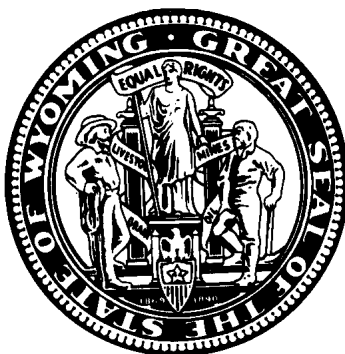


State of Wyoming



Department of Health

Annual Report on Cancer in Wyoming - 2018

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Director**

October, 2020

State of Wyoming Department of Health

Annual Report on Cancer in Wyoming—2018

Annual Report on Cancer in Wyoming 2018
is published by the
Public Health Division
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This publication was supported by Grant/Cooperative Agreement
Number U58/DP006329-03 from the Centers for Disease Control and Prevention.
Its contents are solely the responsibility of the authors and do not necessarily represent
the official views of the Centers for Disease Control and Prevention

This document is available in alternative format upon request.

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Executive Summary

The overall incidence rate for cancer in Wyoming was 391.4/100,000 in 2018, which is significantly lower than the national rate (440.8/100,000). The overall incidence rate for cancer among males (412.3/100,000) in Wyoming was also significantly lower than the national rate (471.6/100,000). The rate for women was also lower (378.3/100,000) than the nation (422.4/100,000), but not statistically significant. The overall mortality rate for all cancers in 2018 (140.6/100,000) is higher than in 2017 (135.1/100,000), but still lower than the national rate (153.6/100,000).

The top five cancer sites for incidence in 2018 were: prostate, female breast, lung/bronchus, colorectal and melanoma. The most common cancers for incidence by age group were cancer of the bones & joints and thyroid cancer (15-19); cancer of the testis and ill-defined cancer (20-24); thyroid (25-34); breast (35-54 years); prostate (55-74); lung (75-84); and breast (85+). There was a total of thirteen cases of cancer diagnosed in children under the age of 15 in 2018.

The top five cancer sites for mortality were lung, colorectal, pancreas, breast, and prostate cancer. The most common cancers associated with mortality by age group were brain/CNS (35-39); breast and cervical cancer (40-44); colorectal (45-49); breast (50-54); and lung (55-85+). There were fewer than two deaths per cancer site for all age groups from 0 to 34 years. There were six cases diagnosed and two deaths from colorectal cancer in Wyoming residents under 35 years of age in 2018 with one case being diagnosed in a person between 15-19 years of age.

The 5-year (60 months) relative survival rate for Wyoming cancer patients diagnosed between 2010 and 2018 was 72.3%. This means that nearly three out of every four cancer patients in Wyoming were alive five years after diagnosis during this time period. Prostate cancer (98.3%), cancer of the thyroid (97.4%), breast cancer (92.8%), and uterine cancer (87.1%) have the highest survival rates among Wyoming residents. The survival rates for cancer of the pancreas (13.2%); lung cancer (21.2%); and brain/CNS cancer (30.3%), while increasing, are still the lowest among Wyoming residents. Children/adolescents (0-19 years) continue to have an excellent 5-year overall survival rate of 89.3% overall with soft tissue cancer including the heart (100%) and cancer of the testis (100%) having the best rates.

Note: Basal and squamous cell carcinoma, and in situ cervical cancer are not included in the calculation of All Sites Cancer incidence and Mortality rates.

INTRODUCTION

Cancer

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread of abnormal cells is not controlled, death can result. Many cancers are preventable and many can be cured if detected and treated early.

Causes of Cancer

Cancer is caused by both environmental and internal factors. Environmental causes include exposures to chemicals, radiation, or viruses, as well as exposures associated with lifestyles (e.g., smoking, diet, and alcohol consumption). Internal causes include hormone levels, immune status, and inherited conditions. Causal factors may act together or in sequence to start or promote cancer. Ten or more years often pass between carcinogenic exposures and detectable cancer.

Prevention

Avoiding potential exposures such as tobacco use, severe sun exposure, and excessive dietary fat may prevent the onset or promotion of cancer. Also, increasing beneficial practices such as eating five servings of fruit or vegetables every day may help to prevent cancer. Early detection and treatment of cancer through established screening practices such as mammography, and colorectal screenings improve the survival rates and decrease mortality.

Wyoming Cancer Surveillance Program

Cancer is a reportable disease in Wyoming. State statute requires that physicians, hospitals, and laboratories report all cases of cancer they diagnose or treat in Wyoming to the Cancer Surveillance Program (WCSP), which serves as the state's central cancer registry. The purpose of the registry is to gather data to determine cancer incidence, mortality, treatment, and survival in Wyoming. Through special interstate agreements, information on Wyoming residents diagnosed or treated in other states is included in the program's database.

Insuring accurate data is one of the most important roles of the cancer registry. The WCSP established procedures for both automated and manual methods of checking the quality of data. The data is stored in the Rocky Mountain Cancer Data Systems software which has a built-in system to immediately check data when a new case is entered into the database. Each case submitted is reviewed for accuracy and completeness in compliance with data collection standards from the National Program of Cancer Registries and the American College of Surgeons.

The data are used by a variety of health professionals and others concerned about cancer. Within the Wyoming Department of Health (WDH), the data are used to monitor early detection, to determine year-to-year trends that develop, and to determine how Wyoming compares to the rest of the nation. The WDH uses the data to plan and evaluate the effectiveness of its cancer control programs such as the Breast and Cervical Cancer Early Detection Program, and the Wyoming Colorectal Cancer Screening Program. Outside of the WDH, the data are used by physicians, hospital administrators, legislators, non-profit organizations, and the general public. Anyone with a concern about cancer or who would like more information about cancer in a community should call the Wyoming Cancer Surveillance Program's Epidemiologist at 307-777-8654. Written correspondence should be addressed to 122 West 25th Street, 3rd Floor West, Cheyenne, WY 82002. Information is also available at: <https://health.wyo.gov/publichealth/chronic-disease-and-maternal-child-health-epidemiology-unit/cancer-surveillance/>

METHODOLOGY and DEFINITIONS

Data Sources

Incidence

Definition -- Incidence is defined as the number of *new* cases diagnosed during a set time period in a defined population. Incidence is not a representation of risk. The defined time period for this report is 2018 except for the 12-year incidence trend, which used 3-year averages (e.g., 2001-2003 for 2002 or 2005-2007 for 2006). The defined population is the state of Wyoming, Wyoming counties, and Cancer Health Districts (CHD) (see page 13).

Wyoming Data -- The Wyoming Cancer Surveillance Program (WCSP) gathers data on Wyoming residents diagnosed and treated for invasive and in situ tumors. The data is sent to the program's registry by every hospital in the state. Data are also collected from pathology laboratories, clinics, and physician offices throughout the state. The registry has several data exchange agreements with other state registries to enable collection of data on Wyoming residents diagnosed and/or treated outside of Wyoming. Wyoming data for this report includes 2017 cancer cases among Wyoming residents received by WCSP as of July 1, 2020.

National Data -- The National Cancer Institute (NCI) updates cancer statistics annually in a publication called the Surveillance, Epidemiology, and End Results (SEER) Cancer Review, also available on-line. NCI monitors cancer statistics to assess progress and to identify population subgroups and geographic areas where cancer control efforts need to be concentrated. Cancer incidence rates are calculated using SEER software. WCSP used SEER*STAT for this report. **The national SEER rates presented in this report were calculated using 2017 data for whites.** See Appendix A for reference source.

Mortality

Definition -- Mortality is defined as the number of persons who have died during a set time period in a defined population. The time period for this report is the calendar year 2017 for Wyoming rates. The defined population is the state of Wyoming, Wyoming counties, and Cancer Health Districts (see page 13).

Wyoming Data -- Mortality data are derived from death certificates filed with Wyoming Vital Statistics Services. By state statute, the certification of the cause of death on the death certificate is completed by the attending physician or by the coroner with the assistance of a physician. Although a number of medical conditions may be listed on the certificate, statistics presented here are based solely on the underlying cause of death. This is defined as the disease or injury that initiated the sequence of events leading directly to death or as the circumstances of the accident or violence that produced the fatal injury. The primary underlying cause is selected and classified based upon the regulations of the World Health Organization.

National Data -- The National Center for Health Statistics (NCHS), a division of the U.S. Centers for Disease Control and Prevention (CDC), provides statistical information including the number of cancer deaths in the United States. United States cancer mortality data is available from SEER*STAT, an interactive CD-ROM. WCSP used SEER*STAT for this report. **The national SEER rates presented in this report were calculated using 2017 data for whites.** See Appendix A for reference source.

Population

Wyoming Data -- Population estimates for Wyoming state and counties were obtained from the Centers for Disease Control and Prevention (CDC) Wonder website for Bridged-Race Population Estimates for 2017. Population numbers were broken down by county, age-group, sex, race, and ethnicity. Because cancer rates are calculated by dividing the number of cancer cases by a census-generated denominator, rates can be heavily influenced by changes or uncertainties in census counts.

Rates

Age-Adjusted Incidence Rates

Incidence rates include 2018 invasive cases among Wyoming residents, except for bladder cancer which also includes in situ cases. Incidence rates presented are calculated for total cases and separately for males and females. The incidence rates are age-adjusted to the 2000 U.S. standard population using nineteen age groups, and are per 100,000 population. Age-adjustment allows rates to be compared over different time frames and allows rates from one geographic area to be compared with rates from another geographic area that may have differences in age distributions. Any observed differences in age-adjusted incidence rates are not due to differing age structures.

In conformity with the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program guidelines, the incidence rates excluded the following:

- in situ cases (except bladder cancer)
- basal and squamous cell skin cancer
- cases with unknown age
- cases with unknown gender

Age-Adjusted Mortality Rates

Mortality rates presented are calculated for total cases and separately for males and females. The mortality rates are age-adjusted to the 2000 U.S. standard population using 5-year age groups and are per 100,000 population. Age-adjustment allows rates to be compared over different time frames and allows rates from one geographic area to be compared with rates from another geographic area that may have differences in age distributions. Any observed differences in age-adjusted incidence rates are not due to differing age structures.

Age-Specific Incidence Rates

An age-specific rate is the rate of cancer found within a certain age group. Age-specific incidence rates were calculated using 5-year age groups and total population (both genders combined). They are reported per 100,000 population.

Statistical Significance

Z-Statistic

A Z-statistic is used to compare two different rates. This is defined as “the difference between two population proportions.” Statistical significance was found if the calculated Z-statistic was found to be greater than 1.65. This provides the equivalence of a 95% confidence interval (see below) and is indicated in the report as “statistically significant” or “significant.” The formula used can be found in most statistics books or by calling the WDH Chronic Disease Epidemiologist at (307) 777-8654.

Confidence Intervals

A confidence interval indicates the confidence level in the accuracy of a cancer rate. For example, if you calculate a cancer rate for a particular year as 130 cases per 100,000 people, with a confidence interval of 120 to 140 cases per 100,000, this means that you are 95% sure that the rate of cancer for that particular year lies somewhere between 120 to 140 cases per 100,000 people. The rate of 130 cases may in fact be correct, but you have more confidence that the “true” rate lies between 120 to 140 cases.

Confidence intervals are also used as a way to test statistical significance. If the confidence intervals of two different rates overlap one another, then there is no difference between the two rates. However, if the confidence intervals do not overlap one another, there is statistical significance. This is indicated in the report by the terms “statistically significant” or “significant.”

Staging

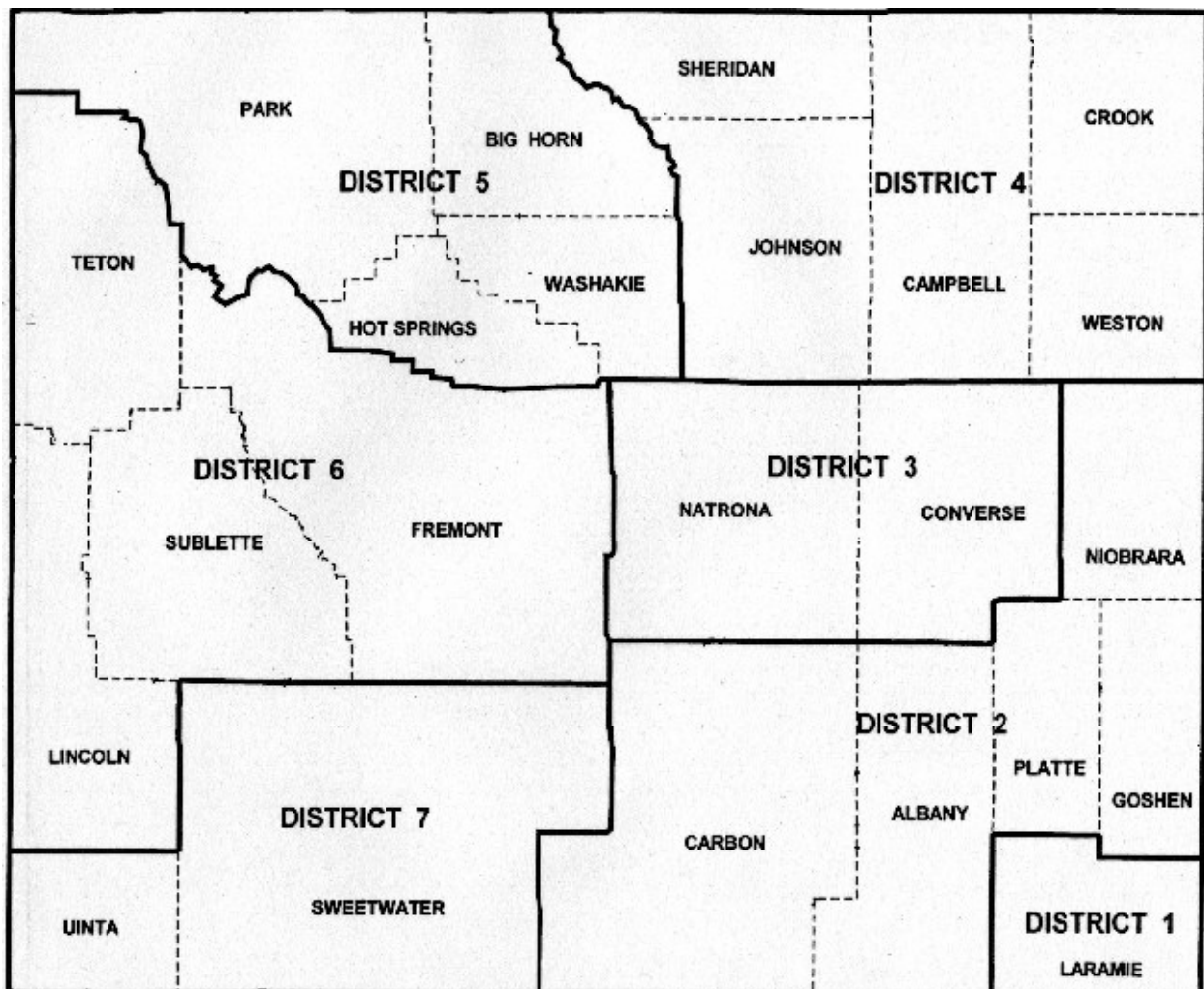
<u>In Situ</u>	cancer has not invaded the organ.
<u>Local Stage</u>	cancer has invaded the organ of origin.
<u>Regional Stage</u>	cancer has invaded beyond the organ of origin by direct extension to adjacent organs/tissues and/or regional lymph nodes.
<u>Distant Stage</u>	direct extension beyond adjacent organs or tissues or metastases to distant site(s) or distant lymph nodes.
<u>Unstaged</u>	extent of disease or primary site cannot be determined.

Note: Starting in 2004, the WCSP and other cancer registries belonging to the National Data Standard setters adopted and began using the Collaborative Staging Method for staging cancer cases. This method utilizes a new type of algorithm that provides more information concerning the size and extent of the cancer, as well as the number of nodes involved.

Cancer Health District

Cancer Health Districts (CHDs) were chosen based on geographic location, similarities in geography and by population size. Also taken into consideration were areas of the state that are routinely grouped for data requests and/or cancer cluster studies. This created seven CHDs that were similar in population size thereby eliminating some of the discrepancies in rate calculations that are caused from population size differences. CHDs are used when county data is too sparse to calculate accurate rates.

- CHD 1 Laramie County
- CHD 2 Albany County, Carbon County, Goshen County, Niobrara County, Platte County
- CHD 3 Converse County, Natrona County
- CHD 4 Campbell County, Crook County, Johnson County, Sheridan County, Weston County
- CHD 5 Big Horn County, Hot Springs County, Park County, Washakie County
- CHD 6 Fremont County, Lincoln County, Sublette County, Teton County
- CHD 7 Sweetwater County, Uinta County



State of Wyoming - 2018

Cancer Incidence and Mortality by Gender and Age (All Sites)
Cancer Incidence and Mortality by Race and Ethnicity (Top 15 Sites)

Wyoming Cancer Incidence¹ for 2018: Cases by Gender and Age (All Sites)

	Male	Female	Total	00-04	05-09	10-14	15-19	20-24	25-29	30-34
Anus	1	7	8	0	0	0	0	0	0	0
Bladder w/ in situ	112	28	140	0	0	0	0	0	1	0
Bones and Joints	3	4	7	0	0	0	3	0	0	2
Brain	12	19	31	1	0	1	0	1	2	2
Breast	5	406	411	0	0	0	0	0	2	5
Cervix	0	31	31	0	0	0	0	0	2	3
Colorectal	130	109	239	0	0	0	1	0	1	4
Esophagus	23	5	28	0	0	0	0	0	0	0
Eye	2	3	5	2	0	0	0	0	0	0
Gallbladder	2	4	6	0	0	0	0	0	0	0
Hodgkin	7	5	12	0	0	2	1	1	0	0
Ill-Defined	46	44	90	1	1	1	0	3	0	0
Kidney	69	32	101	2	0	0	0	0	0	2
Larynx	13	5	18	0	0	0	0	0	1	0
Leukemia	44	27	71	1	2	0	1	0	1	0
Liver	23	4	27	0	0	0	0	0	0	0
Lung	131	144	275	0	0	0	0	0	0	0
Melanoma	105	75	180	0	0	0	1	0	2	4
Myeloma	17	12	29	0	0	0	0	0	0	0
Nasal	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	60	59	119	1	0	1	1	0	1	1
Oral Cavity	40	21	61	0	0	0	0	1	0	0
Other Biliary	3	6	9	0	0	0	0	0	0	0
Other Digestive	3	6	9	0	0	0	0	0	0	0
Other Endocrine	5	2	7	0	0	0	0	0	0	0
Other Female	0	15	15	0	0	0	0	0	0	0
Other Male	2	0	2	0	0	0	0	0	0	0
Other Skin	4	8	12	0	0	0	0	0	0	0
Other Respiratory	1	0	1	0	0	0	0	0	0	1
Other Urinary	2	0	2	0	0	0	0	0	0	0
Ovary	0	30	30	0	0	0	0	0	0	1
Pancreas	36	34	70	0	0	0	0	0	1	0
Prostate	473	0	473	0	0	0	0	0	0	0
Small Intestine	10	7	17	0	0	0	0	0	0	0
Soft Tissue including Heart	13	6	19	0	0	0	0	0	1	1
Stomach	25	8	33	0	0	0	0	0	0	0
Testis	18	0	18	0	0	0	0	3	1	1
Thyroid	25	65	90	0	0	0	3	1	10	11
Uterine	0	89	89	0	0	0	0	0	0	0
Mesothelioma	4	1	5	0	0	0	0	0	0	0
All Sites	1,469	1,321	2,790	8	3	5	11	10	26	38

¹ See page 10 for a definition of incidence.

	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Anus	0	0	0	1	0	4	2	1	0	0	0
Bladder w/ in situ	0	1	2	4	10	10	25	24	16	24	23
Bones and Joints	0	0	0	0	0	1	1	0	0	0	0
Brain	1	0	2	1	3	3	8	1	3	2	0
Breast	10	21	26	35	49	67	69	51	29	22	25
Cervix	5	3	0	3	3	3	1	3	4	1	0
Colorectal	4	6	12	19	24	24	39	34	33	23	15
Esophagus	0	1	0	2	6	2	6	4	4	1	2
Eye	0	0	0	1	0	1	0	0	0	0	1
Gallbladder	0	0	0	0	0	0	2	0	0	0	4
Hodgkin	1	0	2	0	1	1	0	2	1	0	0
III-Defined	0	3	2	2	7	8	8	16	11	13	14
Kidney	2	6	2	11	11	13	15	15	7	9	6
Larynx	0	0	1	1	6	4	2	3	0	0	0
Leukemia	1	2	1	3	4	9	10	15	4	12	5
Liver	0	0	0	2	3	9	5	1	1	3	3
Lung	0	2	4	11	15	42	49	55	44	29	24
Melanoma	4	14	6	9	18	25	27	26	20	12	12
Myeloma	0	1	1	2	3	6	5	7	3	0	1
Nasal	0	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	0	1	4	7	12	20	17	17	12	12	12
Oral Cavity	4	0	1	10	7	8	6	12	6	4	2
Other Biliary	0	0	1	0	1	0	2	3	2	0	0
Other Digestive	0	0	0	1	1	0	2	3	1	0	1
Other Endocrine	0	0	0	0	1	1	3	2	0	0	0
Other Female	0	1	1	1	5	1	1	2	2	1	0
Other Male	0	0	0	0	1	0	0	0	0	0	1
Other Skin	0	0	0	0	0	5	0	1	2	1	3
Other Respiratory	0	0	0	0	0	0	0	0	0	0	0
Other Urinary	0	0	0	0	0	0	0	1	0	0	1
Ovary	0	1	0	4	5	4	3	4	7	1	0
Pancreas	0	2	1	2	9	12	8	12	13	5	5
Prostate	0	1	4	7	67	83	146	83	44	22	16
Small Intestine	0	0	0	2	0	3	1	4	3	3	1
Soft Tissue including Heart	1	0	1	2	3	1	1	4	2	2	0
Stomach	1	1	1	2	2	4	3	6	6	3	4
Testis	1	3	5	1	1	0	2	0	0	0	0
Thyroid	10	1	9	7	10	5	9	4	6	1	3
Uterine	0	4	3	5	14	16	14	17	11	5	0
Mesothelioma	0	0	0	0	1	1	0	1	1	1	0
All Sites	45	75	92	158	303	396	492	434	298	212	184

Wyoming Cancer Mortality¹ for 2018: Deaths by Gender and Age (All Sites)

	Male	Female	Total	00-04	05-09	10-14	15-19	20-24	25-29	30-34
Anus	3	1	4	0	0	0	0	0	0	0
Bladder w/ in situ	26	8	34	0	0	0	0	0	0	0
Bones and Joints	2	2	4	0	0	0	0	0	0	0
Brain	21	14	35	1	0	0	0	0	1	0
Breast	3	70	73	0	0	0	0	0	1	0
Cervix	0	8	8	0	0	0	0	0	0	0
Colorectal	48	41	89	0	0	0	0	0	1	1
Esophagus	24	4	28	0	0	0	0	0	0	0
Eye	0	0	0	0	0	0	0	0	0	0
Gallbladder	1	1	2	0	0	0	0	0	0	0
Hodgkin	0	0	0	0	0	0	0	0	0	0
III-Defined	37	26	63	0	0	0	0	0	0	0
Kidney	13	13	26	0	0	0	0	1	0	0
Larynx	3	1	4	0	0	0	0	0	0	0
Leukemia	25	20	45	0	0	0	0	0	0	0
Liver	29	2	31	0	0	0	0	0	0	0
Lung	100	119	219	0	0	0	0	0	0	0
Melanoma	17	8	25	0	0	0	0	0	0	0
Myeloma	9	6	15	0	0	0	0	0	0	0
Nasal	2	1	3	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	18	14	32	0	0	0	0	0	0	0
Oral Cavity	13	4	17	0	0	0	0	0	0	0
Other Biliary	6	12	18	0	0	0	0	0	0	0
Other Digestive	0	2	2	0	0	0	0	0	0	0
Other Endocrine	3	0	3	0	1	0	0	0	0	0
Other Female	0	5	5	0	0	0	0	0	0	0
Other Male	0	0	0	0	0	0	0	0	0	0
Other Skin	2	1	3	0	0	0	0	0	0	0
Other Respiratory	1	0	1	0	0	0	0	0	0	0
Other Urinary	0	0	0	0	0	0	0	0	0	0
Ovary	0	23	23	0	0	0	0	0	0	0
Pancreas	47	30	77	0	0	0	0	0	0	0
Prostate	65	0	65	0	0	0	0	0	0	0
Small Intestine	1	2	3	0	0	0	0	0	0	0
Soft Tissue including Heart	5	6	11	0	0	0	0	0	0	0
Stomach	7	1	8	0	0	0	0	0	0	0
Testis	0	0	0	0	0	0	0	0	0	0
Thyroid	0	1	1	0	0	0	0	0	0	0
Uterine	0	13	13	0	0	0	0	0	0	0
Mesothelioma	4	1	5	0	0	0	0	0	0	0
All Sites	535	460	995	1	1	0	0	1	3	1

¹See page 10 for definition of mortality.

	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Anus	0	0	0	1	0	1	2	0	0	0	0
Bladder w/ in situ	0	0	0	0	2	5	8	7	3	5	4
Bones and Joints	0	0	0	1	0	0	0	2	1	0	0
Brain	2	1	2	3	2	8	3	4	1	2	5
Breast	1	2	3	4	1	8	9	8	11	11	14
Cervix	0	2	2	0	1	0	1	2	0	0	0
Colorectal	0	0	4	6	4	10	8	17	11	11	16
Esophagus	0	0	1	5	0	4	2	6	5	1	4
Eye	0	0	0	0	0	0	0	0	0	0	0
Gallbladder	0	0	0	0	0	0	1	0	0	0	1
Hodgkin	0	0	0	0	0	0	0	0	0	0	0
III-Defined	0	2	1	4	11	5	6	9	8	7	10
Kidney	0	0	0	1	7	4	3	1	3	2	4
Larynx	0	0	0	0	0	1	0	2	1	0	0
Leukemia	0	0	2	0	3	3	3	6	7	10	11
Liver	0	0	1	2	2	9	6	3	2	4	2
Lung	0	1	2	4	18	28	37	36	35	24	34
Melanoma	0	1	0	0	5	3	2	6	3	2	3
Myeloma	0	0	0	0	0	1	4	0	5	0	5
Nasal	0	0	0	0	0	0	0	1	0	0	2
Non-Hodgkin Lymphoma	0	0	0	1	3	0	4	6	5	8	5
Oral Cavity	0	1	0	0	0	5	3	3	2	1	2
Other Biliary	0	0	0	3	1	0	5	4	2	1	2
Other Digestive	0	0	0	0	0	0	0	0	1	1	0
Other Endocrine	0	1	0	0	0	0	1	0	0	0	0
Other Female	0	0	0	0	0	0	3	1	1	0	0
Other Male	0	0	0	0	0	0	0	0	0	0	0
Other Skin	0	0	0	0	0	1	1	0	0	0	1
Other Respiratory	0	1	0	0	0	0	0	0	0	0	0
Other Urinary	0	0	0	0	0	0	0	0	0	0	0
Ovary	0	0	0	2	2	4	0	6	5	4	0
Pancreas	0	0	1	3	2	11	7	17	16	9	11
Prostate	0	0	0	1	1	7	5	9	6	15	21
Small Intestine	0	0	0	0	0	0	0	1	0	1	1
Soft Tissue including Heart	0	1	0	1	0	3	1	2	0	3	0
Stomach	0	0	1	0	0	1	0	2	2	1	1
Testis	0	0	0	0	0	0	0	0	0	0	0
Thyroid	0	0	0	0	0	0	0	0	0	0	1
Uterine	0	0	1	1	1	3	3	2	1	1	0
Mesothelioma	0	0	0	0	0	0	0	0	3	2	0
All Sites	3	13	21	43	66	125	128	163	140	126	160

**Wyoming Cancer Incidence for 2018: Cases by Race and Ethnicity
(Top 15 Sites Only)**

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	2,790	2,709	16	36	9	20	100
Bladder	140	138	0	2	0	0	3
Brain	31	31	0	0	0	0	5
Breast (Female)	411	402	1	5	2	1	13
Colorectal	239	228	1	6	3	1	10
Kidney	101	97	3	1	0	0	6
Leukemia	71	68	0	1	0	2	2
Lung	275	270	0	2	0	3	12
Melanoma	180	180	0	0	0	0	0
Non-Hodgkin Lymphoma	119	114	3	1	0	1	1
Oral Cavity	61	57	0	2	0	2	1
Ovary	30	28	0	1	0	1	1
Pancreas	70	68	0	1	1	0	4
Prostate	473	465	4	2	0	2	9
Thyroid	90	85	1	4	0	0	5
Uterine	89	83	0	3	1	2	4

**Wyoming Cancer Mortality for 2018: Cases by Race and Ethnicity
(Top 15 Sites Only)**

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	995	966	7	18	4	0	62
Bladder	34	34	0	0	0	0	1
Brain/CNS	35	35	0	0	0	0	1
Breast (Female)	73	71	1	1	0	0	3
Colorectal	89	86	0	2	1	0	6
Kidney	26	24	0	2	0	0	2
Leukemia	45	42	0	3	0	0	5
Lung	219	216	0	2	1	0	11
Melanoma	25	25	0	0	0	0	0
Non-Hodgkin Lymphoma	32	32	0	0	0	0	2
Oral Cavity	17	16	0	1	0	0	1
Ovary	23	19	0	3	1	0	6
Pancreas	77	76	0	1	0	0	6
Prostate	65	63	2	0	0	0	2
Thyroid	1	1	0	0	0	0	0
Uterine	13	13	0	0	0	0	0

State of Wyoming - 2018

Top Cancer Sites by Gender and Age - Incidence and Mortality

Top Cancer Incidence - Site by Gender - 2018

Total		Male		Female	
Prostate	473	Prostate	473	Breast	406
Breast	411	Lung	131	Lung	144
Lung	275	Colorectal	130	Colorectal	109
Colorectal	239	Bladder/w in situ	112	Uterine	89
Melanoma	180	Melanoma	105	Melanoma	75

Top Incidence Sites by Age (Case count included only if more than 3 cases per cancer)

		<u>0-4</u>		<u>5-9</u>		<u>10-14</u>		<u>15-19</u>	
		Each site has less than 3 cases		Each site has less than 3 cases		Each site has less than 3 cases		Bone & Joints	3
								Thyroid	3
<u>20-24</u>		<u>25-29</u>		<u>30-34</u>		<u>35-39</u>		<u>40-44</u>	
Ill-defined	3	Thyroid	10	Thyroid	11	Breast	10	Breast	21
Testis	3			Breast	5	Thyroid	10	Melanoma	14
				Colorectal	4	Cervix	5	Colorectal	6
				Melanoma	4	Colorectal	4	Kidney	6
				Cervix	3	Melanoma	4	Uterine	4
<u>45-49</u>		<u>50-54</u>		<u>55-59</u>		<u>60-64</u>		<u>65-69</u>	
Breast	26	Breast	35	Prostate	67	Prostate	83	Prostate	146
Colorectal	12	Colorectal	19	Breast	49	Breast	67	Breast	69
Thyroid	9	Kidney	11	Colorectal	24	Lung	42	Lung	49
Melanoma	6	Lung	11	Lung	15	Melanoma	25	Colorectal	39
Testis	5	Oral	10	Uterine	14	Colorectal	24	Melanoma	27
<u>70-74</u>		<u>75-79</u>		<u>80-84</u>		<u>85+</u>			
Prostate	83	Lung	44	Lung	29	Breast	25		
Lung	55	Prostate	44	Bladder	24	Lung	24		
Breast	51	Breast	39	Colorectal	23	Bladder	23		
Colorectal	34	Colorectal	33	Breast	22	Prostate	16		
Melanoma	26	Melanoma	20	Prostate	22	Colorectal	15		

Top Cancer Mortality - Site by Gender - 2018

Total		Male		Female	
Lung	219	Lung	100	Lung	119
Colorectal	89	Prostate	65	Breast	70
Pancreas	77	Colorectal	48	Colorectal	41
Breast	73	Pancreas	47	Pancreas	30
Prostate	65	Ill-Defined	37	Ill-Defined	26

Top Mortality Sites by Age (Mortality count included only if 2 or more cases per cancer)

		<u>0-4</u>		<u>5-9</u>		<u>10-14</u>		<u>15-19</u>	
		Each site has less than 2 deaths		Each site has less than 2 deaths		Each site has less than 2 deaths		Each site has less than 2 deaths	
<u>20-24</u>		<u>25-29</u>		<u>30-34</u>		<u>35-39</u>		<u>40-44</u>	
Each site has less than 2 deaths		Each site has less than 2 deaths		Each site has less than 2 deaths		Brain/CNS	2	Breast	2
								Cervix	2
<u>45-49</u>		<u>50-54</u>		<u>55-59</u>		<u>60-64</u>		<u>65-69</u>	
Colorectal	4	Breast	4	Lung	18	Lung	28	Lung	37
Breast	3	Lung	4	Ill-defined	11	Pancreas	11	Breast	9
Brain/CNS	2	Ill-defined	4	Kidney	7	Colorectal	10	Bladder	8
Cervix	2	Brain/CNS	3	Melanoma	5	Brain/CNS	8	Colorectal	8
Leukemia	2	Pancreas	3	Colorectal	4	Breast	8	Pancreas	7
<u>70-74</u>		<u>75-79</u>		<u>80-84</u>		<u>85+</u>			
Lung	36	Lung	35	Lung	24	Lung	34		
Colorectal	17	Pancreas	16	Prostate	15	Prostate	21		
Pancreas	17	Breast	11	Breast	11	Colorectal	16		
Prostate	9	Colorectal	11	Colorectal	11	Breast	14		
Breast	8	Ill-defined	8	Leukemia	10	Leukemia & Pancreas	11		

**Relative Survival Rates State of Wyoming
2010-2018
All Sites and Top 15 Cancers**

Relative Survival by Cancer Type: 2010-2018 (All Ages and Stages Combined)

Cancer Site	12 Months	24 Months	36 Months	48 Months	60 Months
All Sites	83.90%	78.60%	75.90%	73.50%	72.30%
Bladder w/in situ	92.00%	87.10%	85.50%	84.50%	84.40%
Brain/CNS	57.80%	42.80%	37.90%	32.40%	30.30%
Breast (Female)	98.10%	97.10%	95.30%	94.20%	92.80%
Colorectal	84.60%	77.20%	73.20%	68.30%	65.00%
Kidney	89.30%	85.10%	83.50%	79.50%	78.00%
Leukemia	79.90%	73.60%	70.50%	66.50%	64.60%
Lung	47.70%	33.00%	27.40%	23.20%	21.20%
Melanoma	99.50%	98.30%	98.30%	97.70%	97.30%
Non-Hodgkin	84.30%	80.30%	78.50%	75.20%	74.30%
Oral Cavity	91.00%	83.70%	78.20%	74.30%	72.00%
Ovary	83.80%	71.20%	64.60%	57.40%	49.70%
Pancreas	31.80%	19.00%	15.70%	13.20%	13.20%
Prostate	99.60%	99.60%	98.90%	98.30%	98.30%
Thyroid	98.20%	98.00%	97.40%	97.40%	97.40%
Uterine	96.30%	92.60%	89.70%	87.90%	87.10%

Relative Survival by Cancer Type: 2010-2018 all stages (Ages 0-19 years old)

Cancer Site	12 Months	24 Months	36 Months	48 Months	60 Months
All Sites	96.40%	94.10%	93.40%	90.50%	89.30%
Brain/CNS	85.90%	78.60%	78.60%	67.30%	67.30%
Hodgkin Lymphoma	90.90%	90.90%	90.90%	90.90%	90.90%
Leukemia	97.70%	95.40%	92.70%	92.70%	92.70%
Soft Tissue, including Heart	100.00%	100.00%	100.00%	100.00%	100.00%
Testis	100.00%	100.00%	100.00%	100.00%	100.00%
Thyroid	100.00%	100.00%	100.00%	100.00%	75.10%

Note: Recurrent percentages across months are partly due to low numbers of cases in this age-group
NC—Not Calculated -

Relative Survival: is a net survival measure representing cancer survival in the absence of other causes of death. It is defined as the ratio of the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors in a comparable set of cancer-free individuals for a specific time period.

5-Year Survival: A 5-year (60 months) survival rate is important when discussing cancer because a person who is diagnosed with cancer (e.g., breast cancer) is considered “cured” if they can survive five years after treatment and they are found to have no other cancer. This does not mean that they may not develop another cancer after five years or even have a reoccurrence, but for the initial diagnosis they are considered “cured.”

Stage: Many factors play a part in the survival of a cancer patient including the stage at which the cancer is detected. Having a cancer diagnoses at an early stage (e.g., local or Stage I) generally results in a better survival prognosis than a cancer detected in its later stages (e.g., distant or Stage IV).

**Summary of
All Cancer Sites Combined
and
Top 15 Sites**

2018 Wyoming Incidence and Mortality Rates

All Cancer Sites

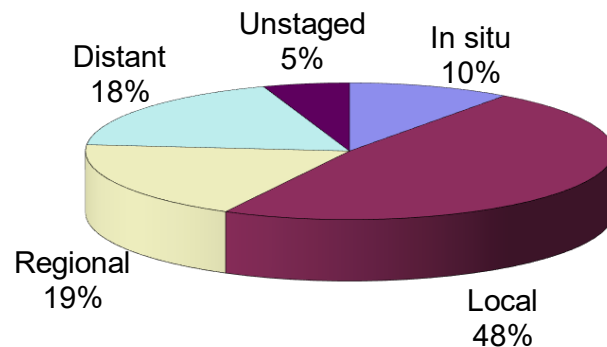
Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	1,469	1,321	2,790
In situ Cases	168	144	312
WY Incidence	412.3*	378.3	391.4*
US Incidence	471.6	422.4	440.8
Cancer Deaths	535	460	995
WY Mortality	160.1	125.4	140.6
US Mortality	182.1	132.2	153.6

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for Wyoming were all lower than the United States rates for 2018, with the rates for males and total population being statistically significant.

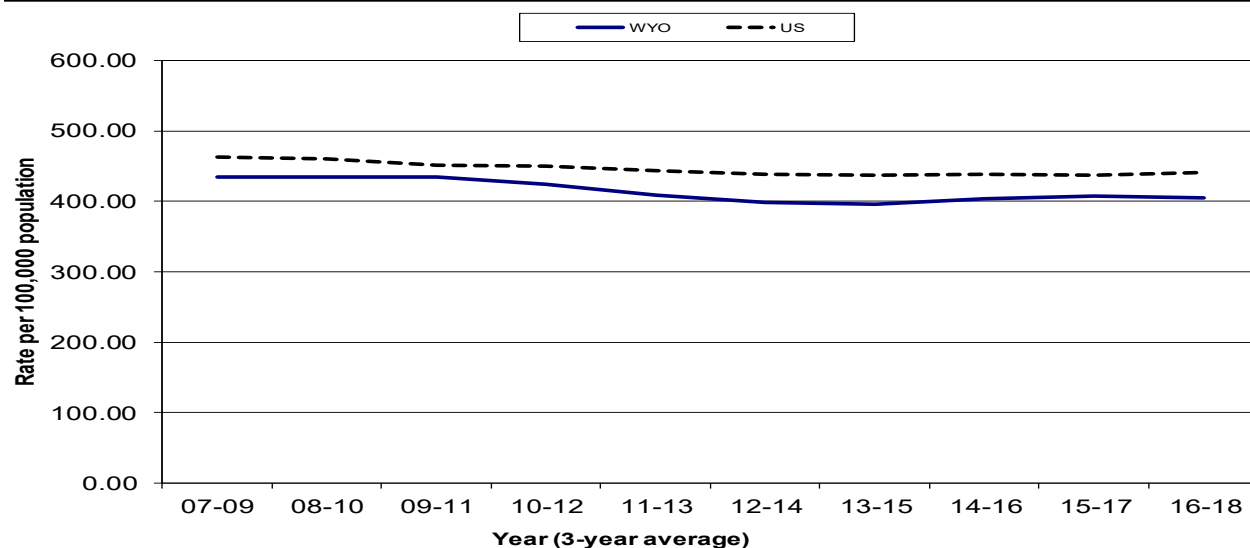
The 12-year incidence trend for Wyoming is level from 2011-2013 through 2016-2018. The national incidence trend also remains level.

The percent of cancers diagnosed as Local and Regional both saw a slight increase from 2017 (16% and 43%, respectively) while the percent of Unstaged cancers decreased from 2017 (11%).

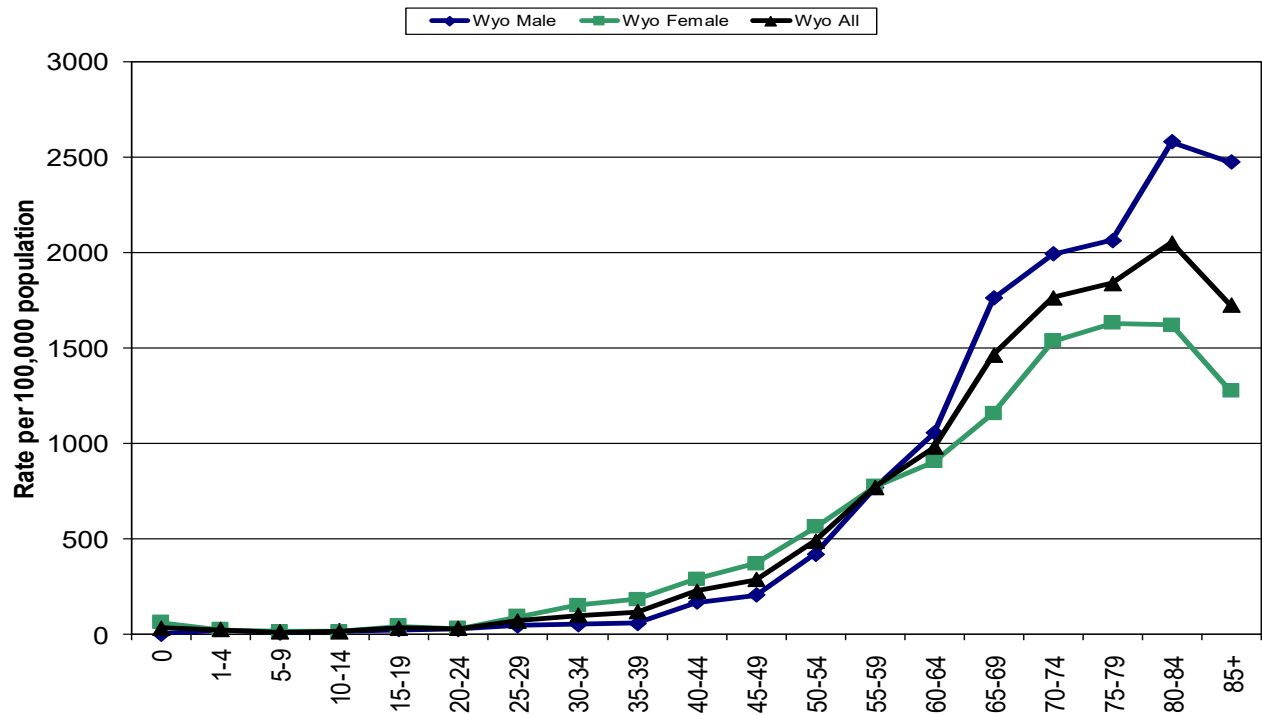
There were a total of thirteen cancers diagnosed in children under the age of 15 in 2018.

There were no significant differences between CHD rates for incidence or mortality.

12-Year Incidence Trend

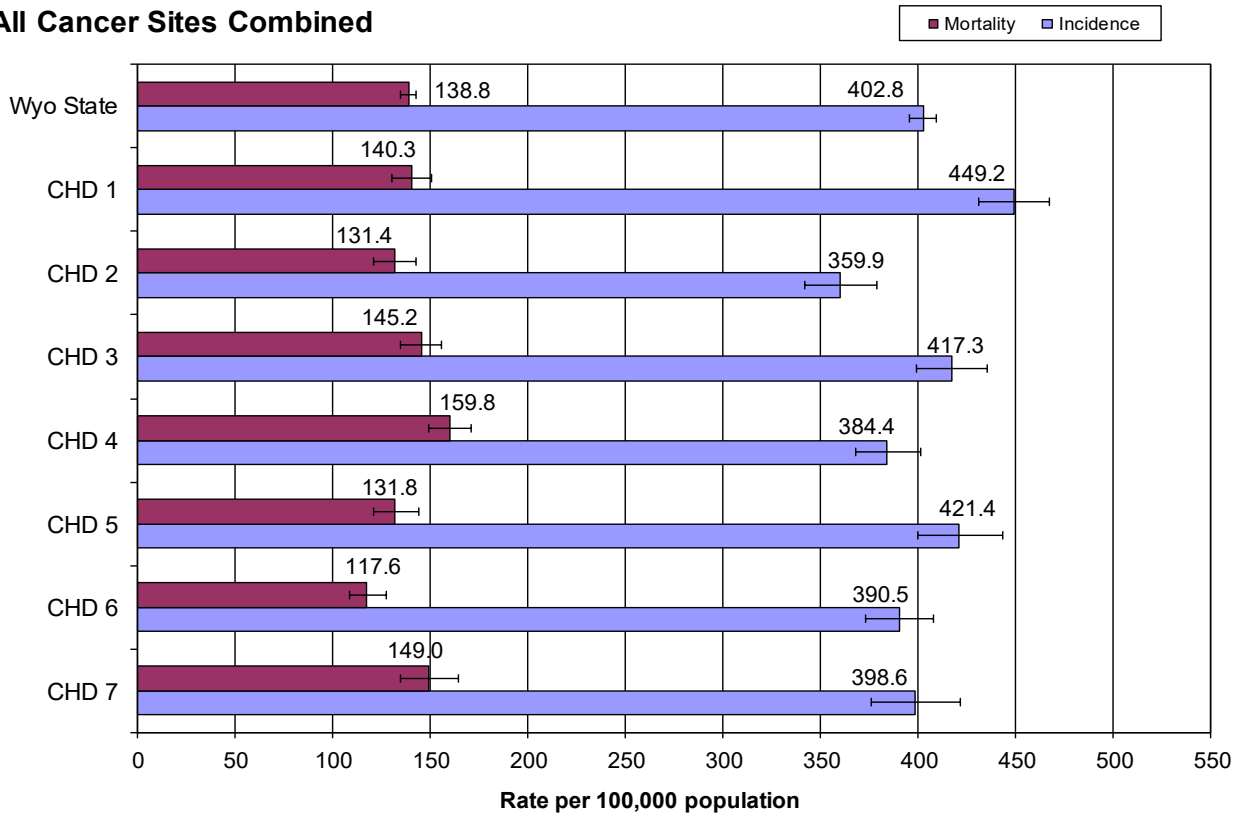


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

All Cancer Sites Combined



Bladder (Urinary)

includes In Situ Cases

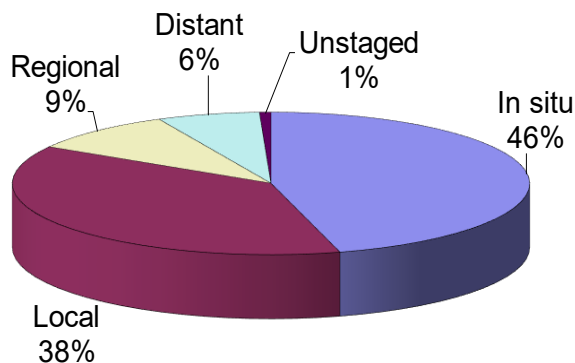
Incidence and Mortality Summary

	Male	Female	Total
All Cases	112	28	140
In situ Cases	54	15	69
WY Incidence	34.3	7.5	19.6
US Incidence	36.3	9.0	21.0
Cancer Deaths	26	8	34
WY Mortality	7.0	2.0	4.4
US Mortality	7.7	2.2	4.5

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for Wyoming were all lower than the national rates in 2018.

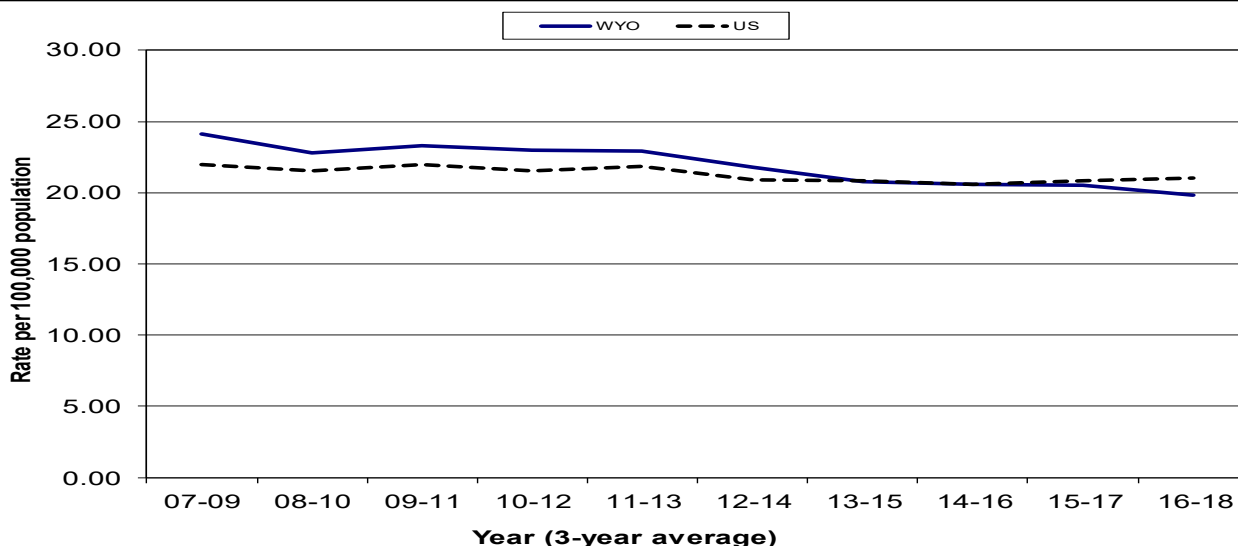
The incidence trend shows Wyoming dipping below the US from 2015-2017 to 2016-2018. This is the first time since 1996-1998 that the Wyoming trend has been lower than the national trend.

The percent of cancers diagnosed as In situ and Distant increase slightly from 2017 (42% and 4%, respectively) while the rest of the percentages were similar to 2017.

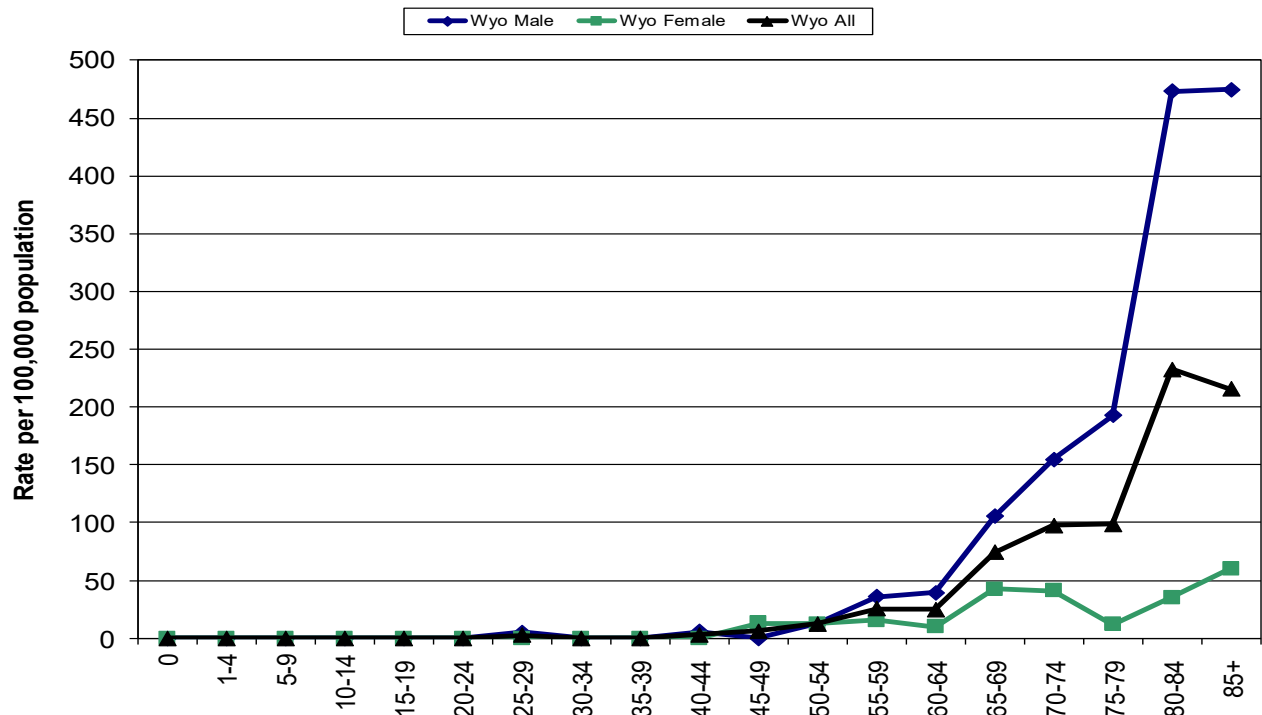
There was only one diagnosis of bladder cancer in a person under 40 years of age in 2018.

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

12-Year Incidence Trend

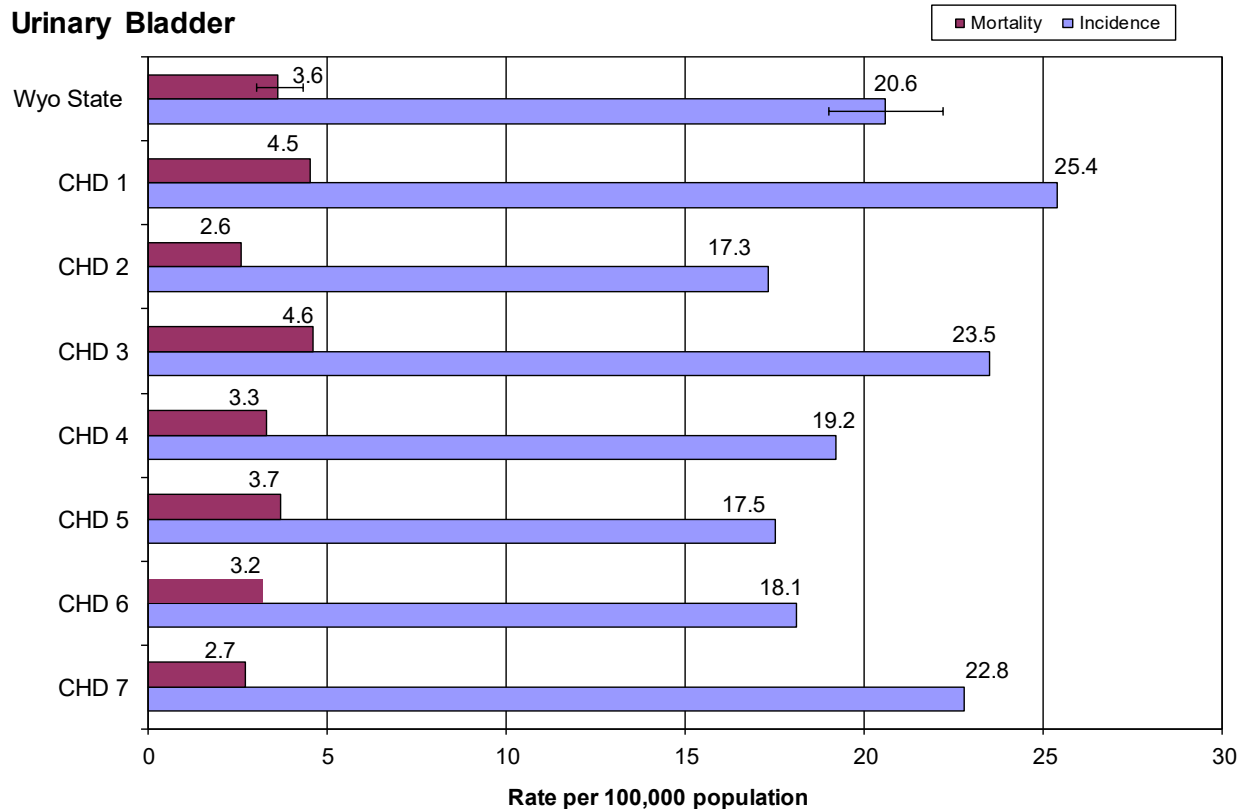


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Urinary Bladder



Brain/Central Nervous System (CNS)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	12	19	31
WY Incidence	3.2	5.8	4.5
US Incidence	8.0	5.7	6.8
Cancer Deaths	21	14	35
WY Mortality	6.7	3.8	5.1
US Mortality	5.8	3.9	4.8

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

The incidence rates for males and total population were both lower than the national rates, while the female rate was only one-tenth higher. However the reverse was true for mortality, with the rates for males and total population being higher than the national rates and the female rate being one-tenth lower.

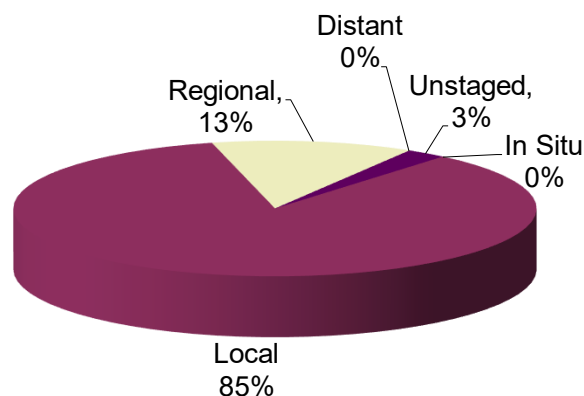
The 12-year trend shows a decrease from 2015-2017 to 2016-2018, while the national trend is heading upwards.

The percentage of cases diagnosed as Local increased significantly from 2017 (64%), while the number of cases classified as Unstaged decreased significantly from 2017 (31%).

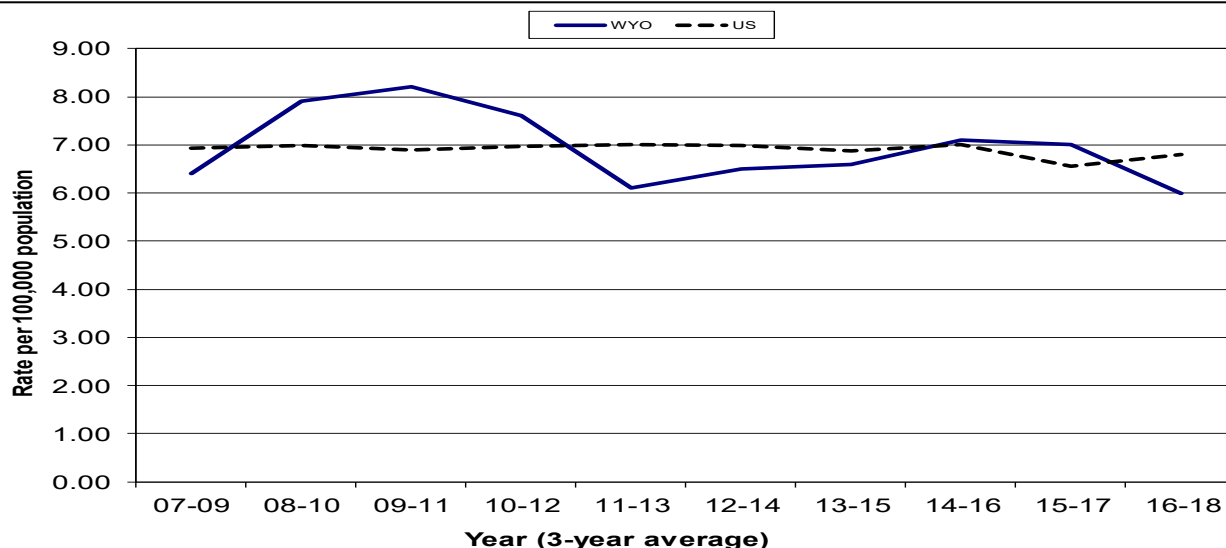
There were 59 benign brain tumors diagnosed in Wyoming in 2018.

No statistically significant differences were found between the CHD rates and the state rates.

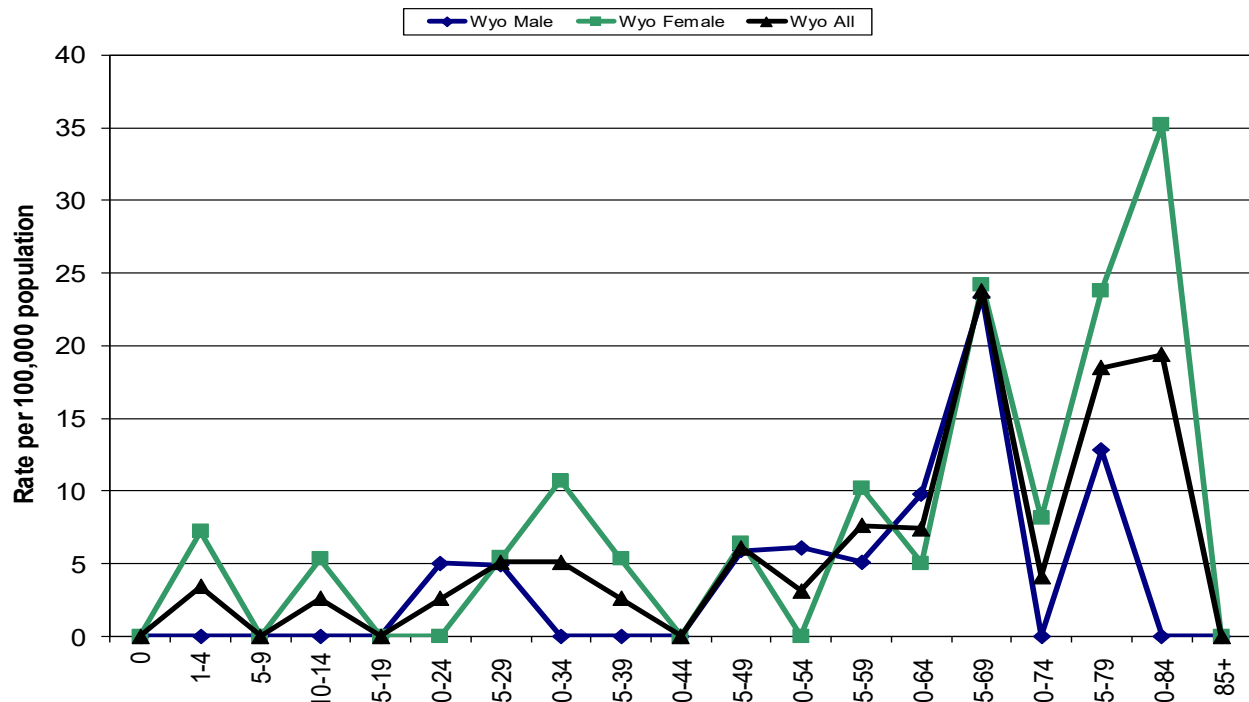
Stage at Diagnosis



12-Year Incidence Trend

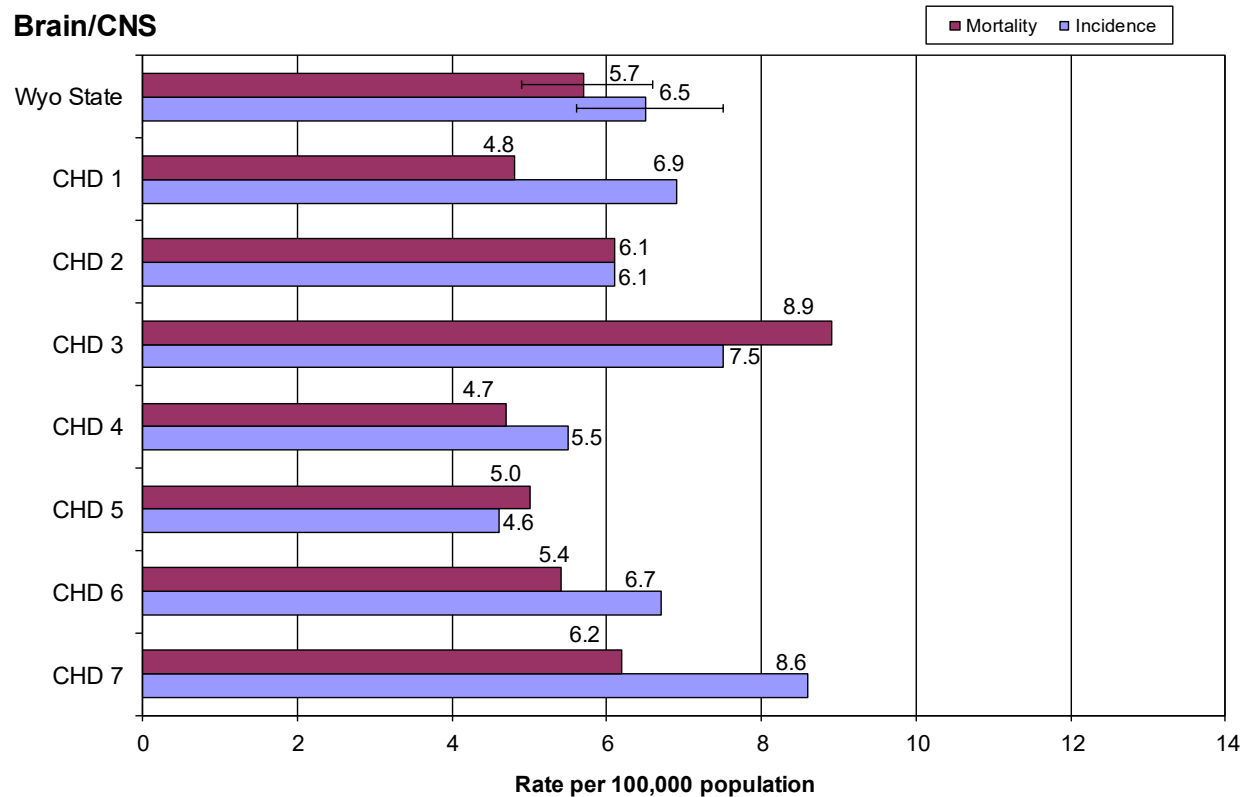


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Brain/CNS



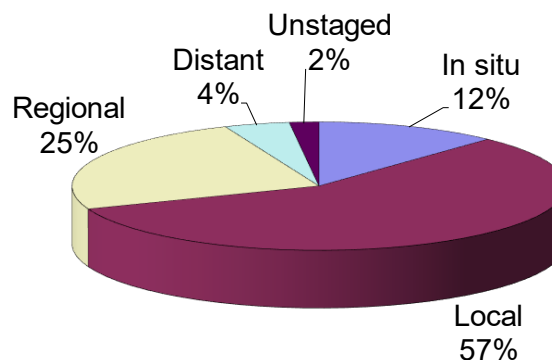
Breast (Female Only)

Incidence and Mortality Summary

	Female
Invasive Cases	406
In situ Cases	56
WY Incidence	116.4
US Incidence	131.0
Cancer Deaths	70
WY Mortality	19.9
US Mortality	19.4

* indicates the state rate is significantly different than the national rate
 NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rate Wyoming females continued to be lower than the national rate in 2018. The mortality rate for Wyoming was only a little higher than the national rate in 2018.

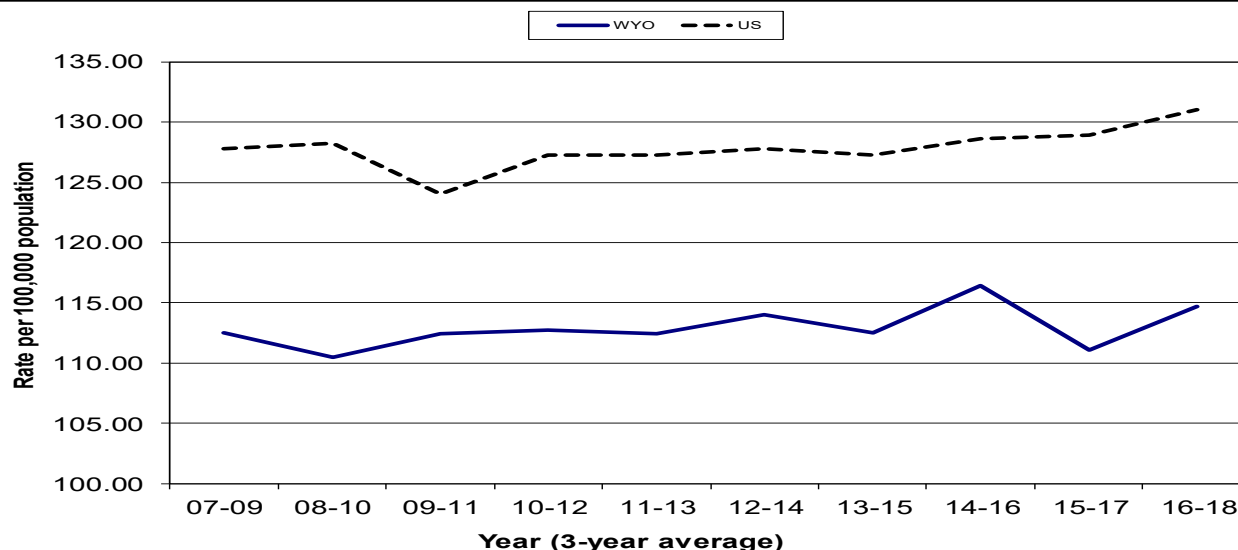
The 12-year incidence trend shows a sharp increase from 2015-2017 to 2016-2018, while the national rate continues an upwards trend that started in 2013-2015.

The percentage of cases diagnosed at each stage in 2018 is much the same as in 2017.

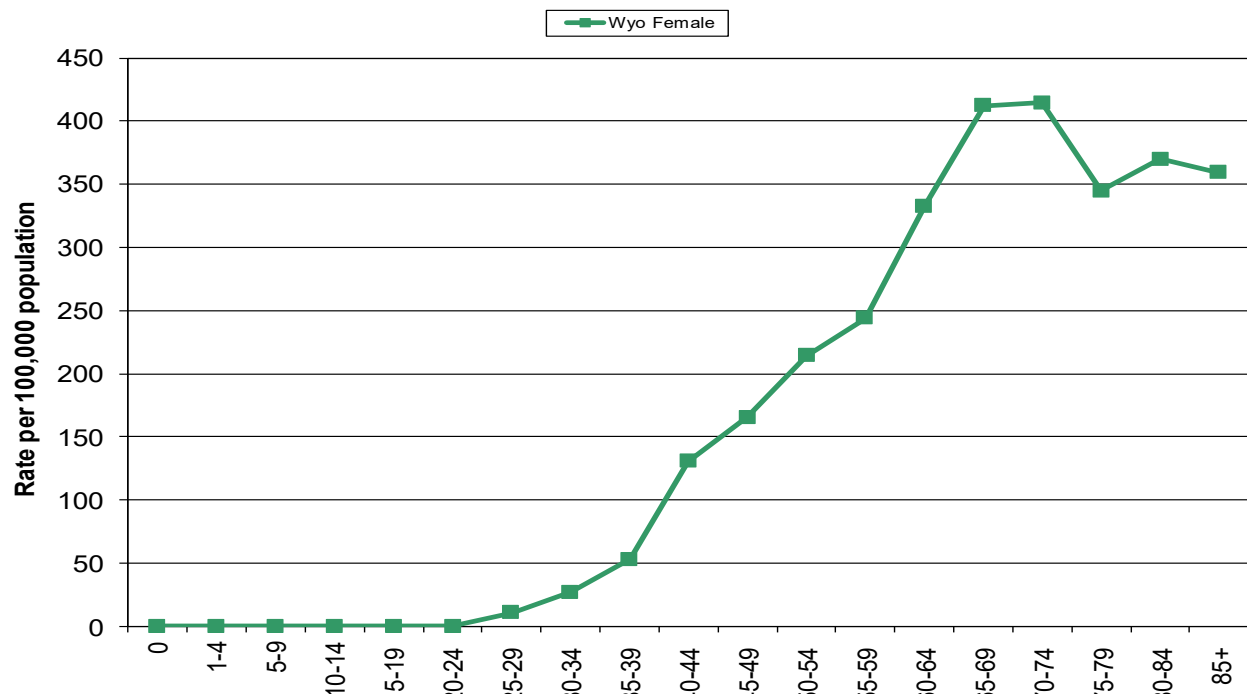
No statistically significant differences were found for incidence or mortality between CHDs, though CHD 5 and CHD 6 are both far ahead of the rest of the state in incidence.

There were five cases of invasive breast cancer and three deaths among Wyoming males in 2018.

12-Year Incidence Trend

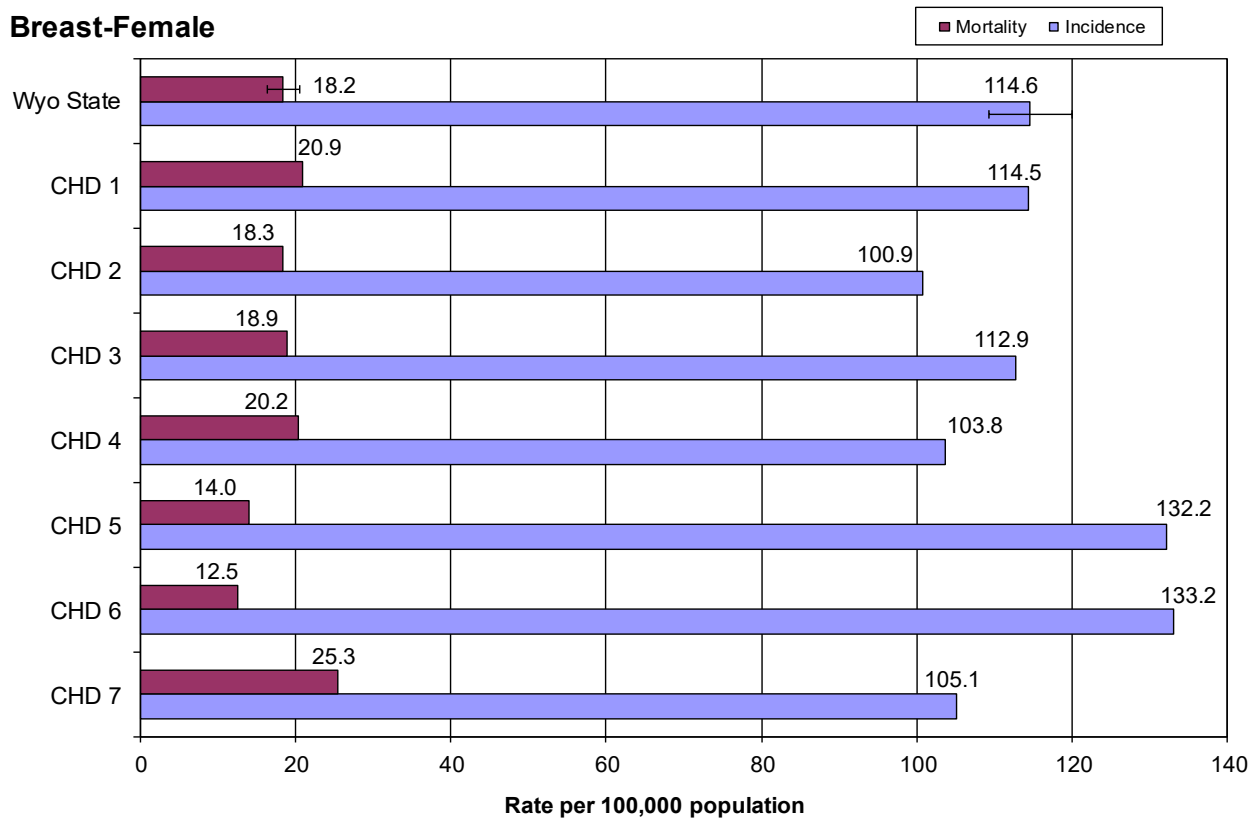


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Breast-Female



Colorectal

(Colorectal = Colon and rectum)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	130	109	239
WY Incidence	37.9	32.6	35.0
US Incidence	40.9	32.1	36.2
Cancer Deaths	48	41	89
WY Mortality	14.4	11.5	12.9
US Mortality	15.6	11.2	13.2

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

The incidence and mortality rates for Wyoming males and total population were both lower than the national rate, but females were slightly higher in both incidence and mortality.

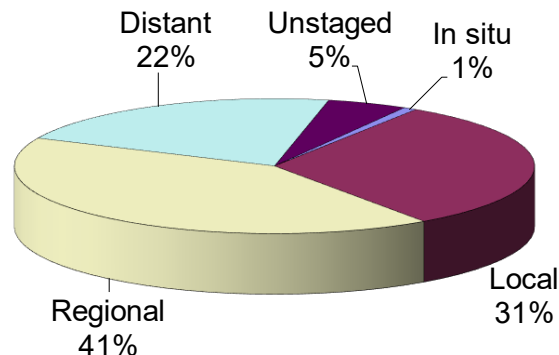
The 12-year incidence graph shows that the increasing trend for Wyoming catching the national trend that has been decreasing since 2013-2015.

The percentage of colorectal cancers diagnosed as Regional increased from 2017 (29%), while the Local category decreased (37%). The other stages were similar to 2017.

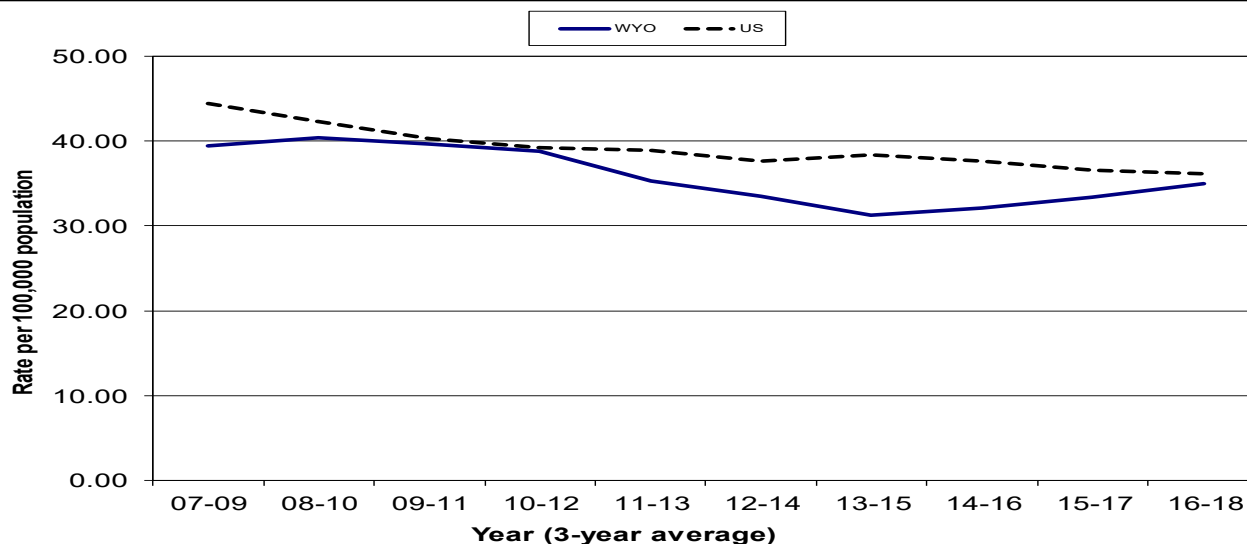
There were six cases diagnosed and two deaths in people under 35 years of age in 2018.

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

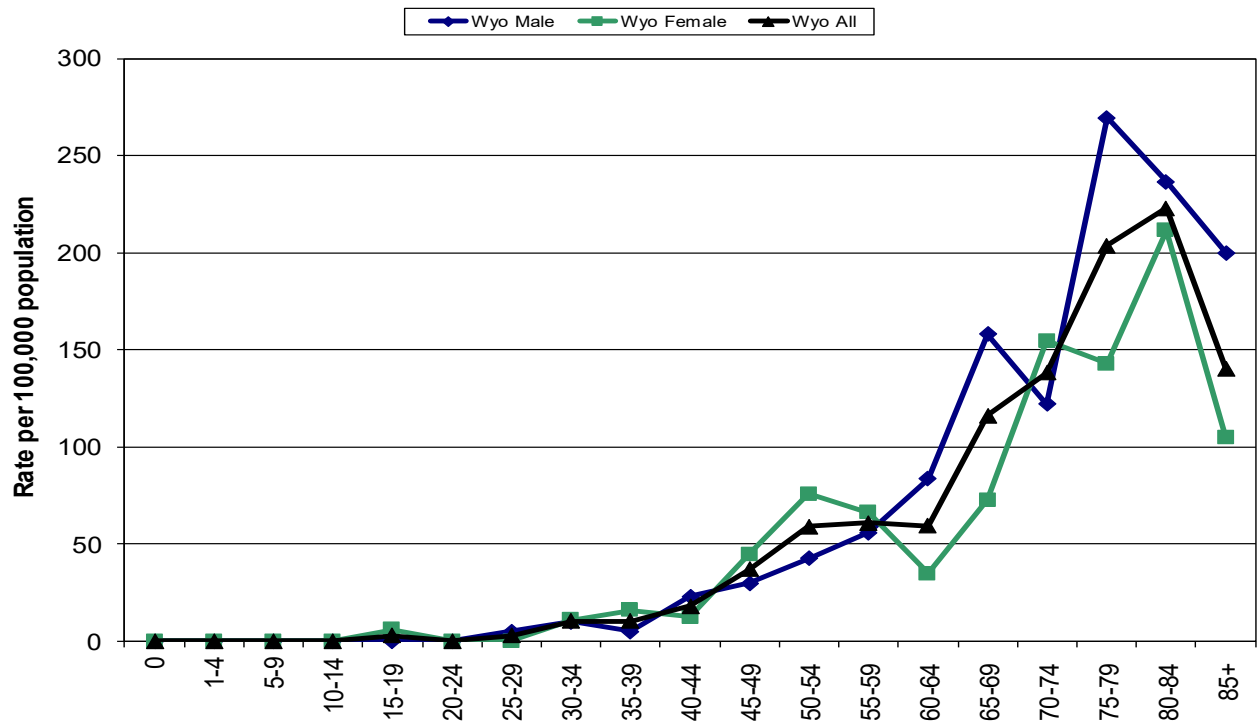
Stage at Diagnosis



12-Year Incidence Trend

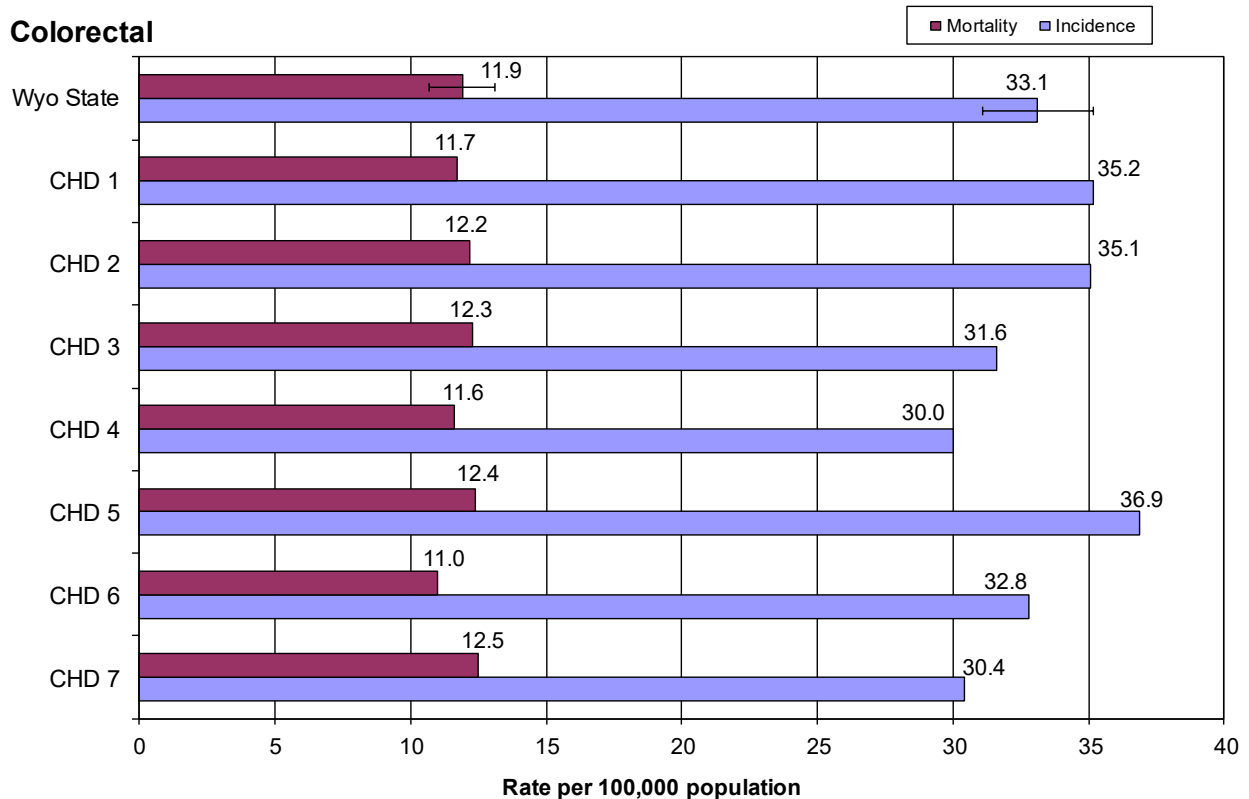


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Colorectal



Kidney/Renal Pelvis

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	69	32	101
WY Incidence	21.1	9.1	14.9
US Incidence	22.8	11.7	16.9
Cancer Deaths	13	13	26
WY Mortality	3.4	3.4	3.4
US Mortality	5.3	2.3	3.7

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

The incidence rates for each Wyoming population was lower than the national rate in 2018. The mortality rates for males and total population were both lower than the national rate, while the female rate was a bit higher than the national rate.

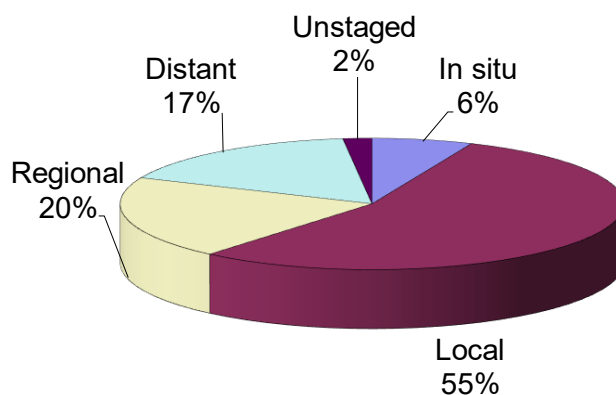
The 12-year trend shows a continuing increase that started in 2013-2015 for Wyoming. The national rate also increased a little from 2015-2017 to 2016-2018.

The percent of cases diagnosed as Local is down from 2017 (60%), while both Regional and In situ cases are up from 2017 (18% and 3% respectively).

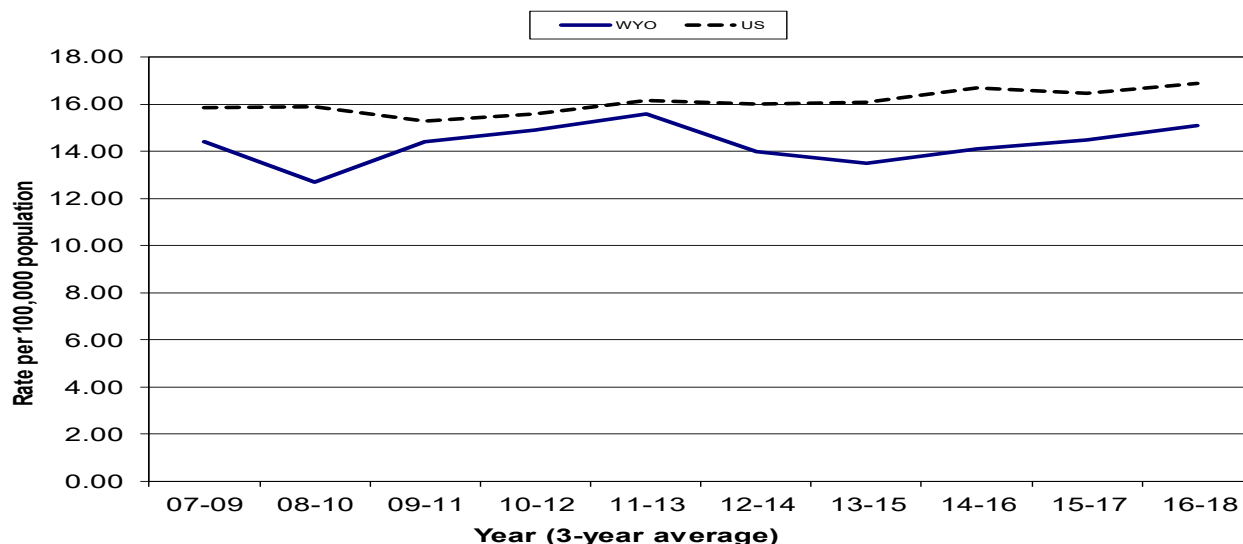
There were two cases diagnosed in persons under 5 years of age in 2018.

No statistically significant differences were found between the CHD rates and the state rates.

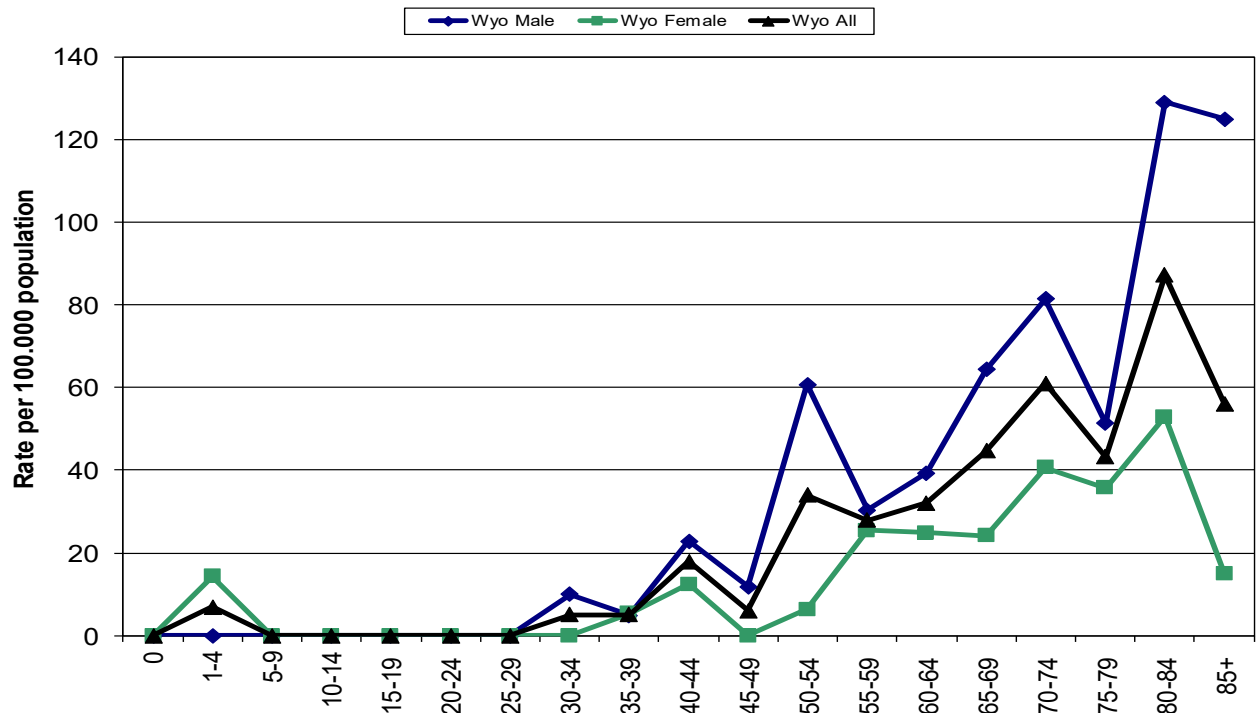
Stage at Diagnosis



12-Year Incidence Trend

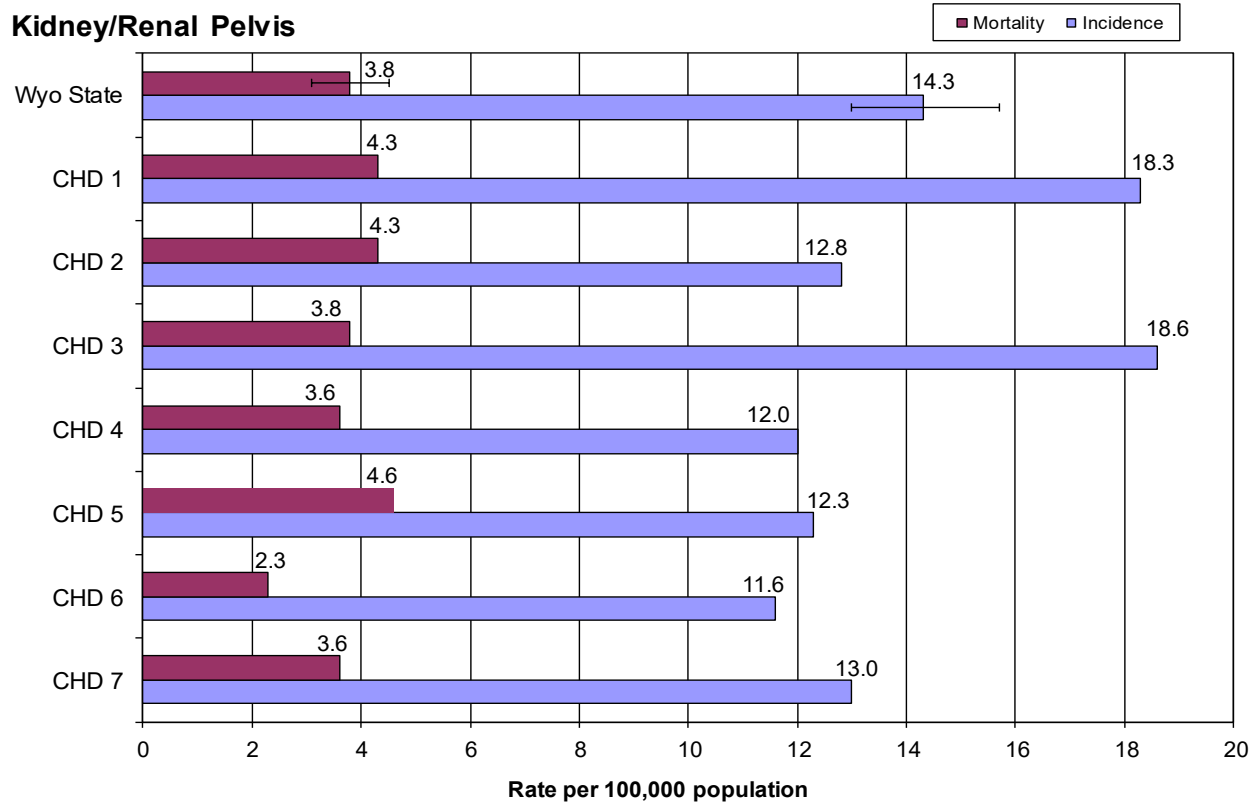


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Kidney/Renal Pelvis



Leukemia

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	44	27	71
WY Incidence	13.1	7.4	10.2
US Incidence	17.7	11.0	14.0
Cancer Deaths	25	20	45
WY Mortality	7.9	5.4	6.7
US Mortality	8.6	4.8	6.5

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

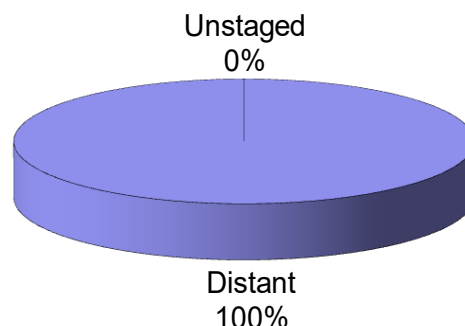
The incidence rates for leukemia in Wyoming for males, females, and total population were all lower than the national rates in 2018. The mortality rates for females and total population were higher than the national rates, while the rate for males was a bit lower than the national rate.

The incidence trend for Wyoming shows a decrease from 2015-2017, while the national rate remains flat and steady.

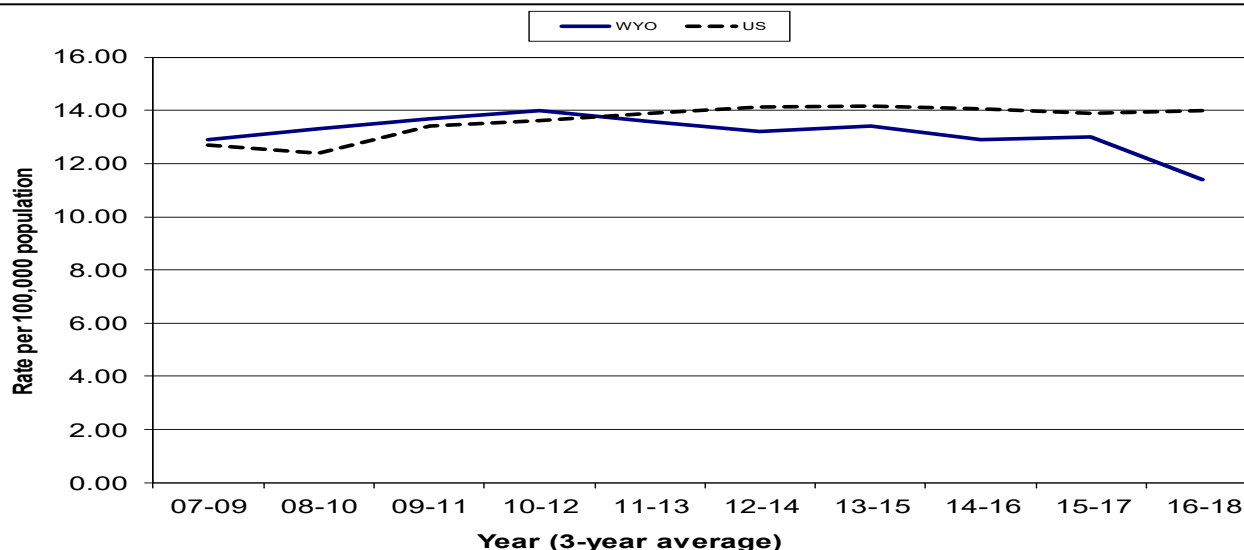
There were three cases of leukemia diagnosed in a child under 15 years of age in 2018.

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

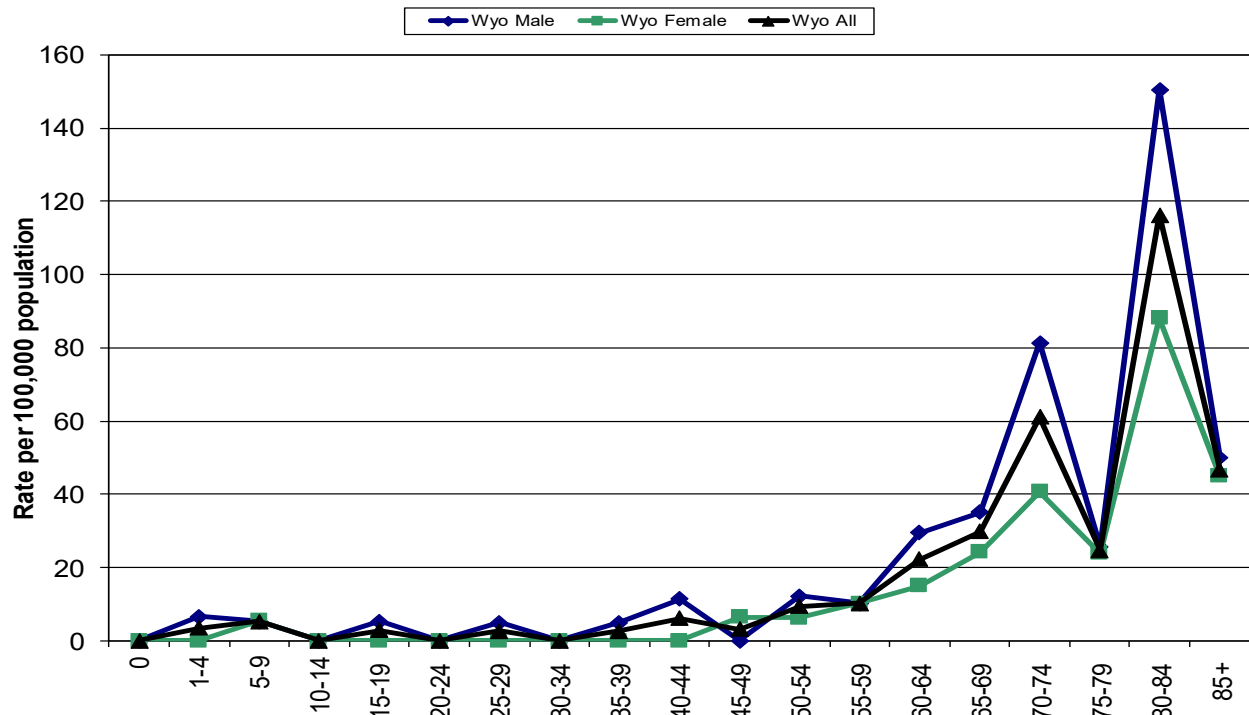
Stage at Diagnosis



12-Year Incidence Trend

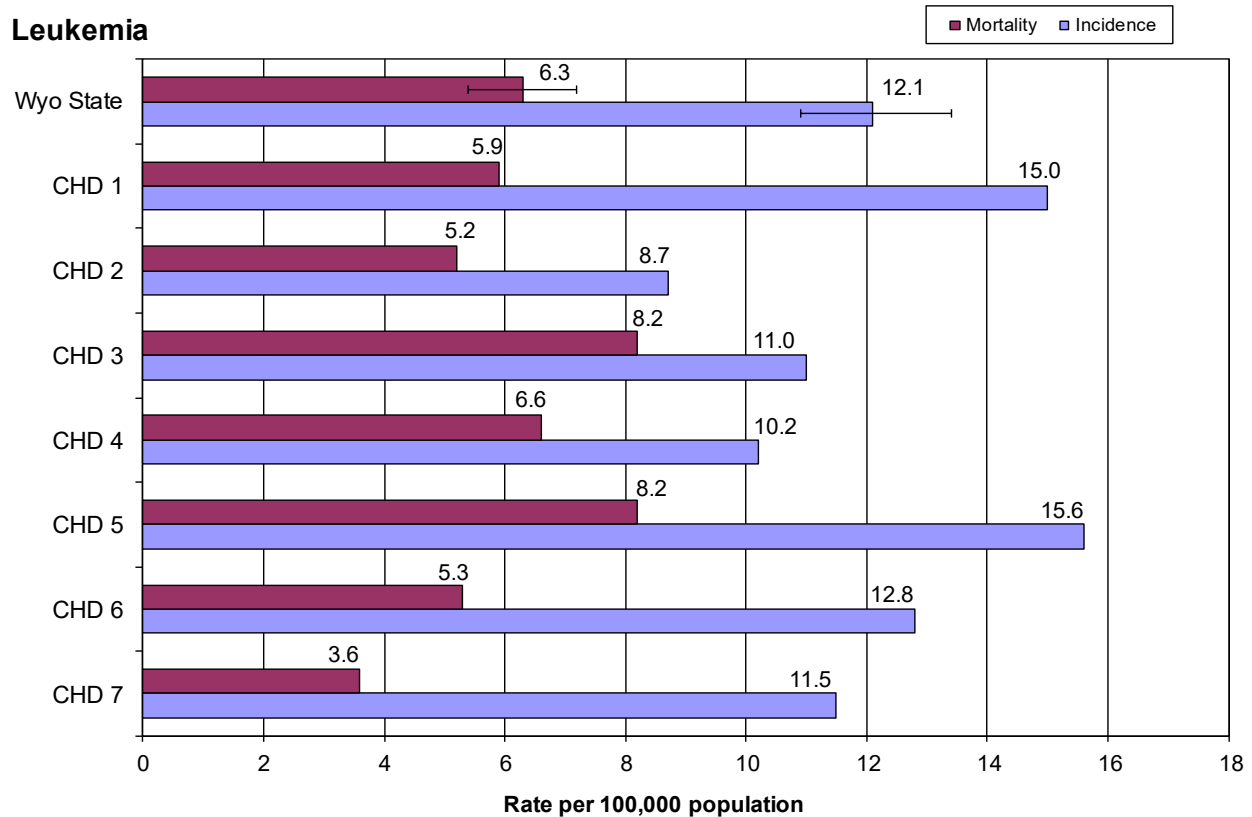


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Leukemia



Lung and Bronchus

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	131	144	275
WY Incidence	37.3*	38.2	37.3*
US Incidence	58.2	49.8	53.3
Cancer Deaths	100	119	219
WY Mortality	28.6*	30.7	29.7
US Mortality	44.7	31.9	37.5

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

Lung cancer incidence and mortality rates for males, females and total population in Wyoming were all lower than the national rates. The incident rates for males and total population and male mortality were statistically significant.

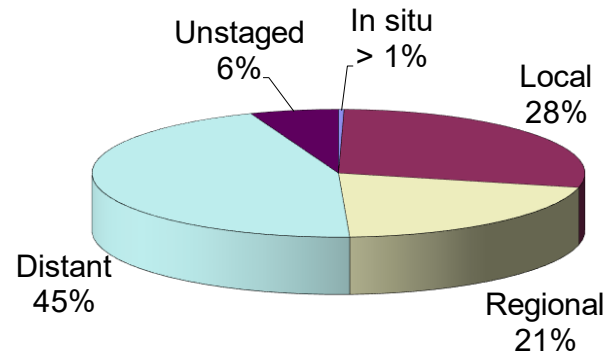
The 12-year incidence trend shows the rates for lung cancer in Wyoming continuing a downward trajectory that started in 2014-2016. Nationally, the trend seems to have leveled off.

The percent of cases diagnosed at each stage in 2018 is nearly identical to those in 2017, except for Local which increased from 2017 (24%).

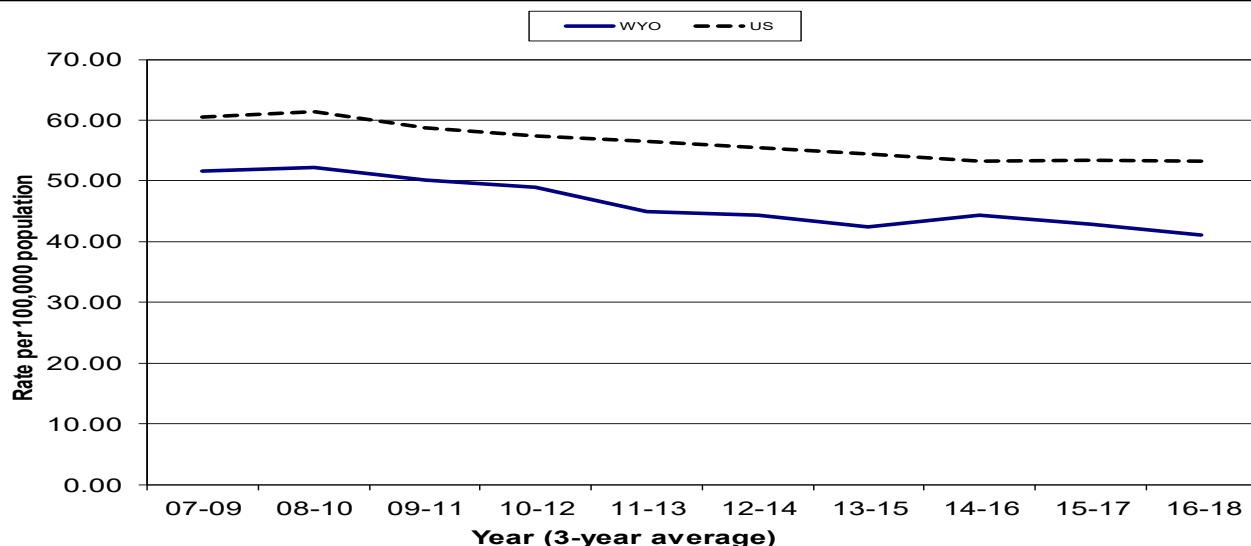
For the fourth time since 2001, more women were diagnosed with lung cancer than men in 2018.

No statistically significant differences were found between the CHD rates and the state rates.

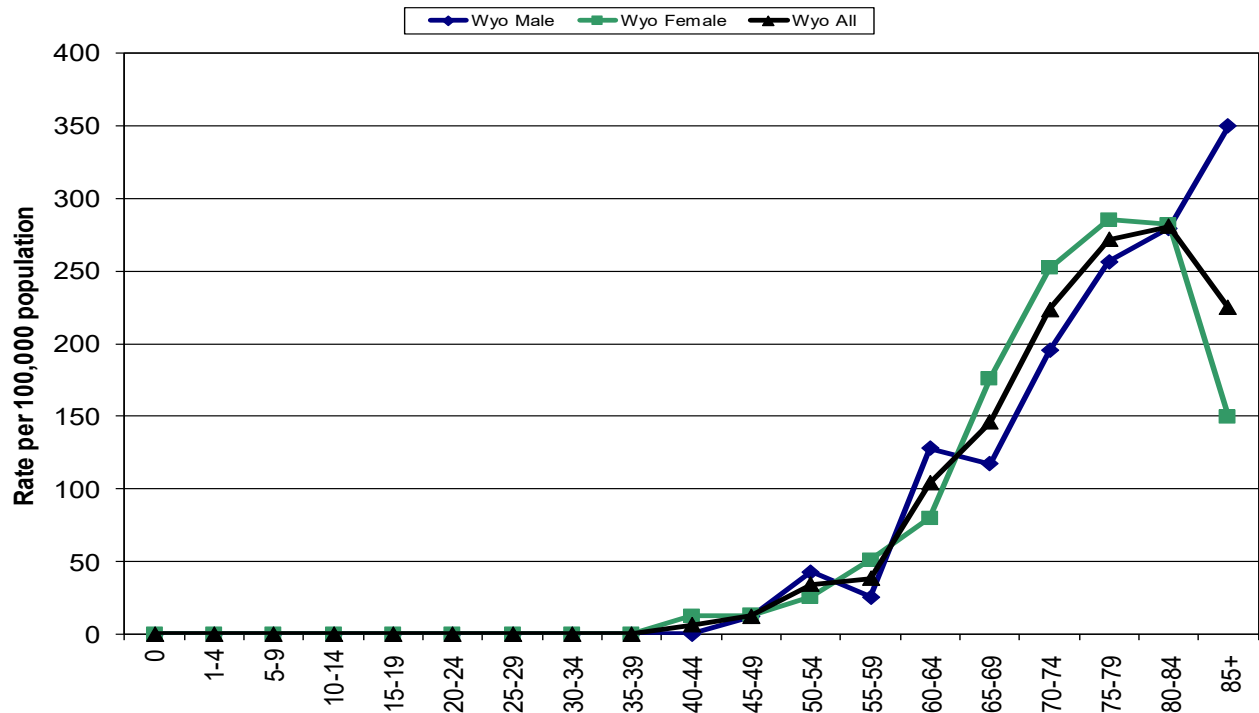
Stage at Diagnosis



12-Year Incidence Trend

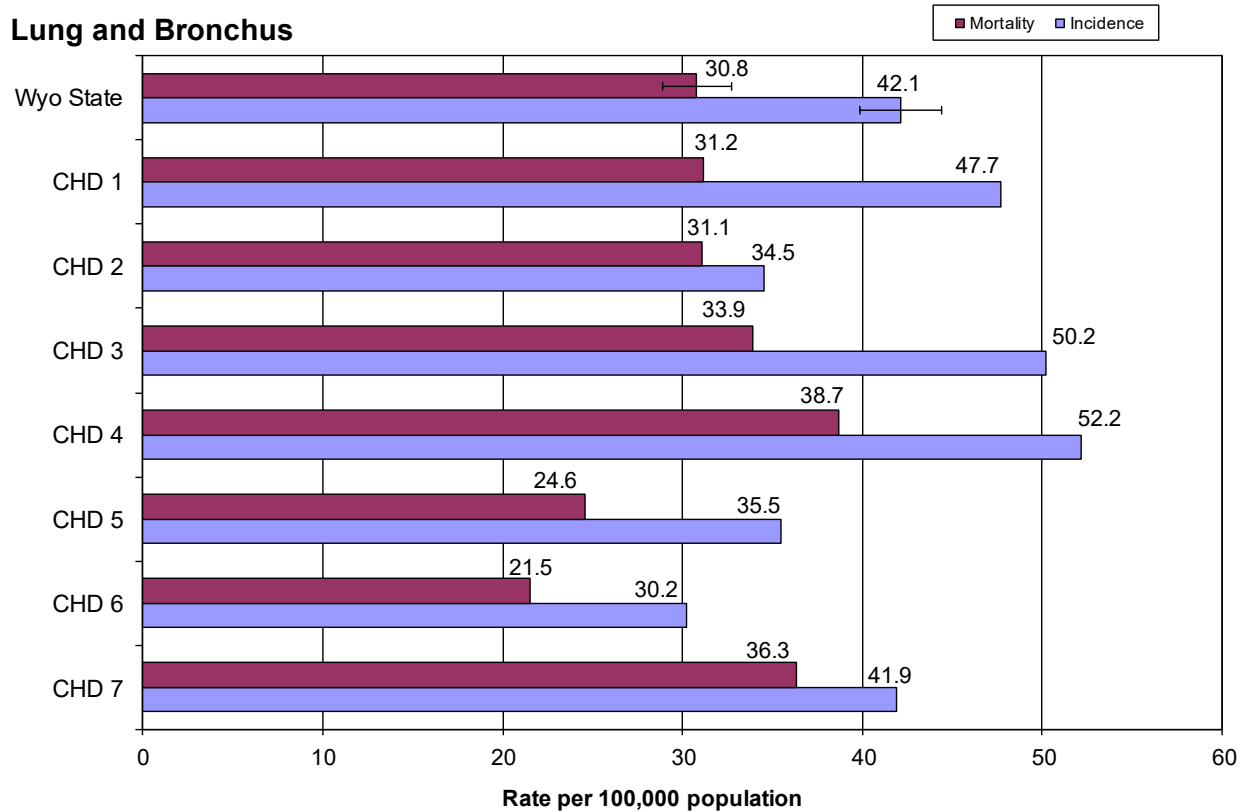


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Lung and Bronchus



Melanoma (of the skin)

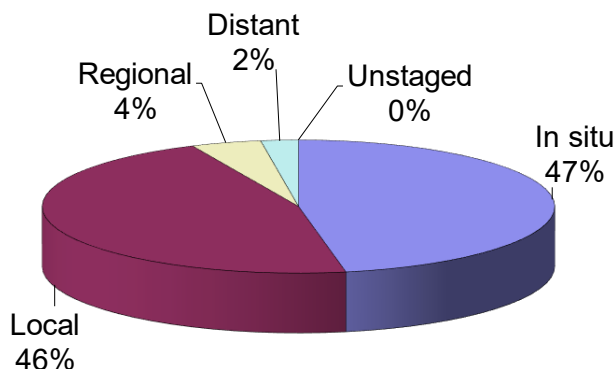
Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	105	75	180
In situ Cases	97	61	156
WY Incidence	32.2	21.2	26.5
US Incidence	34.3	21.7	27.1
Cancer Deaths	17	8	25
WY Mortality	4.7	2.3	3.4
US Mortality	3.6	1.5	2.4

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rates for melanoma for all Wyoming populations were lower than the national rates, but the mortality rates were all higher than the national rates.

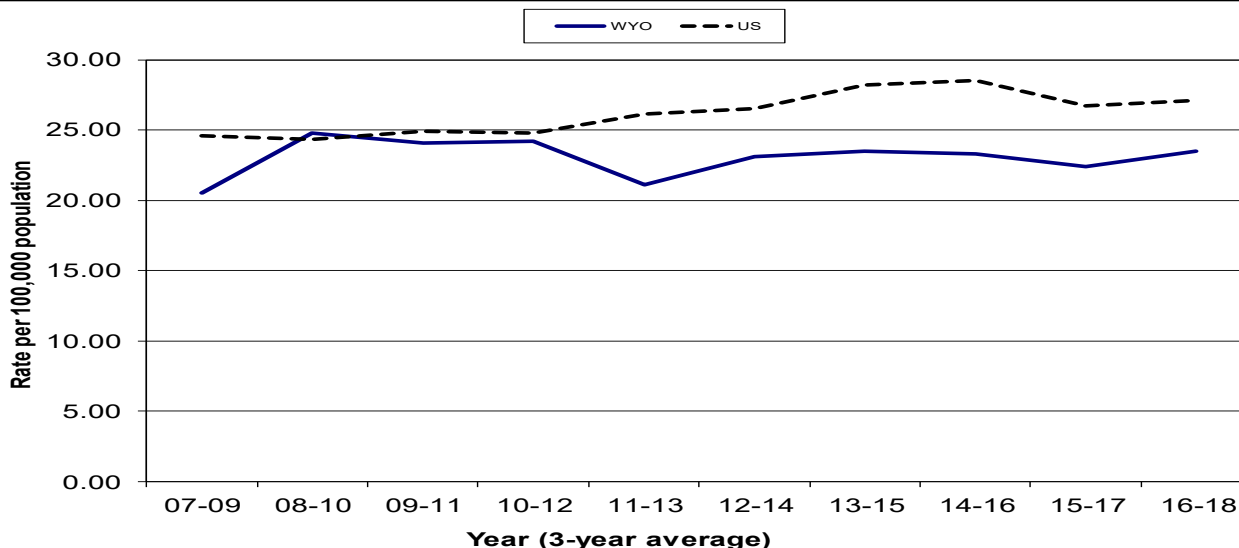
There were three cases of melanoma in individuals under 30 years of age in 2018, with one case in a person between 15-19 years of age.

After a short decrease both the Wyoming and National trends increased between 2015-2017 and 2016-2018.

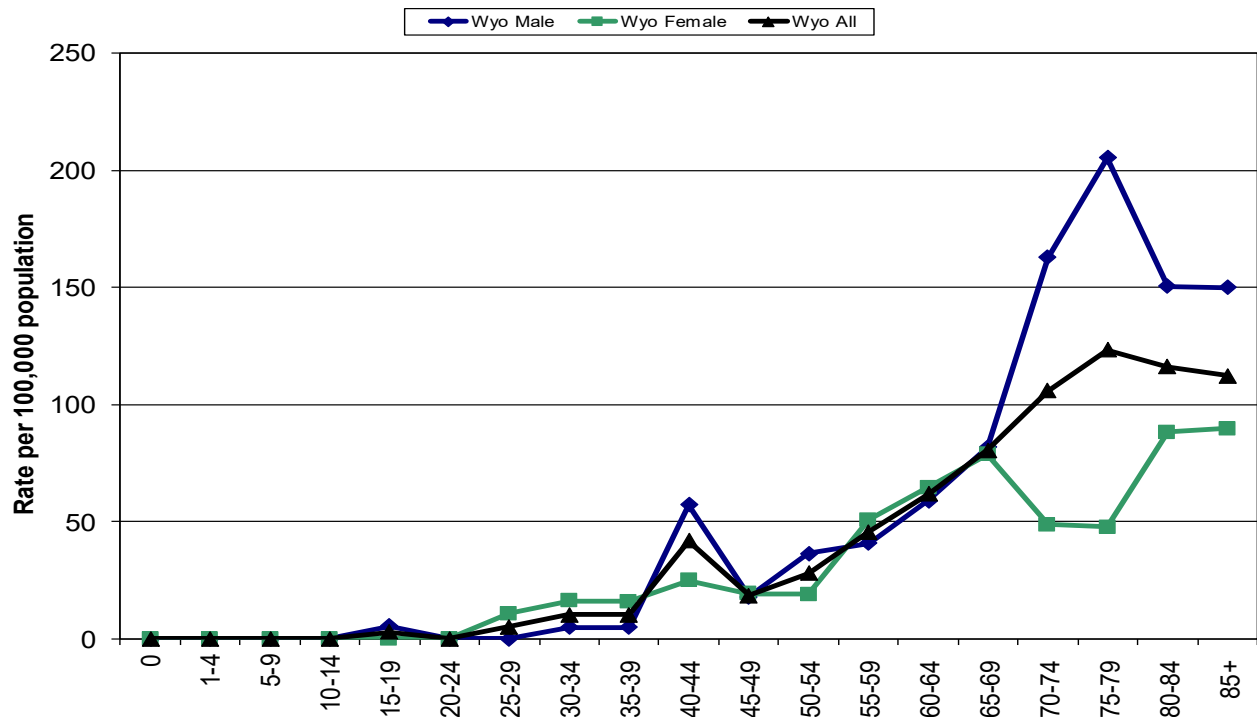
The percentage of cases diagnosed as Local increased from 2017 (39%) while the percent diagnosed at the In situ stage decreased (53%).

No statistically significant differences were found between the CHD and state rates.

12-Year Incidence Trend

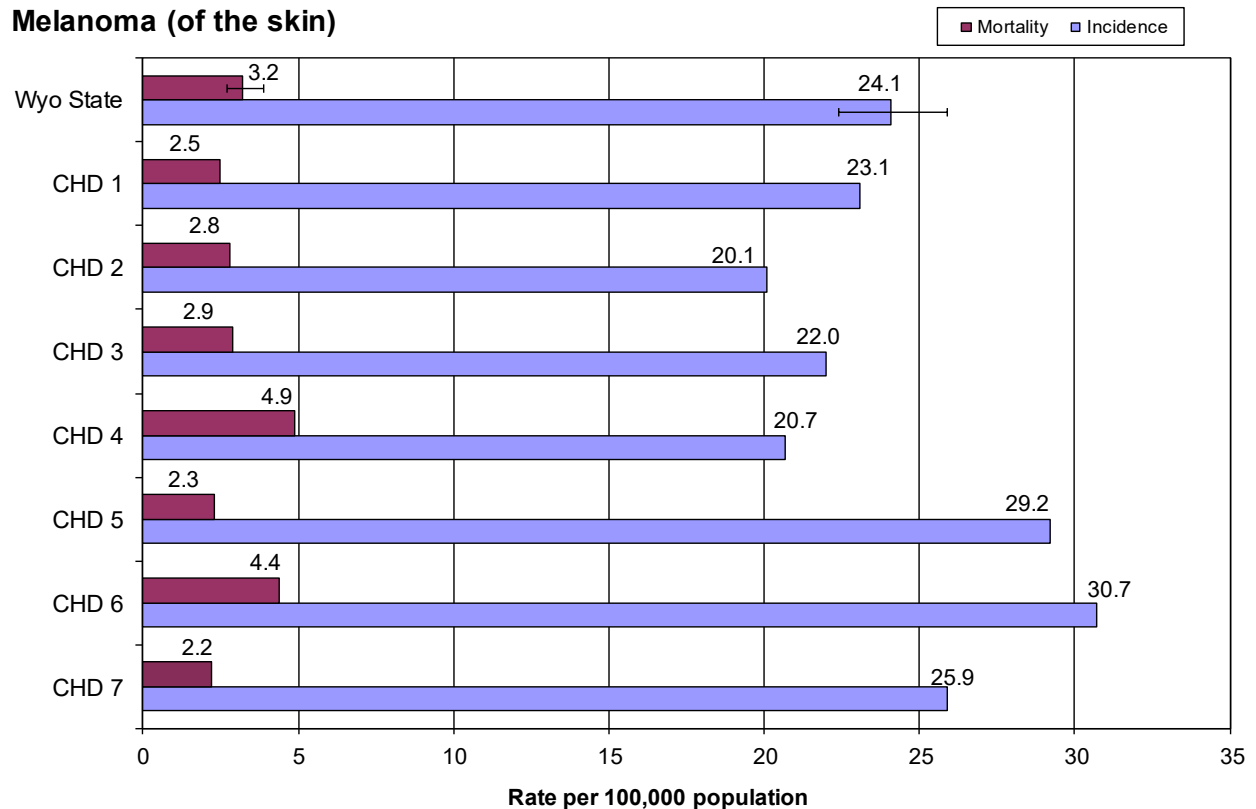


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Melanoma (of the skin)



Non-Hodgkin Lymphoma (NHL)

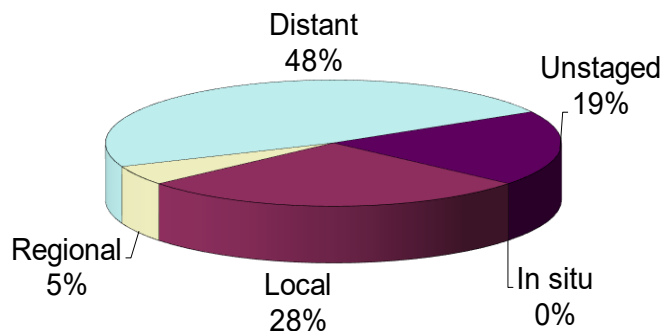
Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	60	59	119
WY Incidence	17.8	15.4	16.6
US Incidence	23.7	16.1	19.6
Cancer Deaths	18	14	32
WY Mortality	5.7	4.1	4.7
US Mortality	7.2	4.2	5.5

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for Non-Hodgkin lymphoma in Wyoming were all lower than the national rates in 2018.

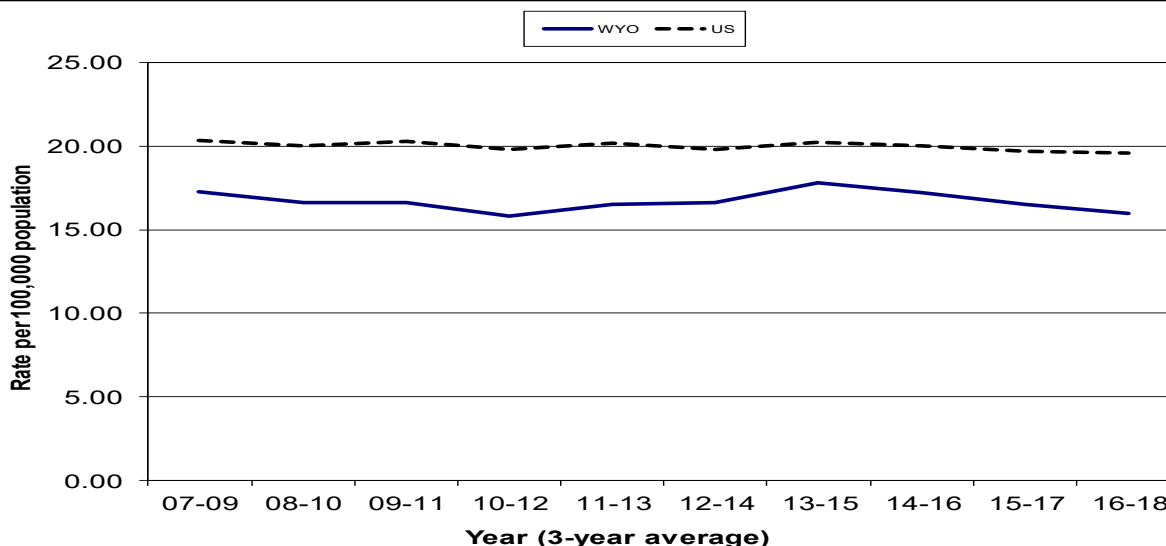
The incidence trend for Wyoming shows a decrease that started in 2013-2015 continuing into 2016-2018. The national trend shows a little decrease as well from 2015-2017 to 2016-2018.

There were three cases of NHL diagnosed under the age of 25 in 2018.

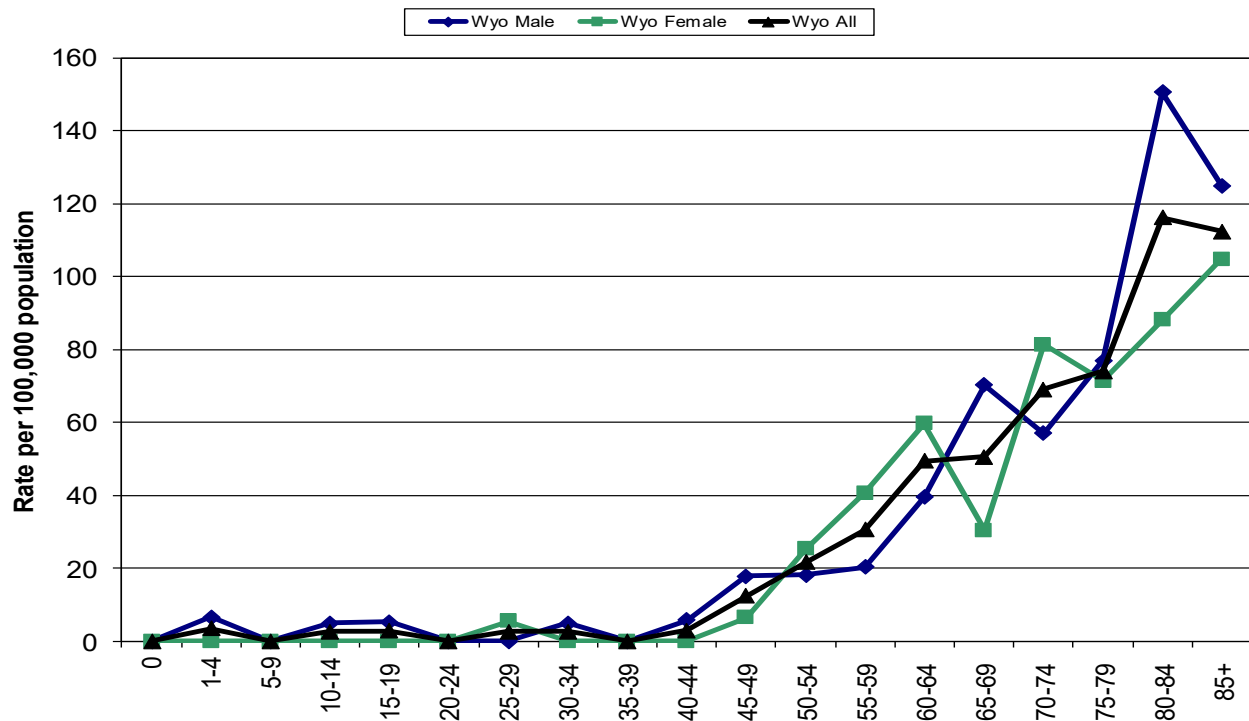
The percentage of cases diagnosed as Distant decreased from 2017 (56%), but the cases diagnosed as Unstaged increased (14%).

No statistically significant differences were found between the CHD rates and the state rates.

12-Year Incidence Trend

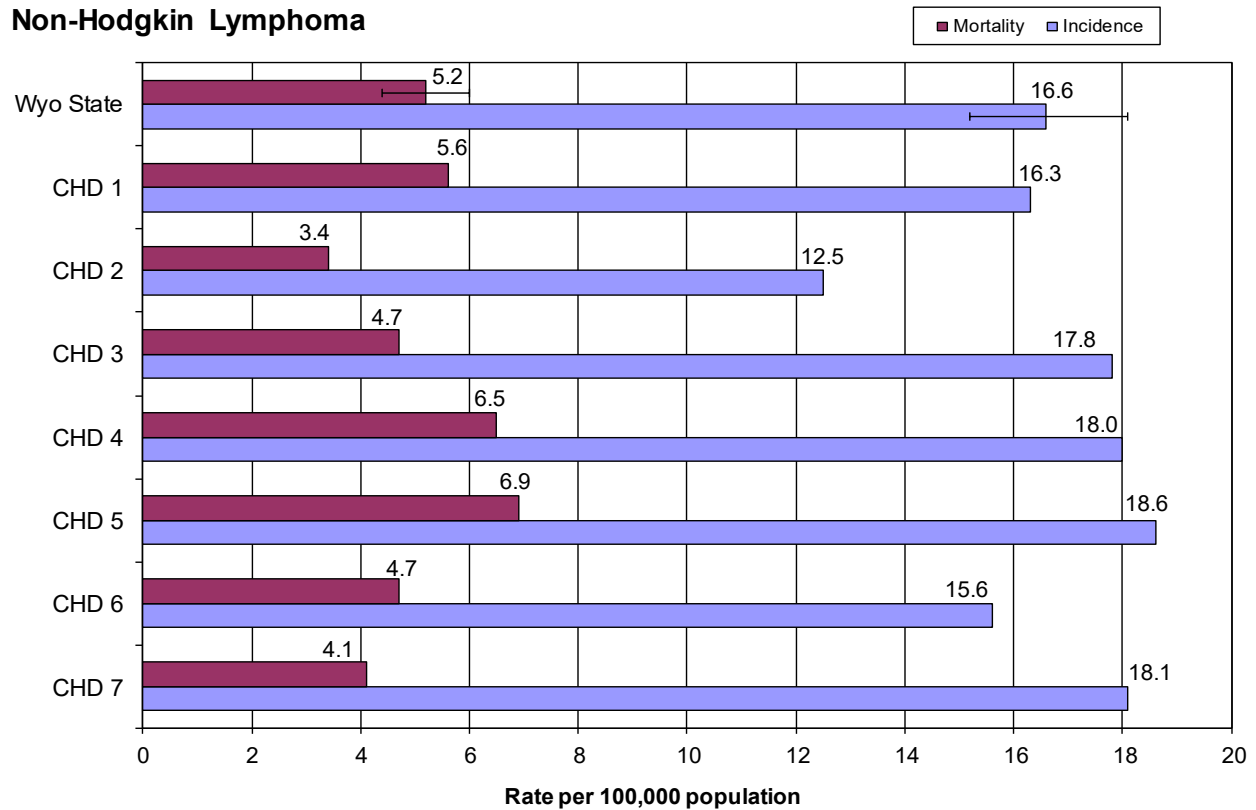


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Non-Hodgkin Lymphoma



Oral Cavity and Pharynx

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	40	21	61
WY Incidence	12.1	5.9	8.9
US Incidence	17.6	6.6	11.6
Cancer Deaths	13	4	17
WY Mortality	3.6	1.0	2.7
US Mortality	4.0	1.4	2.6

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

The incidence rates for cancer of the oral cavity and pharynx in Wyoming were all lower than the national rates in 2018. The mortality rate for males and females individually were both lower than their comparative national rates, but the total population rate in Wyoming was just above the national rate.

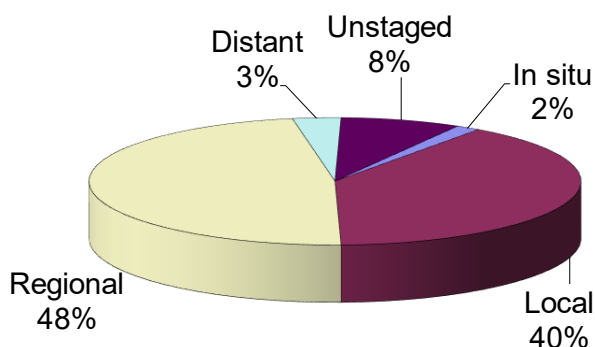
The incidence trend for Wyoming appears to have plateaued between 2015-2017 and 2016-2018. The national trend seems to have decreased slightly in the same time period.

There was one case diagnosed in a under 25 years of age in 2018.

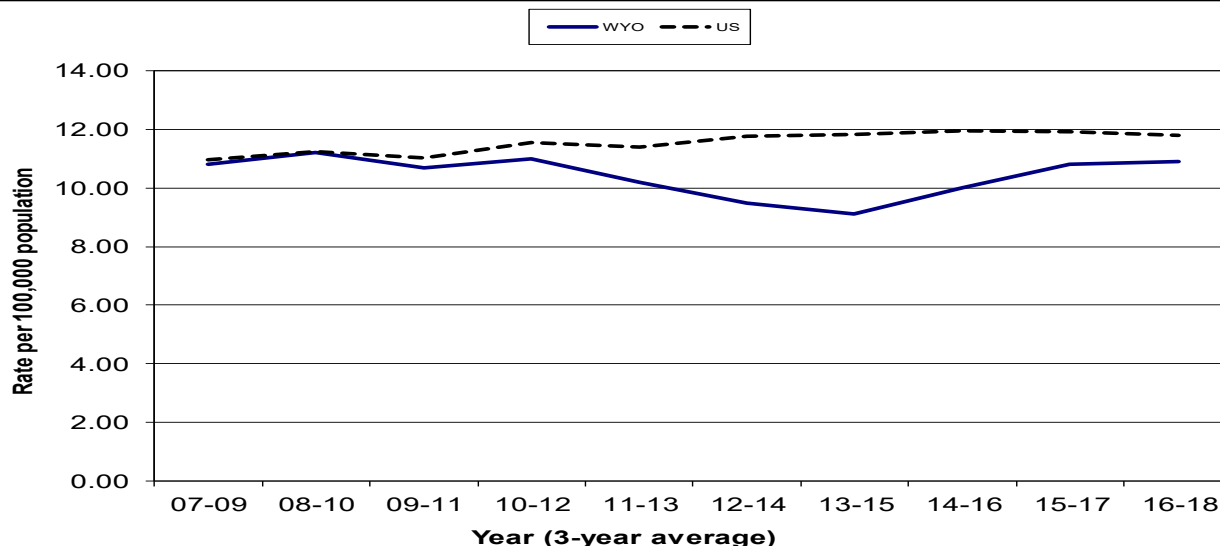
The percent of cancers at the Regional stage decreased from 2017 (54%), while the percent of cases diagnosed at the Local stage increased substantially from 2017 (27%).

No statistically significant differences were found between the CHD rates and the state rate.

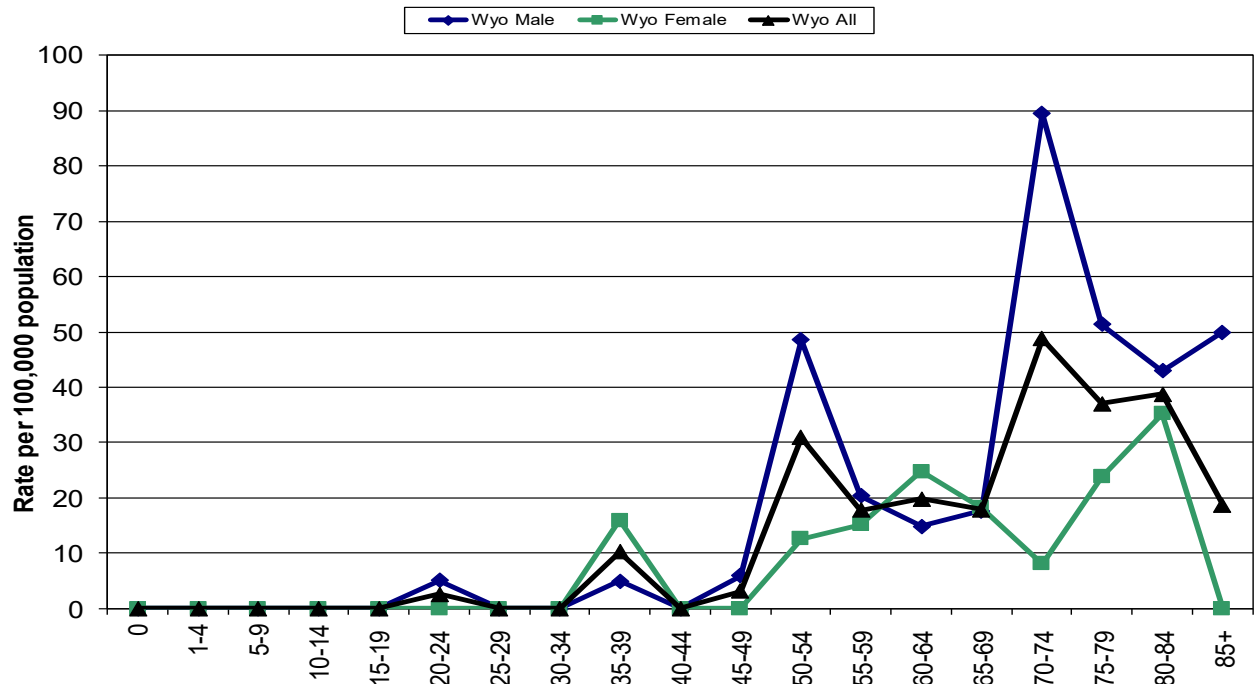
Stage at Diagnosis



12-Year Incidence Trend

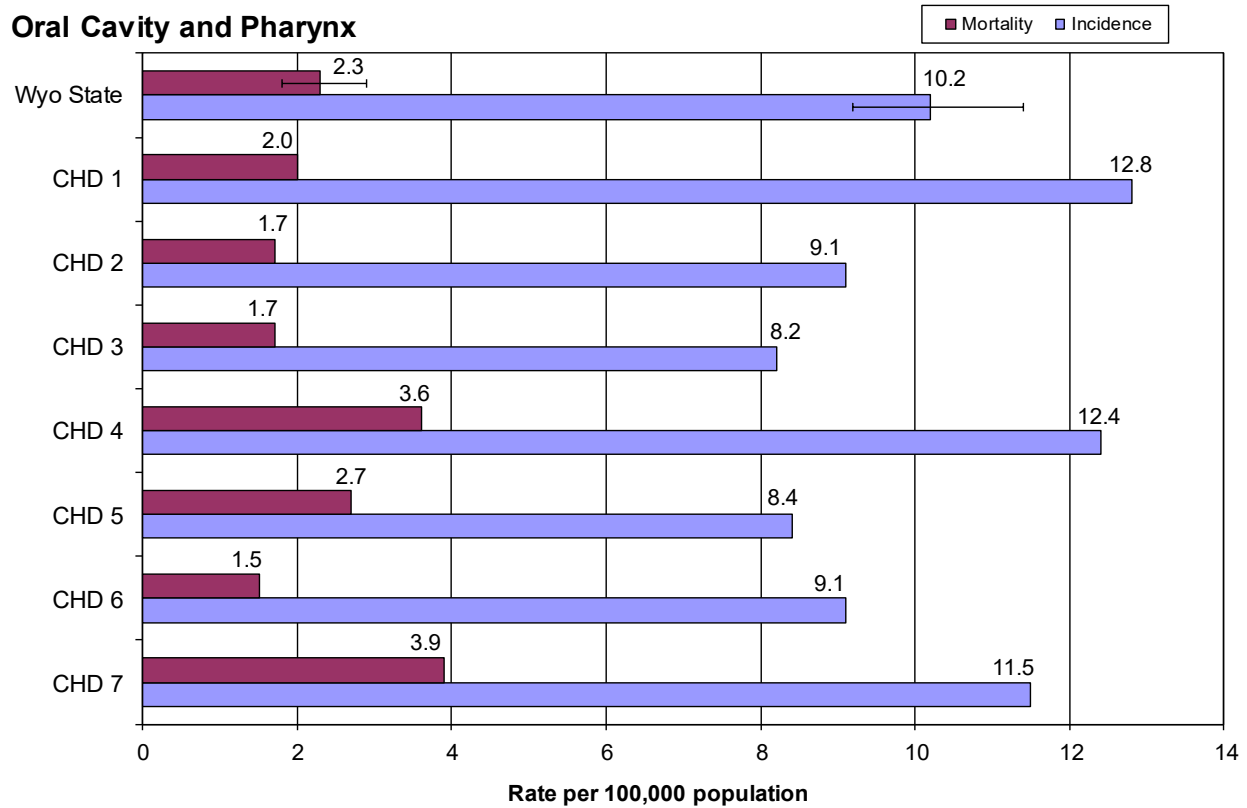


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Oral Cavity and Pharynx



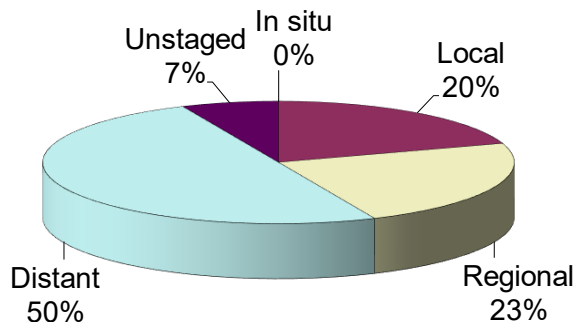
Ovary

Incidence and Mortality Summary

	Female
Invasive Cases	30
WY Incidence	8.7
US Incidence	10.6
Cancer Deaths	23
WY Mortality	6.5
US Mortality	6.8

* indicates the state rate is significantly different than the national rate
 NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates in Wyoming females for ovarian cancer were both lower than the national rate in 2018.

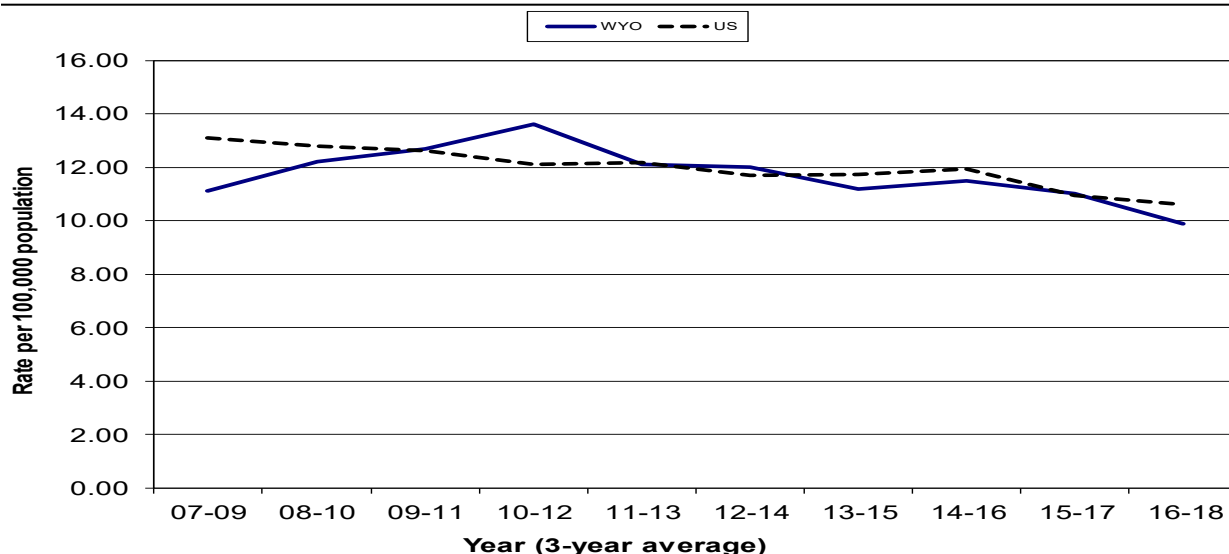
The 12-year incidence trend shows a continuation of a decrease that started in 2014-2016 for both Wyoming and the Nation.

There were NO cases diagnosed in Wyoming women under 30 years of age in 2018

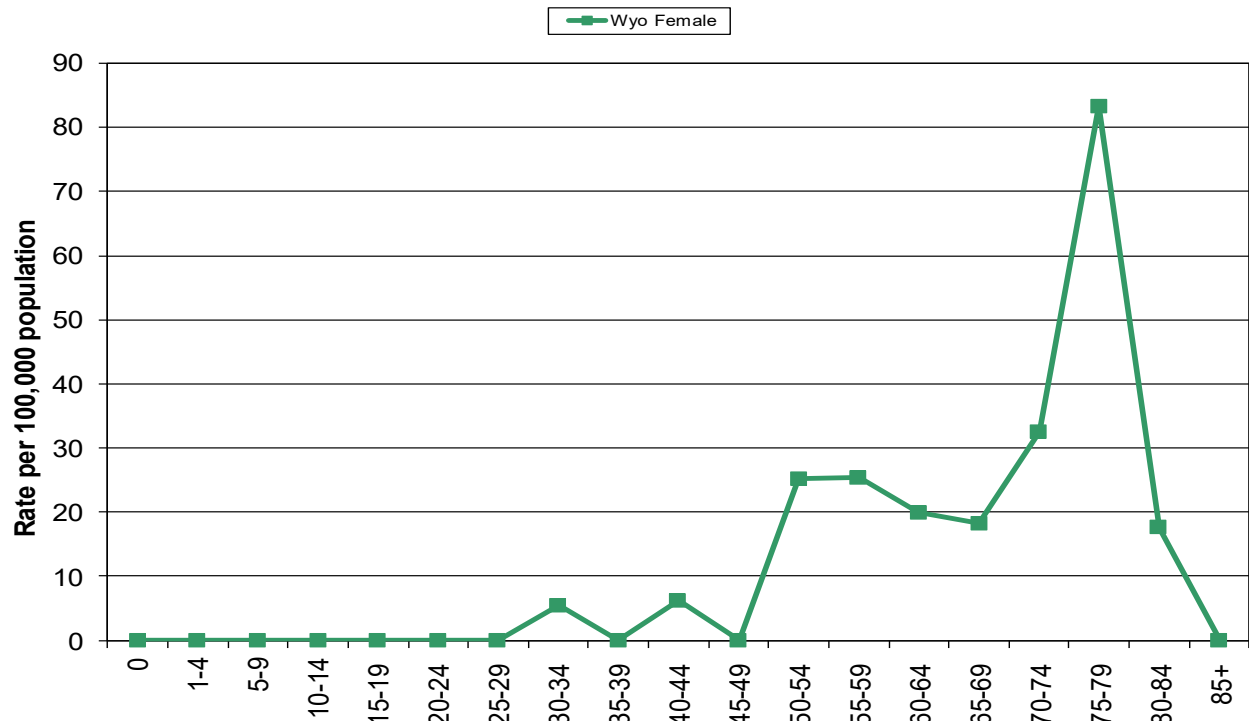
There was a substantial but non-significant increase in the percentage of cases diagnosed as Distant compared to 2017 (39%), while the percent diagnosed as Regional decreased (31%).

No statistically significant differences were found between the CHD rates and the state rate.

12-Year Incidence Trend

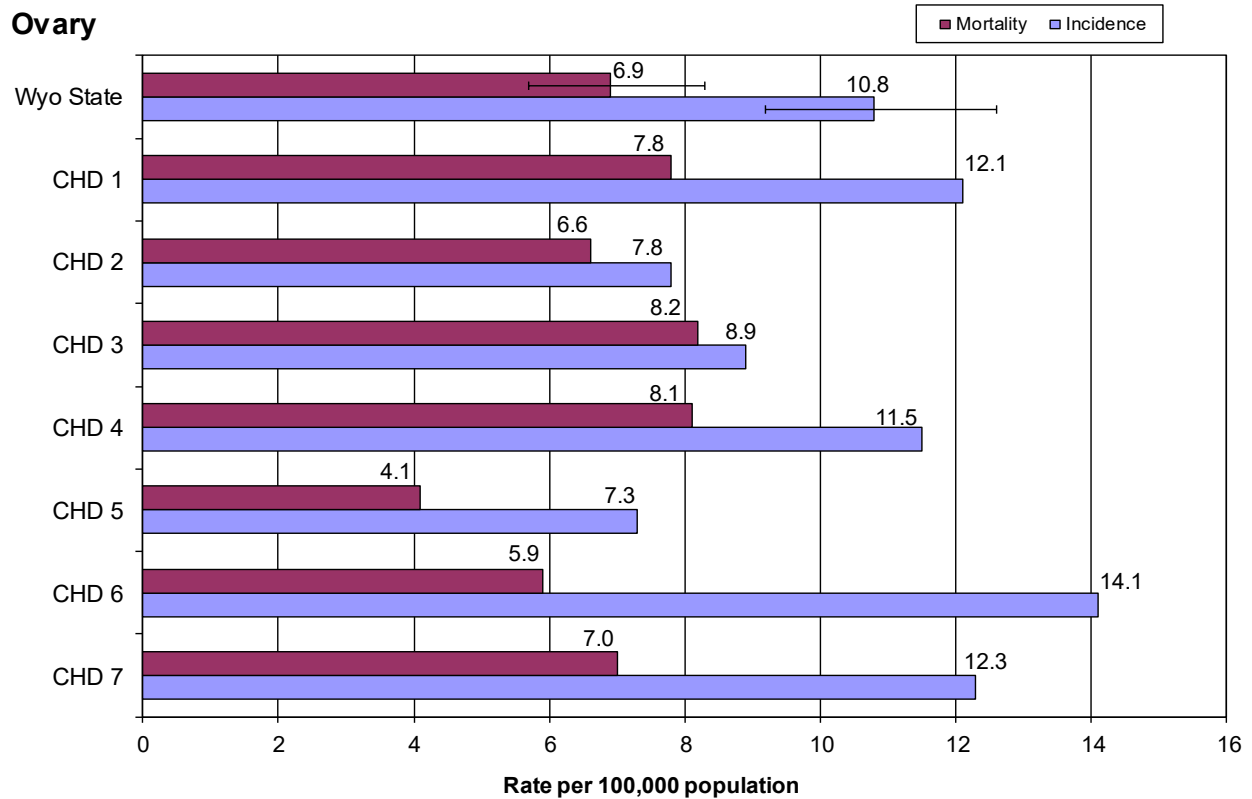


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Ovary



Pancreas

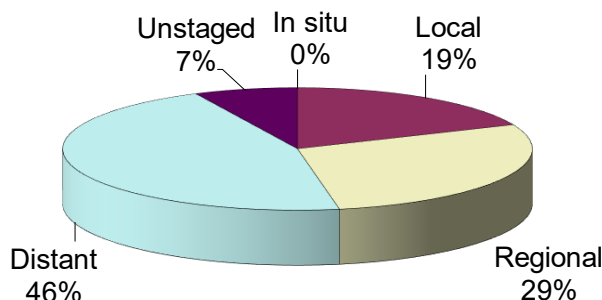
Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	36	34	70
WY Incidence	10.2	9.4	9.6
US Incidence	15.0	11.3	13.0
Cancer Deaths	47	30	77
WY Mortality	14.0	7.8	10.8
US Mortality	13.0	9.5	11.1

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rate in each Wyoming population was lower than the national rate in 2018. Mortality for Wyoming females and total population were also lower than the national rates, only male mortality was higher than the national rate.

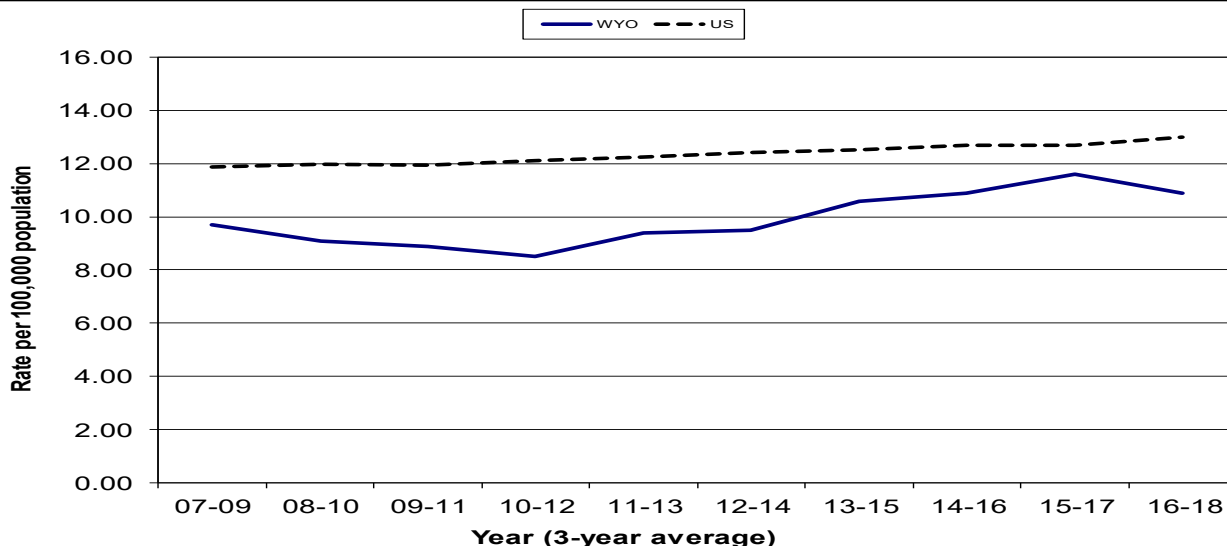
The incidence trend for Wyoming shows a decrease between 2015-2017 and 2016-2018, while the national trend appears to be increasing very slightly.

There was one case diagnosed in a Wyoming resident under the age of 30 in 2018.

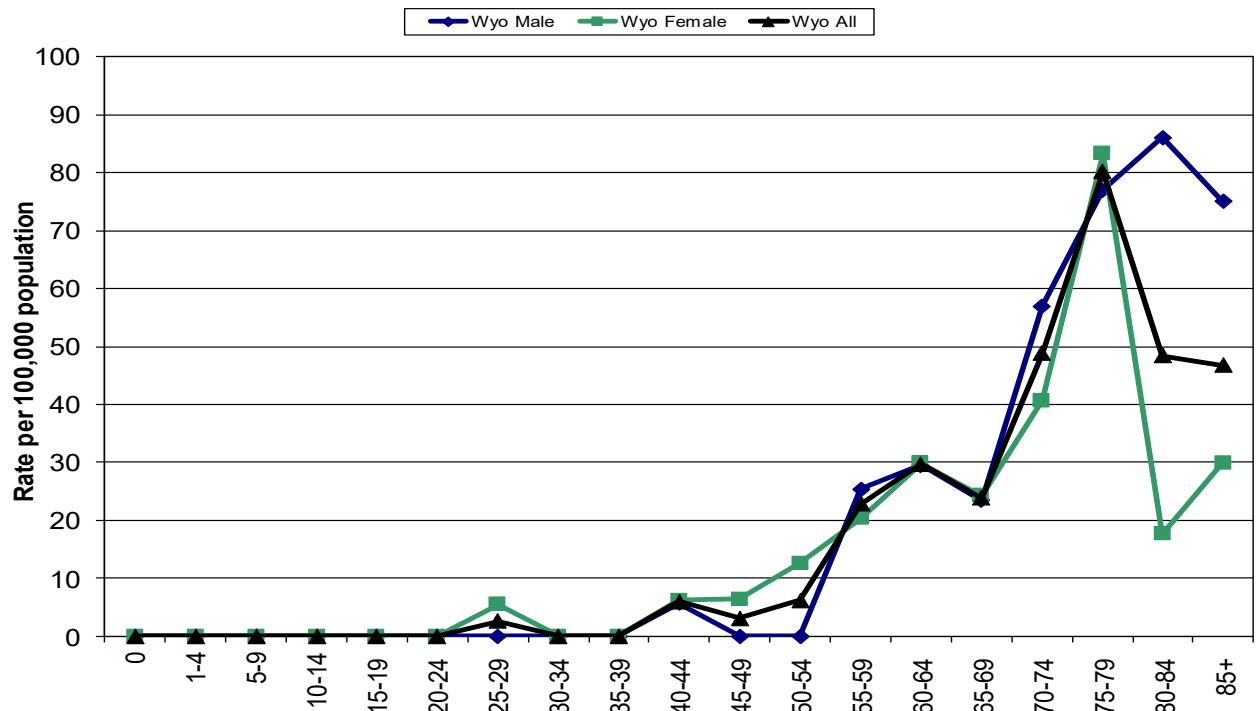
The percentage of cancers diagnosed as Local and Regional both increase (9% and 23% respectively), while the percentage diagnosed as Distant decreased from 2017 (54%).

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

12-Year Incidence Trend

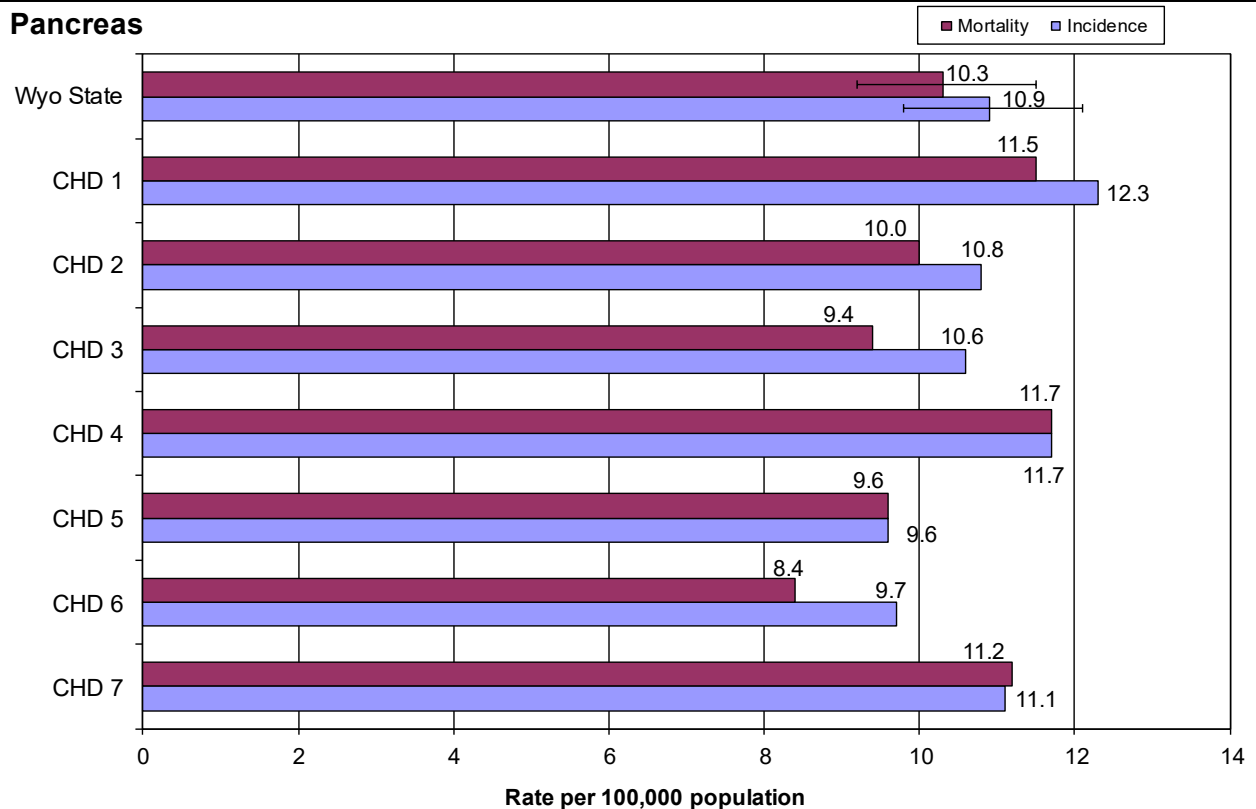


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Pancreas



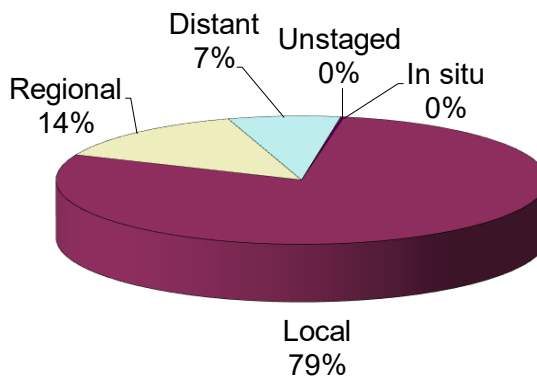
Prostate

Incidence and Mortality Summary

	Male
Invasive Cases	473
WY Incidence	117.8
US Incidence	104.5
Cancer Deaths	65
WY Mortality	21.3
US Mortality	17.8

* indicates the state rate is significantly different than the national rate
 NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for prostate cancer in Wyoming males were both higher than the national rate in 2018.

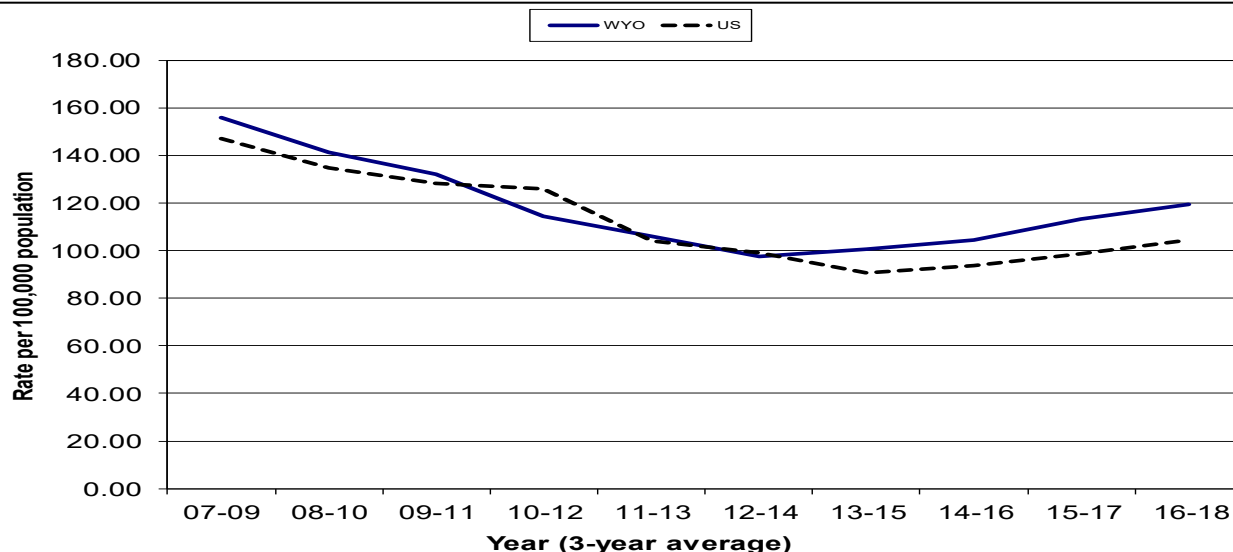
The incidence trend shows the Wyoming and national rate both continuing to increase since 2013-2015.

The 65 deaths in 2018 was the highest number of prostate cancer deaths in Wyoming since 2002.

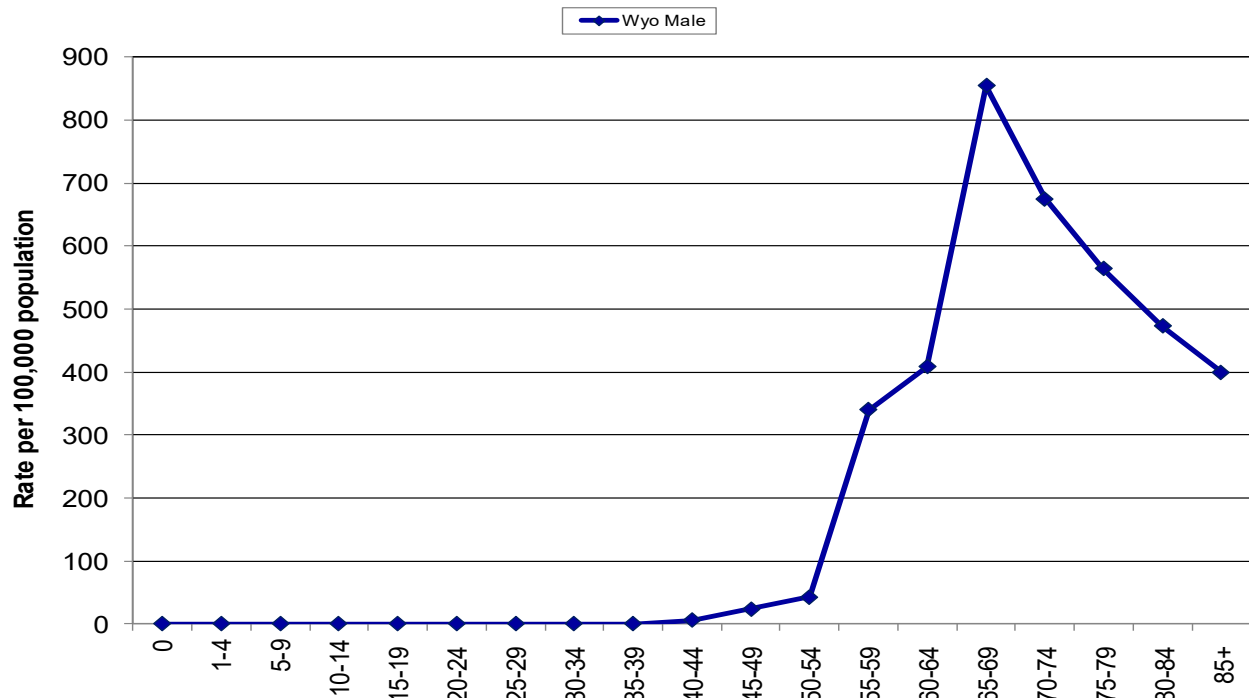
The percentage of cases diagnosed as Local decreased from 2017 (81%), while the percentage diagnosed as Regional increased (9%).

No statistically significant differences were found between the CHD rates and the state rates.

12-Year Incidence Trend

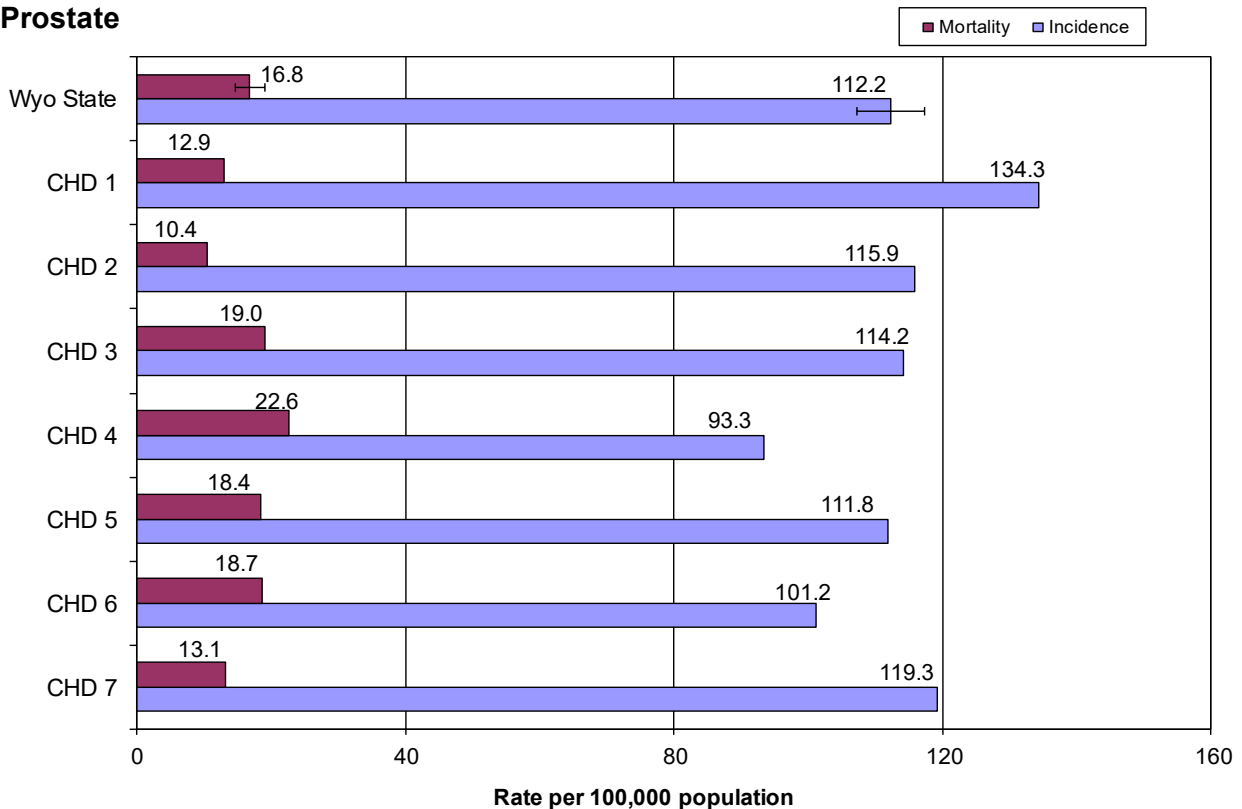


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Prostate



Thyroid

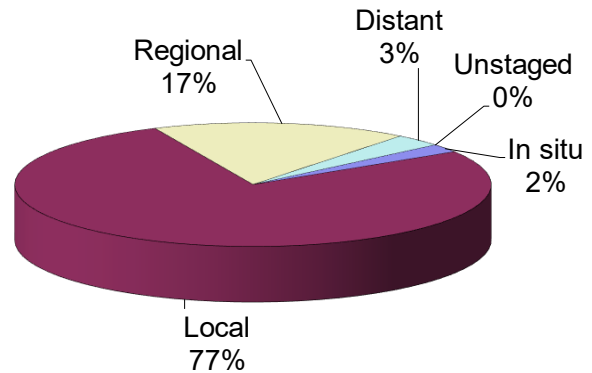
Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	25	65	90
WY Incidence	7.8	22.3	14.9
US Incidence	8.3	22.3	15.3
Cancer Deaths	NC	NC	NC
WY Mortality	NC	NC	NC
US Mortality	0.5	0.5	0.5

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rate for thyroid cancer in males, and total population were lower than the national rates, while the female rate was identical to the national rate. None of the Wyoming mortality rates were calculated due to low numbers.

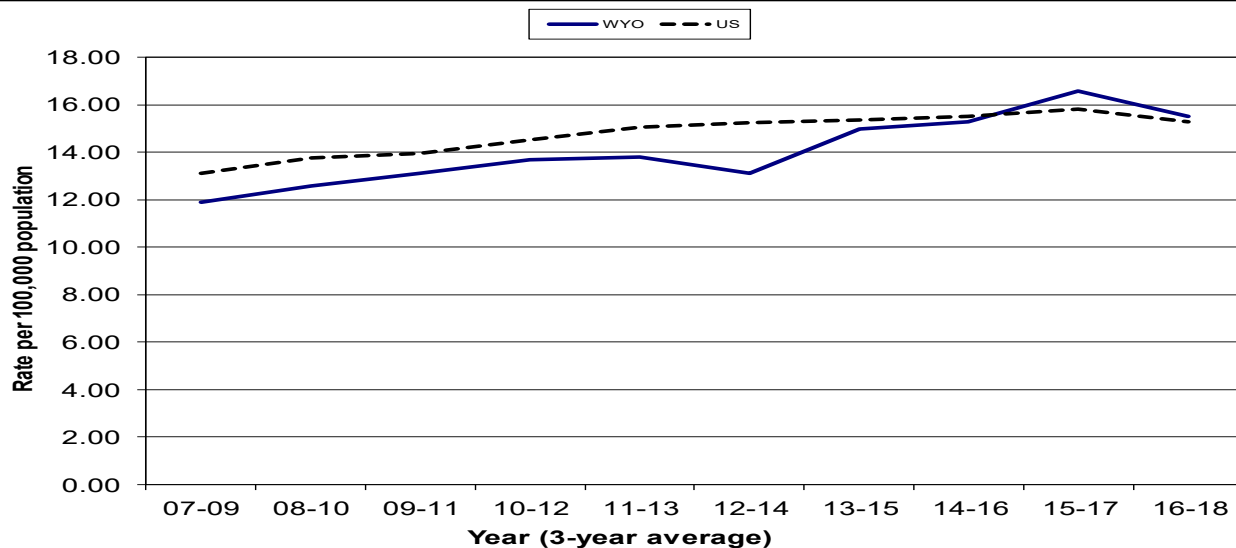
The trend of thyroid cancer incidence in Wyoming and the nation both show a bit of a decrease between 2015-2017 and 2016-2018, with the Wyoming decrease looking a bit more pronounced.

There were three cases diagnosed in Wyoming residents between fifteen and nineteen years of age in 2018.

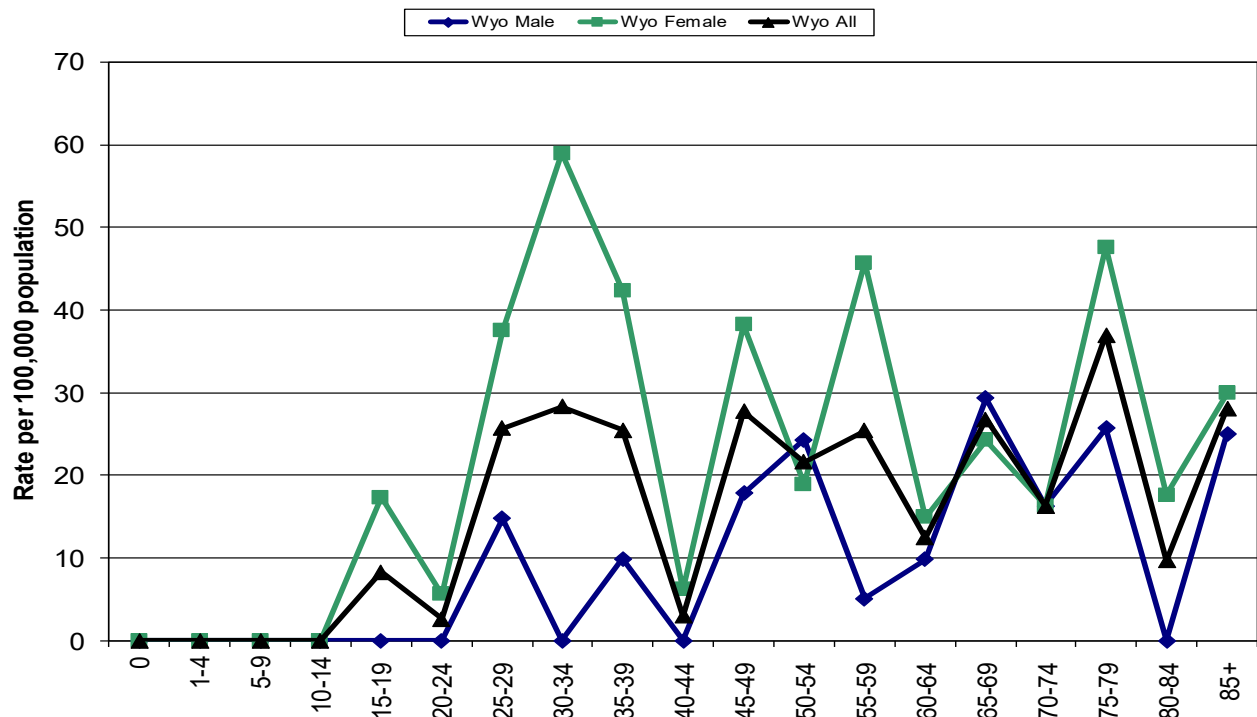
The percentage diagnosed as Local increased greatly from 2017 (61%), while the percentage reported as Regional decreased (28%).

No statistically significant differences were found between the CHD rates and state rate for incidence.

12-Year Incidence Trend

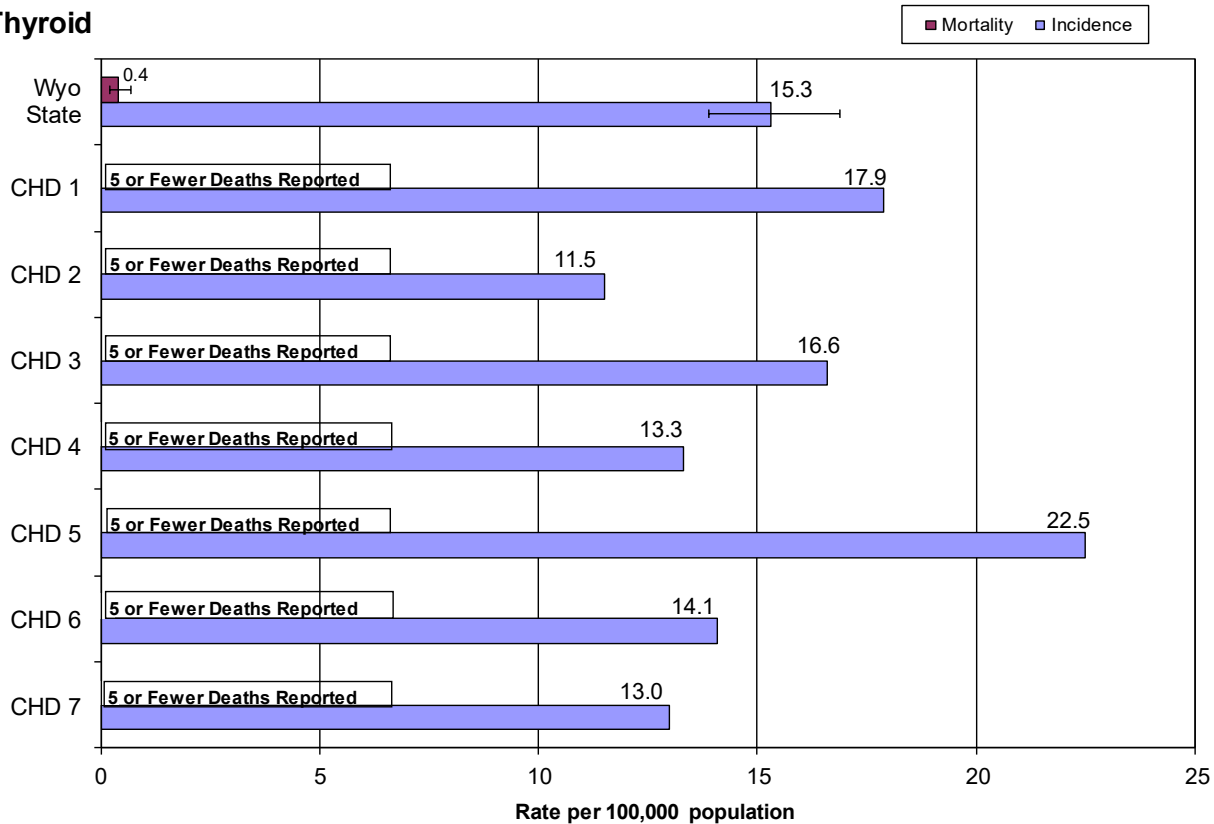


Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018

Thyroid



Uterine (Corpus Uteri + Uterus)

Incidence and Mortality Summary

	Female
Invasive Cases	89
WY Incidence	24.3
US Incidence	28.2
Cancer Deaths	13
WY Mortality	4.0
US Mortality	4.6

* indicates the state rate is significantly different than the national rate

NC = rate not calculated for under 5 cases/deaths

The incidence and mortality rates Wyoming females for uterine cancer were both lower than the U.S. rate in 2018.

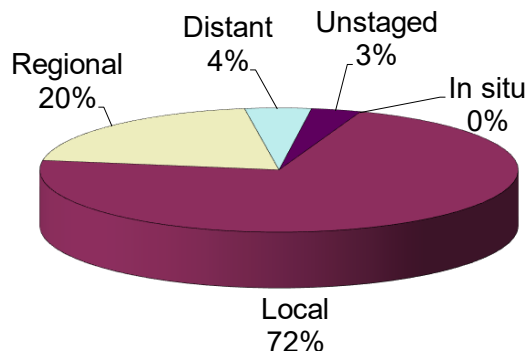
The Wyoming incidence trend has been slowly increasing since 2013-2015, while the national rate appears to have leveled off between 2015-2017 and 2016-2018.

There were NO cases diagnosed in Wyoming women under the age of 40 in 2018.

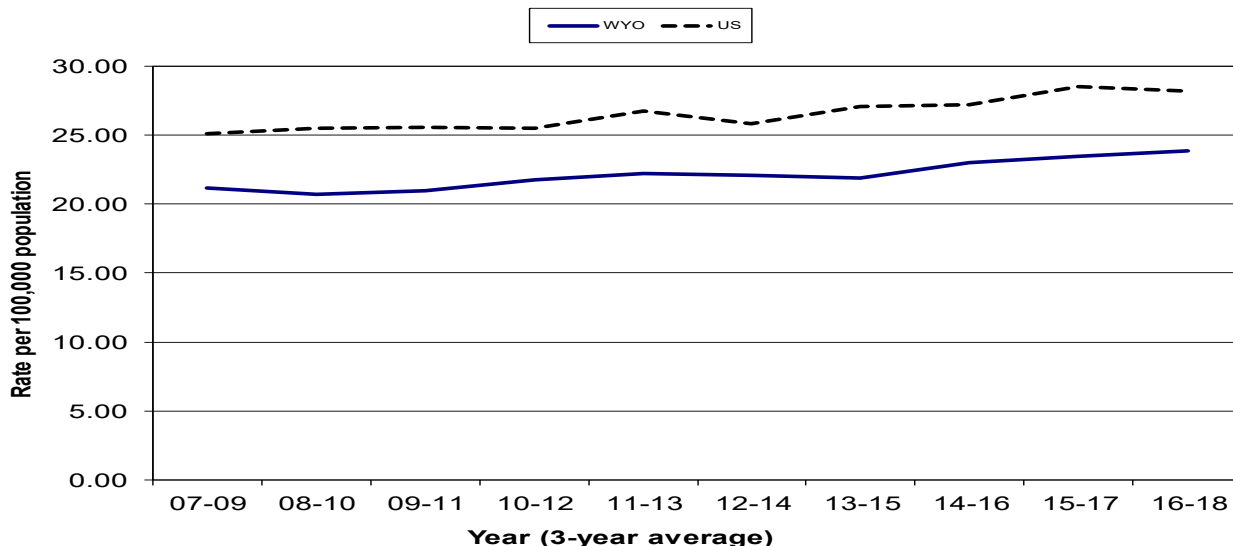
The percentage diagnosed as Local increased substantially from 2017 (62%), while both Distant and Unstaged decreased (12% and 7%, respectively). None of these changes were significant.

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

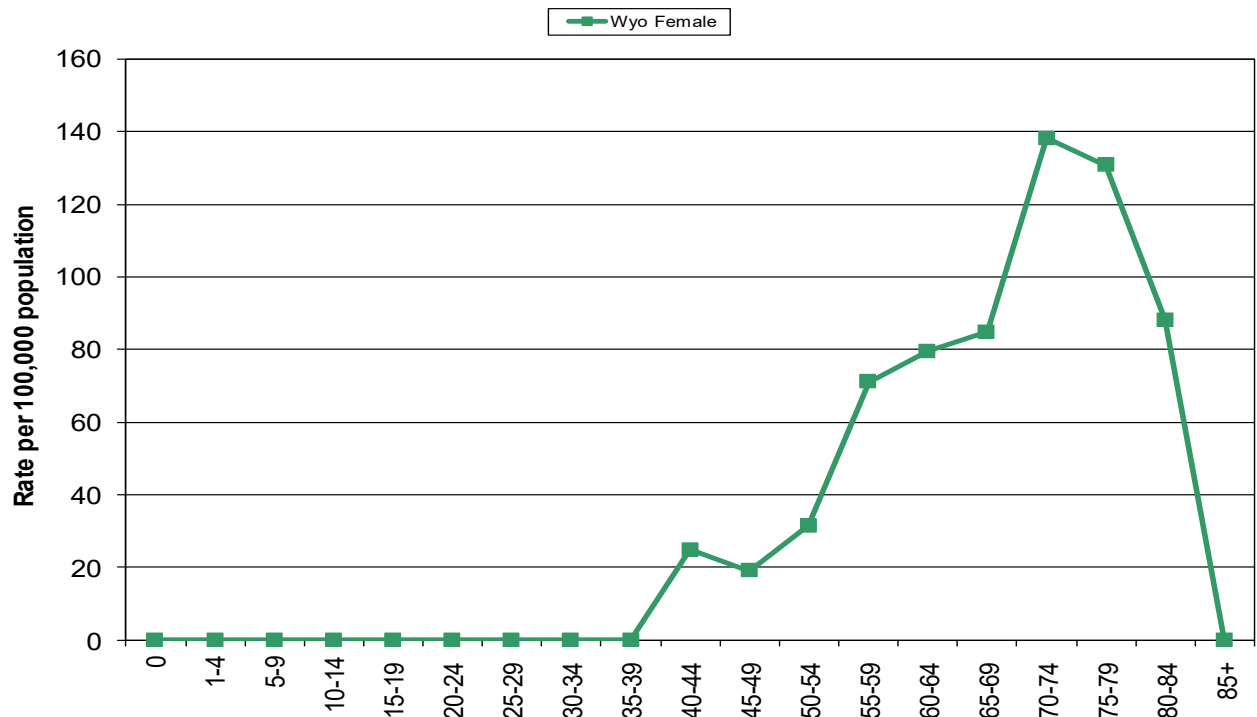
Stage at Diagnosis



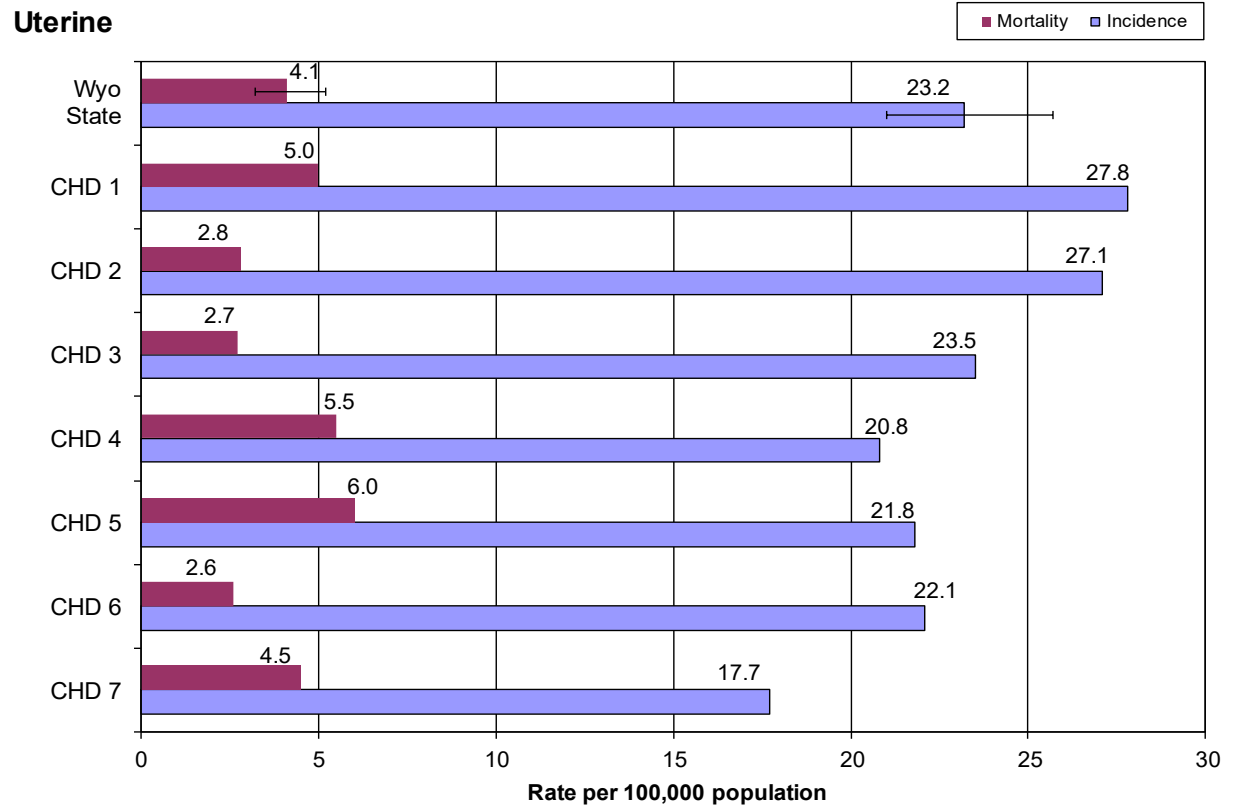
12-Year Incidence Trend



Age-Specific Incidence Rates - 2018



Cancer Health District Incidence and Mortality 5-Year Average, 2014-2018



Appendix A

References

Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) version 8.3.6. SEER*Stat Database: Incidence - SEER 21 Limited-Field Research Data + Hurricane Katrina Impacted Louisiana Cases, Nov 2018 Sub (2000-2016) <Katrina/Rita Population Adjustment> Linked To County Attributes - Total U.S., 1969-2017 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2019, based on the November 2018 submission.

Wyoming Department of Administration and Information, Economic Analysis Division. Wyoming State and County Population. (<http://eadiv.state.wy.us/eahome.htm>)

Wyoming Vital Statistics Service, Wyoming Department of Health - (http://www.health.wyo.gov/rfhd/vital_records/index.html) (Note: These data were supplied by the Vital Statistics Services, Wyoming Department of Health, Cheyenne, Wyoming. The Wyoming Vital Statistics Services was not involved in any analyses, interpretations, or conclusions).

Age-Adjustment

Prior to data year 1999, the Wyoming Cancer Surveillance Program (WCSP) performed age-adjustment of cancer mortality rates using the 1940 standard population and a 10-year age group, or the 1970 standard population using 5-year age groups. Starting with the data year 1999, WCSP began using the Year 2000 standard population with 5-year age groups to calculate cancer mortality and cancer incidence rates.

The decision to use 5-year age groups was made to keep WCSP data calculations comparable to the national cancer reports published through SEER and the National Cancer Institute. The 5-year age group also enables cancer prevention programs to use Wyoming reports (e.g., Vital Records) as printed versus requesting specially calculated rates.

Age-adjusted rates should be used for comparative purposes only and should not be interpreted as the absolute risk of the disease or death. As can be seen in Chart A (below) and Chart B, (following page), the change in standard population affects the magnitude of the age-adjusted rates but not the trends of the rates. In general, the age-adjusted rate is only appropriate to track trends over time or to make comparisons among groups using the same population standard.

Chart A:

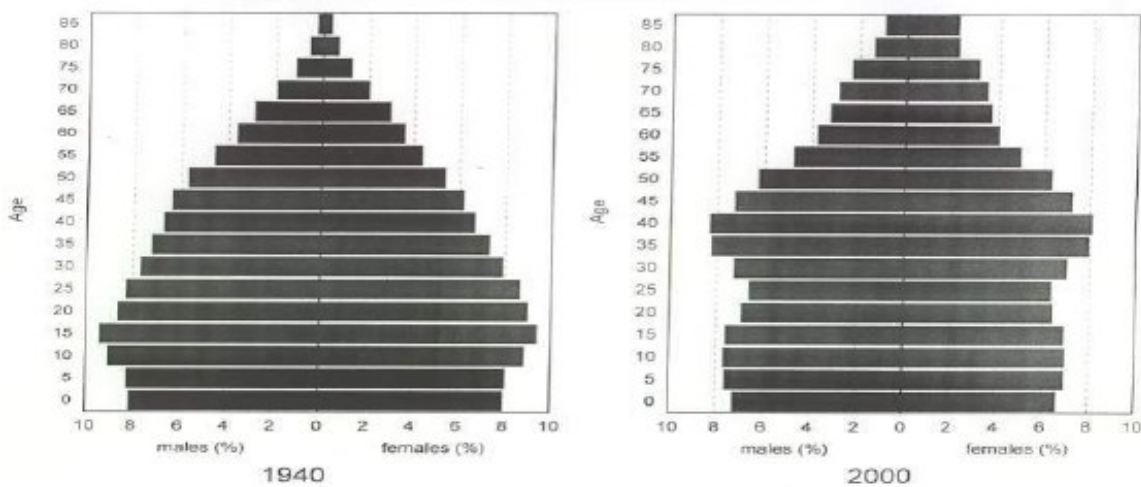


Chart B:

