Annual Report of the Cancer Data Registry of Idaho

Cancer in Idaho – 2016

December 2018

CDRI Cancer Data Registry of Idaho

Idaho Hospital Association

IDAHO DEPARTMENT OF HEALTH & WELFARE

CANCER IN IDAHO - 2016

December 2018

A Publication of the
Cancer Data Registry of Idaho

Editors:

Christopher J. Johnson, MPH, Epidemiologist
Stacey L. Carson, RHIT, Vice President Operations and Registry Services

Contributors:

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

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

PREFACE

"Cancer in Idaho - 2016," the fortieth annual report of the Cancer Data Registry of Idaho (CDRI), contains information on the cancer burden among Idaho residents, with a focus on cancer cases diagnosed during 2016. The data can be used by public health officials, hospital administrators, physicians, the Comprehensive Cancer Alliance for Idaho, and others to effectively plan services, prioritize health resource allocations, develop and measure prevention and intervention strategies, and identify high-risk populations within the state of Idaho.

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 would also like to thank 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, Carson SL. *Cancer in Idaho, 2016*. Boise, ID: Cancer Data Registry of Idaho; December 2018.

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 - 2016 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 - State of Idaho - 2016 Incidence Data by Site and Gender 63

6. Section III - State of Idaho - 2016 Mortality Rates by Site and Gender 67

TABLE OF CONTENTS

7. Section IV - 2016 Age-specific Incidence Rates per 100,000 Population by Site and Gender 69

8. Section V - 2016 Observed vs. Expected Numbers by Health District 73
   - All Sexes 74
   - Males 75
   - Females 76

9. Section VI - Risks of Being Diagnosed 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, 1975-2016 83

11. Section VIII - Cancer Incidence by Race and Ethnicity, 2012-2016 97

12. Section IX - Cancer Survival, 2009-2015 99

13. References 103

14. Appendices 105

    A. 2000 United States Standard Population 106
    B. 2016 State of Idaho Population 107

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 reside in the state of Idaho or 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 social characteristics;
- monitor trends and patterns of cancer incidence over time;
- identify high risk populations;
- provide a database and serve as a resource for conducting epidemiologic studies; and
- provide data to assist public health officials, hospital administrators, and physicians to effectively plan services, prioritize health resource allocations, and develop and measure prevention and intervention strategies.

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 a portion (less than one percent) of the cigarette tax to 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 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 2000*, the *AJCC Manual for Staging of Cancer, 7th edition*, which were used to calculate NPCR-derived clinical and pathologic stage group.[2,3,4] 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.[5-8] Beginning with cases diagnosed in 2010, new rules for coding hematopoietic and lymphoid neoplasms were applied.[9]

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.

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

Basal and squamous cell carcinomas of the skin are excluded except when occurring on a mucous membrane or if the AJCC stage group is II, III, or IV.

Under Idaho Code and as recommended by NAACCR, cervix in situ cases are not currently reportable.

Confidentiality of Data

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

Quality Assurance

To assure validity and reliability of data presented, CDRI has many mechanisms in place to check data for quality and completeness. CDRI uses GenEDITS Plus software which has standard edits using algorithms that check the content of data fields against an encoded set of acceptable possible contents and flags the acceptability of coded data. Edits include field edits, inter-field edits, and inter-record edits. Edits check for unlikely sex/site, site/histology, and site/age combinations. Records are also routinely checked for duplicate entries. Duplicate case checking is performed both manually and electronically using several methodologies.

CDRI has met NPCR program standards and is recognized as a "gold standard registry" for quality, completeness, and timeliness as designated by NAACCR. These designations enable Idaho data to be included in *United States Cancer Statistics* and all NAACCR volumes of "*Cancer Incidence in North America*."

Executive Summary

Data Presentation

This report is comprised of nine 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, 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), which are combined from SEER and the Centers for Disease Control and Prevention's National Program of Cancer Registries (NPCR),[10] are provided. Only registries whose data meet specified data quality criteria are included in USCS statistics. For the latest USCS data (2015 incidence), all areas of the U.S. are included. Section II depicts 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. In the remainder of the report, these cancers are grouped by anatomic site. Section III depicts mortality data by site and gender. Section IV contains a table of age-specific cancer rates, per 100,000, by site and gender. Section V contains a table of observed versus expected numbers of cancer cases by health district. For more detailed statistics by county, see CDRI's County Cancer Profiles at https://www.idcancer.org/ContentFiles/special/CountyProfiles/CountyMap.htm. 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 1975-2016. Section VIII shows cancer incidence rates by race and ethnicity for the period 2012-2016. Section IX shows cancer survival statistics for Idahoans diagnosed during the period 2009-2015 with follow-up through 2016.

Descriptive Summary by Gender and Race and Ethnicity

The data presented in this report cover cancer cases diagnosed among Idaho residents between January 1, 2016, and December 31, 2016. In this time frame, there were 9,032 cases of in situ and invasive cancer diagnosed among Idaho residents (4,611 among males and 4,421 among females). By race and ethnicity, there were 8,398 cases among non-Hispanic whites, 314 among Hispanic whites, 31 cases among blacks, 126 cases among Native Americans, and 89 cases among Asians/Pacific Islanders. Seventy-four cases were coded as 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. CDRI has conducted matches with the Indian Health Service and Northwest Portland Area Indian Health Board to improve the accuracy of race information collected on Native Americans, and 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: 2010-2015, Volume Two*.[11]

Trends

There was a 0.3% increase in the age-adjusted cancer incidence rates as published in the 2015 and 2016 annual reports. Changes in health policy and screening recommendations may have impacted cancer incidence since 2013. In May 2012, the United States Preventive Service Task Force issued a recommendation against Prostate Specific Antigen (PSA)-based

screening for prostate cancer in all age groups. From 2011 to 2014, prostate cancer incidence rates decreased about 13.3% per year in Idaho, similar to national trends, but rebounded in 2015 and 2016. The drop in lung cancer cases in 2013 was followed by a rebound in 2014 and 2015. 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, esophagus, Hodgkin lymphoma, larynx, leukemia, ovary, stomach, and uterus, which fluctuate annually due to relatively small case counts, rebounded from 2015. See Section VII for more detailed long-term trends in cancer incidence.

Population Description

The population of the state of Idaho on July 1, 2016, was estimated to be 1,680,026 (841,679 males and 838,347 females). Population estimates were obtained from the National Center for Health Statistics.[12] Idaho is comprised of 44 counties 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	113,293	115,279
District 2	Clearwater, Latah, Lewis, Idaho, Nez Perce	54,911	52,603
District 3	Adams, Canyon, Gem, Owyhee, Payette, Washington	156,742	157,277
District 4	Ada, Boise, Elmore, Valley	245,133	242,731
District 5	Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, Twin Falls	97,392	96,632
District 6	Bannock, Bear Lake, Bingham, Butte, Caribou, Franklin, Oneida, Power	85,341	85,043
District 7	Bonneville, Clark, Custer, Fremont, Jefferson, Lemhi, Madison, Teton	108,342	106,940

SUMMARY MEASURES OF CANCER BURDEN IN IDAHO - 2016

Primary Site	Incident Cases	Deaths	Median Age at Diagnosis	Median Age at Death	Total Number of YPLL Before Age 75	Average Number of YPLL per Death, Persons Aged Less than 75 Years	% Change Incidence Rate 2015 to 2016
All Sites	8,354	2,888	67.0	73.0	18,381	11.2	0.3%
Bladder	396	90	72.0	78.0	326	8.6	1.8%
Brain	107	99	61.0	65.0	1,371	16.9	-31.4%
Breast	1,212	217	64.0	69.0	1,834	12.9	-1.1%
Cervix	62	18	45.5	62.0	281	18.7	35.0%
Colorectal	646	244	67.0	74.5	1,662	12.9	-2.7%
Corpus Uteri	271	37	64.0	77.0	156	8.7	10.5%
Esophagus	99	87	71.0	71.0	506	8.4	19.3%
Hodgkin Lymphoma	32	3	33.0	-	-	-	-14.8%
Kidney	304	60	65.5	73.0	381	11.5	-0.5%
Larynx	47	11	66.0	65.0	69	9.8	13.3%
Leukemia	271	129	70.0	76.0	809	12.8	-11.3%
Liver and Bile Duct	152	135	65.0	67.0	1,039	10.5	-1.4%
Lung and Bronchus	920	582	72.0	75.0	2,748	8.9	-4.2%
Melanoma of Skin	544	54	65.0	68.5	548	16.6	6.2%
Myeloma	124	73	71.0	75.0	331	8.7	-2.0%
Non-Hodgkin Lymphoma	380	126	70.0	77.0	474	8.0	2.5%
Oral Cavity and Pharynx	265	37	67.0	74.0	221	11.1	8.8%
Ovary	112	92	66.5	68.0	794	11.7	11.4%
Pancreas	247	203	70.0	73.0	1,148	9.1	-9.7%
Prostate	1,030	183	68.0	80.0	328	5.6	6.4%
Stomach	93	43	69.0	71.0	358	13.8	-17.0%
Testis	61	2	34.0	-	-	-	0.0%
Thyroid	268	15	49.5	70.0	88	8.0	2.9%

Notes:

Incidence cases include all invasive and bladder in situ cases newly diagnosed among Idaho residents in 2016.

Years of potential life lost (YPLL) is a statistic used to measure the number of years of life lost in a population when person 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

Age-adjusted Incidence Rates

Age-adjusted incidence rates published within this report were adjusted using the direct method and standardized to the age distribution of the 2000 U.S. population (see Appendix A). 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.

The computation of rates 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 (see Appendix B).[12]

In conformity with NPCR and the National Cancer Institute's Surveillance, Epidemiology, and End Results (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 2016 (9,032), a total of 8,354 cases (8,148 invasive and 206 bladder in situ) were used for calculating age-adjusted incidence rates. Of the 8,354 cases, 4,318 occurred among males and 4,036 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.

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 the National Cancer Institute's SEER Program, the Centers for Disease Control and Prevention's National Program of Cancer Registries (NPCR), and are adopted by NAACCR.[5,6] Most neoplasms are grouped by the organ where they occur. Neoplasms of the lymphatic, hematopoietic, and reticuloendothelial systems are grouped by their histologies (leukemias, lymphomas, etc.) and not by the anatomic site where they occurred. Melanoma of the skin is

a combination of both anatomic site and histologic type. See http://seer.cancer.gov/siterecode/ for groupings of codes.

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 were not included in the observed numbers of cases. Statistically significant differences between numbers of observed and expected cases (standardized incidence ratios) were marked (+) for $p < 0.05$ and (*) for $p < 0.01$. Statistical significance does not necessarily imply that concern is warranted, since differences can occur as a result of multiple factors.

Confidence Intervals

A confidence interval gives an estimated range of values, which is likely to include the true population value, and is used to indicate the reliability of an estimate.

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
.

Risk and Associated Factors

The "risk and associated factors" subsections in Section I were developed from extracts of *Cancer Epidemiology and Prevention*, the American Cancer Society's *Clinical Oncology*, and the *U.S. Department of Health and Human Services 11th Report on Carcinogens*.[13-15]
Socioeconomic status is abbreviated as SES in Section I text.

Limitations to Data Interpretation and Comparison

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

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

Racial misclassification: Many source documents used to report cancer do not specify race of the patient or misclassify race. For detailed statistics by race and ethnicity, see Section VIII and *Cancer in North America: 2010-2015, Volume Two*.[11]

NPCR

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.

SEER

Part of the National Cancer Institute, the Surveillance, Epidemiology, and End Results (SEER) program consists of several population-based cancer registries throughout the U.S. SEER cancer statistics are designed to be representative of the U.S. population. Combined SEER and NPCR rates are included for reference in Section I of this report. SEER rates included data from 18 registries and were calculated using SEER*Stat.[16]

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.

Risks of Developing and Dying from Cancer

Cancer incidence and mortality risks were estimated using DEVCAN Version 6.7.3 software.[17] DEVCAN was used to calculate the probability of developing or dying of cancer using Idaho-specific cancer incidence and mortality data for the years 2012-2016. The estimates generated are similar to estimates derived using incidence data from the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute, 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.

Trend Analyses

Joinpoint Version 4.2.0.2 software was used to model trends in age-adjusted cancer incidence rates.[18] For each joinpoint time segment, the estimated annual percent change (EAPC) was calculated by fitting a least squares regression line to the natural logarithm of the rates using calendar year as a covariate. The software used a grid search to find the maximum likelihood estimates of the joinpoints for multiple models (0 to 5 joinpoints) 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.

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. Actual (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 or other-cause 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, from other competing causes of death, or surviving.[20]

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.[21]

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.[22] For patients diagnosed with more than one primary cancer, this variable is not defined for the second or subsequent cancers. Thus, the cancer survival tables are split into columns for “single or first primary cancers only,” and “all primaries,” for which relative survival can be calculated.

Survival statistics published in this annual report include all invasive and bladder in situ cases aged 15-99 at diagnosis during 2009-2015 with follow-up/death ascertainment through December 31, 2016. Cases reported solely via death certificates or autopsy were excluded. Using SEER 2007 Multiple Primary and Histology Coding Rules,[8] multiple primary cancers could be included for each patient, but only one record per patient was included in each survival estimate.

SEER*Stat (version 8.3.5) was used to perform the survival calculations. The survival duration in months was calculated based on complete dates, with all patients not known to be deceased as of December 31, 2016 presumed to be alive on this date. 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.[23, 24] Cases were censored at an achieved age of 100 years.

Because the excess mortality due to cancer is often age dependent, and the age distributions of cancer patients may differ among comparison groups, net survival estimates were age standardized using the International Cancer Survival Standards (ICSS).[25] Crude survival estimates were not age standardized and reflect the actual prognosis of the cohort of Idaho cancer cases.

SECTION I

2016 SUMMARY ON ALL SITES COMBINED
AND
23 MOST COMMON SITES

ALL SITES

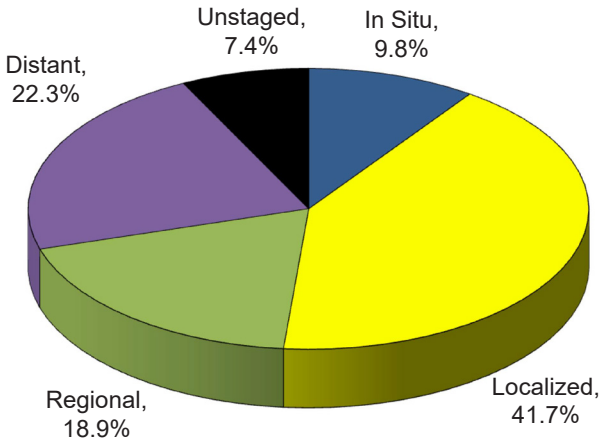
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	439.2	470.9	415.4
# of new invasive cases	8,148	4,160	3,988
# of new in situ cases	884	451	433
# of deaths	2,888	1,531	1,357

Total Cases by County

Ada	2,344	Cassia	81	Lewis	23
Adams	35	Clark	3	Lincoln	25
Bannock	340	Clearwater	68	Madison	95
Bear Lake	30	Custer	38	Minidoka	97
Benewah	55	Elmore	141	Nez Perce	261
Bingham	225	Franklin	44	Oneida	14
Blaine	145	Fremont	71	Owyhee	60
Boise	64	Gem	124	Payette	139
Bonner	321	Gooding	86	Power	34
Bonneville	546	Idaho	114	Shoshone	108
Boundary	83	Jefferson	112	Teton	34
Butte	24	Jerome	89	Twin Falls	406
Camas	11	Kootenai	1,047	Valley	60
Canyon	1,097	Latah	164	Washington	72
Caribou	40	Lemhi	62		

Stage at Diagnosis - All Sites



Risk and Associated Factors

Age Rates usually increase steadily with age. Most cases occur among adults in mid-life or older.

Gender Males have higher incidence rates than females for most cancer types.

Race & SES Rates are higher for blacks than for whites and other races. Rates are generally higher among lower-income groups.

Occupation Risk for cancer is greater with some kinds of workplace exposures, such as some chemicals, asbestos, and radiation.

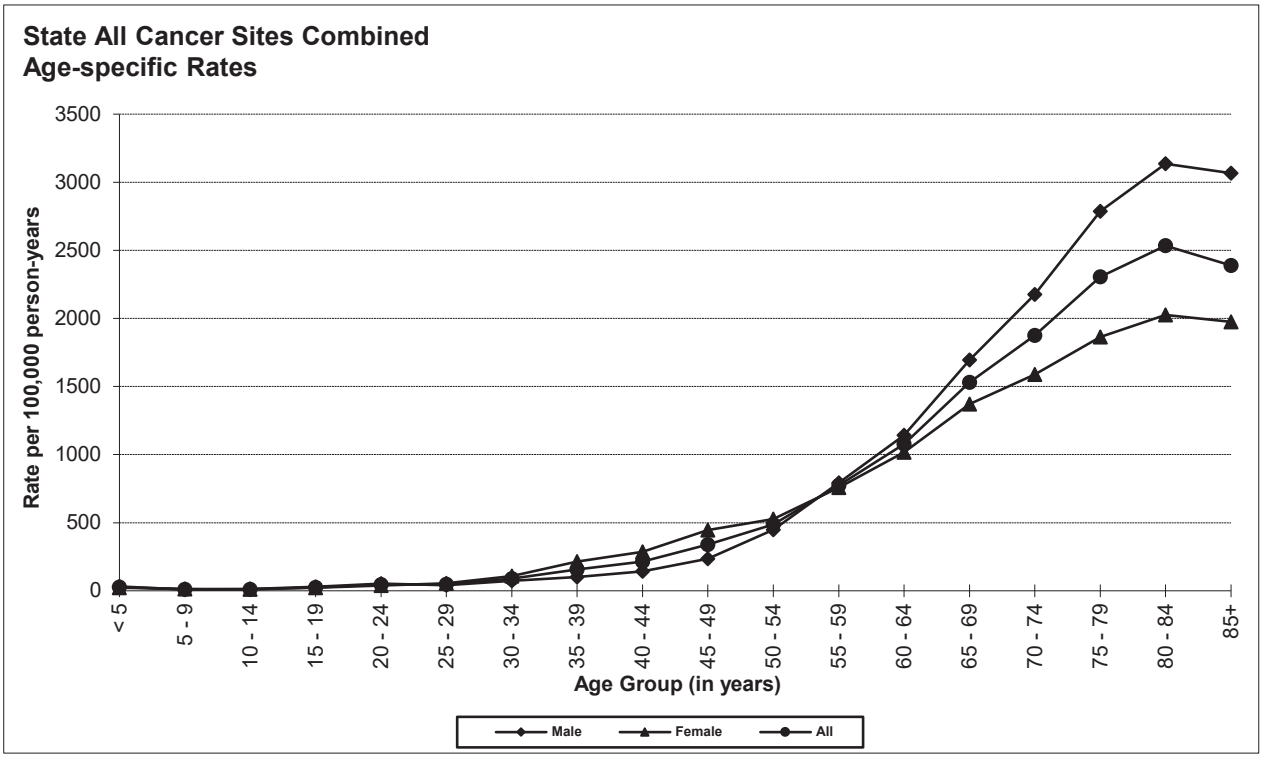
Diet Diets that are low in fresh fruits and vegetables have been associated with increased incidence of several cancers.

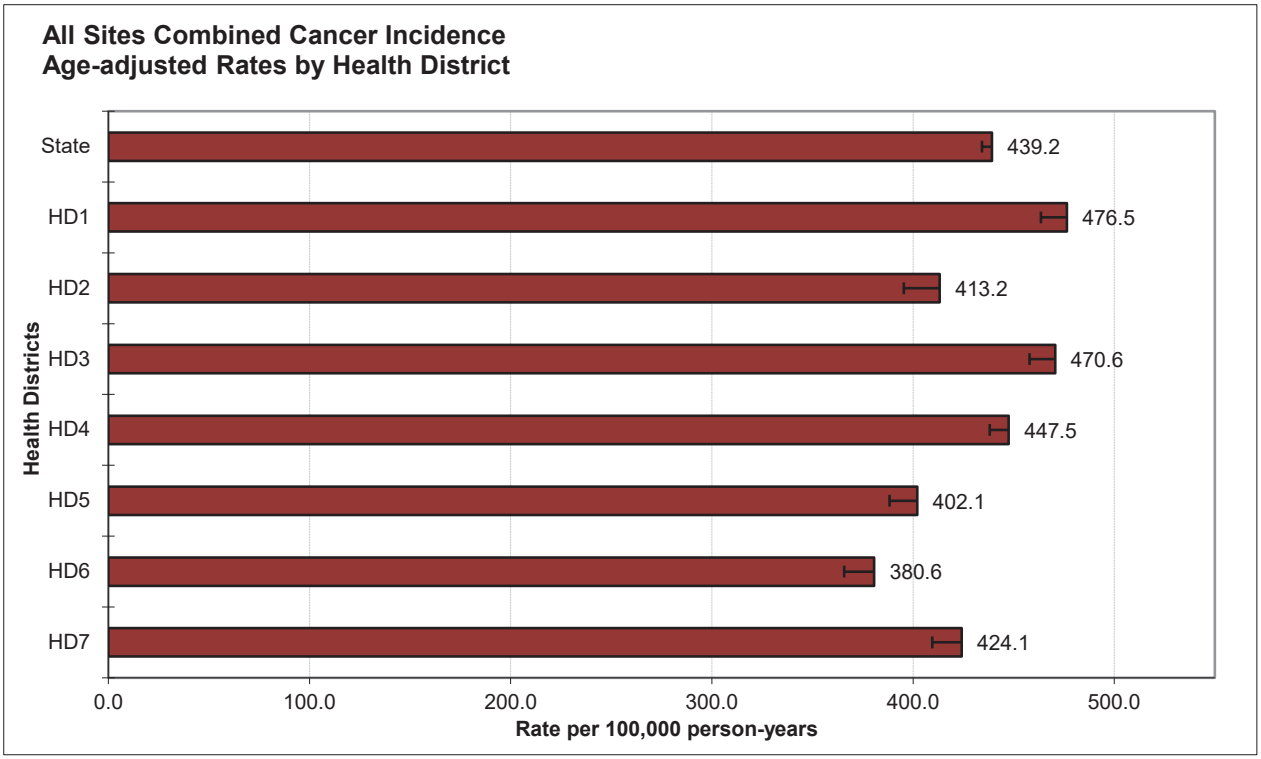
Other Tobacco use is the single most important risk factor for cancer incidence and mortality. Most cancers manifest a tendency to aggregate in families – close relatives of a cancer patient can be considered to have increased risk of that neoplasm, but not all forms of cancer. Excess risk is usually 2-3 times baseline, but in some (rare) families may be hundreds fold.

Special Notes

Mean age-adjusted incidence rate across health districts:	430.7
95% confidence interval on the mean age-adjusted incidence rate:	404.2- 457.1
Median age-adjusted incidence rate of health districts:	424.1
Range of age-adjusted incidence rate for health districts:	380.6- 476.5
USCS rate (2015, all races):	429.3

The incidence rates for all cancers combined were similar for males and females in Idaho until approximately age 60-64, after which rates for males rose dramatically. The highest rates for both males and females were observed in age groups after age 70, peaking in the age group 80-84 for both males and females. Health Districts 1 and 3 had statistically significantly more cases of cancer than expected based upon rates for the remainder of Idaho, and Health Districts 5 and 6 had statistically significantly fewer cases than expected.


State All Cancer Sites Combined
Age-specific Rates
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
439.2
476.5
413.2
470.6
447.5
402.1
380.6
424.1
0.0
100.0
200.0
300.0
400.0
500.0
Rate per 100,000 person-years

BLADDER

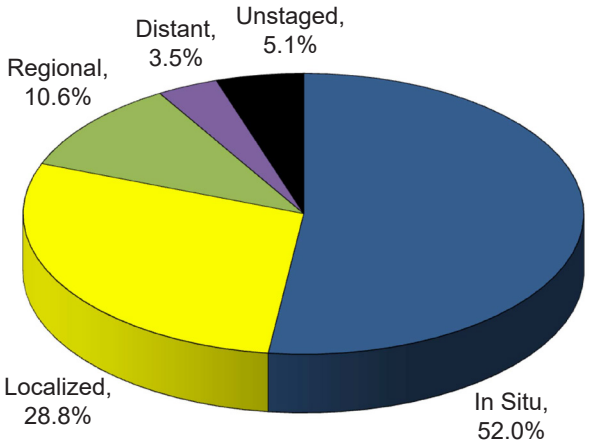
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	20.4	34.8	8.0
# of new invasive cases	190	155	35
# of new in situ cases	206	158	48
# of deaths	90	64	26

Total Cases by County

Ada	107	Cassia	5	Lewis	1
Adams	4	Clark	-	Lincoln	-
Bannock	9	Clearwater	3	Madison	3
Bear Lake	-	Custer	1	Minidoka	6
Benewah	3	Elmore	4	Nez Perce	6
Bingham	7	Franklin	5	Oneida	-
Blaine	4	Fremont	2	Owyhee	2
Boise	4	Gem	7	Payette	4
Bonner	16	Gooding	6	Power	1
Bonneville	20	Idaho	4	Shoshone	9
Boundary	3	Jefferson	3	Teton	-
Butte	2	Jerome	2	Twin Falls	31
Camas	1	Kootenai	46	Valley	4
Canyon	47	Latah	11	Washington	1
Caribou	1	Lemhi	1		

Stage at Diagnosis - Bladder



Risk and Associated Factors

Age Rates usually increase steadily with age.

Gender Males have substantially higher rates than females.

Race Incidence rates are higher in whites.

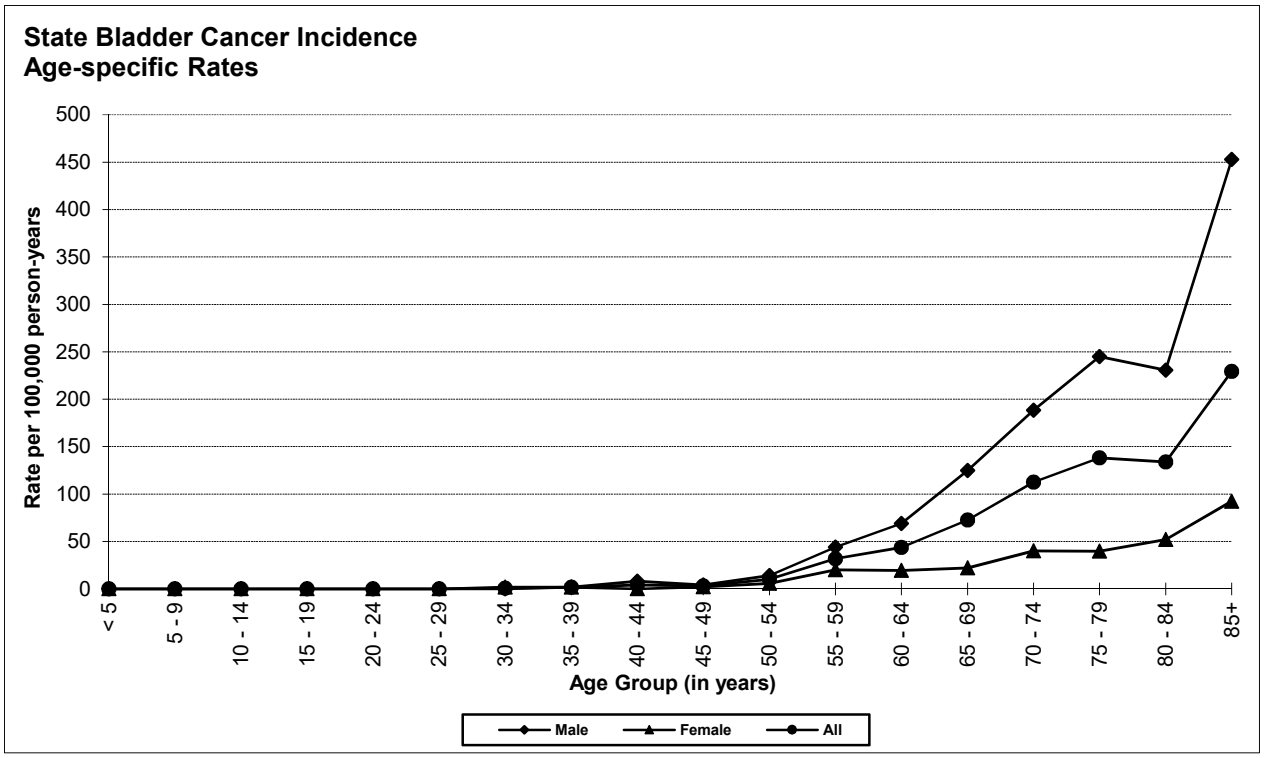
Occupation Truck drivers, likely via exposure to motor exhaust, are at increased risk. Occupational exposures, including manufacturers of certain dyes; painters; and aluminum, rubber, cable, and leather workers, have been shown to increase risk of bladder cancer. Exposure to permanent hair dyes may increase risk.

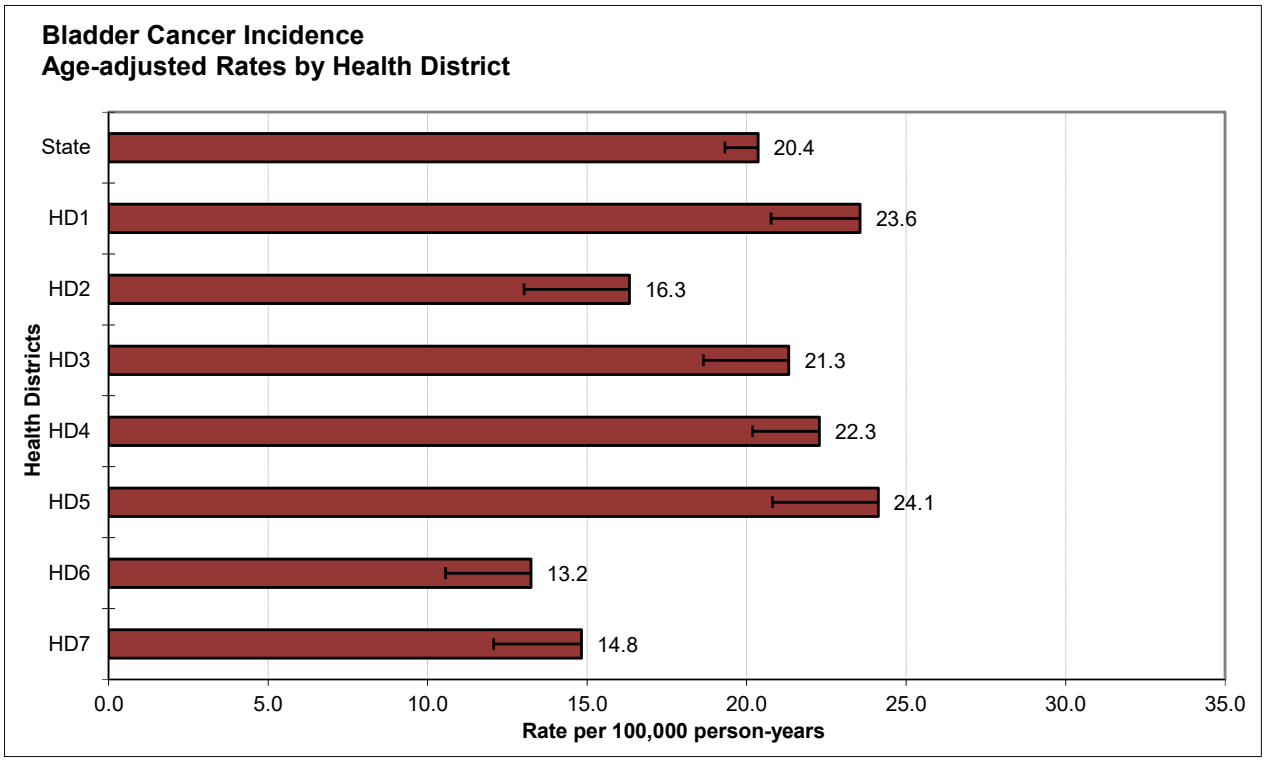
Other Tobacco consumption has been associated with a 2- to 5-fold higher incidence of bladder cancer and is attributable for a greater number of cases than other risk factors. Cyclophosphamide, a chemotherapeutic agent, and 4-amino-diphenyl are known human bladder carcinogens. Schistosoma hematobium may cause bladder tumors. Nitrate and arsenic in drinking water, and chlorinated surface water as a source for drinking water, have each been shown to increase the risk of bladder cancer.

Special Notes

Mean age-adjusted incidence rate across health districts:	19.4
95% confidence interval on the mean age-adjusted incidence rate:	16.1- 22.7
Median age-adjusted incidence rate of health districts:	21.3
Range of age-adjusted incidence rate for health districts:	13.2- 24.1
USCS rate (2015, all races):	19.3

There were few cases of bladder cancer among persons aged less than 50 years. Bladder cancer incidence rates increased with age, peaking in the age group 85+ for both males and females. Health Districts 6 and 7 had statistically significantly fewer cases of bladder cancer than expected based upon rates for the remainder of Idaho.


State Bladder Cancer Incidence
Age-specific Rates
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


Bladder Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
20.4
23.6
16.3
21.3
22.3
24.1
13.2
14.8
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Rate per 100,000 person-years

BRAIN

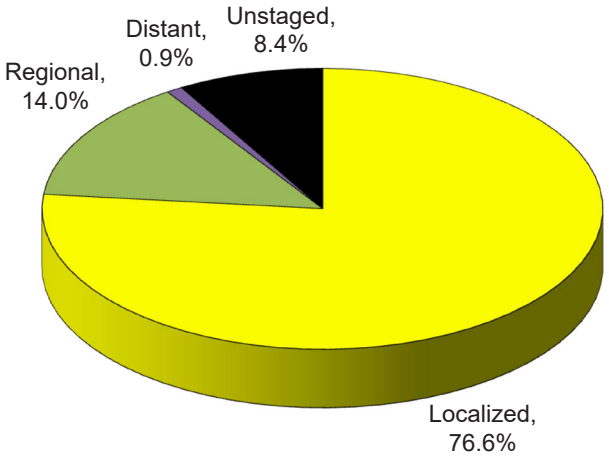
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	5.8	7.5	4.1
# of new invasive cases	107	70	37
# of new in situ cases	0	0	0
# of deaths	99	61	38

Total Cases by County

Ada	31	Cassia	1	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	7	Clearwater	1	Madison	2
Bear Lake	1	Custer	-	Minidoka	1
Benewah	1	Elmore	2	Nez Perce	4
Bingham	1	Franklin	-	Oneida	1
Blaine	1	Fremont	-	Owyhee	-
Boise	-	Gem	1	Payette	1
Bonner	5	Gooding	1	Power	-
Bonneville	5	Idaho	-	Shoshone	1
Boundary	1	Jefferson	-	Teton	-
Butte	-	Jerome	-	Twin Falls	8
Camas	-	Kootenai	10	Valley	-
Canyon	15	Latah	1	Washington	-
Caribou	3	Lemhi	1		

Stage at Diagnosis - Brain



Risk and Associated Factors

Age This is the second most common cancer among children, following leukemia. Adult malignant brain tumors are most common after age 60

Gender Males typically have higher rates than females.

Race & SES The incidence rate is higher in whites and higher social classes.

Genetics Certain genetic factors may cause an increased risk of some malignant brain tumors, including gliomas, but the proportion of brain tumors attributable to inheritance is likely no more than 4%. Molecular tests are being developed that may be useful in screening for recurrences.

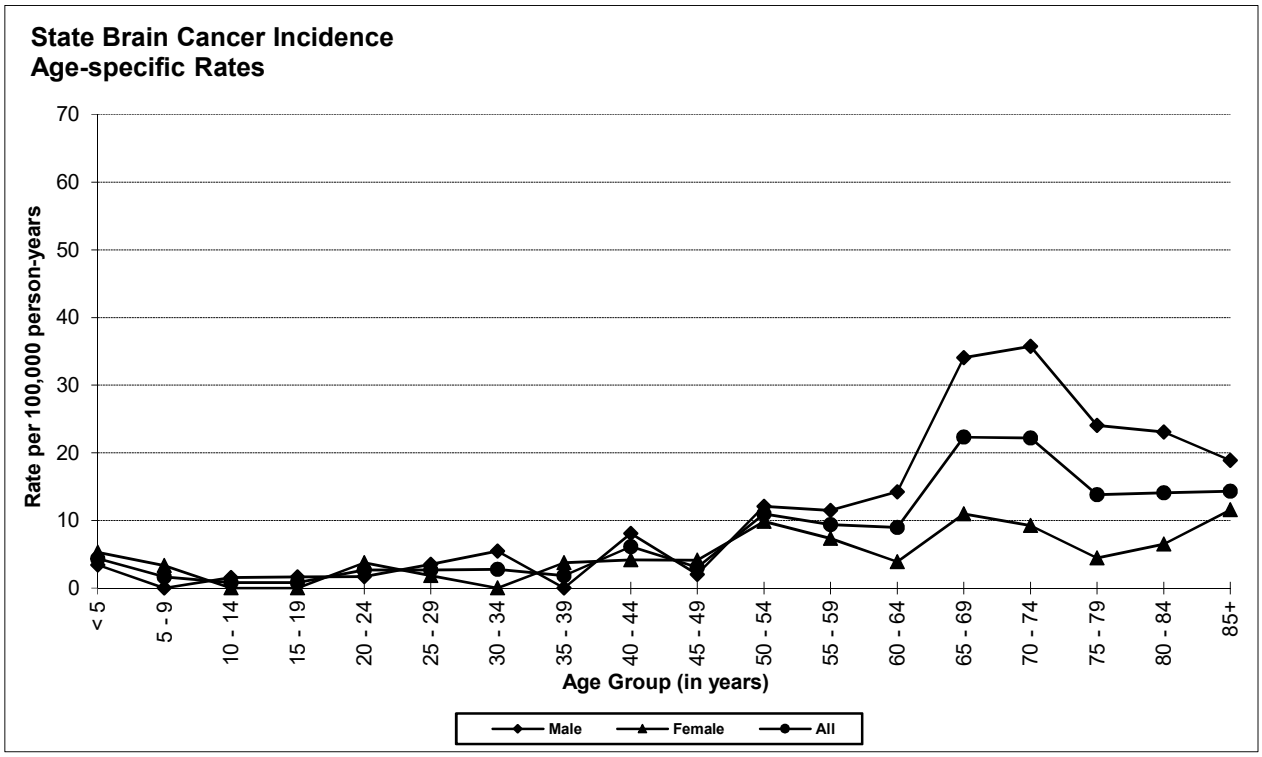
Occupation Vinyl chloride and ionizing radiation exposure are risk factors. Many occupational and environmental exposures have shown suggestive associations with elevated rates of brain cancer. Roofers, sheet metal workers, and rubber and plastic workers may be at elevated risk. Specific exposures underlying these associations have been suggested but not established.

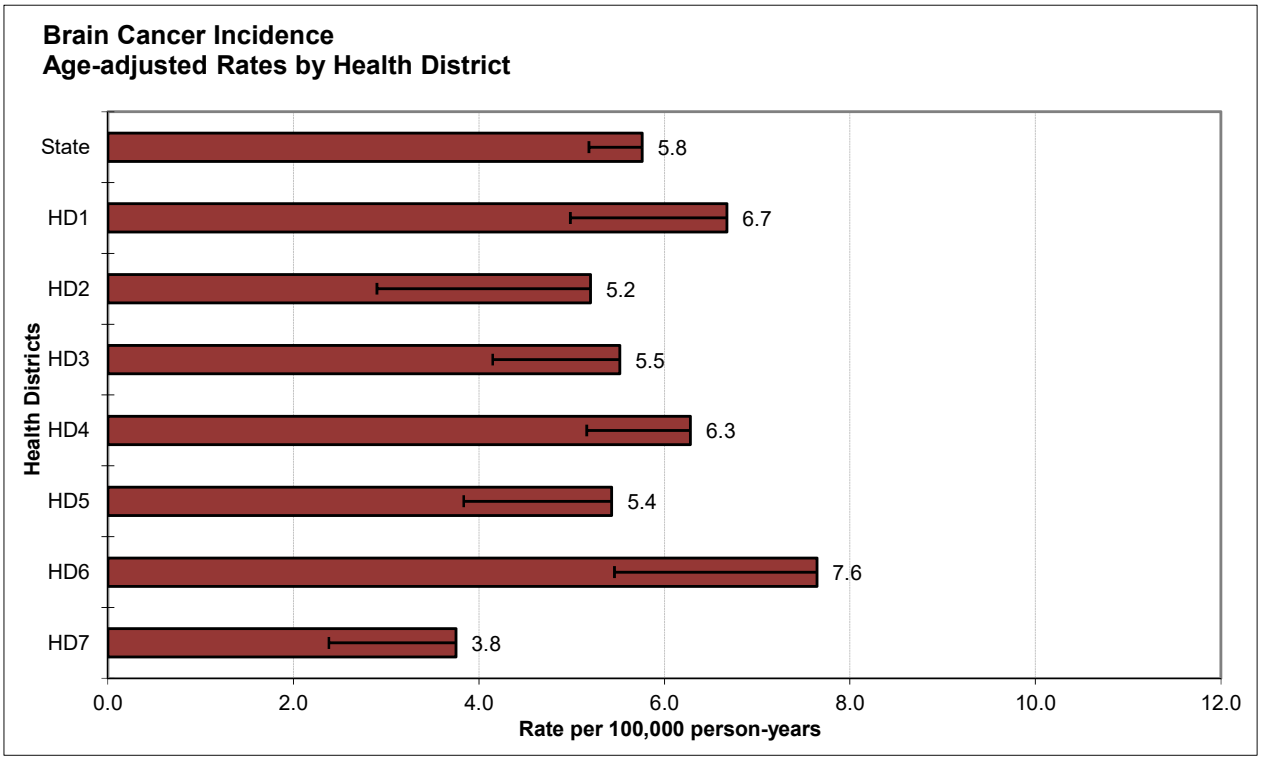
Other Human Immunodeficiency Virus (HIV) infected individuals and organ transplant recipients have an increased risk of developing brain lymphoma.

Special Notes

Mean age-adjusted incidence rate across health districts:	5.8
95% confidence interval on the mean age-adjusted incidence rate:	4.9- 6.7
Median age-adjusted incidence rate of health districts:	5.5
Range of age-adjusted incidence rate for health districts:	3.8- 7.6
USCS rate (2015, all races):	5.8

The age-related incidence of brain cancer is typically bimodal, usually with a peak in infancy and childhood, a gradual rise in young adulthood, and a broader, sustained peak during the fifth to eighth decade of life. This trend is difficult to discern in Idaho's population due to the relatively small number of cases observed annually, which increases the variability in age-specific rates. 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
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
5.8
6.7
5.2
5.5
6.3
5.4
7.6
3.8
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	12.0	8.4	15.6
# of new cases	217	73	144

Total Cases by County

Ada	58	Cassia	1	Lewis	-
Adams	-	Clark	1	Lincoln	1
Bannock	6	Clearwater	3	Madison	2
Bear Lake	1	Custer	1	Minidoka	2
Benewah	2	Elmore	5	Nez Perce	5
Bingham	2	Franklin	-	Oneida	-
Blaine	3	Fremont	-	Owyhee	2
Boise	2	Gem	3	Payette	1
Bonner	8	Gooding	-	Power	-
Bonneville	15	Idaho	-	Shoshone	2
Boundary	2	Jefferson	5	Teton	1
Butte	1	Jerome	1	Twin Falls	10
Camas	1	Kootenai	26	Valley	1
Canyon	35	Latah	5	Washington	-
Caribou	1	Lemhi	2		

Background

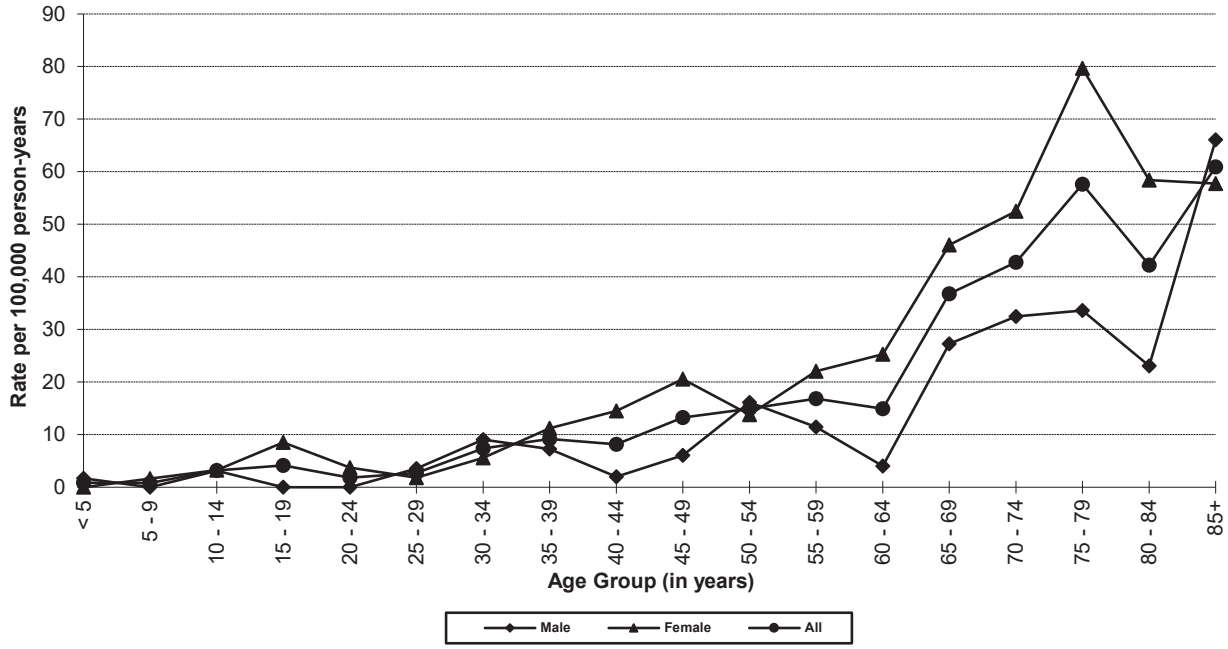
In 2007, as a result of Public Law 107-260, the publication United States Cancer Statistics 2004 Incidence and Mortality began to include tables for non-malignant brain tumors. Until this time, the only reference data were from the Central Brain Tumor Registry of the United States (CBTRUS), which has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

Special Notes

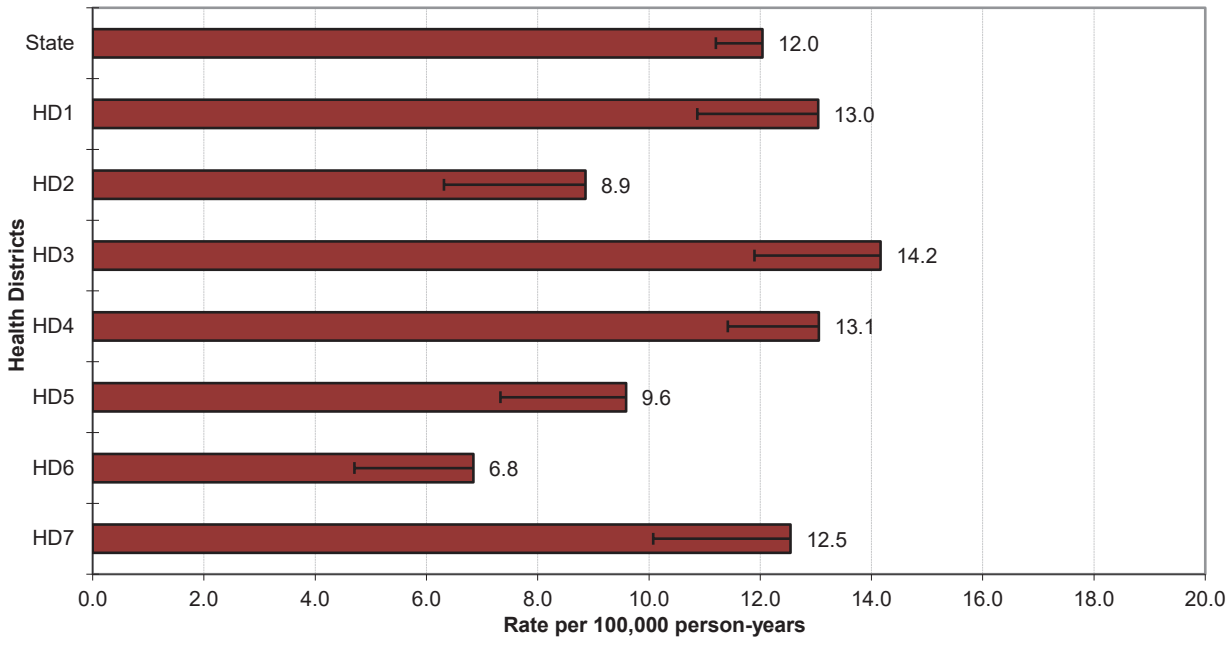
Mean age-adjusted incidence rate across health districts:	11.2
95% confidence interval on the mean age-adjusted incidence rate:	9.1- 13.2
Median age-adjusted incidence rate of health districts:	12.5
Range of age-adjusted incidence rate for health districts:	6.8- 14.2
SEER 18 rate (2015, all races):	11.6

Health District 6 had statistically significantly 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



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



BREAST

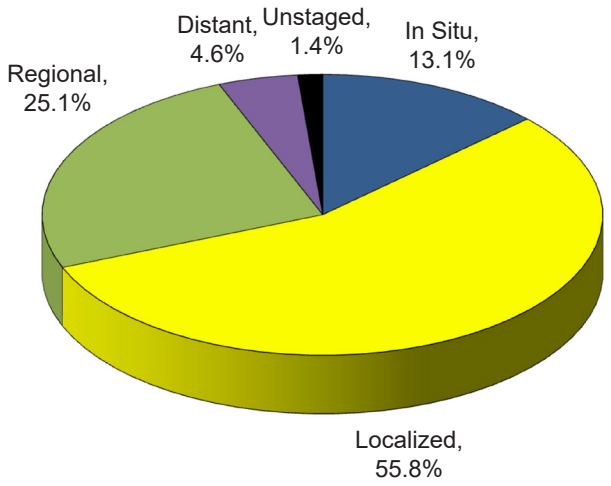
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	63.7	1.0	122.8
# of new invasive cases	1,212	9	1,203
# of new in situ cases	182	1	181
# of deaths	217	2	215

Total Cases by County

Ada	412	Cassia	13	Lewis	5
Adams	2	Clark	-	Lincoln	3
Bannock	56	Clearwater	11	Madison	13
Bear Lake	6	Custer	3	Minidoka	15
Benewah	7	Elmore	21	Nez Perce	45
Bingham	23	Franklin	3	Oneida	2
Blaine	22	Fremont	8	Owyhee	9
Boise	9	Gem	15	Payette	21
Bonner	47	Gooding	14	Power	5
Bonneville	74	Idaho	10	Shoshone	14
Boundary	6	Jefferson	21	Teton	9
Butte	2	Jerome	13	Twin Falls	53
Camas	1	Kootenai	170	Valley	9
Canyon	177	Latah	26	Washington	4
Caribou	5	Lemhi	10		

Stage at Diagnosis - Breast



Risk and Associated Factors

Age Rates increase steadily with age. Age is the single most important risk factor for breast cancer. A 60-year-old white American woman's risk of developing breast cancer is fourteen times that of a 30-year-old American woman.

Race & SES Whites have higher incidence rates, as do women in higher income groups.

Genetics 5% to 10% of all breast cancers have a major hereditary component. For the 2% to 4% of women who have BRCA 1 or 2 mutations, the risk of breast cancer by age 70 is about 45% to 65% in the absence of intervention.

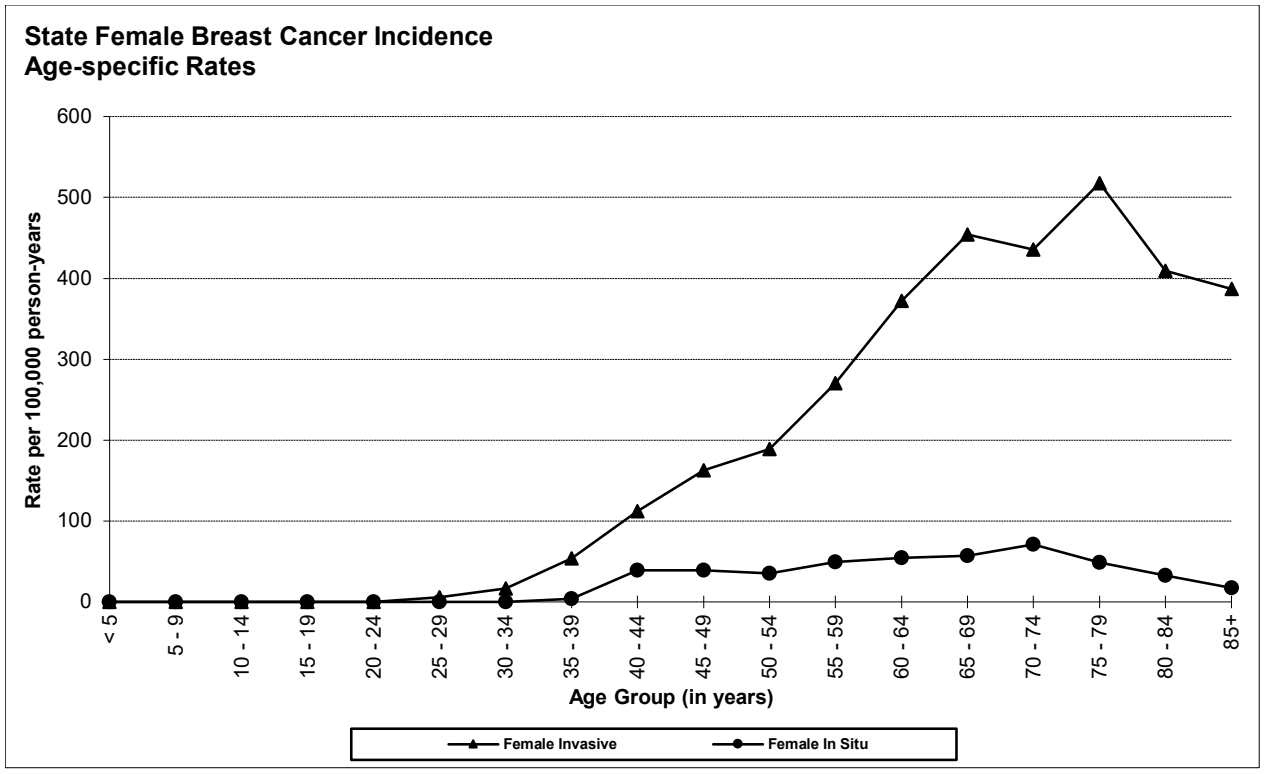
Hormonal There is evidence of hormonal influence in the risk of developing breast cancer. Longer intervals of menarche to the first full-term pregnancy and menarche to menopause, as well as menarche before age 13, have been associated with higher risks of breast cancer. Cumulative estrogen exposure, including use of hormone replacement therapy, increases breast cancer risk.

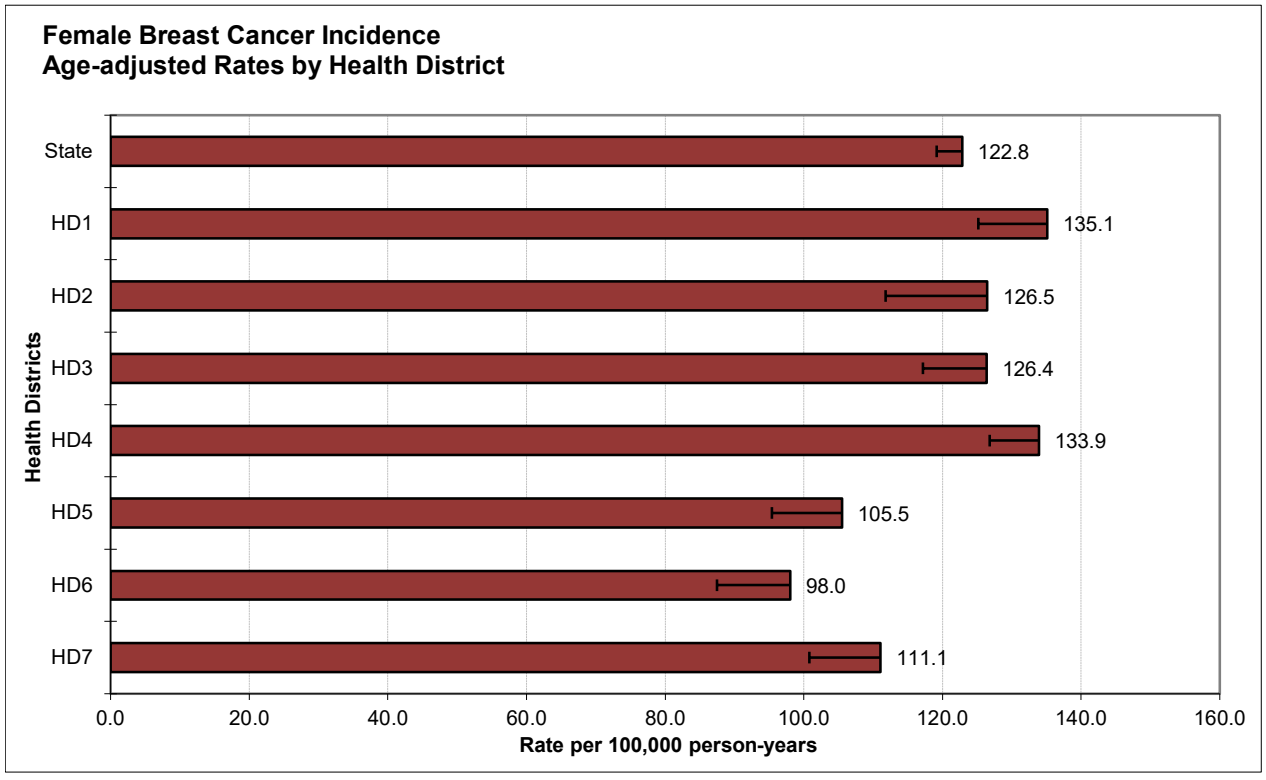
Other Alcohol consumption, high dietary fat intake, obesity (in postmenopausal women), sedentary lifestyle, in utero exposure to DDT (dichlorodiphenyltrichloroethane), and having a mother or sister with breast cancer have all been implicated as associated risk factors. Weight gain of 55 lbs or more after age 18 is associated with a 45% increased risk.

Special Notes

Mean age-adjusted incidence rate across health districts:	119.5
95% confidence interval on the mean age-adjusted incidence rate:	108.7- 130.3
Median age-adjusted incidence rate of health districts:	126.4
Range of age-adjusted incidence rate for health districts:	98.0- 135.1
USCS rate (2015, all races):	124.1

The vast majority of breast cancer cases occur among females. In Idaho during the year 2016, there were 9 cases of invasive breast cancer among males. The age-specific incidence rates of female breast cancer in Idaho increased with age, peaking in the age group 75-79 for invasive cases. No cases were observed in women less than 20 years of age. Health District 4 had statistically significantly more cases of breast cancer than expected based upon rates for the remainder of Idaho and Health Districts 5 and 6 had statistically significantly fewer cases than expected.


State Female Breast Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
600
500
400
300
200
100
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)
Female Invasive
Female In Situ


Female Breast Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
122.8
135.1
126.5
126.4
133.9
105.5
98.0
111.1
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Rate per 100,000 person-years

CERVIX

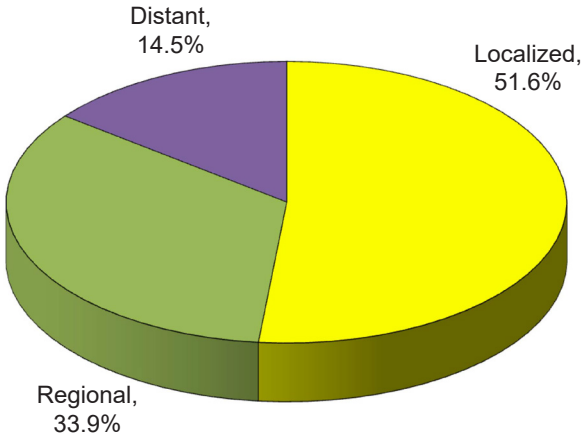
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	-	7.8
# of new invasive cases	-	-	62
# of new in-situ cases	-	-	n/a
# of deaths	-	-	18

Total Cases by County

Ada	11	Cassia	-	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	3	Clearwater	-	Madison	-
Bear Lake	-	Custer	-	Minidoka	1
Benewah	-	Elmore	2	Nez Perce	-
Bingham	1	Franklin	-	Oneida	-
Blaine	1	Fremont	-	Owyhee	-
Boise	-	Gem	3	Payette	1
Bonner	-	Gooding	-	Power	-
Bonneville	6	Idaho	1	Shoshone	-
Boundary	2	Jefferson	-	Teton	-
Butte	-	Jerome	-	Twin Falls	3
Camas	-	Kootenai	10	Valley	-
Canyon	14	Latah	1	Washington	-
Caribou	2	Lemhi	-		

Stage at Diagnosis - Cervix



Risk and Associated Factors

Age Cervical cancer occurs in adult women of any age. However, the majority of invasive cases are diagnosed in older women.

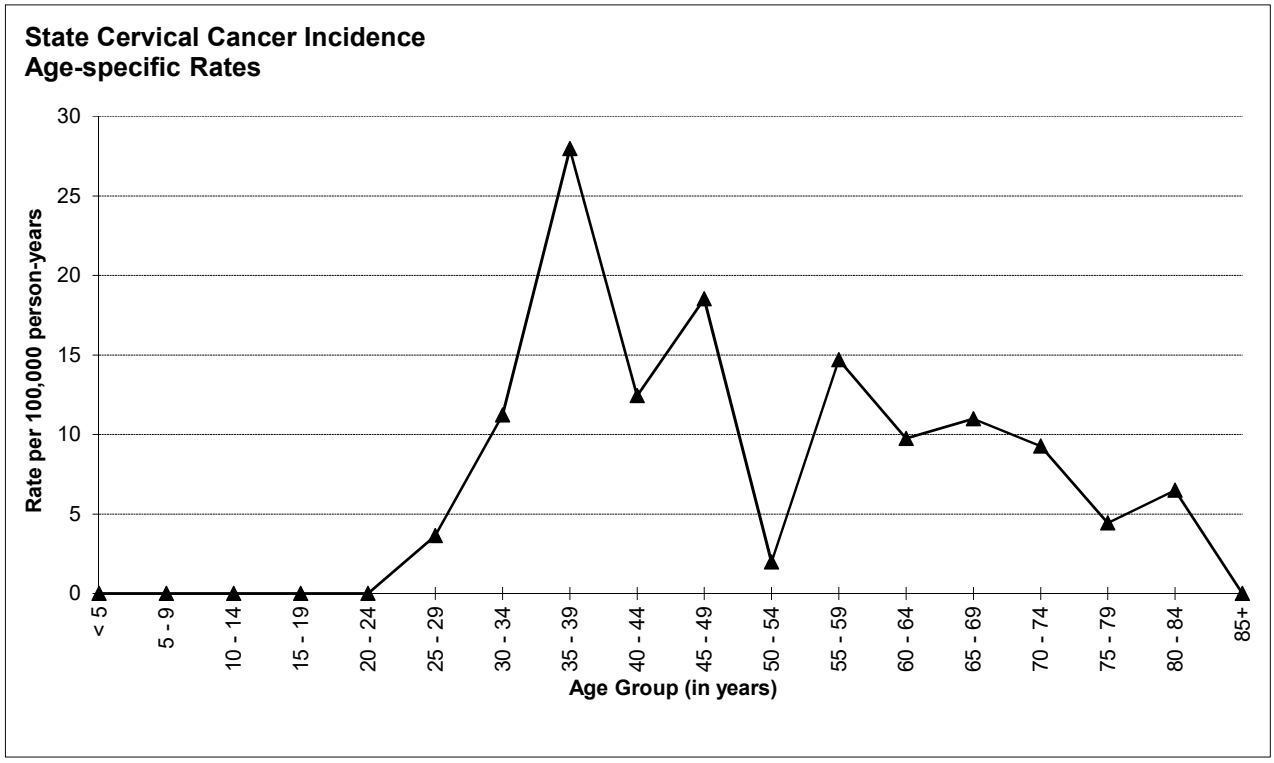
Race & SES Blacks, Hispanics, and women in lower-income groups have been shown to experience higher rates.

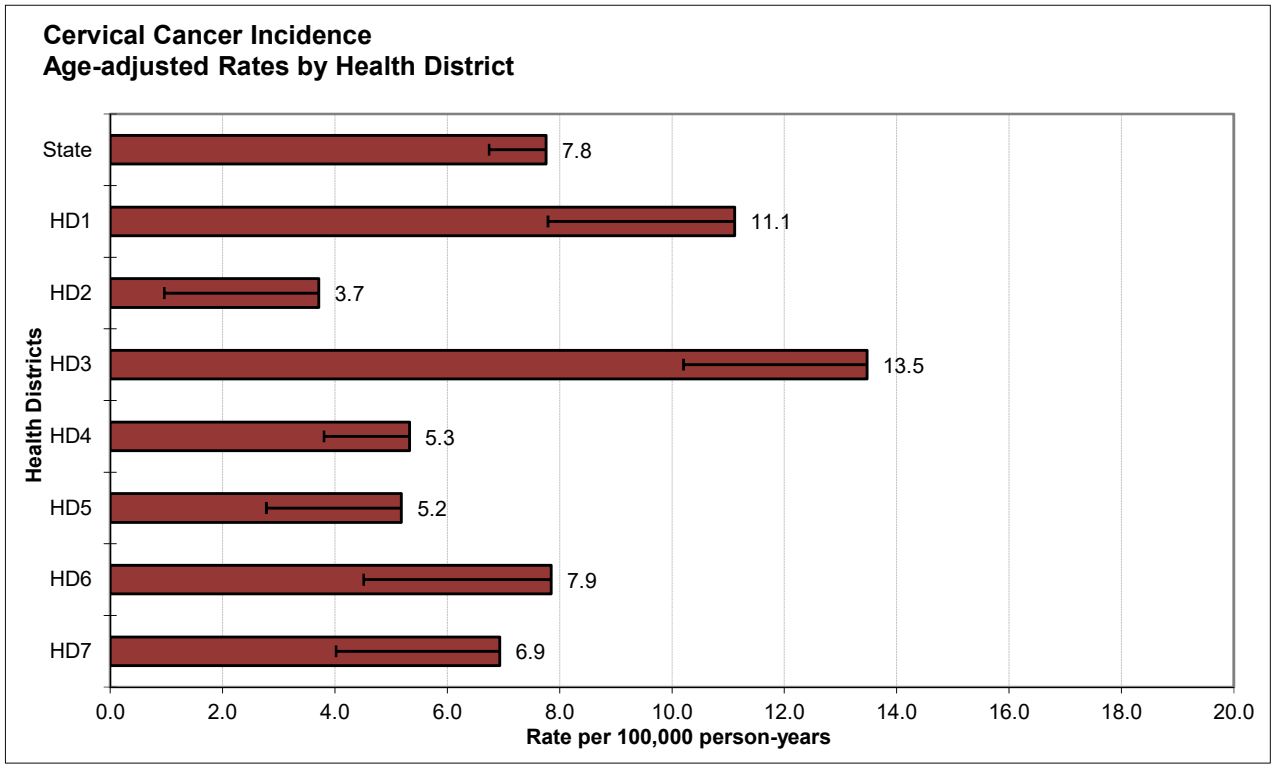
Other The large majority of cervical cancer cases worldwide can be attributed to human papilloma virus (HPV) infection. Of the at least 70 types of HPV known, types 16 and 18 are most closely associated with malignancy. Other risk factors that may be correlates, cofactors, or independent risk factors of HPV infection include: early age at first intercourse (less than 16 years old), a history of multiple sexual partners, a large number of pregnancies, oral contraceptive use, a history of other sexually transmitted diseases, and the presence of other genital tract neoplasia. Exposure to cigarette smoke is also a known risk factor, although by unknown mechanisms. Diethylstilbestrol use during pregnancy increased clear-cell adenocarcinoma in daughters exposed in utero.

Special Notes

Mean age-adjusted incidence rate across health districts:	7.7
95% confidence interval on the mean age-adjusted incidence rate:	5.1- 10.2
Median age-adjusted incidence rate of health districts:	6.9
Range of age-adjusted incidence rate for health districts:	3.7- 13.5
USCS rate (2015, all races):	7.6

Increased screening with routine Pap tests, particularly among older and low-income women, has increased diagnostic rates for pre-invasive disease and helped to reduce the incidence of invasive cervical cancer. Today, the vast majority of cases in younger women is diagnosed before the invasive stage, with cure rates approaching 100%. These pre-invasive cases are not included in this report. Health District 3 had statistically significantly more cases than expected based upon rates for the remainder of Idaho.


State Cervical Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
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)


Cervical Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
7.8
11.1
3.7
13.5
5.3
5.2
7.9
6.9
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

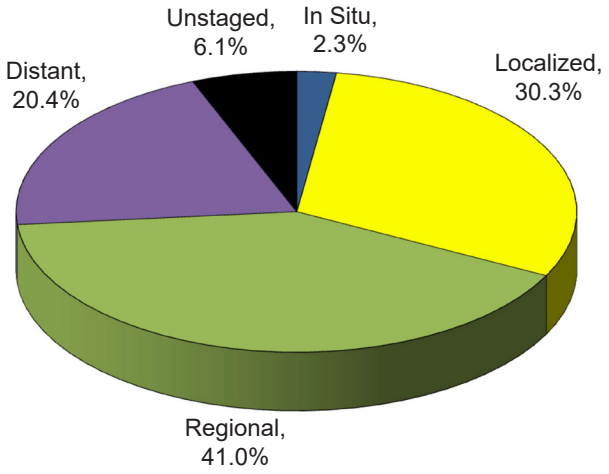
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	34.3	39.6	29.7
# of new invasive cases	646	356	290
# of new in situ cases	15	11	4
# of deaths	244	129	115

Total Cases by County

Ada	146	Cassia	3	Lewis	-
Adams	3	Clark	1	Lincoln	-
Bannock	26	Clearwater	7	Madison	6
Bear Lake	3	Custer	2	Minidoka	9
Benewah	6	Elmore	7	Nez Perce	19
Bingham	27	Franklin	8	Oneida	-
Blaine	5	Fremont	8	Owyhee	9
Boise	5	Gem	13	Payette	14
Bonner	21	Gooding	4	Power	3
Bonneville	45	Idaho	6	Shoshone	9
Boundary	10	Jefferson	7	Teton	3
Butte	1	Jerome	6	Twin Falls	33
Camas	2	Kootenai	71	Valley	7
Canyon	77	Latah	12	Washington	6
Caribou	3	Lemhi	8		

Stage at Diagnosis - Colorectal



Risk and Associated Factors

Age Rates increase with age; the vast majority of cases occur after age 50.

Gender Incidence rates are slightly higher in males.

Genetics It is estimated that 65-85% of colorectal cancer cases are sporadic, 10-30% are familial, and the remainder are the result of specific rare genetic disorders such as Lynch Syndrome.

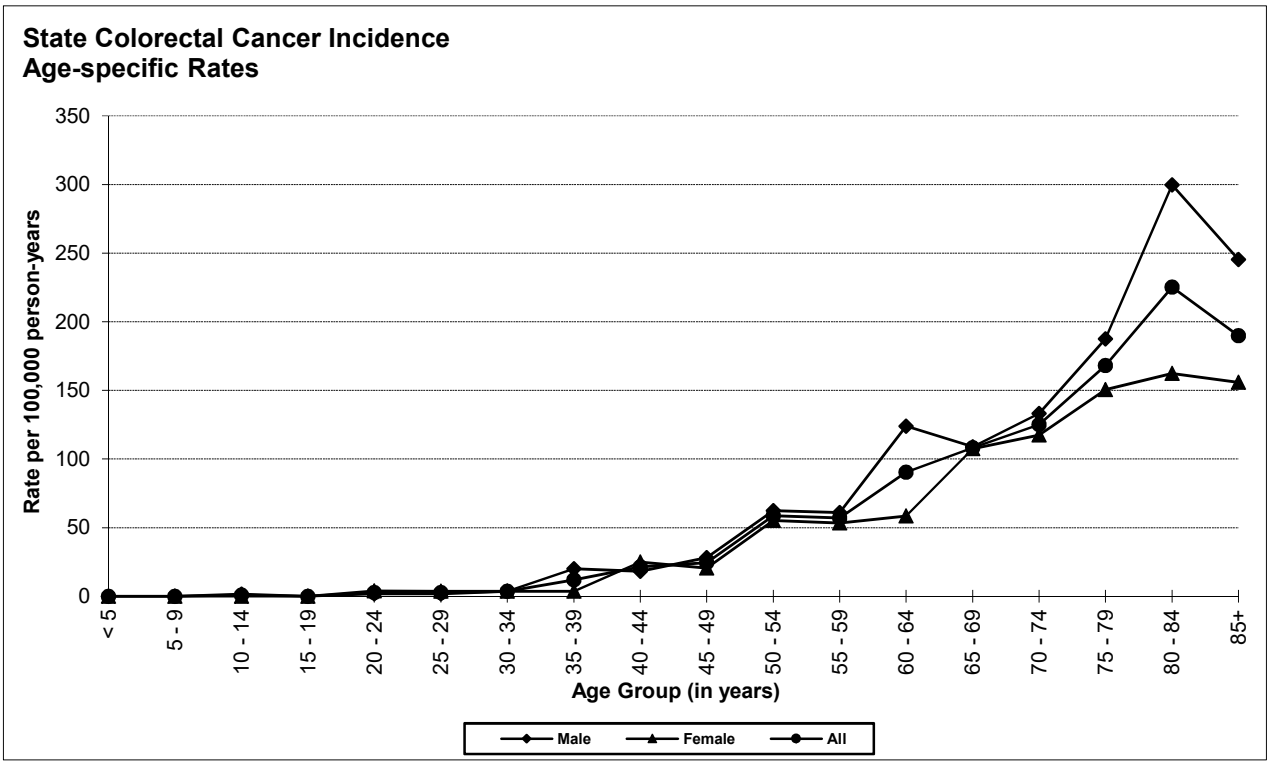
Diet There is strong evidence that high-calorie diets and diets high in fat and low in fiber contribute to higher risks of colon cancer.

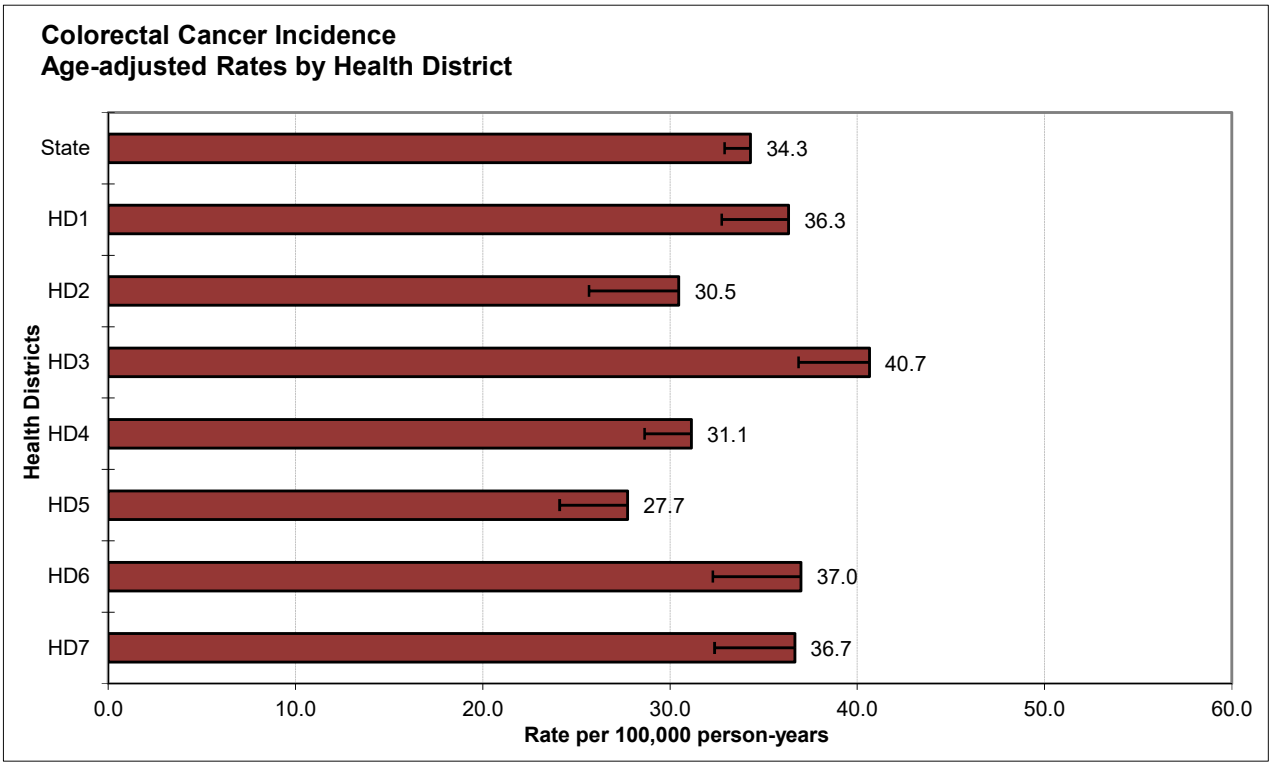
Other Individuals with a close family history of this cancer, and those with a personal history of certain other cancers, are at increased risk. Physical inactivity, obesity, and tobacco use are known risk factors for colorectal cancer. Cigarette smoking is significantly associated with colorectal cancer incidence and mortality. The use of NSAIDs, including aspirin, may help prevent colon cancer. Inflammatory bowel disease confers a 4- to 20-fold increase in colorectal cancer risk, with younger age at diagnosis. If everyone aged 50 years and older were screened regularly, as many as 60% of deaths from colorectal cancer could be avoided.

Special Notes

Mean age-adjusted incidence rate across health districts:	34.3
95% confidence interval on the mean age-adjusted incidence rate:	30.9- 37.7
Median age-adjusted incidence rate of health districts:	36.3
Range of age-adjusted incidence rate for health districts:	27.7- 40.7
USCS rate (2015, all races):	37.4

Few cases of colorectal cancer were diagnosed in persons less than 40 years of age. There was a steep increase in age-specific incidence rates starting at age 60. No health district had statistically significantly fewer or more cases than expected based upon rates for the remainder of Idaho.


State Colorectal Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
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


Colorectal Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
34.3
36.3
30.5
40.7
31.1
27.7
37.0
36.7
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Rate per 100,000 person-years

CORPUS UTERI

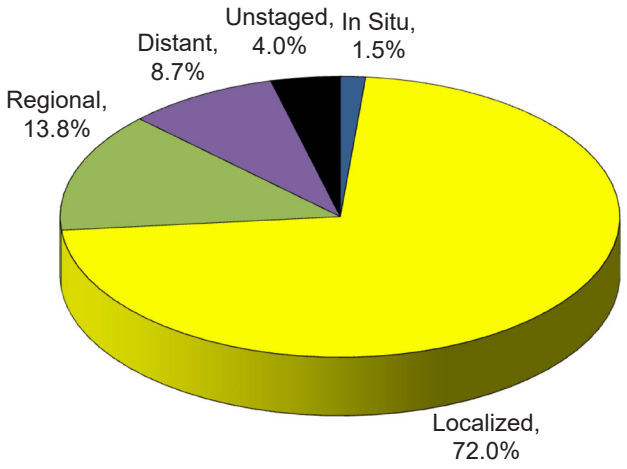
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	-	26.5
# of new invasive cases	-	-	271
# of new in situ cases	-	-	0
# of deaths	-	-	37

Total Cases by County

Ada	67	Cassia	2	Lewis	-
Adams	-	Clark	-	Lincoln	2
Bannock	12	Clearwater	-	Madison	5
Bear Lake	-	Custer	-	Minidoka	8
Benewah	2	Elmore	5	Nez Perce	7
Bingham	9	Franklin	1	Oneida	-
Blaine	6	Fremont	2	Owyhee	2
Boise	3	Gem	4	Payette	3
Bonner	14	Gooding	1	Power	-
Bonneville	13	Idaho	3	Shoshone	6
Boundary	5	Jefferson	4	Teton	-
Butte	-	Jerome	1	Twin Falls	12
Camas	1	Kootenai	28	Valley	2
Canyon	32	Latah	6	Washington	1
Caribou	3	Lemhi	3		

Stage at Diagnosis - Corpus Uteri



Risk and Associated Factors

Age Occurs predominantly after menopause, with incidence rates peaking before age 80.

Race & SES White women have higher rates than black or Asian/Pacific Islander women in the U.S.

Genetics Familial tendency has been observed, but likely accounts for a small fraction of cases.

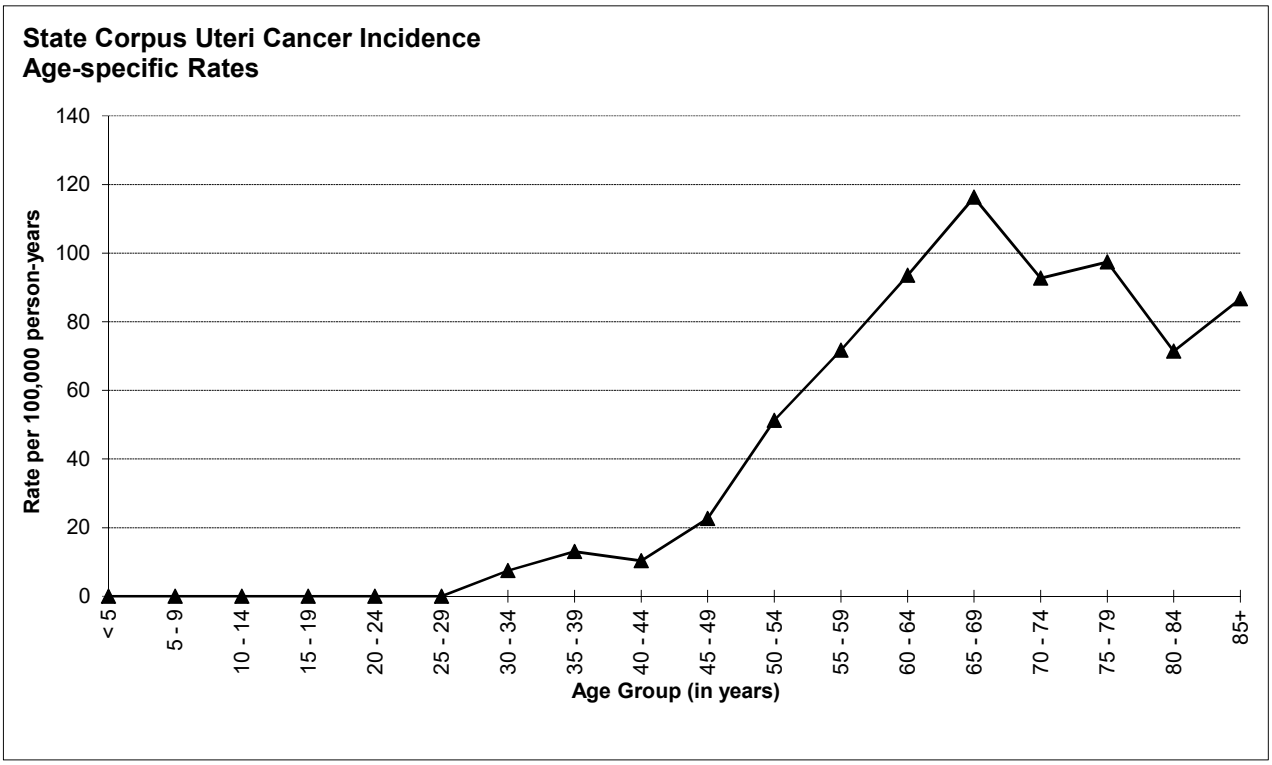
Diet Dietary fat may play a role in increased risk. Obesity and hypertension are common associated conditions of endometrial cancer.

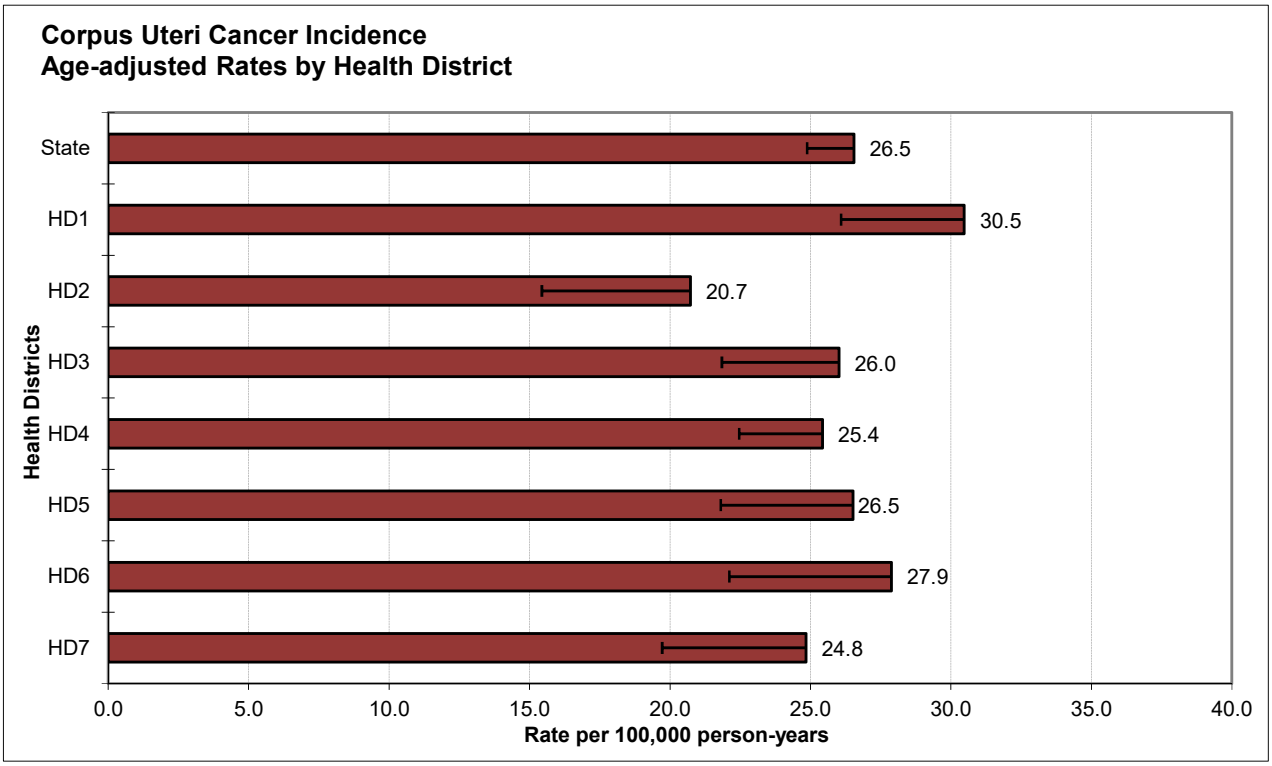
Hormonal Factors that elevate levels of estrogen or decrease progesterone levels enhance the risk. Women who have never carried a pregnancy to term are at a relatively high risk. Risk decreases as the number of pregnancies increases. An increased incidence of endometrial cancer has been found in association with prolonged, unopposed estrogen exposure and with tamoxifen treatment of breast cancer. Use of combination oral contraceptives (estrogen and progestin) decreases risk of endometrial cancer by about 50%.

Special Notes

Mean age-adjusted incidence rate across health districts:	26.0
95% confidence interval on the mean age-adjusted incidence rate:	23.8- 28.2
Median age-adjusted incidence rate of health districts:	26.0
Range of age-adjusted incidence rate for health districts:	20.7- 30.5
USCS rate (2015, all races):	26.6

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


State Corpus Uteri Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
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)


Corpus Uteri Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
26.5
30.5
20.7
26.0
25.4
26.5
27.9
24.8
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
Rate per 100,000 person-years

ESOPHAGUS

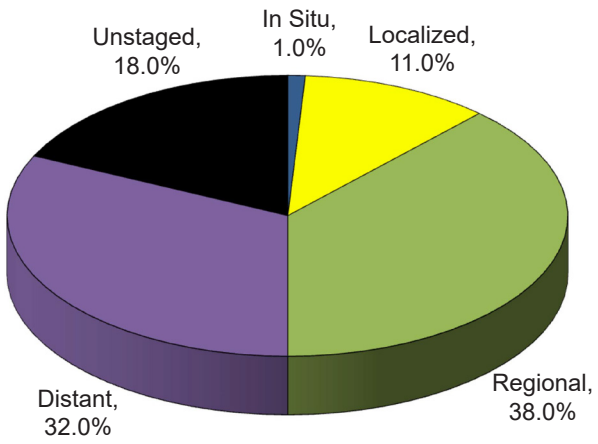
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	5.0	8.9	1.5
# of new invasive cases	99	82	17
# of new in situ cases	1	1	0
# of deaths	87	71	16

Total Cases by County

Ada	28	Cassia	2	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	2	Clearwater	2	Madison	-
Bear Lake	-	Custer	-	Minidoka	1
Benewah	-	Elmore	2	Nez Perce	4
Bingham	1	Franklin	-	Oneida	-
Blaine	2	Fremont	-	Owyhee	-
Boise	2	Gem	3	Payette	2
Bonner	10	Gooding	2	Power	-
Bonneville	4	Idaho	5	Shoshone	-
Boundary	2	Jefferson	-	Teton	-
Butte	-	Jerome	1	Twin Falls	3
Camas	-	Kootenai	7	Valley	1
Canyon	10	Latah	2	Washington	1
Caribou	-	Lemhi	1		

Stage at Diagnosis - Esophagus



Risk and Associated Factors

Age Incidence of esophageal cancer is highest after age 55.

Gender Males have higher rates, with male-to-female ratios of cases about 3:1 or more.

Race & SES United States data show that blacks are affected more than whites. Risk is higher among lower SES strata.

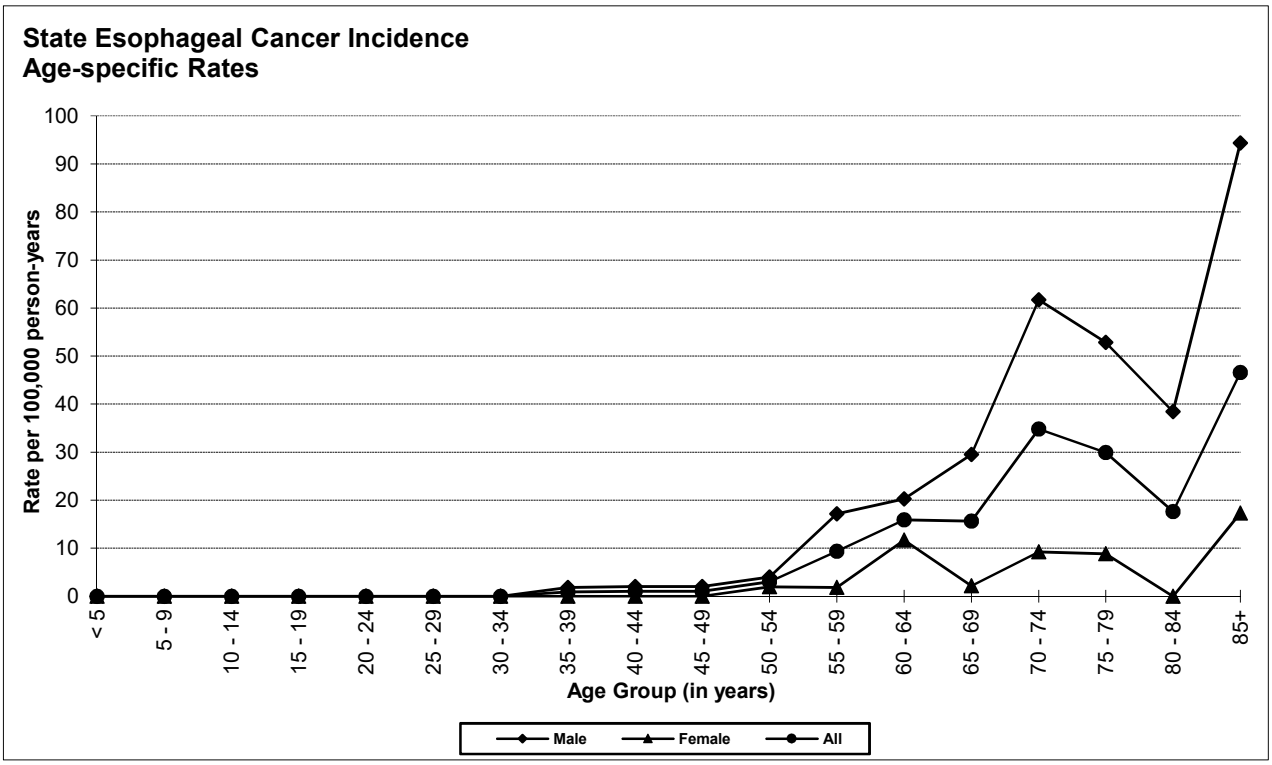
Occupation Chimney sweeps exposed to soot are at higher risk.

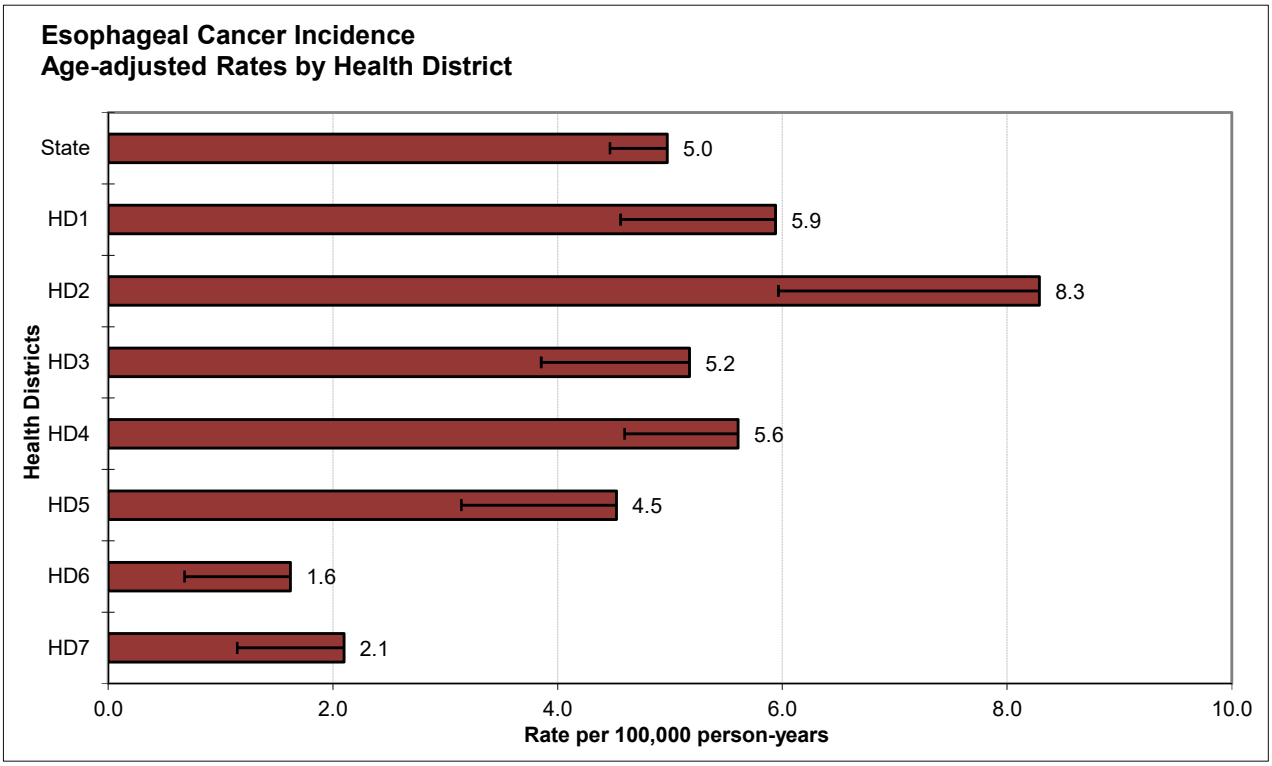
Other Tobacco use (cigarettes or spit tobacco) and heavy alcohol consumption are major risk factors for cancer of the esophagus. The risk is particularly increased when these two factors are both present. In Western Europe and North America, 90% or more of the risk of esophageal cancer can be attributed to alcohol and tobacco. Drinking “burning hot” beverages may increase the risk of esophageal cancer.

Special Notes

Mean age-adjusted incidence rate across health districts:	4.8	
95% confidence interval on the mean age-adjusted incidence rate:	3.0-	6.5
Median age-adjusted incidence rate of health districts:	5.2	
Range of age-adjusted incidence rate for health districts:	1.6-	8.3
USCS rate (2015, all races):	4.4	

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 both males and females. Health District 6 had statistically significantly fewer cases than expected based upon rates for the remainder of Idaho.


State Esophageal Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
100
90
80
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


Esophageal Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
5.0
5.9
8.3
5.2
5.6
4.5
1.6
2.1
0.0
2.0
4.0
6.0
8.0
10.0
Rate per 100,000 person-years

HODGKIN LYMPHOMA

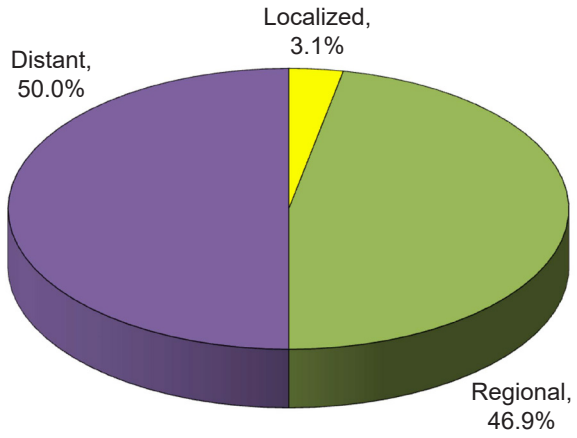
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	2.0	1.8	2.2
# of new invasive cases	32	14	18
# of new in situ cases	0	0	0
# of deaths	3	2	1

Total Cases by County

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

Stage at Diagnosis - Hodgkin Lymphoma



Risk and Associated Factors

Age High rates are seen in young adults and in later age groups, especially among males.

Gender Males typically have slightly higher rates than females.

Race & SES Hodgkin lymphoma is more common among whites than among blacks. Hodgkin lymphoma is more common in higher income groups.

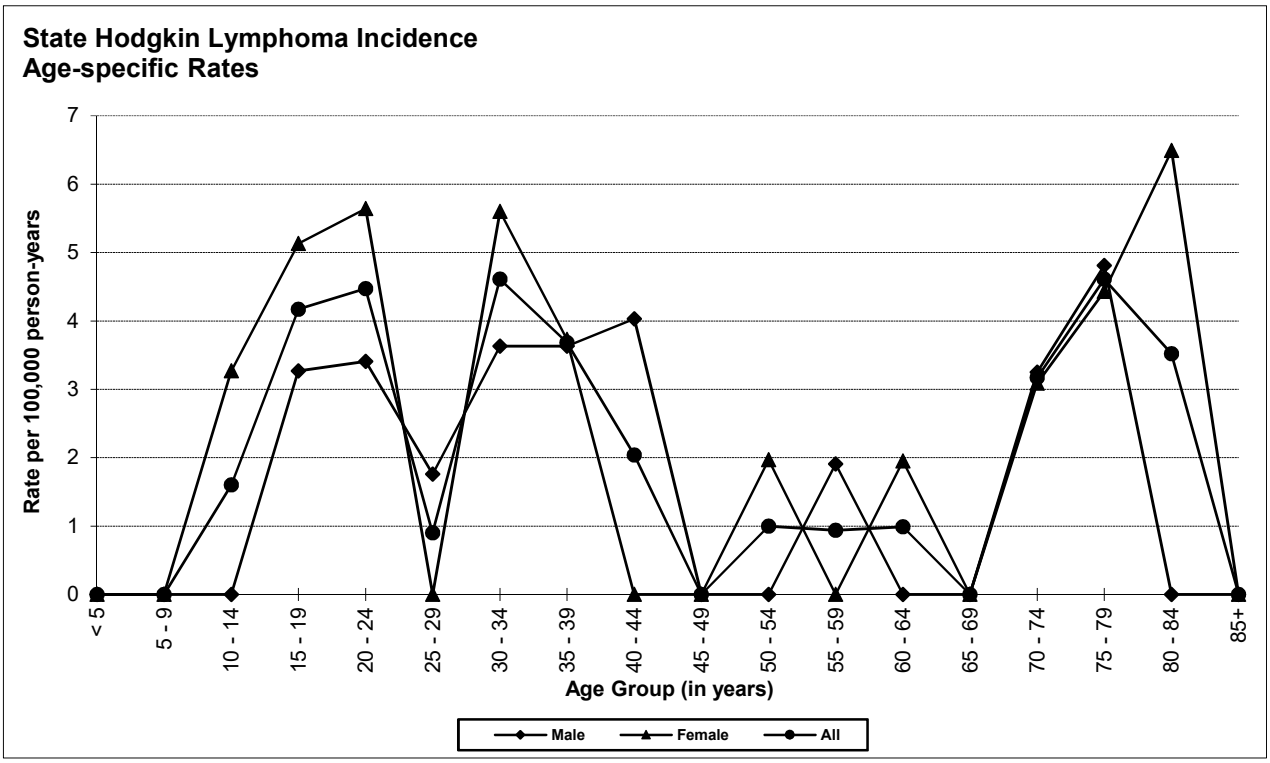
Genetics Genetic factors are thought to play an important role in the etiology of Hodgkin lymphoma, but these are yet to be adequately defined.

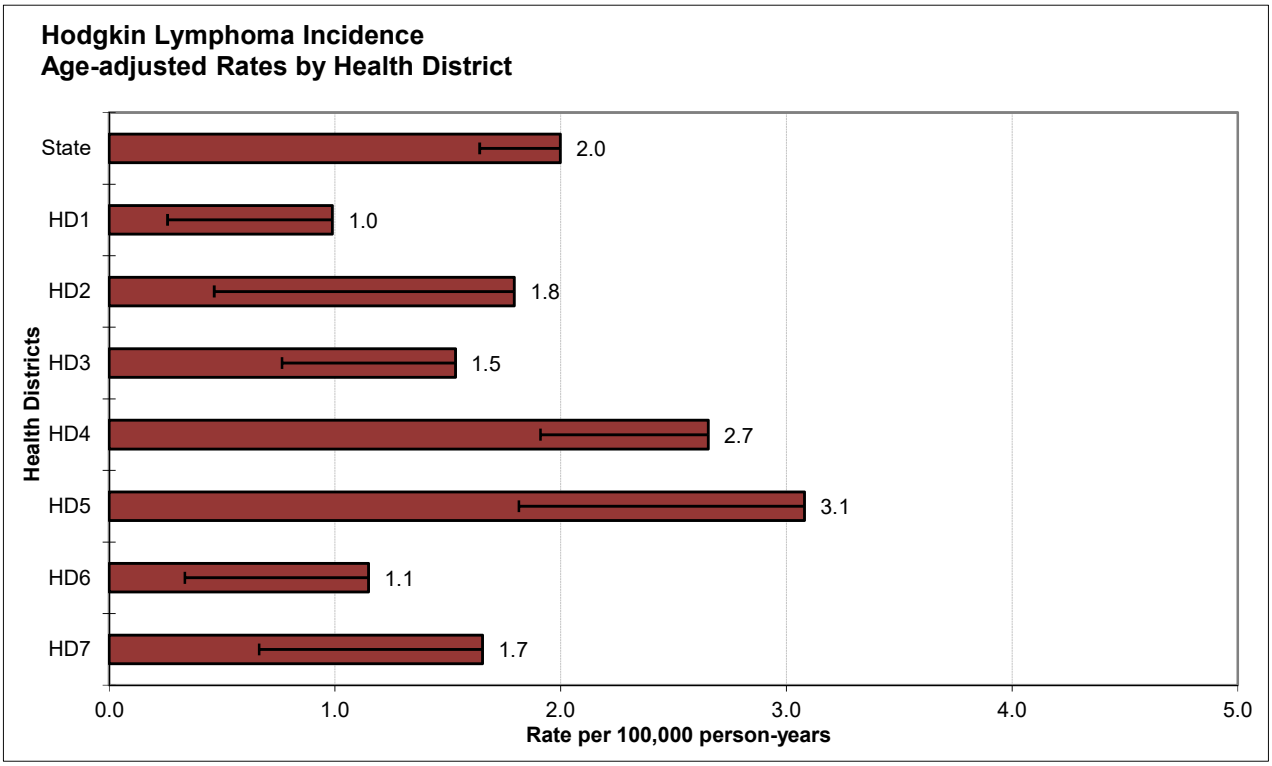
Other Small family size and ensuing delayed exposure to childhood infections is thought to be responsible for a portion of Hodgkin lymphoma cases. Certain viral infections, especially Epstein-Barr virus, and AIDS increase the risk of Hodgkin lymphoma. With current treatment, Hodgkin disease, which was once highly fatal, is among the most curable of all cancers.

Special Notes

Mean age-adjusted incidence rate across health districts:	1.8
95% confidence interval on the mean age-adjusted incidence rate:	1.3- 2.4
Median age-adjusted incidence rate of health districts:	1.7
Range of age-adjusted incidence rate for health districts:	1.0- 3.1
USCS rate (2015, all races):	2.5

The age-related incidence of Hodgkin lymphoma is typically bimodal, usually with a peak in the late 20s to early 30s, and another peak in the ninth decade of life. This trend is difficult to discern in Idaho's population due to the relatively small number of cases observed annually, which increases the variability in age-specific rates. 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
Rate per 100,000 person-years
0
1
2
3
4
5
6
7
< 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

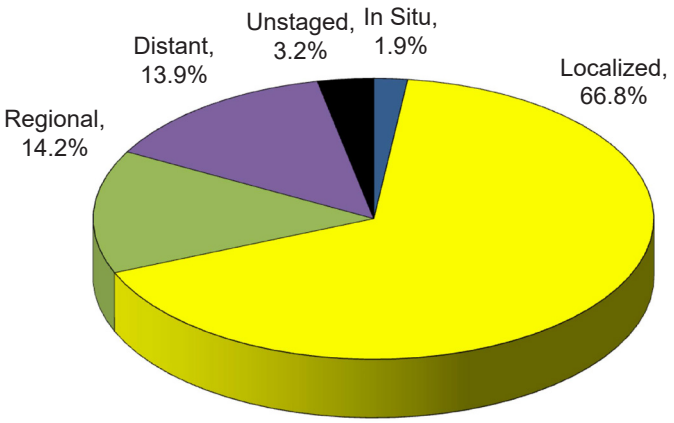

Hodgkin Lymphoma Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
2.0
1.0
1.8
1.5
2.7
3.1
1.1
1.7
0.0
1.0
2.0
3.0
4.0
5.0
Rate per 100,000 person-years

KIDNEY AND RENAL PELVIS

Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	16.0	20.6	11.8
# of new invasive cases	304	190	114
# of new in situ cases	6	3	3
# of deaths	60	34	26

Stage at Diagnosis - Kidney and Renal Pelvis



Total Cases by County

Ada	71	Cassia	3	Lewis	2
Adams	1	Clark	-	Lincoln	2
Bannock	15	Clearwater	3	Madison	1
Bear Lake	1	Custer	-	Minidoka	6
Benewah	-	Elmore	1	Nez Perce	9
Bingham	5	Franklin	3	Oneida	-
Blaine	4	Fremont	3	Owyhee	-
Boise	1	Gem	12	Payette	4
Bonner	8	Gooding	1	Power	2
Bonneville	16	Idaho	5	Shoshone	8
Boundary	1	Jefferson	2	Teton	1
Butte	1	Jerome	5	Twin Falls	11
Camas	-	Kootenai	40	Valley	2
Canyon	53	Latah	2	Washington	3
Caribou	-	Lemhi	2		

Risk and Associated Factors

Age Both adults and children are at risk for kidney cancer. Renal cell carcinoma accounts for about 80% of all adult kidney cancers. Wilm's tumor (nephroblastoma) affects predominantly children under age 5 and accounts for the majority of childhood kidney cancers.

Gender Renal cell carcinoma affects males twice as often as females.

Genetics Wilm's tumor often occurs with congenital defects.

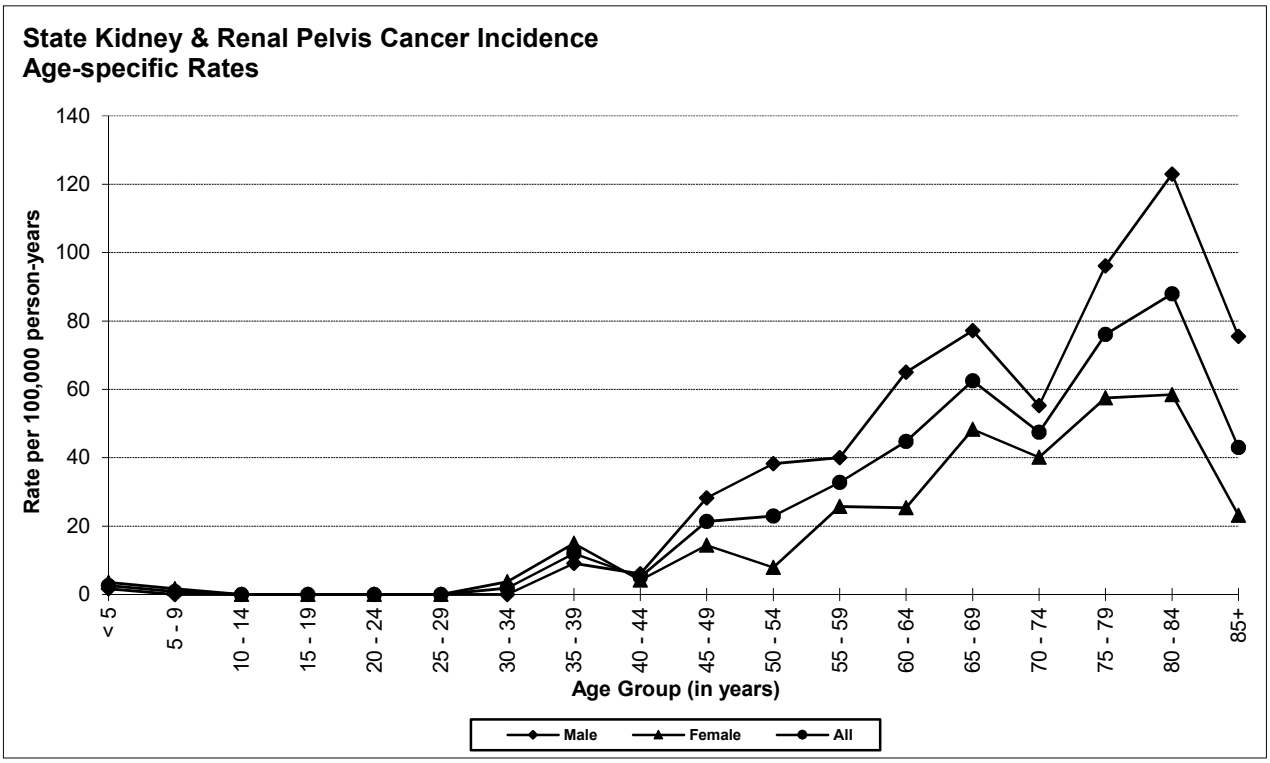
Occupation Certain occupations, such as laundry and leather workers, have been associated with increased risk due to chemical exposure.

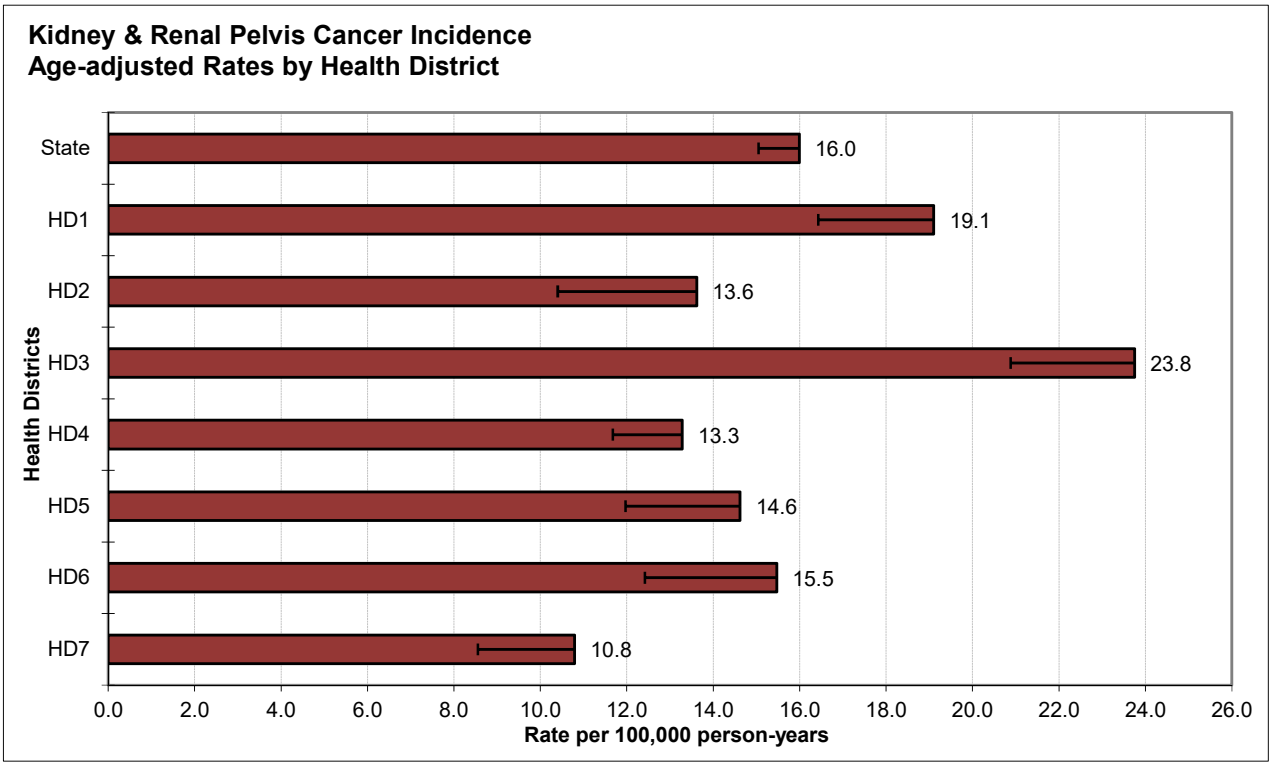
Other Cigarette smoking is strongly associated with renal pelvis and ureter cancers. Smokers are at twice the risk of developing kidney cancer as non-smokers. Analgesic mixtures containing phenacetin increase the risk of kidney cancer. Obesity is a risk factor for kidney cancer. High dietary protein consumption, independent of fat and calorie intake, may elevate kidney cancer risk.

Special Notes

Mean age-adjusted incidence rate across health districts:	15.8
95% confidence interval on the mean age-adjusted incidence rate:	12.6- 19.0
Median age-adjusted incidence rate of health districts:	14.6
Range of age-adjusted incidence rate for health districts:	10.8- 23.8
USCS rate (2015, all races):	16.4

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 both males and females. Health District 3 had statistically significantly more cases than expected based upon rates for the remainder of Idaho.


State Kidney & Renal Pelvis Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
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


Kidney & Renal Pelvis Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
16.0
19.1
13.6
23.8
13.3
14.6
15.5
10.8
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0
22.0
24.0
26.0
Rate per 100,000 person-years

LARYNX

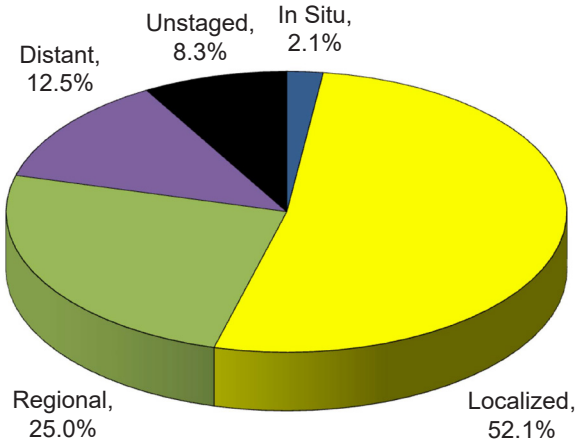
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	2.3	3.0	1.7
# of new invasive cases	47	30	17
# of new in situ cases	1	0	1
# of deaths	11	8	3

Total Cases by County

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

Stage at Diagnosis - Larynx



Risk and Associated Factors

Age Rates increase with age, with the vast majority of cases occurring after age 55.

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

Race & SES Generally in the United States, blacks have higher incidence rates than whites. Lower-income groups experience higher rates.

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

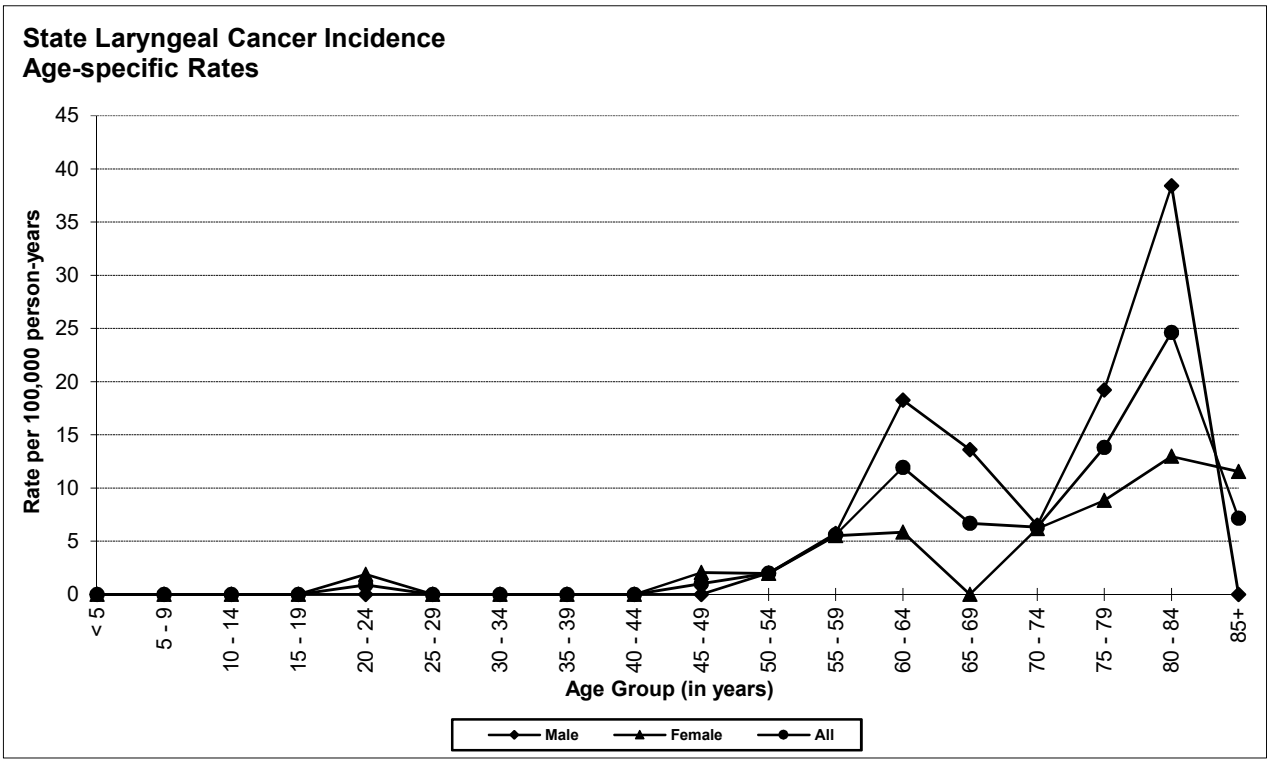
Diet Diets low in fresh fruits and vegetables may increase the risk.

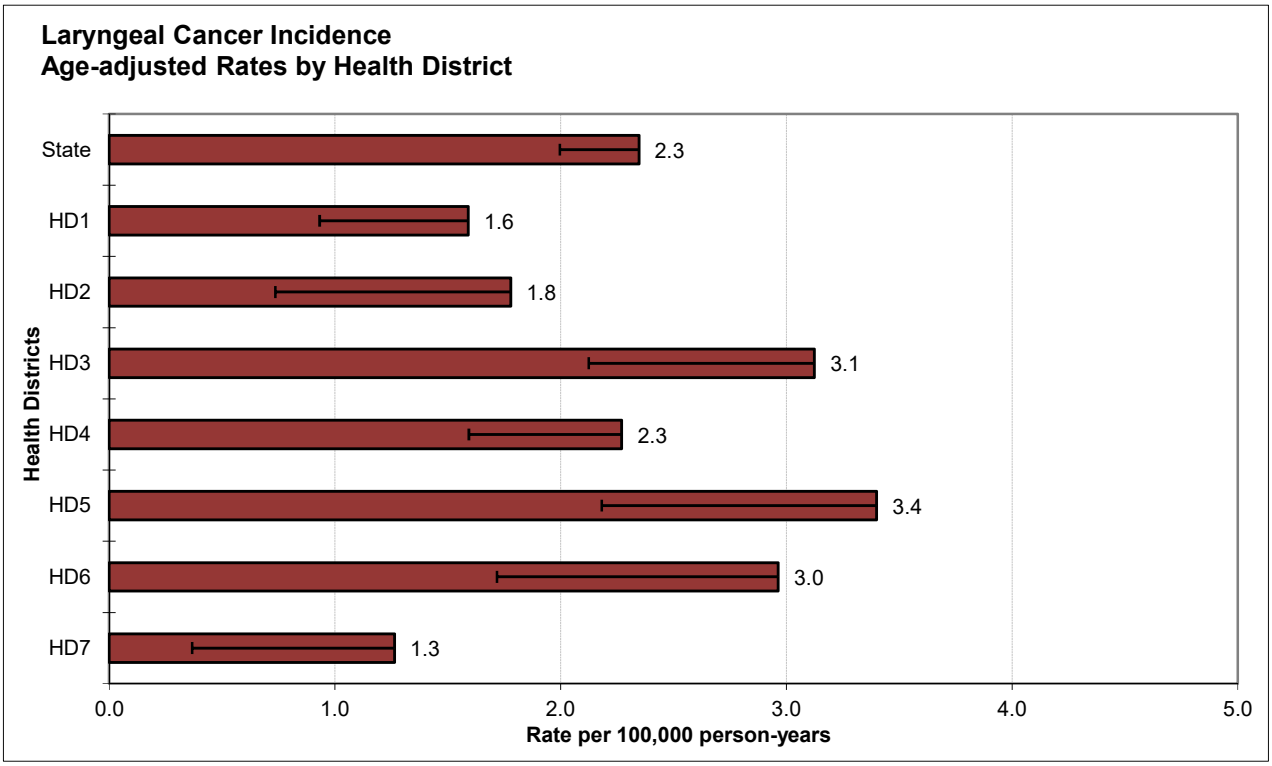
Other Cigarette smoking and alcohol use are both major risk factors. The combination of alcohol consumption and tobacco use (smoking or spit tobacco) acts greatly to increase the risk. A patient with a single laryngeal cancer who continues to smoke and drink alcohol has an enhanced risk of developing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

Special Notes

Mean age-adjusted incidence rate across health districts:	2.3	
95% confidence interval on the mean age-adjusted incidence rate:	1.7-	3.0
Median age-adjusted incidence rate of health districts:	2.3	
Range of age-adjusted incidence rate for health districts:	1.3-	3.4
USCS rate (2015, all races):	3.1	

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 in many age groups. The age-specific incidence rates peaked in the age group 80-84 for both males and females. No health district had statistically significantly fewer or more cases than expected based upon rates for the remainder of Idaho.


State Laryngeal Cancer Incidence
Age-specific Rates
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


Laryngeal Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
2.3
1.6
1.8
3.1
2.3
3.4
3.0
1.3
0.0
1.0
2.0
3.0
4.0
5.0
Rate per 100,000 person-years

LEUKEMIA

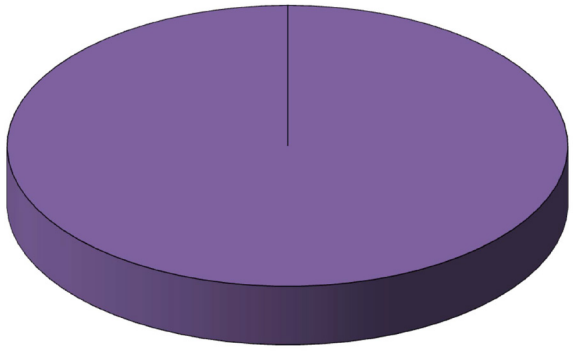
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	14.7	19.3	10.6
# of new invasive cases	271	171	100
# of new in situ cases	0	0	0
# of deaths	129	79	50

Total Cases by County

Ada	67	Cassia	6	Lewis	1
Adams	1	Clark	-	Lincoln	1
Bannock	8	Clearwater	3	Madison	3
Bear Lake	-	Custer	5	Minidoka	3
Benewah	-	Elmore	3	Nez Perce	5
Bingham	2	Franklin	4	Oneida	1
Blaine	6	Fremont	1	Owyhee	1
Boise	1	Gem	3	Payette	3
Bonner	12	Gooding	4	Power	1
Bonneville	20	Idaho	2	Shoshone	4
Boundary	1	Jefferson	4	Teton	1
Butte	1	Jerome	2	Twin Falls	14
Camas	1	Kootenai	30	Valley	1
Canyon	40	Latah	1	Washington	1
Caribou	-	Lemhi	3		

Stage at Diagnosis - Leukemia



Distant,
100.0%

Risk and Associated Factors

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.

Gender Males have higher incidence rates than females for chronic myelogenous leukemia (CML), acute lymphoblastic leukemia (ALL), and chronic lymphocytic leukemia (CLL).

Race ALL is less common among blacks. CLL is rare in Asian/Pacific Islanders.

Genetics Certain congenital defects, such as trisomy 21, Fanconi's anemia, Bloom syndrome, and ataxia-telangectasia, increase risk in children for various types of leukemia.

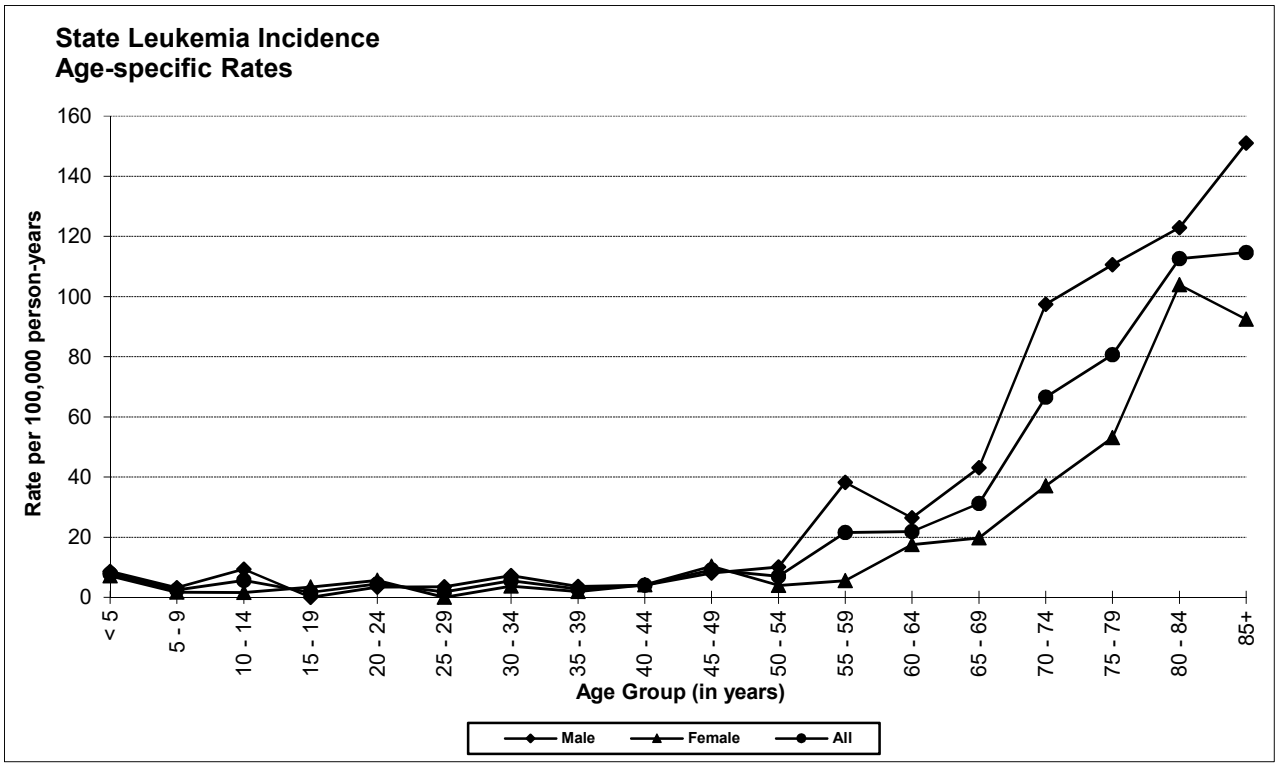
Occupation Benzene is a known cause of leukemia (predominantly acute myelogenous leukemia [AML]). Chimney sweeps exposed to soot are at higher risk.

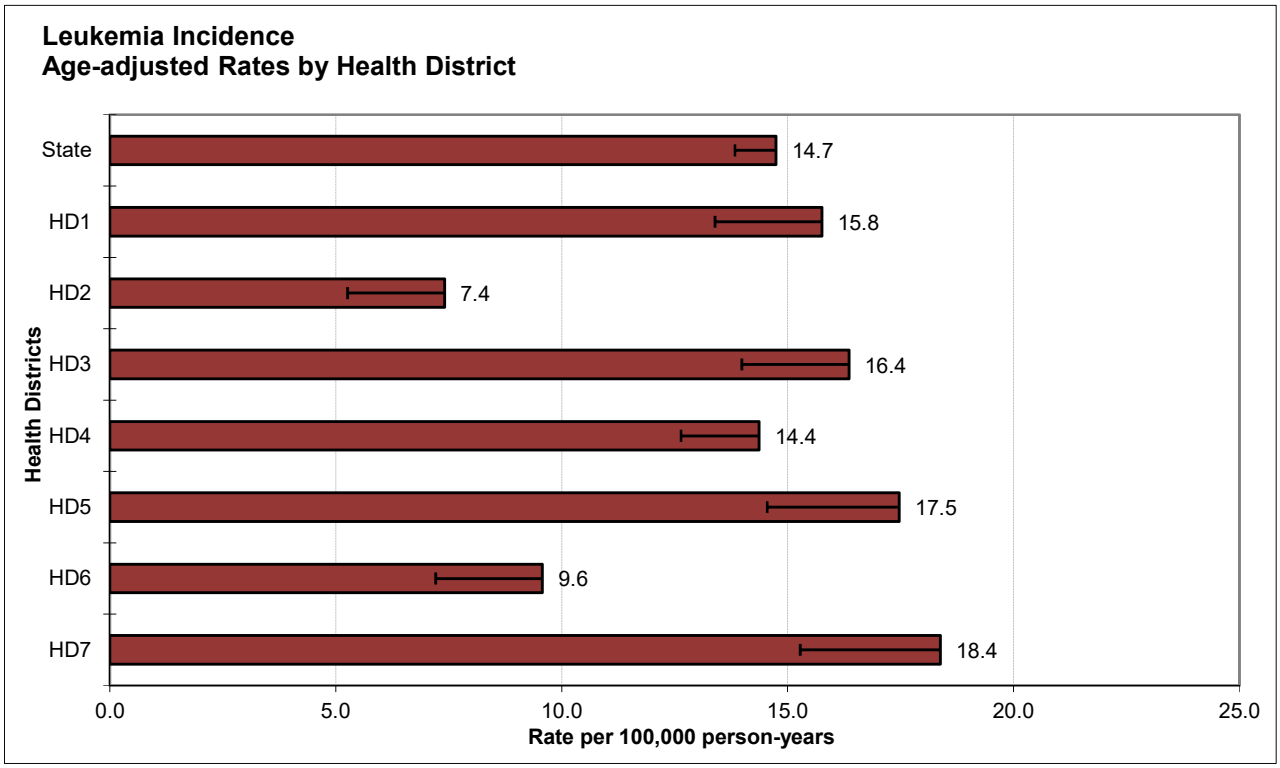
Other Ionizing radiation exposure increases the risk (except for CLL). Environmental exposure to low frequency, non-ionizing radiation and its association with leukemia incidence is being investigated. Treatment with some chemotherapeutic agents for other cancers increases the risk of leukemia. Exposure to herbicides used during the Vietnam War, including Agent Orange, has been associated with increased incidence of CLL. The antibiotic chloramphenicol likely causes leukemia. Autoimmune diseases and several viruses, including HTLV-I and EBV, have been linked to certain types of leukemia.

Special Notes

Mean age-adjusted incidence rate across health districts:	14.2
95% confidence interval on the mean age-adjusted incidence rate:	11.1- 17.3
Median age-adjusted incidence rate of health districts:	15.8
Range of age-adjusted incidence rate for health districts:	7.4- 18.4
USCS rate (2015, all races):	12.9

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 with the exception of acute myelogenous leukemia (AML), which has no predilection for age or sex. Health Districts 2 and 6 had statistically significantly fewer cases than expected based upon rates for the remainder of Idaho.


State Leukemia Incidence
Age-specific Rates
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
14.7
15.8
7.4
16.4
14.4
17.5
9.6
18.4
0.0
5.0
10.0
15.0
20.0
25.0
Rate per 100,000 person-years

LIVER AND BILE DUCT

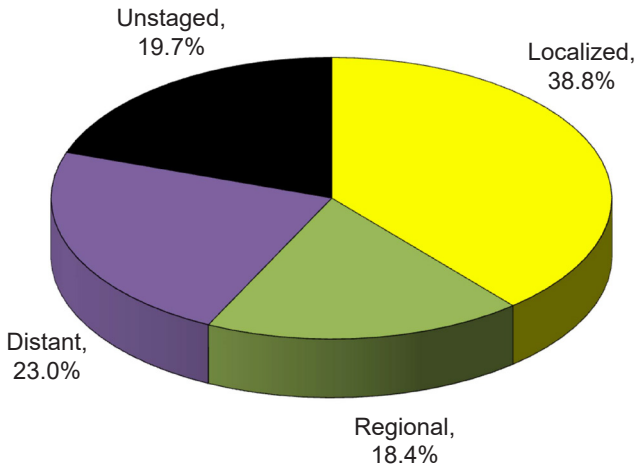
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	7.6	12.0	3.5
# of new invasive cases	152	118	34
# of new in situ cases	0	0	0
# of deaths	135	96	39

Total Cases by County

Ada	43	Cassia	2	Lewis	2
Adams	-	Clark	-	Lincoln	-
Bannock	7	Clearwater	2	Madison	-
Bear Lake	-	Custer	1	Minidoka	1
Benewah	1	Elmore	2	Nez Perce	5
Bingham	3	Franklin	-	Oneida	-
Blaine	1	Fremont	1	Owyhee	2
Boise	1	Gem	-	Payette	4
Bonner	7	Gooding	1	Power	-
Bonneville	5	Idaho	5	Shoshone	2
Boundary	-	Jefferson	1	Teton	-
Butte	-	Jerome	1	Twin Falls	2
Camas	-	Kootenai	23	Valley	1
Canyon	21	Latah	4	Washington	1
Caribou	-	Lemhi	-		

Stage at Diagnosis - Liver and Bile Duct



Risk and Associated Factors

Age The incidence rate of liver cancer increases with age.

Gender Rates are usually higher among males than females.

Race Incidence is higher among Asian/Pacific Islanders and blacks than the remainder of the population.

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

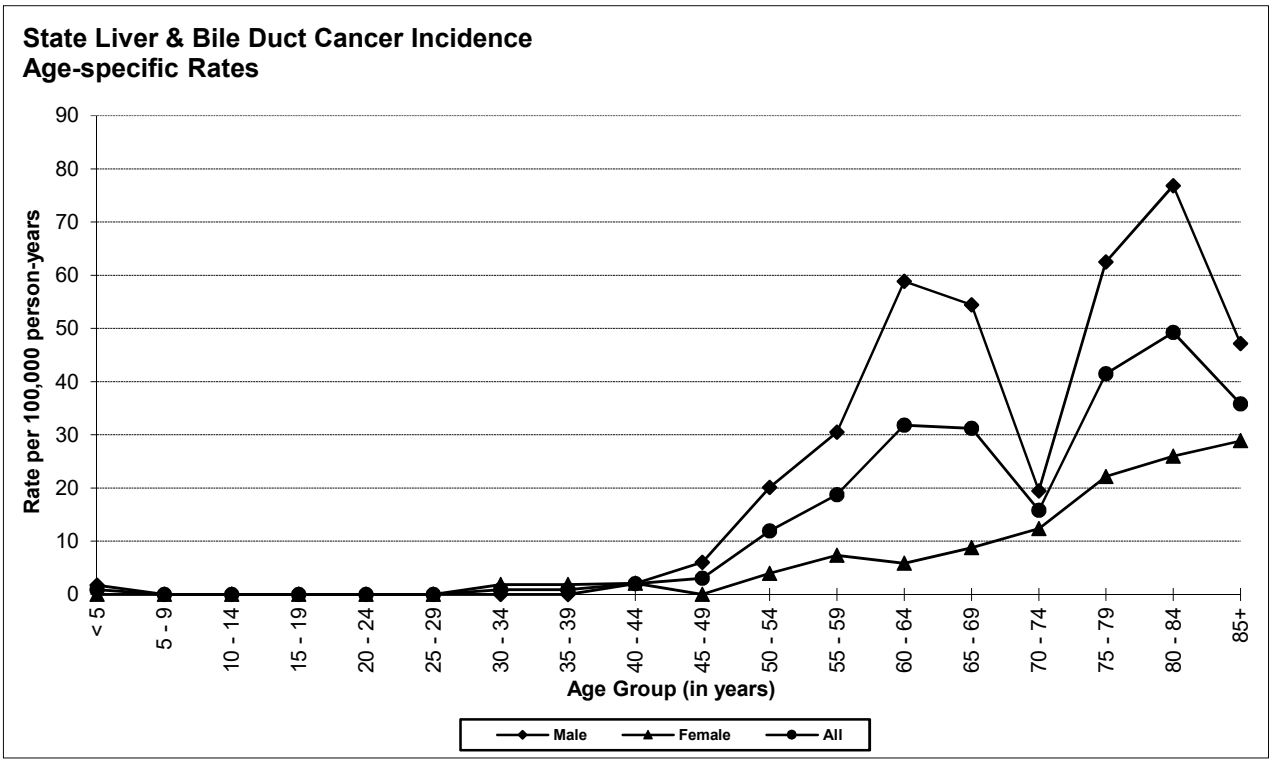
Occupation Thorium dioxide (an x-ray contrast medium) exposure increases liver cancer risk. Exposure to vinyl chloride used in plastic production is associated with an increased risk of angiosarcoma of the liver. Chimney sweeps exposed to soot are at higher risk.

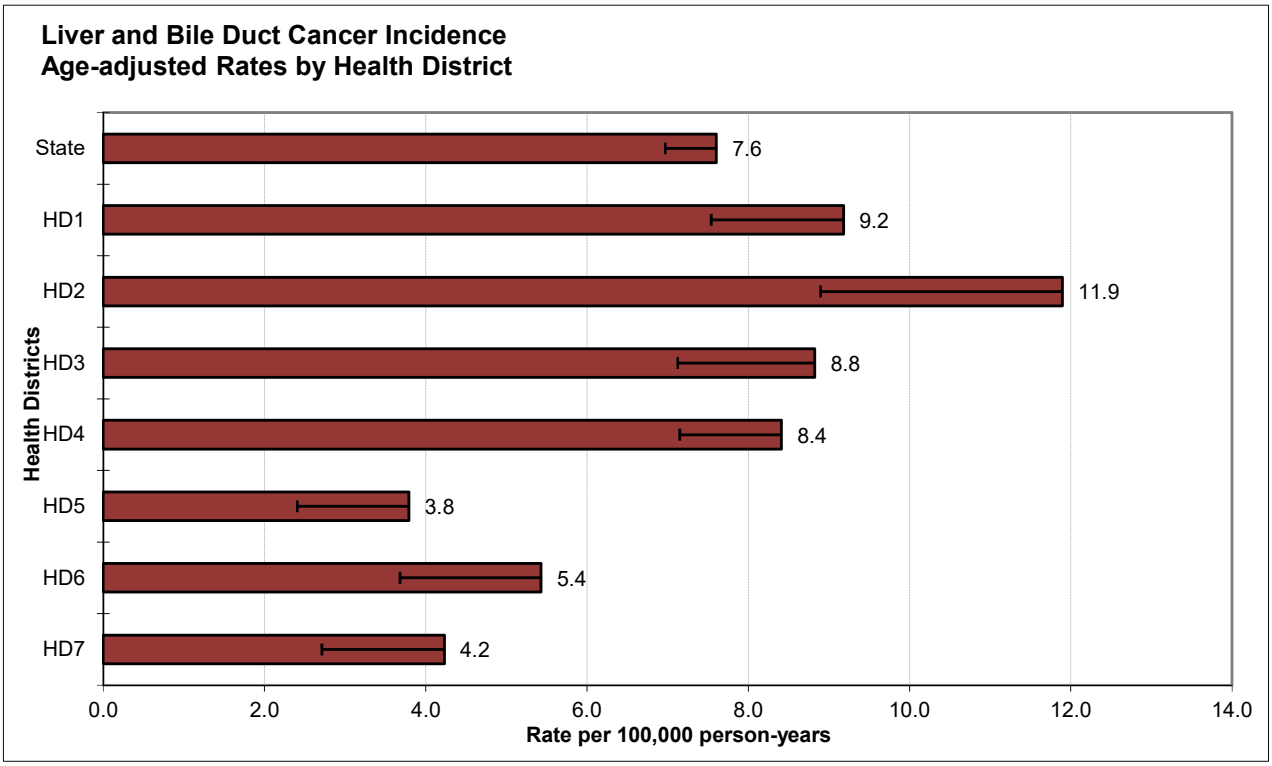
Other Hepatitis B and Hepatitis C infections are significant causes of hepatocellular carcinoma. Cirrhosis of the liver due to viral hepatitis, alcoholism, or toxic chemical exposure accounts for 50-80% of patients diagnosed with liver cancer. Long-term use of oral contraceptives increases risk of hepatocellular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

Special Notes

Mean age-adjusted incidence rate across health districts:	7.4
95% confidence interval on the mean age-adjusted incidence rate:	5.2- 9.6
Median age-adjusted incidence rate of health districts:	8.4
Range of age-adjusted incidence rate for health districts:	3.8- 11.9
USCS rate (2015, all races):	7.8

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 80-84 for males and 85+ for females. Health Districts 5 and 7 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
Rate per 100,000 person-years
90
80
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


Liver and Bile Duct Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
7.6
9.2
11.9
8.8
8.4
3.8
5.4
4.2
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
Rate per 100,000 person-years

LUNG AND BRONCHUS

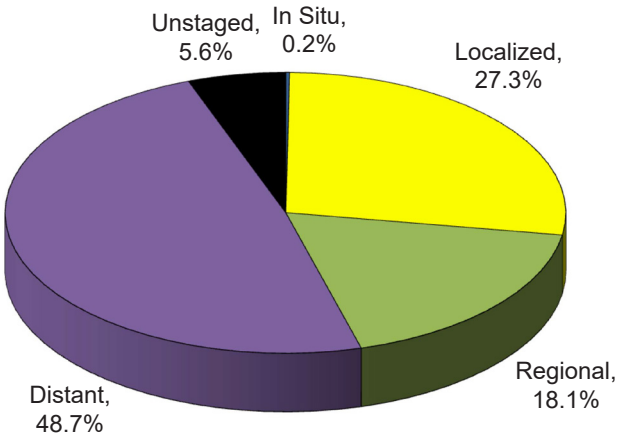
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	47.8	51.6	44.9
# of new invasive cases	920	463	457
# of new in situ cases	2	1	1
# of deaths	582	314	268

Total Cases by County

Ada	221	Cassia	5	Lewis	4
Adams	7	Clark	-	Lincoln	2
Bannock	26	Clearwater	10	Madison	3
Bear Lake	2	Custer	6	Minidoka	7
Benewah	7	Elmore	15	Nez Perce	43
Bingham	27	Franklin	1	Oneida	-
Blaine	9	Fremont	7	Owyhee	2
Boise	7	Gem	16	Payette	24
Bonner	44	Gooding	12	Power	3
Bonneville	39	Idaho	13	Shoshone	16
Boundary	10	Jefferson	8	Teton	1
Butte	1	Jerome	8	Twin Falls	40
Camas	-	Kootenai	135	Valley	3
Canyon	108	Latah	14	Washington	9
Caribou	2	Lemhi	5		

Stage at Diagnosis - Lung and Bronchus



Risk and Associated Factors

Age Lung cancer incidence rates increase with age.

Gender 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 & SES Incidence is generally higher among blacks than other racial groups, and is also higher in lower-income groups.

Diet Diets low in consumption of fresh fruits and vegetables contribute to increased risk.

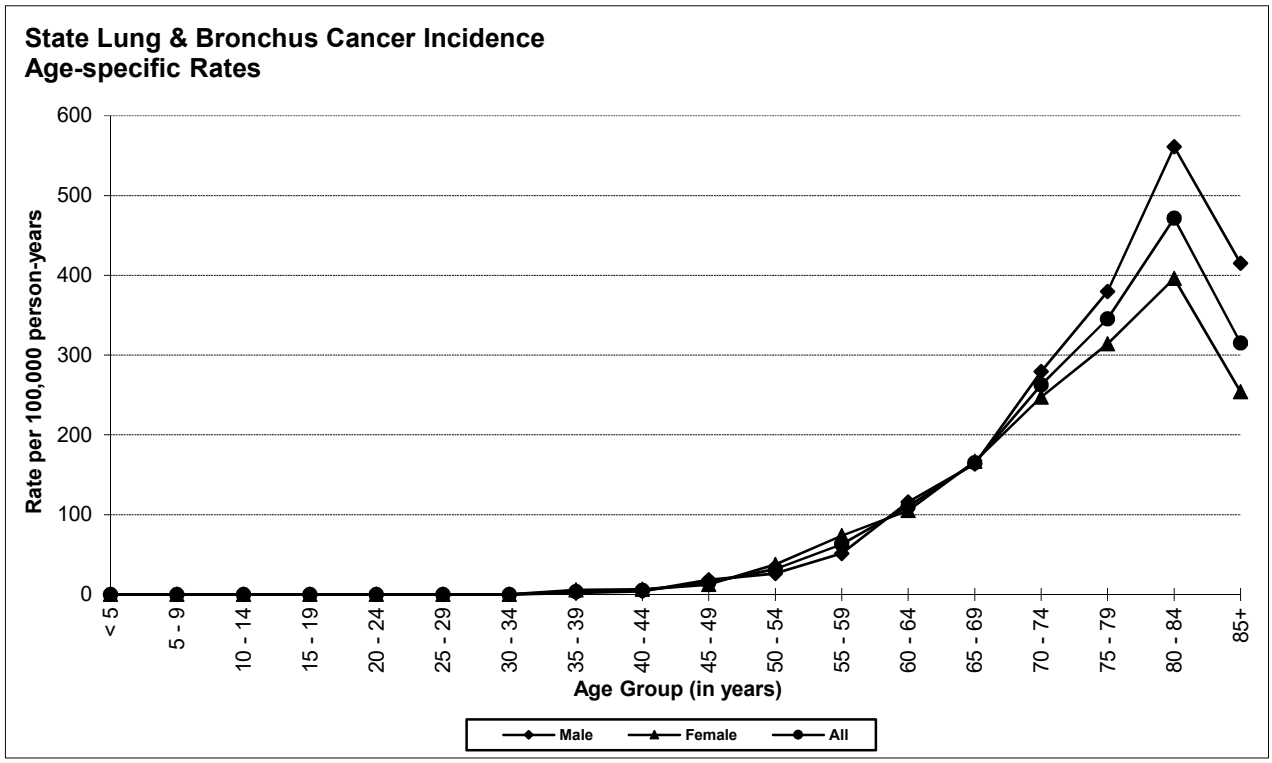
Occupation Occupational or environmental exposures to asbestos, cadmium, chromium, coal tars, crystalline silica dust, polycyclic aromatic hydrocarbons, radon, soot, chlorpyrifos insecticides, ionizing radiation, and other substances increase the risk.

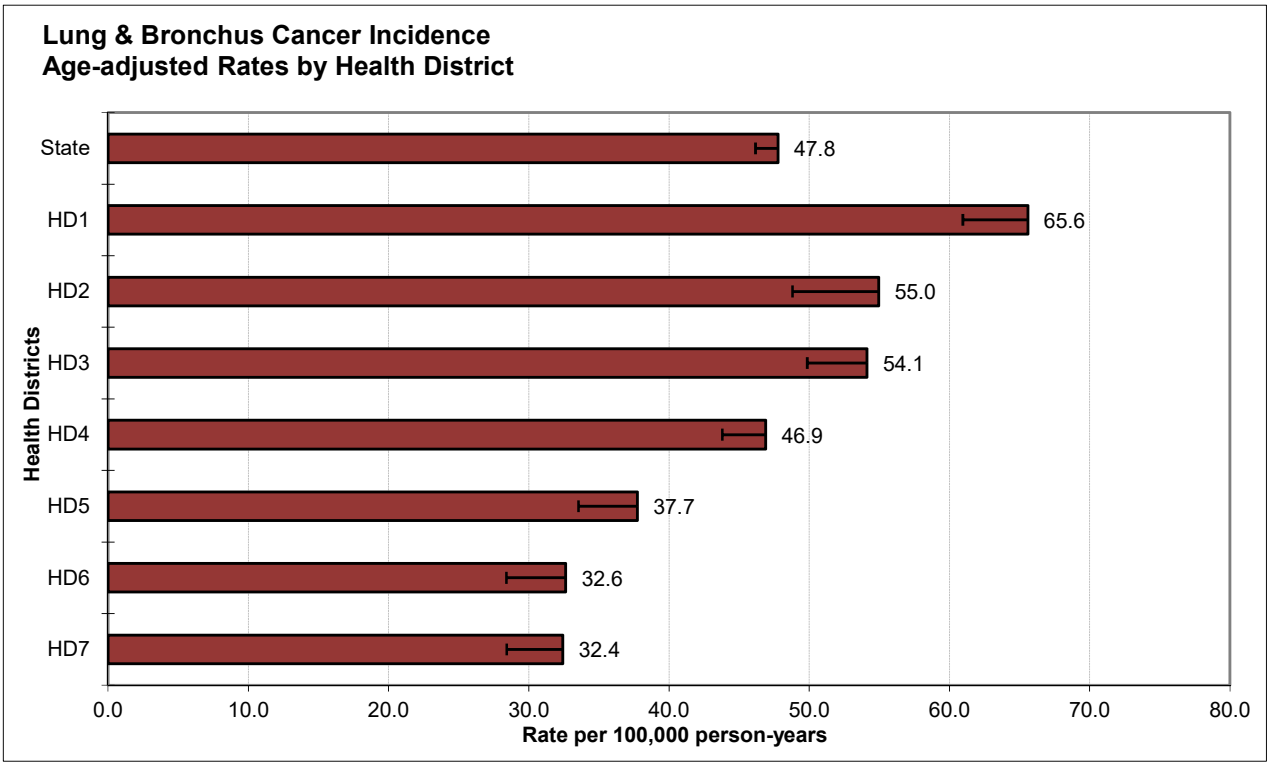
Other Cigarette smoking, including exposure to second-hand smoke, is the most important risk factor, accounting for over 85% of lung cancer deaths. Evidence exists that rates are about 1.3 times higher, adjusted for smoking, in urban areas than rural areas due to air pollution, mostly from motor vehicles.

Special Notes

Mean age-adjusted incidence rate across health districts:	46.3
95% confidence interval on the mean age-adjusted incidence rate:	37.0- 55.7
Median age-adjusted incidence rate of health districts:	46.9
Range of age-adjusted incidence rate for health districts:	32.4- 65.6
USCS rate (2015, all races):	55.4

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 69. The incidence rates increased with age, peaking in the age group 80-84 for both males and females. Health District 1 had statistically significantly more cases of lung cancer than expected based upon rates for the remainder of Idaho, and Health Districts 5, 6, and 7 had statistically significantly fewer.


State Lung & Bronchus Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
600
500
400
300
200
100
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
47.8
65.6
55.0
54.1
46.9
37.7
32.6
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

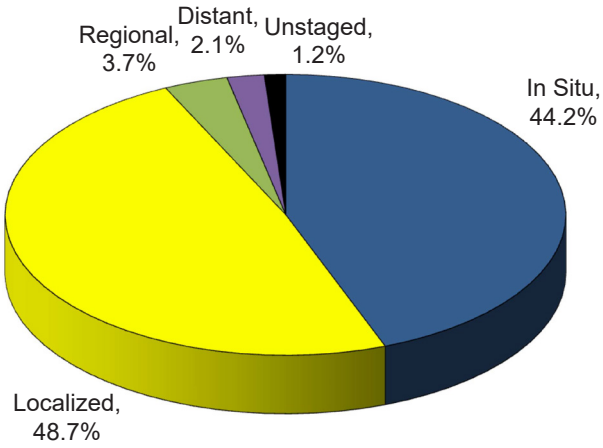
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	29.8	35.1	25.5
# of new invasive cases	544	310	234
# of new in situ cases	435	259	176
# of deaths	54	36	18

Total Cases by County

Ada	283	Cassia	13	Lewis	3
Adams	4	Clark	-	Lincoln	2
Bannock	50	Clearwater	2	Madison	8
Bear Lake	1	Custer	5	Minidoka	7
Benewah	3	Elmore	16	Nez Perce	24
Bingham	27	Franklin	6	Oneida	1
Blaine	27	Fremont	7	Owyhee	5
Boise	7	Gem	10	Payette	12
Bonner	30	Gooding	8	Power	8
Bonneville	85	Idaho	10	Shoshone	5
Boundary	10	Jefferson	11	Teton	4
Butte	1	Jerome	10	Twin Falls	44
Camas	-	Kootenai	101	Valley	8
Canyon	95	Latah	14	Washington	8
Caribou	3	Lemhi	1		

Stage at Diagnosis - Melanoma of Skin



Risk and Associated Factors

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

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

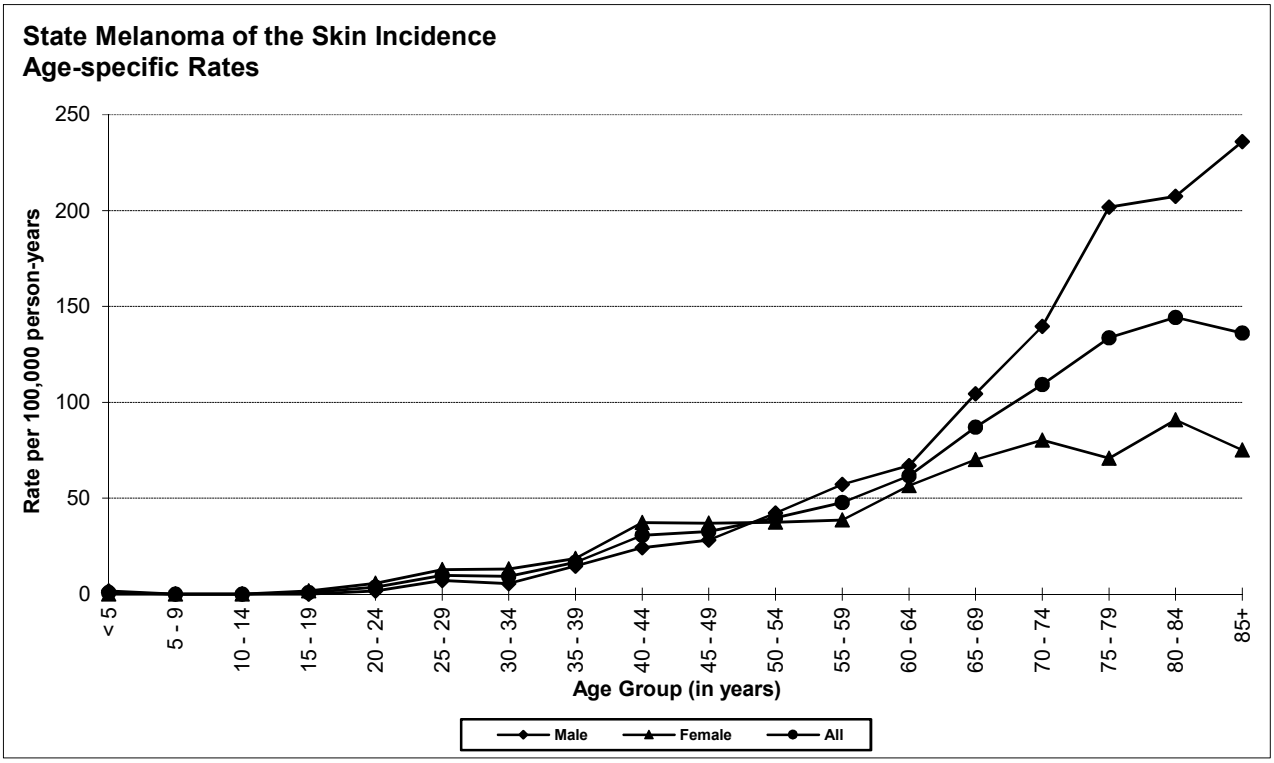
Race & SES The incidence rate is highest in whites and lowest in blacks. Incidence rates of melanoma of the skin are higher in higher-income groups (indoor workers).

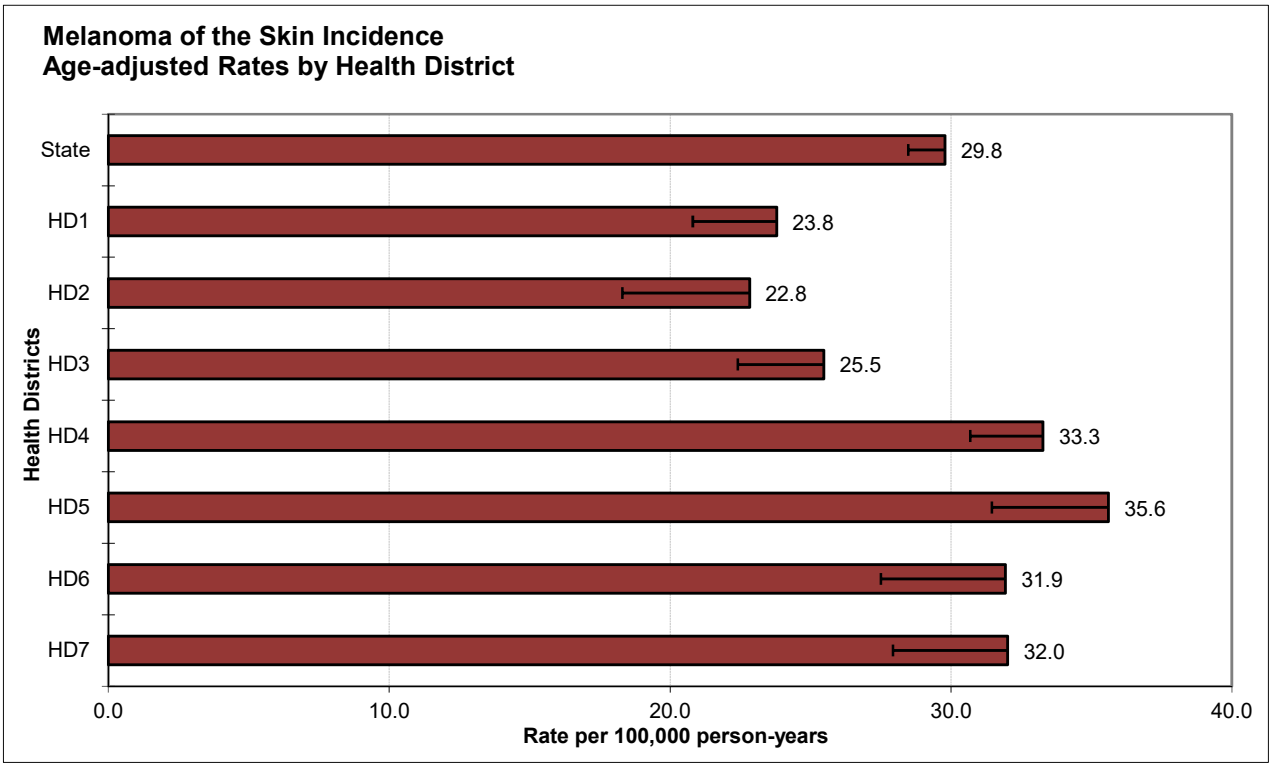
Other Ultraviolet light exposure, especially blistering sunburns during childhood and intermittent exposure of untanned skin to intense sunlight, is a major risk factor. Melanoma incidence rates are increasing around the world. Blue eyes, fair or red hair, and pale complexion are well-known risk factors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

Special Notes

Mean age-adjusted incidence rate across health districts:	29.3
95% confidence interval on the mean age-adjusted incidence rate:	25.5- 33.1
Median age-adjusted incidence rate of health districts:	31.9
Range of age-adjusted incidence rate for health districts:	22.8- 35.6
USCS rate (2015, all races):	22.0

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. Health Districts 4 and 5 had statistically significantly more cases of melanoma than expected based upon rates for the remainder of Idaho, and Health District 1 had statistically significantly fewer.


State Melanoma of the Skin Incidence
Age-specific Rates
Rate per 100,000 person-years
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


Melanoma of the Skin Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
29.8
23.8
22.8
25.5
33.3
35.6
31.9
32.0
0.0
10.0
20.0
30.0
40.0
Rate per 100,000 person-years

MYELOMA

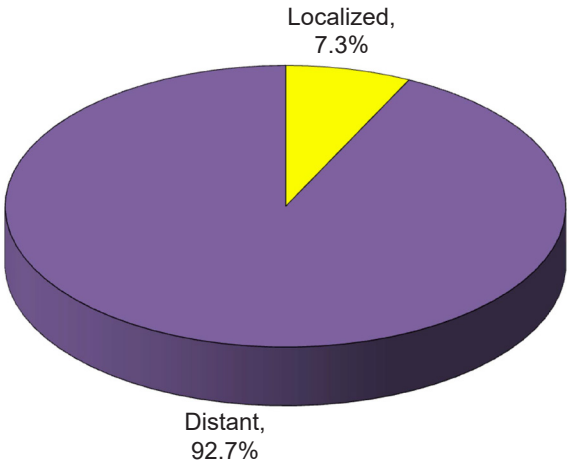
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	6.4	8.7	4.3
# of new invasive cases	124	79	45
# of new in situ cases	0	0	0
# of deaths	73	41	32

Total Cases by County

Ada	27	Cassia	1	Lewis	-
Adams	2	Clark	-	Lincoln	-
Bannock	7	Clearwater	-	Madison	2
Bear Lake	1	Custer	-	Minidoka	1
Benewah	1	Elmore	4	Nez Perce	6
Bingham	3	Franklin	1	Oneida	-
Blaine	2	Fremont	1	Owyhee	-
Boise	-	Gem	-	Payette	2
Bonner	6	Gooding	2	Power	-
Bonneville	7	Idaho	1	Shoshone	2
Boundary	-	Jefferson	2	Teton	1
Butte	1	Jerome	2	Twin Falls	4
Camas	-	Kootenai	17	Valley	3
Canyon	8	Latah	2	Washington	5
Caribou	-	Lemhi	-		

Stage at Diagnosis - Myeloma



Risk and Associated Factors

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

Gender Rates for males are somewhat higher than for females.

Race Blacks have higher incidence rates than whites.

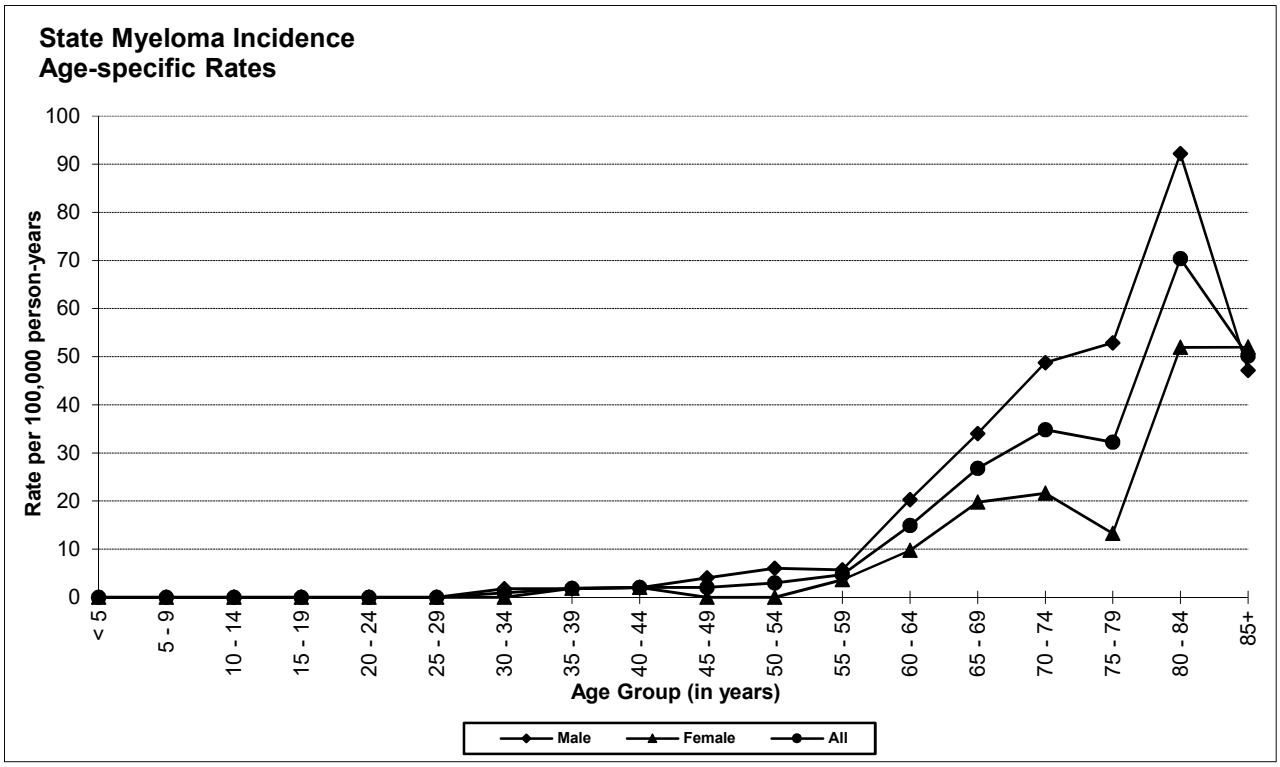
Genetics Genetic factors play an important role in its development, but how so is not completely understood. Familial factors and chronic antigenic stimulation have also been implicated.

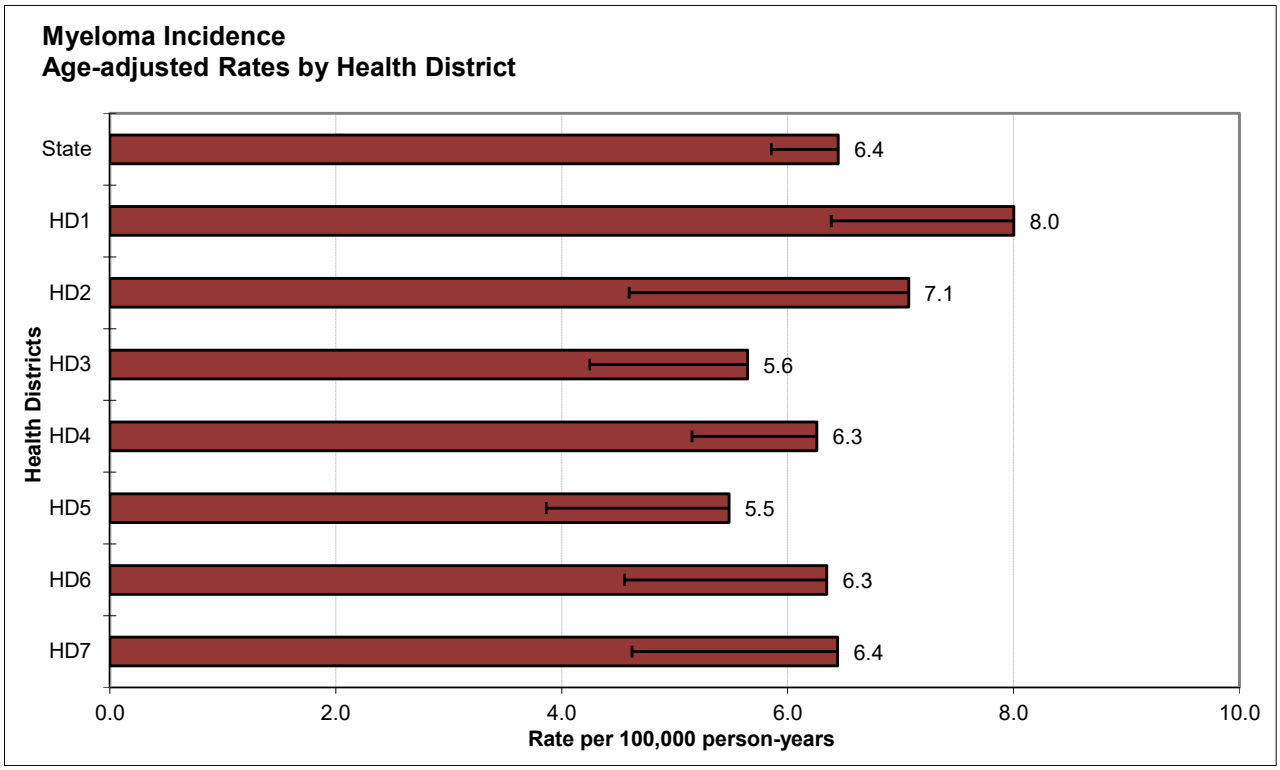
Other Multiple myeloma has been associated with lymphomas such as Burkitt's and non-Hodgkin lymphomas. Studies have suggested several possible viral etiologies, and multiple myeloma has been linked to ionizing radiation exposure. Several specific chemical and physical substances have been linked to myeloma 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 are predisposed to develop multiple myeloma.

Special Notes

Mean age-adjusted incidence rate across health districts:	6.5
95% confidence interval on the mean age-adjusted incidence rate:	5.8- 7.1
Median age-adjusted incidence rate of health districts:	6.3
Range of age-adjusted incidence rate for health districts:	5.5- 8.0
USCS rate (2015, all races):	6.3

There were no cases of myeloma among persons less than 30 years of age. The age-specific incidence rates increased rapidly for both males and females after age group 55-59. 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
Rate per 100,000 person-years
100
90
80
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


Myeloma Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
6.4
8.0
7.1
5.6
6.3
5.5
6.3
6.4
0.0
2.0
4.0
6.0
8.0
10.0
Rate per 100,000 person-years

NON-HODGKIN LYMPHOMA

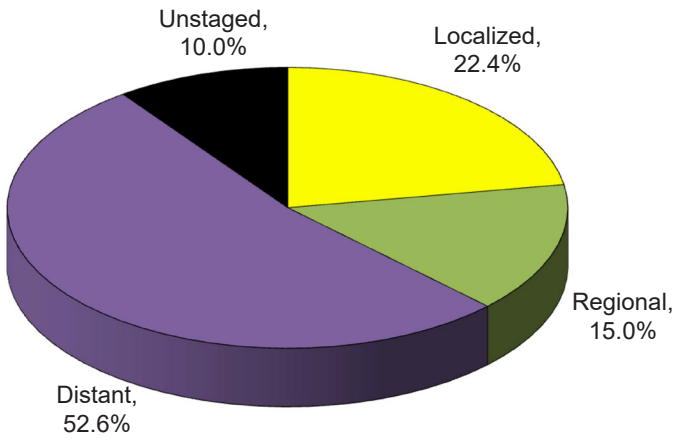
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	20.2	23.5	17.1
# of new invasive cases	380	209	171
# of new in situ cases	0	0	0
# of deaths	126	68	58

Total Cases by County

Ada	98	Cassia	1	Lewis	-
Adams	2	Clark	1	Lincoln	1
Bannock	10	Clearwater	5	Madison	6
Bear Lake	4	Custer	1	Minidoka	5
Benewah	1	Elmore	5	Nez Perce	10
Bingham	9	Franklin	2	Oneida	3
Blaine	5	Fremont	3	Owyhee	4
Boise	3	Gem	3	Payette	6
Bonner	11	Gooding	5	Power	1
Bonneville	15	Idaho	11	Shoshone	4
Boundary	5	Jefferson	5	Teton	2
Butte	3	Jerome	3	Twin Falls	16
Camas	-	Kootenai	42	Valley	3
Canyon	48	Latah	9	Washington	4
Caribou	3	Lemhi	2		

Stage at Diagnosis - Non-Hodgkin Lymphoma



Risk and Associated Factors

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

Gender Males have higher rates than females.

Race & SES In the United States, incidence rates are generally higher for whites than blacks. Rates are higher in upper-income groups.

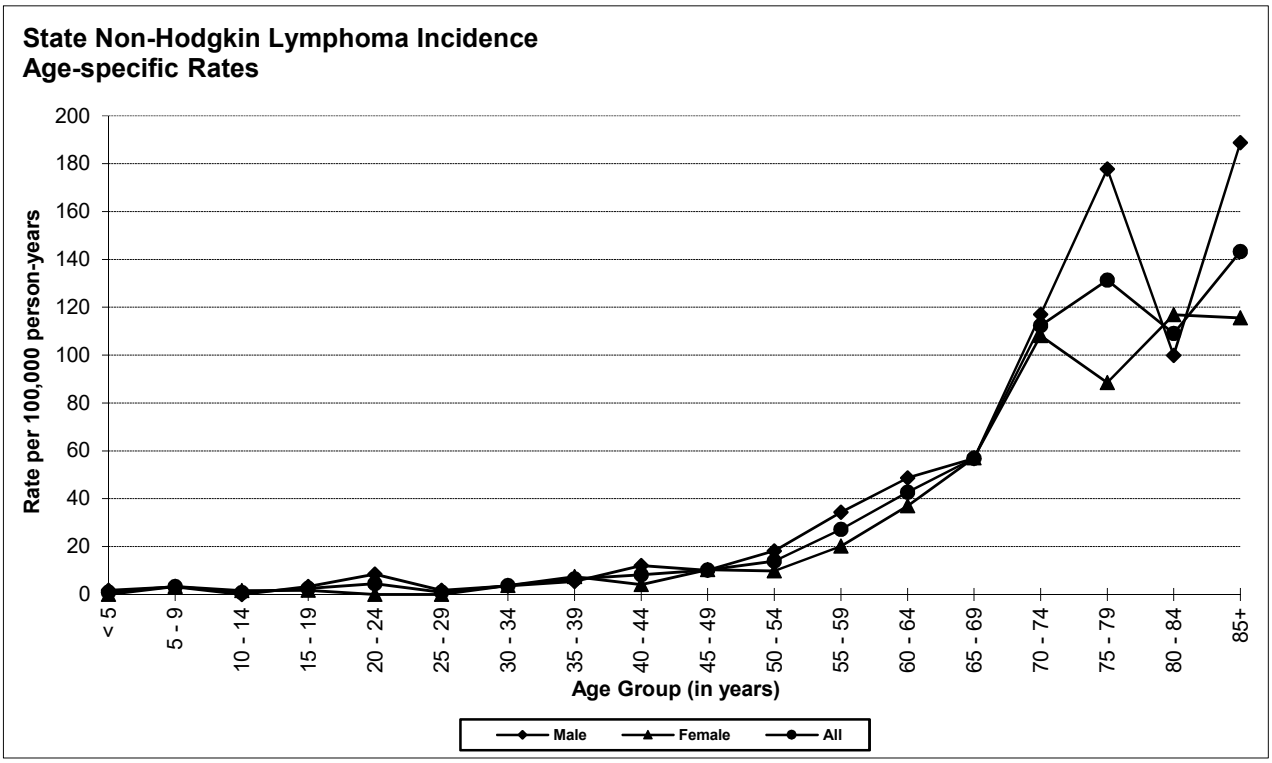
Occupation Exposure to ethylene oxide, such as through commercial production or use as a sterilant in the manufacture of medical and pharmaceutical products or production of food spices, has been identified as a risk factor.

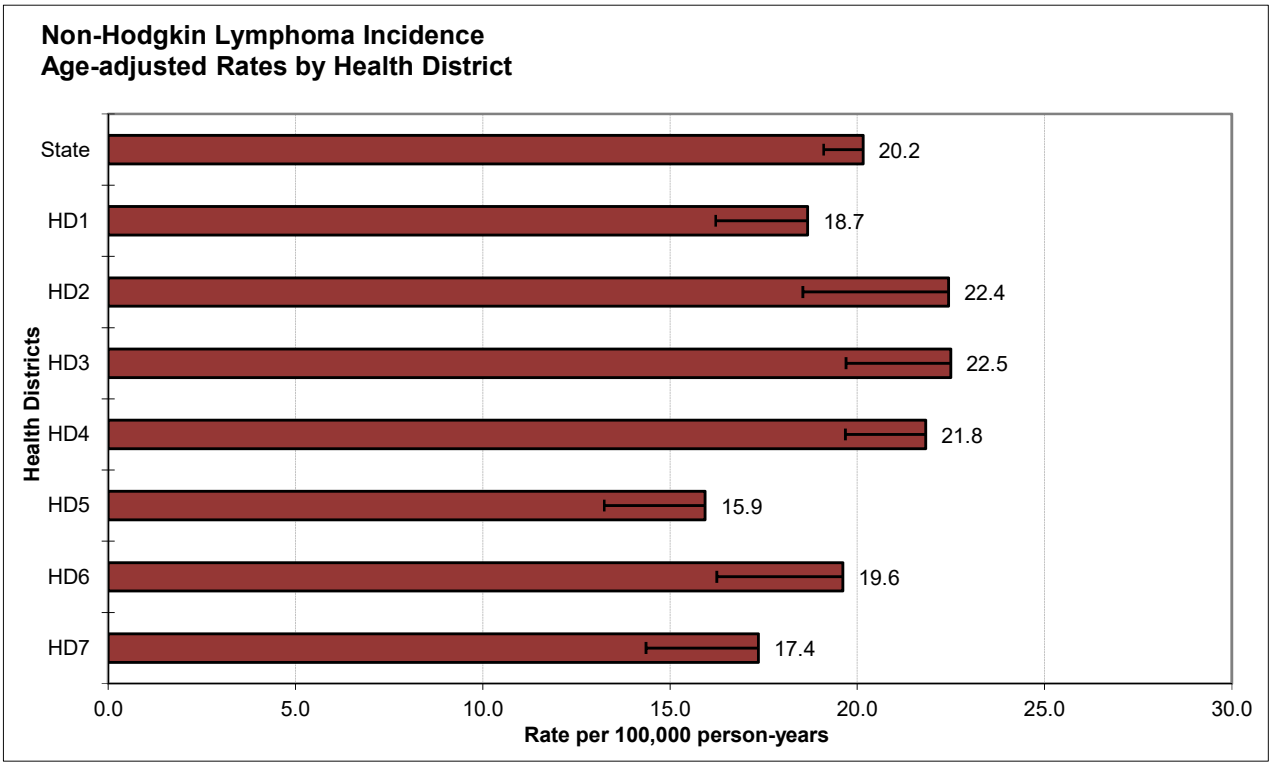
Other Non-Hodgkin lymphoma (NHL) develops with increased frequency in individuals infected with certain viruses, including HTLV-I, HIV, and EBV. Exposures to agricultural chemicals and PCBs have also been implicated. Treatment with some immunosuppressants increases the risk of NHL among organ transplant patients, evidently by reactivating Epstein-Barr virus.

Special Notes

Mean age-adjusted incidence rate across health districts:	19.8
95% confidence interval on the mean age-adjusted incidence rate:	17.8- 21.7
Median age-adjusted incidence rate of health districts:	19.6
Range of age-adjusted incidence rate for health districts:	15.9- 22.5
USCS rate (2015, all races):	18.2

The age-specific incidence rates of non-Hodgkin lymphoma increased with age, peaking in the age group 85+ for males and 80-84 for females. 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
Rate per 100,000 person-years
200
180
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


Non-Hodgkin Lymphoma Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
20.2
18.7
22.4
22.5
21.8
15.9
19.6
17.4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
Rate per 100,000 person-years

ORAL CAVITY AND PHARYNX

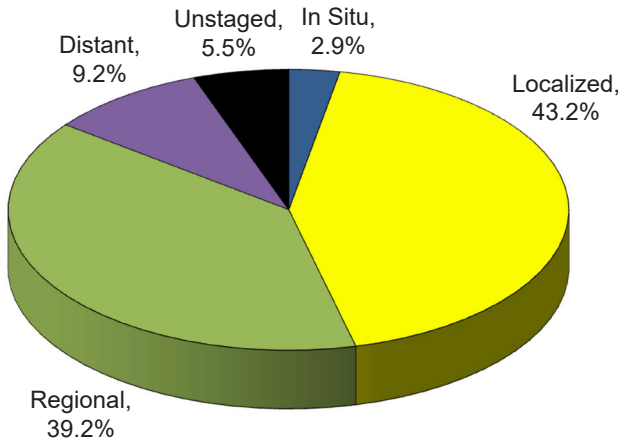
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	13.6	20.7	7.2
# of new invasive cases	265	195	70
# of new in situ cases	8	5	3
# of deaths	37	20	17

Total Cases by County

Ada	69	Cassia	2	Lewis	2
Adams	2	Clark	-	Lincoln	2
Bannock	8	Clearwater	4	Madison	2
Bear Lake	1	Custer	1	Minidoka	1
Benewah	2	Elmore	2	Nez Perce	6
Bingham	5	Franklin	-	Oneida	-
Blaine	9	Fremont	-	Owyhee	2
Boise	1	Gem	3	Payette	7
Bonner	7	Gooding	3	Power	-
Bonneville	22	Idaho	5	Shoshone	1
Boundary	2	Jefferson	6	Teton	4
Butte	1	Jerome	2	Twin Falls	14
Camas	1	Kootenai	31	Valley	2
Canyon	32	Latah	3	Washington	4
Caribou	-	Lemhi	2		

Stage at Diagnosis - Oral Cavity and Pharynx



Risk and Associated Factors

Age Most cases occur in people over age 60.

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

Race & SES Rates are higher for blacks than for whites. Rates are also higher among lower income groups.

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

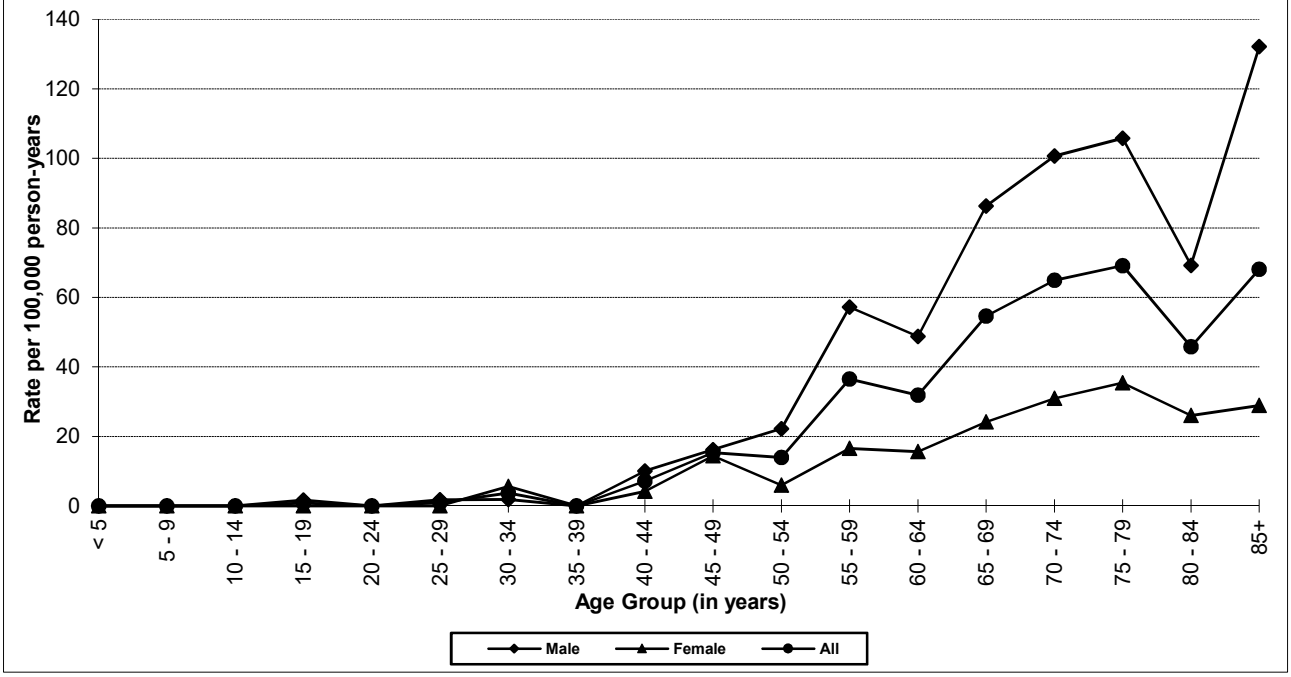
Other Smoking and spit tobacco use are major risk factors for cancers of the oral cavity and pharynx. Alcohol use, especially excessive, is a major risk factor. Combined exposure to tobacco and alcohol multiply the risks of each other. It is estimated that smoking and drinking account for 75% of all 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.

Special Notes

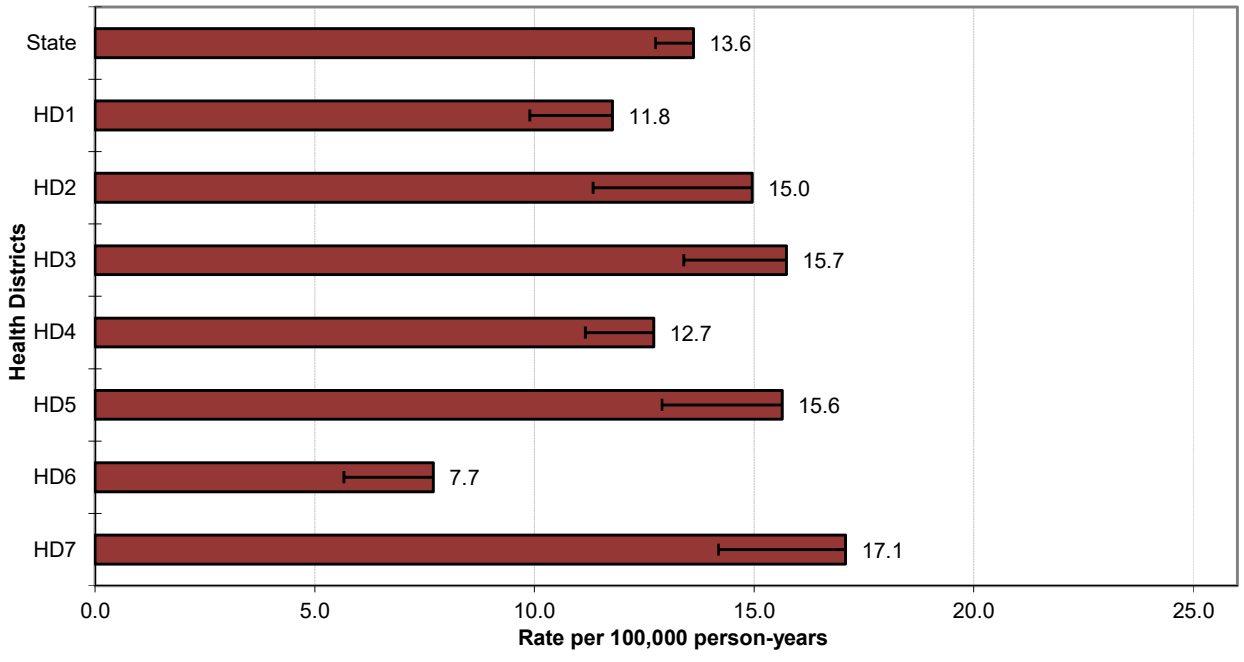
Mean age-adjusted incidence rate across health districts:	13.7
95% confidence interval on the mean age-adjusted incidence rate:	11.3- 16.0
Median age-adjusted incidence rate of health districts:	15.0
Range of age-adjusted incidence rate for health districts:	7.7- 17.1
USCS rate (2015, all races):	11.5

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 54, peaking in the age group 85+ for males and 75-79 for females. Health District 6 had statistically significantly fewer cases than expected based upon rates for the remainder of Idaho.

State Oral Cavity & Pharyngeal Cancer Incidence
Age-specific Rates



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



OVARY

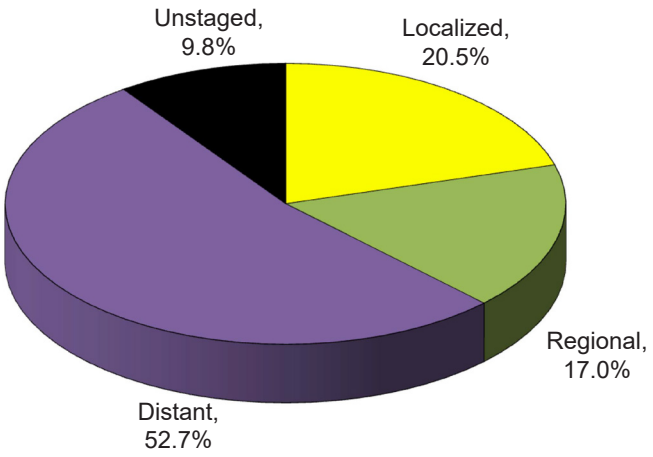
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	-	11.2
# of new invasive cases	-	-	112
# of new in situ cases	-	-	0
# of deaths	-	-	92

Total Cases by County

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

Stage at Diagnosis - Ovary



Risk and Associated Factors

Age The rate of ovarian cancer increases with age, and it is primarily a disease of older women.

Race & SES Incidence rates are slightly higher among white females than blacks. Rates are higher among upper-income 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.

Hormonal Risk of ovarian cancer is significantly reduced via suppression of ovulation through pregnancy or oral contraceptive use. The highest risk is in post-menopausal women. Ovarian cancer is also associated with a personal history of breast, endometrial, and colon cancers.

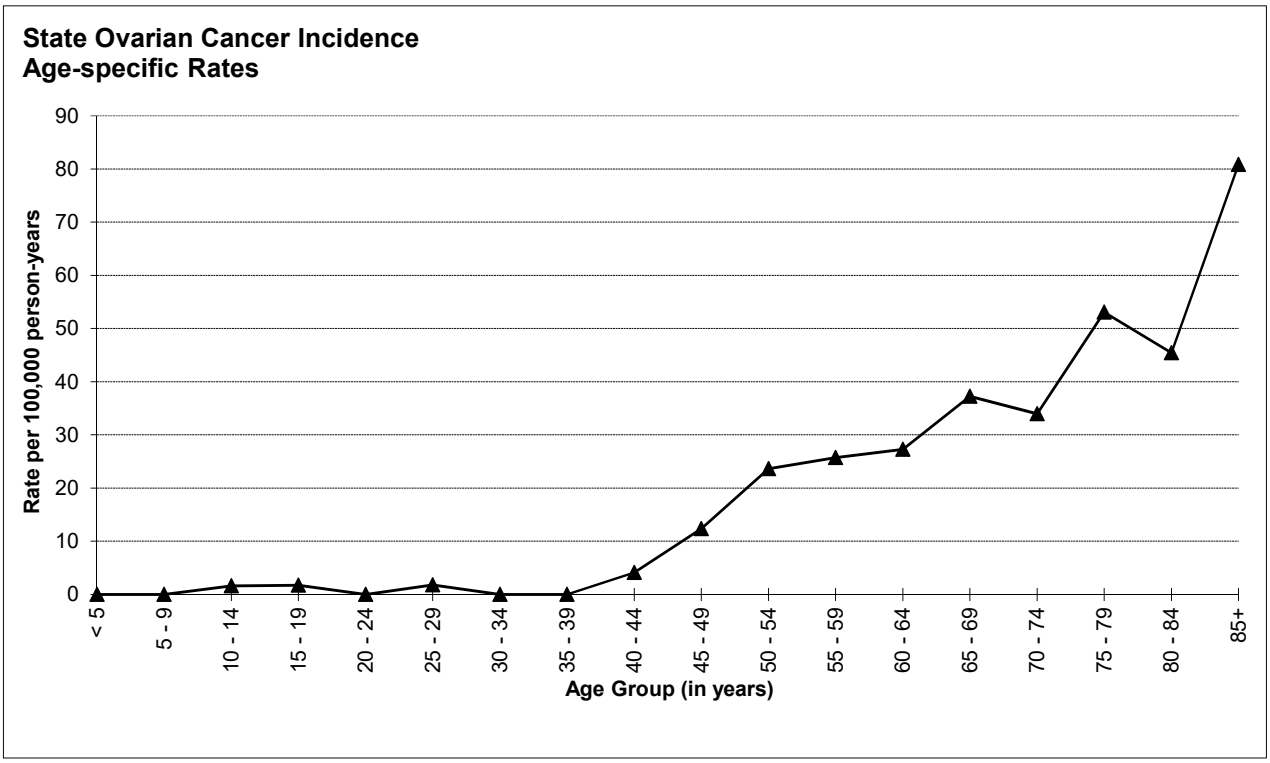
Diet Dietary animal fat may increase the risk.

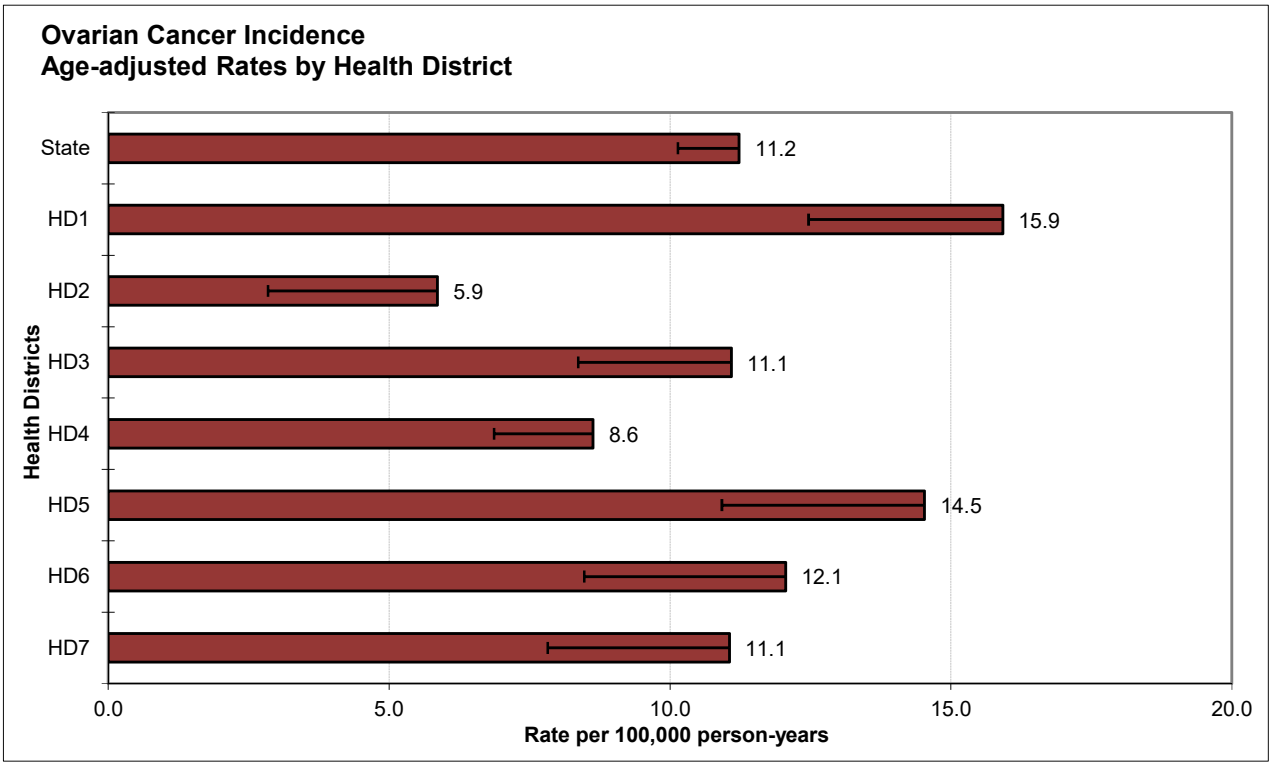
Other High dose (>100 rads) ionizing radiation roughly doubles the risk of ovarian cancer.

Special Notes

Mean age-adjusted incidence rate across health districts:	11.3
95% confidence interval on the mean age-adjusted incidence rate:	8.8- 13.8
Median age-adjusted incidence rate of health districts:	11.1
Range of age-adjusted incidence rate for health districts:	5.9- 15.9
USCS rate (2015, all races):	10.7

There were few cases of ovarian cancer among females aged less than 35 years. The age-specific incidence rates of ovarian cancer generally increased with age starting in the 40-44 age group. The highest age-specific rate was for women aged 85+. 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
Rate per 100,000 person-years
90
80
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)


Ovarian Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
11.2
15.9
5.9
11.1
8.6
14.5
12.1
11.1
0.0
5.0
10.0
15.0
20.0
Rate per 100,000 person-years

PANCREAS

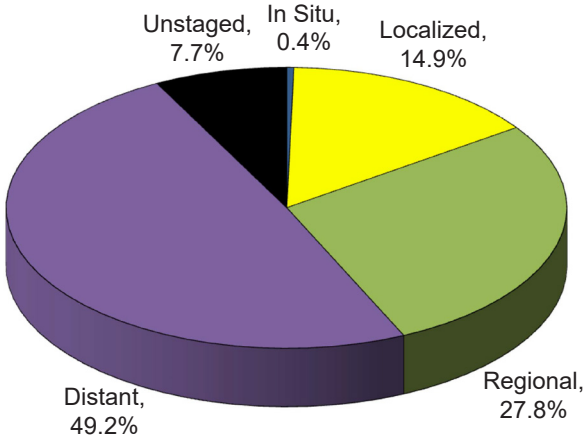
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	12.9	13.1	12.6
# of new invasive cases	247	122	125
# of new in situ cases	1	0	1
# of deaths	203	112	91

Total Cases by County

Ada	63	Cassia	2	Lewis	-
Adams	1	Clark	-	Lincoln	-
Bannock	14	Clearwater	2	Madison	3
Bear Lake	-	Custer	1	Minidoka	-
Benewah	2	Elmore	3	Nez Perce	8
Bingham	6	Franklin	3	Oneida	1
Blaine	2	Fremont	1	Owyhee	2
Boise	3	Gem	2	Payette	3
Bonner	8	Gooding	3	Power	-
Bonneville	12	Idaho	7	Shoshone	1
Boundary	1	Jefferson	4	Teton	-
Butte	-	Jerome	8	Twin Falls	16
Camas	-	Kootenai	25	Valley	-
Canyon	35	Latah	2	Washington	2
Caribou	1	Lemhi	1		

Stage at Diagnosis - Pancreas



Risk and Associated Factors

Age Pancreatic cancer increases with age and is rare in persons younger than 40 years old.

Gender Incidence rates of pancreatic cancer are about 50% higher in males than females.

Race In the United States, the incidence is higher in blacks.

Diet Investigators have generally found increased risks associated with animal protein and fat consumption and decreased risks associated with vegetables and fruit intake. The normal range of body mass index (>=18 - <25 kg/m^2) has been associated with decreased risk of pancreatic cancer.

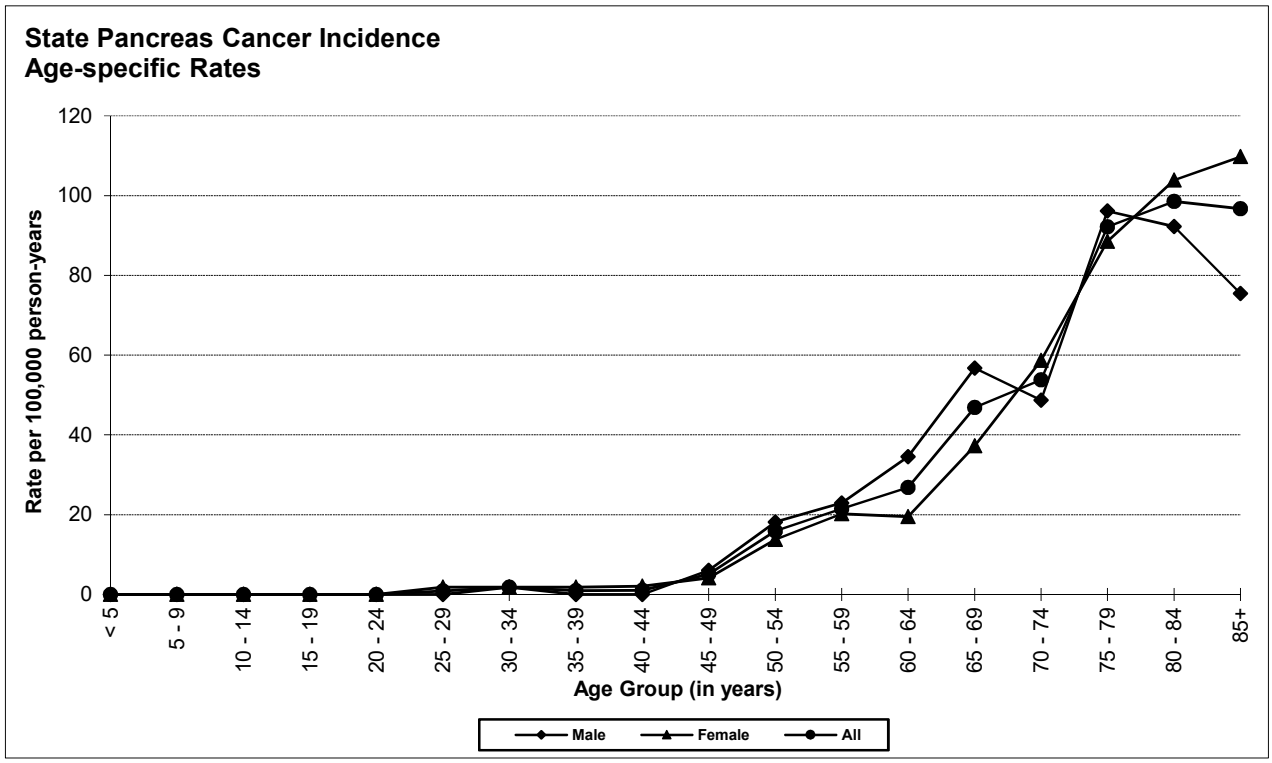
Occupation Persons in certain occupations, such as chemists, metal workers, and persons employed in the manufacture of benzidine and betanaphthylene, are believed to be at higher risk.

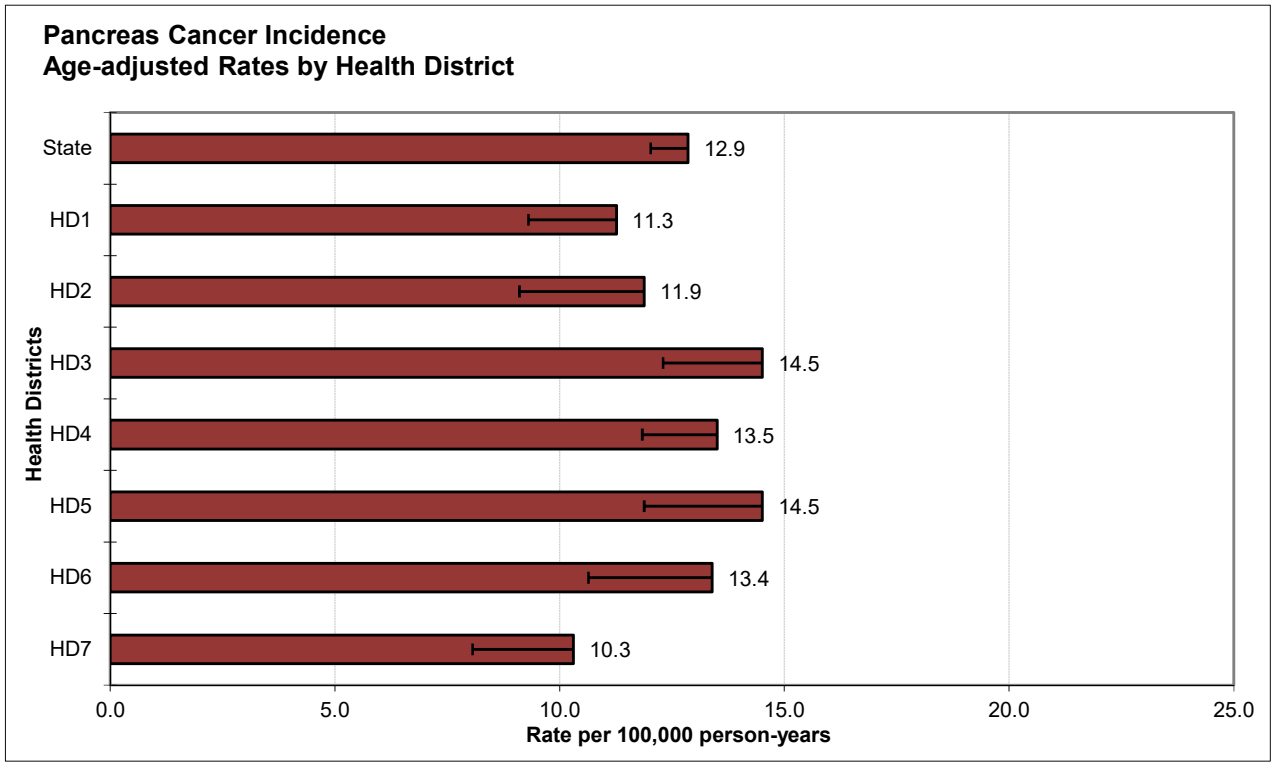
Other Pancreatic cancer is more common among smokers than non-smokers. Familial clustering has been observed in some studies. Pancreatic cancer usually progresses to an advanced stage before symptoms develop. It is rapidly fatal in over 90% of cases.

Special Notes

Mean age-adjusted incidence rate across health districts:	12.8
95% confidence interval on the mean age-adjusted incidence rate:	11.6- 14.0
Median age-adjusted incidence rate of health districts:	13.4
Range of age-adjusted incidence rate for health districts:	10.3- 14.5
USCS rate (2015, all races):	12.1

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 54, peaking in the age group 85+ for males and 75-79 for females. 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
Rate per 100,000 person-years
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


Pancreas Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
12.9
11.3
11.9
14.5
13.5
14.5
13.4
10.3
0.0
5.0
10.0
15.0
20.0
25.0
Rate per 100,000 person-years

PROSTATE

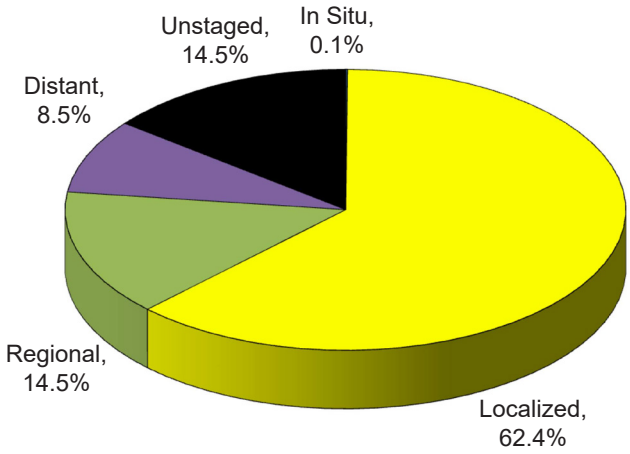
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	105.0	-
# of new invasive cases	-	1,030	-
# of new in situ cases	-	1	-
# of deaths	-	183	-

Total Cases by County

Ada	257	Cassia	7	Lewis	3
Adams	2	Clark	-	Lincoln	6
Bannock	31	Clearwater	4	Madison	14
Bear Lake	6	Custer	4	Minidoka	12
Benewah	6	Elmore	18	Nez Perce	26
Bingham	28	Franklin	3	Oneida	1
Blaine	25	Fremont	11	Owyhee	9
Boise	11	Gem	14	Payette	14
Bonner	37	Gooding	6	Power	3
Bonneville	67	Idaho	14	Shoshone	11
Boundary	12	Jefferson	17	Teton	6
Butte	2	Jerome	12	Twin Falls	37
Camas	2	Kootenai	113	Valley	7
Canyon	106	Latah	32	Washington	14
Caribou	9	Lemhi	12		

Stage at Diagnosis - Prostate



Risk and Associated Factors

Age Prostate cancer is rarely diagnosed before age 50, and it is primarily a disease of older men.

Race Black males have substantially higher incidence and mortality rates than white males.

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.

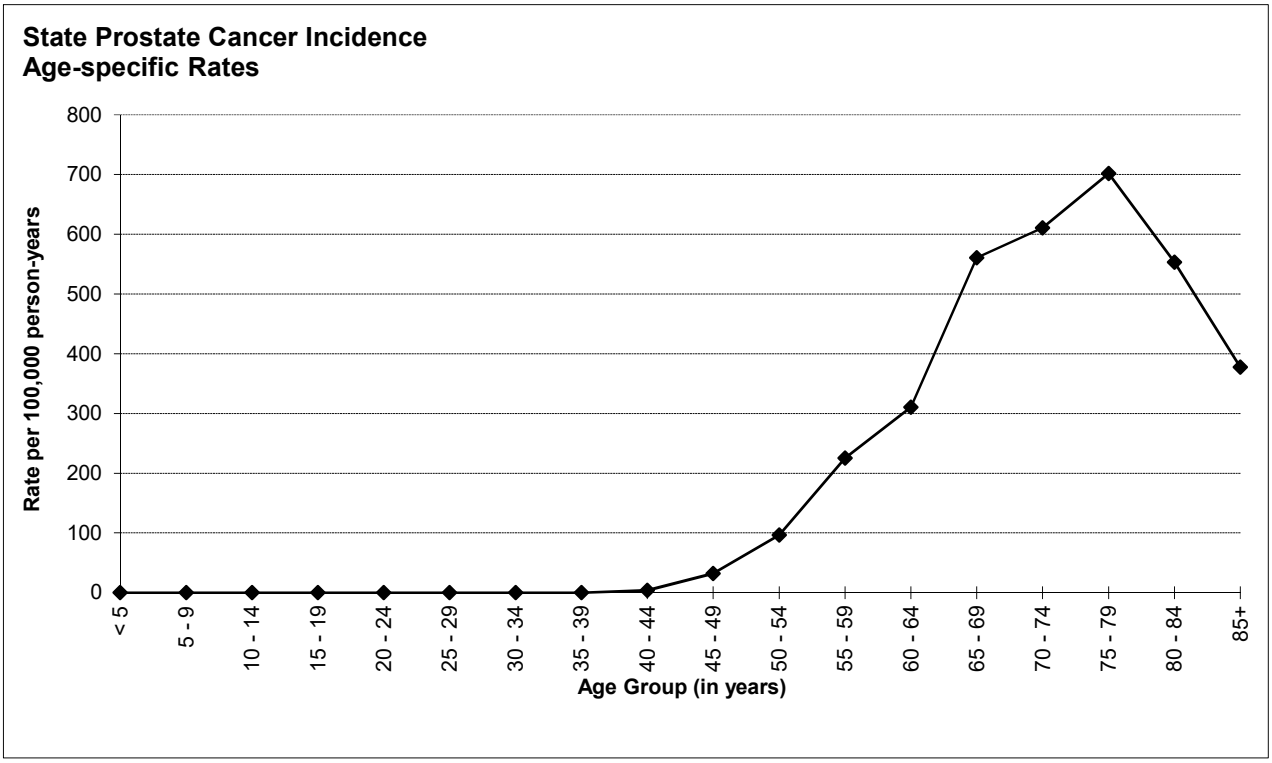
Other Environmental and familial factors may contribute to an increased incidence but no specific factor in these two groups of potential risk factors has been clearly identified. Three risk factors are well established: age, family history, and ethnic group/country of residence.

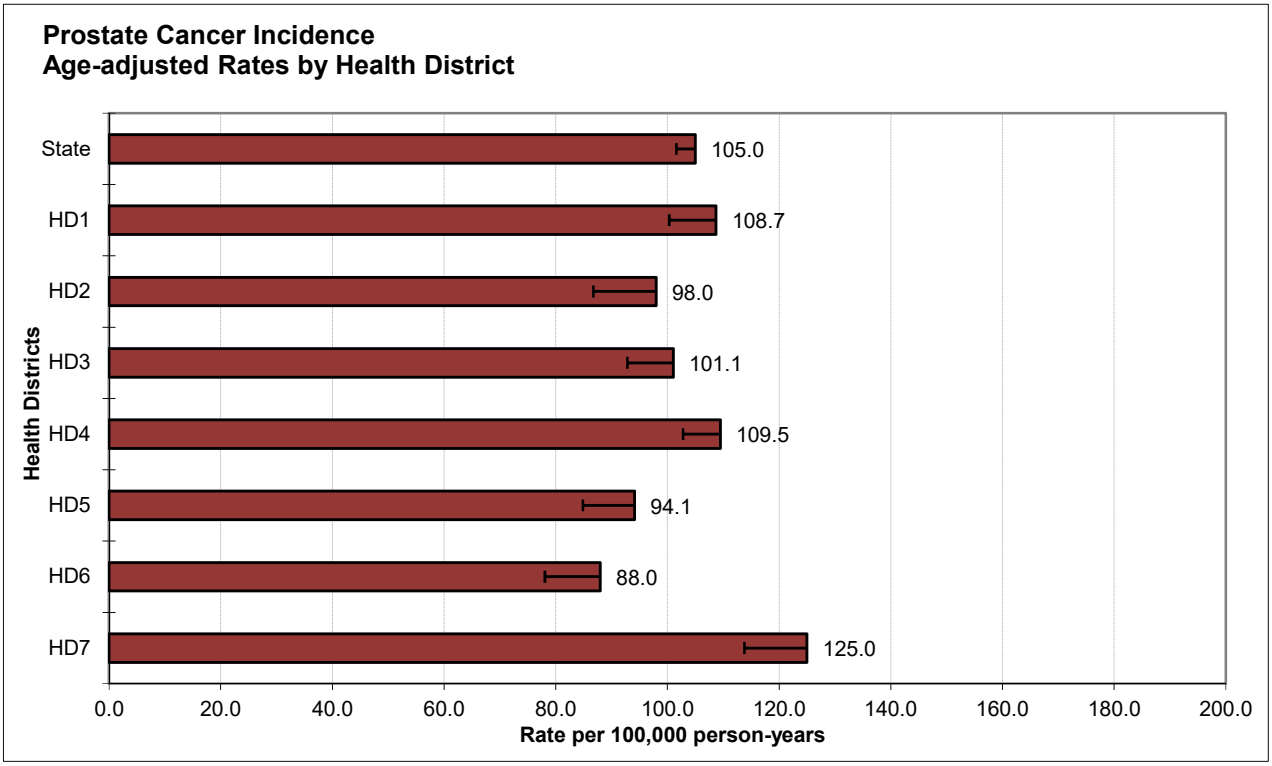
Occupation Farming is the most consistent occupational risk factor for prostate cancer. Methyl bromide pesticide application has been identified as a risk factor by the Agricultural Health Study. It is likely that only a very small proportion of all prostate cancer cases can be attributed to a specific industrial chemical exposure.

Special Notes

Mean age-adjusted incidence rate across health districts:	103.5
95% confidence interval on the mean age-adjusted incidence rate:	94.4-112.5
Median age-adjusted incidence rate of health districts:	101.1
Range of age-adjusted incidence rate for health districts:	88.0-125.0
USCS rate (2015, all races):	97.6

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 7 had statistically significantly more cases than expected based upon rates for the remainder of Idaho.


State Prostate Cancer Incidence
Age-specific Rates
Rate per 100,000 person-years
800
700
600
500
400
300
200
100
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)


Prostate Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
105.0
108.7
98.0
101.1
109.5
94.1
88.0
125.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
180.0
200.0
Rate per 100,000 person-years

STOMACH

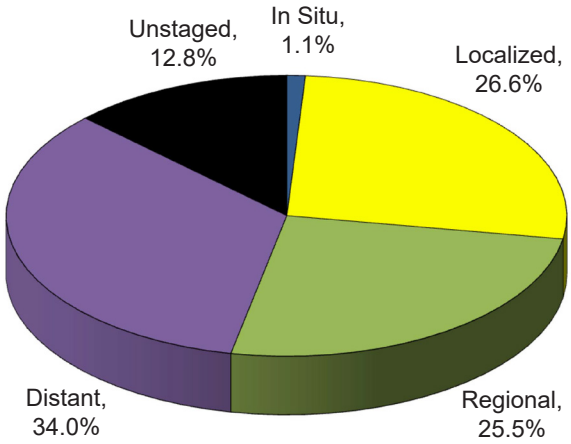
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	5.0	6.2	3.9
# of new invasive cases	93	57	36
# of new in situ cases	1	0	1
# of deaths	43	21	22

Total Cases by County

Ada	20	Cassia	2	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	3	Clearwater	-	Madison	-
Bear Lake	-	Custer	-	Minidoka	1
Benewah	1	Elmore	4	Nez Perce	3
Bingham	4	Franklin	-	Oneida	-
Blaine	-	Fremont	1	Owyhee	2
Boise	1	Gem	2	Payette	-
Bonner	5	Gooding	1	Power	1
Bonneville	2	Idaho	-	Shoshone	1
Boundary	1	Jefferson	2	Teton	-
Butte	-	Jerome	-	Twin Falls	8
Camas	-	Kootenai	10	Valley	-
Canyon	13	Latah	3	Washington	1
Caribou	-	Lemhi	2		

Stage at Diagnosis - Stomach



Risk and Associated Factors

Age Stomach cancer incidence rates increase with age.

Gender Incidence rates for males are usually more than twice as high as for females.

Race & SES Incidence rates are higher among blacks and Asian/Pacific Islanders, and incidence is also higher in lower SES groups.

Diet Increased risk has been attributed to diets high in smoked foods and foods high in nitrates. Salt and salted foods contribute to stomach cancer risk. Diets high in fresh fruits and vegetables seem to be protective.

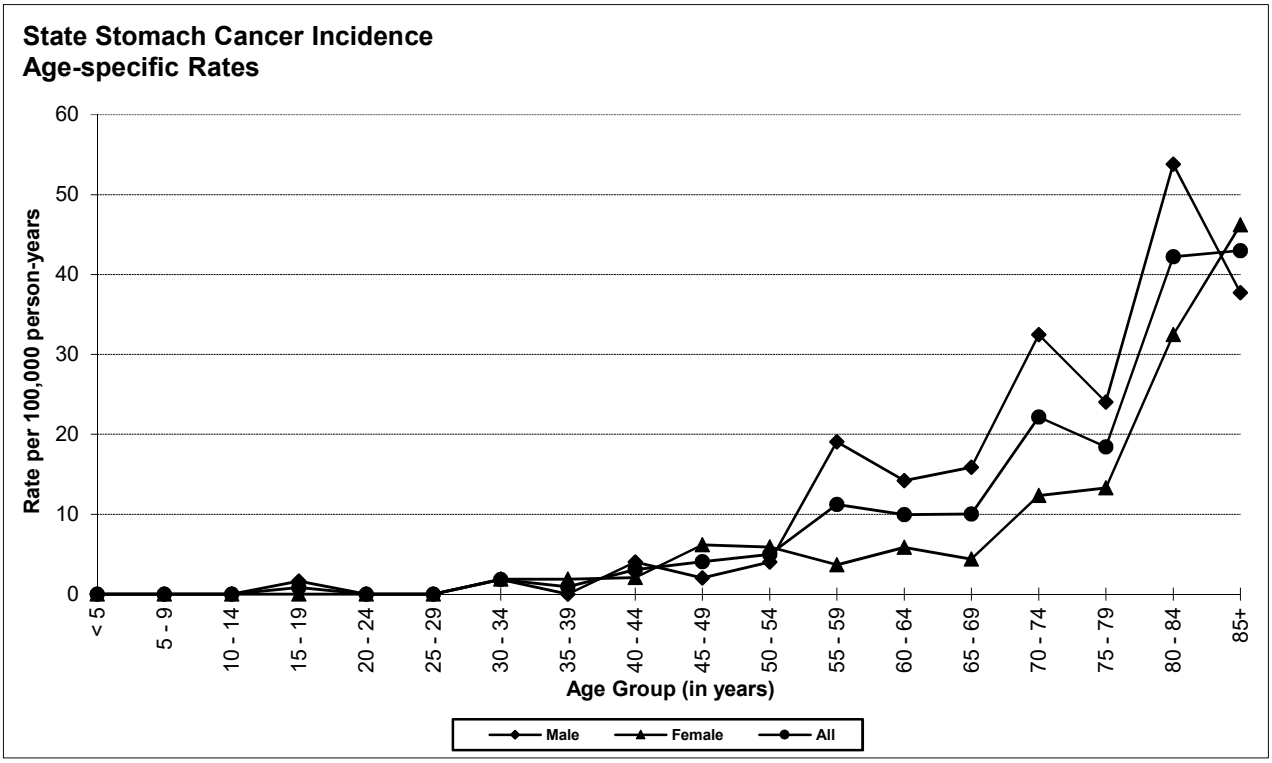
Occupation Elevated rates have been found in certain occupational groups, especially coal miners and asbestos workers, and occupations with mineral dust exposure.

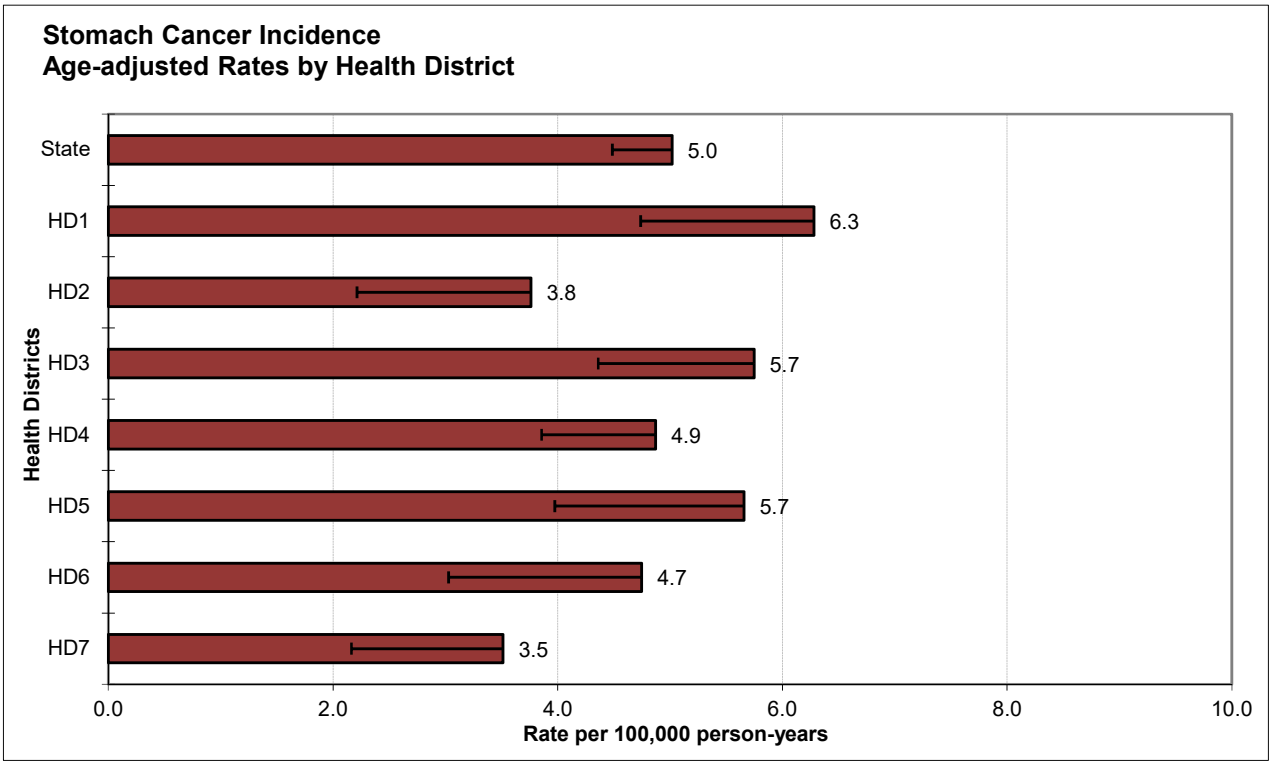
Other Stomach cancer has been linked to peptic ulcer disease and to certain bacteria.

Special Notes

Mean age-adjusted incidence rate across health districts:	4.9
95% confidence interval on the mean age-adjusted incidence rate:	4.2- 5.7
Median age-adjusted incidence rate of health districts:	4.9
Range of age-adjusted incidence rate for health districts:	3.5- 6.3
USCS rate (2015, all races):	6.3

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 80-84 age group for males and the 85+ age group for females. 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
Rate per 100,000 person-years
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


Stomach Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
5.0
6.3
3.8
5.7
4.9
5.7
4.7
3.5
0.0
2.0
4.0
6.0
8.0
10.0
Rate per 100,000 person-years

TESTIS

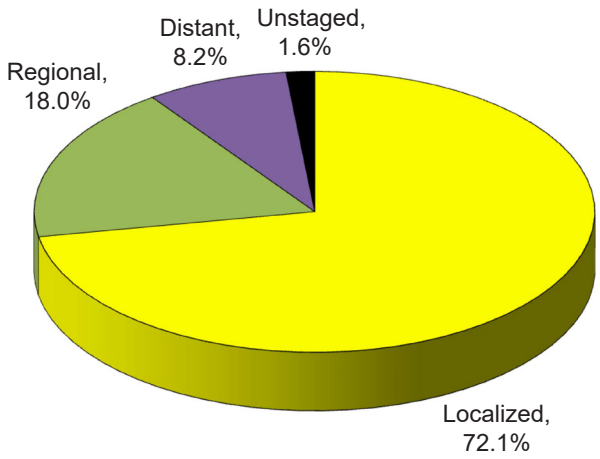
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	-	7.6	-
# of new invasive cases	-	61	-
# of new in situ cases	-	0	-
# of deaths	-	2	-

Total Cases by County

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

Stage at Diagnosis - Testis



Risk and Associated Factors

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

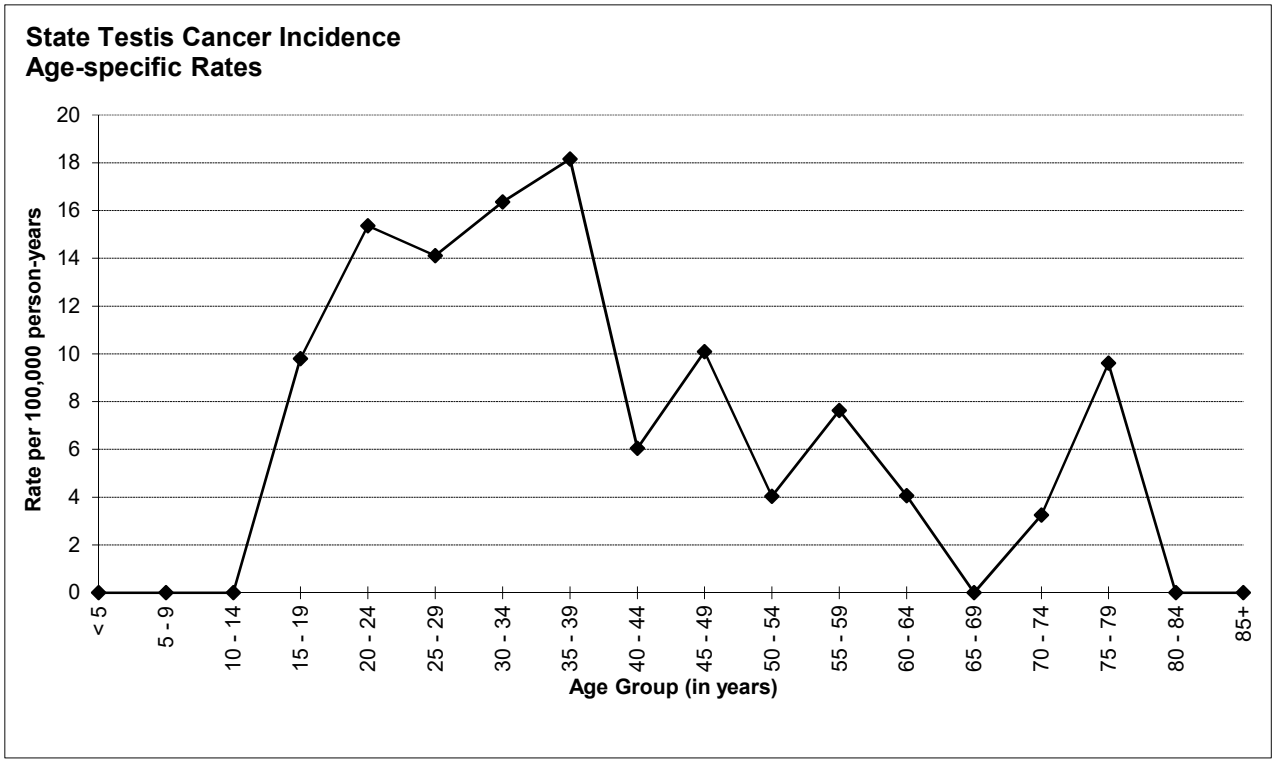
Race & SES Incidence rates are substantially higher in white males than in black males. Incidence of testicular cancer is highest in highest socioeconomic classes.

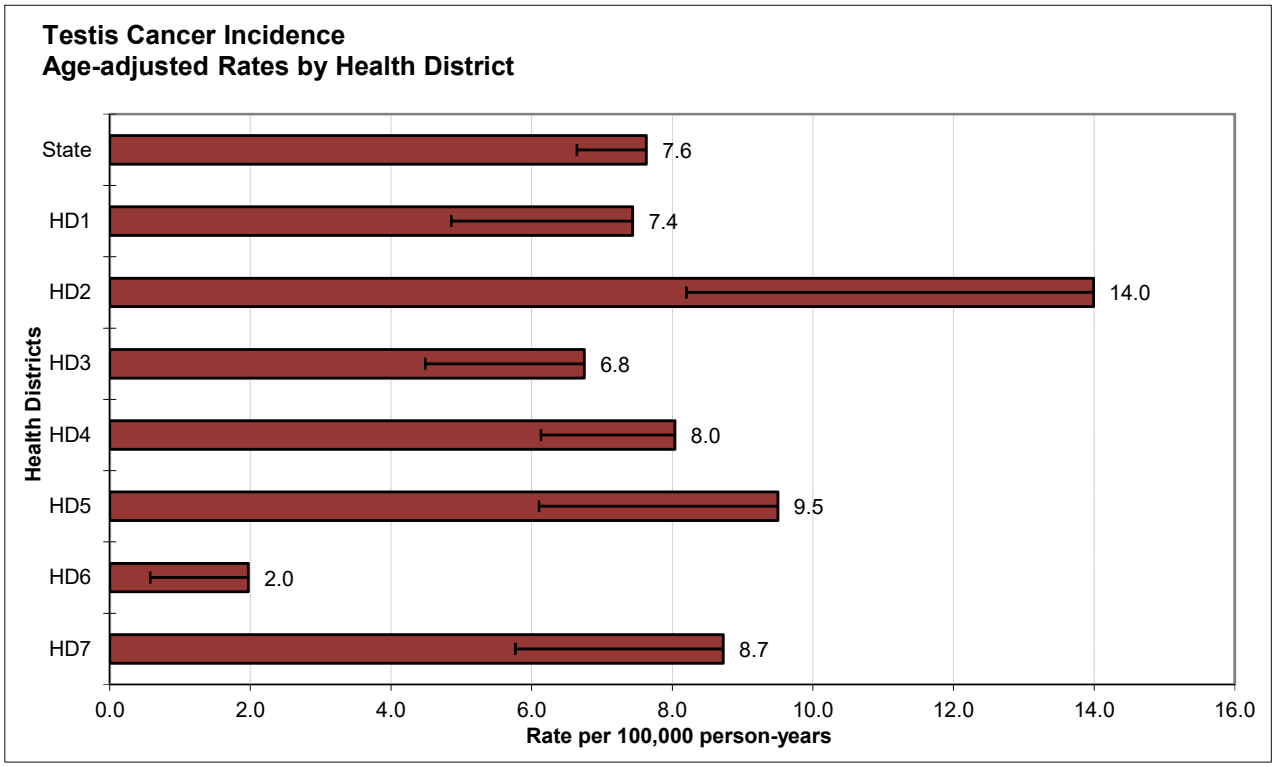
Other Undescended testis, a minor abnormality that can usually be detected and corrected with surgery in childhood, is responsible for a substantially high risk for testicular cancer when uncorrected. The extent to which surgical correction reduces cancer risk is unclear. Some evidence suggests that males exposed in utero to diethylstilbestrol (DES) are at increased risk. With current treatment, the cure rates for testicular cancer are greater than 80%.

Special Notes

Mean age-adjusted incidence rate across health districts:	8.1
95% confidence interval on the mean age-adjusted incidence rate:	5.4- 10.7
Median age-adjusted incidence rate of health districts:	8.0
Range of age-adjusted incidence rate for health districts:	2.0- 14.0
USCS rate (2015, all races):	5.5

The highest age-specific incidence rate was in the 35-39 age group. 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
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
7.6
7.4
14.0
6.8
8.0
9.5
2.0
8.7
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

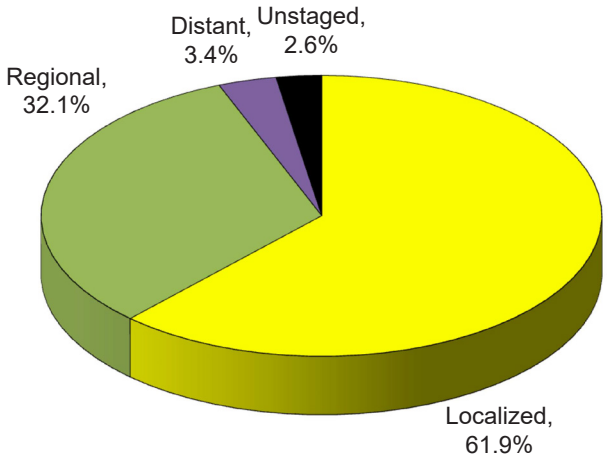
Incidence and Mortality Summary

	Total	Male	Female
Age-adjusted incidence rate per 100,000	16.0	8.2	23.8
# of new invasive cases	268	70	198
# of new in situ cases	0	0	0
# of deaths	15	8	7

Total Cases by County

Ada	81	Cassia	2	Lewis	-
Adams	-	Clark	-	Lincoln	-
Bannock	6	Clearwater	3	Madison	6
Bear Lake	1	Custer	1	Minidoka	2
Benewah	2	Elmore	3	Nez Perce	7
Bingham	15	Franklin	2	Oneida	-
Blaine	2	Fremont	5	Owyhee	1
Boise	1	Gem	4	Payette	1
Bonner	8	Gooding	3	Power	-
Bonneville	32	Idaho	-	Shoshone	2
Boundary	1	Jefferson	4	Teton	-
Butte	3	Jerome	2	Twin Falls	9
Camas	-	Kootenai	21	Valley	2
Canyon	32	Latah	2	Washington	-
Caribou	1	Lemhi	1		

Stage at Diagnosis - Thyroid



Risk and Associated Factors

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

Gender Two-thirds of the cases are among females.

Race & SES The incidence is higher among whites and in upper income groups.

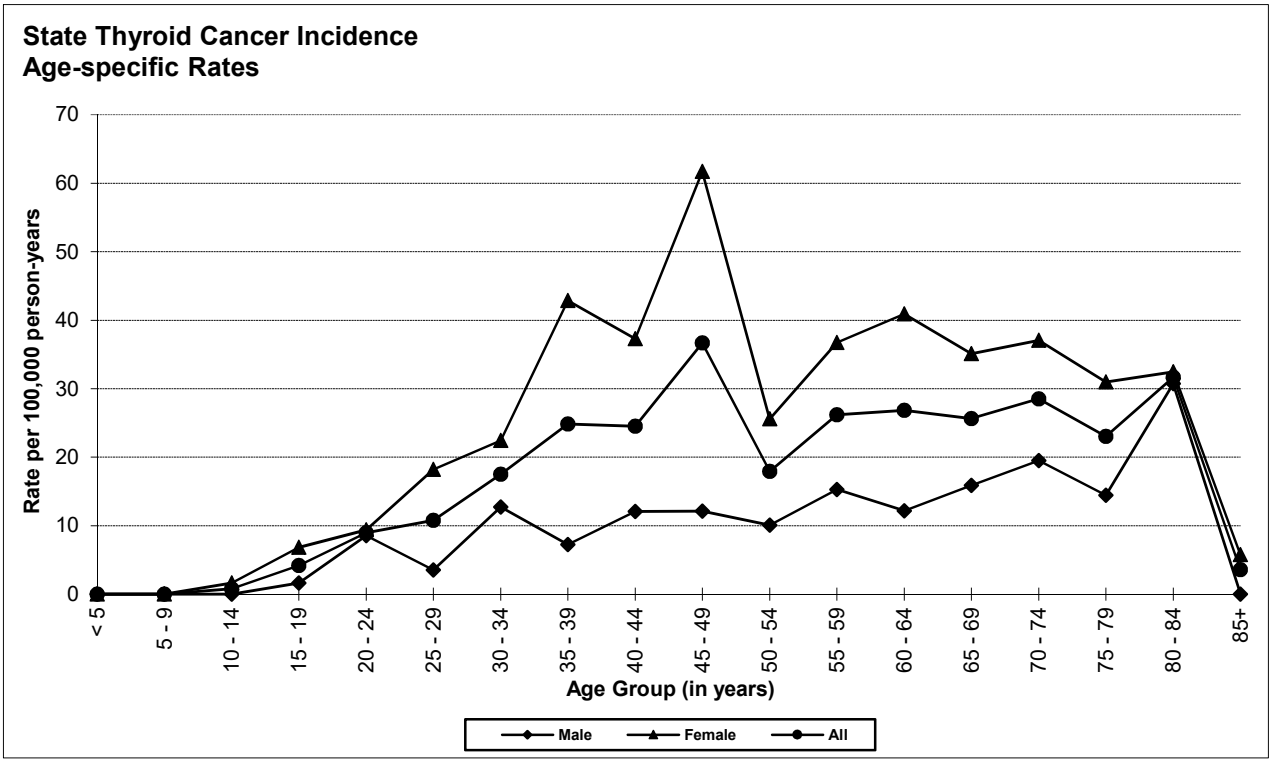
Hormonal Hormonal factors are believed to contribute to the increased risk in females. This is demonstrated by the sharp increase in incidence among women after menarche.

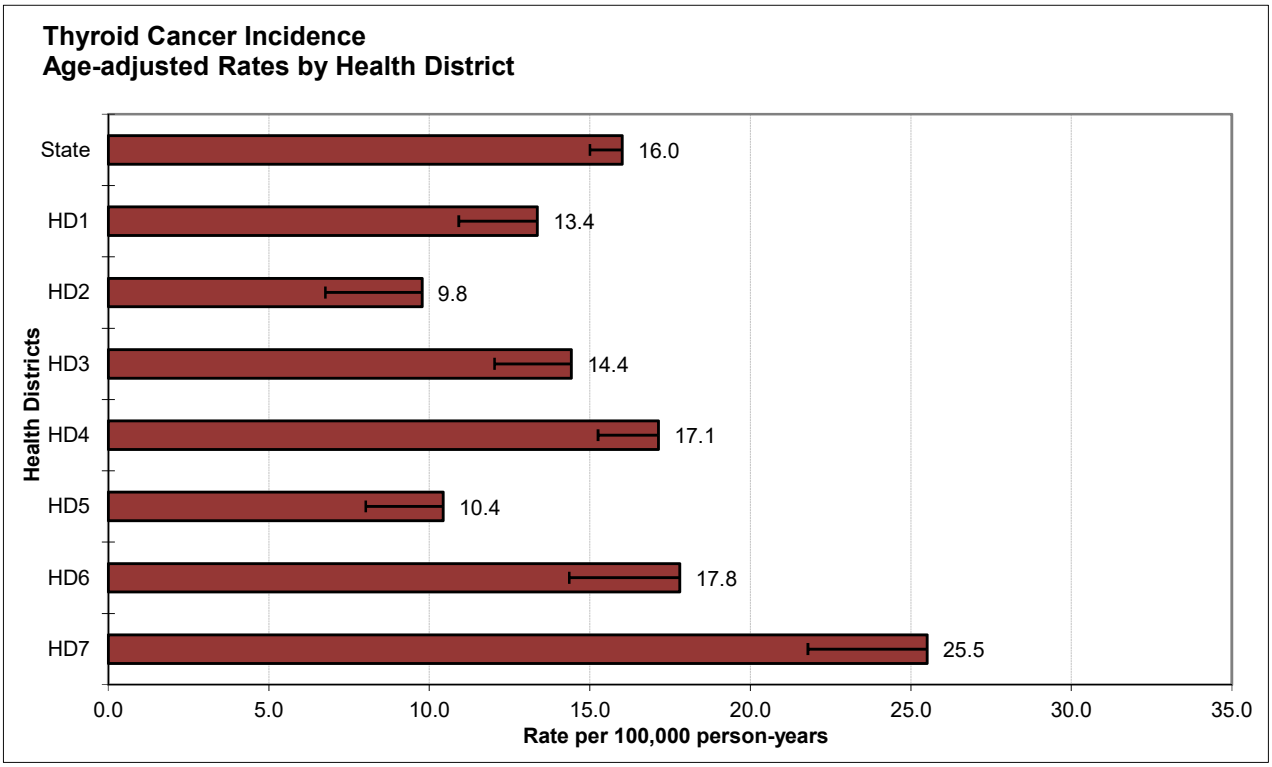
Other Occupational and environmental exposures to ionizing radiation have been associated with higher rates of thyroid cancer. Radiation exposure to the head and neck in childhood is a well-known risk factor. Family history of thyroid cancer substantially increases the risk. Prognosis worsens with each 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.

Special Notes

Mean age-adjusted incidence rate across health districts:	15.5
95% confidence interval on the mean age-adjusted incidence rate:	11.5- 19.5
Median age-adjusted incidence rate of health districts:	14.4
Range of age-adjusted incidence rate for health districts:	9.8- 25.5
USCS rate (2015, all races):	14.4

The age-specific incidence rates of thyroid cancer were typically higher for females than males. Health District 7 had statistically significantly more cases than expected based upon rates for the remainder of Idaho and Health District 5 had statistically significantly fewer cases than expected.


State Thyroid Cancer Incidence
Age-specific Rates
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


Thyroid Cancer Incidence
Age-adjusted Rates by Health District
Health Districts
State
HD1
HD2
HD3
HD4
HD5
HD6
HD7
16.0
13.4
9.8
14.4
17.1
10.4
17.8
25.5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Rate per 100,000 person-years

SECTION II

STATE OF IDAHO – 2016
INCIDENCE DATA BY SITE AND GENDER

Primary Site of Cancer	Invasive			In situ		
	Total	Male	Female	Total	Male	Female
All Sites	8,148	4,160	3,988	884	451	433
Oral Cavity and Pharynx	265	195	70	8	5	3
Lip	39	32	7	4	3	1
Tongue	80	58	22	2	2	-
Salivary Gland	33	23	10	-	-	-
Floor of Mouth	8	7	1	-	-	-
Gum and Other Mouth	31	15	16	2	-	2
Nasopharynx	4	4	-	-	-	-
Tonsil	32	24	8	-	-	-
Oropharynx	17	16	1	-	-	-
Hypopharynx	11	8	3	-	-	-
Other Oral Cavity and Pharynx	10	8	2	-	-	-
Digestive System	1,398	802	596	19	12	7
Esophagus	99	82	17	1	1	-
Stomach	93	57	36	1	-	1
Small Intestine	51	27	24	-	-	-
Colon and Rectum	646	356	290	15	11	4
Colon excluding Rectum	433	219	214	8	5	3
Cecum	90	42	48	2	2	-
Appendix	29	14	15	-	-	-
Ascending Colon	88	39	49	3	2	1
Hepatic Flexure	17	10	7	-	-	-
Transverse Colon	35	17	18	-	-	-
Splenic Flexure	12	9	3	-	-	-
Descending Colon	30	16	14	1	1	-
Sigmoid Colon	109	61	48	2	-	2
Large Intestine, NOS	23	11	12	-	-	-
Rectum and Rectosigmoid Junction	213	137	76	7	6	1
Rectosigmoid Junction	41	24	17	-	-	-
Rectum	172	113	59	7	6	1
Anus, Anal Canal and Anorectum	31	4	27	1	-	1
Liver and Intrahepatic Bile Duct	152	118	34	-	-	-
Liver	121	96	25	-	-	-
Intrahepatic Bile Duct	31	22	9	-	-	-
Gallbladder	21	9	12	-	-	-
Other Biliary	26	17	9	-	-	-
Pancreas	247	122	125	1	-	1
Retroperitoneum	10	4	6	-	-	-
Peritoneum, Omentum and Mesentery	9	1	8	-	-	-
Other Digestive Organs	13	5	8	-	-	-
Respiratory System	980	503	477	3	1	2
Nose, Nasal Cavity and Middle Ear	10	9	1	-	-	-
Larynx	47	30	17	1	-	1
Lung and Bronchus	920	463	457	2	1	1
Pleura	-	-	-	-	-	-
Trachea, Mediastinum and Other Respiratory Organs	3	1	2	-	-	-
Skin excluding Basal and Squamous	587	339	248	436	260	176
Melanoma of the Skin	544	310	234	435	259	176
Other Non-Epithelial Skin	43	29	14	1	1	-
Breast	1,212	9	1,203	182	1	181

Primary Site of Cancer	Invasive			In situ		
	Total	Male	Female	Total	Male	Female
Female Genital System	481	-	481	9	-	9
Cervix Uteri	62	-	62	-	-	-
Corpus and Uterus, NOS	274	-	274	4	-	4
Corpus Uteri	271	-	271	4	-	4
Uterus, NOS	3	-	3	-	-	-
Ovary	112	-	112	-	-	-
Vagina	5	-	5	1	-	1
Vulva	17	-	17	4	-	4
Other Female Genital Organs	11	-	11	-	-	-
Male Genital System	1,098	1,098	-	5	5	-
Prostate	1,030	1,030	-	1	1	-
Testis	61	61	-	-	-	-
Penis	6	6	-	4	4	-
Other Male Genital Organs	1	1	-	-	-	-
Urinary System	526	370	156	222	167	55
Urinary Bladder	190	155	35	206	158	48
Kidney and Renal Pelvis	304	190	114	6	3	3
Ureter	21	15	6	7	4	3
Other Urinary Organs	11	10	1	3	2	1
Brain and Other Nervous System	117	75	42	-	-	-
Brain	107	70	37	-	-	-
Cranial Nerves Other Nervous System	10	5	5	-	-	-
Endocrine System	280	78	202	-	-	-
Thyroid	268	70	198	-	-	-
Other Endocrine including Thymus	12	8	4	-	-	-
Lymphoma	412	223	189	-	-	-
Hodgkin Lymphoma	32	14	18	-	-	-
Non-Hodgkin Lymphoma	380	209	171	-	-	-
Myeloma	124	79	45	-	-	-
Leukemia	271	171	100	-	-	-
Lymphocytic Leukemia	127	77	50	-	-	-
Acute Lymphocytic Leukemia	30	22	8	-	-	-
Chronic Lymphocytic Leukemia	90	48	42	-	-	-
Other Lymphocytic Leukemia	7	7	-	-	-	-
Myeloid and Monocytic Leukemia	123	82	41	-	-	-
Acute Myeloid Leukemia	77	51	26	-	-	-
Acute Monocytic Leukemia	8	5	3	-	-	-
Chronic Myeloid Leukemia	36	25	11	-	-	-
Other Myeloid/Monocytic Leukemia	2	1	1	-	-	-
Other Leukemia	21	12	9	-	-	-
Other Acute Leukemia	6	1	5	-	-	-
Aleukemic, Subleukemic and NOS	15	11	4	-	-	-
Other or Unknown Sites	397	218	179	-	-	-
Bones and Joints	14	11	3	-	-	-
Soft Tissue including Heart	65	27	38	-	-	-
Eye and Orbit	19	15	4	-	-	-
Mesothelioma	23	21	2	-	-	-
Kaposi Sarcoma	-	-	-	-	-	-
Miscellaneous	276	144	132	-	-	-

SECTION III

STATE OF IDAHO – 2016
MORTALITY RATES BY SITE AND GENDER

Idaho Resident Cancer Mortality Rates - 2016

Cause of Death	Total			Male			Female		
	Rate	Deaths	Pop	Rate	Deaths	Pop	Rate	Deaths	Pop
All Causes of Death	735.0	13,370	1,680,026	838.0	6,937	841,679	641.4	6,433	838,347
All Malignant Cancers	153.0	2,888	1,680,026	175.5	1,531	841,679	134.9	1,357	838,347
Bladder	4.7	90	1,680,026	7.6	64	841,679	2.4	26	838,347
Brain and Other Nervous System	5.2	99	1,680,026	6.7	61	841,679	3.8	38	838,347
Breast	11.4	217	1,680,026	0.2	2	841,679	21.4	215	838,347
Cervix	1.1	18	1,680,026	-	-	841,679	2.1	18	838,347
Colorectal	13.2	244	1,680,026	14.8	129	841,679	11.6	115	838,347
Corpus Uteri	1.9	37	1,680,026	-	-	841,679	3.6	37	838,347
Esophagus	4.4	87	1,680,026	7.6	71	841,679	1.5	16	838,347
Hodgkin Lymphoma	0.2	3	1,680,026	0.2	2	841,679	0.1	1	838,347
Kidney	3.1	60	1,680,026	3.9	34	841,679	2.5	26	838,347
Larynx	0.5	11	1,680,026	0.9	8	841,679	0.3	3	838,347
Leukemia	7.1	129	1,680,026	9.3	79	841,679	5.3	50	838,347
Liver and Bile Duct	6.6	135	1,680,026	9.7	96	841,679	3.8	39	838,347
Lung and Bronchus	31.1	582	1,680,026	36.4	314	841,679	26.7	268	838,347
Melanoma of the Skin	3.0	54	1,680,026	4.2	36	841,679	1.9	18	838,347
Myeloma	3.9	73	1,680,026	4.7	41	841,679	3.2	32	838,347
Non-Hodgkin Lymphoma	6.8	126	1,680,026	7.9	68	841,679	5.6	58	838,347
Oral Cavity and Pharynx	1.9	37	1,680,026	2.3	20	841,679	1.6	17	838,347
Ovary	4.6	92	1,680,026	-	-	841,679	8.8	92	838,347
Pancreas	10.6	203	1,680,026	11.9	112	841,679	9.0	91	838,347
Prostate	10.0	183	1,680,026	23.0	183	841,679	-	-	838,347
Stomach	2.3	43	1,680,026	2.3	21	841,679	2.3	22	838,347
Testis	0.1	2	1,680,026	0.2	2	841,679	-	-	838,347
Thyroid	0.7	15	1,680,026	0.9	8	841,679	0.6	7	838,347

Data source: Bureau of Vital Records and Health Statistics (BVRHS), Idaho Department of Health and Welfare, 2017.[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

2016 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** **2016**

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	27.0	11.4	12.0	25.9	46.5	47.5	90.3	157.3	213.4	340.2	487.8	775.0	1077.5	1530.3	1874.6	2306.3	2533.8	2389.7
Male	30.8	9.6	12.5	29.4	52.9	40.6	72.7	101.7	143.0	236.0	447.1	793.9	1141.1	1695.5	2176.7	2787.7	3135.3	3067.2
Female	23.0	13.3	11.5	22.2	39.5	54.6	108.3	214.4	285.8	446.5	527.7	756.9	1016.6	1370.7	1587.4	1863.1	2025.6	1975.1
Bladder																		
All	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.8	4.1	3.1	10.0	31.8	43.7	72.5	112.4	138.2	133.7	229.3
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	8.1	4.0	14.1	43.9	69.0	124.8	188.4	245.1	230.5	453.0
Female	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	0.0	2.1	5.9	20.2	19.5	21.9	40.2	39.8	51.9	92.4
Brain																		
All	4.4	1.6	0.8	0.8	2.7	2.7	2.8	1.8	6.1	3.1	11.0	9.4	9.0	22.3	22.2	13.8	14.1	14.3
Male	3.4	0.0	1.6	1.6	1.7	3.5	5.5	0.0	8.1	2.0	12.1	11.5	14.2	34.1	35.7	24.0	23.1	18.9
Female	5.3	3.3	0.0	0.0	3.8	1.8	0.0	3.7	4.1	4.1	9.9	7.4	3.9	11.0	9.3	4.4	6.5	11.6
Brain & Other Central Nervous System (Non-Malignant)																		
All	0.9	0.8	3.2	4.2	1.8	2.7	7.4	9.2	8.2	13.2	14.9	16.9	14.9	36.8	42.8	57.6	42.2	60.9
Male	1.7	0.0	3.1	0.0	0.0	3.5	9.1	7.3	2.0	6.1	16.1	11.5	4.1	27.2	32.5	33.6	23.1	66.1
Female	0.0	1.7	3.3	8.5	3.8	1.8	5.6	11.2	14.5	20.6	13.8	22.1	25.3	46.1	52.5	79.7	58.4	57.8
Breast																		
Female Invasive	0.0	0.0	0.0	0.0	0.0	5.5	16.8	54.1	111.8	162.6	189.0	270.1	372.0	454.0	435.5	517.8	409.0	386.9
Female In Situ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	39.4	39.1	35.4	49.6	54.5	57.0	71.0	48.7	32.5	17.3
Cervix																		
Female	0.0	0.0	0.0	0.0	0.0	3.6	11.2	28.0	12.4	18.5	2.0	14.7	9.7	11.0	9.3	4.4	6.5	0.0
Colorectal																		
All	0.0	0.0	0.8	0.0	2.7	2.7	3.7	12.0	21.4	24.5	58.7	57.1	90.5	108.2	125.1	168.2	225.2	189.9
Male	0.0	0.0	1.6	0.0	1.7	1.8	3.6	20.0	18.1	28.2	62.4	61.1	123.9	108.9	133.2	187.5	299.7	245.4
Female	0.0	0.0	0.0	0.0	3.8	3.6	3.7	3.7	24.9	20.6	55.1	53.3	58.4	107.5	117.4	150.5	162.3	155.9
Corpus Uteri																		
Female	0.0	0.0	0.0	0.0	0.0	0.0	7.5	13.1	10.4	22.6	51.2	71.7	93.5	116.2	92.7	97.4	71.4	86.6
Esophagus																		
All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.0	1.0	3.0	9.4	15.9	15.6	34.8	30.0	17.6	46.6
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.0	2.0	4.0	17.2	20.3	29.5	61.7	52.9	38.4	94.4
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.8	11.7	2.2	9.3	8.9	0.0	17.3

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	0.0	1.6	4.2	4.5	0.9	4.6	3.7	2.0	0.0	1.0	0.9	1.0	0.0	3.2	4.6	3.5	0.0
Male	0.0	0.0	0.0	3.3	3.4	1.8	3.6	3.6	4.0	0.0	0.0	1.9	0.0	0.0	3.3	4.8	0.0	0.0
Female	0.0	0.0	3.3	5.1	5.6	0.0	5.6	3.7	0.0	0.0	2.0	0.0	2.0	0.0	3.1	4.4	6.5	0.0
Kidney & Renal Pelvis																		
All	2.6	0.8	0.0	0.0	0.0	0.0	1.8	12.0	5.1	21.4	22.9	32.8	44.7	62.5	47.5	76.0	88.0	43.0
Male	1.7	0.0	0.0	0.0	0.0	0.0	0.0	9.1	6.0	28.2	38.3	40.1	65.0	77.2	55.2	96.1	123.0	75.5
Female	3.5	1.7	0.0	0.0	0.0	0.0	3.7	14.9	4.1	14.4	7.9	25.7	25.3	48.3	40.2	57.5	58.4	23.1
Larynx																		
All	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	1.0	2.0	5.6	11.9	6.7	6.3	13.8	24.6	7.2
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	5.7	18.3	13.6	6.5	19.2	38.4	0.0
Female	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	2.1	2.0	5.5	5.8	0.0	6.2	8.9	13.0	11.6
Leukemia																		
All	7.8	2.4	5.6	1.7	4.5	1.8	5.5	2.8	4.1	9.2	7.0	21.5	21.9	31.2	66.5	80.6	112.6	114.7
Male	8.6	3.2	9.4	0.0	3.4	3.5	7.3	3.6	4.0	8.1	10.1	38.2	26.4	43.1	97.5	110.6	123.0	151.0
Female	7.1	1.7	1.6	3.4	5.6	0.0	3.7	1.9	4.1	10.3	3.9	5.5	17.5	19.7	37.1	53.1	103.9	92.4
Liver & Bile Duct																		
All	0.9	0.0	0.0	0.0	0.0	0.0	0.9	0.9	2.0	3.1	12.0	18.7	31.8	31.2	15.8	41.5	49.3	35.8
Male	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.1	20.1	30.5	58.9	54.5	19.5	62.5	76.9	47.2
Female	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	2.1	0.0	3.9	7.4	5.8	8.8	12.4	22.1	26.0	28.9
Lung & Bronchus																		
All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	5.1	15.3	31.9	62.7	110.3	165.1	262.8	345.6	471.6	315.3
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	4.0	18.2	26.2	51.5	115.7	163.4	279.4	379.7	561.0	415.3
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	6.2	12.4	37.4	73.5	105.2	166.7	247.1	314.2	396.0	254.1
Melanoma of the Skin																		
All	0.9	0.0	0.0	0.8	3.6	9.9	9.2	16.6	30.6	32.6	39.8	47.7	61.6	87.0	109.2	133.6	144.3	136.1
Male	1.7	0.0	0.0	0.0	1.7	7.1	5.5	14.5	24.2	28.2	42.3	57.3	67.0	104.4	139.7	201.9	207.5	235.9
Female	0.0	0.0	0.0	1.7	5.6	12.8	13.1	18.6	37.3	37.0	37.4	38.6	56.5	70.2	80.3	70.8	90.9	75.1
Myeloma																		
All	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.8	2.0	2.0	3.0	4.7	14.9	26.8	34.8	32.3	70.4	50.2
Male	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.8	2.0	4.0	6.0	5.7	20.3	34.1	48.7	52.9	92.2	47.2
Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	2.1	0.0	0.0	3.7	9.7	19.7	21.6	13.3	51.9	52.0

IDAHO **AGE-SPECIFIC CANCER RATES, PER 100,000 POPULATION, BY SITE AND GENDER** **2016**

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	0.9	3.3	0.8	2.5	4.5	0.9	3.7	6.4	8.2	10.2	13.9	27.1	42.7	56.9	112.4	131.3	109.1	143.3
Male	1.7	3.2	0.0	3.3	8.5	1.8	3.6	5.5	12.1	10.1	18.1	34.4	48.7	56.7	117.0	177.8	99.9	188.8
Female	0.0	3.3	1.6	1.7	0.0	0.0	3.7	7.5	4.1	10.3	9.9	20.2	37.0	57.0	108.1	88.5	116.9	115.5
Oral Cavity & Pharynx																		
All	0.0	0.0	0.0	0.8	0.0	0.9	3.7	0.0	7.2	15.3	13.9	36.5	31.8	54.7	64.9	69.1	45.8	68.1
Male	0.0	0.0	0.0	1.6	0.0	1.8	1.8	0.0	10.1	16.1	22.2	57.3	48.7	86.3	100.7	105.7	69.2	132.1
Female	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	4.1	14.4	5.9	16.5	15.6	24.1	30.9	35.4	26.0	28.9
Ovary																		
Female	0.0	0.0	1.6	1.7	0.0	1.8	0.0	0.0	4.1	12.4	23.6	25.7	27.3	37.3	34.0	53.1	45.5	80.9
Pancreas																		
All	0.0	0.0	0.0	0.0	0.0	0.9	1.8	0.9	1.0	5.1	15.9	21.5	26.8	46.9	53.8	92.2	98.5	96.7
Male	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	6.1	18.1	22.9	34.5	56.7	48.7	96.1	92.2	75.5
Female	0.0	0.0	0.0	0.0	0.0	1.8	1.9	1.9	2.1	4.1	13.8	20.2	19.5	37.3	58.7	88.5	103.9	109.7
Prostate																		
Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	32.3	96.7	225.2	310.6	560.6	610.8	701.7	553.3	377.5
Stomach																		
All	0.0	0.0	0.0	0.8	0.0	0.0	1.8	0.9	3.1	4.1	5.0	11.2	9.9	10.0	22.2	18.4	42.2	43.0
Male	0.0	0.0	0.0	1.6	0.0	0.0	1.8	0.0	4.0	2.0	4.0	19.1	14.2	15.9	32.5	24.0	53.8	37.8
Female	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	2.1	6.2	5.9	3.7	5.8	4.4	12.4	13.3	32.5	46.2
Testis																		
Male	0.0	0.0	0.0	9.8	15.4	14.1	16.4	18.2	6.0	10.1	4.0	7.6	4.1	0.0	3.3	9.6	0.0	0.0
Thyroid																		
All	0.0	0.0	0.8	4.2	8.9	10.8	17.5	24.8	24.5	36.7	17.9	26.2	26.8	25.7	28.5	23.0	31.7	3.6
Male	0.0	0.0	0.0	1.6	8.5	3.5	12.7	7.3	12.1	12.1	10.1	15.3	12.2	15.9	19.5	14.4	30.7	0.0
Female	0.0	0.0	1.6	6.8	9.4	18.2	22.4	42.9	37.3	61.7	25.6	36.7	40.9	35.1	37.1	31.0	32.5	5.8

SECTION V

2016 OBSERVED VS. EXPECTED NUMBERS BY HEALTH DISTRICT

2016 OBSERVED VERSUS EXPECTED NUMBERS
BY
HEALTH DISTRICT

ALL SEXES

	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	1,495	1,363.4 *	591	626.6	1,424	1,316.9 *	2,383	2,304.8	885	970.0 *	691	823.3 *	885	917.0
Bladder	77	65.6	25	31.6	65	62.7	119	102.8	55	44.9	25	40.0 +	30	44.1 +
Brain	18	16.8	6	7.7	17	17.3	33	29.6	12	12.2	13	10.1	8	13.0
Brain & CNS non-Malignant	40	33.2	13	15.8	41	33.8	66	59.3	19	25.7	11	22.3 +	27	23.9
Breast	214	197.6	84	88.4	201	191.7	380	330.8 *	115	140.8 +	92	119.4 +	126	132.6
Breast (in situ)	30	29.1	13	12.6	27	29.6	71	45.4 *	19	20.7	10	18.2	12	20.8
Cervix	12	8.5	2	4.0	18	8.5 *	13	21.7	5	7.2	6	6.1	6	7.4
Colorectal	114	105.7	44	48.4	120	99.6	165	187.1	61	76.0	65	62.3	77	69.6
Corpus Uteri	54	43.1	16	19.9	41	43.3	77	77.0	33	30.5	25	26.2	25	30.0
Esophagus	19	16.3	13	7.2	16	15.8	32	25.0	11	11.5	3	10.3 +	5	11.3
Hodgkin lymphoma	2	4.5	2	2.2	4	5.5	13	7.6	6	3.3	2	3.4	3	4.4
Kidney & renal pelvis	56	49.1	20	22.2	72	44.1 *	73	91.2	32	35.1	27	29.7	24	34.3
Larynx	6	8.3	3	3.6	10	6.9	12	13.3	8	5.1	6	4.5	2	5.5
Leukemia	47	43.3	12	21.1 +	49	42.8	72	74.9	37	31.0	17	27.8 +	37	29.7
Liver & bile duct	33	23.9	18	10.9	28	23.2	47	40.4	8	18.7 *	10	15.3	8	17.5 +
Lung & bronchus	212	146.1 *	84	70.8	166	143.5	244	250.2	83	110.1 *	62	92.6 *	69	102.2 *
Melanoma of skin	70	91.8 +	29	40.5	72	89.7	175	145.9 +	78	60.2 +	55	52.4	65	59.3
Myeloma	26	20.0	9	9.7	17	20.3	34	33.6	12	14.8	13	12.0	13	13.4
N-H Lymphoma	63	62.9	35	28.4	67	59.8	109	102.7	36	45.0	35	37.2	35	42.6
Oral cavity & pharynx	42	44.6	20	19.6	47	41.3	71	75.0	34	29.7	15	26.7 +	36	27.9
Ovary	25	17.3	4	8.7	17	17.9	25	34.0	17	12.3	12	10.7	12	12.3
Pancreas	36	43.1	19	19.0	45	38.3	69	67.2	31	28.2	25	23.9	22	27.2
Prostate	179	177.2	79	77.8	158	165.5	293	279.0	107	119.2	83	101.1	131	107.8 +
Stomach	18	14.8	6	7.1	18	14.3	24	26.8	12	10.7	8	9.2	7	10.5
Testis	9	7.6	6	4.0	9	10.0	18	18.7	8	6.7	2	6.5	9	7.9
Thyroid	34	40.6	12	18.2	38	44.0	87	76.9	20	31.4 +	28	25.8	49	29.0 *
Pediatric (age 0-19)	11	10.6	6	4.9	8	17.8 +	37	19.9 *	4	12.2 +	16	9.4	9	14.3

+ 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.

2016 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	793	713.2 *	321	336.2	728	678.5	1,179	1,173.3	489	498.5	349	429.0 *	459	478.2
Bladder	58	53.2	20	25.6	51	49.5	95	78.5	47	35.0	18	32.0 +	24	35.2
Brain	11	11.4	5	5.2	11	11.2	23	18.6	4	8.5	9	6.6	7	8.1
Brain & CNS non-Malignant	13	11.3	3	5.5	17	10.6	19	21.5	7	8.6	7	7.2	7	8.4
Breast	3	1.3	0	0.8	1	1.5	2	2.4	0	1.2	0	1.0	3	0.7
Breast (in situ)	0	0.2	0	0.1	0	0.2	1	0.0 *	0	0.1	0	0.1	0	0.1
Colorectal	66	57.6	26	27.2	62	55.3	86	103.2	39	41.4	41	34.0	36	39.7
Esophagus	15	13.8	11	6.1	13	13.1	26	20.4	10	9.4	3	8.5	4	9.5
Hodgkin lymphoma	1	2.0	1	0.9	1	2.5	5	3.7	4	1.3	1	1.4	1	2.0
Kidney & renal pelvis	31	31.5	15	14.2	50	26.4 *	43	57.1	21	21.9	15	18.8	15	21.7
Larynx	4	5.5	2	2.4	7	4.3	7	8.4	7	3.0	2	3.1	1	3.5
Leukemia	32	27.3	8	13.4	27	27.6	48	45.7	22	19.7	10	17.6	24	18.8
Liver & bile duct	24	19.0	16	8.5 +	19	18.4	40	29.7	7	14.4	8	11.9	4	14.1 *
Lung & bronchus	113	73.3 *	43	36.9	81	72.7	107	127.7	41	55.4	38	46.1	40	51.4
Melanoma of skin	47	52.3	13	24.6 +	39	51.3	93	82.8	54	33.3 *	29	30.3	35	34.2
Myeloma	18	12.6	8	6.1	13	12.6	17	22.7	5	9.7	10	7.4	8	8.6
N-H Lymphoma	36	34.4	18	16.1	34	33.2	63	54.4	20	24.6	19	20.6	19	23.9
Oral cavity & pharynx	28	33.8	12	15.1	34	30.2	50	55.0	29	21.4	10	19.9 +	32	20.1 +
Pancreas	20	21.1	10	9.5	27	17.9	28	35.0	13	14.1	12	11.9	12	13.4
Prostate	179	178.4	79	80.2	158	164.3	293	273.6	107	119.1	83	101.8	131	109.1 +
Stomach	13	8.9	3	4.5	10	8.9	18	15.0	8	6.4	2	6.0	3	6.7
Testis	9	7.5	6	4.1	9	9.8	18	18.9	8	6.7	2	6.5	9	7.9
Thyroid	9	10.6	3	5.1	10	11.3	23	19.5	6	8.2	4	7.1	15	7.4 +
Pediatric (age 0-19)	7	5.7	2	2.8	7	9.3	19	11.5	1	6.8 +	10	5.1	4	7.8

+ 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.

2016 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	702	653.4	270	292.5	696	639.1 +	1,204	1,123.1 +	396	470.5 *	342	395.1 *	426	439.5
Bladder	19	12.9	5	6.5	14	13.0	24	22.7	8	9.9	7	8.2	6	9.2
Brain	7	5.4	1	2.6	6	6.1	10	10.9	8	3.7	4	3.6	1	4.9
Brain & CNS non-Malignant	27	21.9	10	10.2	24	23.2	47	38.1	12	17.1	4	15.1 *	20	15.5
Breast	211	196.4	84	85.5	200	191.7	378	331.9 +	115	139.1 +	92	117.9 +	123	130.3
Breast (in situ)	30	29.1	13	12.3	27	29.7	70	45.7 *	19	20.5	10	18.0	12	20.5
Cervix	12	8.6	2	3.9	18	8.6 *	13	21.5	5	7.1	6	6.1	6	7.3
Colorectal	48	48.1	18	21.4	58	44.2	79	83.2	22	34.7 +	24	28.3	41	30.1
Corpus Uteri	54	43.2	16	19.4	41	43.7	77	77.8	33	30.4	25	26.1	25	29.6
Esophagus	4	2.6	2	1.2	3	2.6	6	4.3	1	2.1	0	1.8	1	1.9
Hodgkin lymphoma	1	2.5	1	1.2	3	3.0	8	4.0	2	2.1	1	1.9	2	2.5
Kidney & renal pelvis	25	17.6	5	8.2	22	17.7	30	33.6	11	13.3	12	11.0	9	12.8
Larynx	2	2.9	1	1.3	3	2.6	5	4.8	1	2.1	4	1.4	1	2.0
Leukemia	15	16.1	4	7.8	22	15.1	24	28.9	15	11.3	7	10.2	13	11.0
Liver & bile duct	9	4.9	2	2.6	9	4.8	7	10.3	1	4.4	2	3.5	4	3.6
Lung & bronchus	99	73.0 *	41	34.0	85	70.9	137	121.6	42	54.6	24	46.5 *	29	50.9 *
Melanoma of skin	23	39.9 *	16	16.2	33	38.6	82	62.1 +	24	26.9	26	22.2	30	25.3
Myeloma	8	7.5	1	3.7	4	7.7	17	10.6	7	5.1	3	4.5	5	4.8
N-H Lymphoma	27	28.6	17	12.4	33	26.6	46	48.2	16	20.4	16	16.7	16	18.7
Oral cavity & pharynx	14	10.9	8	4.8	13	10.9	21	19.4	5	8.3	5	6.9	4	8.0
Ovary	25	17.2	4	8.5	17	18.1	25	34.4	17	12.2	12	10.7	12	12.1
Pancreas	16	22.0	9	9.6	18	20.4	41	32.1	18	14.1	13	12.0	10	13.8
Stomach	5	5.9	3	2.7	8	5.4	6	11.8	4	4.3	6	3.2	4	3.9
Thyroid	25	30.3	9	13.0	28	33.1	64	57.2	14	23.1	24	18.8	34	21.5 +
Pediatric (age 0-19)	4	4.9	4	2.1	1	8.6 *	18	8.4 *	3	5.3	6	4.3	5	6.4

+ 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.

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 720	1 in 153	1 in 48	1 in 19	1 in 9	1 in 5
40		1 in 193	1 in 50	1 in 20	1 in 9	1 in 5
50			1 in 67	1 in 22	1 in 10	1 in 5
60				1 in 30	1 in 11	1 in 6
70					1 in 15	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 122	1 in 37	1 in 12	1 in 5	1 in 3	1 in 2
40		1 in 53	1 in 13	1 in 5	1 in 3	1 in 2
50			1 in 17	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 746	1 in 203	1 in 48	1 in 17	1 in 8	1 in 5
40		1 in 274	1 in 51	1 in 17	1 in 8	1 in 5
50			1 in 60	1 in 18	1 in 8	1 in 4
60				1 in 24	1 in 9	1 in 5
70					1 in 11	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 239	1 in 57	1 in 25	1 in 14	1 in 9	1 in 7
40		1 in 74	1 in 28	1 in 15	1 in 10	1 in 8
50			1 in 44	1 in 17	1 in 11	1 in 8
60				1 in 27	1 in 13	1 in 10
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 2640	1 in 584	1 in 225	1 in 108	1 in 60	1 in 37
40		1 in 743	1 in 243	1 in 111	1 in 60	1 in 37
50			1 in 354	1 in 128	1 in 64	1 in 39
60				1 in 192	1 in 76	1 in 42
70					1 in 113	1 in 48
80						1 in 65

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 15604	1 in 400	1 in 59	1 in 18	1 in 10	1 in 8
40		1 in 404	1 in 58	1 in 18	1 in 10	1 in 8
50			1 in 65	1 in 18	1 in 10	1 in 8
60				1 in 23	1 in 11	1 in 9
70					1 in 18	1 in 11
80						1 in 20

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 53499	1 in 1757	1 in 298	1 in 88	1 in 32
40		1 in 52623	1 in 1729	1 in 293	1 in 86	1 in 31
50			1 in 1736	1 in 286	1 in 84	1 in 30
60				1 in 320	1 in 82	1 in 29
70					1 in 96	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 1354	1 in 326	1 in 129	1 in 66	1 in 39	1 in 26
40		1 in 425	1 in 141	1 in 69	1 in 40	1 in 26
50			1 in 207	1 in 80	1 in 43	1 in 27
60				1 in 125	1 in 51	1 in 30
70					1 in 79	1 in 36
80						1 in 50

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 6515	1 in 1472	1 in 487	1 in 244	1 in 123	1 in 64
40		1 in 1885	1 in 522	1 in 251	1 in 124	1 in 64
50			1 in 708	1 in 283	1 in 130	1 in 65
60				1 in 453	1 in 153	1 in 69
70					1 in 211	1 in 74
80						1 in 88

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 1268	1 in 325	1 in 119	1 in 57	1 in 34	1 in 24
40		1 in 429	1 in 129	1 in 58	1 in 34	1 in 24
50			1 in 178	1 in 66	1 in 36	1 in 25
60				1 in 96	1 in 42	1 in 27
70					1 in 63	1 in 32
80						1 in 46

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 7617	1 in 1656	1 in 417	1 in 175	1 in 91	1 in 55
40		1 in 2081	1 in 434	1 in 176	1 in 90	1 in 54
50			1 in 533	1 in 187	1 in 92	1 in 54
60				1 in 269	1 in 103	1 in 57
70					1 in 146	1 in 62
80						1 in 77

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 521	1 in 201	1 in 118	1 in 75	1 in 55	1 in 44
40		1 in 325	1 in 150	1 in 86	1 in 60	1 in 47
50			1 in 273	1 in 114	1 in 72	1 in 54
60				1 in 188	1 in 94	1 in 65
70					1 in 171	1 in 89
80						1 in 144

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 17862	1 in 5485	1 in 1844	1 in 1048	1 in 579	1 in 320
40		1 in 7842	1 in 2037	1 in 1103	1 in 593	1 in 323
50			1 in 2697	1 in 1258	1 in 629	1 in 330
60				1 in 2259	1 in 785	1 in 361
70					1 in 1098	1 in 391
80						1 in 469

Melanoma in Males

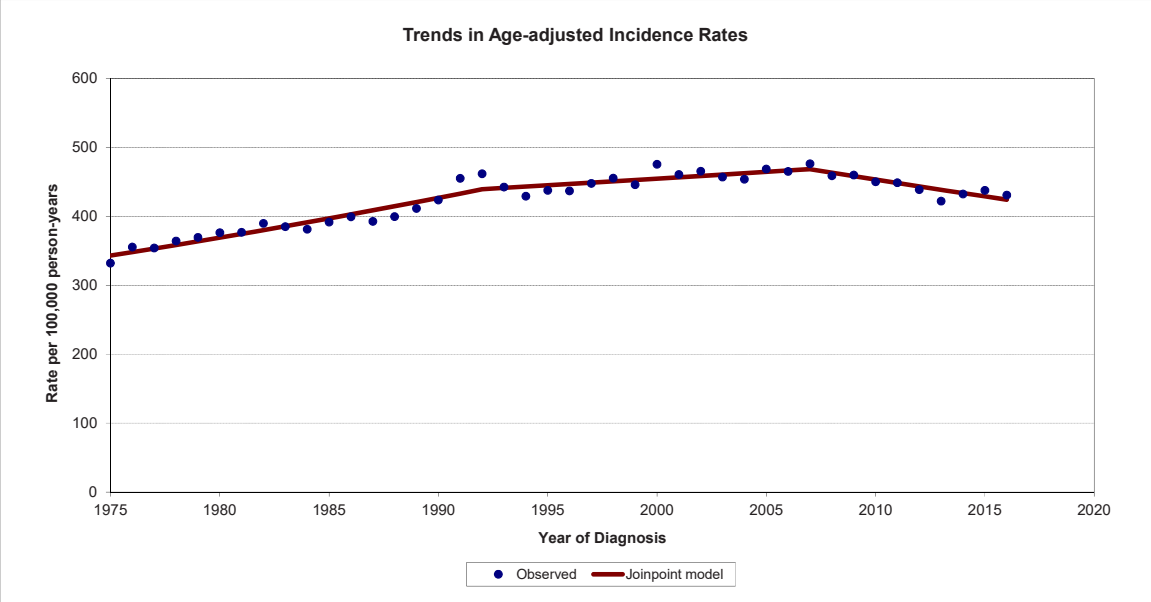
If your current age is:	Then your risk of being diagnosed with melanoma by a given age is:					
	By age 40	By age 50	By age 60	By age 70	By age 80	Ever
30	1 in 807	1 in 293	1 in 133	1 in 65	1 in 41	1 in 30
40		1 in 452	1 in 157	1 in 70	1 in 42	1 in 31
50			1 in 232	1 in 80	1 in 45	1 in 32
60				1 in 113	1 in 53	1 in 35
70					1 in 85	1 in 43
80						1 in 62

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 7567	1 in 3085	1 in 1161	1 in 495	1 in 292	1 in 190
40		1 in 5124	1 in 1349	1 in 521	1 in 299	1 in 191
50			1 in 1779	1 in 563	1 in 309	1 in 193
60				1 in 770	1 in 349	1 in 202
70					1 in 554	1 in 239
80						1 in 295

SECTION VII

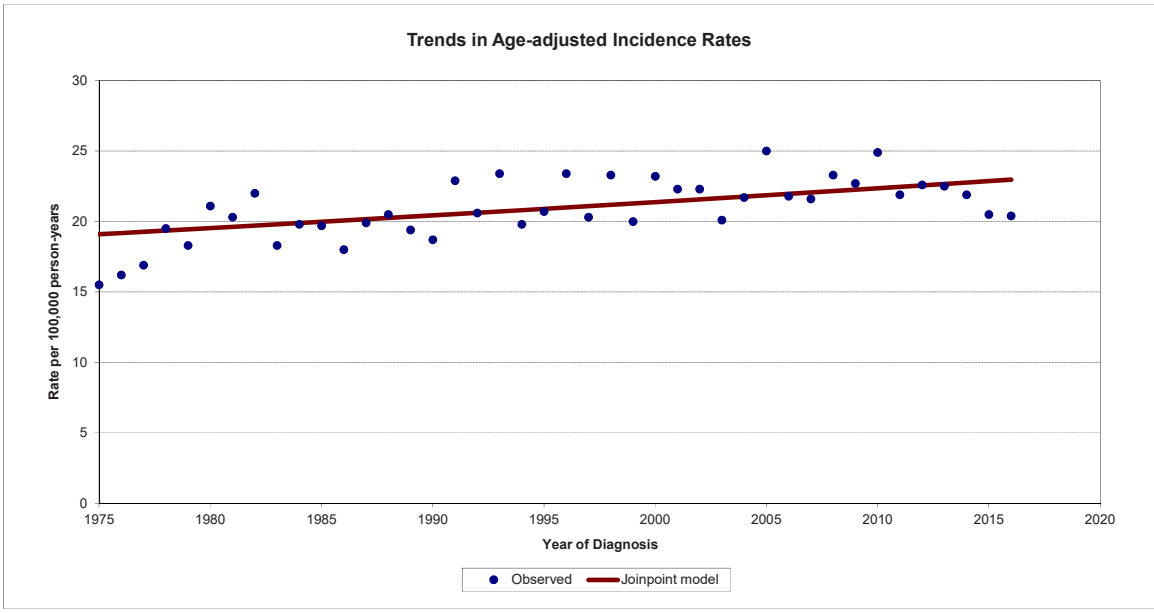
CANCER TRENDS IN IDAHO
1975-2016

All Sites



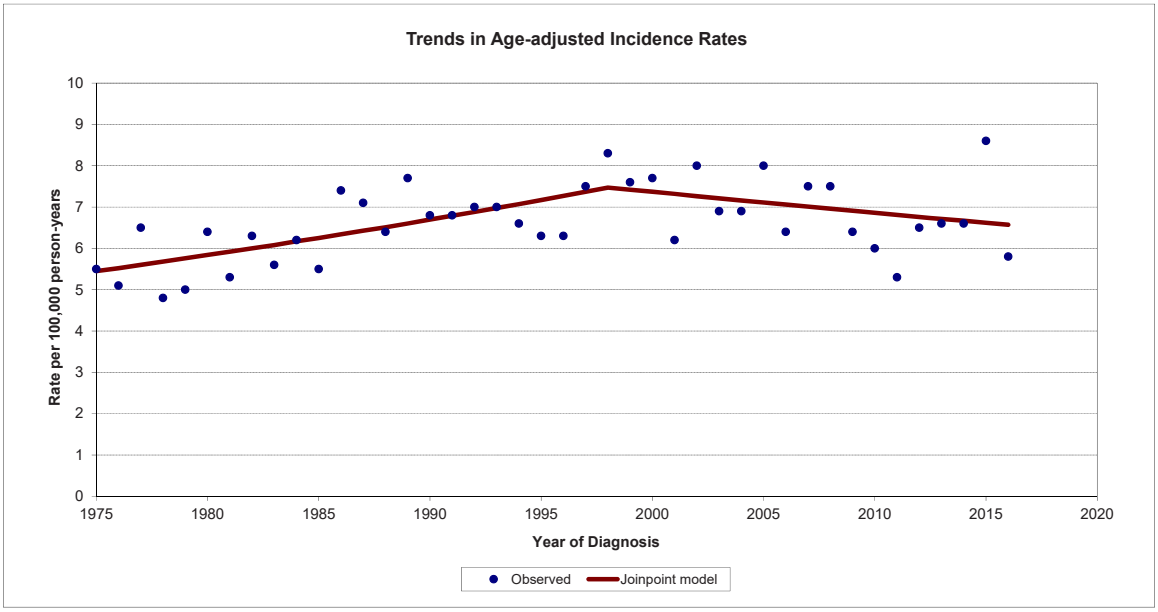
Cancer incidence increased at a rate of about 1.5% per year in Idaho from 1975 to 1992, and at a rate of about 0.4% per year from 1992 to 2007. Since 2007, overall cancer incidence has declined about 1.1% per year. Cancer incidence trends over time were different for males and females. For males, much 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



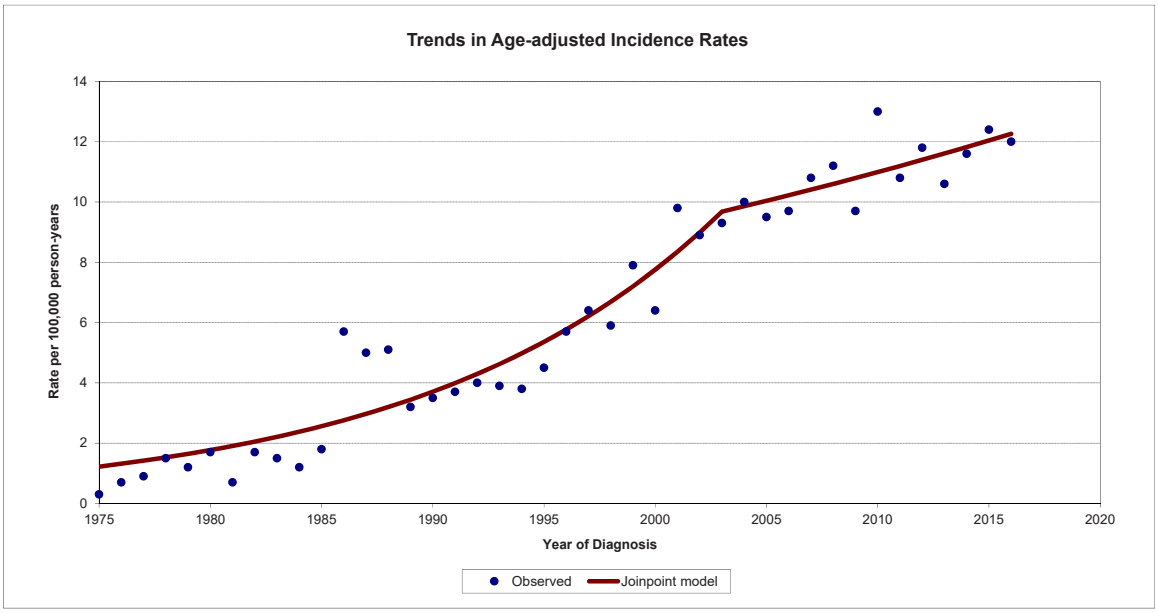
Bladder cancer incidence includes in situ and invasive cases. Bladder cancer incidence increased at a rate of about 0.5% per year in Idaho from 1975 to 2016. Most of the increase in bladder cancer incidence is attributable to males, who have rates of bladder cancer incidence about 4-5 times those of females.

Brain



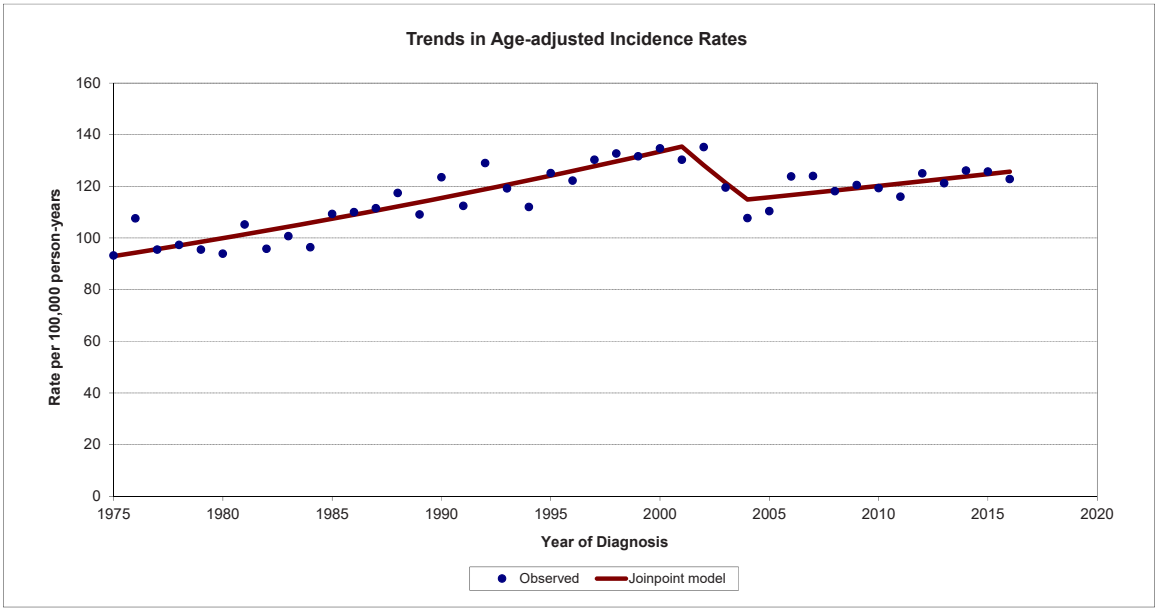
Malignant brain cancer incidence increased at a rate of about 1.4% per year in Idaho from 1975 to 1998, after which the rate has declined about 0.7% per year. Among males, malignant brain cancer incidence rates followed the same pattern. Among females, the rate has been stable 1975 to present.

Brain and Other CNS, Non-Malignant



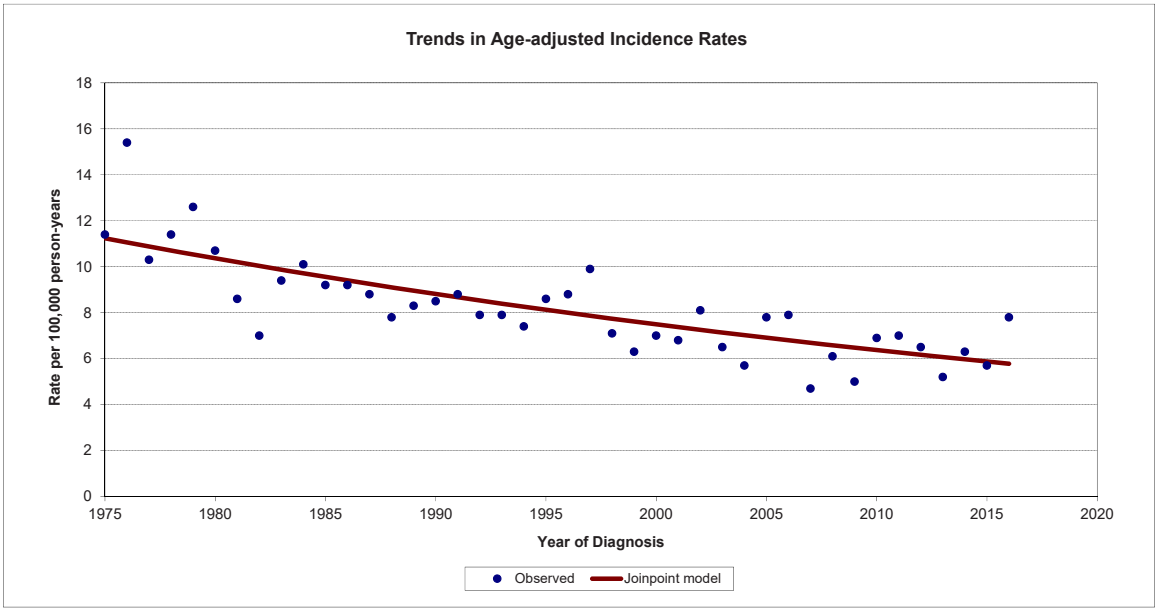
Non-malignant brain and other central nervous system tumors include those with benign and borderline behavior. Non-malignant brain and other CNS tumor incidence increased at a rate of about 7.7% per year in Idaho from 1975 to 2003, after which the rate increased by about 1.8% per year.

Breast Female



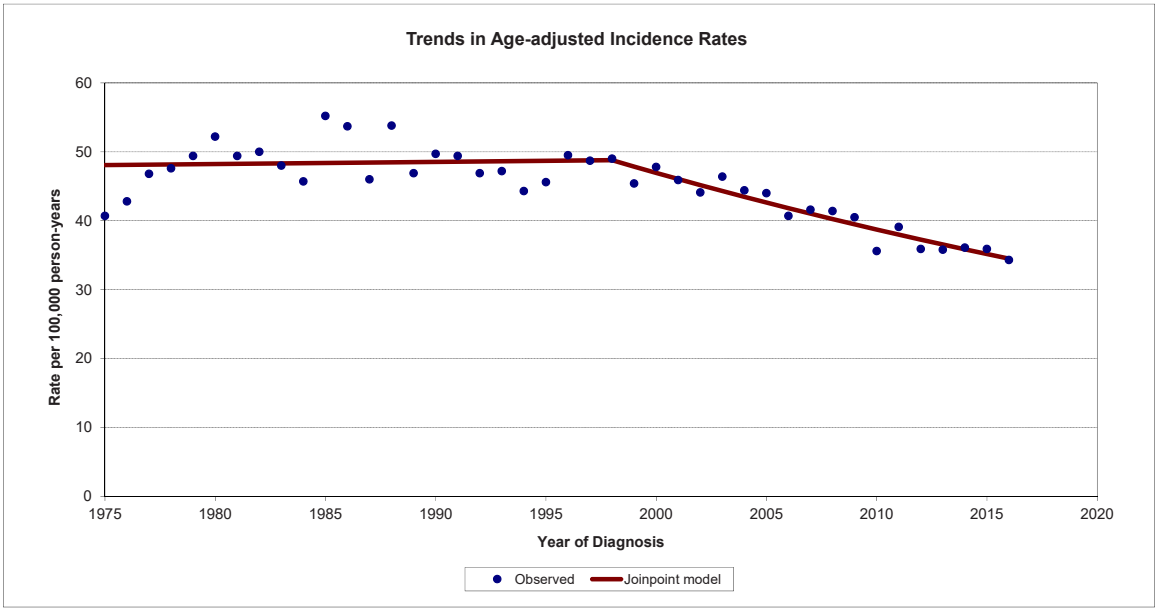
Invasive breast cancer incidence increased at a rate of about 1.5% per year among female Idahoans from 1975 to 2001. From 2001 to 2004, the rate decreased sharply by about 5.3% per year. This decrease may be due in part to a decrease in the use of hormone replacement therapy. Since 2004, the invasive breast cancer incidence rate has increased about 0.8% 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



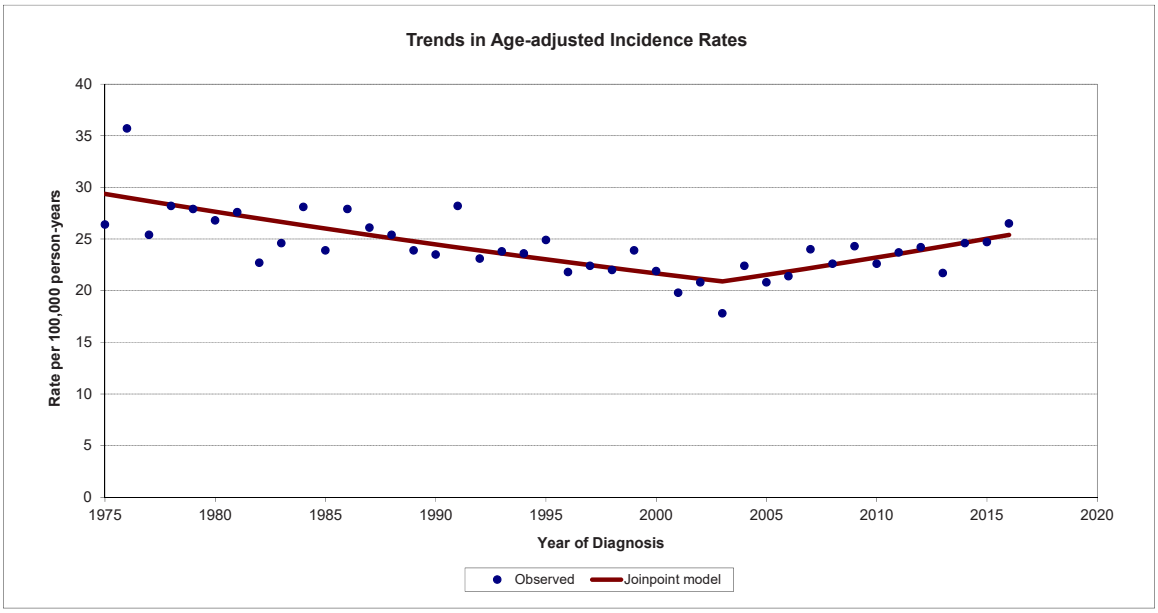
Invasive cervical cancer incidence has decreased about 1.6% per year in Idaho from 1975 to 2016.

Colorectal



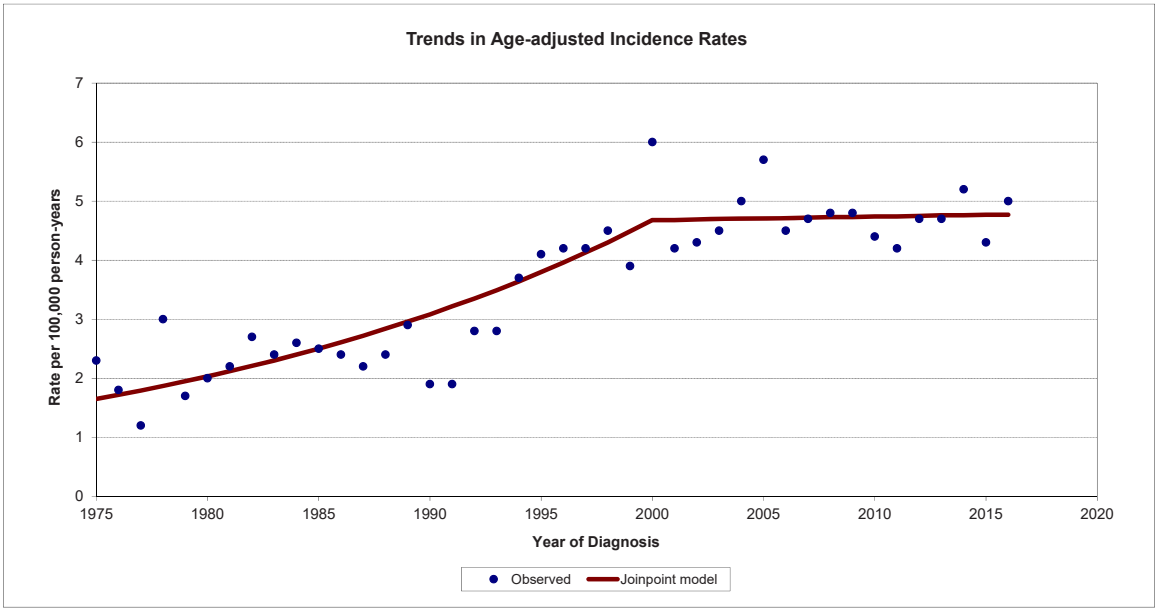
Colorectal cancer incidence rates were stable in Idaho from 1975-1998 and have since decreased about 1.9% per year. Colorectal cancer incidence trends over time were different for males and females. For males, rates increased from 1975 to 1988, then decreased. For females, rates have deceased about 0.8% per year from 1975-2016.

Corpus Uteri



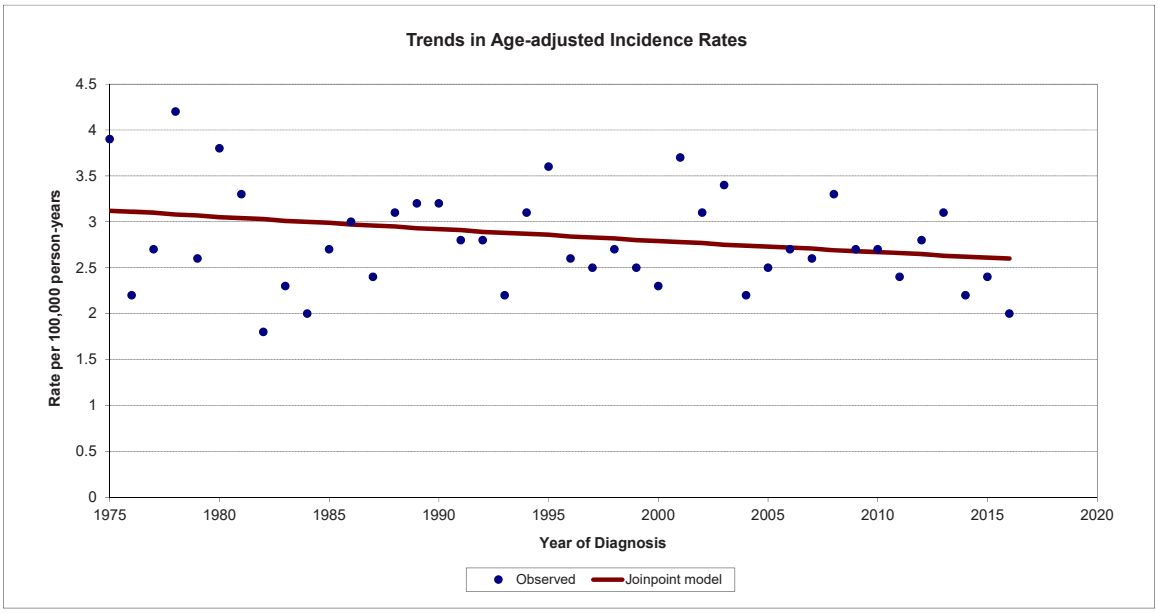
Corpus uteri cancer incidence rates decreased about 1.2% per year in Idaho from 1975 to 2003 and have increased by 1.5% per year since 2003.

Esophagus



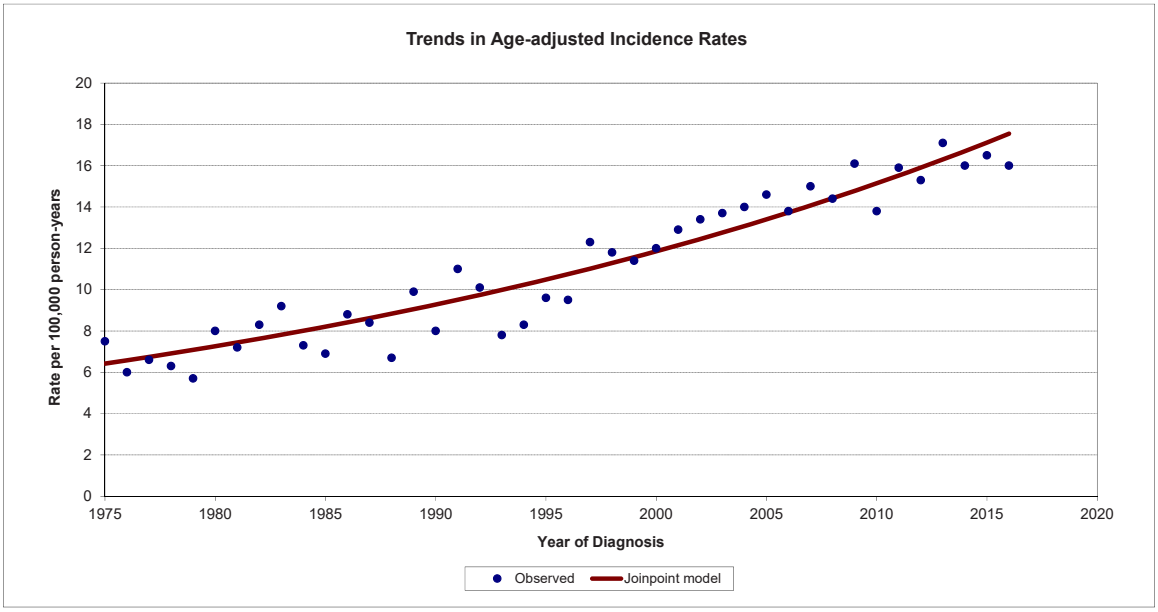
Esophageal cancer incidence increased at a rate of about 4.3% per year in Idaho from 1975 to 2000, after which the incidence rate has been stable. Rates of esophageal cancers among males were about 3-4 times higher than those among females.

Hodgkin Lymphoma



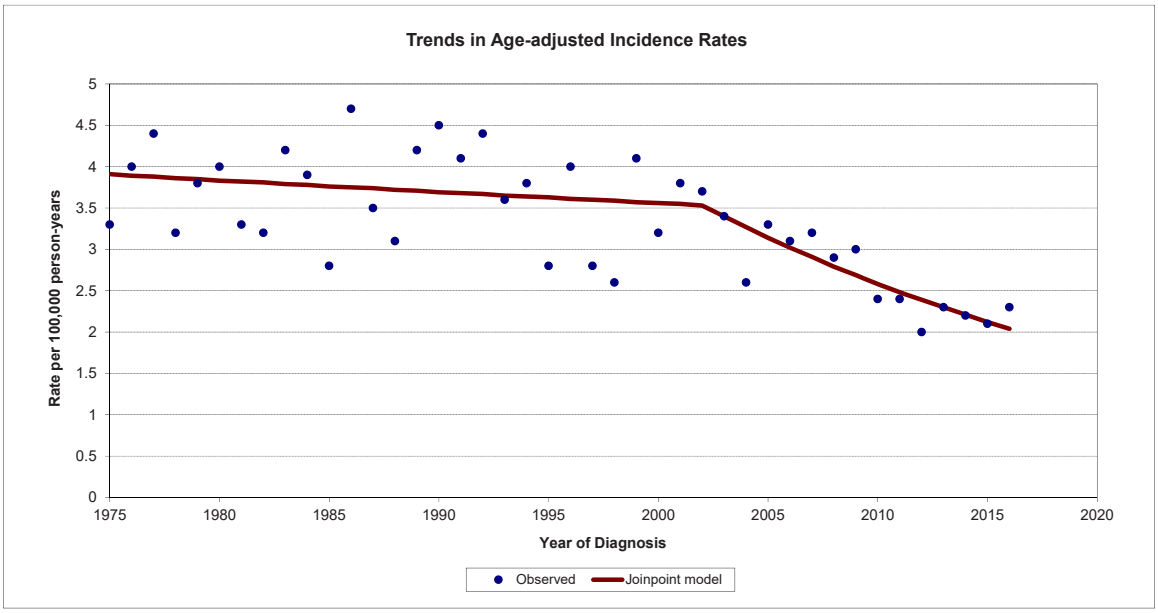
There was no statistically significant trend in Hodgkin lymphoma incidence in Idaho from 1975 to 2016; rates were stable but showed year-to-year variability due to the relatively small numbers of cases diagnosed annually.

Kidney and Renal Pelvis



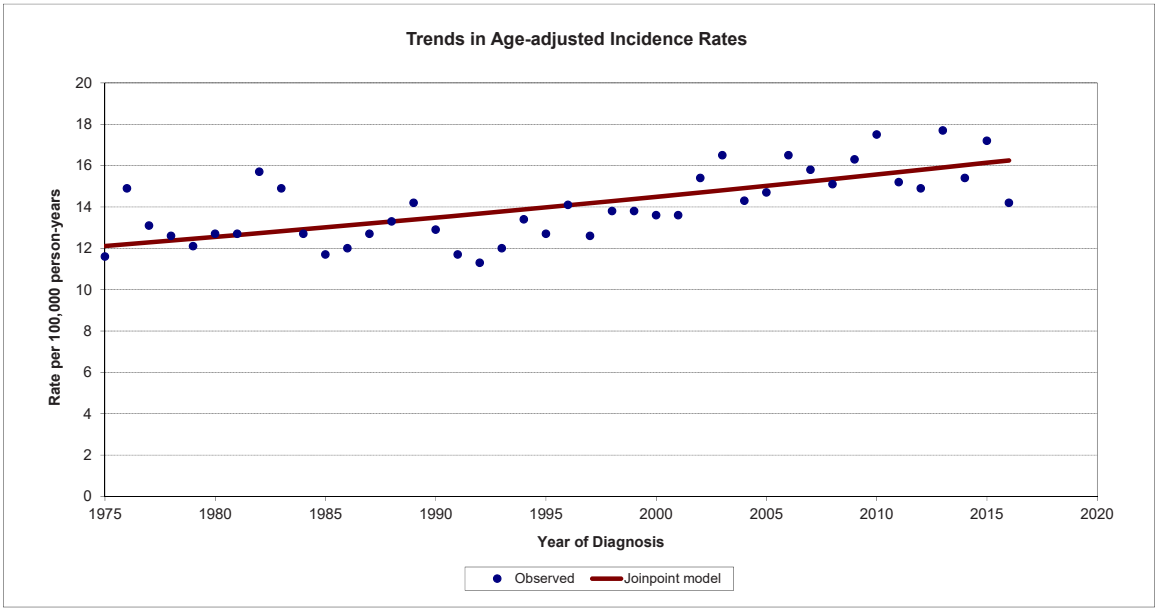
Kidney and renal pelvis cancer incidence increased at a rate of about 2.5% per year in Idaho from 1975 to 2016. The rate of increase was similar for males and females, although rates of kidney and renal pelvis cancers among males were about twice as high as among females.

Larynx



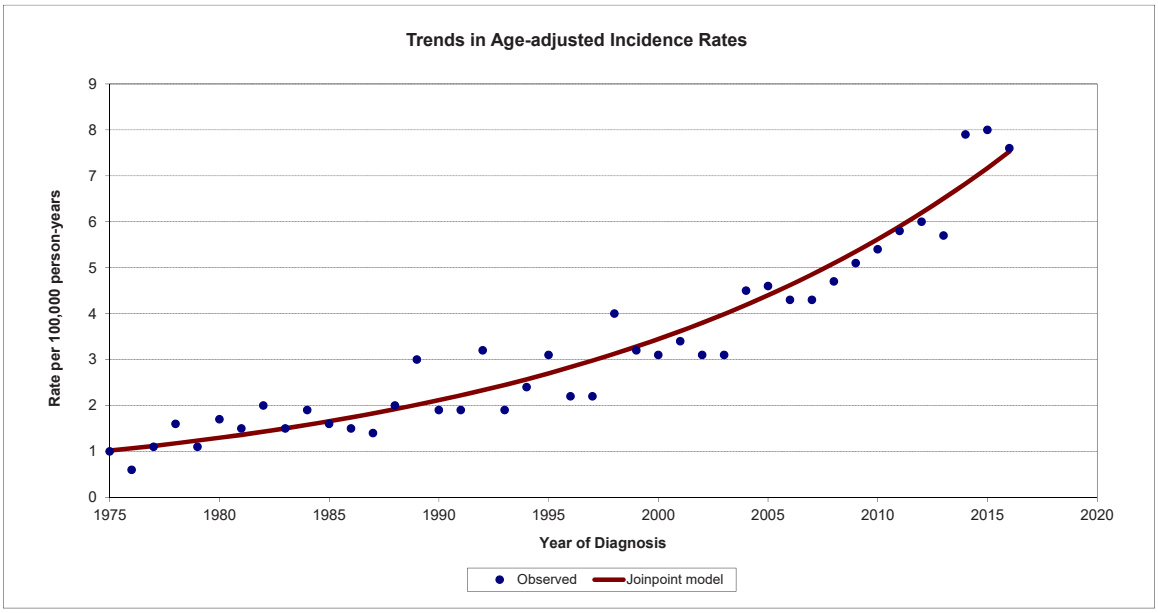
Laryngeal cancer incidence decreased about 0.4% per year in Idaho from 1975 to 2002, and decreased about 3.8% per year since 2002. Rates showed year-to-year variability due to the relatively small numbers of cases diagnosed annually. The temporal pattern was similar for males. Among females, incidence rates of laryngeal cancer decreased about 1.1% per year from 1975 to 2016. Incidence rates of laryngeal cancers among males were about 4 times as high as among females.

Leukemia



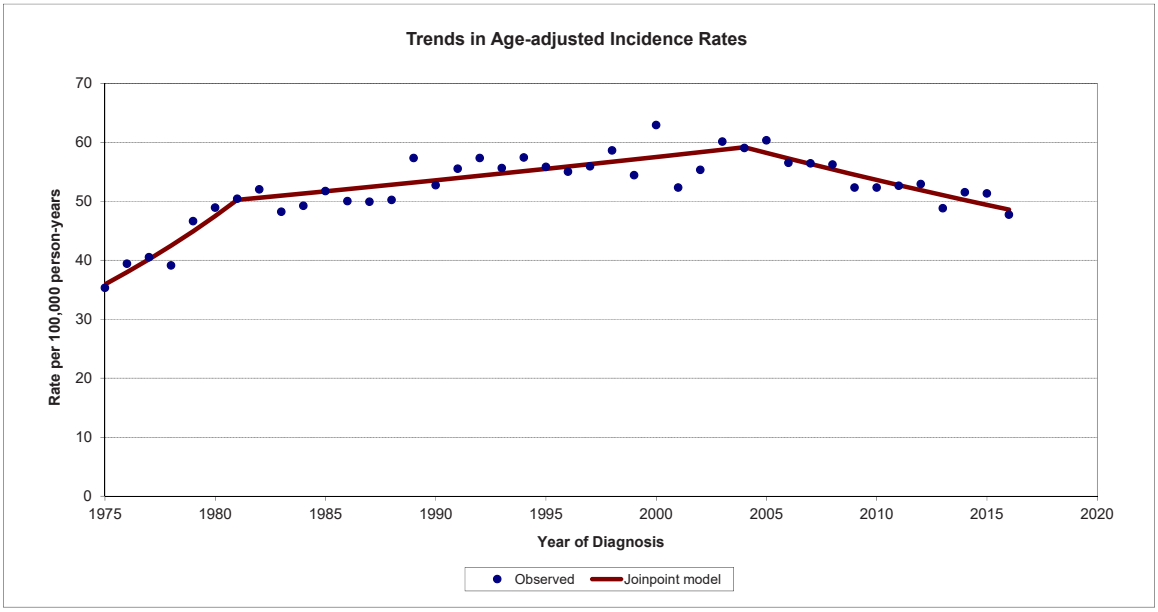
Leukemia incidence has increased about 0.7% per year from 1975 to 2016. Rates showed year-to-year variability due to the relatively small numbers of cases diagnosed annually.

Liver and Bile Duct



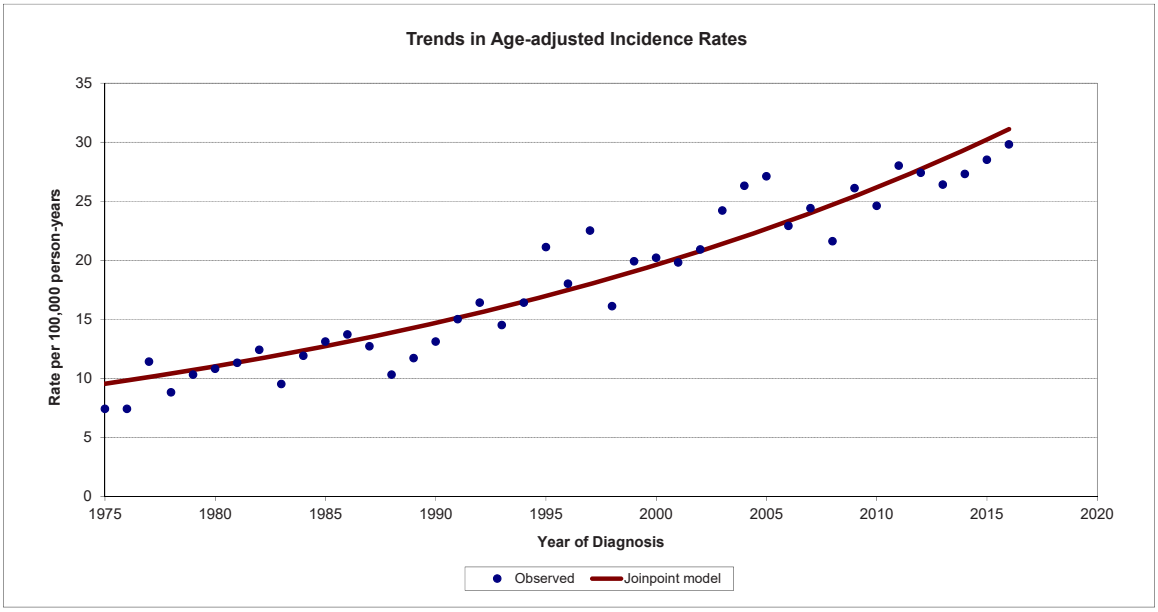
Liver cancer incidence increased at a rate of about 5.0% per year in Idaho from 1975 to 2016. The rate of increase was higher for males (5.6% per year) than for females (3.5% per year), and rates of liver cancers among males were about twice as high as among females.

Lung and Bronchus



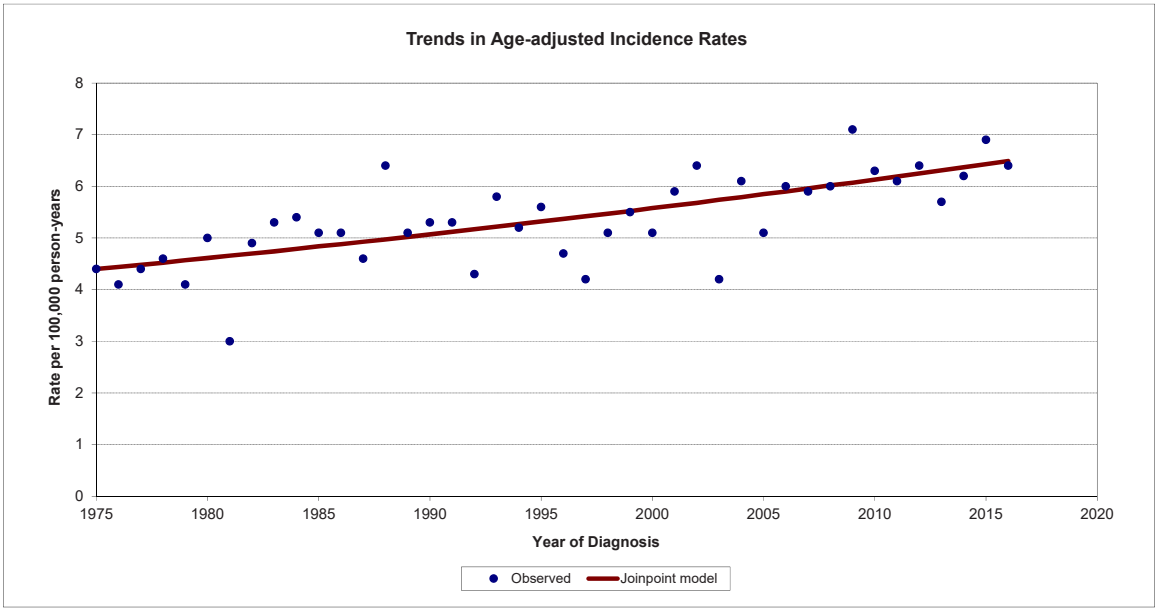
Lung cancer incidence increased at a rate of about 5.8% per year in Idaho from 1975 to 1981, after which the rate of increase lessened to about 0.7% per year until 2004. From 2004 to 2016, the rate has decreased about 1.6% per year. Lung cancer incidence trends over time were different for males and females. For males, lung cancer incidence increased at a rate of about 5.9% per year from 1975 to 1980, 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 5.8% per year from 1975 to 1989, after which the rate of increase lessened to about 1.7% per year until 2006. From 2006 to 2016, the rate has decreased about 1.0% 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



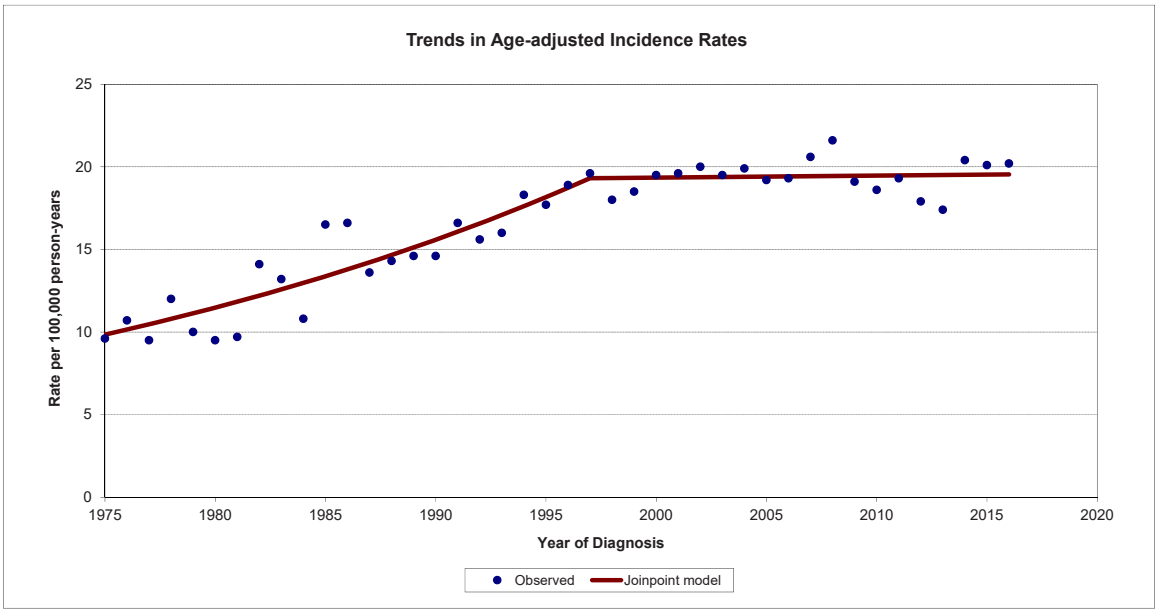
The incidence of melanoma of the skin increased at a rate of about 2.9% per year in Idaho from 1975 to 2016. Among males, the rate increased about 4.4% per year from 1975-2004, after which it has been stable. Among females, incidence rates of melanoma of the skin increased about 2.6% per year from 1975 to 2016. The incidence of in situ melanoma of the skin increased at a higher rate (6.3% per year from 1980 to 2016) than for the invasive cases depicted in the graph.

Myeloma



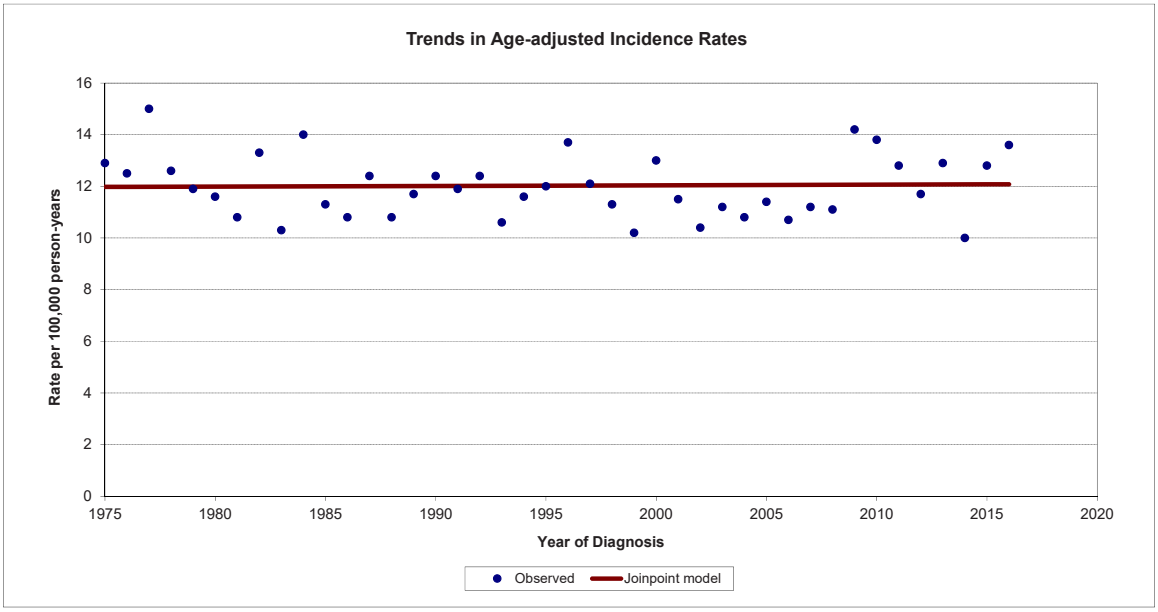
The incidence of myeloma increased at a rate of about 1.0% per year in Idaho from 1975 to 2016. The rate of increase was higher for males (1.3% per year) than for females (no significant trend), and rates of myeloma incidence among males were higher than among females.

Non-Hodgkin Lymphoma



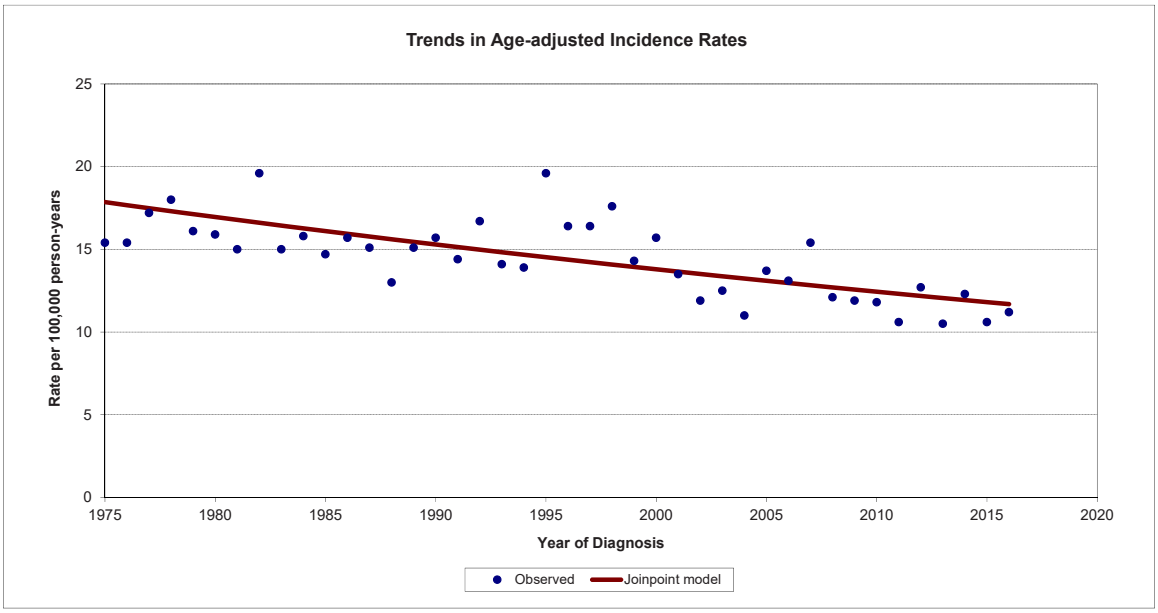
The incidence of non-Hodgkin lymphoma increased at a rate of about 3.1% per year in Idaho from 1975 to 1997, after which there has been no significant trend. Non-Hodgkin lymphoma incidence trends over time were similar for males and females, but rates of non-Hodgkin lymphoma incidence among males were higher than among females.

Oral Cavity and Pharynx



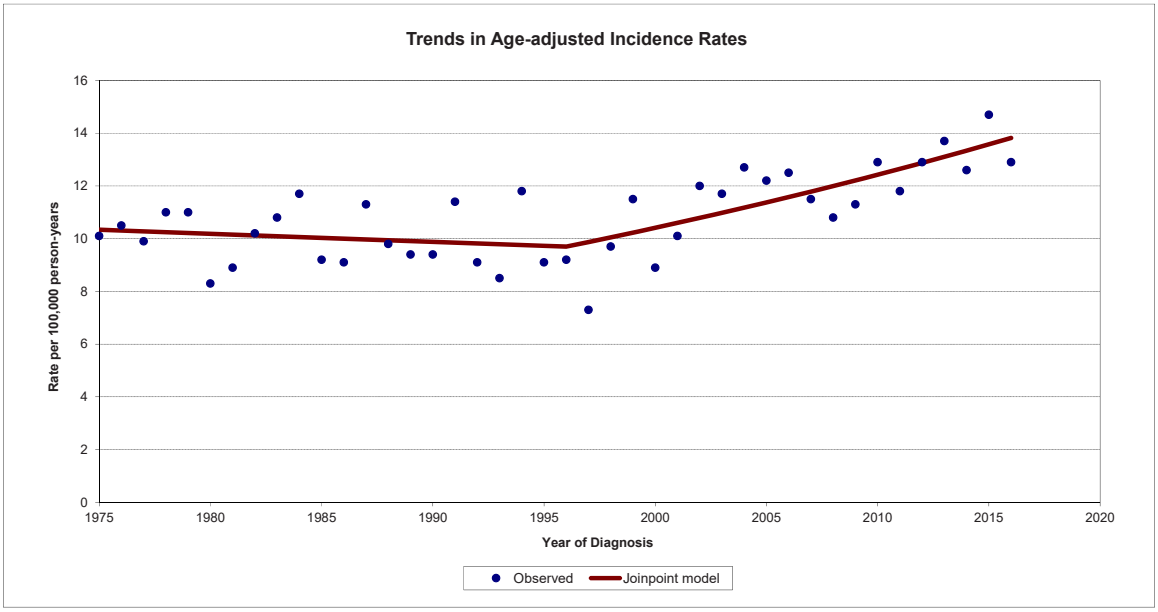
The incidence of cancers of the oral cavity and pharynx was stable in Idaho from 1975 to 2016. Among males, rates decreased about 0.4% per year. Among females, incidence of cancers of the oral cavity and pharynx increased at a rate of about 0.7% per year. Rates of cancers of the oral cavity and pharynx 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



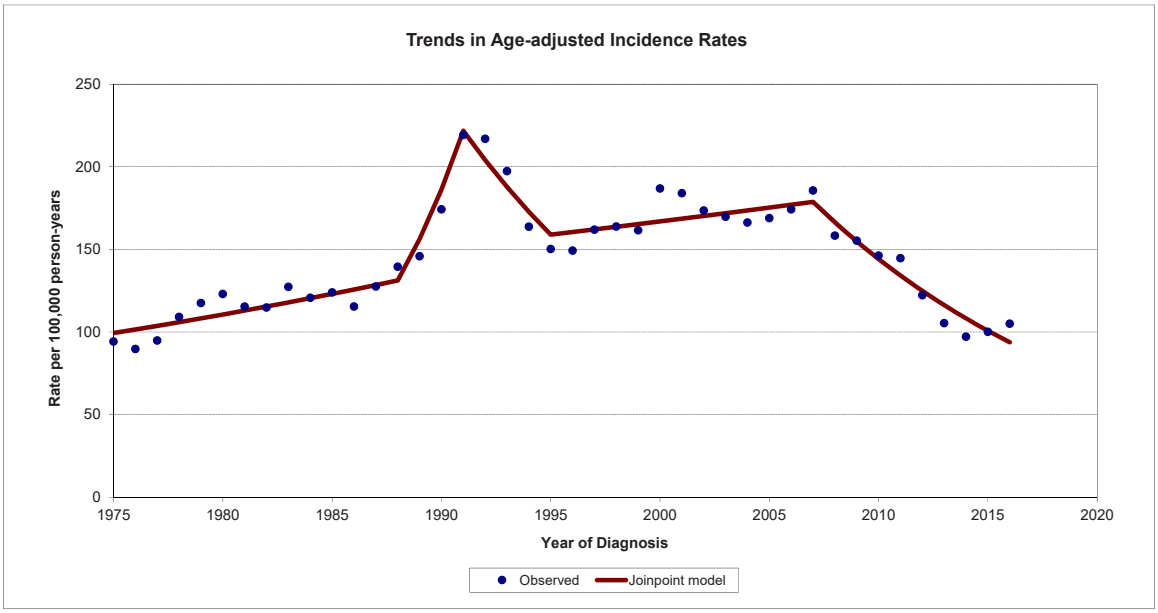
The incidence of ovarian cancer among females in Idaho decreased about 1.0% per year from 1975 to 2016. Part of the decrease in ovarian cancer incidence rates may have been due to a decrease in the use of hormone replacement therapy.

Pancreas



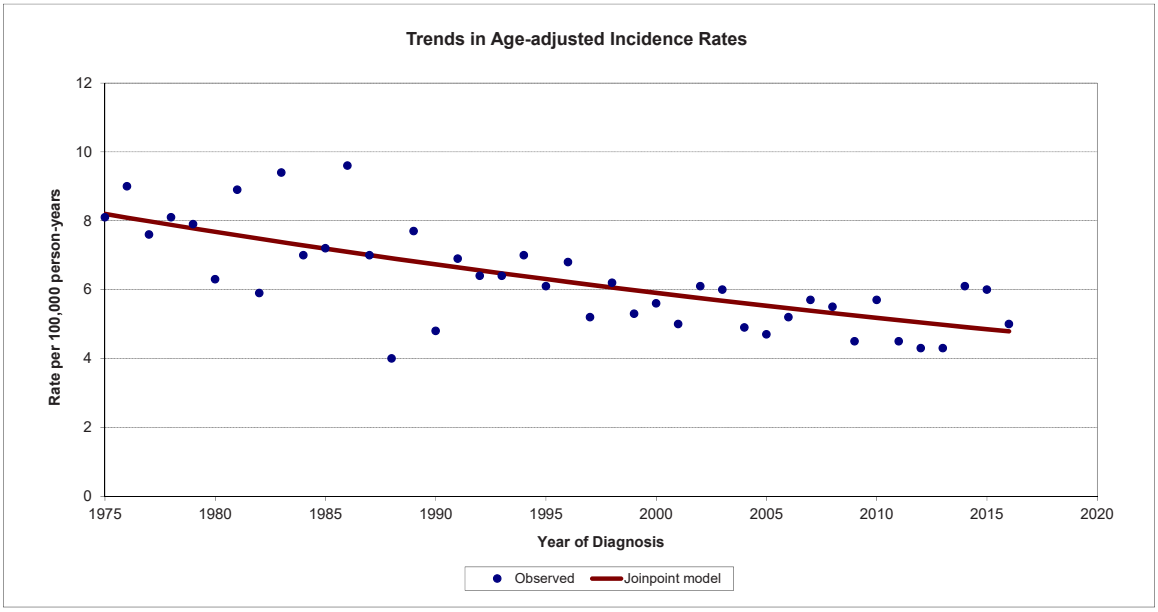
Pancreas cancer incidence decreased at a rate of 0.3% per year from 1975 to 1996 and increased at a rate of about 1.8% per year from 1996 to 2016. Pancreas cancer incidence trends over time were different for males and females. Among males, pancreas cancer incidence decreased about 1.2% per year from 1975-1997, and has increased about 2.0% per year since 1997. Among females, pancreas cancer increased about 1.2% per year from 1975-2016. Rates of pancreas cancer incidence among males were higher than among females.

Prostate



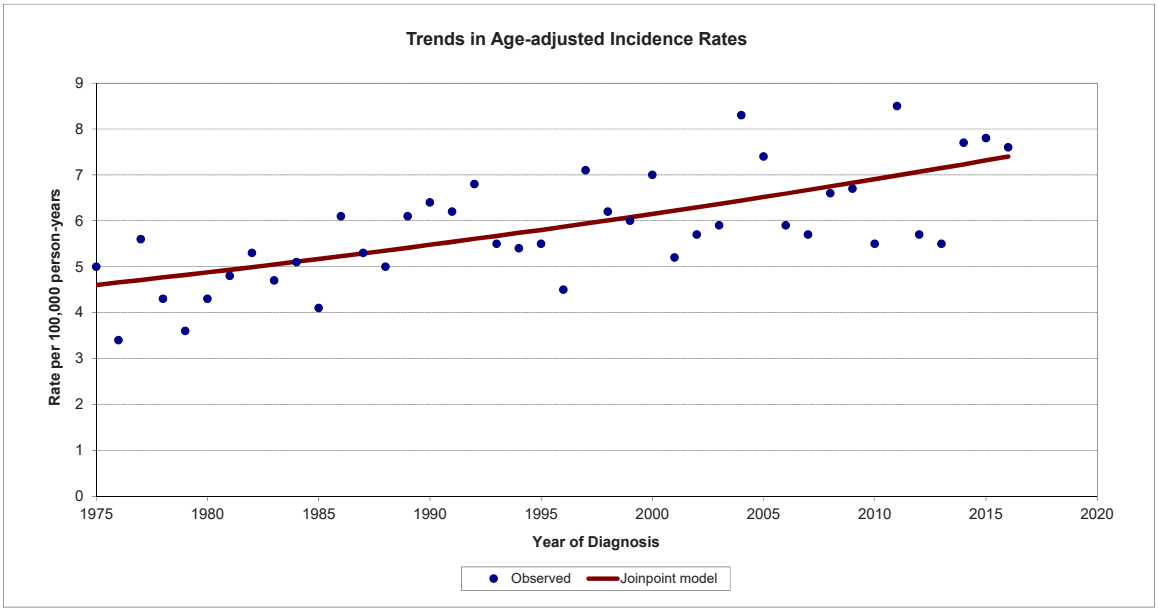
Trends in prostate cancer incidence are complicated, owing to the adoption of the Prostate-Specific Antigen (PSA) screening test in the late 1980s and early 1990s. From 1975 to 1988, prostate cancer incidence increased in Idaho at a rate of about 2.2% per year. From 1988 to 1991, prostate cancer incidence increased at a rate of about 19.1% per year. For the period 1991 to 1995, prostate cancer incidence rates decreased by about 8.0% per year. From 1995 to 2007, the rates increased about 1.0% per year, and from 2007 to 2016, the rate decreased about 6.9% per year. In May 2012, the United States Preventive Service Task Force issued a recommendation against PSA-based screening for prostate cancer in all age groups. 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. The prostate cancer incidence rates in 2014-2016 were similar to the rates at the beginning of the time series, before the adoption of the PSA test.

Stomach



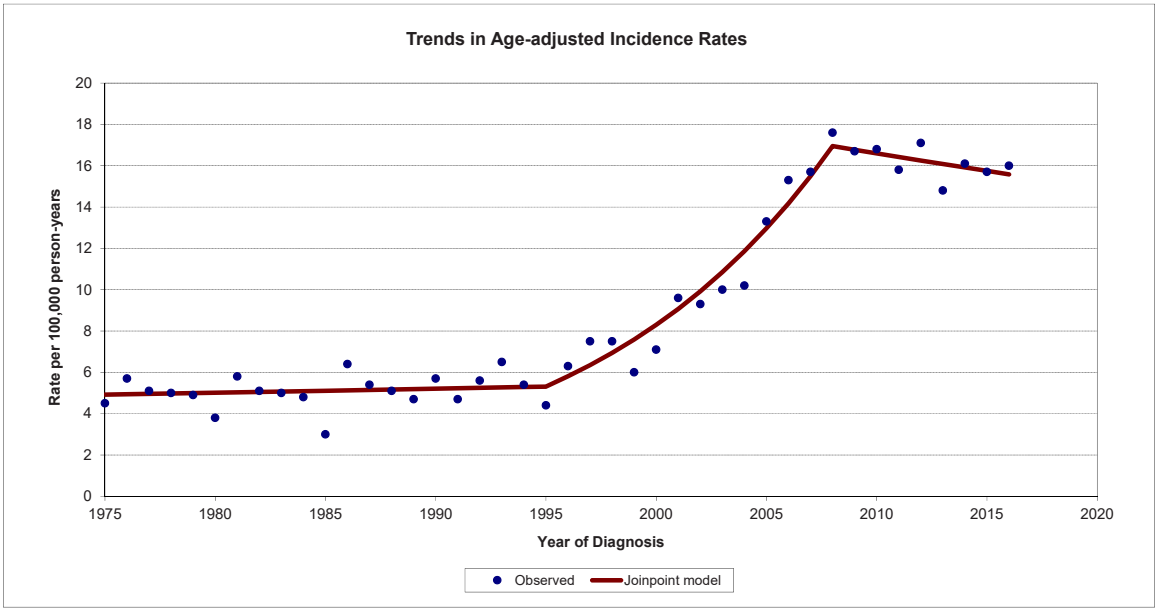
Stomach cancer incidence decreased at a rate of about 1.3% per year in Idaho from 1975 to 2016. Stomach cancer incidence trends over time were similar for males and females, although stomach cancer incidence rates among males were about twice as high as among females.

Testis



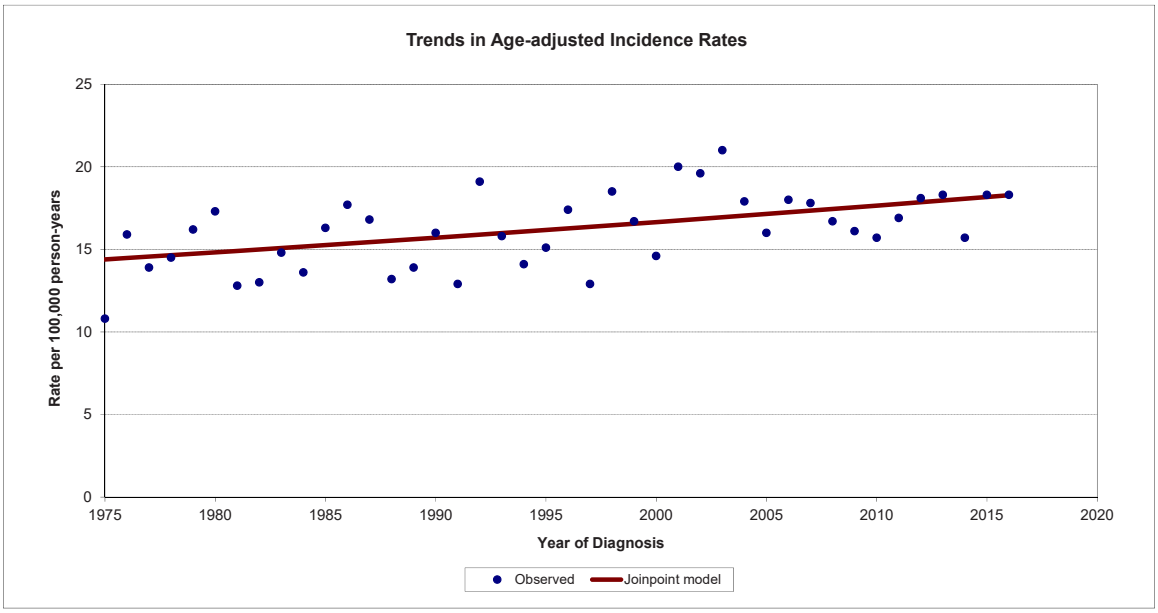
Testis cancer incidence increased at a rate of about 1.2% per year in Idaho from 1975 to 2016.

Thyroid



Thyroid cancer incidence was essentially stable in Idaho from 1975 to 1995. From 1995-2008, thyroid cancer incidence increased at a rate of about 9.3% per year, and thyroid cancer incidence has been stable 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 4.0% per year from 1975 to 2016. 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 0.6% per year in Idaho from 1975 to 2016. 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
2012-2016

Idaho Cancer Incidence Rates by Race and Ethnicity, 2012 - 2016

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	440.5	39,619	444.5	36,768	340.9	1,609	341.6	124	365.9	417	291.0	330
Bladder	21.5	1,945	22.0	1,860	12.5	38	^	^	^	^	12.0	12
Brain - malignant	6.8	595	7.1	548	4.8	30	^	^	^	^	^	^
Brain and other CNS - non-malignant	11.7	1,014	11.9	931	10.4	57	^	^	8.3	12	^	^
Breast	124.2	5,705	125.6	5,284	94.7	242	82.8	12	119.4	71	86.2	63
Breast - in situ	22.6	1,008	22.9	931	18.8	52	^	^	^	^	16.0	11
Cervix	6.3	251	5.9	206	9.6	33	^	^	^	^	^	^
Colorectal	35.5	3,165	35.7	2,924	27.6	132	^	^	40.4	42	27.9	30
Corpus Uteri	24.4	1,175	24.4	1,076	21.8	62	^	^	18.9	14	16.3	12
Esophagus	4.8	440	4.9	417	^	^	^	^	^	^	^	^
Hodgkin Lymphoma	2.5	199	2.6	173	2.8	21	^	^	^	^	^	^
Kidney and Renal Pelvis	16.2	1,463	15.8	1,325	18.8	91	^	^	20.6	22	10.9	12
Larynx	2.2	209	2.2	198	^	^	^	^	^	^	^	^
Leukemia	16.2	1,416	16.4	1,317	12.4	74	^	^	9.4	11	^	^
Liver and Bile Duct	7.1	686	6.4	576	12.5	56	29.4	10	22.3	27	13.0	15
Lung and Bronchus	50.4	4,572	50.9	4,334	38.9	132	40.0	13	58.5	53	30.6	31
Melanoma of the Skin	27.9	2,444	30.3	2,399	7.0	38	^	^	^	^	^	^
Myeloma	6.4	573	6.4	535	6.4	20	^	^	^	^	^	^
Non-Hodgkin Lymphoma	19.2	1,711	19.2	1,582	17.1	81	^	^	13.7	14	9.8	11
Oral Cavity and Pharynx	12.2	1,126	12.5	1,061	7.0	30	^	^	8.1	11	8.0	10
Ovary	11.4	538	11.6	500	9.8	26	^	^	^	^	^	^
Pancreas	13.3	1,220	13.5	1,150	11.2	45	^	^	7.8	11	12.4	12
Prostate	105.7	4,845	103.7	4,426	77.3	146	129.4	29	64.7	39	49.4	22
Stomach	5.2	460	5.0	416	4.9	25	^	^	^	^	^	^
Testis	6.9	262	7.1	219	5.5	34	^	^	^	^	^	^
Thyroid	15.9	1,298	16.1	1,152	13.2	96	^	^	12.1	16	12.2	17
Pediatric Age 0 to 19	18.2	432	19.2	353	13.6	57	^	^	^	^	22.6	10

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
2009-2015

Actual (Crude) Measures of Cancer Prognosis at 5 Years After Diagnosis
Idaho Cases Diagnosed 2009-2015 Followed Through December 31, 2016

	Single or First Primary Cancers Only							All Primaries			
		Using Cause of Death			Using Expected Survival				Using Expected Survival		
Primary Site	N	Cancer Death	Other Death	Survival	Cancer Death	Other Death	Survival	N	Cancer Death	Other Death	Survival
All Sites	41,966	29.6	8.4	62.0	29.5	8.5	62.0	48,943	31.1	9.2	59.7
Brain & Other Nervous System	618	73.5	2.7	23.8	74.5	1.6	23.9	708	76.3	1.8	21.9
Breast	6,061	10.6	6.3	83.1	8.4	8.6	83.0	7,267	9.2	9.5	81.3
Cervix Uteri	308	31.4	3.0	65.6	32.1	2.3	65.6	325	32.0	2.5	65.5
Colon & Rectum	3,463	34.1	10.3	55.6	34.2	10.3	55.5	4,154	35.6	10.9	53.5
Corpus & Uterus, NOS	1,385	19.6	4.9	75.5	18.6	6.0	75.4	1,572	20.3	6.4	73.3
Esophagus	440	73.0	8.9	18.1	77.9	4.1	18.0	541	79.0	4.6	16.4
Hodgkin Lymphoma	254	8.6	1.2	90.2	7.7	2.1	90.2	272	11.3	2.3	86.4
Kidney & Renal Pelvis	1,436	23.1	9.3	67.6	24.0	8.3	67.7	1,806	26.1	9.3	64.6
Larynx	219	31.1	13.1	55.8	35.6	8.6	55.8	277	37.6	9.7	52.7
Leukemia	1,319	30.4	9.6	60.0	30.9	9.2	59.9	1,705	35.3	9.7	55.0
Liver & Intrahepatic Bile Duct	630	77.1	10.8	12.1	85.7	2.7	11.6	757	85.3	2.9	11.8
Lung & Bronchus	4,423	73.0	10.0	17.0	78.2	4.8	17.0	5,781	77.7	5.4	16.9
Melanoma of the Skin	2,425	10.2	6.5	83.3	7.6	9.2	83.2	3,003	9.2	10.7	80.1
Mesothelioma	93	87.5	4.3	8.2	86.8	5.0	8.2	130	84.9	5.6	9.5
Myeloma	568	41.8	12.7	45.5	44.9	9.6	45.5	719	47.3	10.3	42.4
Non-Hodgkin Lymphoma	1,684	27.3	9.3	63.4	26.9	9.7	63.4	2,152	29.1	10.6	60.3
Oral Cavity & Pharynx	1,167	24.5	9.7	65.8	25.8	8.3	65.9	1,467	28.3	9.7	62.0
Ovary	592	56.4	4.0	39.6	56.3	4.3	39.4	683	56.9	4.4	38.7
Pancreas	1,150	90.2	2.6	7.2	90.5	2.3	7.2	1,451	90.0	2.6	7.4
Prostate	6,573	7.7	8.7	83.6	3.3	13.1	83.6	7,283	4.2	13.5	82.3
Stomach	468	67.7	7.6	24.7	69.5	6.0	24.5	583	68.5	6.5	25.0
Testis	335	1.9	1.2	96.9	2.7	0.7	96.6	345	2.6	1.4	96.0
Thyroid	1,547	2.8	2.4	94.8	1.9	3.4	94.7	1,770	2.5	4.0	93.5
Urinary Bladder	1,876	17.1	15.7	67.2	17.7	15.2	67.1	2,552	21.0	16.4	62.6

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 2009-2015 Followed Through December 31, 2016

Primary Site	Single or First Primary Cancers Only					All Primaries		
	N	Cause Specific Survival (95% CI)		Relative Survival Ratio (95% CI)		N	Relative Survival Ratio (95% CI)	
All Sites	41,966	67.4	(66.9, 67.9)	68.1	(67.4, 68.7)	48,943	67.0	(66.5, 67.6)
Brain & Other Nervous System	618	28.4	(24.6, 32.2)	27.7	(24.0, 31.6)	708	27.5	(24.0, 31.2)
Breast	6,061	88.1	(87.0, 89.1)	91.3	(89.5, 92.8)	7,267	90.5	(88.8, 91.9)
Cervix Uteri	308	59.9	(53.0, 66.2)	58.0	(50.5, 64.7)	325	59.5	(52.5, 65.9)
Colon & Rectum	3,463	63.8	(61.9, 65.6)	63.8	(61.5, 66.0)	4,154	62.9	(60.8, 65.0)
Corpus & Uterus, NOS	1,385	74.8	(71.4, 77.9)	76.3	(71.7, 80.3)	1,572	75.0	(70.8, 78.7)
Esophagus	440	22.0	(17.3, 27.0)	19.9	(15.4, 24.9)	541	18.6	(14.6, 23.0)
Hodgkin Lymphoma	254	89.3	(84.8, 92.6)	90.0	(85.2, 93.3)	272	87.6	(82.8, 91.1)
Kidney & Renal Pelvis	1,436	73.3	(70.3, 76.1)	72.9	(68.8, 76.5)	1,806	71.6	(68.2, 74.7)
Larynx	219	***67.2***	***(59.9, 73.5)***	***63.2***	***(55.0, 70.3)***	277	***60.9***	***(52.8, 68.0)***
Leukemia	1,319	67.3	(64.3, 70.1)	66.3	(62.5, 69.8)	1,705	63.2	(60.0, 66.2)
Liver & Intrahepatic Bile Duct	630	***16.4***	***(12.4, 20.8)***	***12.8***	***(9.4, 16.7)***	757	***13.1***	***(10.0, 16.5)***
Lung & Bronchus	4,423	23.5	(21.9, 25.3)	21.1	(19.5, 22.9)	5,781	21.4	(19.9, 23.0)
Melanoma of the Skin	2,425	89.9	(88.4, 91.2)	92.1	(90.2, 93.5)	3,003	90.8	(89.2, 92.2)
Mesothelioma	93	***8.7***	***(3.3, 17.6)***	***9.3***	***(3.5, 18.8)***	130	***11.2***	***(5.2, 19.8)***
Myeloma	568	57.2	(52.2, 61.9)	55.2	(49.5, 60.5)	719	53.5	(48.5, 58.3)
Non-Hodgkin Lymphoma	1,684	70.9	(68.4, 73.2)	71.5	(68.4, 74.5)	2,152	70.4	(67.7, 72.8)
Oral Cavity & Pharynx	1,167	71.7	(68.3, 74.7)	70.8	(66.4, 74.6)	1,467	68.9	(65.1, 72.4)
Ovary	592	37.2	(32.8, 41.6)	37.1	(32.3, 41.8)	683	37.0	(32.7, 41.3)
Pancreas	1,150	9.3	(7.2, 11.7)	8.9	(6.9, 11.3)	1,451	9.6	(7.6, 11.9)
Prostate	6,573	90.4	(89.5, 91.3)	94.8	(93.3, 95.9)	7,283	94.0	(92.6, 95.1)
Stomach	468	30.3	(25.6, 35.1)	28.7	(23.9, 33.6)	583	30.1	(25.8, 34.6)
Testis	335	***98.1***	***(95.8, 99.1)***	***97.2***	***(94.3, 98.7)***	345	***97.4***	***(94.5, 98.8)***
Thyroid	1,547	94.5	(92.5, 96.0)	95.0	(92.1, 96.9)	1,770	95.5	(93.1, 97.1)
Urinary Bladder	1,876	82.9	(80.8, 84.8)	81.9	(78.9, 84.5)	2,552	79.2	(76.5, 81.5)

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.

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. Young JL Jr., Roffers SD, Reis LAG, Fritz AG, Hurlbut AA (eds). *SEER Summary Staging Manual – 2000: Codes and Coding Instructions*. National Cancer Institute, NIH Pub. No. 01-4969, Bethesda, MD, 2001.

3. Edge SB, Byrd DR, Compton CC, Fritz AG, Greene FL, Trotti A (eds). *AJCC Cancer Staging Manual, 7th Edition*. American Joint Committee on Cancer, Chicago IL. Springer: 2010.

4. National Program of Cancer Registries Derived Clinical and Pathologic Stage Group. Based on AJCC 7th Edition Staging. Centers for Disease Control and Prevention. Initial release: June 30, 2017. Available at: https://www.cdc.gov/cancer/npcr/tools/tnmstaging/index.htm.

5. Thornton ML, (ed). Standards for Cancer Registries Volume II: Data Standards and Data Dictionary, Record Layout Version 16, 20th ed. Springfield, Ill.: North American Association of Central Cancer Registries, September 2015, revised November 2015. Available at: https://www.naaccr.org/data-standards-data-dictionary/.

6. Adamo M, Dickie, L, Ruhl J. (January 2016). SEER Program Coding and Staging Manual 2016. National Cancer Institute, Bethesda, MD 20850-9765. U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute. Available at: https://seer.cancer.gov/manuals/2016/SPCSM_2016_maindoc.pdf.

7. Commission on Cancer. Facility Oncology Registry Data Standards (FORDS): Revised for 2016. Chicago, IL: American College of Surgeons Commission on Cancer. Available at: https://www.facs.org/quality-programs/cancer/ncdb/registrymanuals/cocmanuals/fordsmanual.

8. 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.

9. 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.

10. 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, 2001-2015, released September 2018. These data were provided by central cancer registries participating in the NPCR and SEER Programs and submitted in November 2017.

11. *Cancer in North America: 2011-2015, Volume Two: Registry-Specific Cancer Incidence in the United States and Canada*. Springfield, Ill.: North American Association of Central Cancer Registries, June 2018, pp 151-160. Available at: https://www.naaccr.org/cancer-in-north-america-cina-volumes/#Vol2.

12. National Center for Health Statistics. Vintage 2017 postcensal estimates of the resident population of the United States (April 1, 2010, July 1, 2010-July 1, 2017), 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 June 27, 2018, following release by the U.S. Census Bureau of the unbridged Vintage 2017 postcensal estimates by 5-year age group on June 27, 2018.

13. Schottenfeld D, Fraumeni JF Jr. (Eds). *Cancer Epidemiology and Prevention*. New York: Oxford University Press; 1996.

14. Lenhard RE, Osteen RT, Gansler T (Eds). *Clinical Oncology*. The American Cancer Society, Inc.: Atlanta; 2001.

15. *Report on Carcinogens, Eleventh Edition*; U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program; 2005.

16. Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence - SEER 18 Regs Research Data + Hurricane Katrina Impacted Louisiana Cases, Nov 2017 Sub (2000-2015) <Katrina/Rita Population Adjustment> - Linked To County Attributes - Total U.S., 1969-2016 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, released April 2018, based on the November 2017 submission.

17. DevCan: Probability of Developing or Dying of Cancer Software, Version 6.7.3; Statistical Research and Applications Branch, National Cancer Institute, 2005. Available at: https://surveillance.cancer.gov/devcan.

18. Joinpoint Regression Program, Version 4.2.0.2. June 2015; Statistical Research and Applications Branch, National Cancer Institute. Available at: https://surveillance.cancer.gov/joinpoint.

19. Final 2016 mortality data, Bureau of Vital Records and Health Statistics, Idaho Department of Health and Welfare; October 2017.

20. 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.

21. 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.

22. 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.

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

24. 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.

25. 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

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, 2017.[16]

APPENDIX B

2016 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	6,795	3,049	11,245	15,007	7,437	6,558	9,222	58,461
5 to 9	7,221	3,038	11,995	16,896	8,097	7,044	9,019	62,670
10 to 14	7,516	3,069	11,915	17,918	7,965	7,178	8,965	64,091
15 to 19	7,196	3,967	12,240	17,061	7,051	6,946	8,350	61,234
20 to 24	6,314	5,884	12,702	16,127	6,119	5,476	9,842	58,612
25 to 29	6,632	3,945	10,534	18,001	6,093	5,664	7,896	56,711
30 to 34	6,630	3,118	9,764	17,881	6,286	5,616	6,994	55,026
35 to 39	6,602	3,058	9,766	17,741	6,468	5,545	7,056	55,073
40 to 44	6,364	2,747	9,102	16,201	5,552	4,711	5,841	49,663
45 to 49	6,853	2,855	9,017	16,533	5,334	4,374	5,389	49,568
50 to 54	7,302	3,146	8,802	15,364	5,716	4,516	5,660	49,659
55 to 59	8,265	3,610	9,079	15,409	6,014	5,195	5,944	52,403
60 to 64	8,288	3,640	8,680	13,864	5,574	5,006	5,454	49,253
65 to 69	7,959	3,488	7,889	12,247	4,833	4,168	4,634	44,059
70 to 74	5,569	2,378	5,717	8,023	3,457	2,920	3,260	30,781
75 to 79	3,889	1,765	3,889	5,012	2,462	2,031	2,196	20,806
80 to 84	2,264	1,179	2,454	3,054	1,617	1,309	1,426	13,013
85+	1,634	975	1,952	2,794	1,317	1,084	1,194	10,596
Total	113,293	54,911	156,742	245,133	97,392	85,341	108,342	841,679
	HD 1	**HD 2**	**HD 3**	**HD 4**	**HD 5**	**HD 6**	**HD 7**	**STATE**
Females								
< 5	6,634	2,943	10,893	14,494	7,213	6,292	8,987	56,563
5 to 9	6,777	2,822	11,341	16,261	7,877	6,827	8,827	60,125
10 to 14	7,125	2,836	11,465	17,100	7,591	6,872	8,506	61,075
15 to 19	6,861	3,712	11,618	15,990	6,601	6,198	9,069	58,536
20 to 24	5,804	4,878	11,555	14,235	5,722	5,201	9,018	53,216
25 to 29	6,785	3,416	10,557	17,035	5,976	5,687	7,199	54,917
30 to 34	6,611	2,919	9,826	16,798	6,207	5,523	6,813	53,533
35 to 39	6,773	2,759	9,715	16,958	5,979	5,591	6,625	53,641
40 to 44	6,362	2,552	8,970	15,475	5,363	4,611	5,666	48,285
45 to 49	6,912	2,842	8,921	15,752	5,160	4,500	5,284	48,598
50 to 54	7,797	3,198	9,114	15,777	5,612	4,670	5,458	50,785
55 to 59	8,862	3,785	9,614	15,962	6,154	5,301	5,963	54,431
60 to 64	8,901	3,627	9,001	14,889	5,652	4,985	5,532	51,350
65 to 69	8,287	3,253	8,241	12,870	4,936	4,250	4,717	45,596
70 to 74	5,581	2,410	6,122	8,702	3,806	2,971	3,364	32,380
75 to 79	3,912	1,799	4,179	5,811	2,711	2,216	2,430	22,597
80 to 84	2,551	1,243	2,791	3,964	1,970	1,663	1,608	15,403
85+	2,744	1,609	3,354	4,658	2,102	1,685	1,874	17,316
Total	115,279	52,603	157,277	242,731	96,632	85,043	106,940	838,347
Total	228,572	107,514	314,019	487,864	194,024	170,384	215,282	1,680,026

Source: National Center for Health Statistics, 2018.