

If your current age is:	Then your risk of being diagnosed with breast cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 218	1 in 53	1 in 24	1 in 13	1 in 9	1 in 7
40		1 in 70	1 in 26	1 in 14	1 in 9	1 in 7
50			1 in 41	1 in 17	1 in 10	1 in 8
60				1 in 27	1 in 13	1 in 9
70					1 in 22	1 in 13
80						1 in 23

If your current age is:	Then your risk of dying from breast cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 2247	1 in 553	1 in 208	1 in 102	1 in 57	1 in 35
40		1 in 727	1 in 227	1 in 106	1 in 58	1 in 35
50			1 in 323	1 in 121	1 in 62	1 in 37
60				1 in 186	1 in 74	1 in 39
70					1 in 111	1 in 46
80						1 in 60

Prostate Cancer

If your current age is:	Then your risk of being diagnosed with prostate cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 19147	1 in 465	1 in 58	1 in 18	1 in 10	1 in 8
40		1 in 468	1 in 57	1 in 17	1 in 10	1 in 8
50			1 in 63	1 in 17	1 in 10	1 in 8
60				1 in 22	1 in 11	1 in 8
70					1 in 17	1 in 11
80						1 in 21

If your current age is:	Then your risk of dying from prostate cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in *	1 in 52261	1 in 1960	1 in 306	1 in 93	1 in 32
40		1 in 51343	1 in 1925	1 in 301	1 in 91	1 in 32
50			1 in 1944	1 in 294	1 in 89	1 in 31
60				1 in 324	1 in 87	1 in 29
70					1 in 104	1 in 28
80						1 in 27

Note: * Risk is not precise - estimate not shown.

Risks of Being Diagnosed with and Dying from Cancer

Colon/Rectal Cancer in Females

If your current age is:	Then your risk of being diagnosed with colorectal cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 1265	1 in 313	1 in 127	1 in 66	1 in 40	1 in 26
40		1 in 412	1 in 139	1 in 69	1 in 40	1 in 27
50			1 in 206	1 in 81	1 in 44	1 in 28
60				1 in 127	1 in 53	1 in 31
70					1 in 83	1 in 37
80						1 in 51

If your current age is:	Then your risk of dying from colorectal cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 7356	1 in 1502	1 in 499	1 in 233	1 in 123	1 in 62
40		1 in 1868	1 in 530	1 in 238	1 in 124	1 in 62
50			1 in 726	1 in 268	1 in 130	1 in 63
60				1 in 407	1 in 152	1 in 66
70					1 in 220	1 in 72
80						1 in 84

Colon/Rectal Cancer in Males

If your current age is:	Then your risk of being diagnosed with colorectal cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 1213	1 in 298	1 in 110	1 in 55	1 in 34	1 in 24
40		1 in 389	1 in 119	1 in 57	1 in 35	1 in 24
50			1 in 166	1 in 65	1 in 37	1 in 25
60				1 in 99	1 in 44	1 in 28
70					1 in 69	1 in 33
80						1 in 45

If your current age is:	Then your risk of dying from colorectal cancer by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 3982	1 in 1134	1 in 404	1 in 172	1 in 96	1 in 57
40		1 in 1559	1 in 442	1 in 177	1 in 97	1 in 57
50			1 in 600	1 in 194	1 in 100	1 in 58
60				1 in 269	1 in 113	1 in 60
70					1 in 168	1 in 67
80						1 in 78

Risks of Being Diagnosed with and Dying from Cancer

Melanoma in Females

If your current age is:	Then your risk of being diagnosed with melanoma by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 533	1 in 204	1 in 118	1 in 77	1 in 55	1 in 44
40		1 in 326	1 in 150	1 in 89	1 in 61	1 in 47
50			1 in 273	1 in 119	1 in 73	1 in 54
60				1 in 201	1 in 96	1 in 65
70					1 in 165	1 in 86
80						1 in 139

If your current age is:	Then your risk of dying from melanoma by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 26787	1 in 5262	1 in 2046	1 in 1207	1 in 698	1 in 402
40		1 in 6483	1 in 2193	1 in 1252	1 in 710	1 in 405
50			1 in 3252	1 in 1522	1 in 782	1 in 423
60				1 in 2738	1 in 985	1 in 466
70					1 in 1403	1 in 512
80						1 in 625

Melanoma in Males

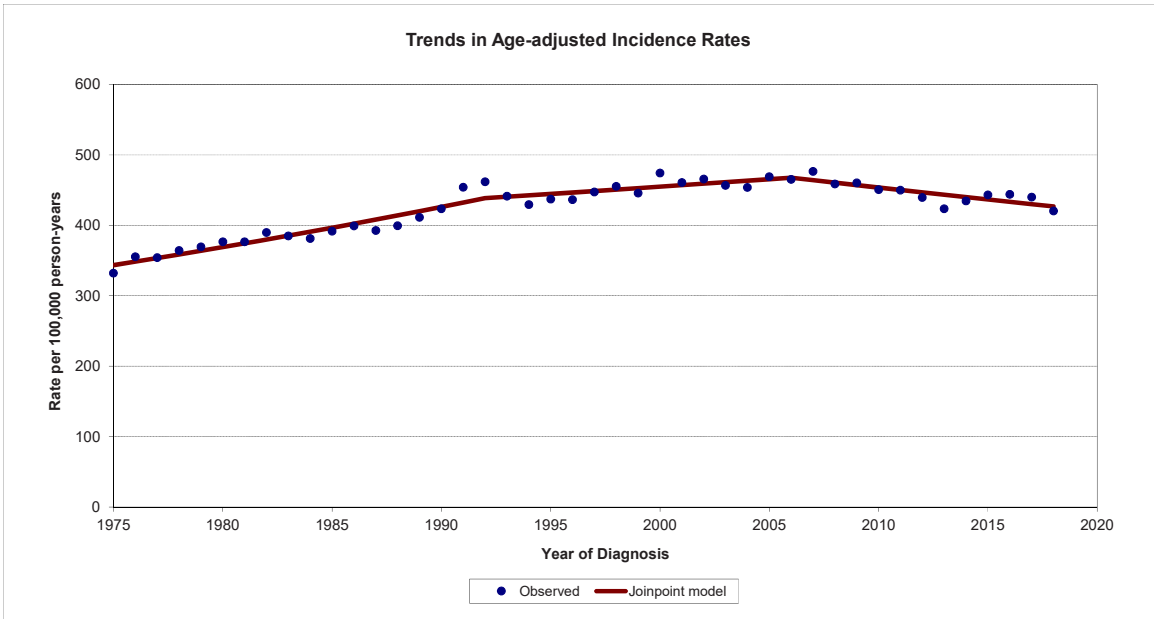
If your current age is:	Then your risk of being diagnosed with melanoma by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 901	1 in 289	1 in 125	1 in 63	1 in 39	1 in 29
40		1 in 418	1 in 142	1 in 66	1 in 40	1 in 29
50			1 in 208	1 in 77	1 in 43	1 in 30
60				1 in 113	1 in 51	1 in 33
70					1 in 81	1 in 40
80						1 in 55

If your current age is:	Then your risk of dying from melanoma by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 9259	1 in 4380	1 in 1480	1 in 582	1 in 335	1 in 215
40		1 in 8165	1 in 1731	1 in 610	1 in 341	1 in 216
50			1 in 2134	1 in 641	1 in 346	1 in 215
60				1 in 856	1 in 387	1 in 224
70					1 in 612	1 in 263
80						1 in 327

SECTION VII

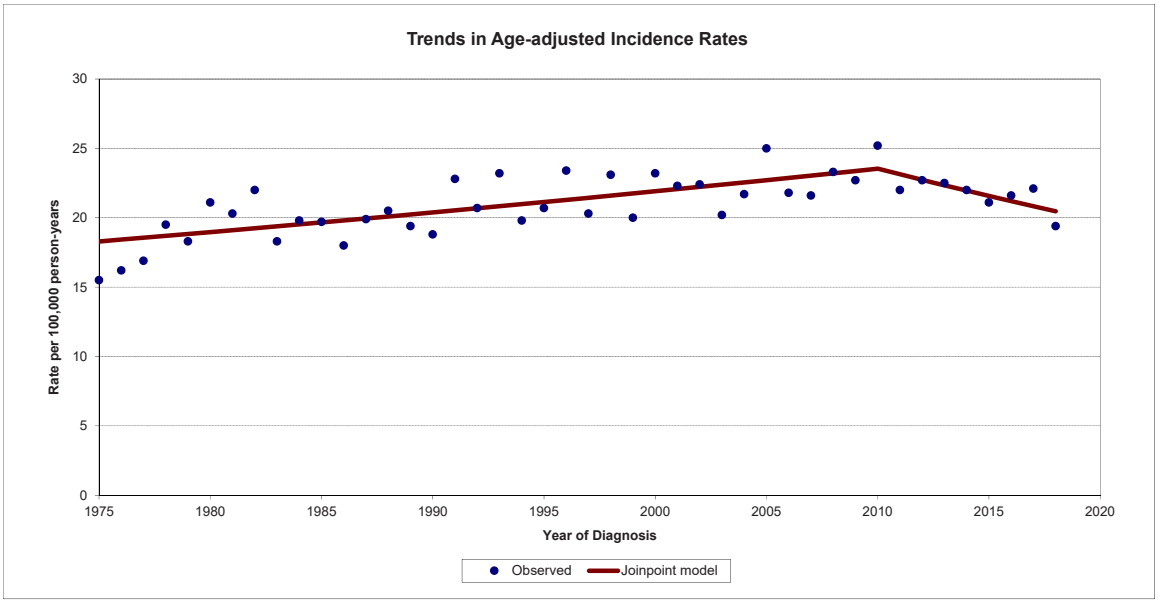
CANCER TRENDS IN IDAHO
1975–2018

All Sites



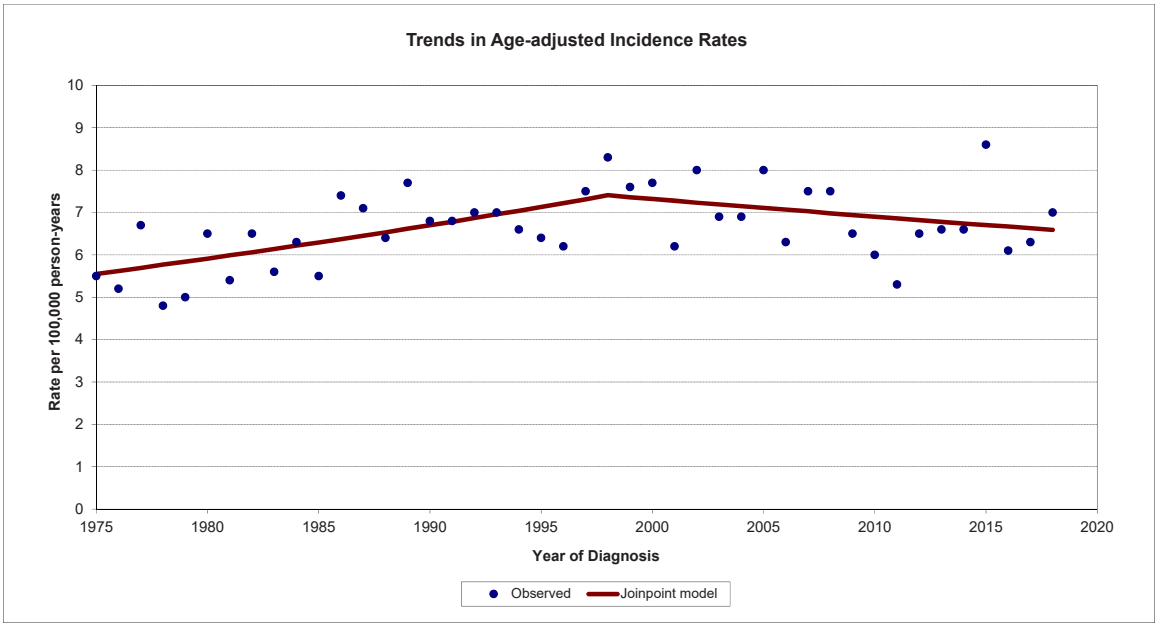
Cancer incidence increased at a rate of about 1.4% per year in Idaho from 1975 to 1992, and at a rate of about 0.5% per year from 1992 to 2006. Since 2006, overall cancer incidence has declined about 0.8% per year. Cancer incidence trends over time were different for males and females. For males, much of the overall trend is due to the trend in prostate cancer incidence. For females, much of the overall trend is due to the trend in breast cancer incidence.

Bladder



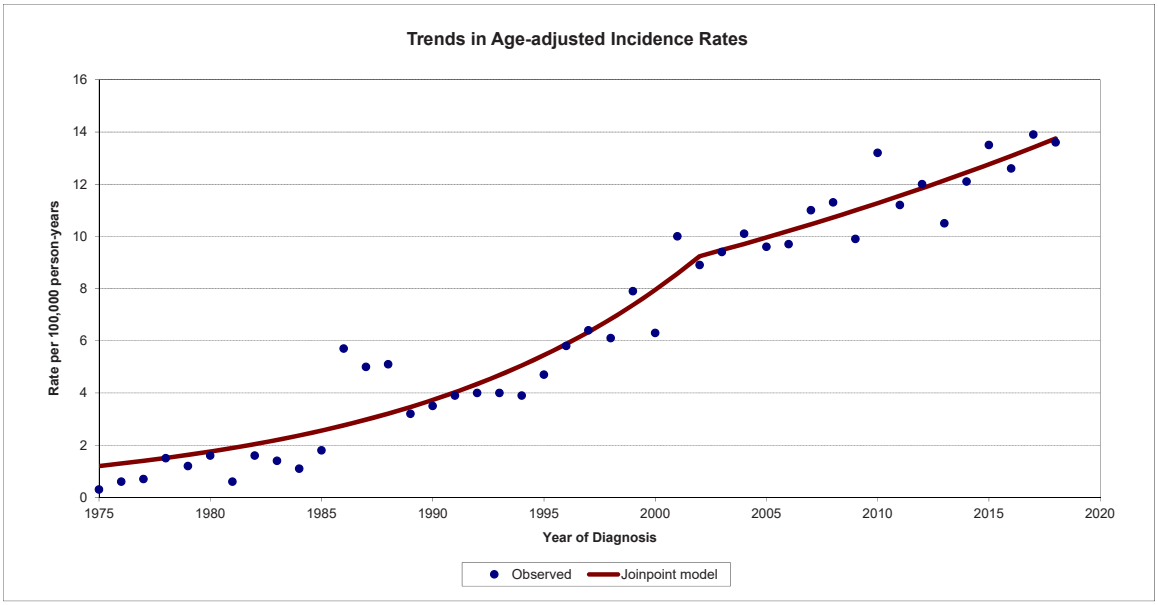
Bladder cancer incidence includes in situ and invasive cases. Bladder cancer incidence increased at a rate of about 0.7% per year in Idaho from 1975 to 2010, then decreased at a rate of about 1.7% per year since 2010. The trends in bladder cancer incidence are driven by males, who have rates of bladder cancer incidence about 4-5 times those of females.

Brain



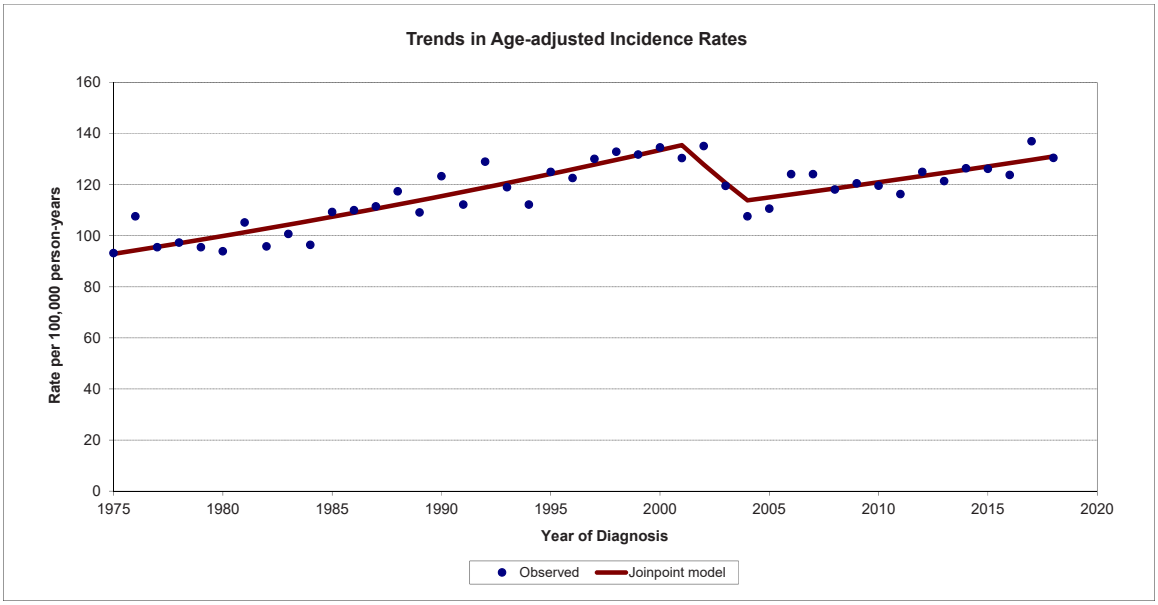
Malignant brain cancer incidence increased at a rate of about 1.3% per year in Idaho from 1975 to 1998, after which the rate has declined about 0.6% per year. Among males, malignant brain cancer incidence rates followed the same pattern. Among females, the rate has been stable 1975 to present.

Brain and Other CNS, Non-Malignant



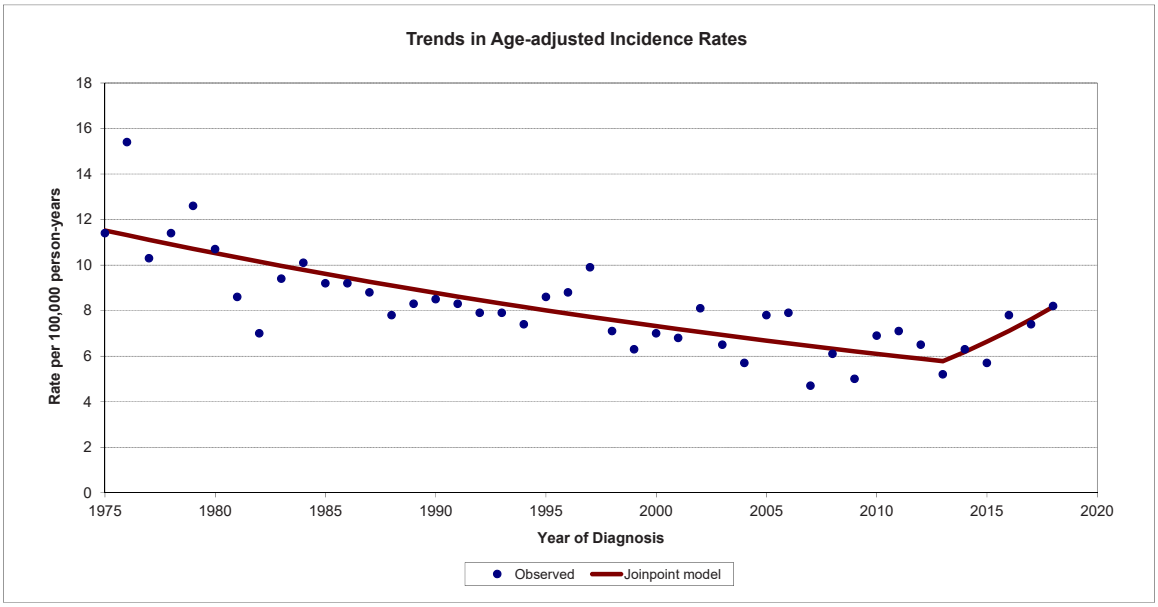
Non-malignant brain and other central nervous system tumors include those with benign and borderline behavior. Non-malignant brain and other CNS tumor incidence increased at a rate of about 7.8% per year in Idaho from 1975 to 2002, after which the rate increased by about 2.5% per year.

Breast Female



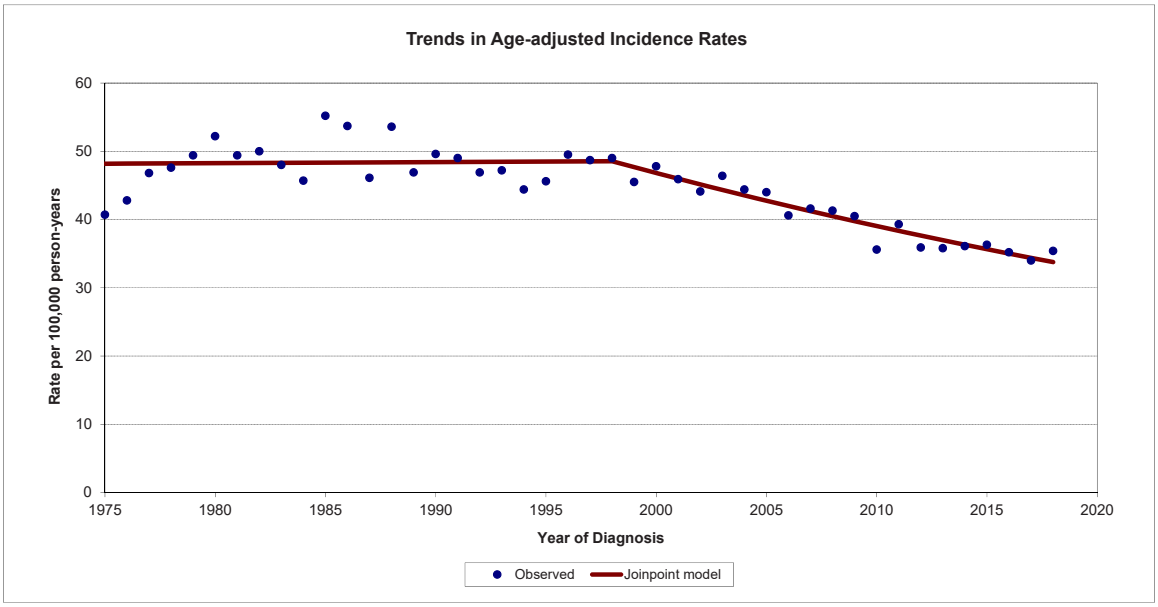
Invasive breast cancer incidence increased at a rate of about 1.5% per year among female Idahoans from 1975 to 2001. From 2001 to 2004, the rate decreased sharply by about 5.6% per year. This decrease may be due in part to a decrease in the use of hormone replacement therapy. Since 2004, the invasive breast cancer incidence rate has increased about 1.0% per year. In situ breast cancer rates increased at a rate of about 9.9% per year from 1975 to 1996, after which the rate has been stable (data not shown).

Cervix



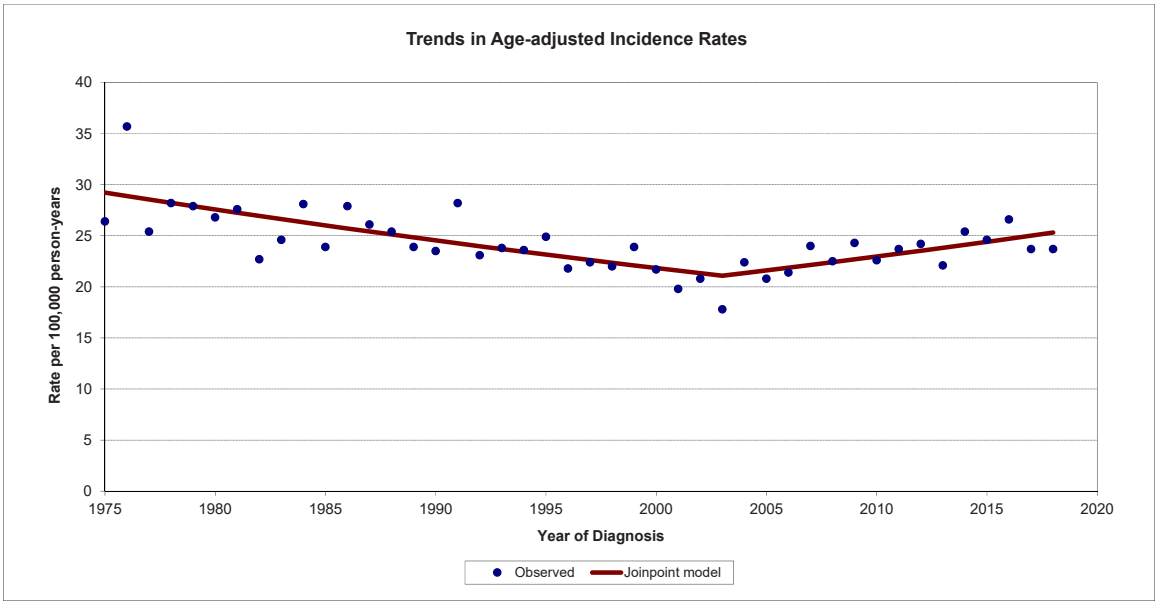
Invasive cervical cancer incidence has decreased about 1.8% per year in Idaho from 1975 to 2013, and has remained stable since (increase not statistically significant).

Colorectal



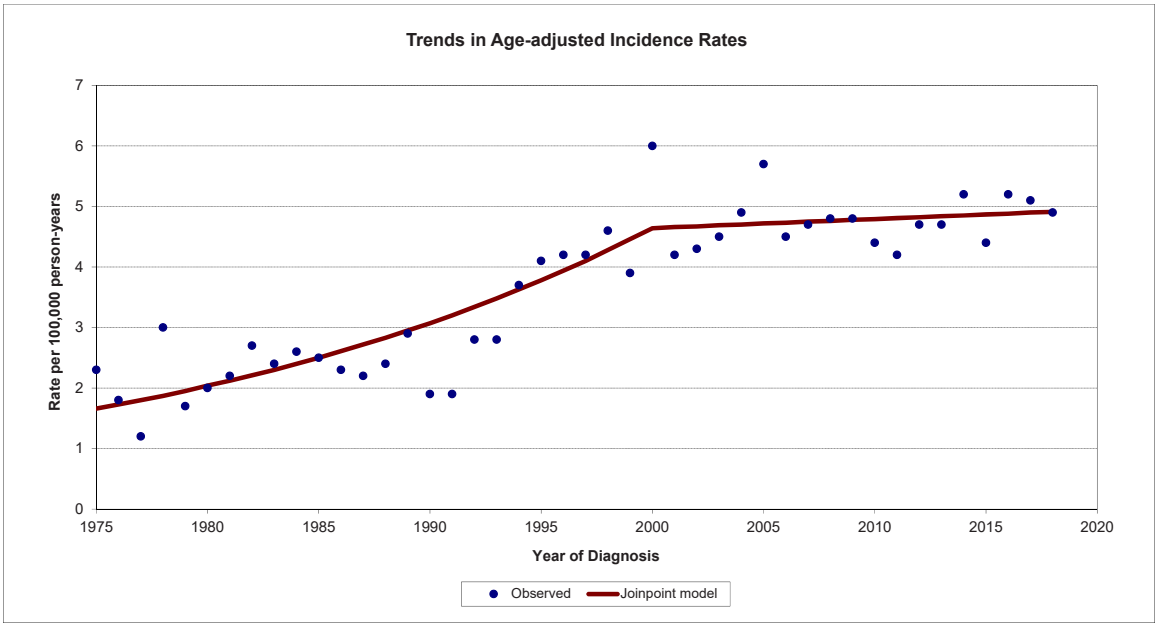
Colorectal cancer incidence rates were stable in Idaho from 1975-1998 and have since decreased about 1.8% per year. Colorectal cancer incidence trends over time were different for males and females. For males, rates increased from 1975 to 1988, then decreased. For females, rates have deceased about 0.9% per year from 1975-2018.

Corpus Uteri



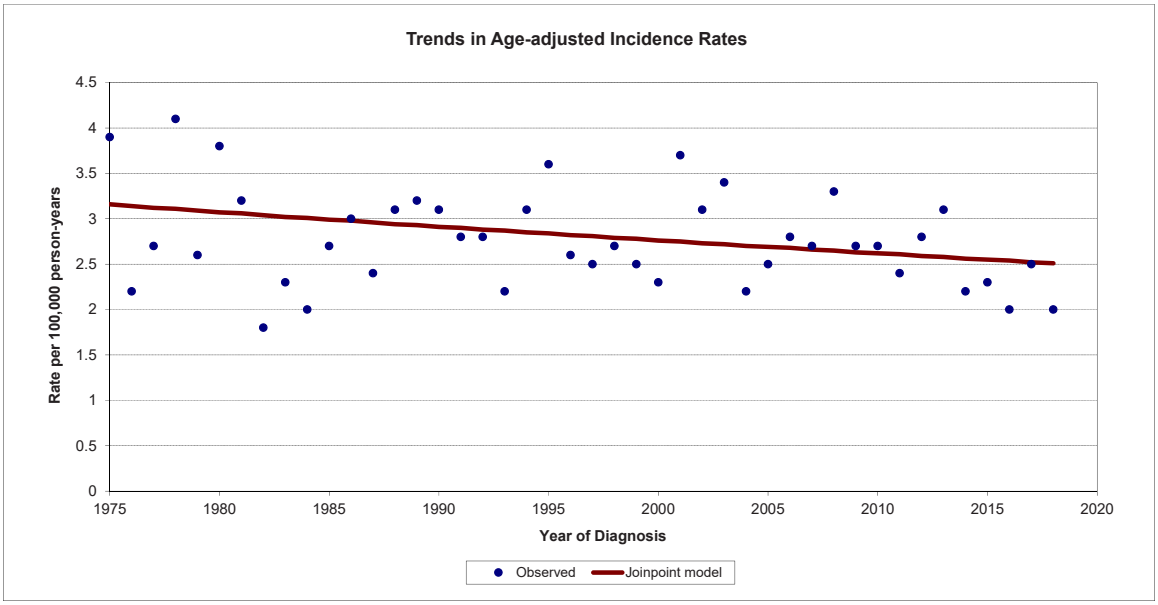
Corpus uteri cancer incidence rates decreased about 1.2% per year in Idaho from 1975 to 2003 and have increased by 1.2% per year since 2003.

Esophagus



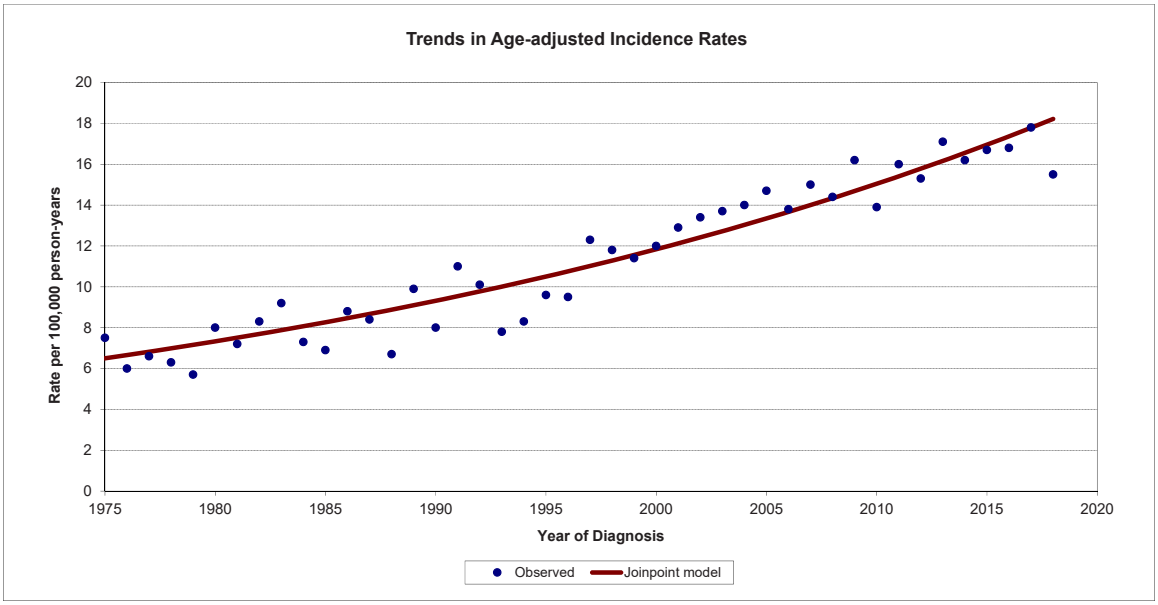
Esophageal cancer incidence increased at a rate of about 4.2% per year in Idaho from 1975 to 2000, after which the incidence rate has been stable. Rates of esophageal cancers among males were about 3-4 times higher than those among females.

Hodgkin Lymphoma



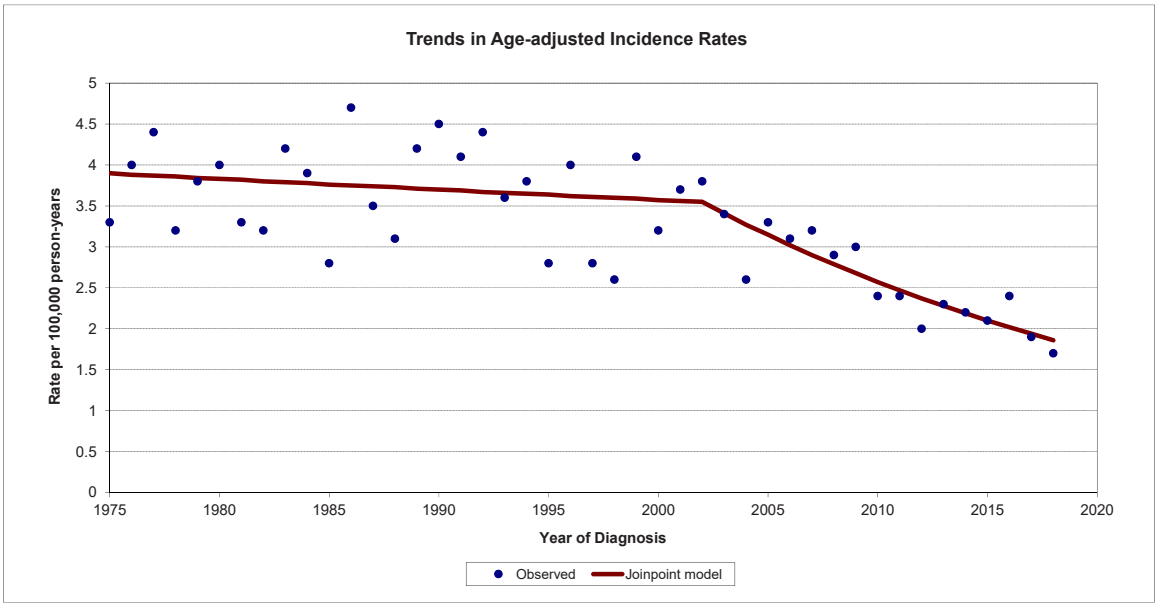
Hodgkin lymphoma incidence has decreased about 0.5% per year in Idaho from 1975 to 2018. Rates showed year-to-year variability due to the relatively small numbers of cases diagnosed annually.

Kidney and Renal Pelvis



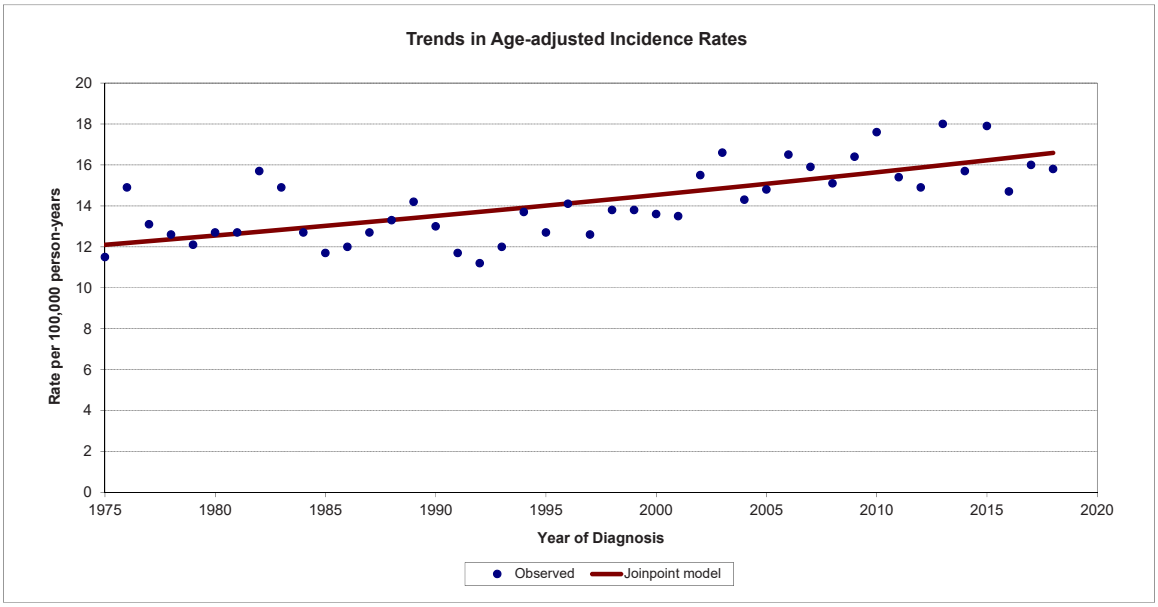
Kidney and renal pelvis cancer incidence increased at a rate of about 2.4% per year in Idaho from 1975 to 2018. The rate of increase was similar for males and females, although rates of kidney and renal pelvis cancers among males were about twice as high as among females.

Larynx



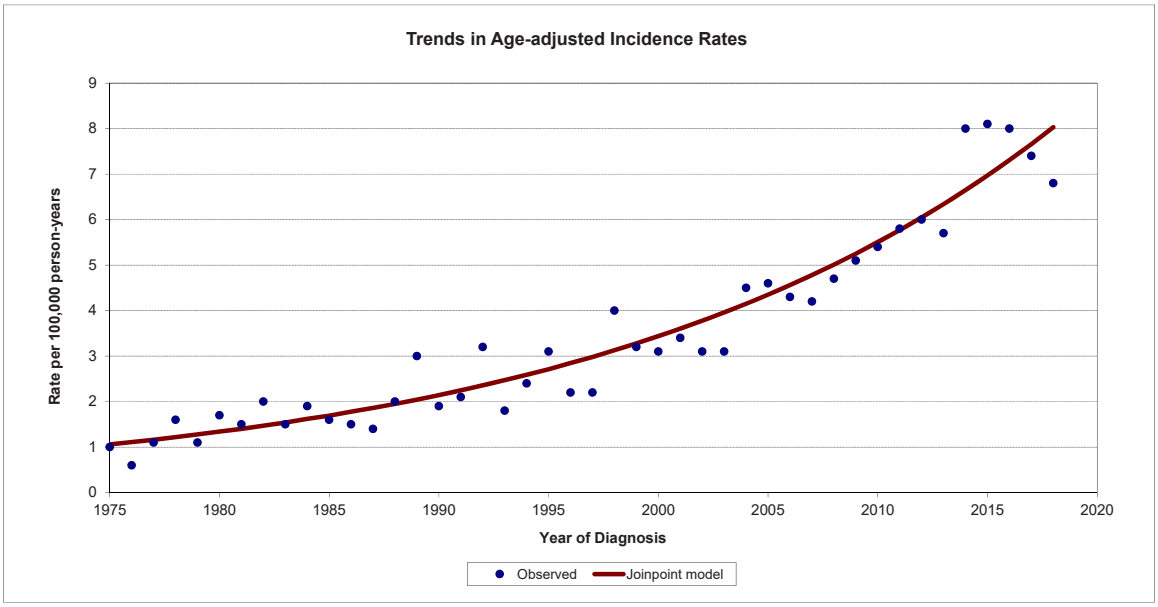
Laryngeal cancer incidence decreased about 0.3% per year in Idaho from 1975 to 2002 and decreased about 4.0% per year since 2002. Rates showed year-to-year variability due to the relatively small numbers of cases diagnosed annually. The temporal pattern was similar for males. Among females, incidence rates of laryngeal cancer decreased about 1.4% per year from 1975 to 2018. Incidence rates of laryngeal cancers among males were about 4 times as high as among females.

Leukemia



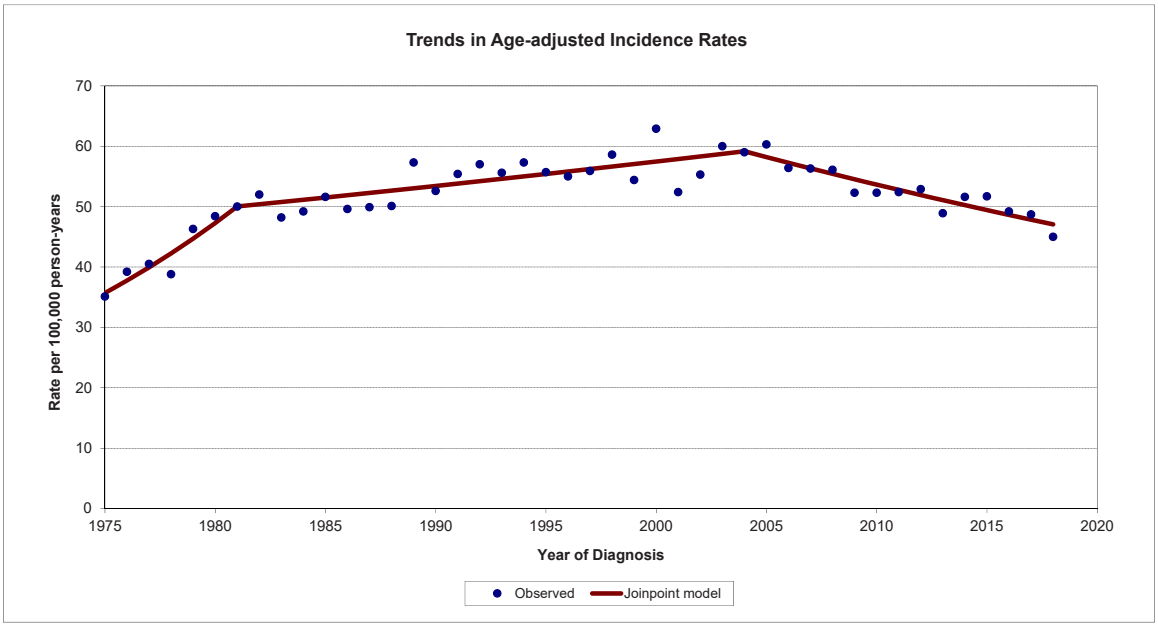
Leukemia incidence has increased about 0.7% per year from 1975 to 2018. Rates showed year-to-year variability due to the relatively small numbers of cases diagnosed annually.

Liver and Bile Duct



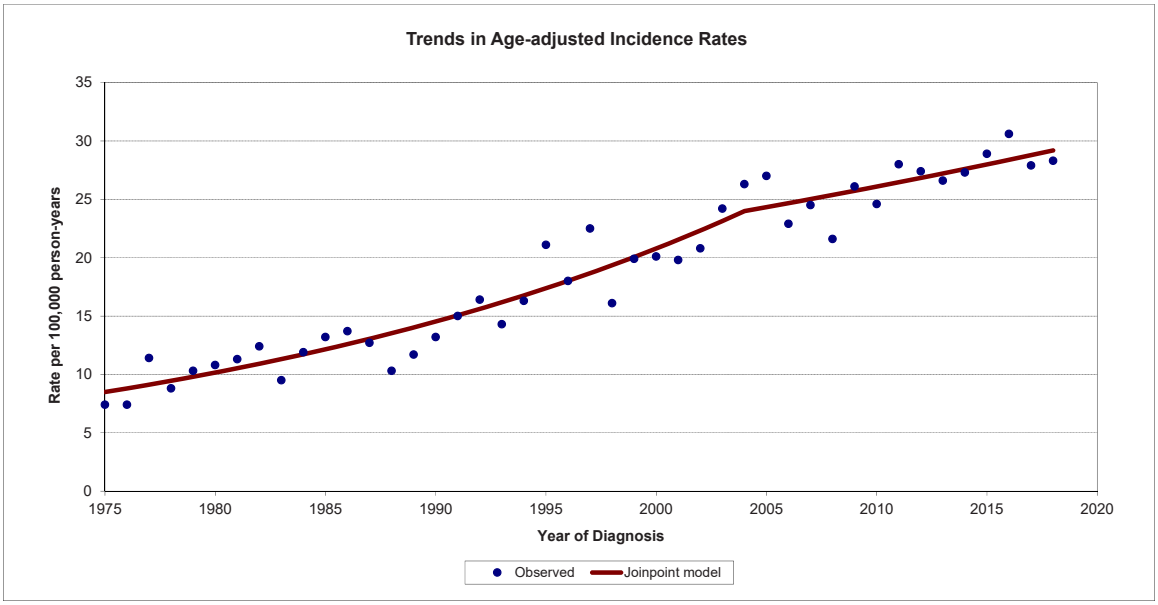
Liver cancer incidence increased at a rate of about 4.8% per year in Idaho from 1975 to 2018. The rate of increase was higher for males (5.4% per year) than for females (3.5% per year), and rates of liver cancers among males were about twice as high as among females.

Lung and Bronchus



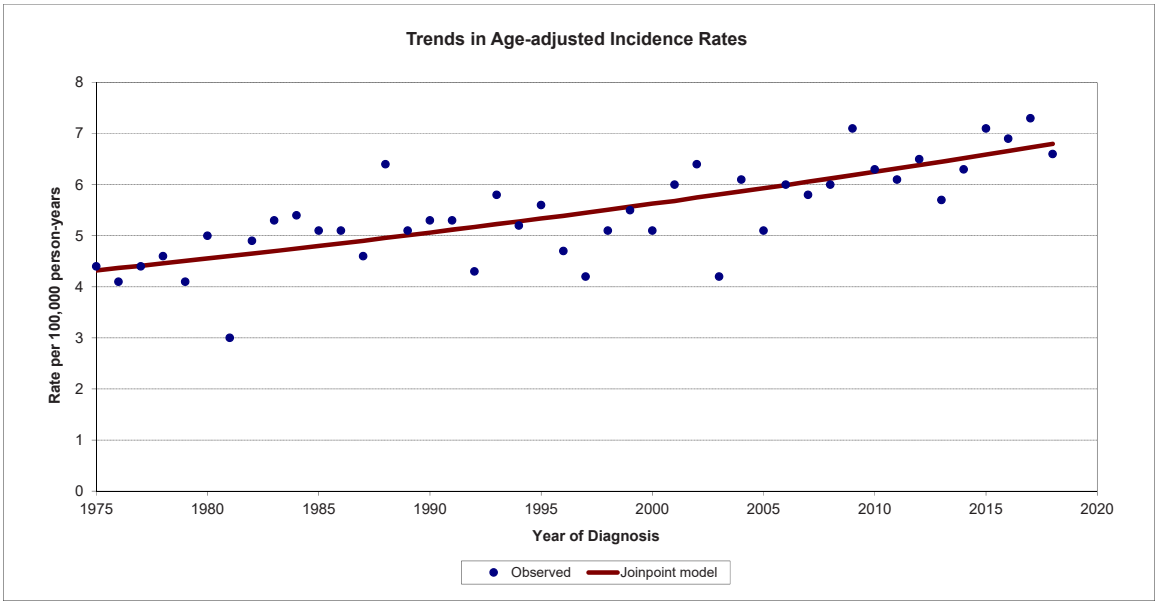
Lung cancer incidence increased at a rate of about 5.8% per year in Idaho from 1975 to 1981, after which the rate of increase lessened to about 0.7% per year until 2004. From 2004 to 2018, the rate has decreased about 1.6% per year. Lung cancer incidence trends over time were different for males and females. For males, lung cancer incidence increased at a rate of about 4.6% per year from 1975 to 1981, and then decreased by about 0.4% per year until 2003, after which it has decreased by about 2.4% per year. For females, lung cancer incidence increased at a rate of about 6.1% per year from 1975 to 1988, after which the rate of increase lessened to about 1.9% per year until 2005. From 2005 to 2018, the rate has decreased about 0.9% per year. Historically, lung cancer incidence rates have been two or more times higher among males as among females, but the gap is continuing to narrow, reflecting long-term trends in smoking prevalence.

Melanoma



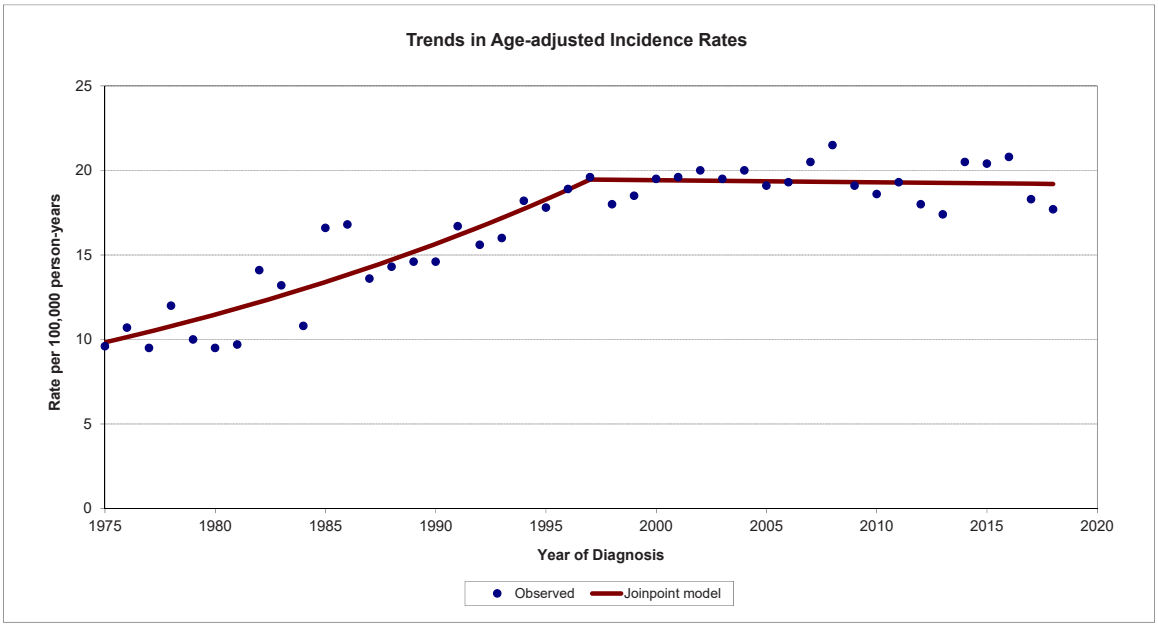
The incidence of melanoma of the skin increased at a rate of about 3.7% per year in Idaho from 1975 to 2004, after which it increased about 1.4% per year. Among males, the rate increased about 4.3% per year from 1975-2004, after which it increased about 1.2% per year. Among females, incidence rates of melanoma of the skin increased about 2.4% per year from 1975 to 2018. The incidence of in situ melanoma of the skin increased at a higher rate (5.8% per year from 1980 to 2018) than for the invasive cases depicted in the graph.

Myeloma



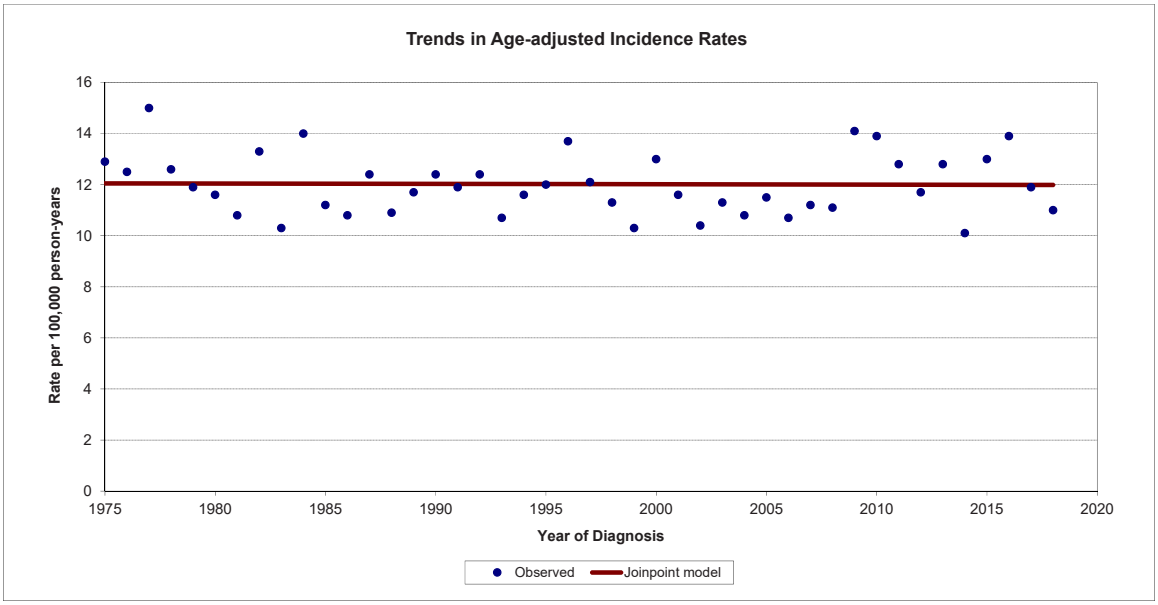
The incidence of myeloma increased at a rate of about 1.1% per year in Idaho from 1975 to 2018. The rate of increase was higher for males (1.4% per year) than for females (0.5% per year), and rates of myeloma incidence among males were higher than among females.

Non-Hodgkin Lymphoma



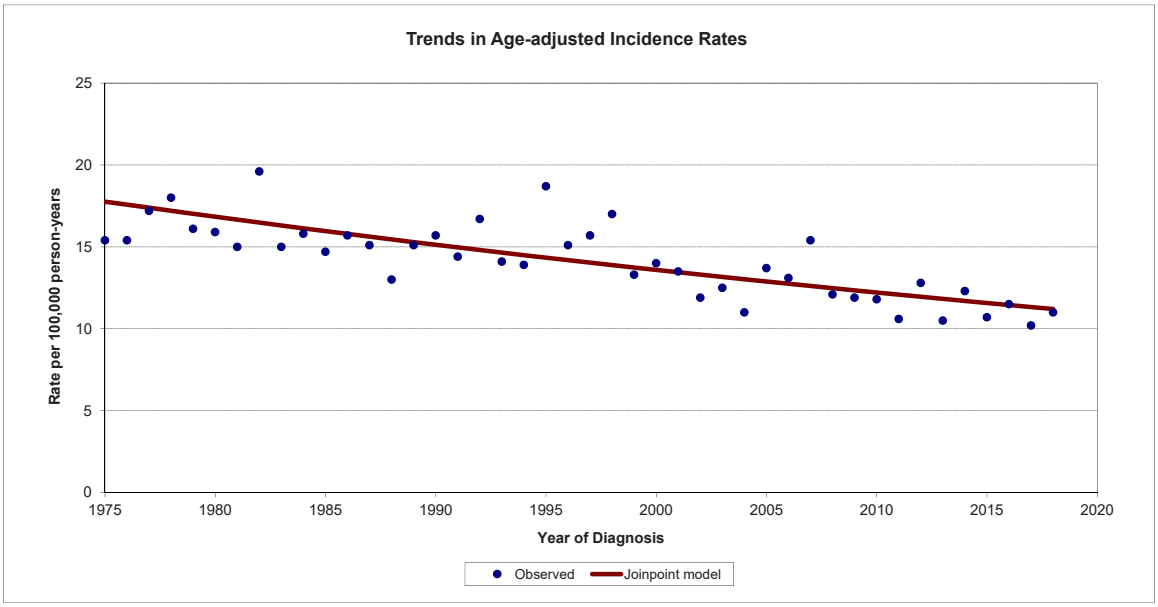
The incidence of non-Hodgkin lymphoma increased at a rate of about 3.1% per year in Idaho from 1975 to 1997, after which rates were stable. Non-Hodgkin lymphoma incidence trends over time were similar for males and females, but rates of non-Hodgkin lymphoma incidence among males were higher than among females.

Oral Cavity and Pharynx



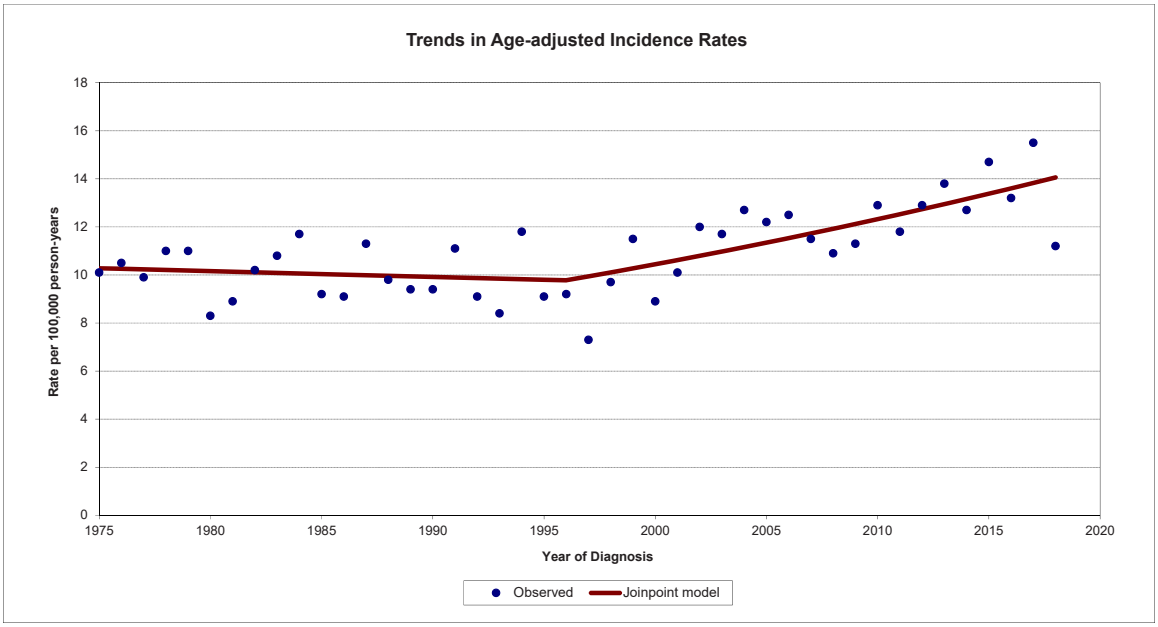
The incidence of cancers of the oral cavity and pharynx was stable in Idaho from 1975 to 2018. Among males, rates decreased about 0.3% per year. Among females, incidence of cancers of the oral cavity and pharynx increased at a rate of about 0.6% per year. Rates of cancers of the oral cavity and pharynx were about 3 times higher among males than among females. This latter result likely reflects differences in long-term prevalence trends for tobacco use and alcohol consumption between males and females.

Ovary



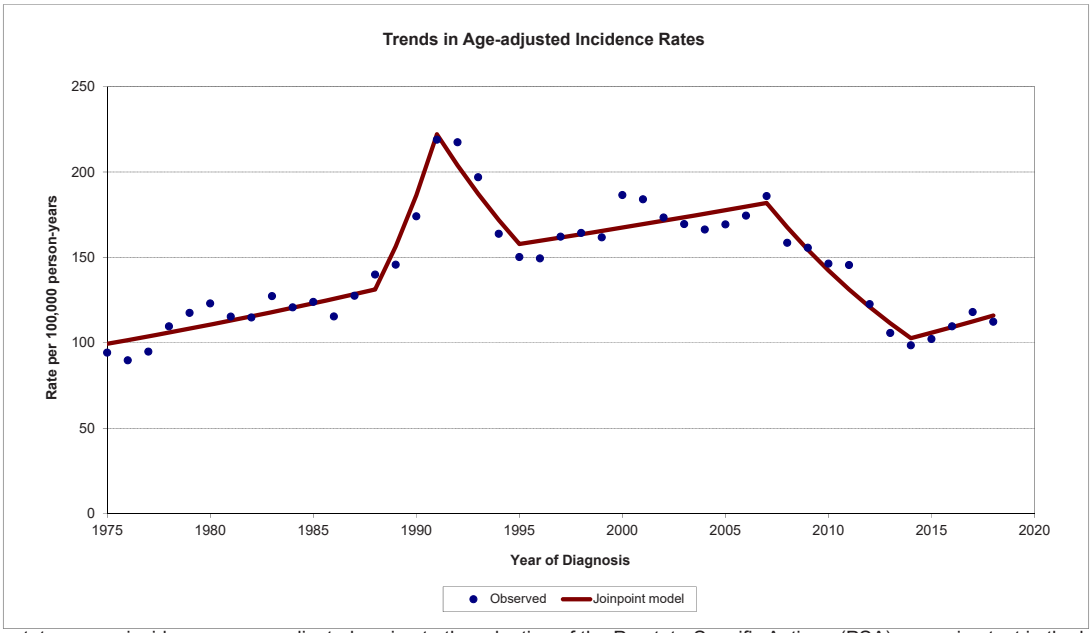
The incidence of ovarian cancer among females in Idaho decreased about 1.1% per year from 1975 to 2018. Part of the decrease in ovarian cancer incidence rates may have been due to a decrease in the use of hormone replacement therapy.

Pancreas



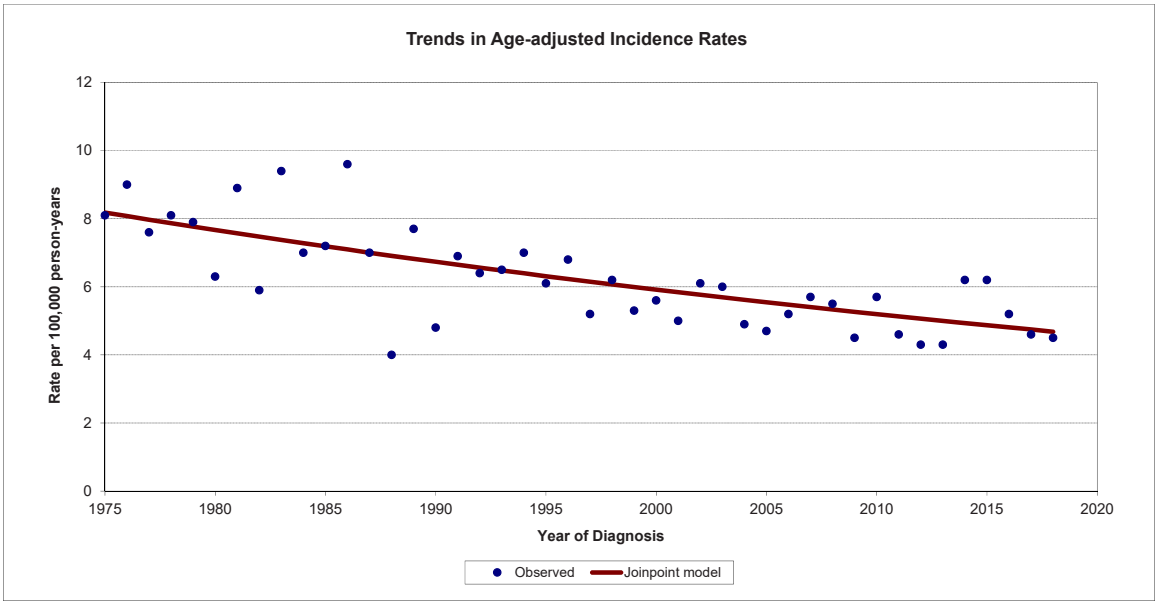
Pancreas cancer incidence decreased at a rate of 0.2% per year from 1975 to 1996 and increased at a rate of about 1.7% per year from 1996 to 2018. Pancreas cancer incidence trends over time were different for males and females. Among males, pancreas cancer incidence decreased about 1.2% per year from 1975-1997 and has increased about 2.0% per year since 1997. Among females, pancreas cancer increased about 1.2% per year from 1975-2018. Rates of pancreas cancer incidence among males were higher than among females.

Prostate



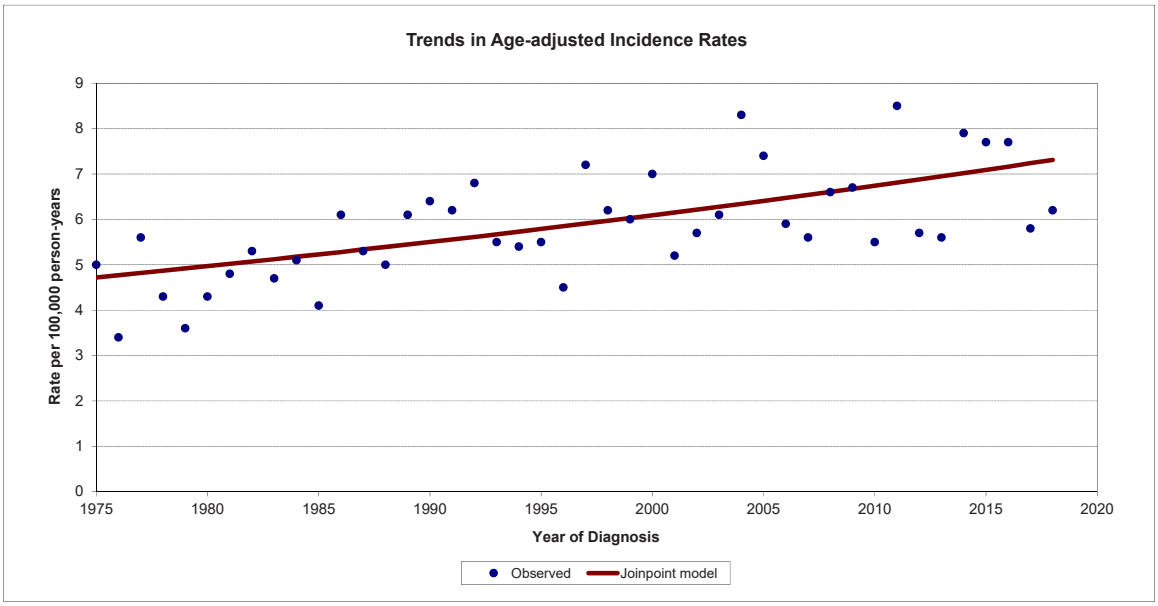
Trends in prostate cancer incidence are complicated, owing to the adoption of the Prostate-Specific Antigen (PSA) screening test in the late 1980s and early 1990s. From 1975 to 1988, prostate cancer incidence increased in Idaho at a rate of about 2.2% per year. From 1988 to 1991, prostate cancer incidence increased at a rate of about 19.2% per year. During 1991-1995, prostate cancer incidence rates decreased by about 8.2% per year. During 1995-2007, the rates increased about 1.2% per year. From 2007 to 2014, rates decreased about 7.8% per year, after which they have been stable. Overall, there was an increasing trend in prostate cancer incidence from 1975 to 2007 punctuated by a large increase and concomitant decrease associated with widespread adoption of the PSA test, which likely detected many indolent cases. In May 2012, the United States Preventive Service Task Force issued a recommendation against PSA-based screening for prostate cancer in all age groups. The prostate cancer incidence rates in 2014-2018 were similar to the rates at the beginning of the time series, before the adoption of the PSA test.

Stomach



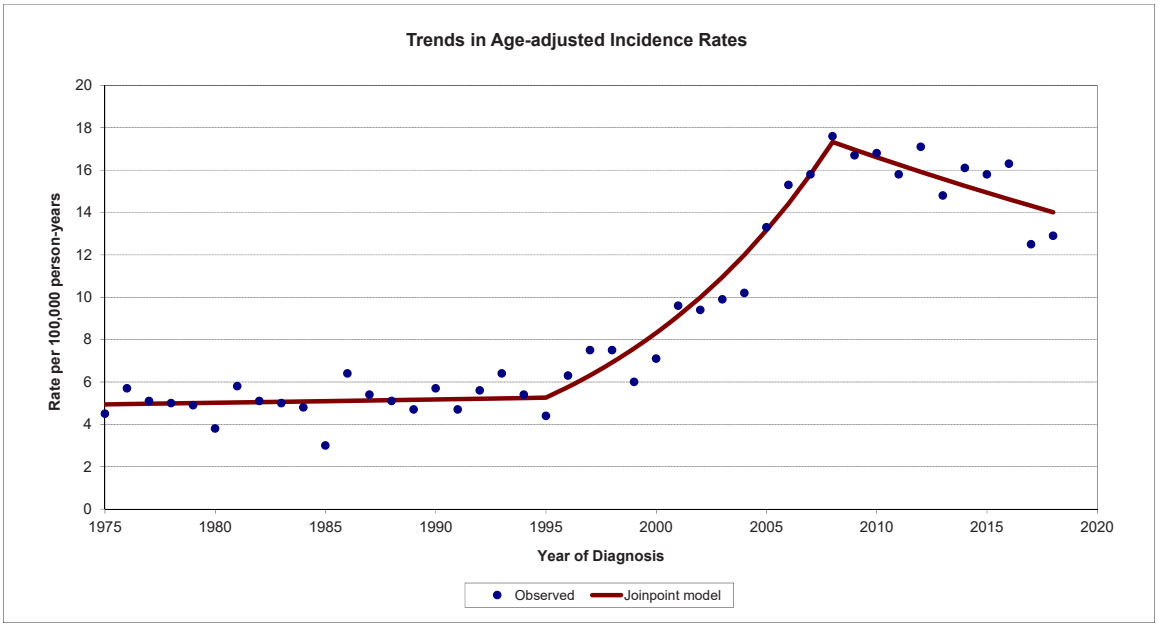
Stomach cancer incidence decreased at a rate of about 1.3% per year in Idaho from 1975 to 2018. Stomach cancer incidence trends over time were similar for males and females, although stomach cancer incidence rates among males were about twice as high as among females.

Testis



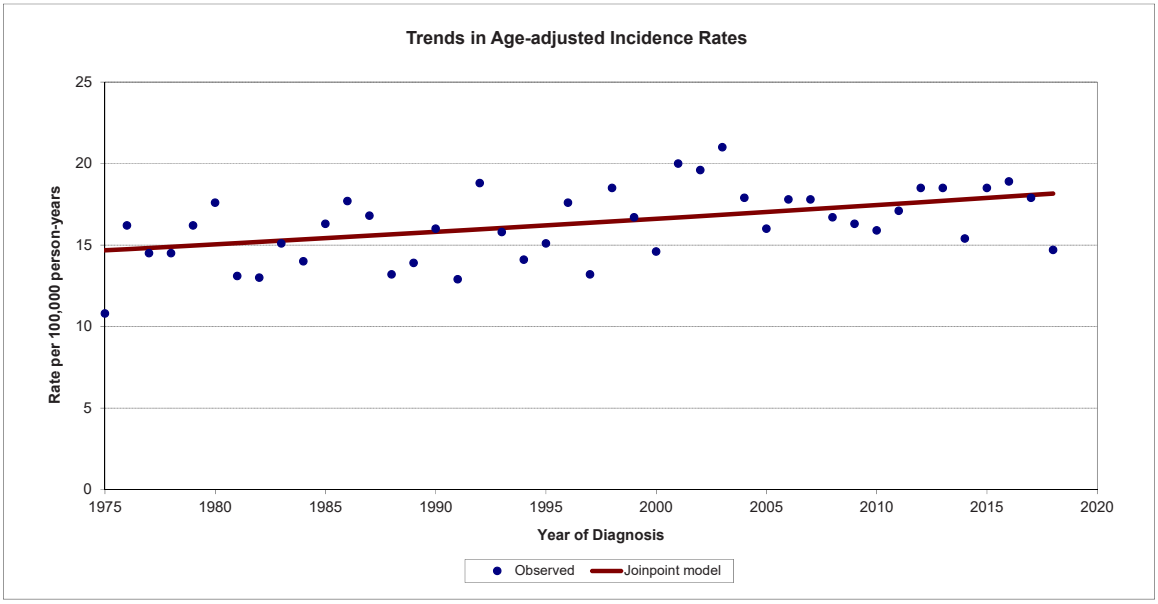
Testis cancer incidence increased at a rate of about 1.0% per year in Idaho from 1975 to 2018.

Thyroid



Thyroid cancer incidence was stable in Idaho from 1975 to 1995. From 1995-2008, thyroid cancer incidence increased at a rate of about 9.6% per year, and thyroid cancer incidence has decreased about 2.1% per year since 2008. Thyroid cancer incidence trends over time were different for males and females. For males, thyroid cancer incidence increased at a rate of about 3.9% per year from 1975 to 2018. Among females, the trend was similar to both sexes combined. Historically, thyroid cancer incidence rates have been about 3 times higher among females as among males.

Pediatric (age 0 to 19) Cancer



Pediatric cancer incidence increased at a rate of about 0.5% per year in Idaho from 1975 to 2018. Pediatric cancer incidence trends over time were similar for males and females although pediatric cancer incidence rates among males were slightly higher than among females. For more detailed information on pediatric cancer in Idaho, see: https://www.idcancer.org/pediatriccancer.

SECTION VIII

CANCER INCIDENCE BY RACE AND ETHNICITY
2014–2018

Idaho Cancer Incidence Rates by Race and Ethnicity, 2014–2018

Primary Site	All Races (includes Hispanic)		White Non-Hispanic		Hispanic (any race)		Black		American Indian/ Alaska Native		Asian or Pacific Islander	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
All Sites	445.1	42,577	449.8	39,383	349.6	1,868	372.1	154	385.5	490	305.8	386
Bladder	21.2	2,058	21.5	1,943	13.2	55	^	^	13.2	17	16.1	18
Brain - malignant	6.9	631	7.1	574	5.6	37	^	^	^	^	^	^
Brain and other CNS - non-malignant	13.1	1,200	13.1	1,073	14.1	86	^	^	11.7	16	10.8	16
Breast	128.8	6,210	129.9	5,704	106.2	302	101.2	16	126.0	83	97.7	79
Breast - in situ	23.3	1,097	23.9	1,015	17.3	53	^	^	18.4	12	14.5	11
Cervix	7.1	288	6.9	241	9.4	36	^	^	^	^	^	^
Colorectal	35.3	3,328	35.5	3,060	30.1	160	49.7	20	43.5	50	19.5	24
Corpus Uteri	24.8	1,258	24.8	1,146	22.6	71	^	^	29.1	21	11.7	10
Esophagus	5.0	492	5.0	461	2.3	12	^	^	8.8	11	^	^
Hodgkin Lymphoma	2.2	188	2.2	162	2.3	18	^	^	^	^	^	^
Kidney and Renal Pelvis	16.6	1,591	16.3	1,438	17.6	97	^	^	23.4	28	11.3	14
Larynx	2.0	206	2.1	195	^	^	^	^	^	^	^	^
Leukemia	16.4	1,517	16.5	1,399	15.3	91	^	^	8.5	10	9.5	12
Liver and Bile Duct	7.7	785	7.1	668	13.3	65	^	^	19.0	27	11.3	14
Lung and Bronchus	49.1	4,798	49.9	4,545	32.9	129	37.7	15	54.0	59	43.1	47
Melanoma of the Skin	28.6	2,639	31.1	2,585	6.8	43	^	^	^	^	^	^
Myeloma	6.8	660	6.8	611	7.4	30	^	^	^	^	^	^
Non-Hodgkin Lymphoma	19.5	1,844	19.5	1,699	18.1	101	^	^	10.7	13	8.4	10
Oral Cavity and Pharynx	12.0	1,180	12.2	1,101	7.2	37	^	^	8.1	13	^	^
Ovary	11.1	538	11.2	490	10.9	32	^	^	^	^	^	^
Pancreas	13.4	1,297	13.7	1,226	9.4	44	^	^	7.9	10	10.5	13
Prostate	108.5	5,393	107.6	4,965	80.6	173	147.9	41	67.5	47	53.6	26
Stomach	5.3	506	5.1	443	8.3	42	^	^	^	^	12.3	13
Testis	7.1	276	7.4	234	5.1	32	^	^	^	^	^	^
Thyroid	14.7	1,256	14.7	1,094	13.3	104	^	^	13.5	17	15.0	23
Pediatric Age 0 to 19	17.7	427	18.1	337	14.5	63	^	^	^	^	28.2	13

Notes:
Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard.
Rates and case counts include all invasive and bladder in situ cases. Statistics for non-malignant brain and other CNS, and breast in situ categories are not included in the all sites totals.
Rates and case counts for cancers of the breast, cervix, corpus uteri, and ovary are for females only, and rates and case counts for cancers of the prostate and testis are for males only.
Statistics for Black, American Indian/Alaska Native, and Asian or Pacific Islander include non-Hispanic and Hispanic ethnicity. All races category includes unknown race.
^ Statistic not displayed due to fewer than 10 cases.

SECTION IX

CANCER SURVIVAL
2011–2017

Actual (Crude) Measures of Cancer Prognosis at 5 Years After Diagnosis
Idaho Cases Diagnosed 2011–2017 Followed Through December 31, 2018

Primary Site	All Primaries						
		Using Cause of Death			Using Expected Survival		
	N	Cancer Death	Other Death	Survival	Cancer Death	Other Death	Survival
All Sites	51,483	31.2	10.0	58.8	32.0	9.3	58.7
Brain & Other Nervous System	757	76.1	3.6	20.3	77.9	1.8	20.3
Breast	7,810	11.8	7.8	80.4	10.1	9.5	80.4
Cervix Uteri	359	27.3	1.9	70.8	27.0	2.2	70.8
Colon & Rectum	4,269	34.6	12.0	53.4	36.1	10.5	53.4
Corpus & Uterus, NOS	1,684	20.9	6.8	72.3	21.5	6.4	72.1
Esophagus	599	74.4	9.2	16.4	78.3	5.3	16.4
Hodgkin Lymphoma	262	11.2	4.1	84.7	12.4	2.9	84.7
Kidney & Renal Pelvis	1,994	22.8	13.1	64.1	26.0	9.9	64.1
Larynx	279	32.7	17.0	50.3	40.7	9.1	50.2
Leukemia	1,802	36.4	11.4	52.2	38.0	10.0	52.0
Liver & Intrahepatic Bile Duct	892	74.7	13.0	12.3	84.7	3.2	12.1
Lung & Bronchus	6,075	69.2	12.2	18.6	75.6	5.8	18.6
Melanoma of the Skin	3,235	9.6	10.7	79.7	9.0	11.3	79.7
Mesothelioma	156	80.6	9.3	10.1	84.2	5.6	10.2
Myeloma	790	42.7	14.4	42.9	47.3	10.1	42.6
Non-Hodgkin Lymphoma	2,302	29.6	10.4	60.0	29.2	10.8	60.0
Oral Cavity & Pharynx	1,532	25.7	13.3	61.0	30.2	9.1	60.7
Ovary	697	56.2	4.4	39.4	56.2	4.5	39.3
Pancreas	1,630	86.8	4.7	8.5	88.7	3.0	8.3
Prostate	7,229	8.8	10.1	81.1	5.2	13.7	81.1
Stomach	620	66.3	9.9	23.8	69.8	6.5	23.7
Testis	363	2.2	1.4	96.4	2.7	1.2	96.1
Thyroid	1,747	3.1	2.8	94.1	2.4	3.7	93.9
Urinary Bladder	2,678	19.6	18.8	61.6	21.7	16.7	61.6

Notes:

Actual (crude) measures of cancer survival include competing causes of death. Analysis includes all invasive and bladder in situ cases diagnosed among persons aged 15-99. See Technical Notes for more details.

N: Number of cases included in analysis.

^ Statistic not able to be calculated.

Net Measures of Cancer Survival at 5 Years After Diagnosis
Idaho Cases Diagnosed 2011–2017 Followed Through December 31, 2018

Primary Site	All Primaries				
	N	Cause Specific Survival (95% CI)		Relative Survival Ratio (95% CI)	
All Sites	51,483	66.6	(66.1, 67.1)	66.1	(65.5, 66.7)
Brain & Other Nervous System	757	26.9	(23.5, 30.4)	26.3	(22.9, 29.7)
Breast	7,810	87.0	(86.0, 87.9)	89.4	(87.8, 90.8)
Cervix Uteri	359	64.0	(57.2, 70.0)	63.9	(56.6, 70.3)
Colon & Rectum	4,269	63.7	(62.0, 65.4)	62.3	(60.2, 64.3)
Corpus & Uterus, NOS	1,684	73.7	(70.6, 76.5)	73.3	(69.4, 76.8)
Esophagus	599	20.2	(16.3, 24.5)	19.0	(15.1, 23.2)
Hodgkin Lymphoma	262	87.4	(82.9, 90.8)	86.1	(80.7, 90.1)
Kidney & Renal Pelvis	1,994	74.8	(72.4, 77.0)	71.7	(68.6, 74.6)
Larynx	279	66.7	(60.1, 72.5)	60.3	(51.8, 67.7)
Leukemia	1,802	63.0	(60.5, 65.3)	60.9	(58.0, 63.8)
Liver & Intrahepatic Bile Duct	892	17.7	(14.3, 21.5)	12.5	(9.4, 16.0)
Lung & Bronchus	6,075	26.3	(24.6, 28.1)	23.4	(21.7, 25.2)
Melanoma of the Skin	3,235	91.1	(89.9, 92.2)	91.3	(89.6, 92.7)
Mesothelioma	156	18.5	(10.1, 28.8)	17.7	(9.4, 28.2)
Myeloma	790	56.9	(52.3, 61.2)	53.3	(48.3, 58.1)
Non-Hodgkin Lymphoma	2,302	70.3	(68.2, 72.3)	70.7	(68.0, 73.3)
Oral Cavity & Pharynx	1,532	70.9	(67.9, 73.7)	66.2	(62.2, 69.8)
Ovary	697	37.7	(33.6, 41.8)	37.7	(33.4, 42.0)
Pancreas	1,630	11.4	(9.2, 13.8)	10.9	(8.8, 13.3)
Prostate	7,229	89.5	(88.5, 90.4)	92.9	(91.2, 94.2)
Stomach	620	30.9	(26.5, 35.4)	28.3	(23.7, 32.9)
Testis	363	96.0	(90.1, 98.4)	95.3	(89.2, 98.0)
Thyroid	1,747	95.0	(93.4, 96.3)	96.1	(94.2, 97.4)
Urinary Bladder	2,678	80.7	(78.8, 82.6)	78.5	(75.8, 80.9)

Notes:

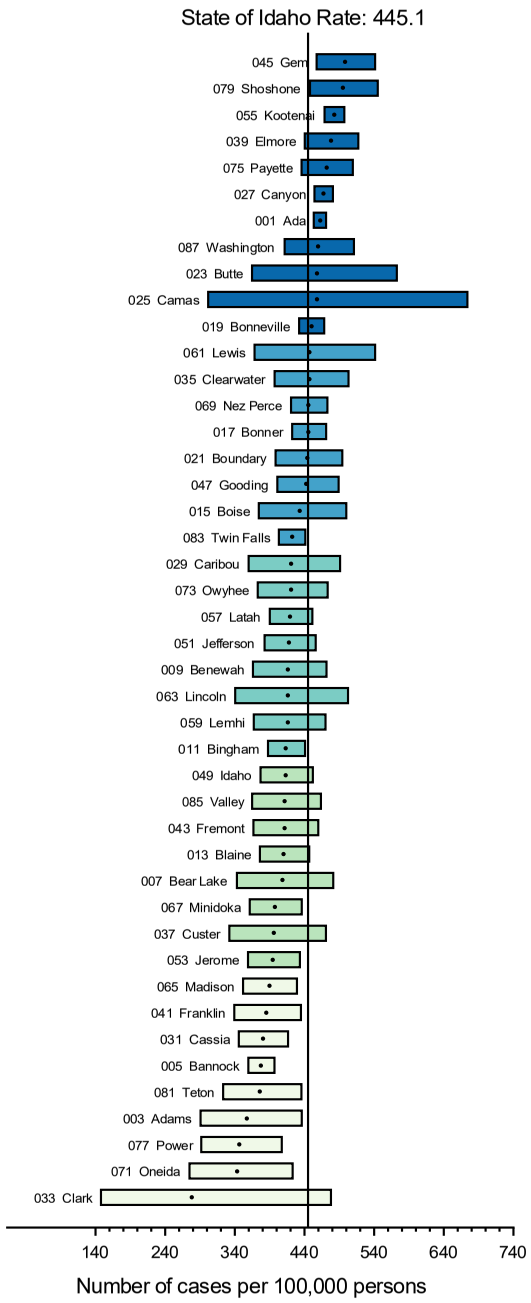
Net measures of cancer survival exclude competing causes of death. Analysis includes all invasive and bladder in situ cases diagnosed among persons aged 15-99. Age standardized to the International Cancer Survival Standards. Statistics in bold italics could not be age standardized; unstandardized measure shown instead. See Technical Notes for more details.

N: Number of cases included in analysis; CI: Confidence Interval.

^ Statistic not able to be calculated.

SECTION X

MAPS AND CHARTS OF AGE-ADJUSTED INCIDENCE AND MORTALITY RATES BY COUNTY, 2014–2018

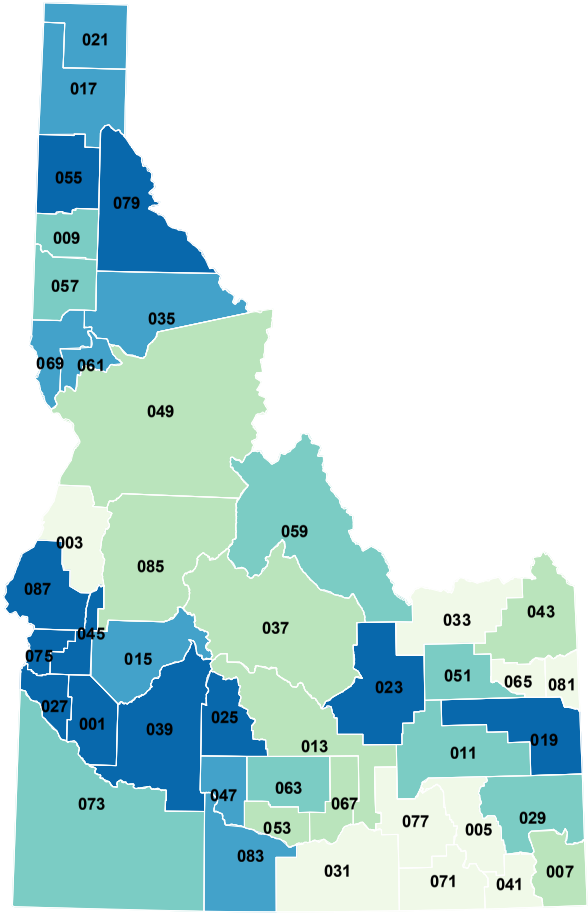


Age-Adjusted Incidence Rates

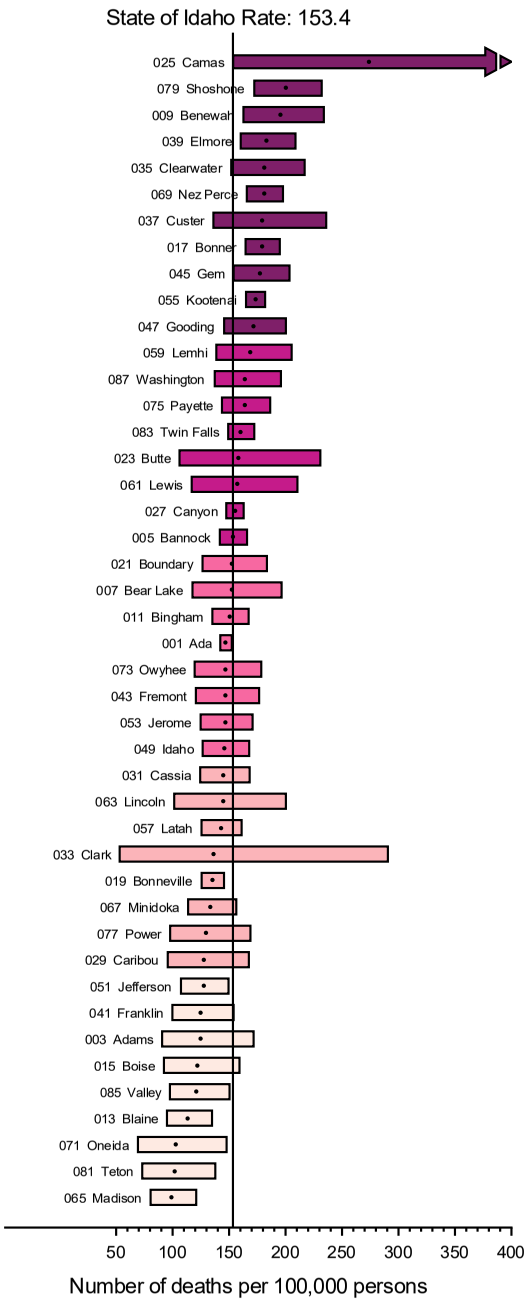
All Sites

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

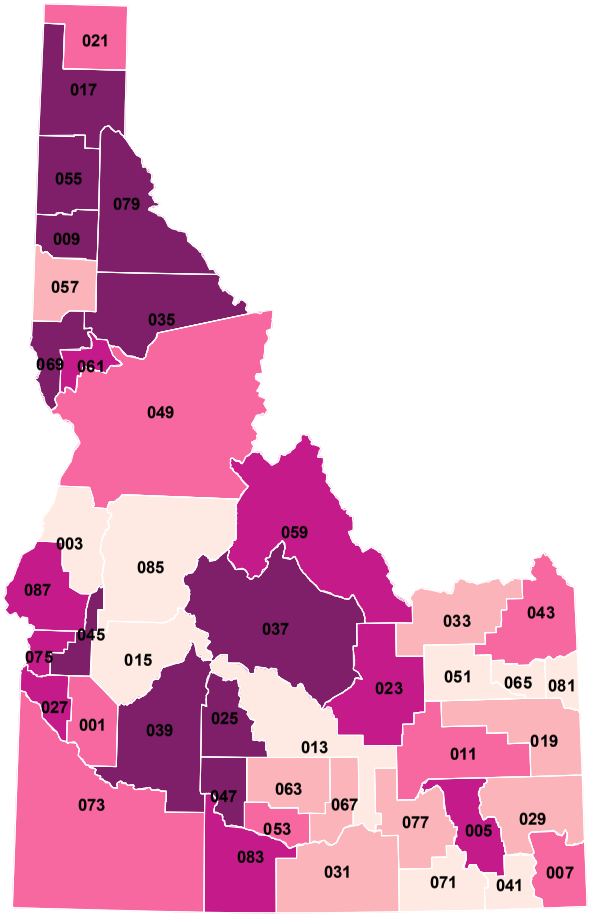


Age-Adjusted Mortality Rates

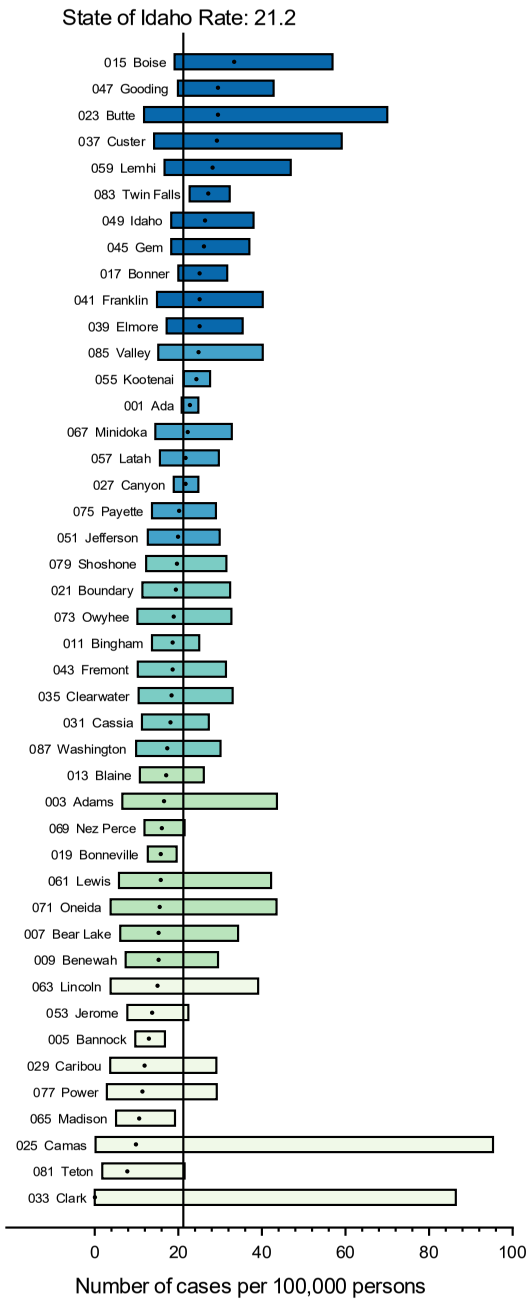
All Malignant Cancers

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

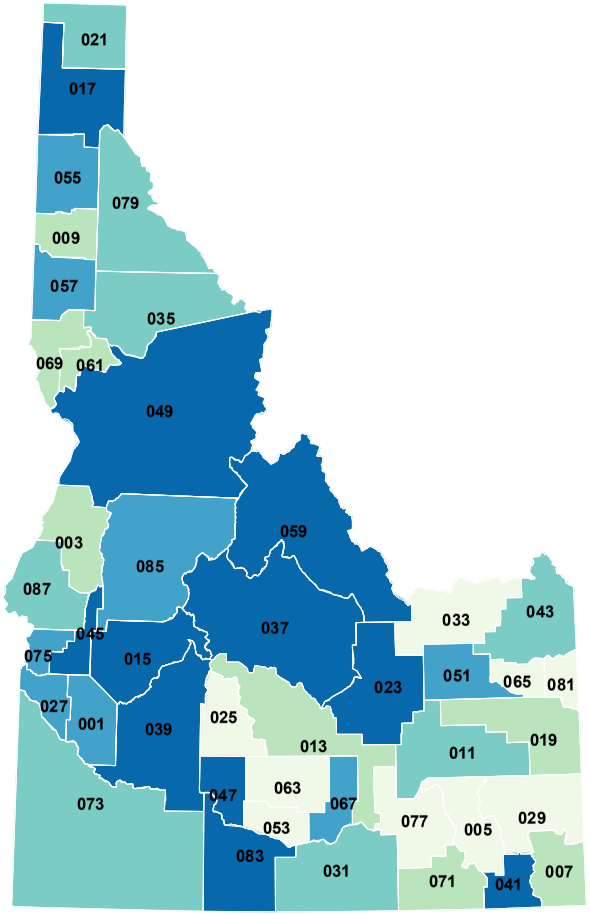


Age-Adjusted Incidence Rates

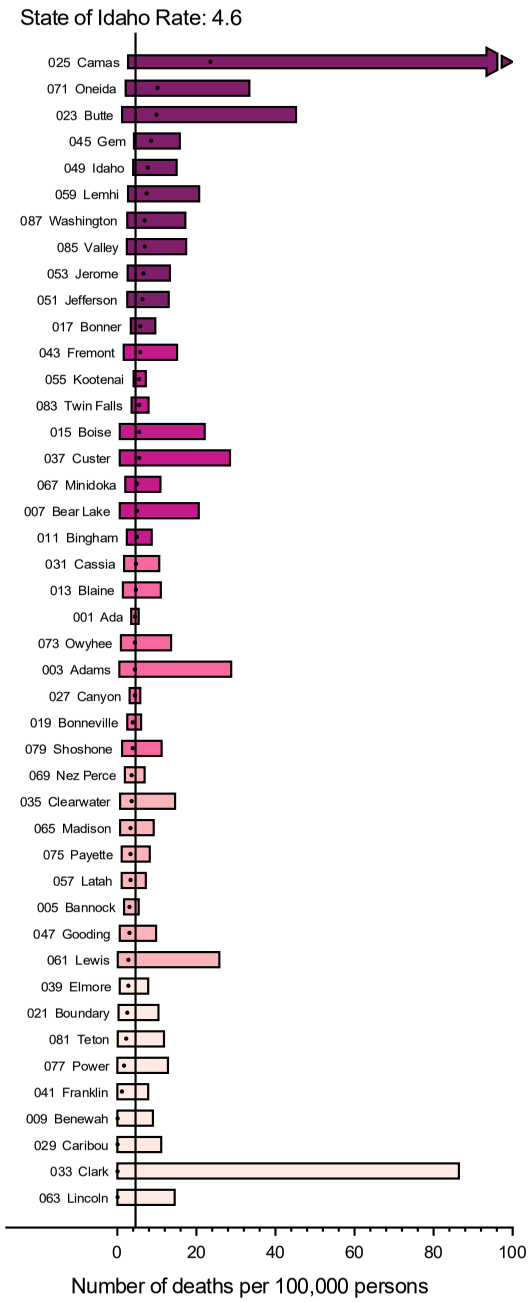
Bladder

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

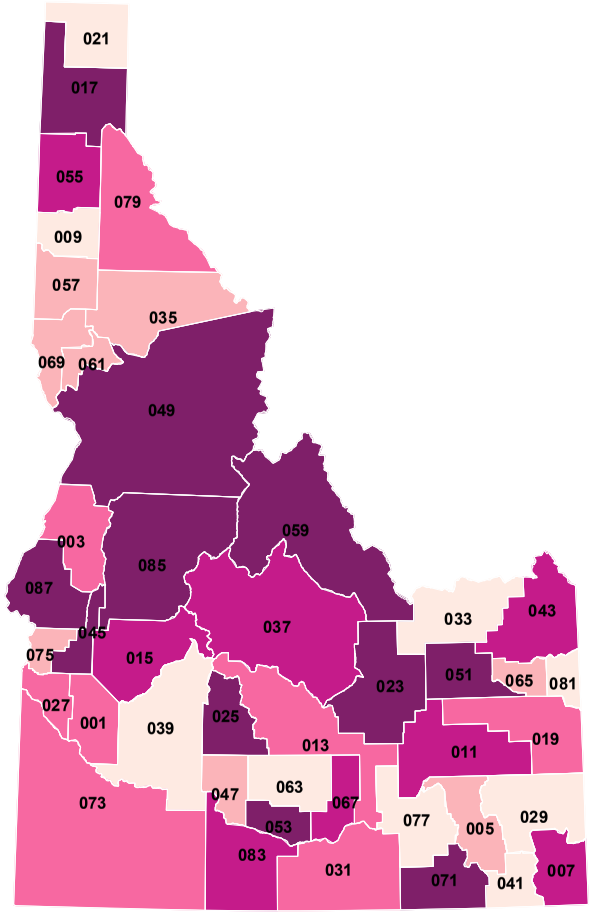


Age-Adjusted Mortality Rates

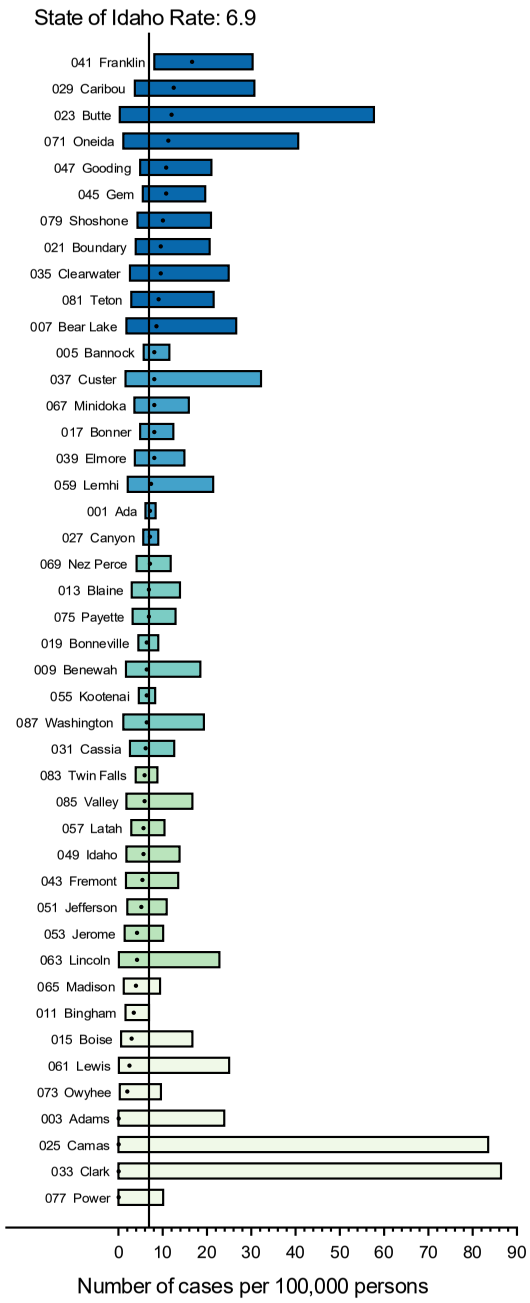
Bladder

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

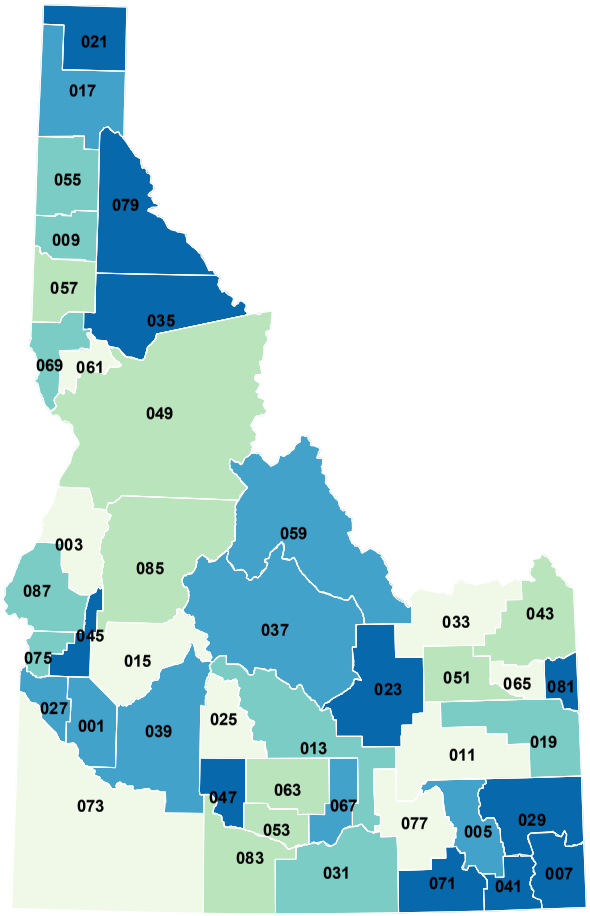


Age-Adjusted Incidence Rates

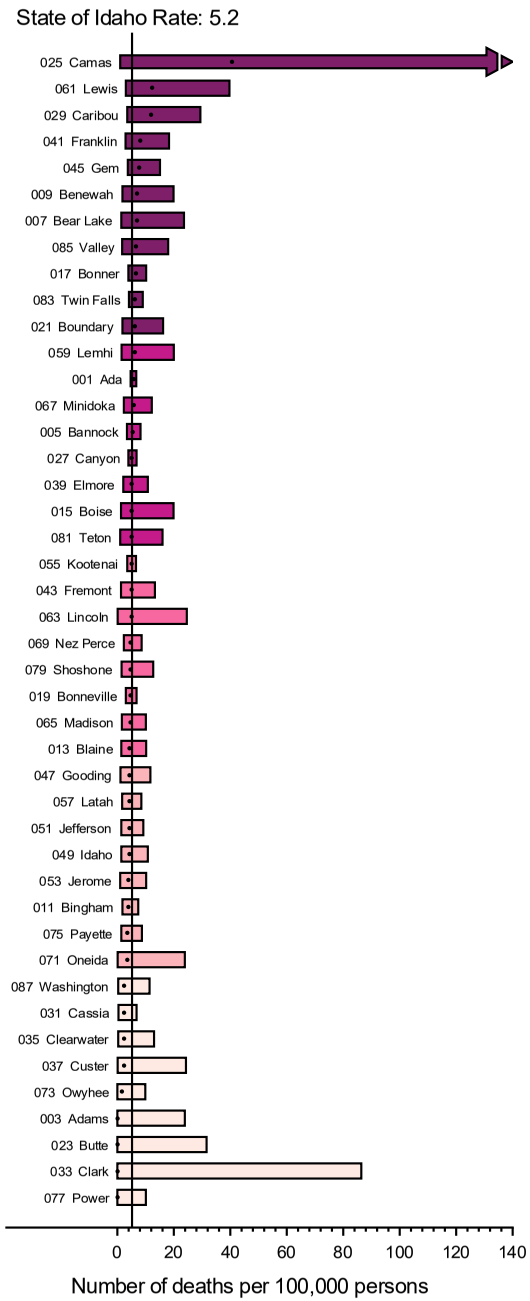
Brain - malignant

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

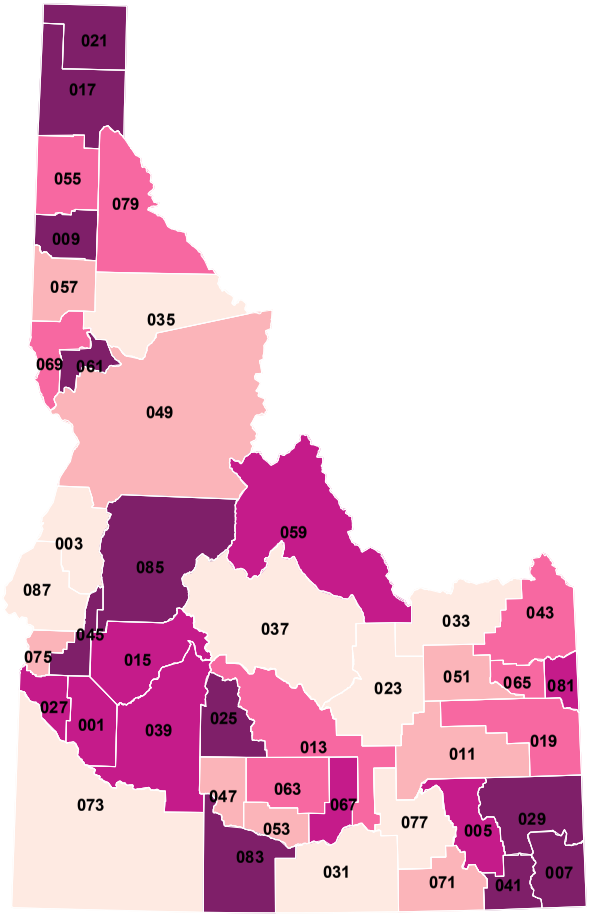


Age-Adjusted Mortality Rates

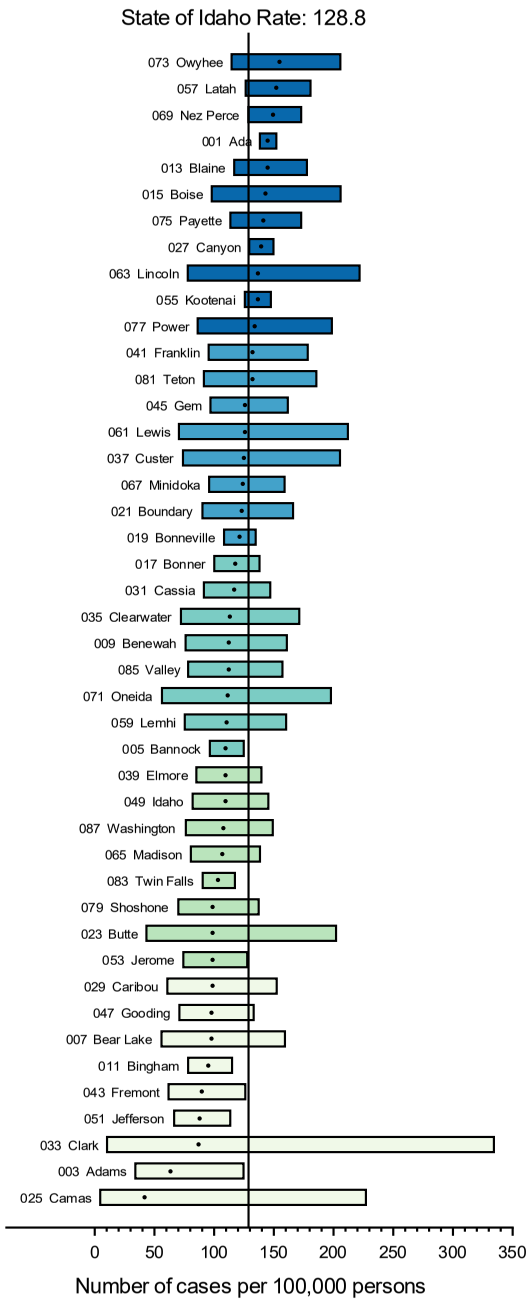
Brain and Other Nervous System

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

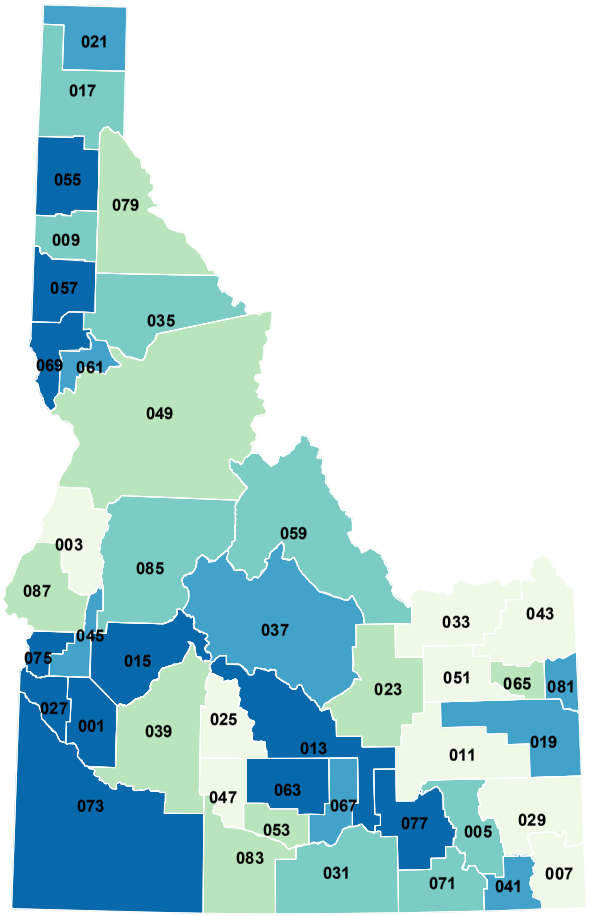


Age-Adjusted Incidence Rates

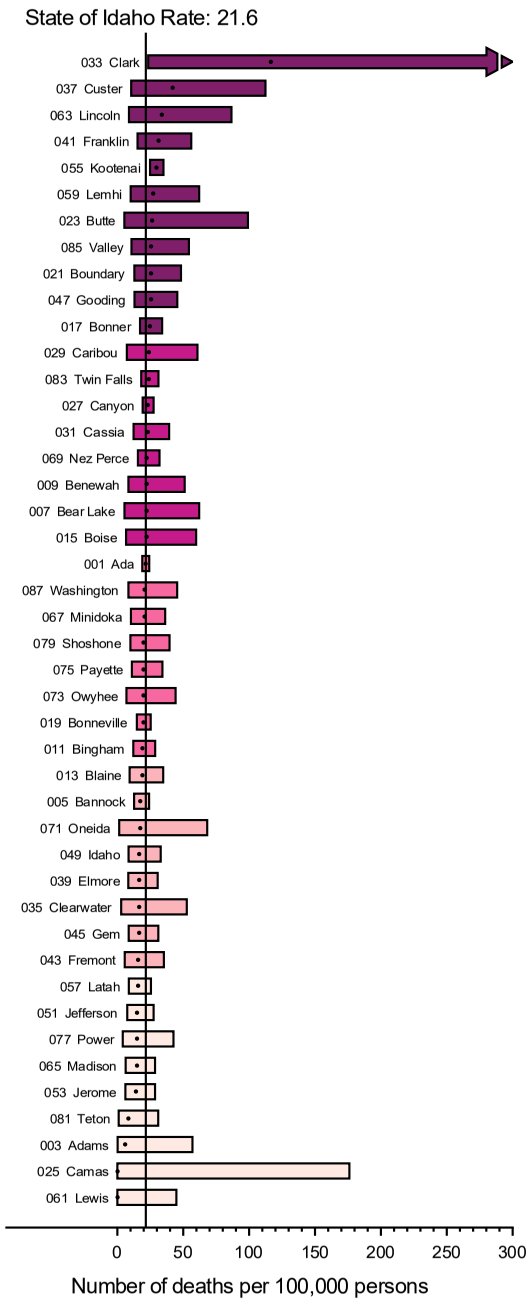
Breast

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

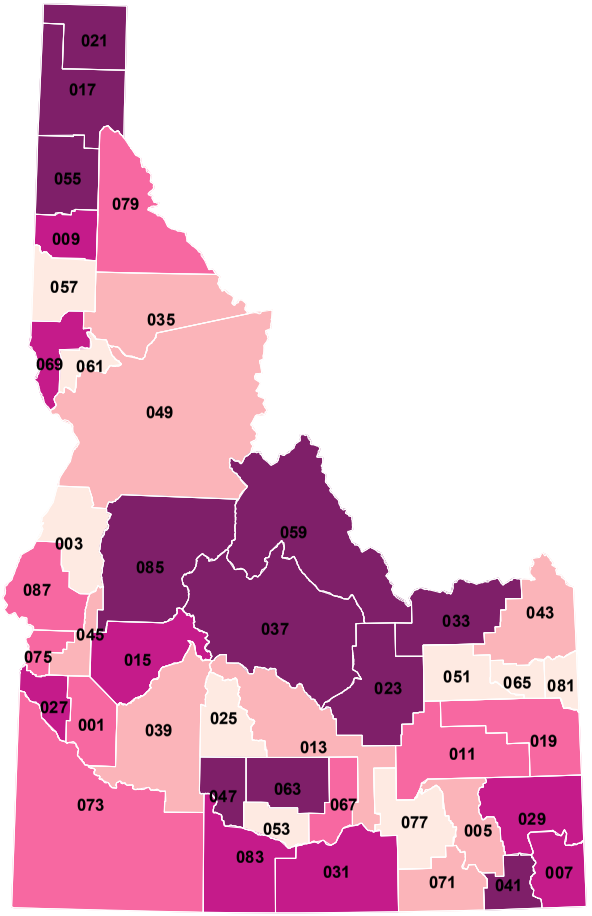


Age-Adjusted Mortality Rates

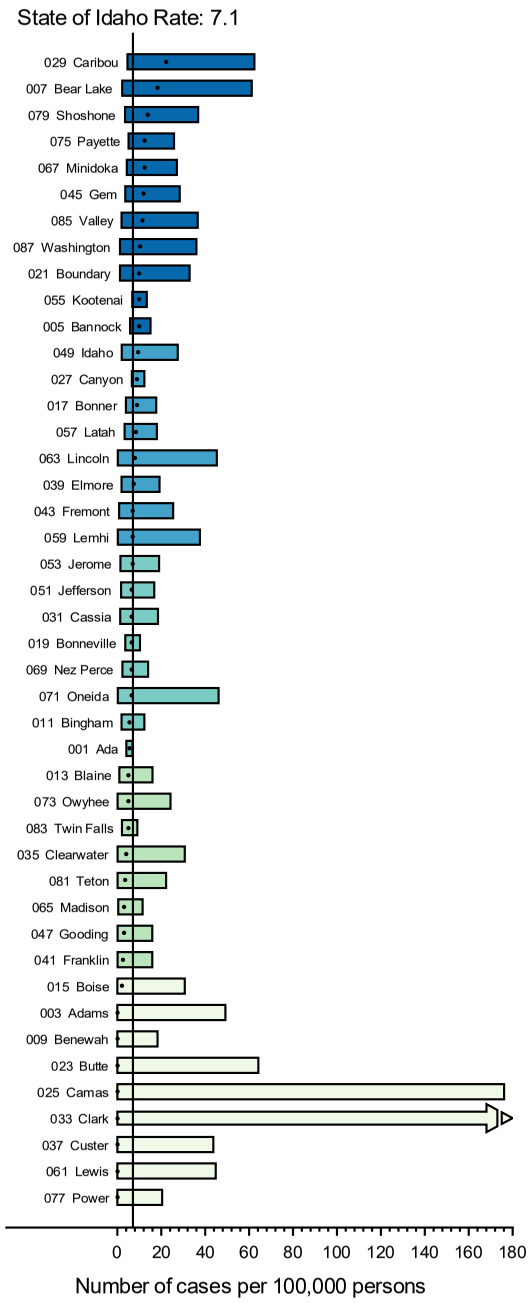
Breast

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

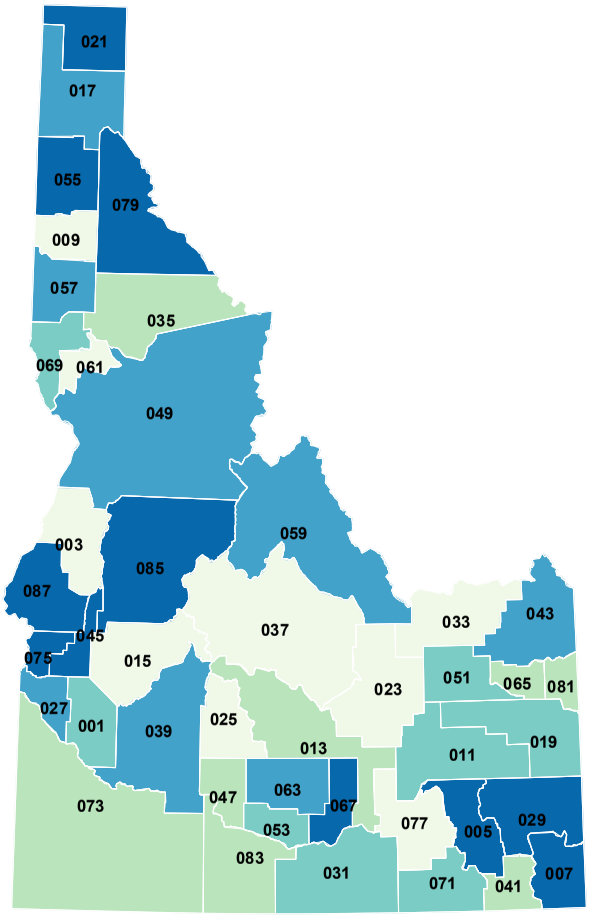


Age-Adjusted Incidence Rates

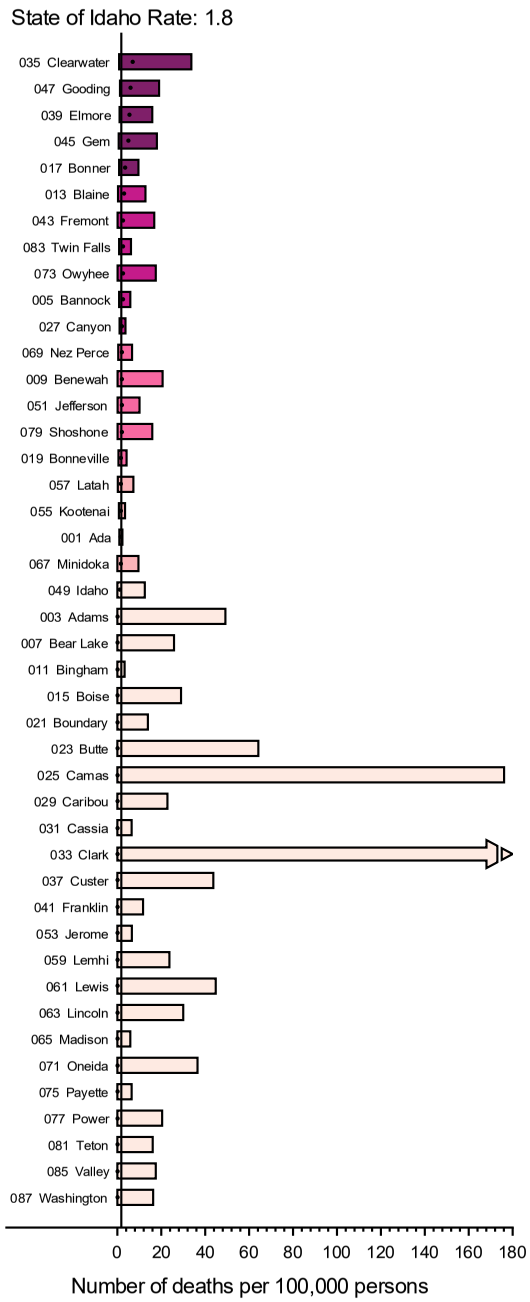
Cervix

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

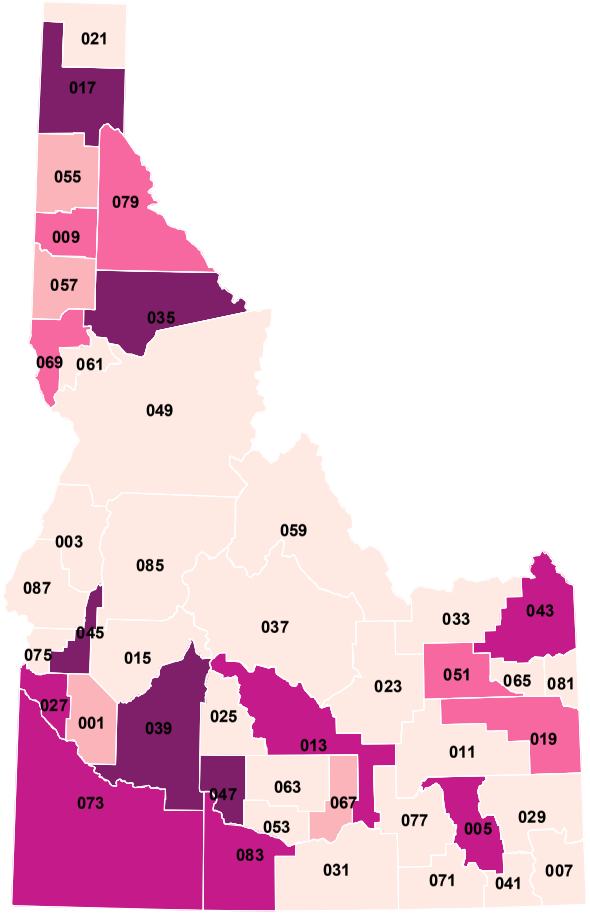


Age-Adjusted Mortality Rates

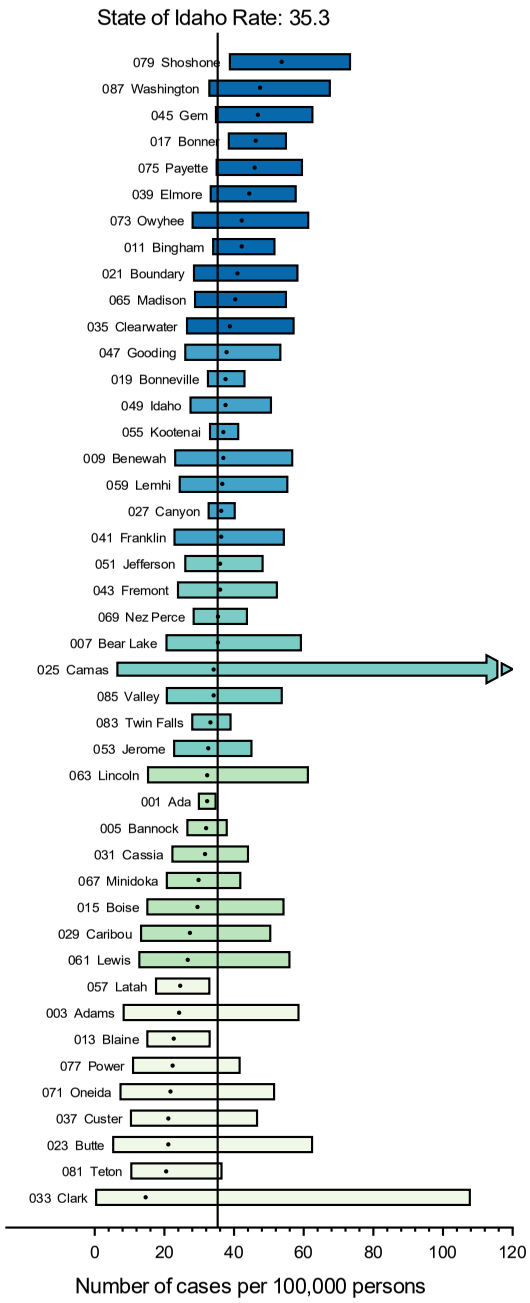
Cervix

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

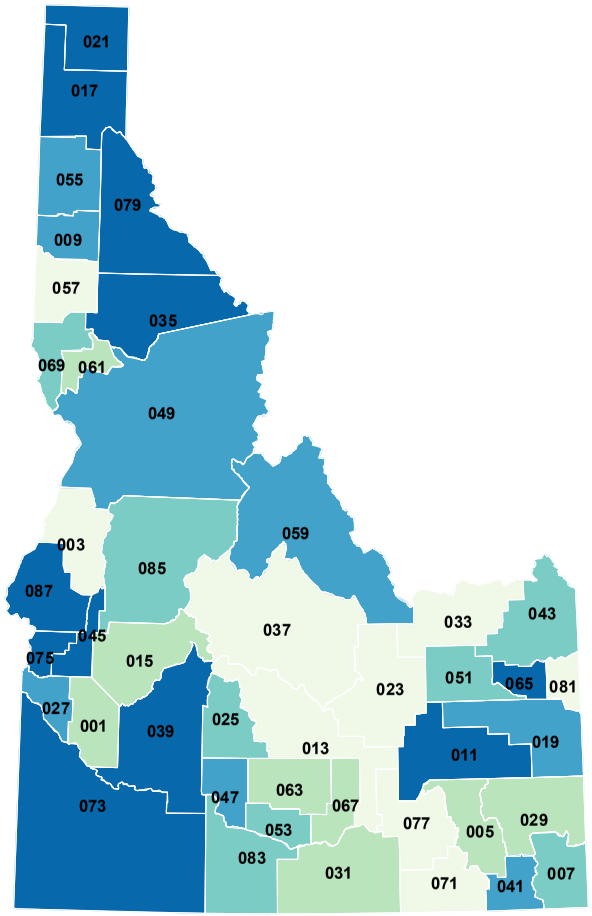


Age-Adjusted Incidence Rates

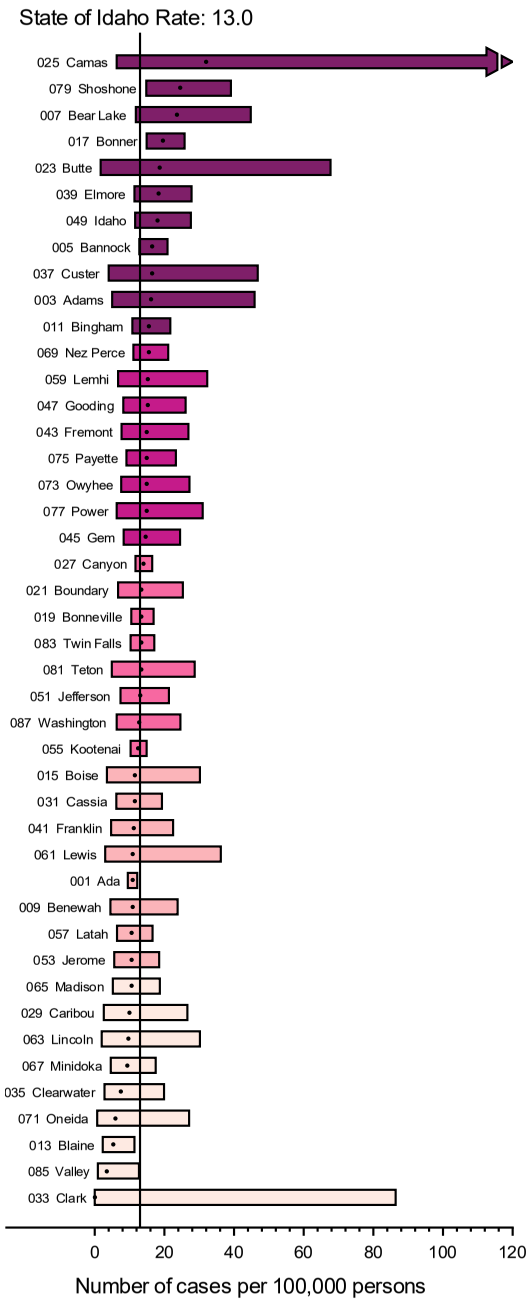
Colorectal

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

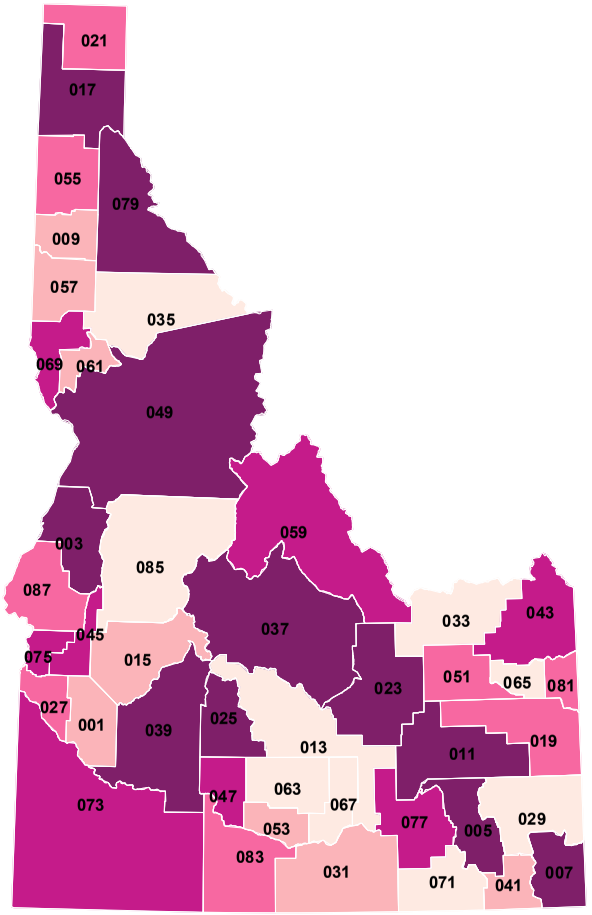


Age-Adjusted Mortality Rates

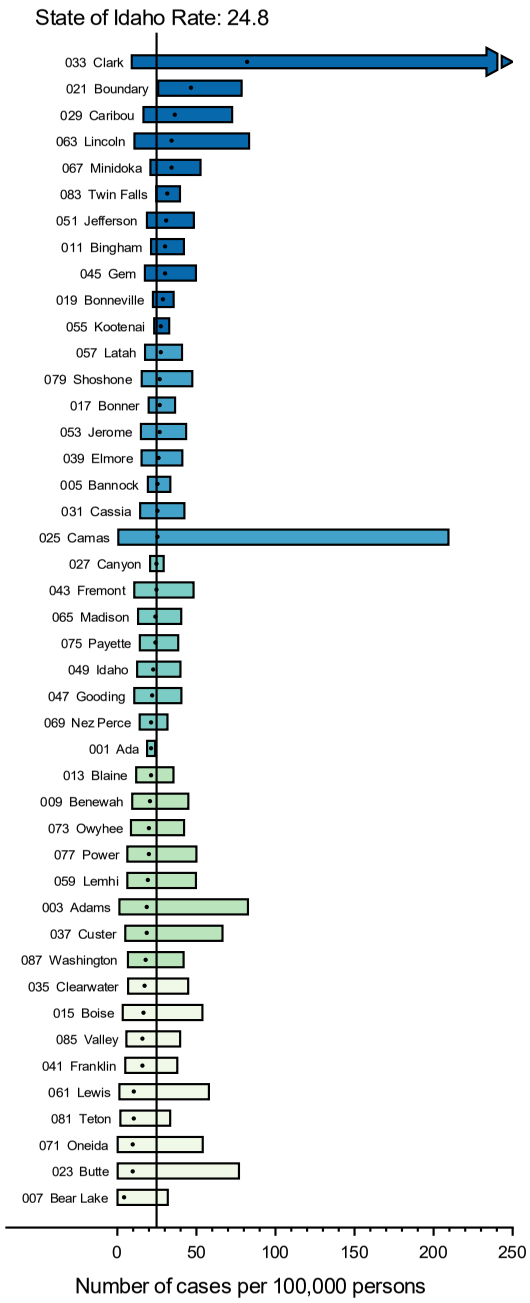
Colorectal

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

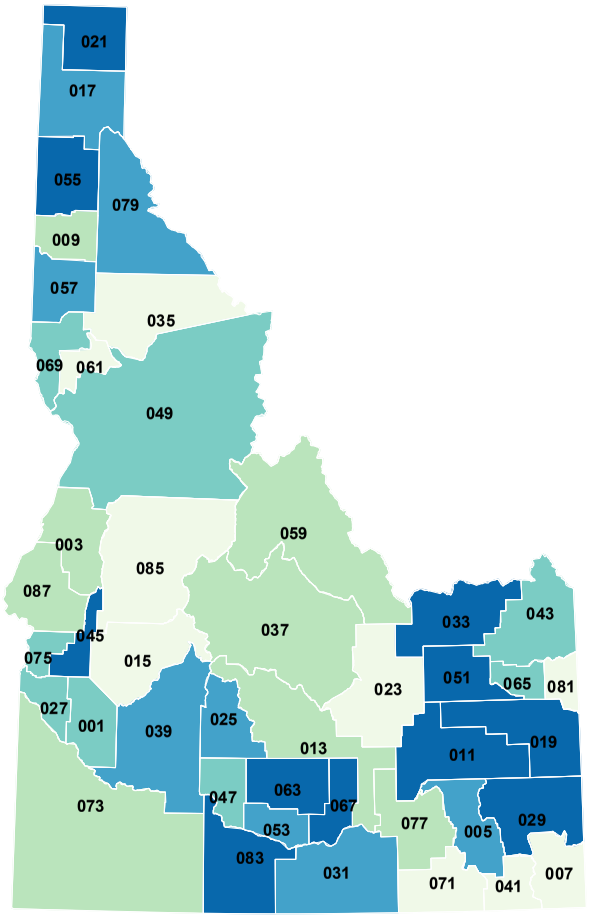


Age-Adjusted Incidence Rates

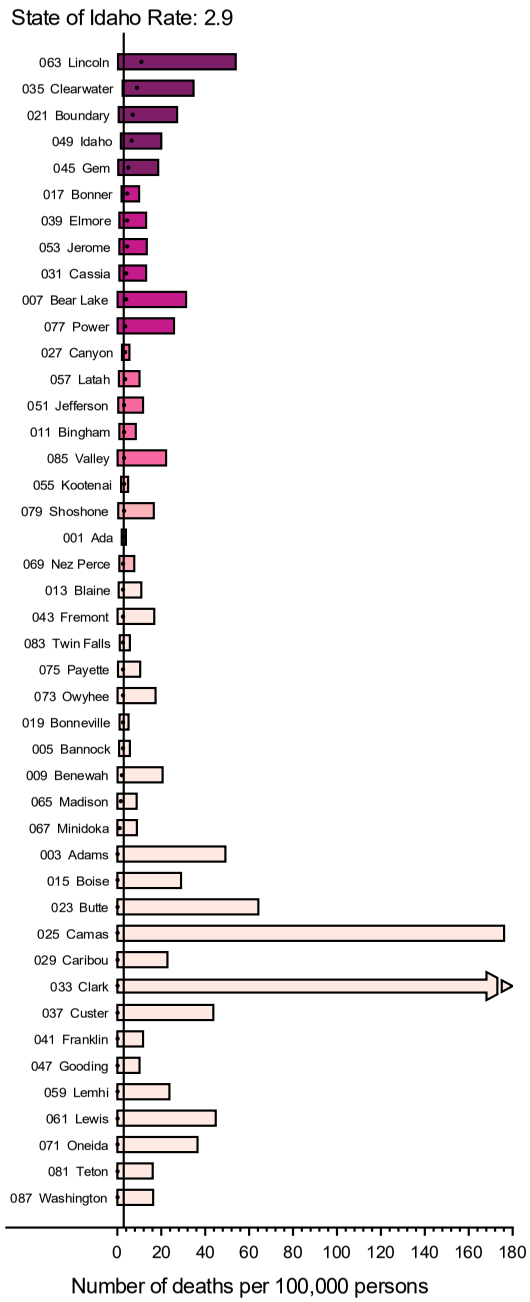
Corpus Uteri

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

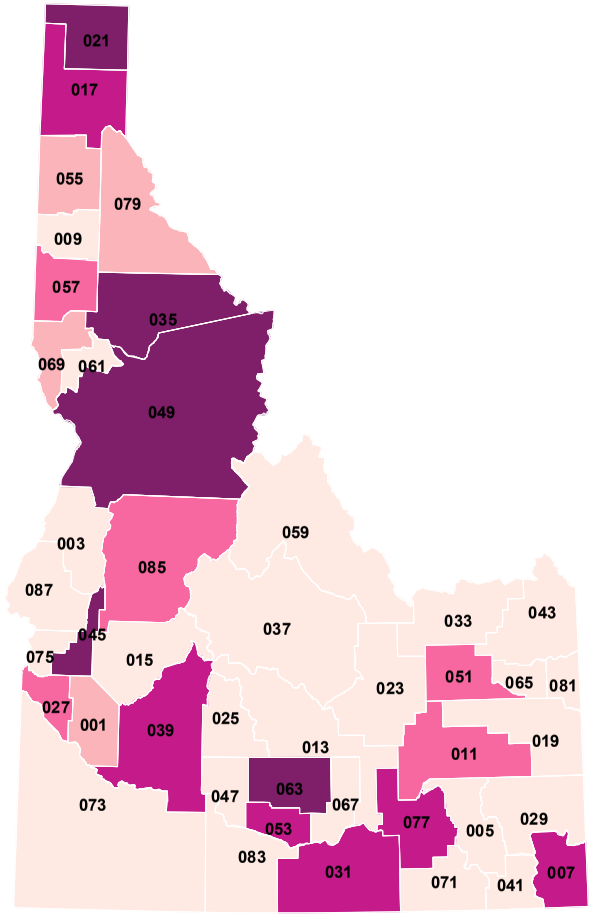


Age-Adjusted Mortality Rates

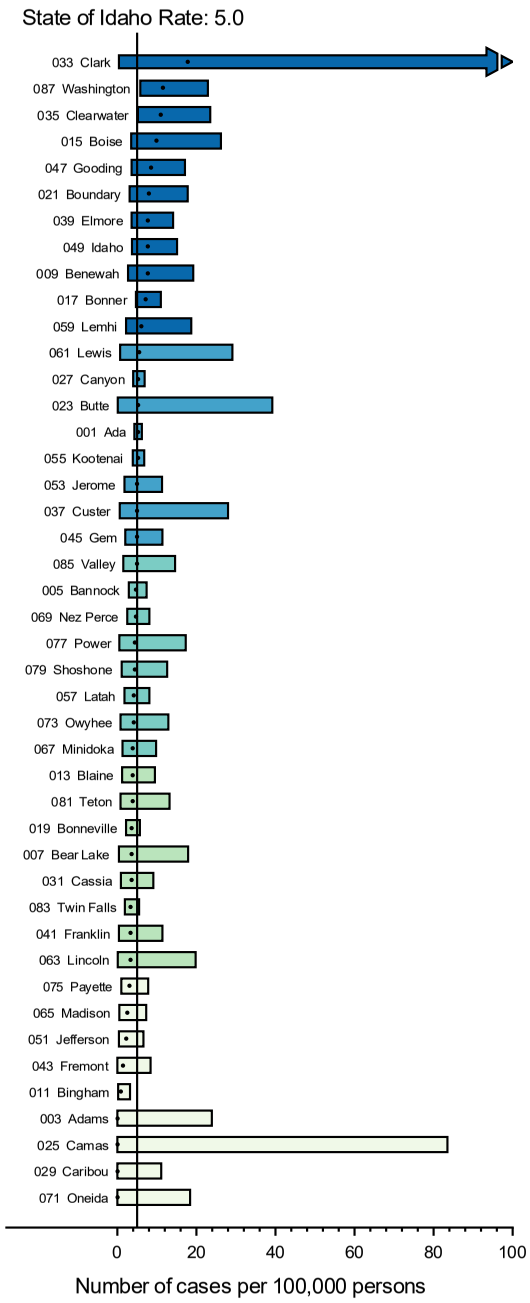
Corpus Uteri

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

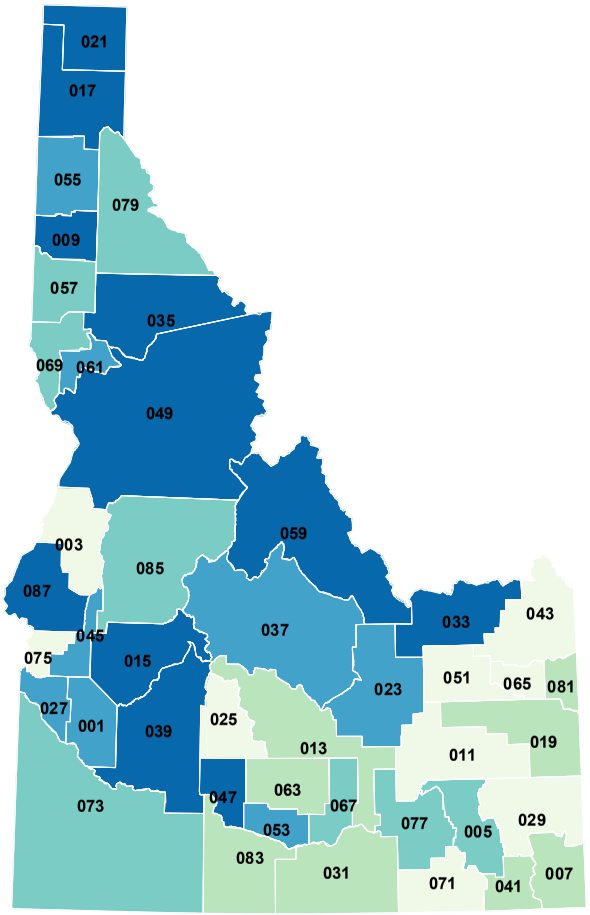


Age-Adjusted Incidence Rates

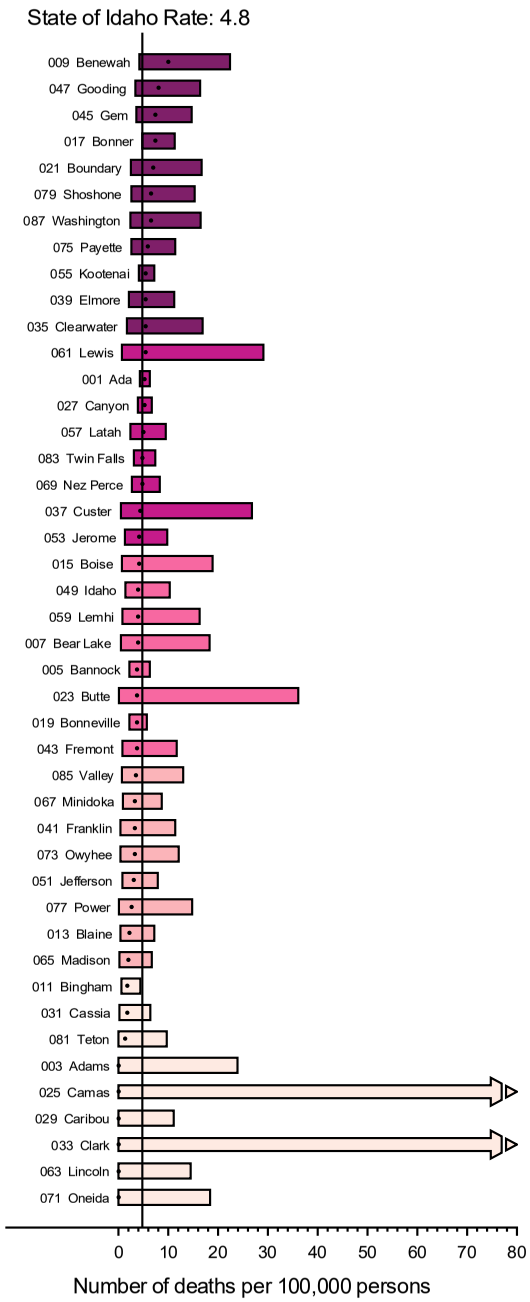
Esophagus

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

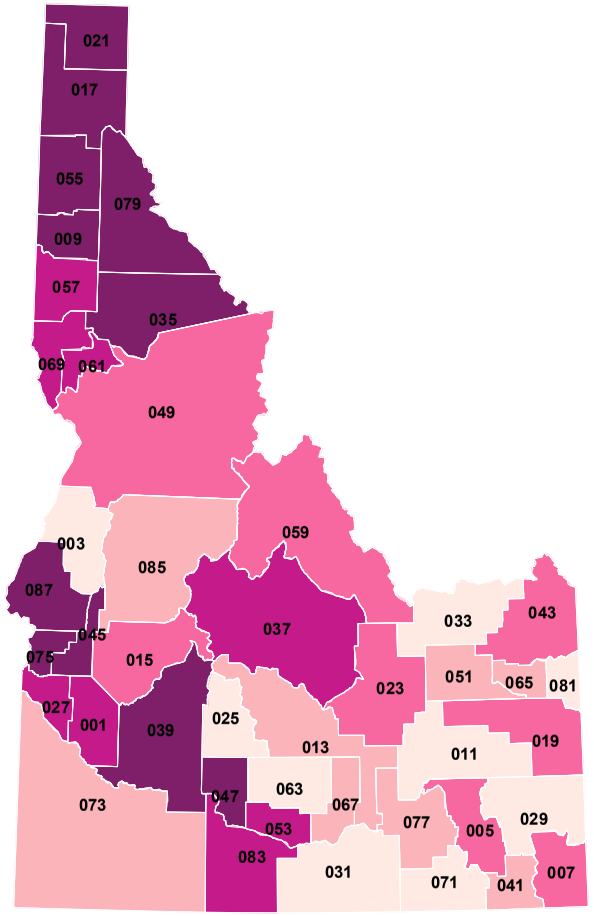


Age-Adjusted Mortality Rates

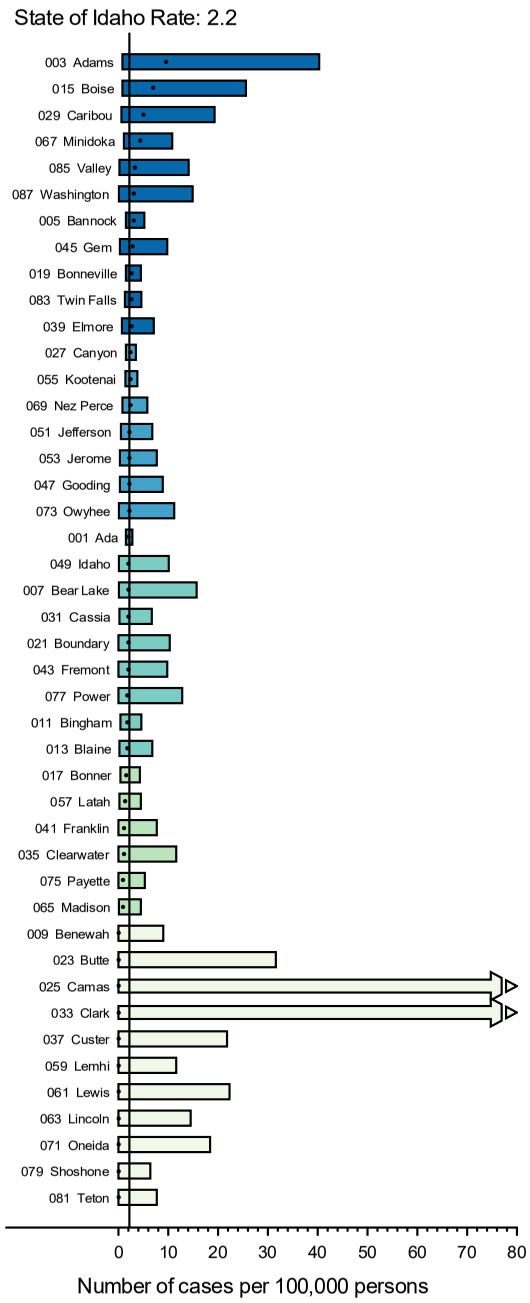
Esophagus

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

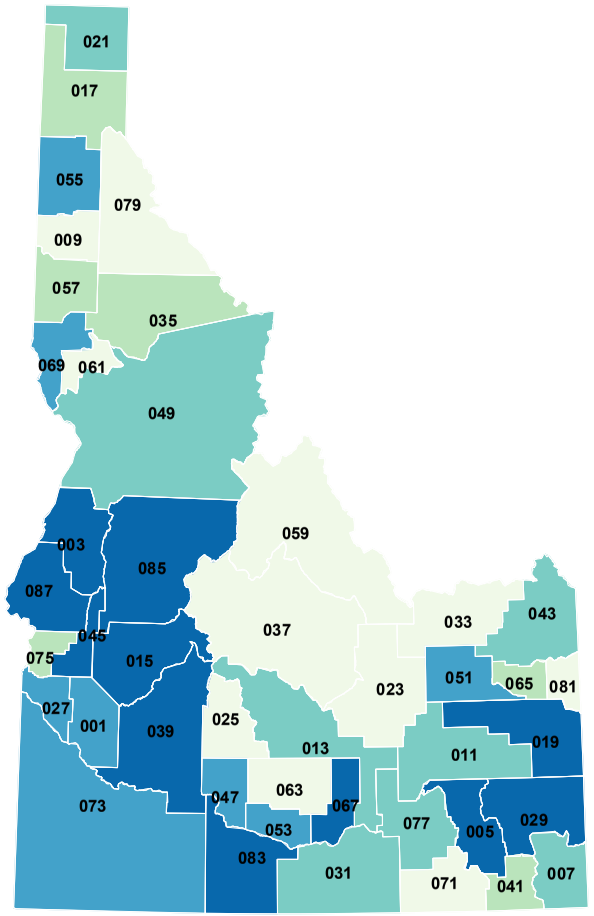


Age-Adjusted Incidence Rates

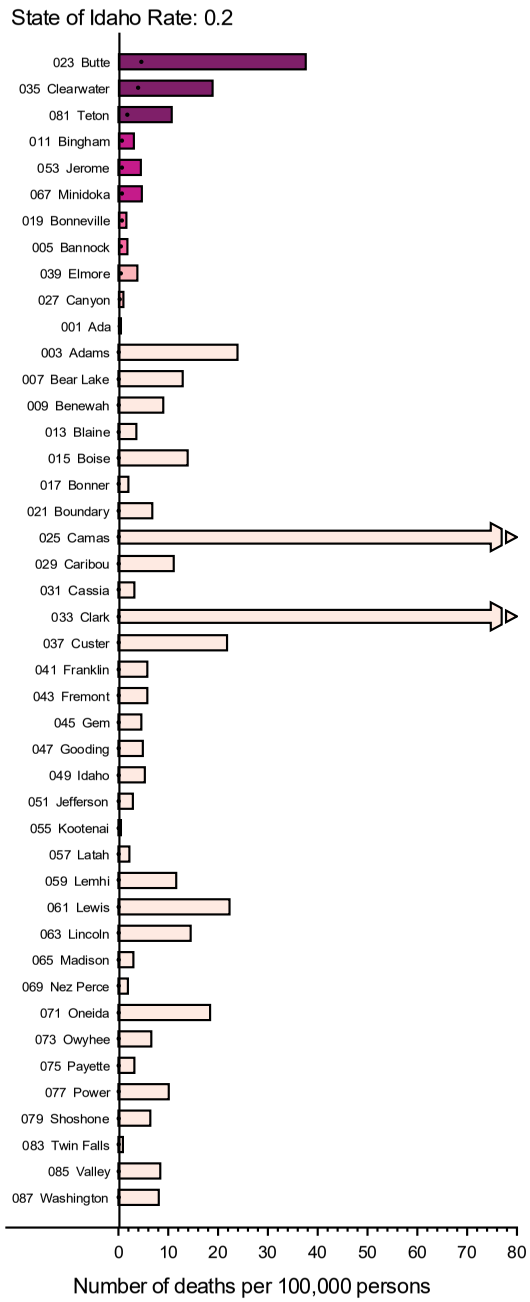
Hodgkin Lymphoma

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

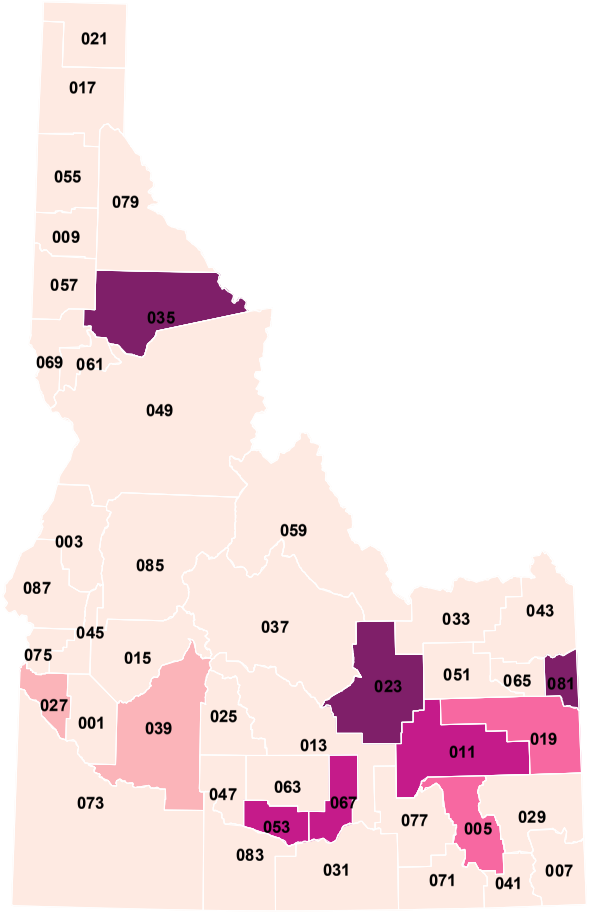


Age-Adjusted Mortality Rates

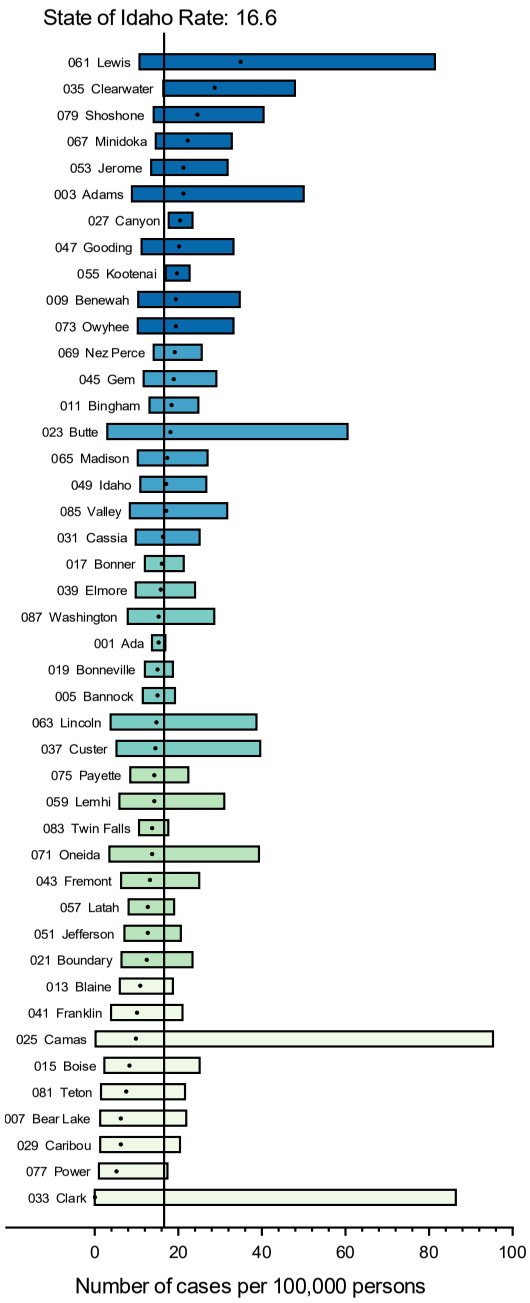
Hodgkin Lymphoma

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

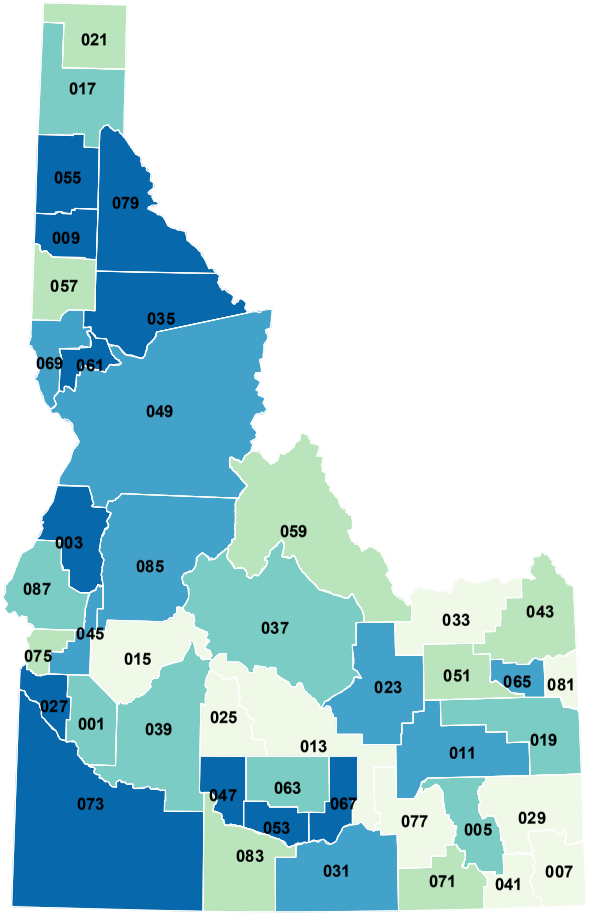


Age-Adjusted Incidence Rates

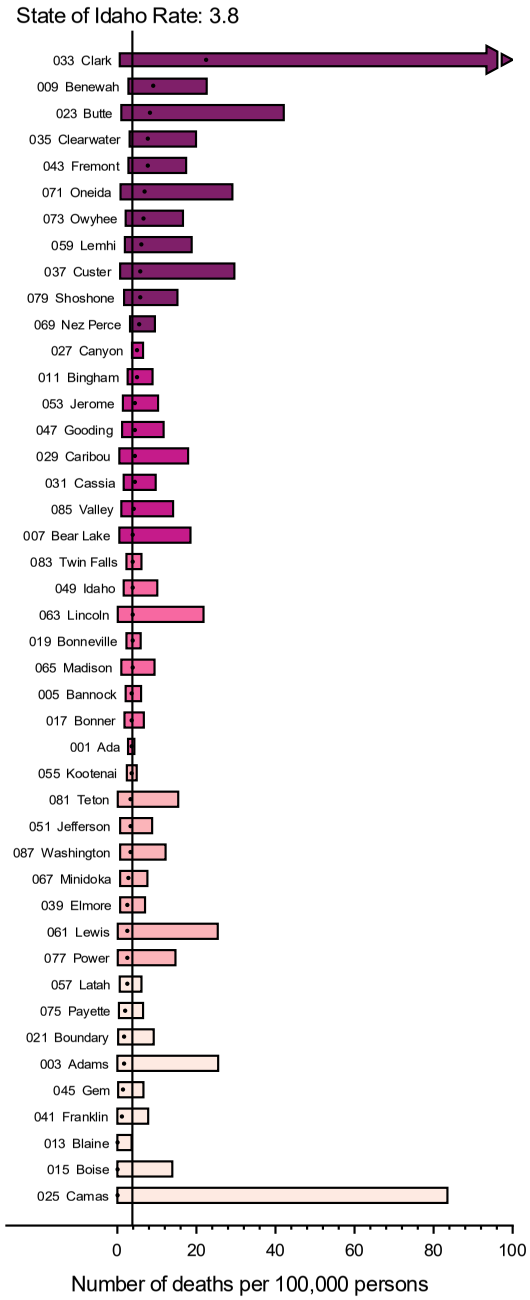
Kidney and Renal Pelvis

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

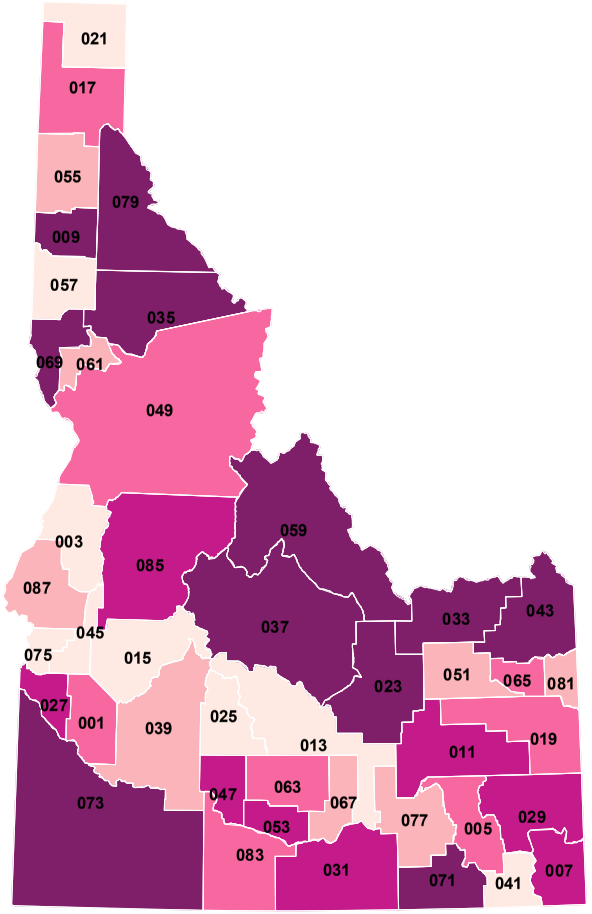


Age-Adjusted Mortality Rates

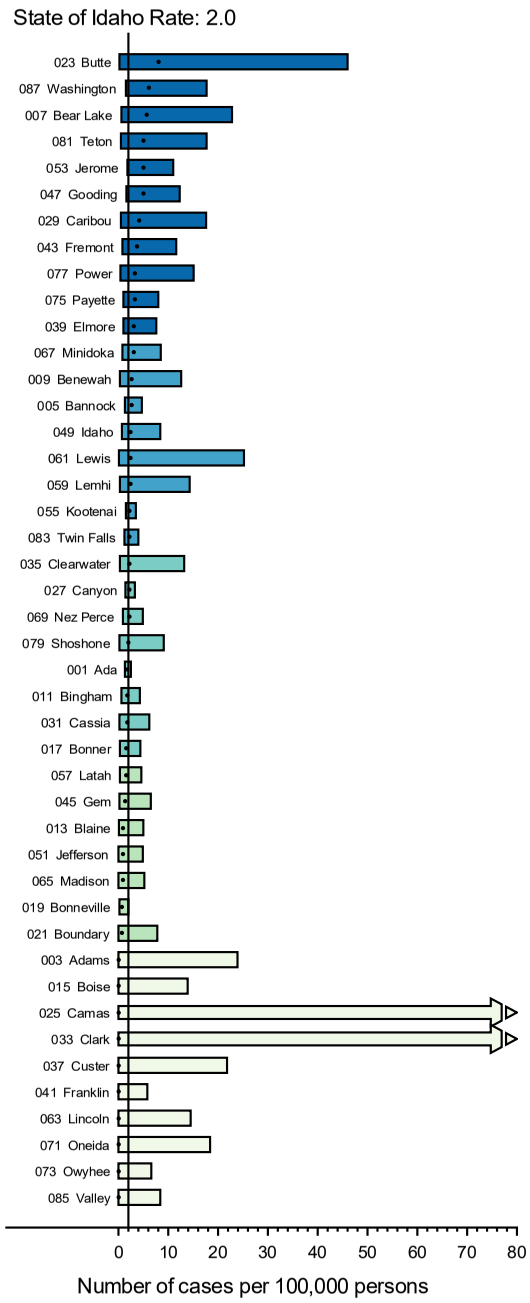
Kidney

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

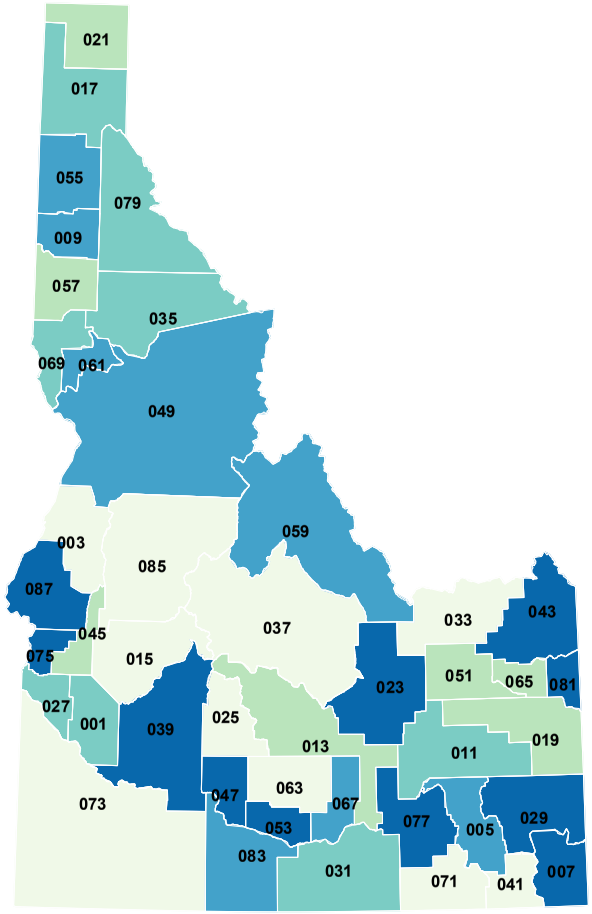


Age-Adjusted Incidence Rates

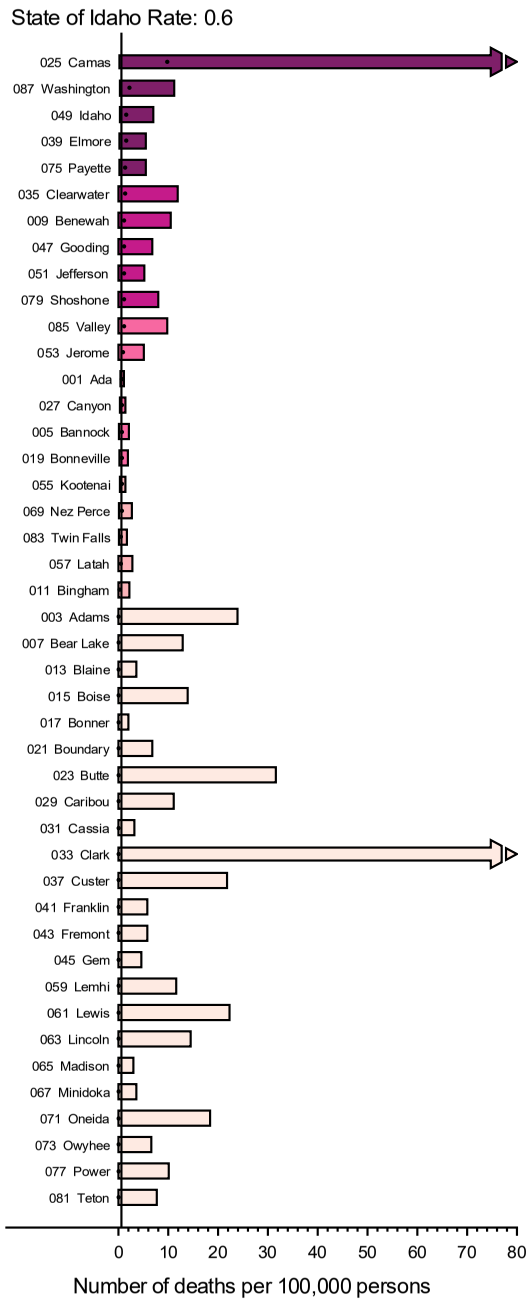
Larynx

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

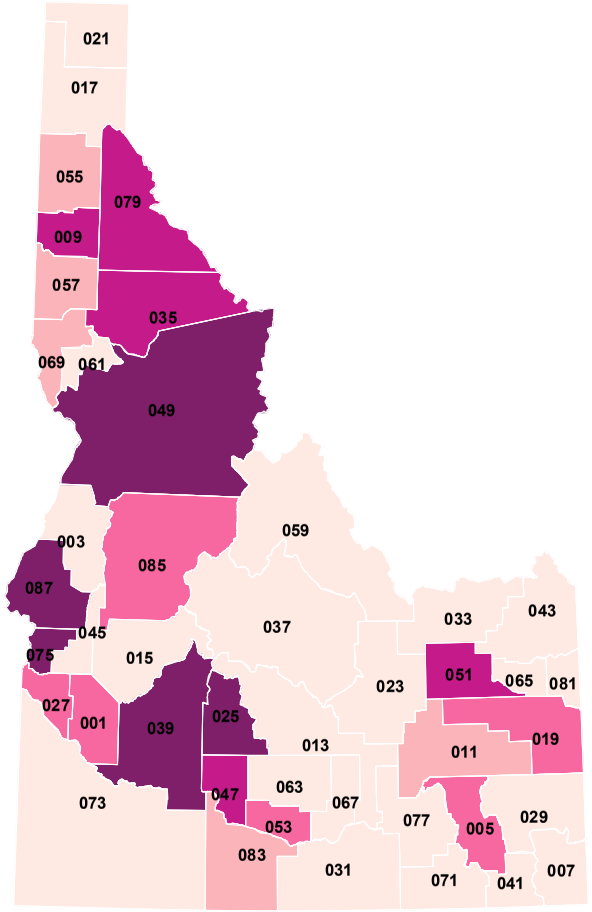


Age-Adjusted Mortality Rates

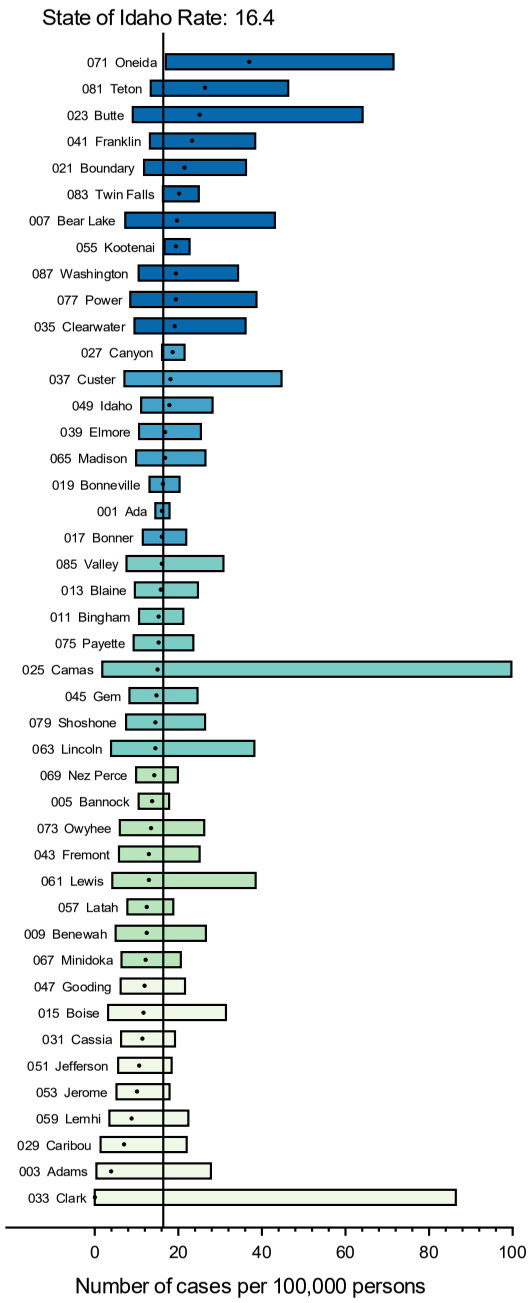
Larynx

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

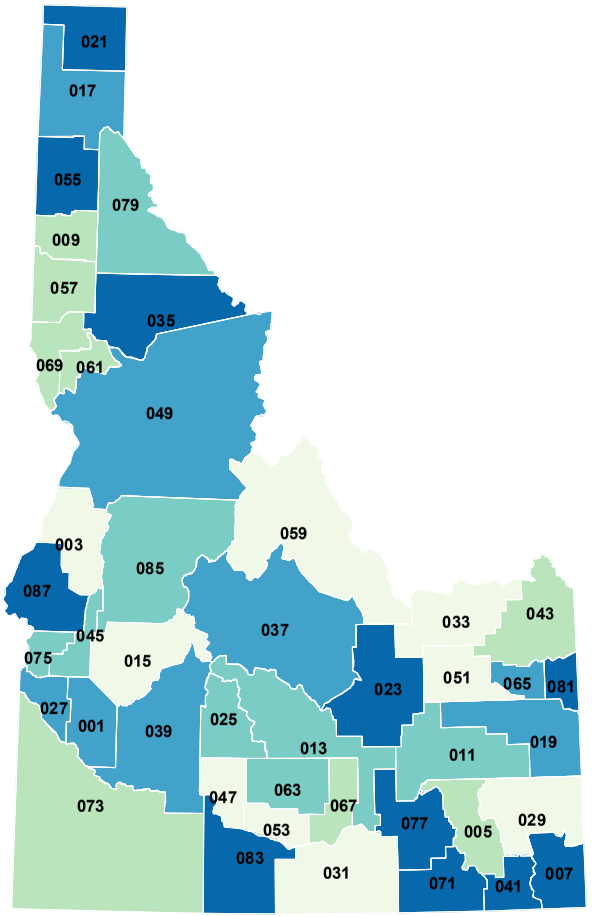


Age-Adjusted Incidence Rates

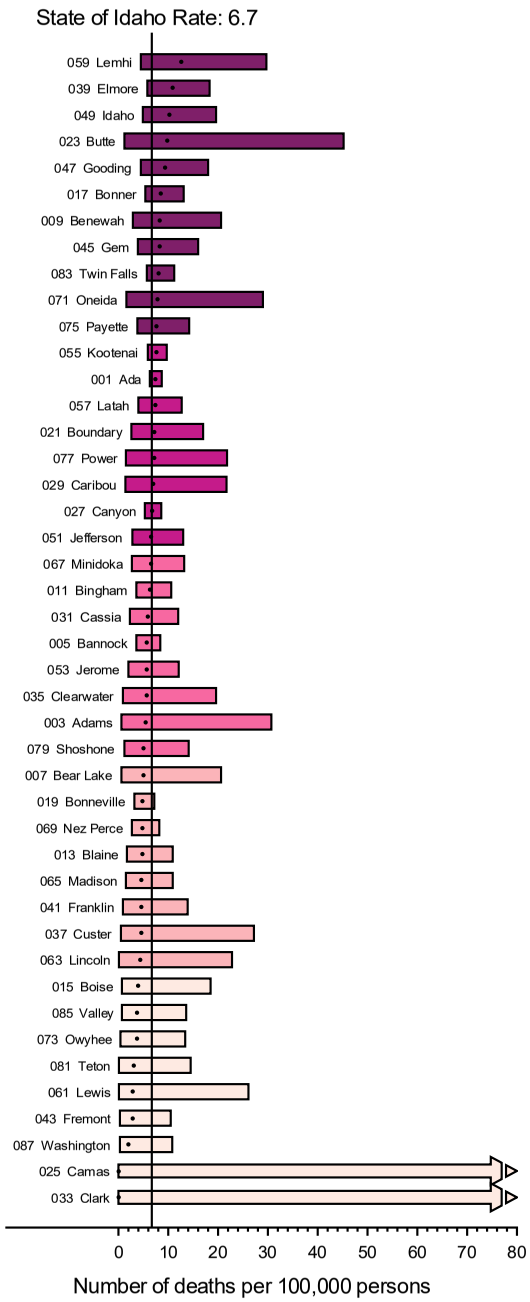
Leukemia

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

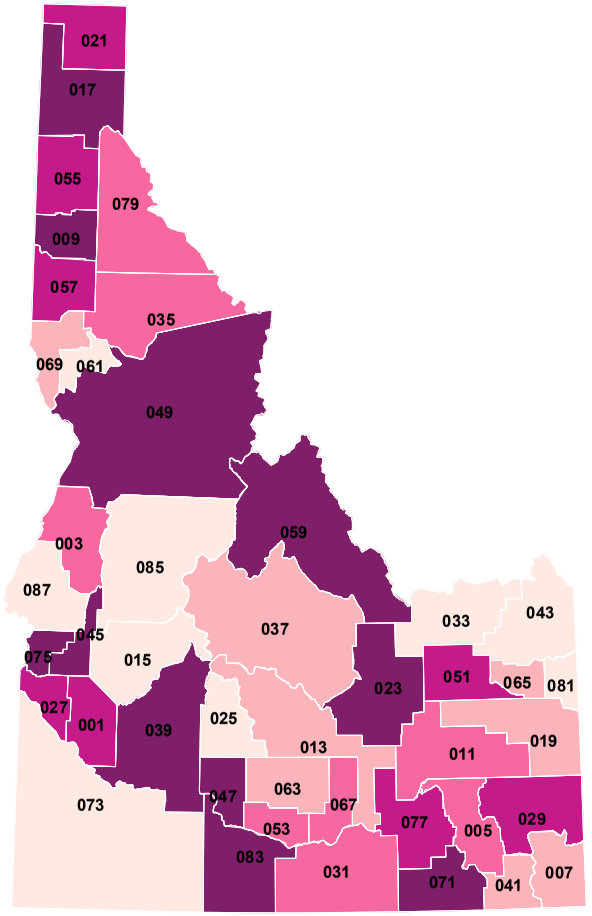


Age-Adjusted Mortality Rates

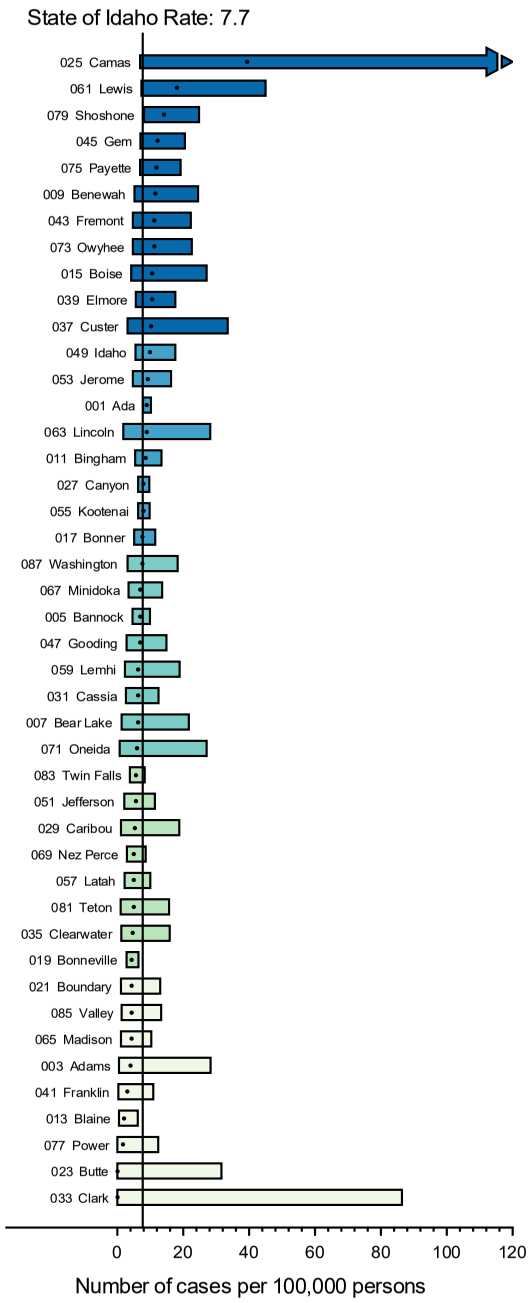
Leukemia

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

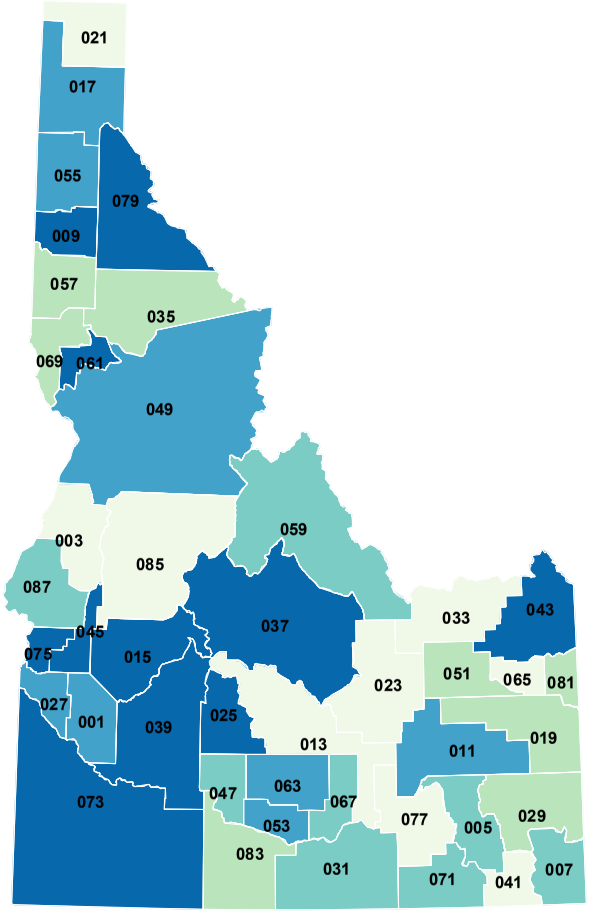


Age-Adjusted Incidence Rates

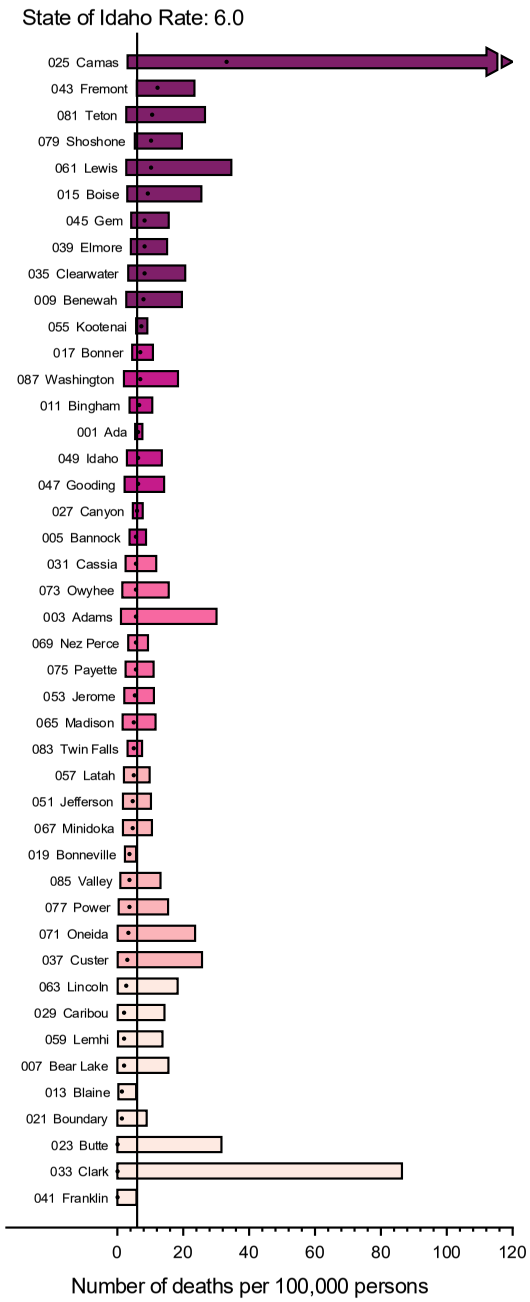
Liver and Bile Duct

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

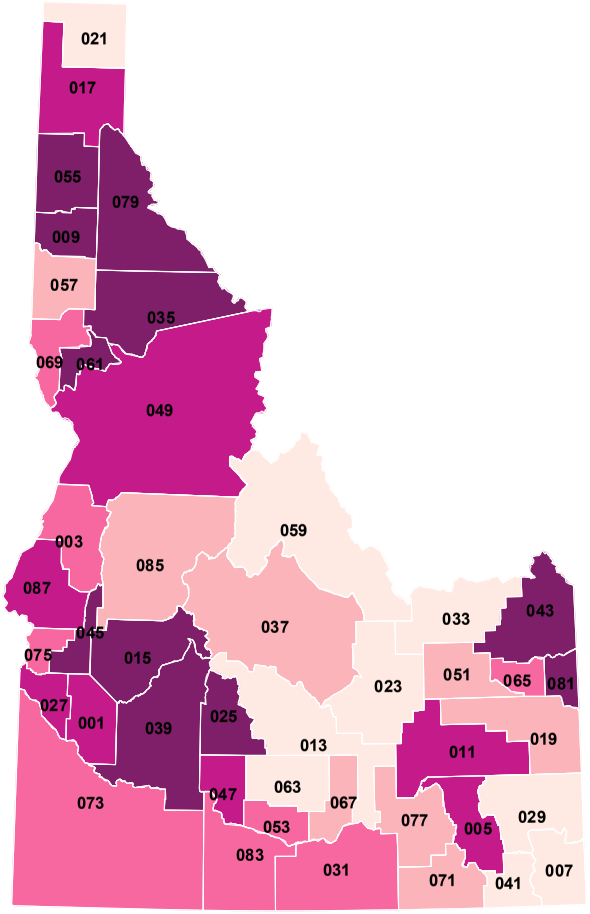


Age-Adjusted Mortality Rates

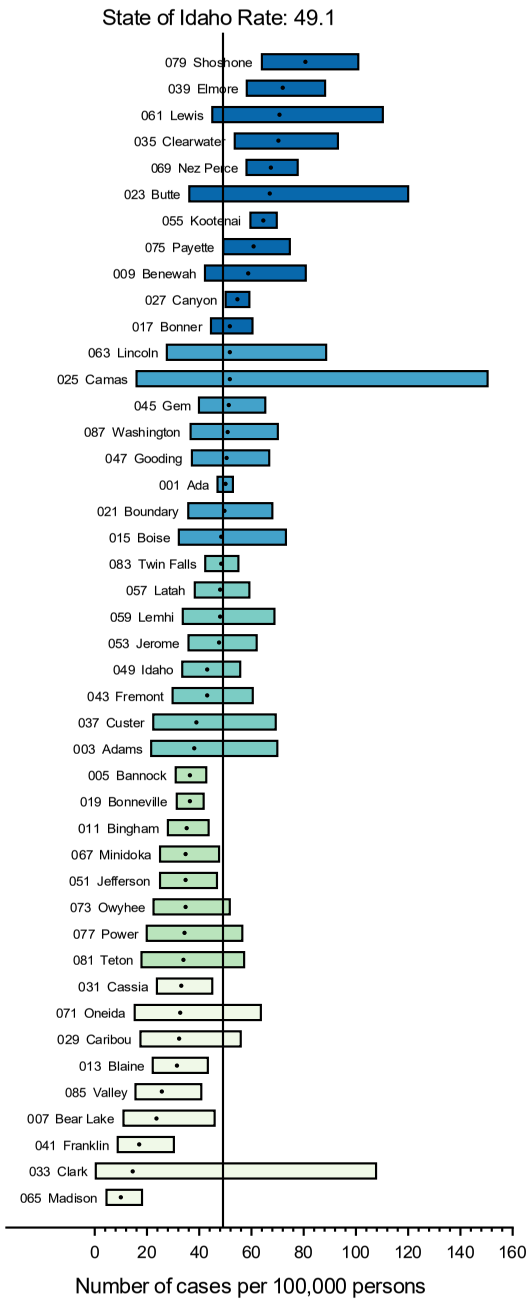
Liver and Bile Duct

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

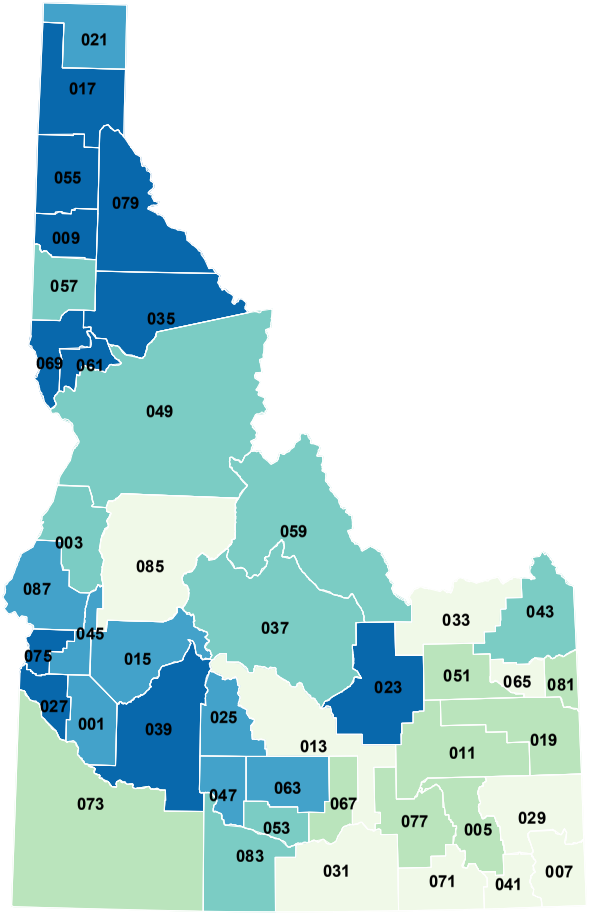


Age-Adjusted Incidence Rates

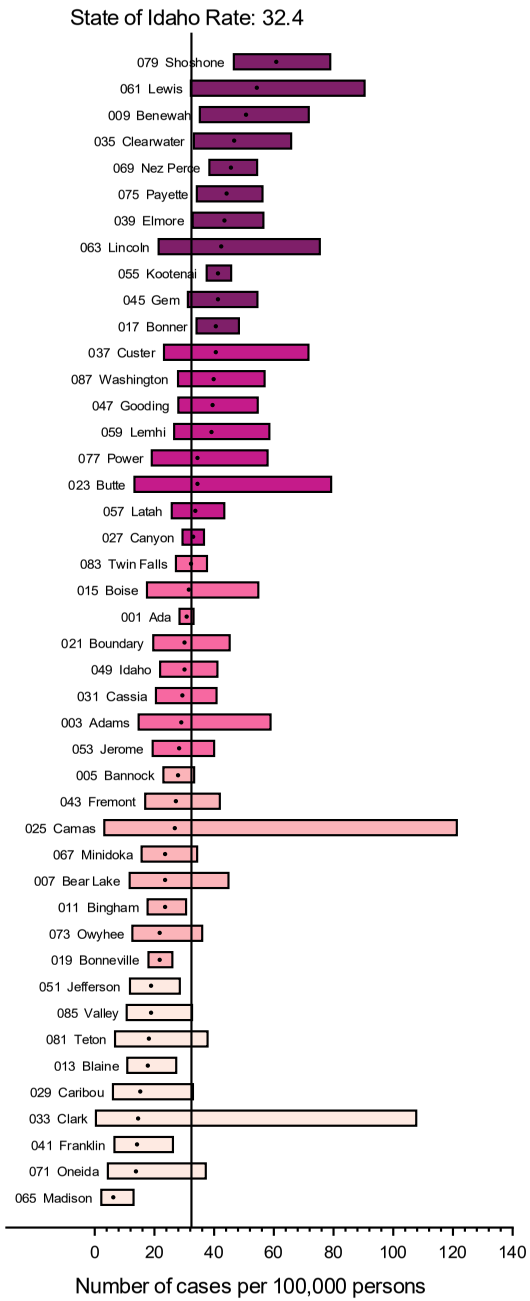
Lung and Bronchus

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

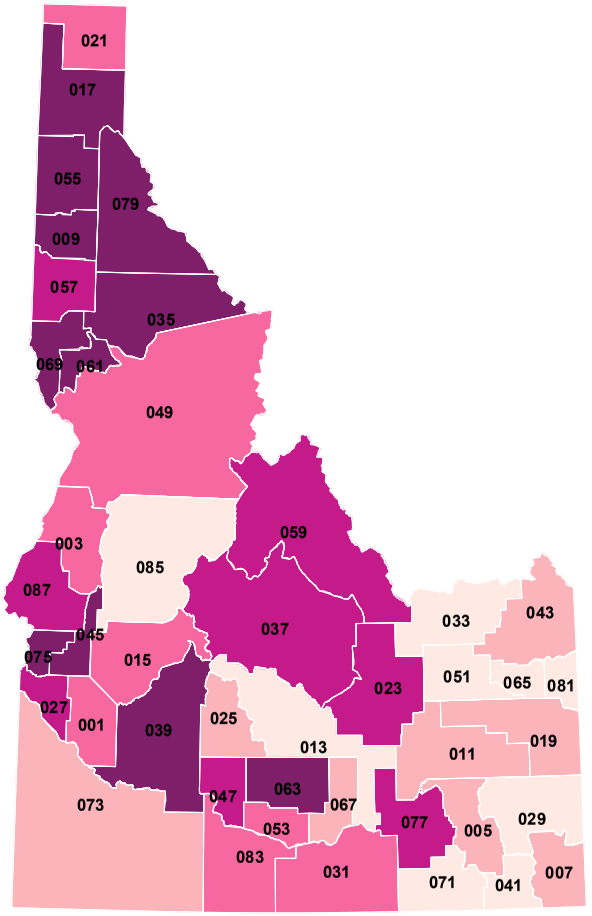


Age-Adjusted Mortality Rates

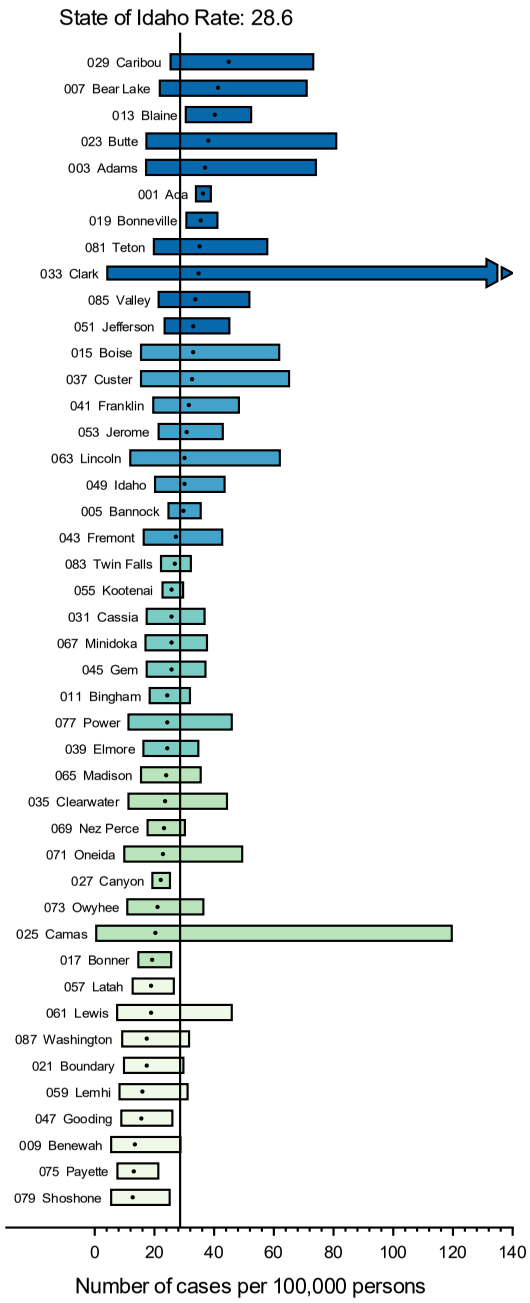
Lung and Bronchus

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

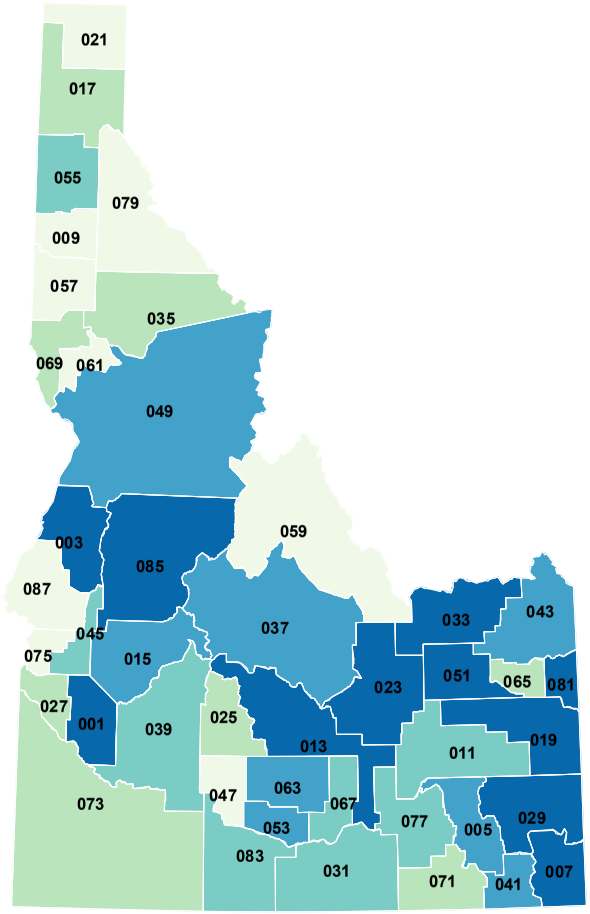


Age-Adjusted Incidence Rates

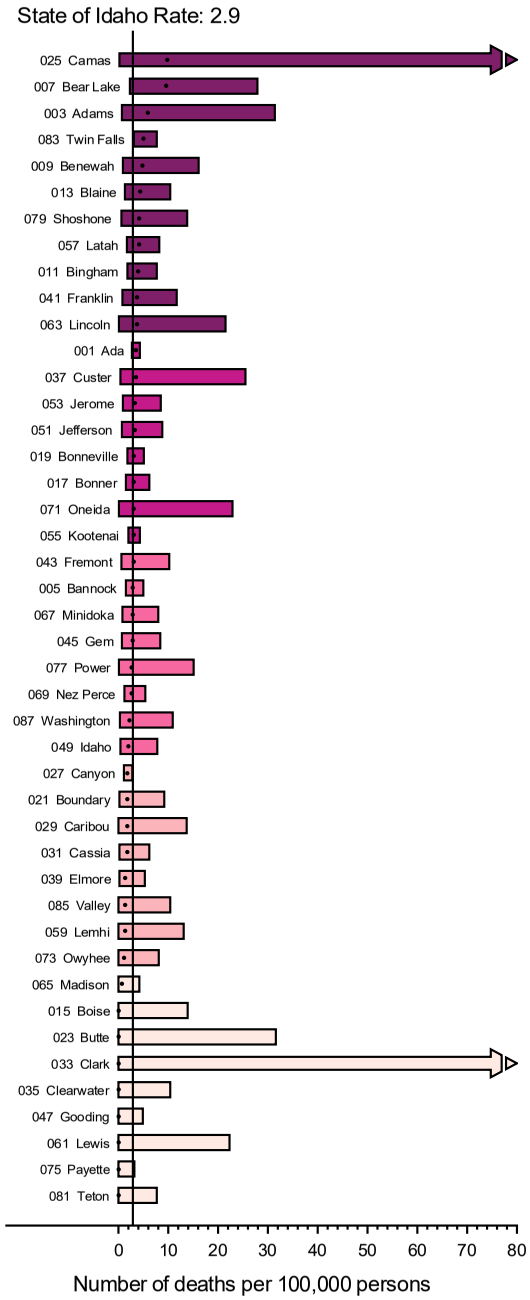
Melanoma of the Skin

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

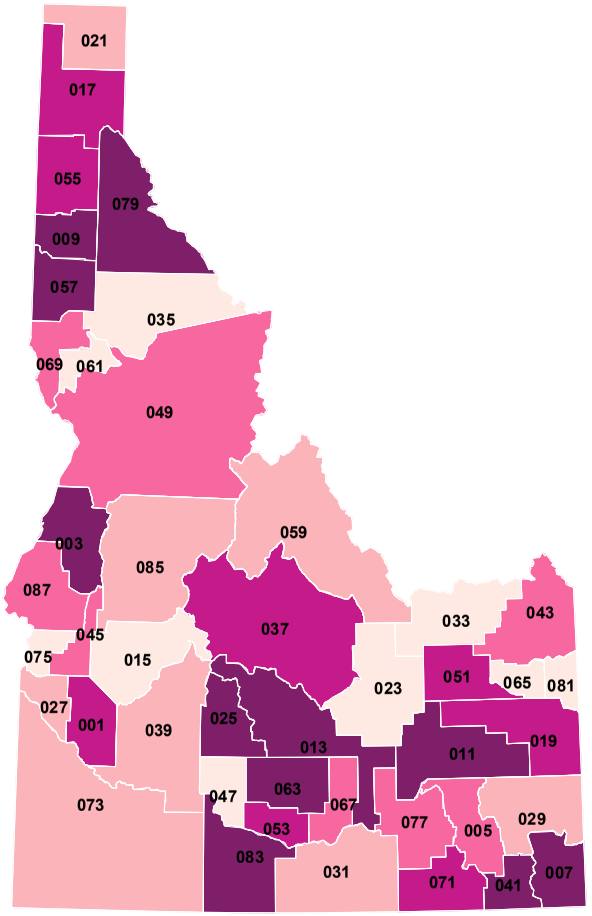


Age-Adjusted Mortality Rates

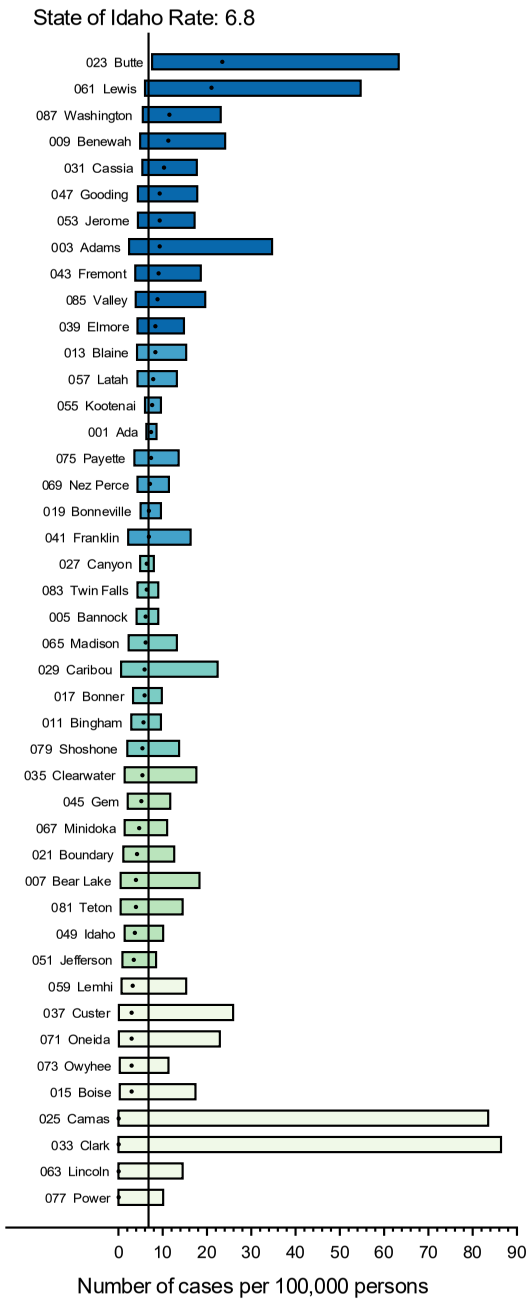
Melanoma of the Skin

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

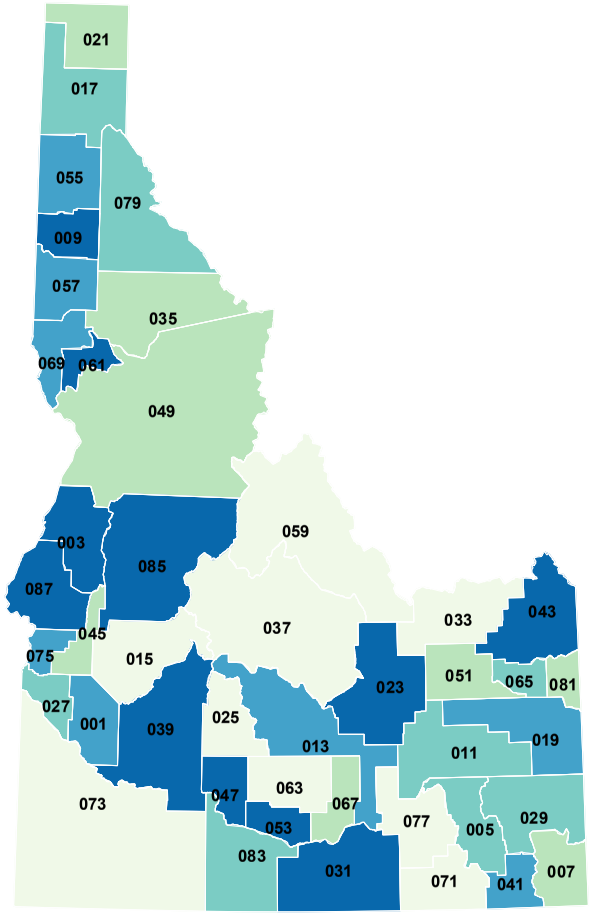


Age-Adjusted Incidence Rates

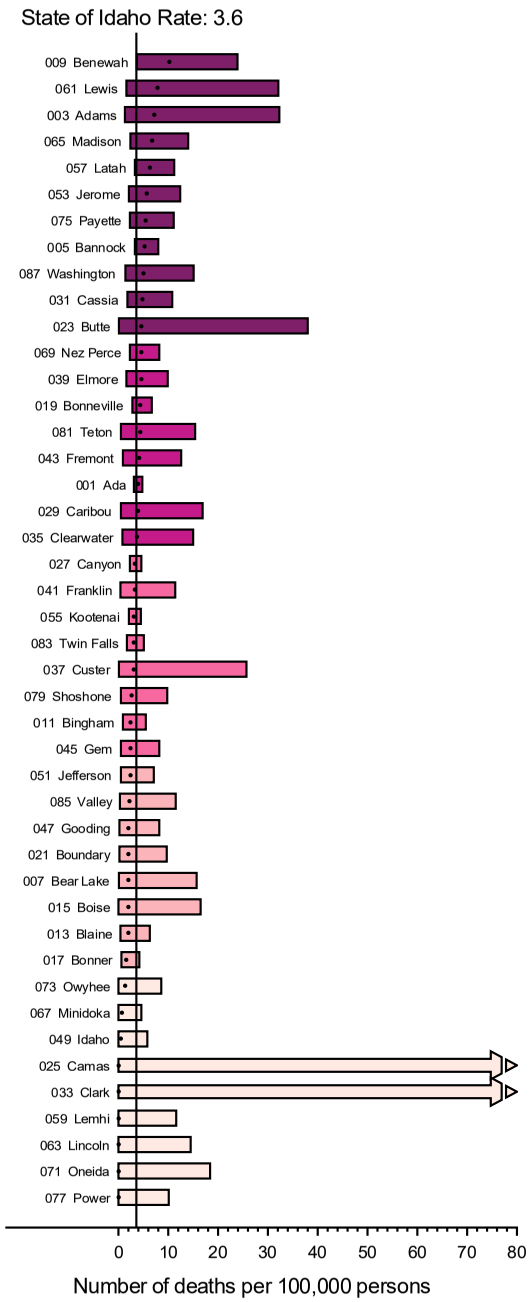
Myeloma

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

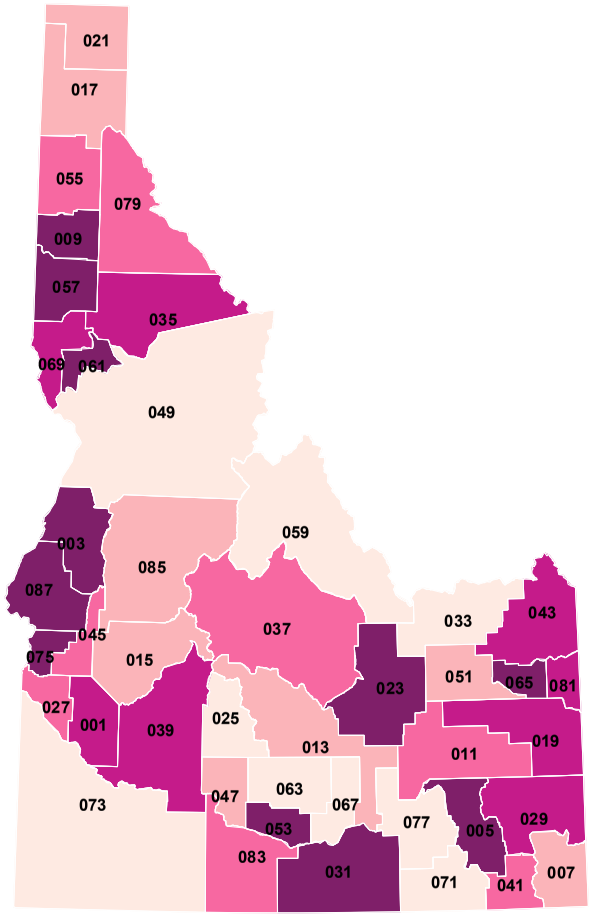


Age-Adjusted Mortality Rates

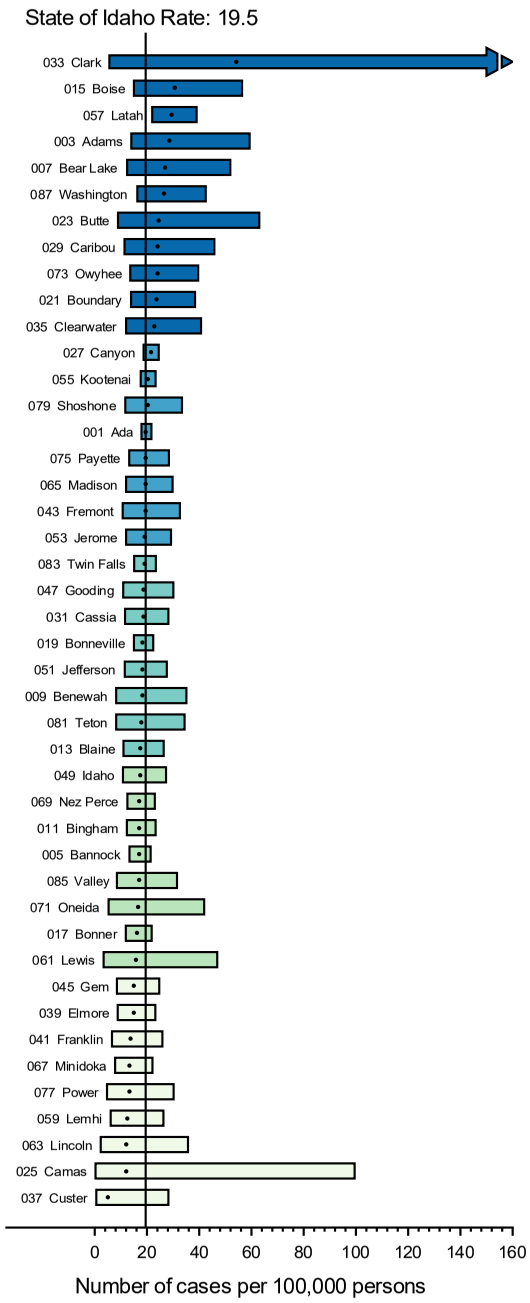
Myeloma

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

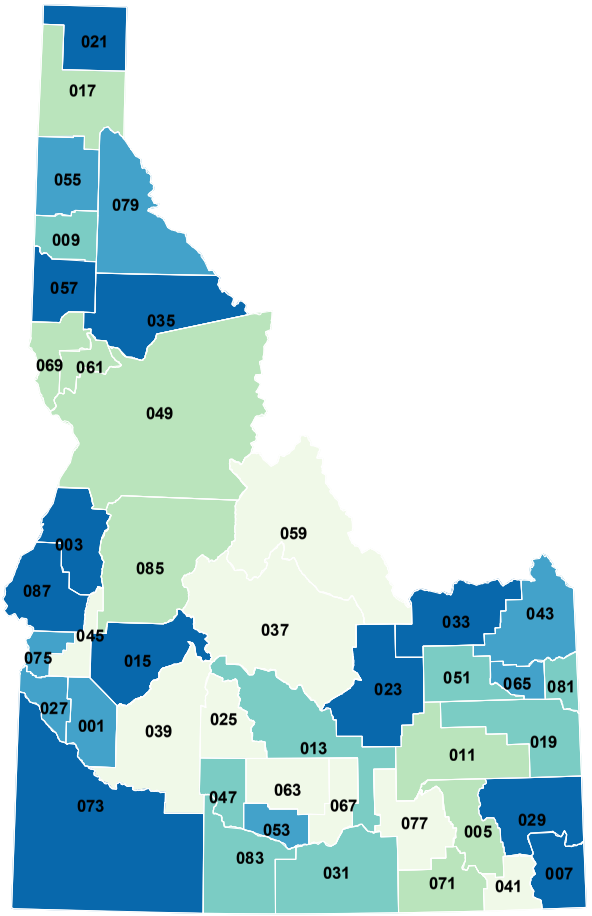


Age-Adjusted Incidence Rates

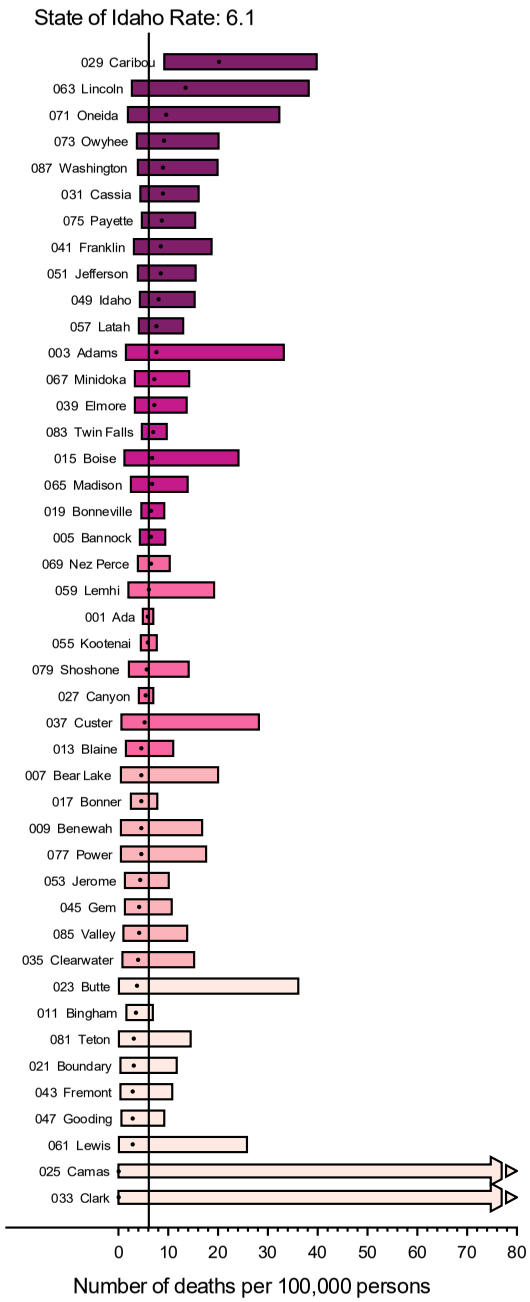
Non-Hodgkin Lymphoma

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

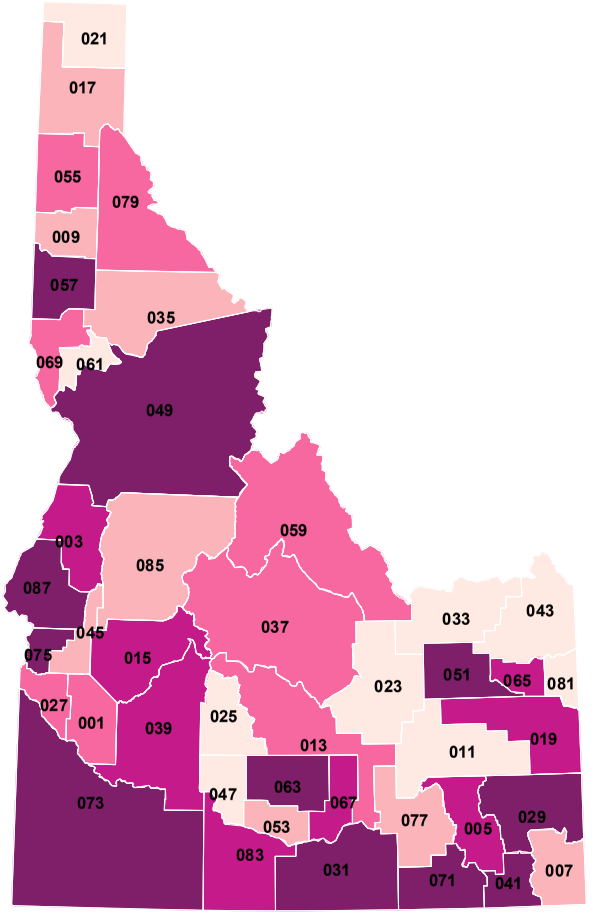


Age-Adjusted Mortality Rates

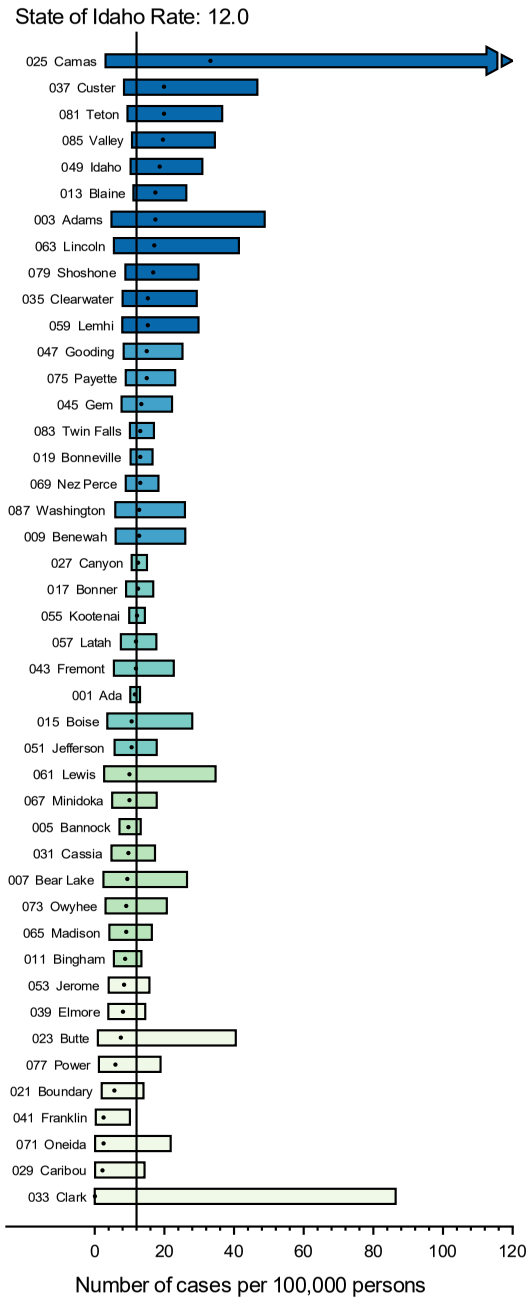
Non-Hodgkin Lymphoma

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

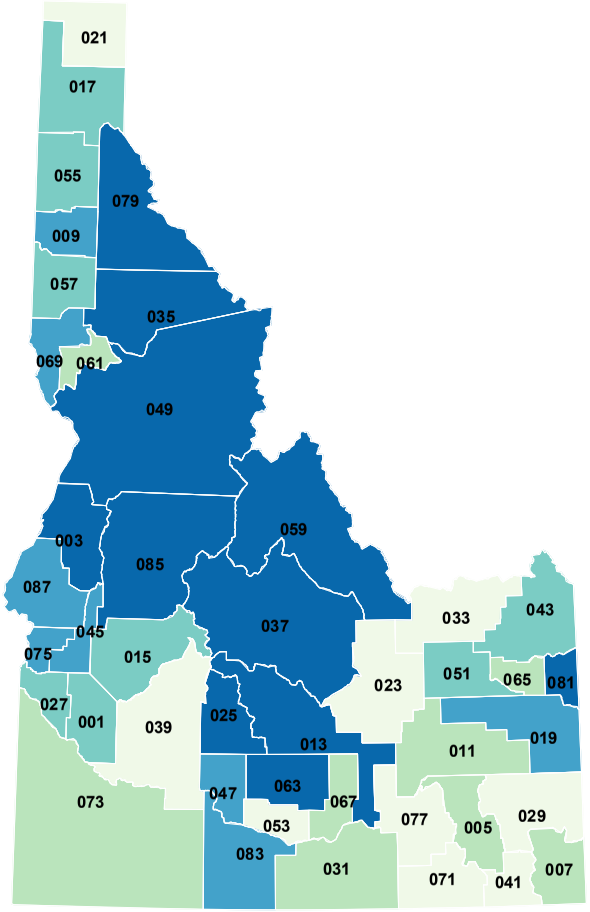


Age-Adjusted Incidence Rates

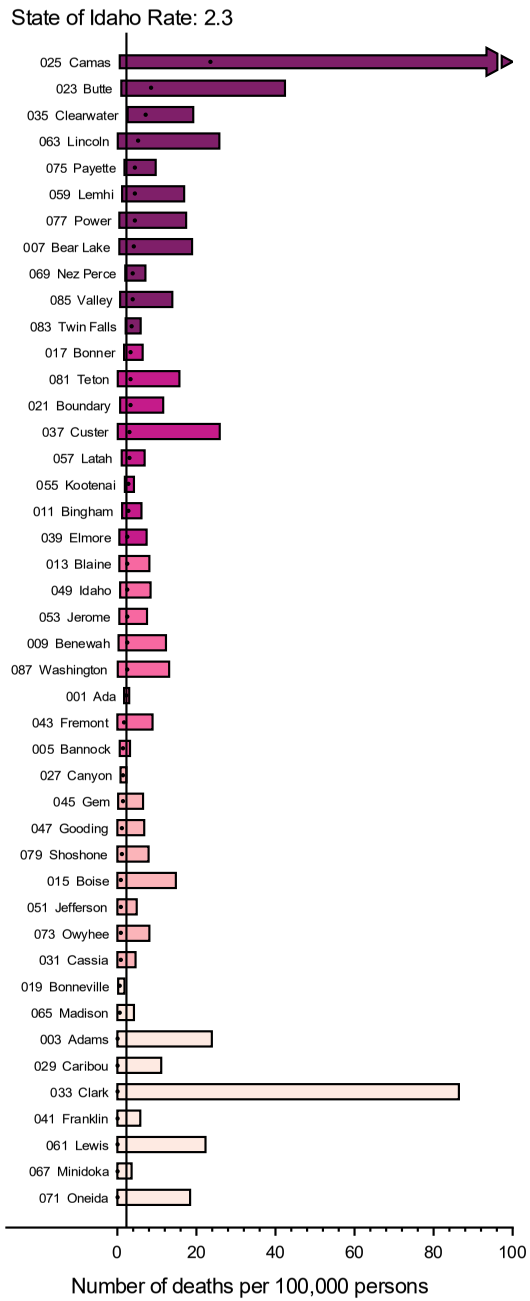
Oral Cavity and Pharynx

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

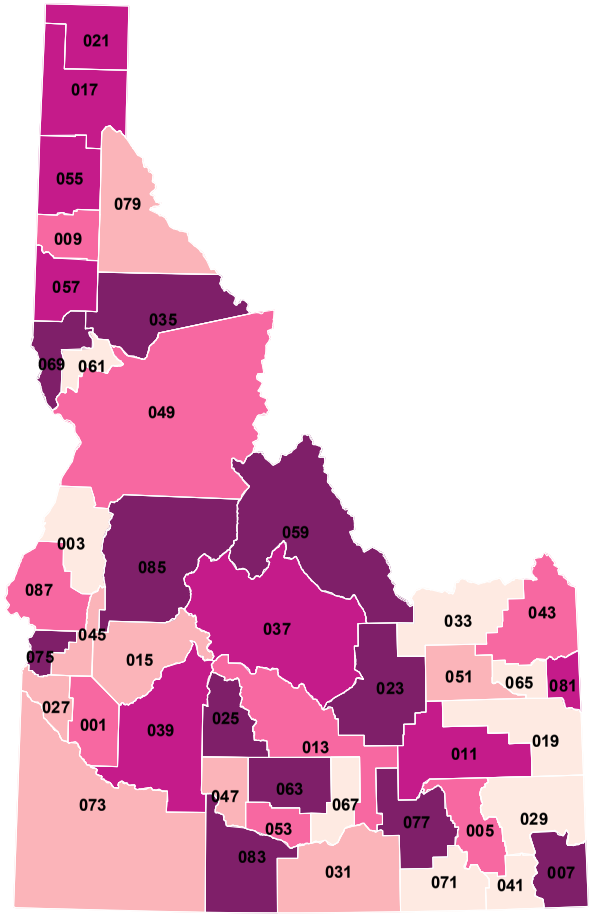


Age-Adjusted Mortality Rates

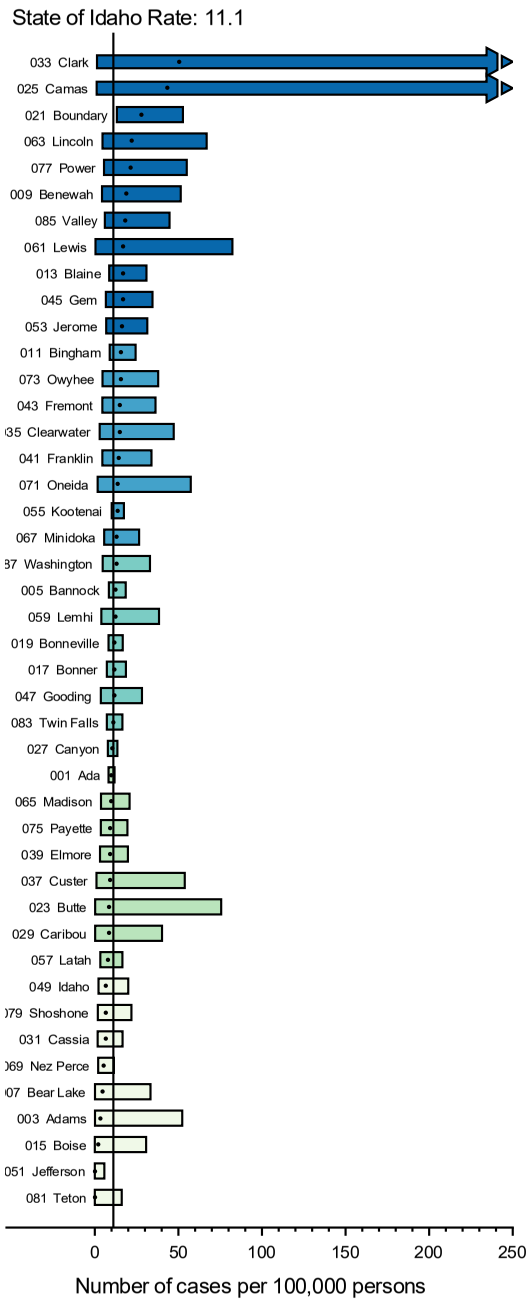
Oral Cavity and Pharynx

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

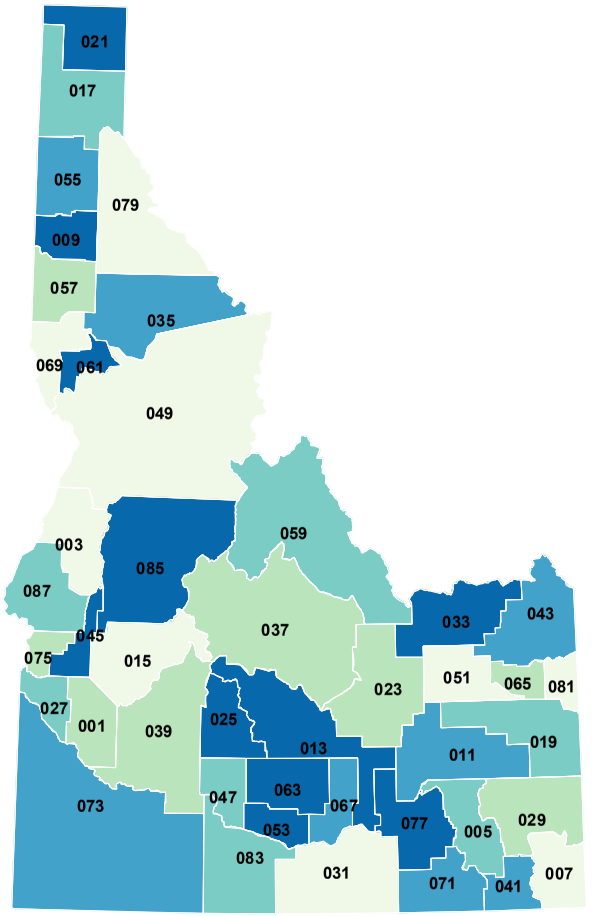


Age-Adjusted Incidence Rates

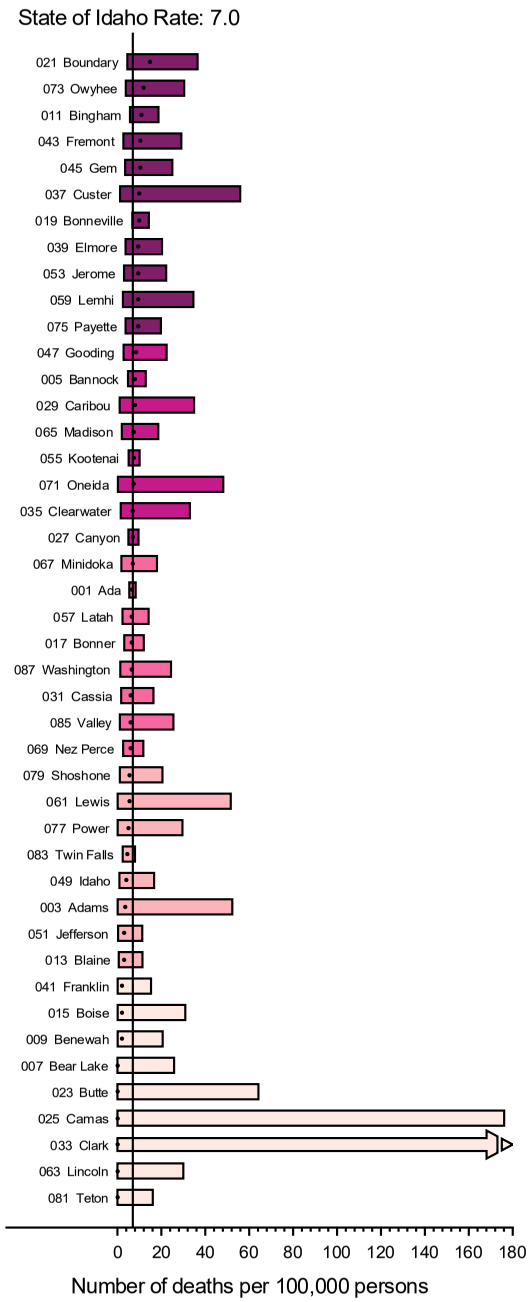
Ovary

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

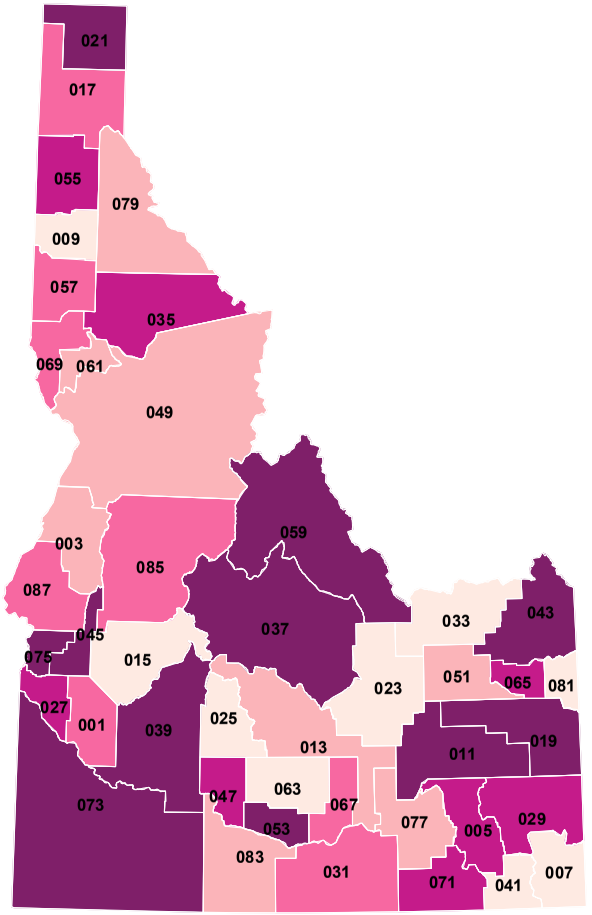


Age-Adjusted Mortality Rates

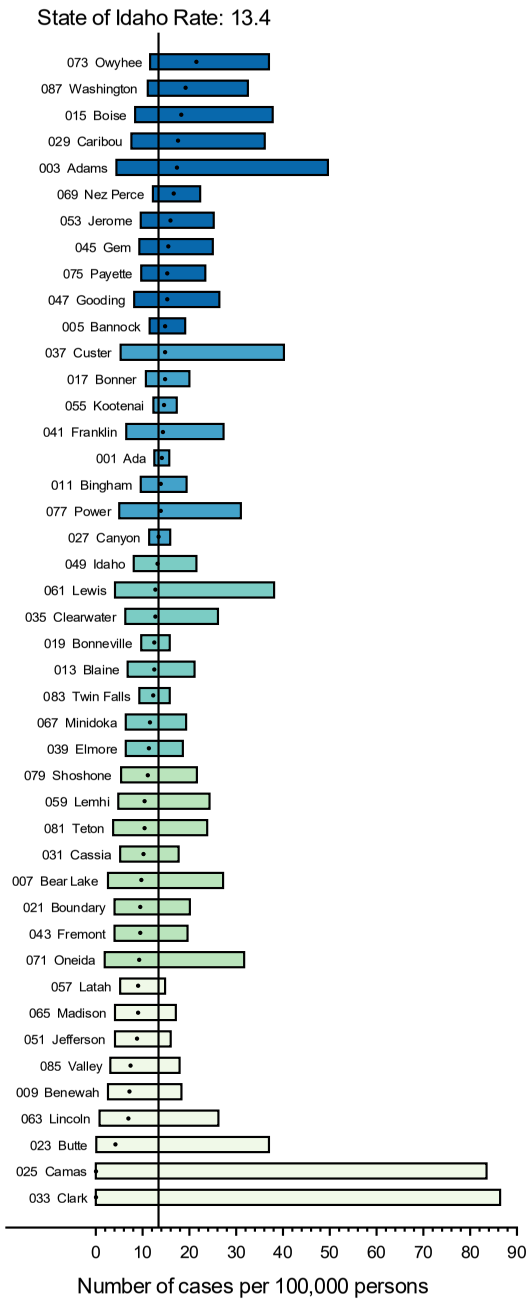
Ovary

Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

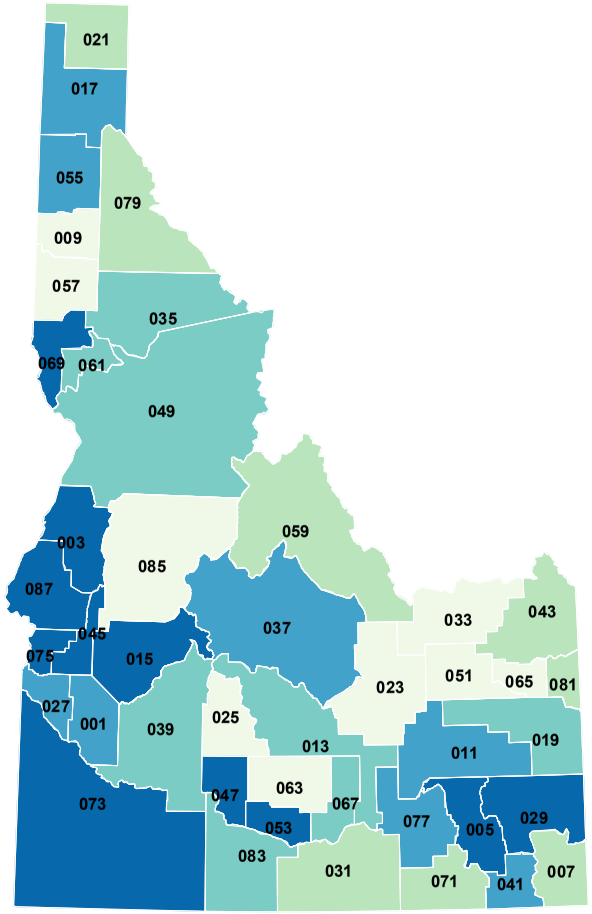


Age-Adjusted Incidence Rates

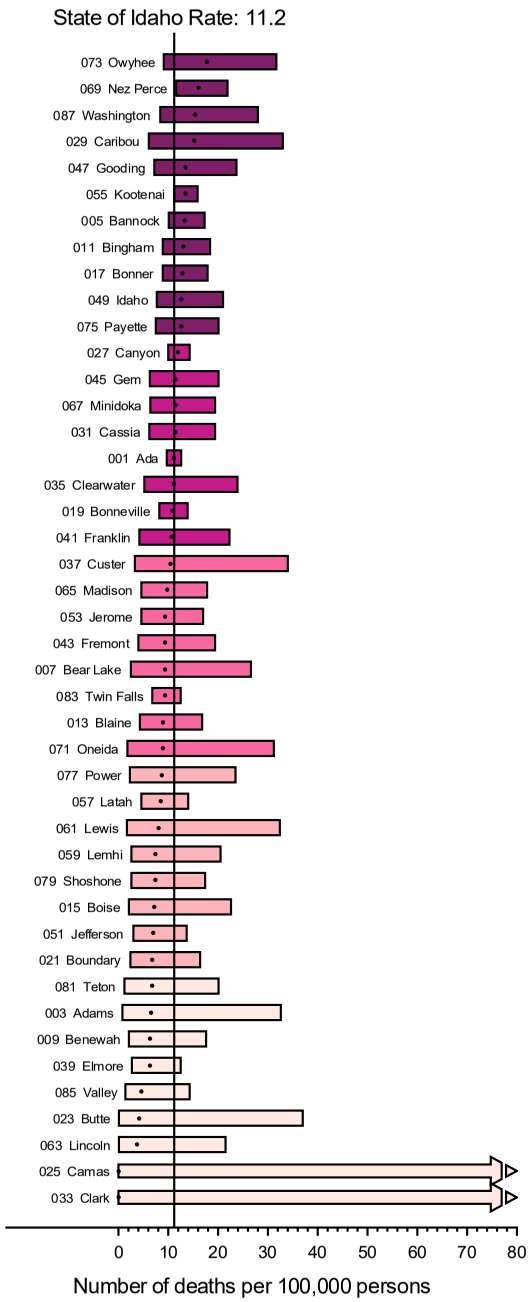
Pancreas

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

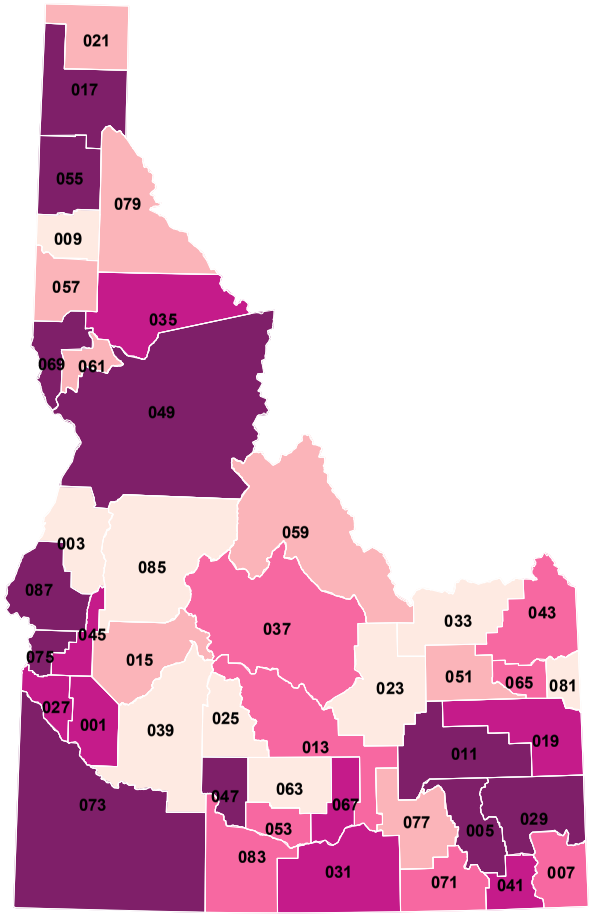


Age-Adjusted Mortality Rates

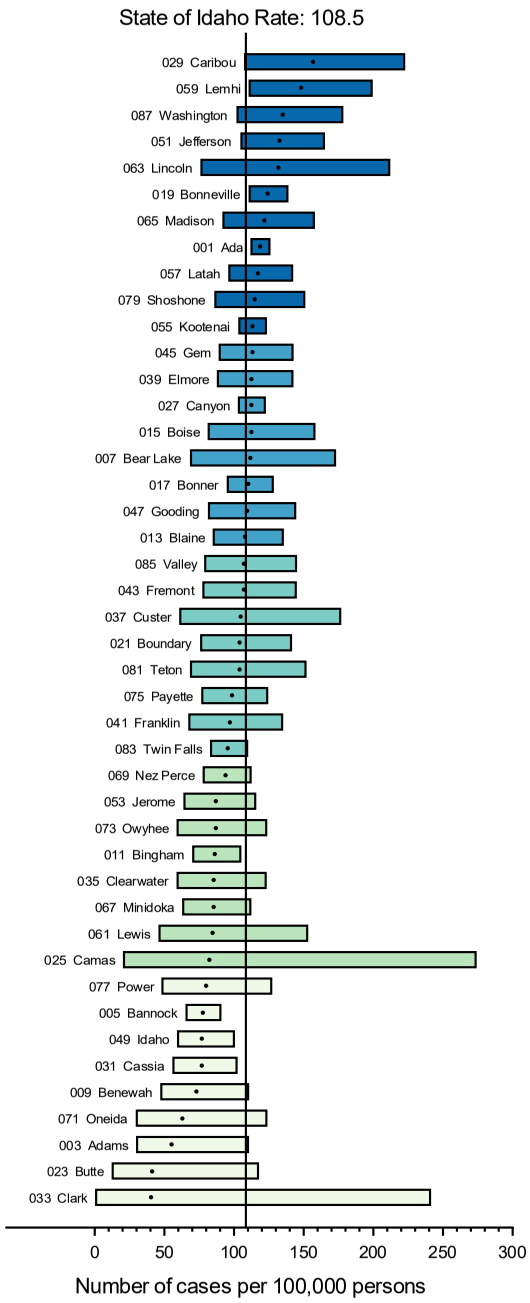
Pancreas

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

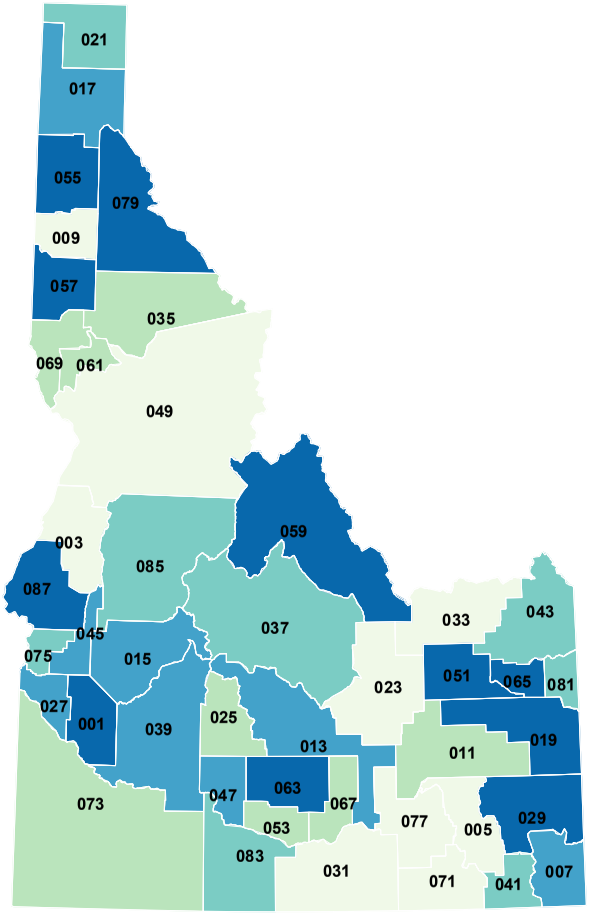


Age-Adjusted Incidence Rates

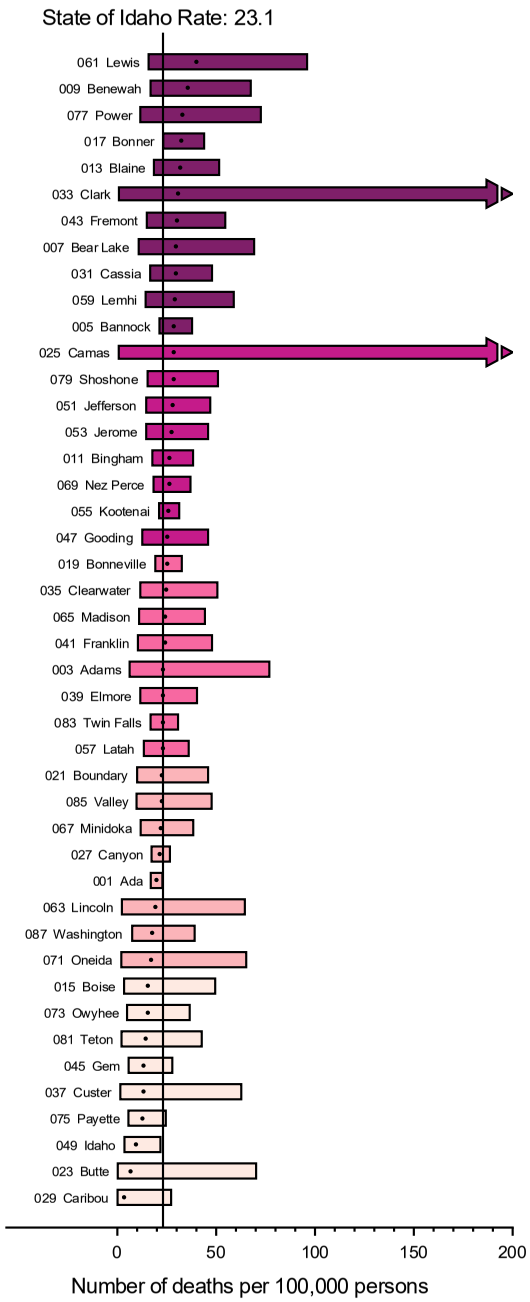
Prostate

Males

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.

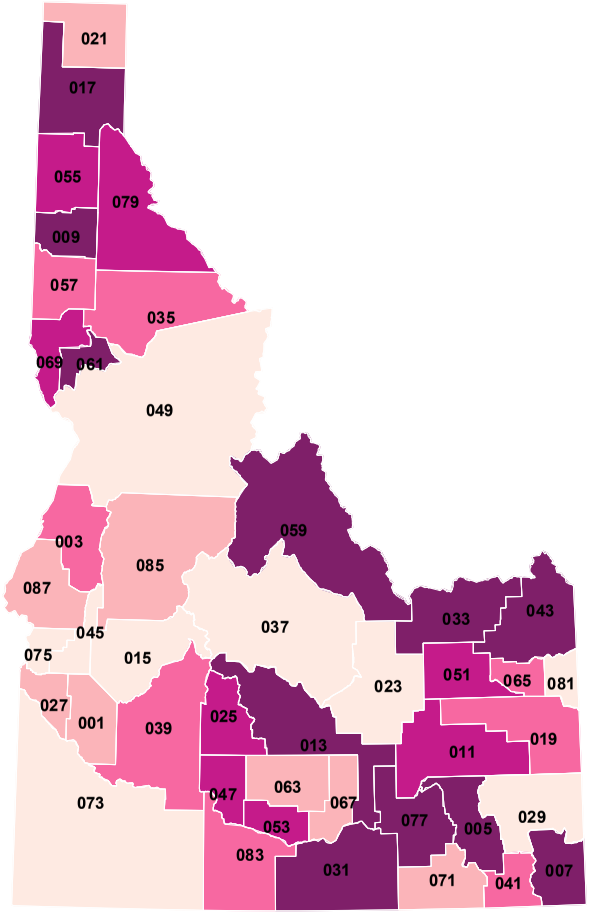


Age-Adjusted Mortality Rates

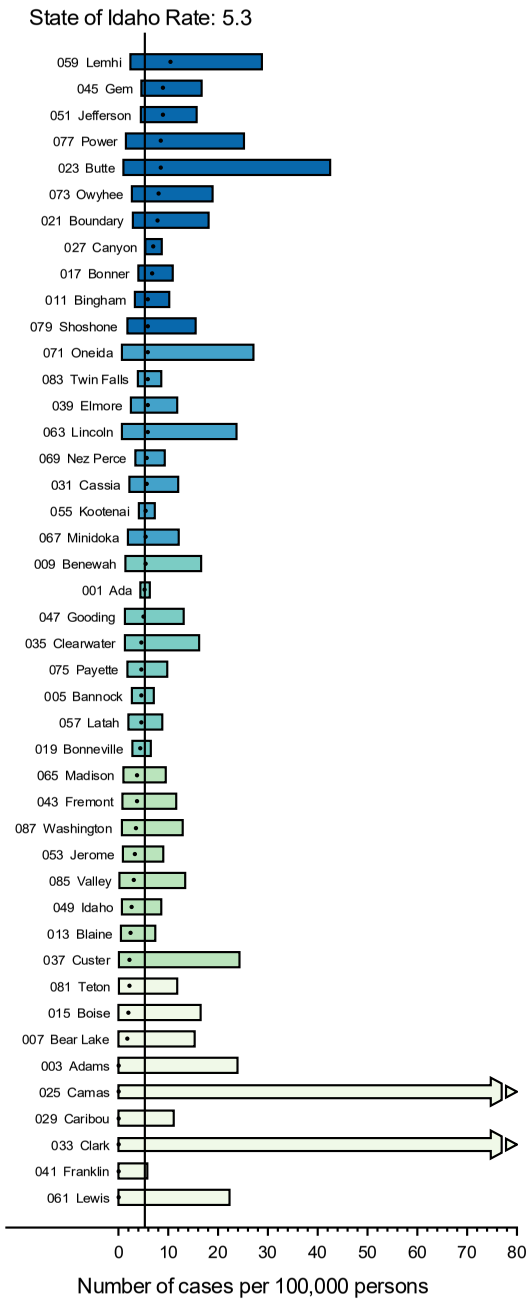
Prostate

Males

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

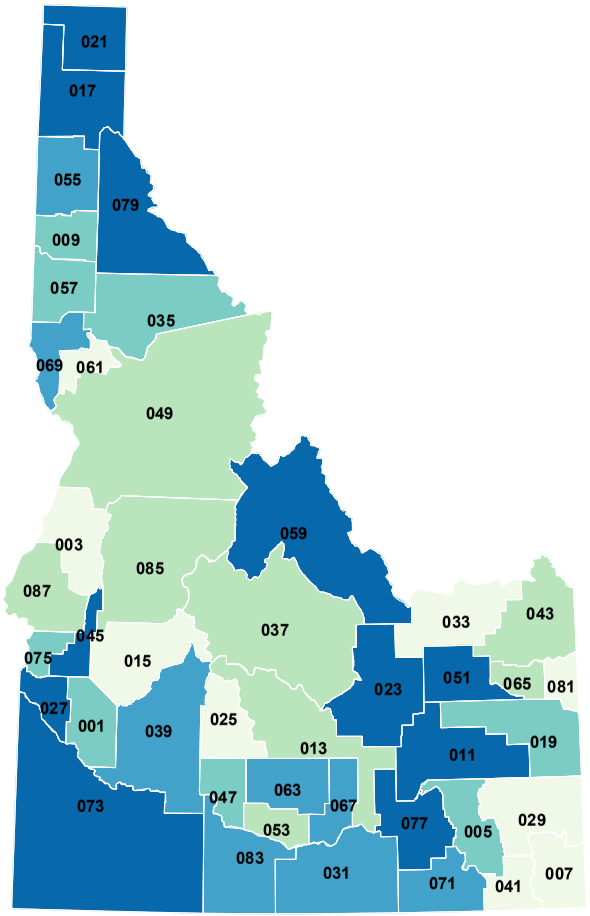


Age-Adjusted Incidence Rates

Stomach

Both Males and Females

State of Idaho, by County, 2014–2018



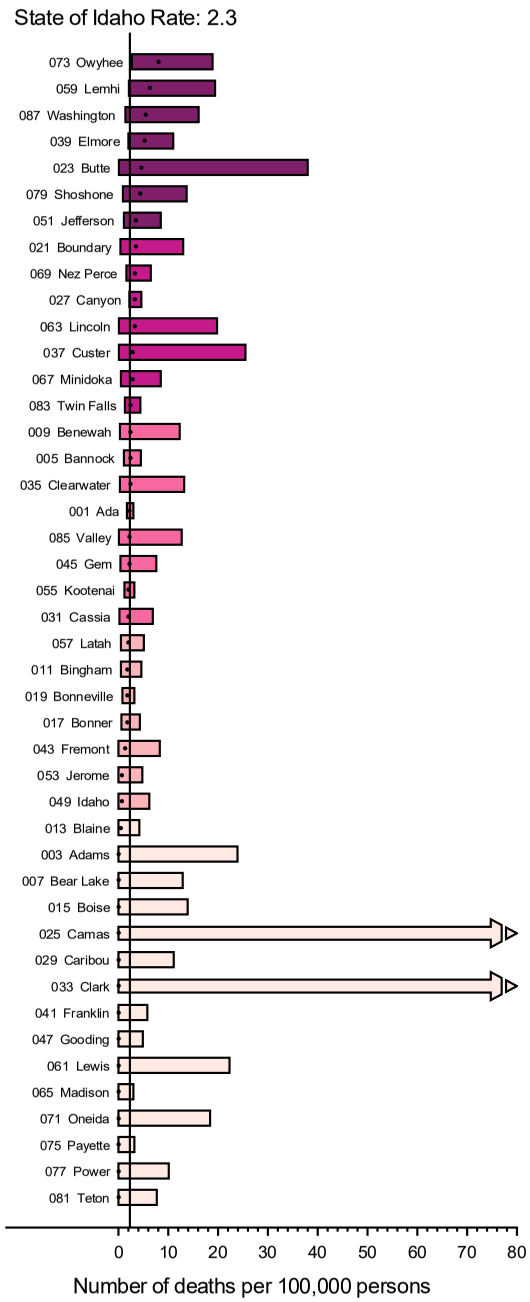
Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

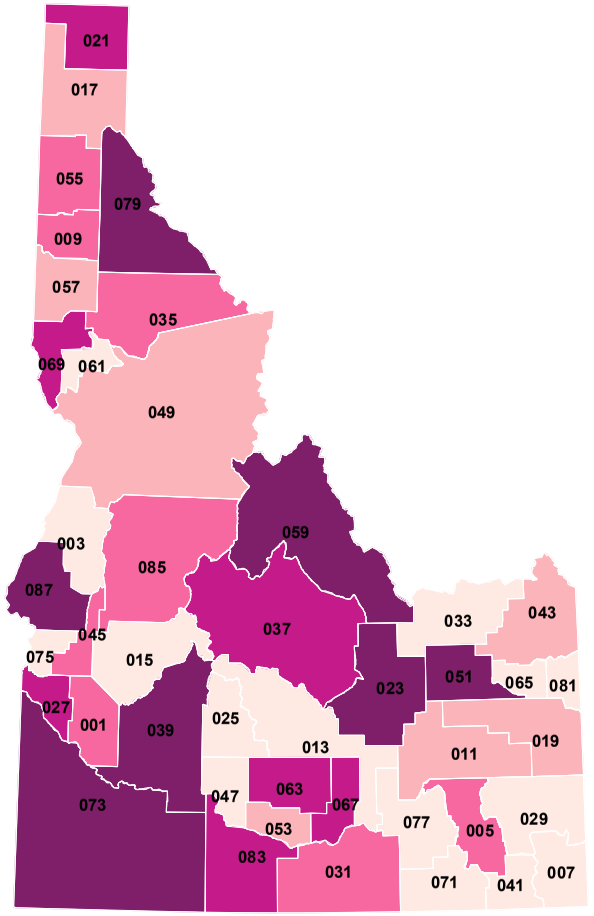
Age-Adjusted Mortality Rates

Stomach

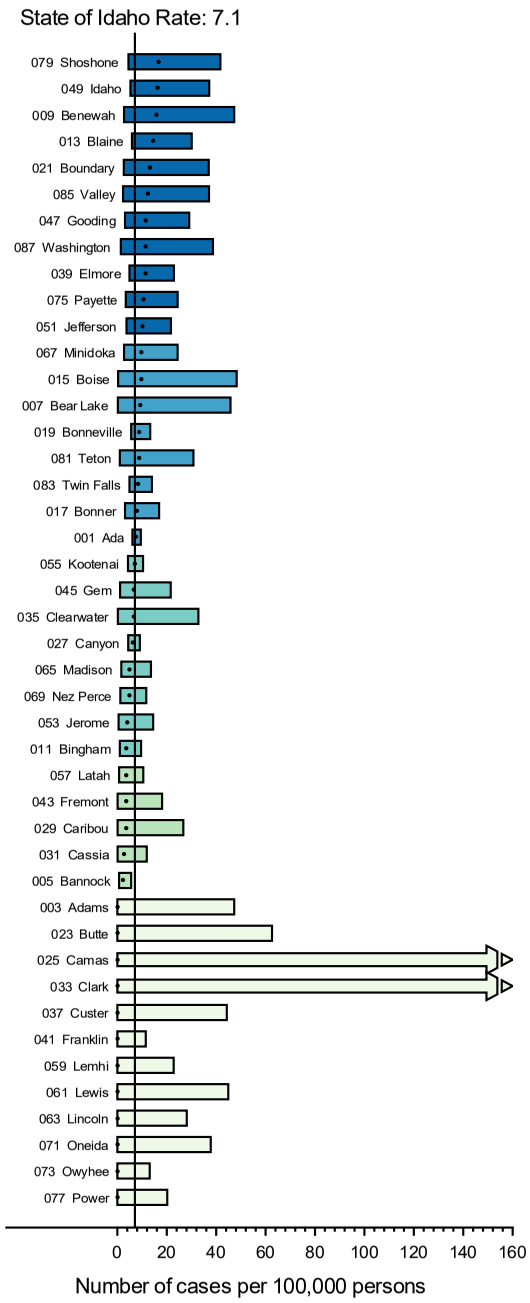
Both Males and Females

State of Idaho, by County, 2014–2018





Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

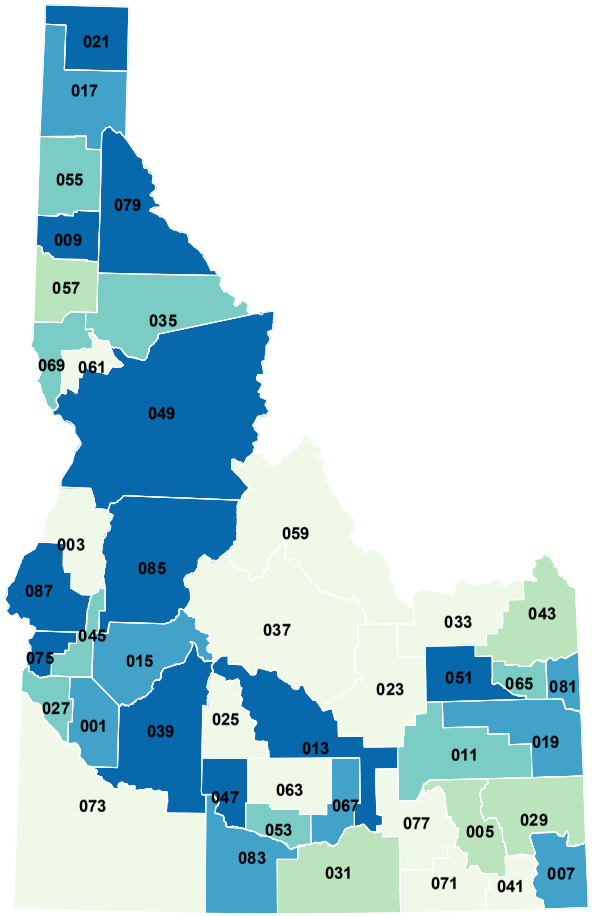


Age-Adjusted Incidence Rates

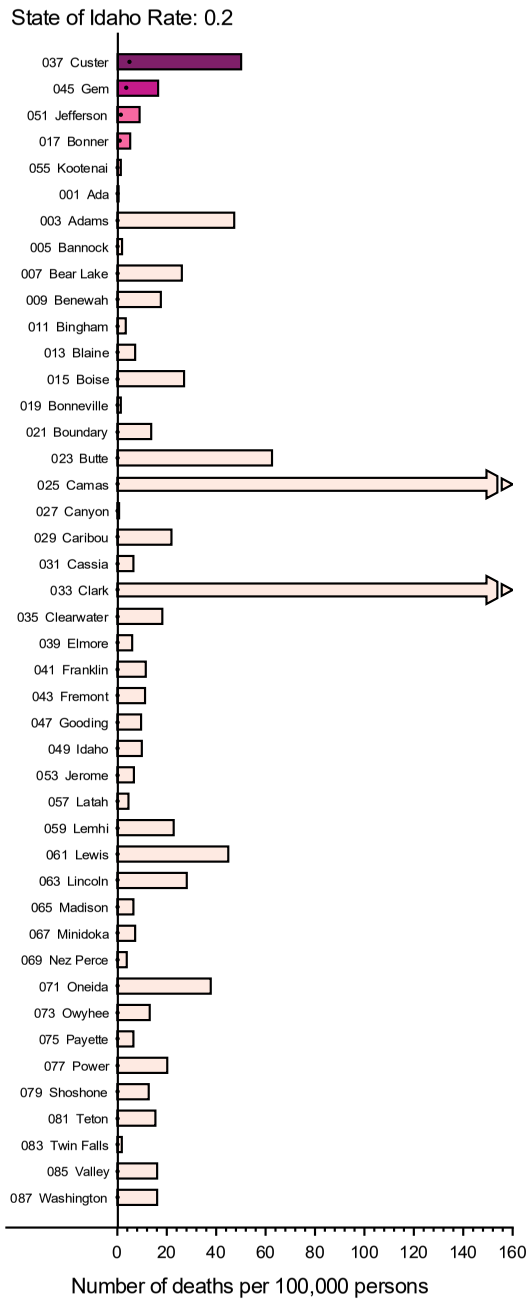
Testis

Males

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

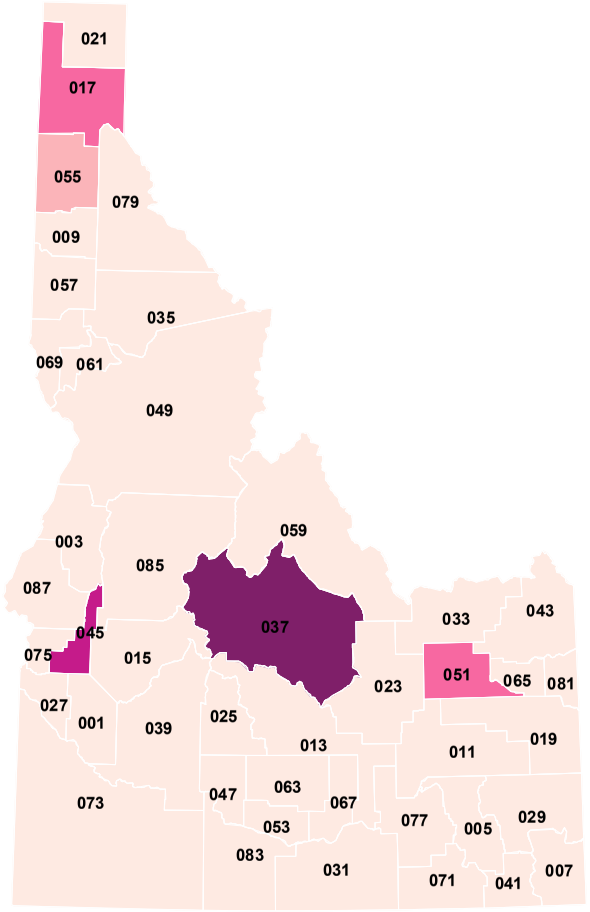


Age-Adjusted Mortality Rates

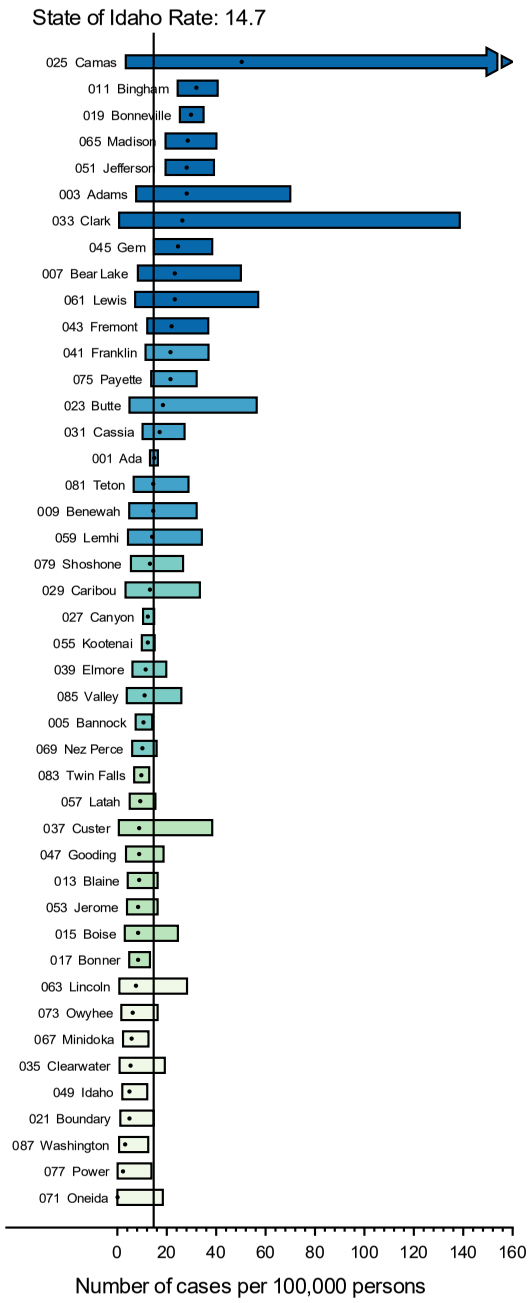
Testis

Males

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

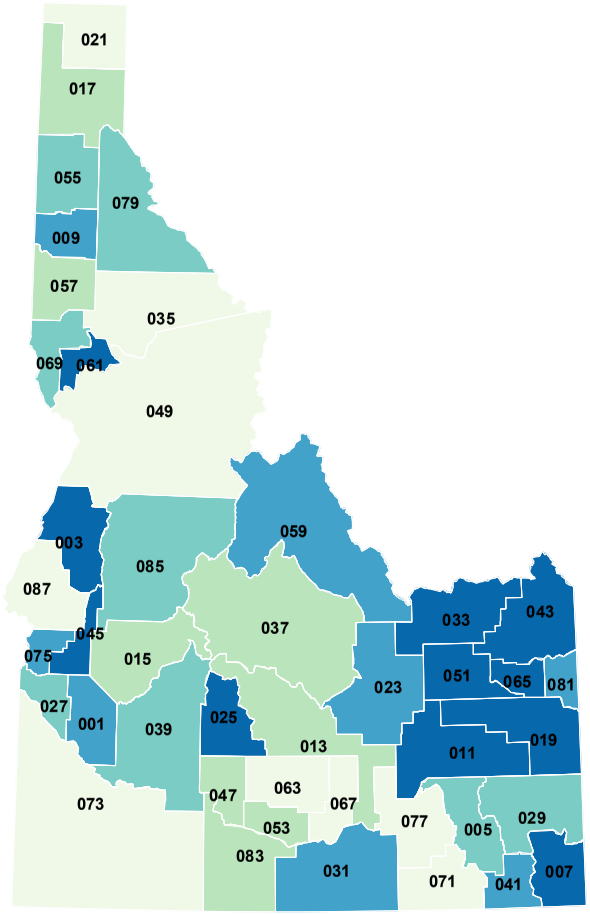


Age-Adjusted Incidence Rates

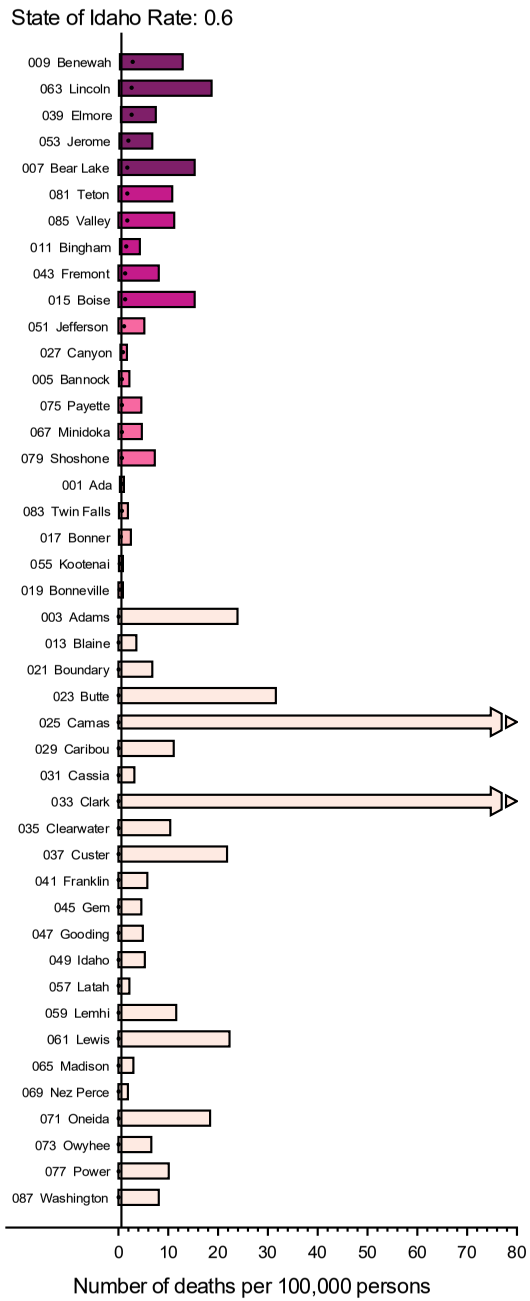
Thyroid

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

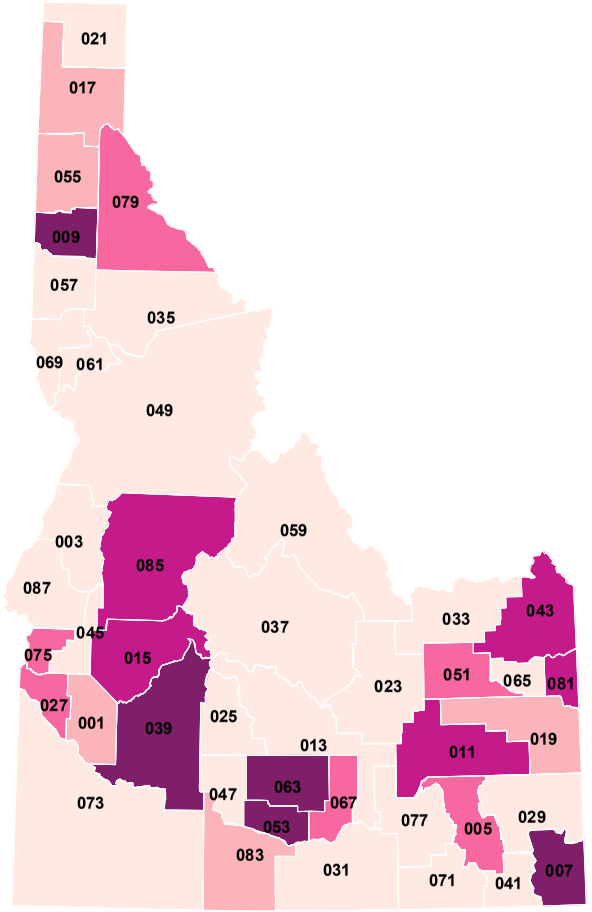


Age-Adjusted Mortality Rates

Thyroid

Both Males and Females

State of Idaho, by County, 2014–2018



Cancer Data Registry of Idaho.
Rates age-adjusted to the 2000 U.S. population. U.S. FIPS codes label counties.
Colors indicate quintiles. Width of bars indicate 95% confidence intervals.
Arrows indicate upper confidence interval extends beyond graphic area.

REFERENCES

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

2. Ruhl JL, Callaghan C, Hurlbut, A, Ries LAG, Adamo P, Dickie L, Schussler N, eds. Summary Stage 2018: Codes and Coding Instructions. National Cancer Institute, Bethesda, MD, 2018.

3. MB Amin, SB Edge, FL Greene, et al, eds. AJCC Cancer Staging Manual. 8th ed. New York: Springer; 2017.

4. Thornton ML, (ed). Standards for Cancer Registries Volume II: Data Standards and Data Dictionary, Record Layout Version 18, 21st ed. Springfield, Ill.: North American Association of Central Cancer Registries, February 2018, (Revised Mar. 2018, Apr. 2018, May 2018, Jun. 2018, Aug. 2018, Sept. 2018, Oct. 2018). Available at: http://datadictionary.naaccr.org/.

5. Adamo M, Dickie, L, Ruhl J. (January 2018). SEER Program Coding and Staging Manual 2018. National Cancer Institute, Bethesda, MD 20892. U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute. Available at: https://seer.cancer.gov/manuals/2018/SPCSM_2018_maindoc.pdf.

6. Commission on Cancer. STORE: Standards for Oncology Registry Entry. Chicago, IL: American College of Surgeons Commission on Cancer. Released 2018. Available at: https://www.facs.org/quality-programs/cancer/ncdb/registrymanuals/cocmanuals.

7. Johnson CH, Peace S, Adamo P, Fritz A, Percy-Laurry A, Edwards BK. The 2007 Multiple Primary and Histology Coding Rules. National Cancer Institute, Surveillance, Epidemiology and End Results Program. Bethesda, MD, 2007. Available at: https://seer.cancer.gov/tools/mphrules.

8. Ruhl J, Adamo M, Dickie L. (January 2015). Hematopoietic and Lymphoid Neoplasm Coding Manual. National Cancer Institute, Bethesda, MD. Available at: https://seer.cancer.gov/tools/heme/Hematopoietic_Instructions_and_Rules.pdf.

9. Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: National Program of Cancer Registries (NPCR) and SEER Incidence Public Use Data, 2001-2017, released June 2020 These data were provided by central cancer registries participating in the NPCR and SEER Programs and submitted in November 2019.

10. Cancer in North America: 2013-2017, Volume Two: Registry-Specific Cancer Incidence in the United States and Canada. Springfield, Ill.: North American Association of Central Cancer Registries, June 2020, pp 121-128. Available at: https://www.naaccr.org/cancer-in-north-america-cina-volumes/#Vol2.

11. National Center for Health Statistics. Vintage 2019 postcensal estimates of the resident population of the United States (April 1, 2010, July 1, 2010-July 1, 2019), by year, county, single-year of age (0, 1, 2,.. 85 years and over), bridged race, Hispanic origin, and sex. Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: https://www.cdc.gov/nchs/nvss/bridged_race.htm as of July 9, 2020, following release by the U.S. Census Bureau of the unbridged Vintage 2019 postcensal estimates by 5-year age group on June 25, 2020.

12. Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence - SEER Research Limited-Field Data, 21 Registries, Nov 2019 Sub (2000-2017) - Linked To County Attributes - Time Dependent (1990-2017) Income/Rurality, 1969-2018 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, released April 2020, based on the November 2019 submission.

13. Thun M, Linet M, Cerhan J, Haiman C, Schottenfeld D (Eds). Schottenfeld and Fraumeni Cancer Epidemiology and Prevention. Fouth ed. New York, NY: Oxford University Press; 2018.

14. PDQ® Screening and Prevention Editorial Board. PDQ Cancer Prevention Overview. Bethesda, MD: National Cancer Institute. Updated 10/04/2019. Available at: https://www.cancer.gov/about-cancer/causes-prevention/hp-prevention-overview-pdq. Accessed 11/08/2019.

15. Cogliano VJ, Baan R, Straif K, Grosse Y, Lauby-Secretan B, El Ghissassi F, Bouvard V, Benbrahim-Tallaa L, Guha N, Freeman C, Galichet L, Wild CP. Preventable exposures associated with human cancers. J Natl Cancer Inst. 2011;103(24):1827-39. Epub 2011/12/14. doi: 10.1093/jnci/djr483.

16. DevCan: Probability of Developing or Dying of Cancer Software, Version 6.7.8.5. Surveillance Research Program, Statistical Methodology and Applications, National Cancer Institute, 2012. Available at: http://surveillance.cancer.gov/devcan/.

17. Joinpoint Regression Program, Version 4.8.0.1. April 2020; Statistical Research and Applications Branch, National Cancer Institute. Available at: https://surveillance.cancer.gov/joinpoint/.

18. Final 2018 mortality data, Bureau of Vital Records and Health Statistics, Division of Public Health, Idaho Department of Health and Welfare; October 2019.

19. Cronin KA, Feuer EJ. Cumulative cause-specific mortality for cancer patients in the presence of other causes: a crude analogue of relative survival. Stat Med 2000 Jul 15;19(13):1729-40.

20. Ellison LF. Adjusting relative survival estimates for cancer mortality in the general population. Statistics Canada, Catalogue no. 82-003-X, Health Reports, Vol. 25, no. 11, pp. 3-9, November 2014.

21. Howlader N, Ries LA, Mariotto AB, Reichman ME, Ruhl J, Cronin KA. Improved Estimates of Cancer-Specific Survival Rates From Population-Based Data. J Natl Cancer Inst 2010 Oct 20;102(20):1584-98. Epub 2010 Oct 11.

22. Ederer F, Heise H (1959). Instructions to IBM 650 programmers in processing survival computations, methodological note 10. End Results Evaluation Section, National Cancer Institute.

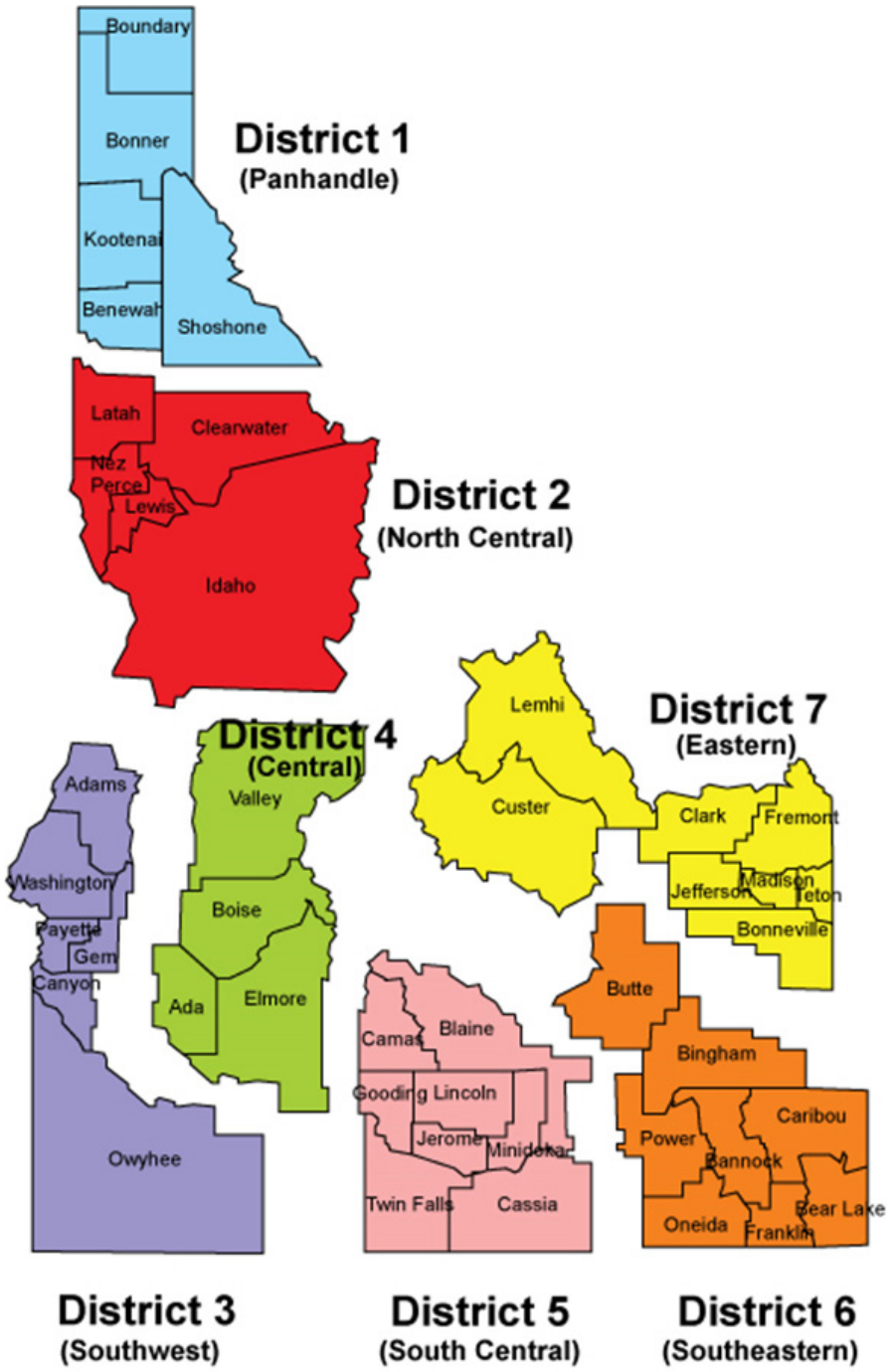
23. Mariotto AB, Zou J, Johnson CJ, Weir HK, Scoppa S, Huang B. Geographical, racial and socio-economic variation in life expectancy in the US and their impact on cancer relative survival. PLoS One. 2018 Jul 25;13(7):e0201034. doi: 10.1371/journal.pone.0201034.

24. Corazziari I, Quinn M, Capocaccia R. Standard cancer patient population for age standardising survival ratios. Eur J Cancer. 2004 Oct;40(15):2307-16.

APPENDICES

APPENDIX A

Map of Idaho Public Health Districts and Counties



Source: https://healthandwelfare.idaho.gov/health-wellness/community-health/public-health-districts

APPENDIX B

2000 U.S. STANDARD POPULATION

Age Group	2000 US Standard Population (Census P25-1130)
0	3,794,901
10-14	20,056,779
15-19	19,819,518
20-24	18,257,225
25-29	17,722,067
30-34	19,511,370
35-39	22,179,956
40-44	22,479,229
45-49	19,805,793
50-54	17,224,359
55-59	13,307,234
60-64	10,654,272
65-69	9,409,940
70-74	8,725,574
75-79	7,414,559
80-84	4,900,234
85+	4,259,173
Total	274,633,642

Source: SEER Program, National Cancer Institute, 2020.[16]

APPENDIX C

2018 POPULATION BY HEALTH DISTRICT, GENDER, AND AGE GROUP

	HD 1	HD 2	HD 3	HD 4	HD 5	HD 6	HD 7	STATE
Males								
< 5	7,155	2,952	10,516	15,364	7,302	6,247	9,513	59,049
5 to 9	7,419	3,070	11,257	16,774	7,919	6,963	8,949	62,351
10 to 14	7,927	3,118	11,985	18,648	8,363	7,380	9,366	66,787
15 to 19	7,281	3,999	10,995	17,869	7,109	7,058	8,635	62,946
20 to 24	6,362	5,656	9,345	16,676	5,951	5,695	10,362	60,047
25 to 29	7,246	4,209	9,587	19,261	6,682	5,859	8,472	61,316
30 to 34	6,932	3,164	8,968	18,646	6,458	5,621	6,983	56,772
35 to 39	7,130	3,187	9,034	19,207	6,581	5,763	7,379	58,281
40 to 44	6,821	2,766	8,718	17,219	6,045	5,144	6,429	53,142
45 to 49	7,039	2,945	8,538	17,304	5,450	4,539	5,589	51,404
50 to 54	7,204	2,949	8,107	15,656	5,546	4,260	5,404	49,126
55 to 59	8,348	3,474	8,308	16,054	5,964	5,064	6,061	53,273
60 to 64	8,603	3,644	7,935	14,707	5,725	5,186	5,653	51,453
65 to 69	8,301	3,527	7,176	12,880	4,863	4,378	4,926	46,051
70 to 74	6,553	2,714	5,851	10,042	3,903	3,288	3,686	36,037
75 to 79	4,455	1,897	4,002	6,035	2,825	2,191	2,467	23,872
80 to 84	2,455	1,218	2,357	3,433	1,666	1,321	1,506	13,956
85+	1,887	1,050	1,732	2,965	1,392	1,158	1,284	11,468
Total	119,118	55,539	144,411	258,740	99,744	87,115	112,664	877,331

	HD 1	HD 2	HD 3	HD 4	HD 5	HD 6	HD 7	STATE
Females								
< 5	6,790	2,874	10,188	14,761	7,117	6,264	8,777	56,771
5 to 9	7,142	2,931	10,712	16,265	7,777	6,727	8,792	60,346
10 to 14	7,312	2,879	11,508	17,902	8,004	7,061	8,949	63,615
15 to 19	6,975	3,707	10,387	16,707	6,776	6,422	9,380	60,354
20 to 24	5,833	4,856	8,861	14,778	5,650	5,349	9,369	54,696
25 to 29	7,150	3,489	9,607	17,870	6,519	5,808	7,515	57,958
30 to 34	7,066	3,010	9,046	17,752	6,265	5,609	6,692	55,440
35 to 39	7,137	2,994	9,356	18,449	6,331	5,760	7,201	57,228
40 to 44	6,840	2,619	8,756	16,613	5,587	5,109	6,090	51,614
45 to 49	7,118	2,876	8,583	16,417	5,353	4,527	5,502	50,376
50 to 54	7,584	2,977	8,140	15,449	5,275	4,451	5,145	49,021
55 to 59	8,866	3,687	8,863	16,466	6,217	5,207	5,964	55,270
60 to 64	9,496	3,728	8,430	16,020	5,938	5,301	5,823	54,736
65 to 69	8,750	3,405	7,639	13,957	5,142	4,456	5,010	48,359
70 to 74	6,623	2,679	6,277	10,550	4,120	3,411	3,726	37,386
75 to 79	4,570	1,994	4,386	6,916	3,019	2,365	2,784	26,034
80 to 84	2,661	1,314	2,529	4,382	2,018	1,637	1,696	16,237
85+	2,907	1,593	2,669	4,808	2,159	1,758	1,870	17,764
Total	120,820	53,612	145,937	256,062	99,267	87,222	110,285	873,205

Total	239,938	109,151	290,348	514,802	199,011	174,337	222,949	1,750,536

Source: National Center for Health Statistics, 2020.