

State of Wyoming



Department of Health

Annual Report on Cancer in Wyoming - 2016

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Director

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Annual Report on Cancer in Wyoming—2016

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Executive Summary

The incidence of and mortality rates from cancer in Wyoming residents are again lower than the U.S. average in 2016. The overall incidence rate for cancer in Wyoming was 397.7/100,000 in 2016, which was lower than the national rate of 438.7/100,000. The overall mortality rate for all cancers in Wyoming for 2016 was 140.3/100,000 and the national rate was 159.4/100,000.

The top five cancer sites for incidence in 2016 were: female breast, prostate, lung/bronchus, colorectal and melanoma. The most common cancers for incidence by age group were cancer of the testis (15-19); colorectal and melanoma (20-24); thyroid (25-39); breast (40-59 years); prostate (60-79); and lung (80-85+). There were six cases of melanoma in individuals under 30 years of age in 2016.

The top five cancer sites for mortality were lung, colorectal, ill-defined, breast cancer and cancer of the pancreas. The most common cancers associated with mortality by age group were brain/CNS and breast (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 39 years of age.

The 5-year (60 months) relative survival rate for Wyoming cancer patients diagnosed between 2010–2016 was 63.8%. This means that almost sixty-four percent of all cancer patients in Wyoming were alive five years after diagnosis during this time period. Cancer of the thyroid (94.2%), prostate cancer (93.5%), melanoma (89.3%), and female breast cancer (88.0%) continue to have the highest survival rates among Wyoming residents. The lowest survival rates are found for cancer of the pancreas (7.1%), lung cancer (13.7%), and brain/CNS cancer (23.7%). Children/adolescents (0-19 years) continue to have an excellent 5-year overall survival rate of 81.3% between 2010 and 2016. Children/adolescents have better survival rates than adults for brain/CNS cancer (59.2%), leukemia (80.4%), and Hodgkin lymphoma (92.3%). However, their survival rate for bone and joint cancer (58.4%) and melanoma (77.1%) are both lower than the overall rates for all ages.

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 6101 Yellowstone Rd., Suite 510, 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 2016 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 2016 cancer cases among Wyoming residents received by WCSP as of June 1, 2017.

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 2015 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 2016 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 2015 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 2016. 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 2016 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

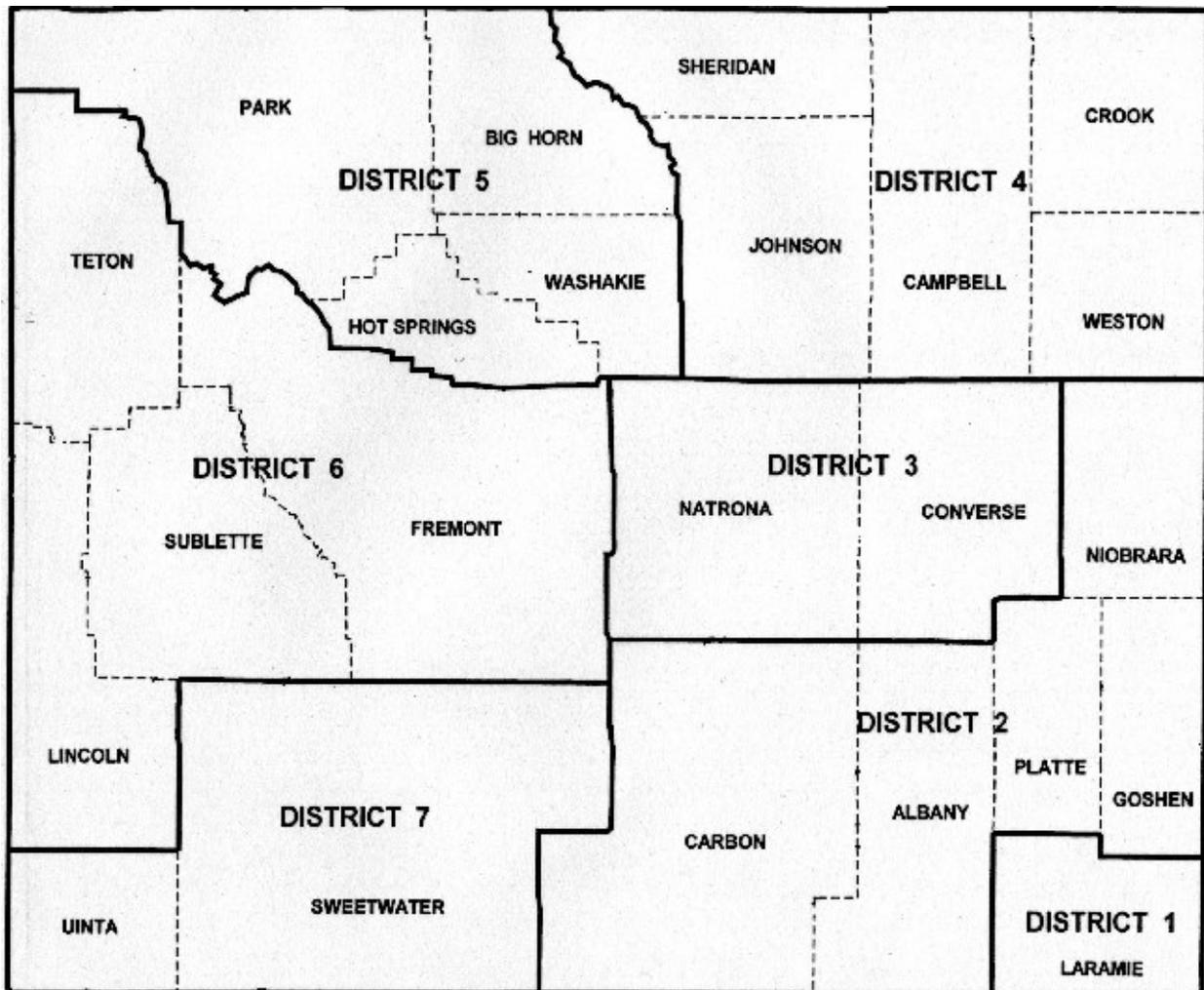
CHD 3 Converse County, Natrona County

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 - 2016

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 2016: 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	4	5	9	0	0	0	0	0	0	0
Bladder w/ in situ	98	28	126	0	0	0	0	0	0	0
Bones and Joints	4	5	9	0	0	0	1	0	0	0
Brain	20	21	41	3	2	0	1	2	2	1
Breast	5	411	416	0	0	0	0	0	4	3
Cervix	0	18	18	0	0	0	0	0	1	3
Colorectal	114	111	225	0	0	0	0	3	1	1
Esophagus	17	8	25	0	0	0	0	0	0	0
Eye	5	4	9	0	0	0	0	0	0	0
Gallbladder	1	9	10	0	0	0	0	0	0	1
Hodgkin	9	9	18	0	0	0	3	1	1	1
Ill-Defined	44	37	81	0	1	0	0	1	0	1
Kidney	64	36	100	0	2	0	0	1	0	1
Larynx	12	6	18	0	0	0	0	0	0	0
Leukemia	45	32	77	0	0	1	0	1	1	0
Liver	31	8	39	0	0	0	0	0	0	0
Lung	164	146	310	0	0	0	0	0	0	0
Melanoma	84	50	134	0	0	0	0	3	3	5
Myeloma	21	14	35	0	0	0	0	0	0	0
Nasal	6	3	9	0	0	0	0	0	0	0
Non-Hodgkin	72	33	105	0	0	0	1	1	2	0
Oral Cavity	53	29	82	0	0	0	0	0	1	1
Other Biliary	8	6	14	0	0	0	0	0	0	0
Other Digestive	1	4	5	0	1	0	0	0	0	0
Other Endocrine	0	4	4	0	0	0	0	0	0	1
Other Female	0	10	10	0	0	0	0	0	0	0
Other Male	2	0	2	0	0	0	0	0	0	0
Other Skin	8	4	12	0	0	0	0	0	0	0
Other Respiratory	3	0	3	0	0	0	1	1	0	0
Other Urinary	2	3	5	0	0	0	0	0	0	0
Ovary	0	31	31	0	0	0	1	0	0	2
Pancreas	38	37	75	0	0	0	0	0	0	0
Prostate	402	0	402	0	0	0	0	0	0	1
Small Intestine	8	7	15	0	0	0	0	0	0	0
Soft Tissue	12	6	18	1	2	0	0	0	0	2
Stomach	21	9	30	0	0	0	0	0	0	0
Testis	22	0	22	0	0	0	4	2	4	2
Thyroid	26	68	94	0	0	0	3	2	7	5
Uterine	0	88	88	0	0	0	0	0	0	1
Mesothelioma	6	0	6	0	0	0	0	0	0	0
All Sites	1,432	1,300	2,732	4	8	1	15	18	27	32

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	0	1	2	2	3	1	0	0
Bladder w/ in situ	0	0	3	6	12	16	20	24	15	15	15
Bones and Joints	1	3	1	1	1	0	1	0	0	0	0
Brain	3	1	1	4	2	8	2	3	3	1	2
Breast	7	16	25	40	50	69	76	55	29	19	23
Cervix	3	2	0	1	4	3	1	0	0	0	0
Colorectal	5	11	9	23	28	20	33	22	33	16	20
Esophagus	0	2	0	1	1	6	7	3	3	1	1
Eye	0	0	0	0	2	2	2	1	1	1	0
Gallbladder	0	0	0	0	3	2	2	2	0	0	0
Hodgkin	0	3	0	0	2	0	2	1	2	1	1
III-Defined	2	3	5	3	6	12	9	11	5	8	14
Kidney	1	4	6	8	14	11	17	9	18	4	4
Larynx	1	0	1	1	2	4	4	3	1	0	1
Leukemia	0	0	2	6	10	13	13	5	8	9	8
Liver	0	0	2	3	6	10	8	1	4	1	4
Lung	2	2	3	16	30	43	65	55	48	26	20
Melanoma	5	3	6	9	13	21	20	23	7	5	11
Myeloma	0	0	0	3	3	5	5	9	5	2	3
Nasal	0	0	0	0	5	1	1	1	0	0	1
Non-Hodgkin Lymphoma	1	0	8	9	10	14	12	16	11	12	8
Oral Cavity	1	4	1	7	19	13	16	6	7	2	4
Other Biliary	0	0	0	1	0	1	3	3	3	2	1
Other Digestive	0	0	0	2	0	1	0	1	0	0	0
Other Endocrine	0	0	0	1	1	1	0	0	0	0	0
Other Female	0	0	0	2	0	2	2	2	0	0	2
Other Male	0	1	0	0	0	0	1	0	0	0	0
Other Skin	0	0	1	0	2	0	1	3	1	3	1
Other Respiratory	0	0	0	0	0	0	0	0	0	0	1
Other Urinary	0	0	0	1	0	0	0	0	1	2	1
Ovary	0	0	4	3	6	2	5	4	1	1	2
Pancreas	0	1	1	3	9	11	14	11	8	11	6
Prostate	0	0	3	20	43	75	108	66	52	19	15
Small Intestine	0	0	3	3	2	3	0	0	1	2	1
Soft Tissue including Heart	0	0	1	2	0	2	3	0	1	3	1
Stomach	0	1	2	0	4	4	6	4	6	2	1
Testis	5	2	0	1	0	1	0	1	0	0	0
Thyroid	10	11	7	8	14	8	8	3	6	2	0
Uterine	1	3	4	6	16	23	15	6	7	5	1
Mesothelioma	0	1	0	0	0	1	0	2	0	2	0
All Sites	48	74	99	194	321	410	484	359	288	177	173

Wyoming Cancer Mortality¹ for 2016: 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	1	2	3	0	0	0	0	0	0	0
Bladder w/ in situ	17	4	21	0	0	0	0	0	0	0
Bones and Joints	3	0	3	0	0	0	0	0	0	0
Brain	19	23	42	2	0	0	0	1	0	1
Breast	2	68	70	0	0	0	0	0	0	0
Cervix	0	3	3	0	0	0	0	0	0	0
Colorectal	43	35	78	0	0	0	0	0	0	0
Esophagus	14	9	23	0	0	0	0	0	0	0
Eye	0	0	0	0	0	0	0	0	0	0
Gallbladder	1	2	3	0	0	0	0	0	0	0
Hodgkin	4	0	4	0	0	0	0	0	0	0
III-Defined	41	33	74	0	0	0	0	0	0	1
Kidney	13	7	20	0	0	0	0	0	0	0
Larynx	5	0	5	0	0	0	0	0	0	0
Leukemia	24	18	42	0	0	0	0	0	0	0
Liver	28	7	35	0	0	0	0	0	0	0
Lung	113	89	202	0	0	0	0	0	0	0
Melanoma	18	5	23	0	0	0	0	0	0	0
Myeloma	14	10	24	0	0	0	0	0	0	0
Nasal	3	0	3	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	22	12	34	0	0	0	0	1	0	0
Oral Cavity	8	7	15	0	0	0	0	0	0	0
Other Biliary	15	8	23	0	0	0	0	0	0	1
Other Digestive	2	2	4	0	0	0	0	0	0	0
Other Endocrine	0	1	1	0	0	0	0	0	0	0
Other Female	0	2	2	0	0	0	0	0	0	0
Other Male	0	0	0	0	0	0	0	0	0	0
Other Skin	4	0	4	0	0	0	0	0	0	0
Other Respiratory	0	0	0	0	0	0	0	0	0	0
Other Urinary	1	1	2	0	0	0	0	0	0	0
Ovary	0	19	19	0	0	0	0	0	0	0
Pancreas	34	35	69	0	0	0	0	0	0	0
Prostate	59	0	59	0	0	0	0	0	0	0
Small Intestine	3	0	3	0	0	0	0	0	0	0
Soft Tissue including Heart	2	6	8	0	0	0	0	1	0	0
Stomach	9	4	13	0	0	0	0	0	0	0
Testis	0	0	0	0	0	0	0	0	0	0
Thyroid	2	3	5	0	0	0	0	0	0	0
Uterine	0	11	11	0	0	0	0	0	0	0
Mesothelioma	3	2	5	0	0	0	0	0	0	0
All Sites	527	428	955	2	0	0	0	3	0	3

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	0	0	1	1	0	0
Bladder w/ in situ	0	0	0	0	2	1	1	3	2	6	6
Bones and Joints	0	1	0	1	0	0	0	1	0	0	0
Brain	1	3	2	3	6	6	7	3	1	4	2
Breast	1	1	3	6	11	8	9	4	8	10	9
Cervix	0	1	0	0	1	1	0	0	0	0	0
Colorectal	0	1	1	4	12	8	10	6	12	11	13
Esophagus	0	0	0	0	2	7	5	5	0	3	1
Eye	0	0	0	0	0	0	0	0	0	0	0
Gallbladder	0	0	0	0	1	0	0	2	0	0	0
Hodgkin	0	0	1	0	0	0	0	0	1	1	1
III-Defined	0	1	3	3	5	10	10	12	7	8	14
Kidney	1	0	0	1	2	2	2	4	4	2	2
Larynx	0	0	1	0	1	0	1	1	1	0	0
Leukemia	0	0	0	3	1	6	7	7	3	3	12
Liver	0	0	1	1	5	9	9	4	2	1	3
Lung	1	1	2	6	13	22	29	37	32	32	27
Melanoma	0	0	0	1	0	5	6	2	1	3	5
Myeloma	0	0	0	0	1	3	5	5	4	2	4
Nasal	0	0	0	0	0	1	1	0	1	0	0
Non-Hodgkin Lymphoma	0	1	2	2	3	6	3	4	3	5	4
Oral Cavity	0	0	0	2	2	2	2	1	3	1	2
Other Biliary	0	0	0	2	3	5	4	3	1	2	2
Other Digestive	0	0	0	0	0	1	2	1	0	0	0
Other Endocrine	0	0	0	0	0	0	1	0	0	0	0
Other Female	0	0	0	0	0	0	1	0	0	1	0
Other Male	0	0	0	0	0	0	0	0	0	0	0
Other Skin	0	0	1	0	0	0	0	0	0	0	3
Other Respiratory	0	0	0	0	0	0	0	0	0	0	0
Other Urinary	0	0	0	0	0	0	0	1	1	0	0
Ovary	0	3	0	0	0	2	3	5	1	1	4
Pancreas	0	1	1	1	1	10	16	11	17	5	6
Prostate	0	0	0	1	2	3	10	6	9	8	20
Small Intestine	0	0	0	0	1	0	1	1	0	0	0
Soft Tissue including Heart	0	0	1	0	2	1	2	0	1	0	0
Stomach	0	0	2	0	1	1	1	1	3	2	2
Testis	0	0	0	0	0	0	0	0	0	0	0
Thyroid	0	0	0	0	0	1	0	0	1	2	1
Uterine	0	0	0	0	1	2	3	0	3	1	1
Mesothelioma	0	0	0	0	0	0	1	0	1	2	1
All Sites	4	14	21	38	79	123	152	131	124	116	145

**Wyoming Cancer Incidence for 2016: Cases by Race and Ethnicity
(Top 15 Sites Only)**

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	2,733	2,672	6	26	19	10	81
Bladder	126	125	0	1	0	0	1
Brain	41	40	0	0	0	1	2
Breast (Female)	416	405	0	7	3	1	9
Colorectal	225	216	0	3	5	1	12
Kidney	100	98	1	0	1	0	5
Leukemia	77	76	0	0	0	1	1
Lung	310	306	0	2	1	1	3
Melanoma	134	134	0	0	0	0	1
Non-Hodgkin Lymphoma	105	103	0	2	0	0	2
Oral Cavity	82	81	0	0	0	1	2
Ovary	31	30	0	1	0	0	2
Pancreas	75	74	0	0	1	0	4
Prostate	402	397	1	2	1	1	5
Thyroid	94	92	1	0	0	1	5
Uterine	88	85	0	0	3	0	2

**Wyoming Cancer Mortality for 2016: Cases by Race and Ethnicity
(Top 15 Sites Only)**

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	955	928	3	18	5	1	44
Bladder	21	21	0	0	0	0	0
Brain/CNS	42	42	0	0	0	0	3
Breast (Female)	70	68	0	1	1	0	4
Colorectal	54	52	0	2	0	0	3
Kidney	20	20	0	0	0	0	2
Leukemia	42	40	1	0	0	1	2
Lung	202	197	1	4	0	0	4
Melanoma	23	23	0	0	0	0	1
Non-Hodgkin Lymphoma	34	33	0	1	0	0	2
Oral Cavity	15	14	0	1	0	0	0
Ovary	19	18	0	1	0	0	0
Pancreas	69	68	0	1	0	0	3
Prostate	59	57	0	1	1	0	0
Thyroid	5	5	0	0	0	0	0
Uterine	11	11	0	0	0	0	0

State of Wyoming - 2016

Top Cancer Sites by Gender and Age - Incidence and Mortality

**Relative Survival Rates State of Wyoming
2007-2015
All Sites and Top 15 Cancers**

Relative Survival by Cancer Type: 2010-2016 (All Ages and Stages Combined)

Cancer Site	12 Months	24 Months	36 Months	48 Months	60 Months
All Sites	81.80%	75.10%	71.30%	67.20%	63.80%
Bladder w/in situ	89.90%	82.80%	80.50%	78.20%	75.00%
Brain/CNS	57.10%	41.20%	34.90%	27.30%	23.70%
Breast (Female)	97.50%	95.70%	93.20%	91.00%	88.00%
Colorectal	82.70%	74.00%	68.70%	61.00%	55.10%
Kidney	88.60%	83.40%	79.80%	74.50%	68.70%
Leukemia	76.20%	69.50%	64.40%	58.60%	53.20%
Lung	43.50%	27.70%	21.60%	16.40%	13.70%
Melanoma	99.20%	96.80%	96.10%	93.10%	89.30%
Non-Hodgkin	81.30%	76.30%	73.50%	68.00%	65.90%
Oral Cavity	88.90%	79.70%	71.20%	65.80%	61.80%
Ovary	82.00%	68.80%	57.50%	49.20%	38.30%
Pancreas	28.40%	13.60%	10.80%	8.10%	7.10%
Prostate	99.30%	98.40%	97.00%	94.90%	93.50%
Thyroid	97.90%	97.50%	96.30%	96.30%	94.20%
Uterine	95.10%	89.90%	85.90%	83.10%	80.10%

Relative Survival by Cancer Type: 2010-2016 all stages (Ages 0-19 years old)

Cancer Site	12 Months	24 Months	36 Months	48 Months	60 Months
All Sites	92.20%	88.60%	86.80%	83.20%	81.30%
Brain	82.20%	74.00%	74.00%	59.20%	59.20%
Leukemia	92.90%	89.20%	85.30%	85.30%	80.40%
Bone & Joints	100.00%	77.80%	77.80%	58.40%	58.40%
Hodgkin Lymphoma	92.30%	92.30%	92.30%	92.30%	92.30%
Melanoma	77.10%	77.10%	77.10%	77.10%	77.10%
Soft Tissue, including Heart	100.0%	100.00%	100.00%	100.00%	100.00%

Note: Recurrent percentages across months are partly due to low numbers of cases in this age-group

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 recurrence, 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 that a cancer detected in its later stages (e.g., distant or Stage IV).

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

2016 Wyoming Incidence and Mortality Rates

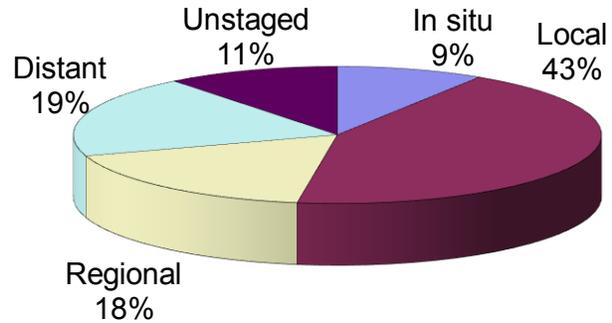
All Cancer Sites

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	1,433	1,300	2,733
In situ Cases	138	135	273
WY Incidence	423.3	378.9	397.7
US Incidence	467.6	422.2	438.7
Cancer Deaths	527	428	955
WY Mortality	165.2	121.5	140.3
US Mortality	190.1	136.5	159.4

* 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 and mortality rates for Wyoming were all lower than the United States rates for 2016. However, none of these differences were statistically significant.

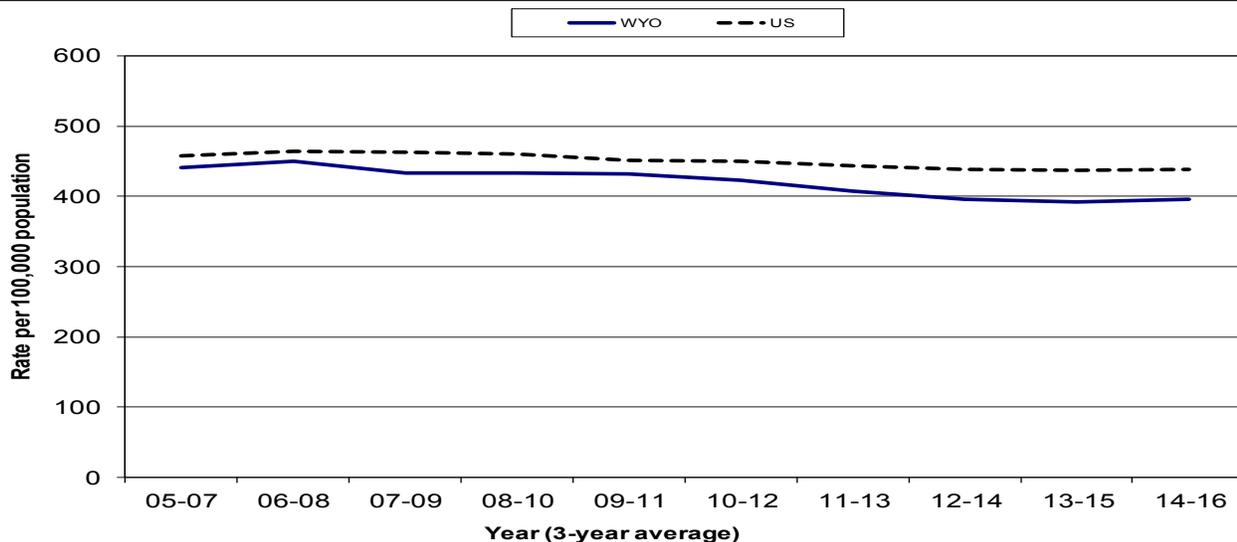
The 12-year incidence trend for Wyoming seems to have leveled off from 2011-2013 to 2014-2016. The national incidence trend remains steady.

The percent of cancers diagnosed at each stage in 2016 are nearly identical to the percentages in 2015, though the number of cancers diagnosed increased by 105 cases.

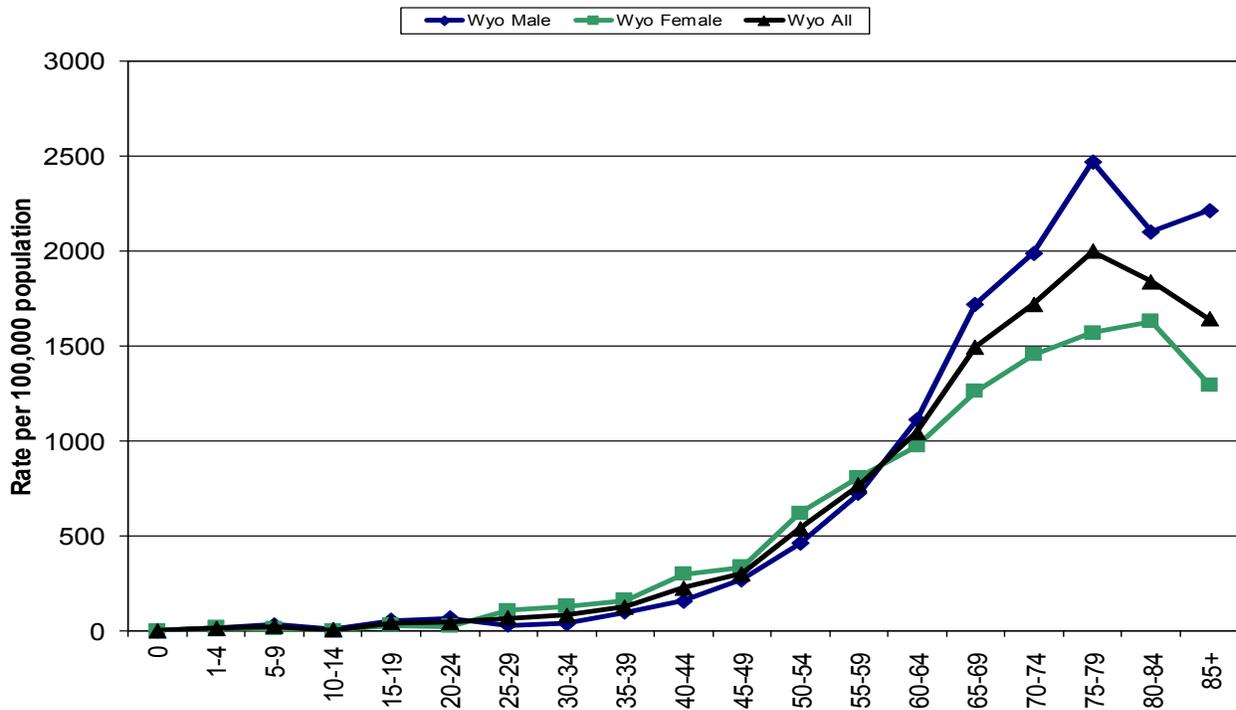
There were a total of thirteen cancers diagnosed in children under the age of 15 in 2016.

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

12-Year Incidence Trend

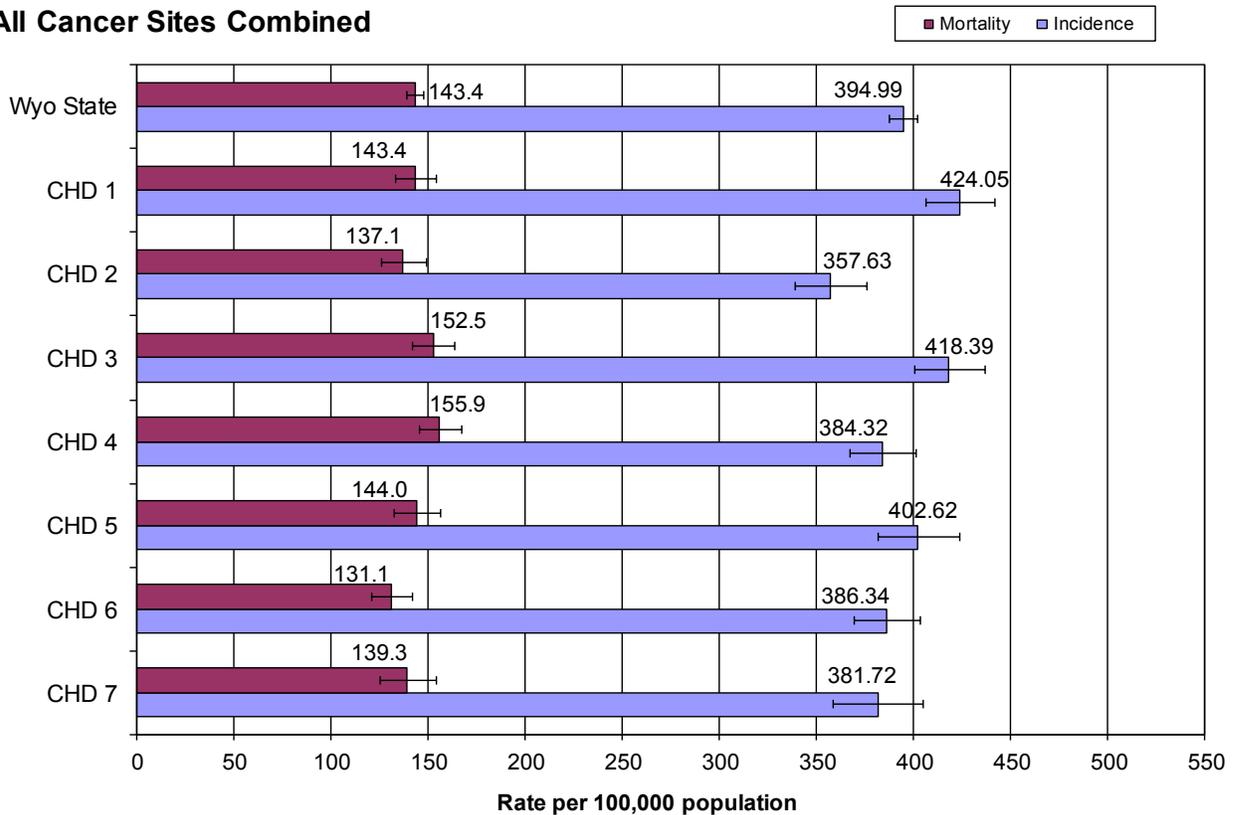


Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016

All Cancer Sites Combined



Bladder (Urinary)

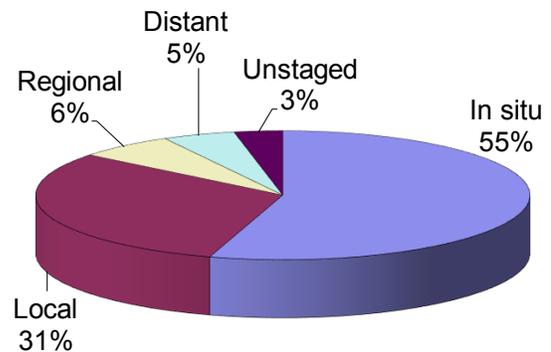
includes In Situ Cases

Incidence and Mortality Summary

	Male	Female	Total
All Cases	98	28	126
In situ Cases	57	12	69
WY Incidence	30.6	7.7	18.2
US Incidence	36.0	8.4	20.6
Cancer Deaths	17	4	21
WY Mortality	6.1	1.1	3.3
US Mortality	7.9	2.2	4.6

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

Stage at Diagnosis



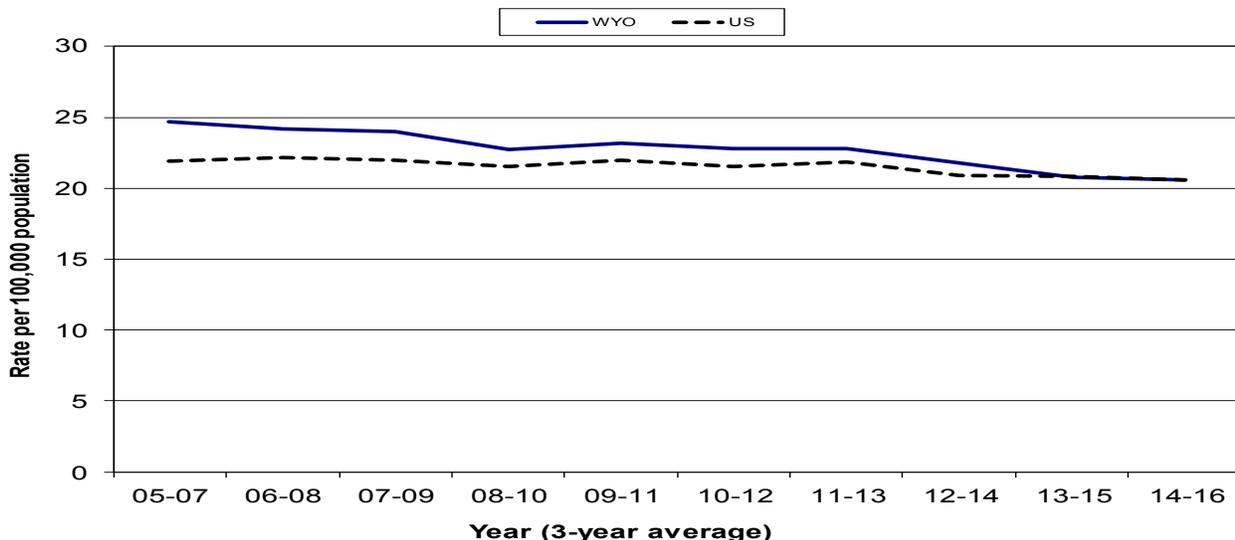
The incidence and mortality rates in each Wyoming population were lower all than the national rate, though not significantly.

The incidence trend shows that the Wyoming rate has been equivalent to the national rate since 2013-2015.

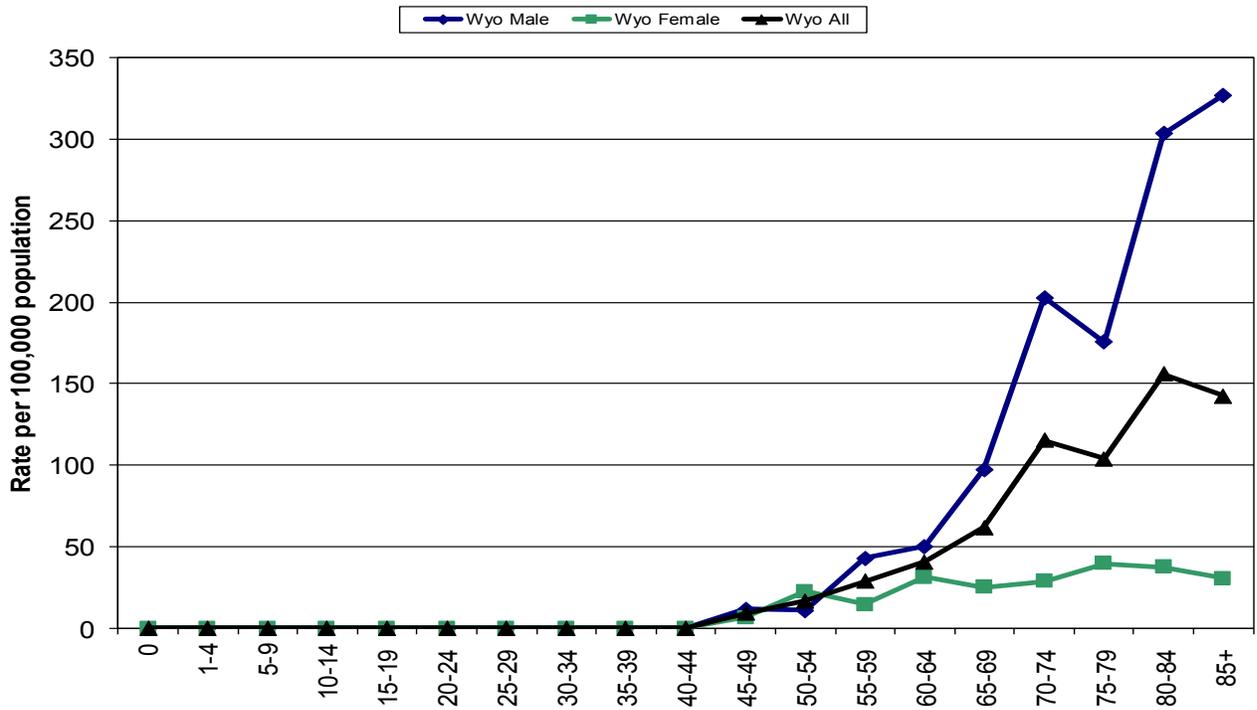
The percent of cancers diagnosed as In situ increased from 2015 (46%) while the percent diagnosed at the local stage decreased slightly from 2015 (38%). The other stages were unchanged from 2015.

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

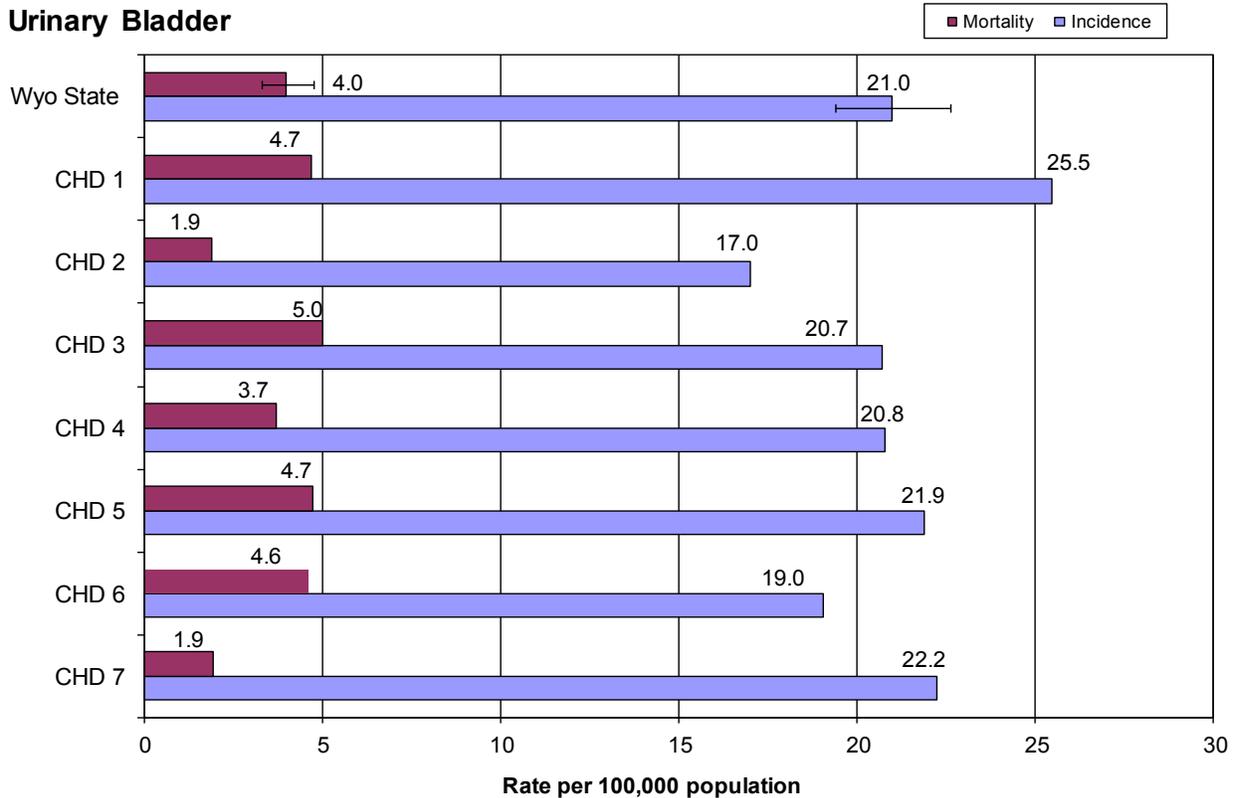
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



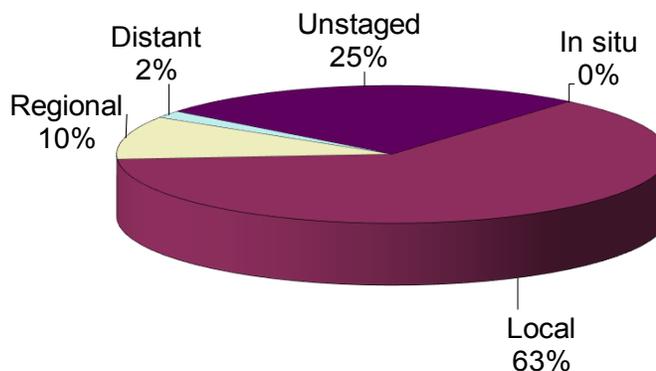
Brain/Central Nervous System (CNS)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	20	21	41
WY Incidence	6.3	6.5	6.4
US Incidence	8.1	6.1	7.0
Cancer Deaths	19	23	42
WY Mortality	6.0	6.9	6.3
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

Stage at Diagnosis



The incidence rate of Brain/CNS cancer in Wyoming females was higher than the national rate, while males and total population were lower. Mortality rates in each Wyoming population was higher than that national rate.

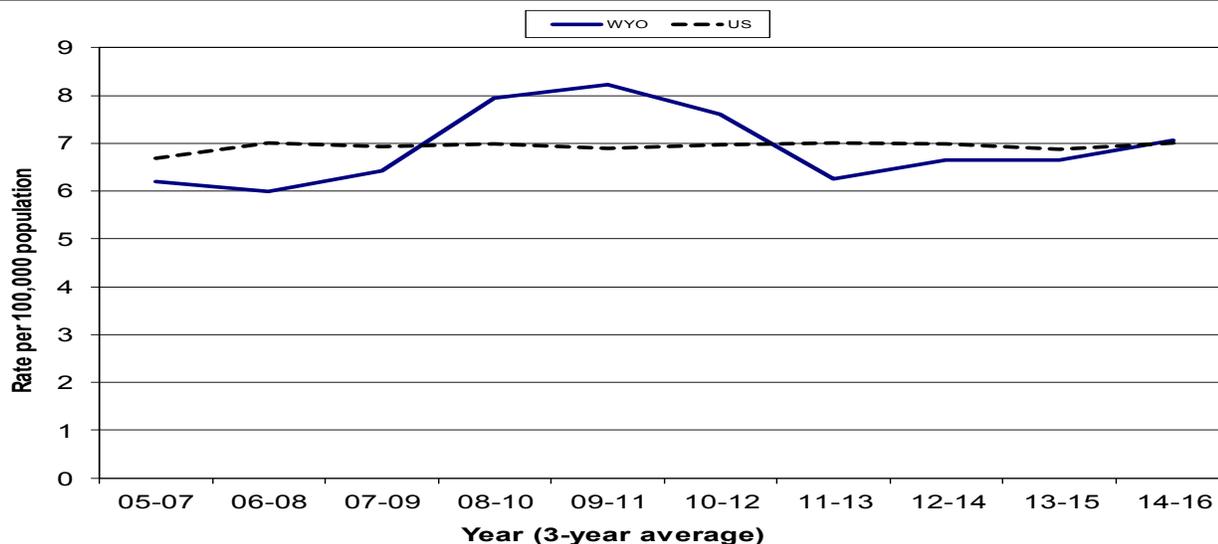
The 12-year trend shows an increase that started in 2011-2013 continuing into 2014-2016.

The percentage of cases diagnosed as Unstaged increased significantly from 2015 (5%), and the percent of cases that were listed as local decreased from 2015 (82%). There were 48 cases of benign brain cancer diagnosed in 2016.

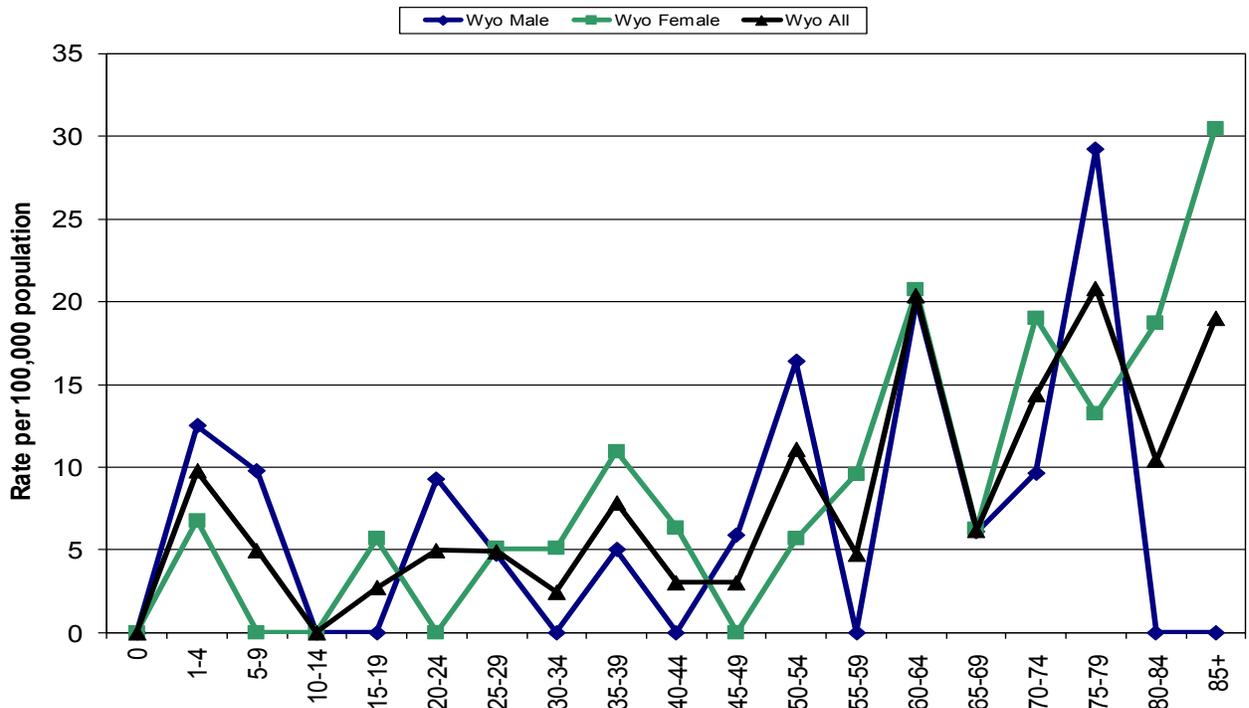
There were three cases of brain/CNS cancer diagnosed in children under 15 years of age in 2016.

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

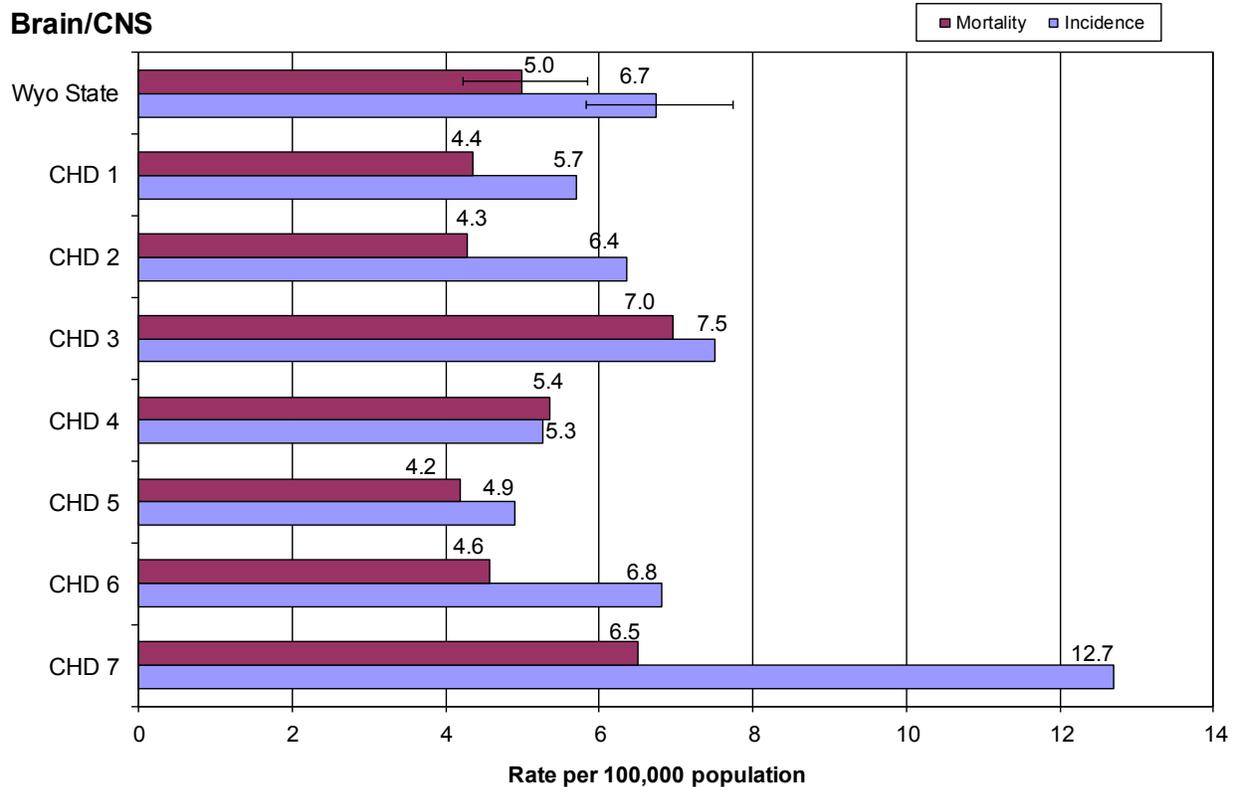
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



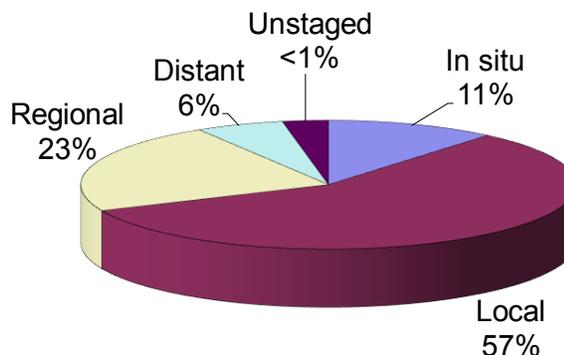
Breast (Female Only)

Incidence and Mortality Summary

	Female
Invasive Cases	411
In situ Cases	51
WY Incidence	118.4
US Incidence	128.6
Cancer Deaths	68
WY Mortality	19.6
US Mortality	19.8

* 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 rate of female breast cancer in Wyoming remained lower than the national rate in 2016, while the mortality rate was basically equal to the national rate.

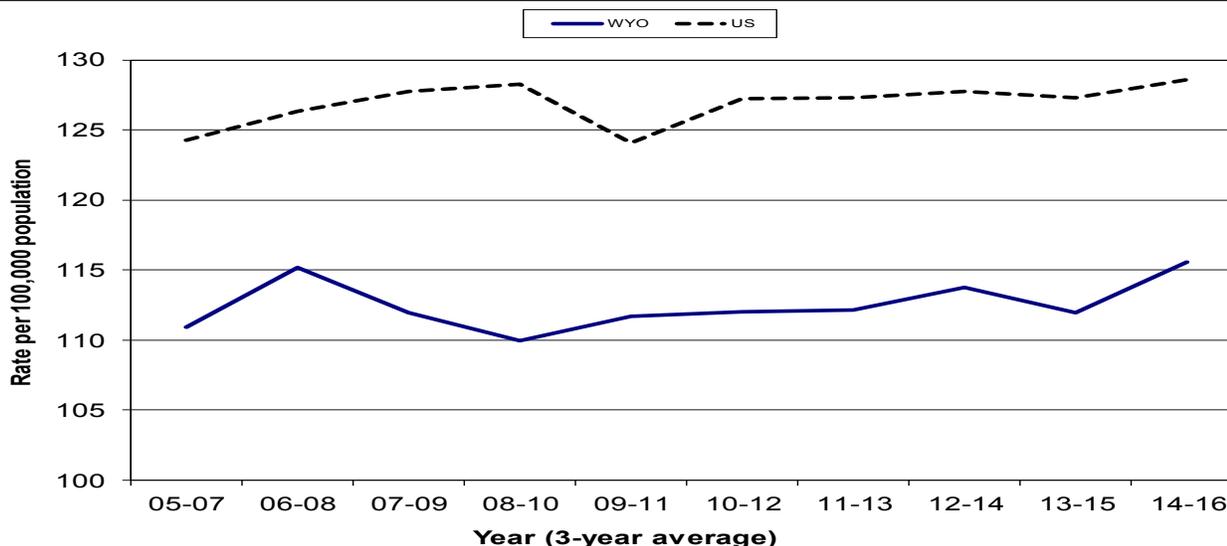
The 12-year incidence trend shows a rather sharp increase from 2013-2015 to 2014-2016. The national rate also shows a very slight trend upward for this same time frame

The percentage of cases diagnosed at each stage in 2016 were almost identical to the percentages in 2015.

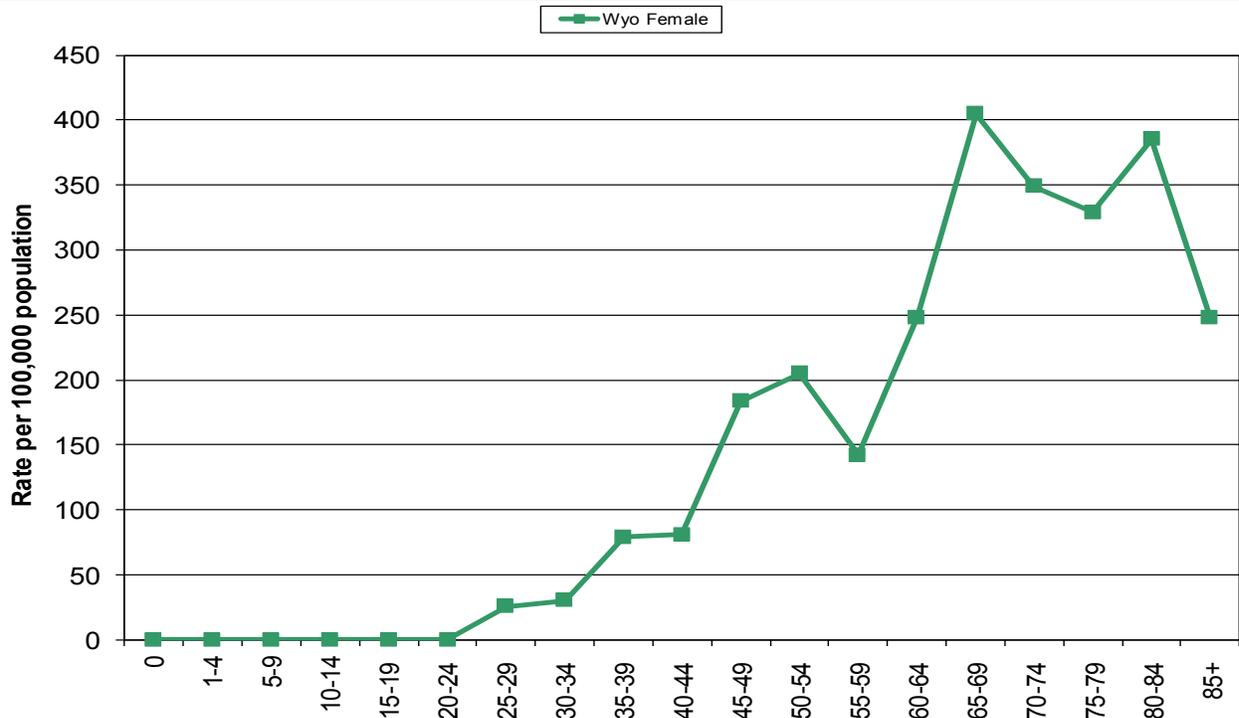
No statistically significant differences were found for incidence or mortality between CHDs.

There were six cases (5 malignant and 1 In situ) of breast cancer diagnosed in Wyoming males in 2016.

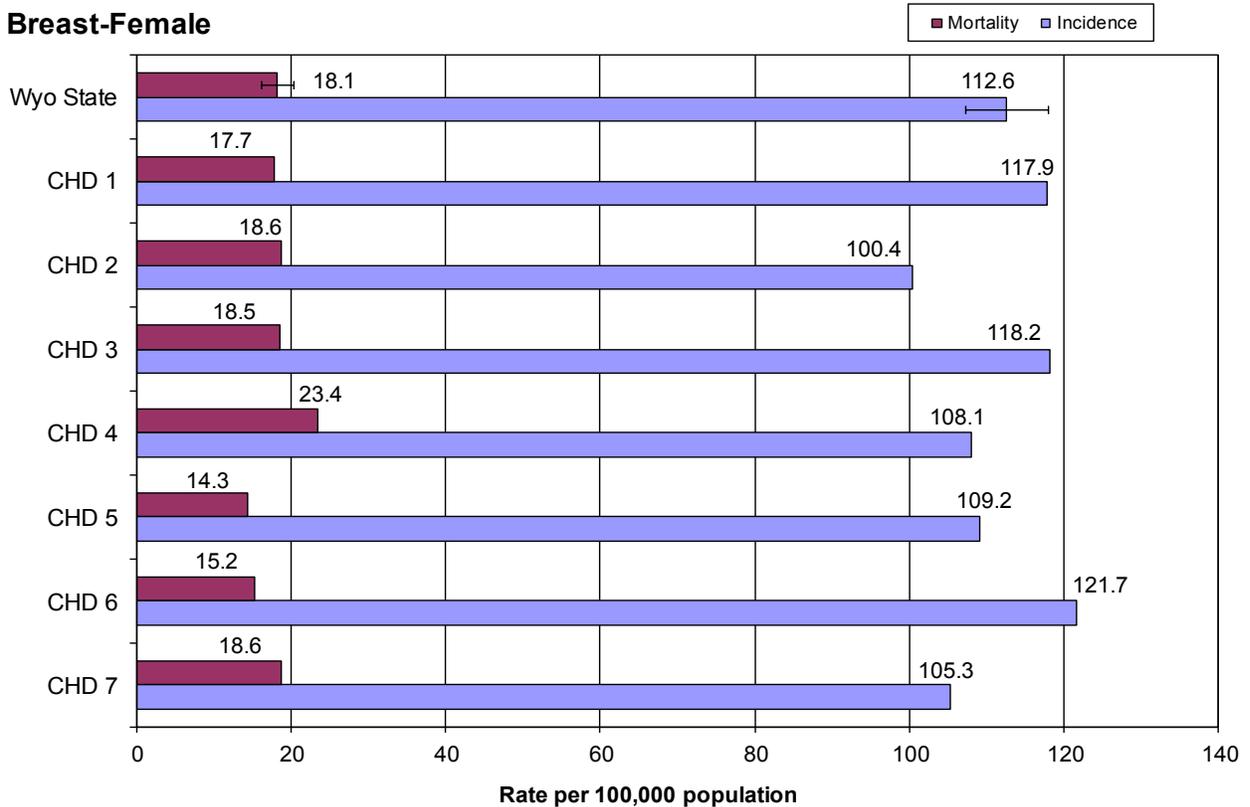
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



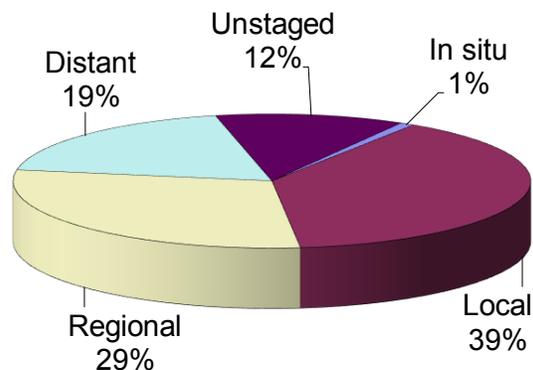
Colorectal

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	114	111	225
WY Incidence	35.2	33.8	34.7
US Incidence	43.0	33.1	37.7
Cancer Deaths	43	35	78
WY Mortality	13.0	10.1	11.5
US Mortality	16.2	11.6	13.7

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

Stage at Diagnosis



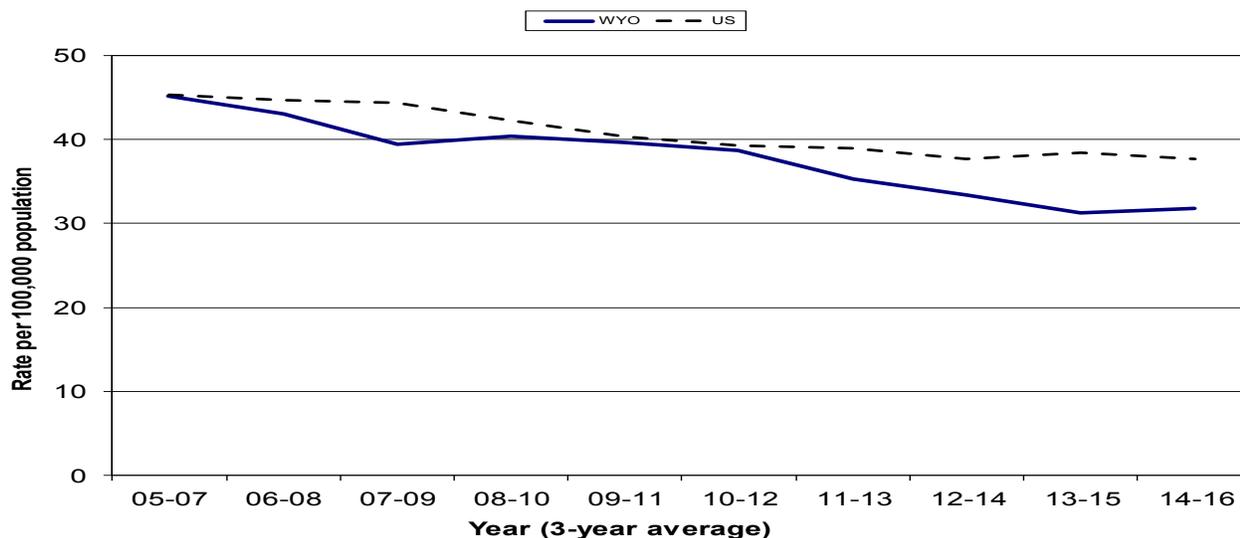
The Wyoming incidence rates for colorectal cancer in males and total population were lower than the national rates in 2016, while the female rate was slightly higher. The mortality rates in males, females, and total were all lower than the national rate.

The 12-year incidence graph shows that the incidence rate in Wyoming stopped declining in 2013-2015 and remained steady into 2014-2016. The national rate remains flat.

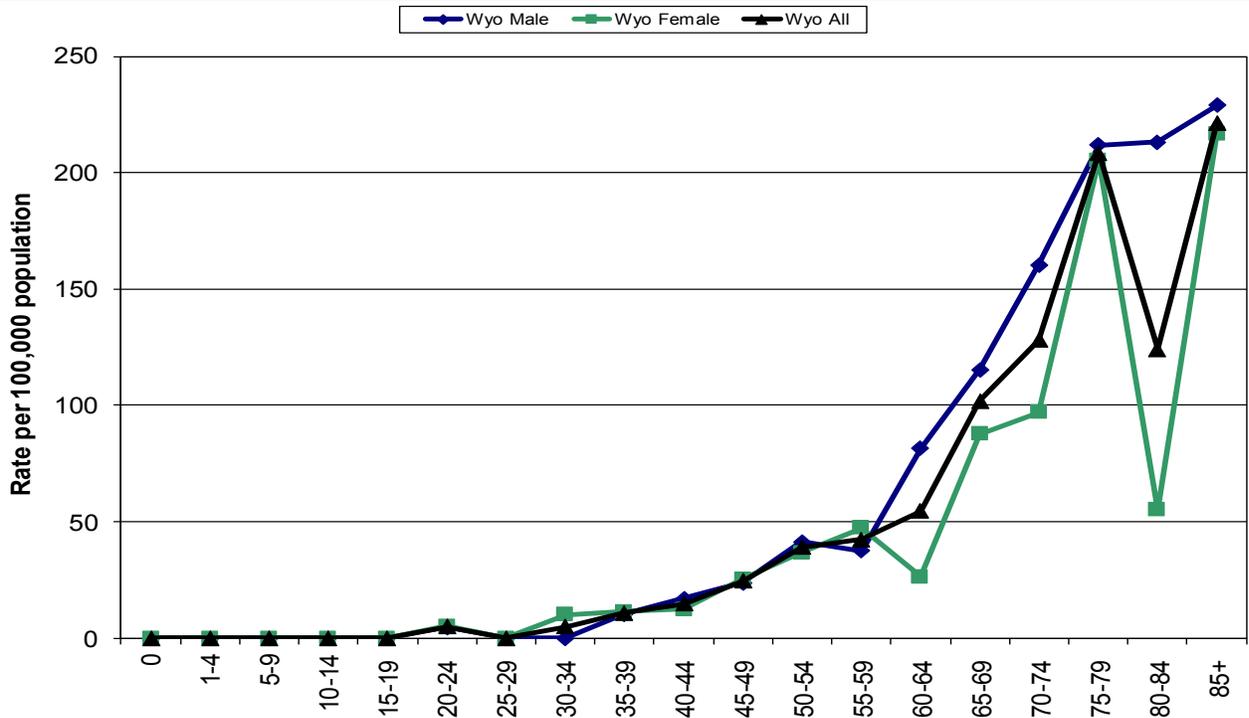
The percentage of colorectal cancers diagnosed as Unstaged rose significantly from its 2015 level (2%), while the Regional stage decreased from 2015 (41%).

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

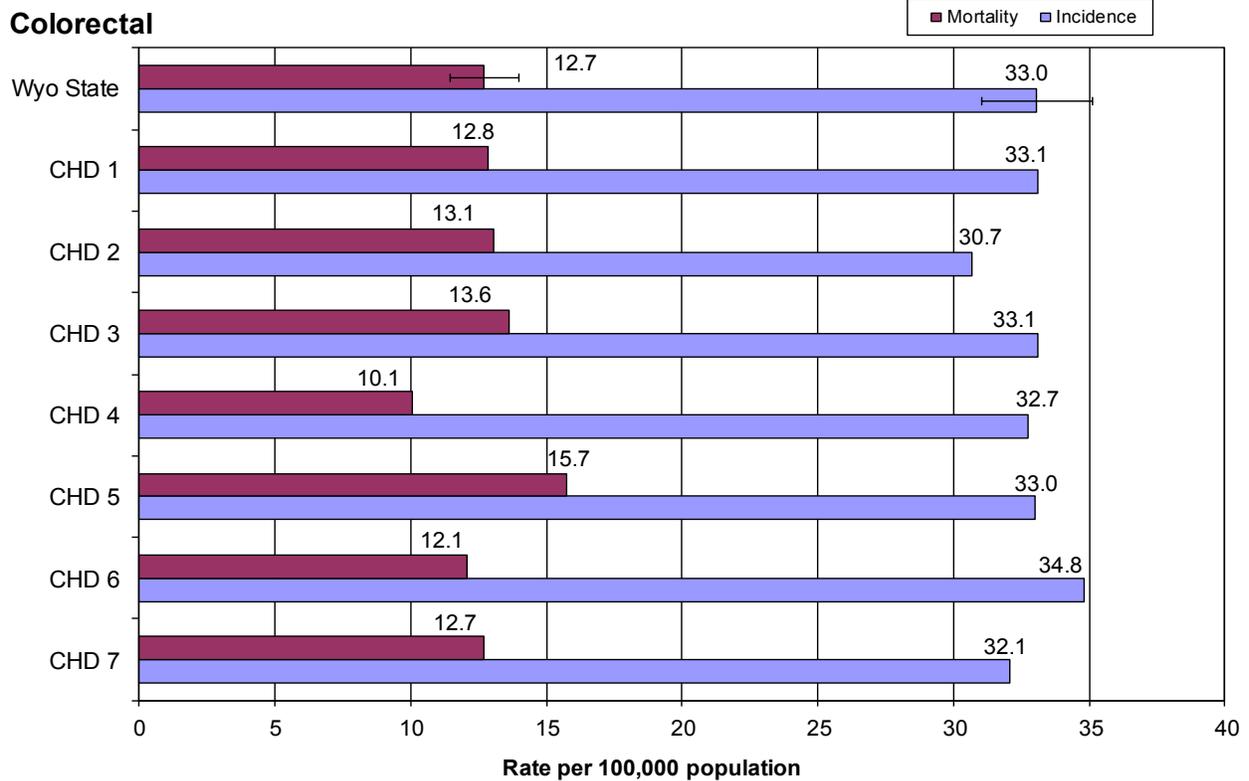
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



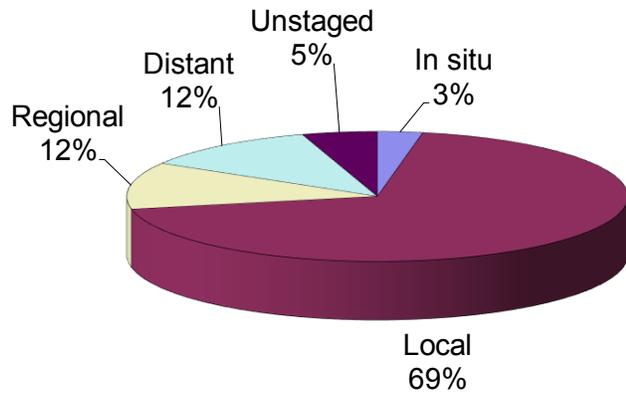
Kidney/Renal Pelvis

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	64	36	100
WY Incidence	20.1	10.5	15.2
US Incidence	22.4	11.7	16.7
Cancer Deaths	13	7	20
WY Mortality	4.4	1.9	3.1
US Mortality	5.8	2.4	3.9

* 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 kidney/renal pelvis cancer in Wyoming were all lower than the national rates in 2016.

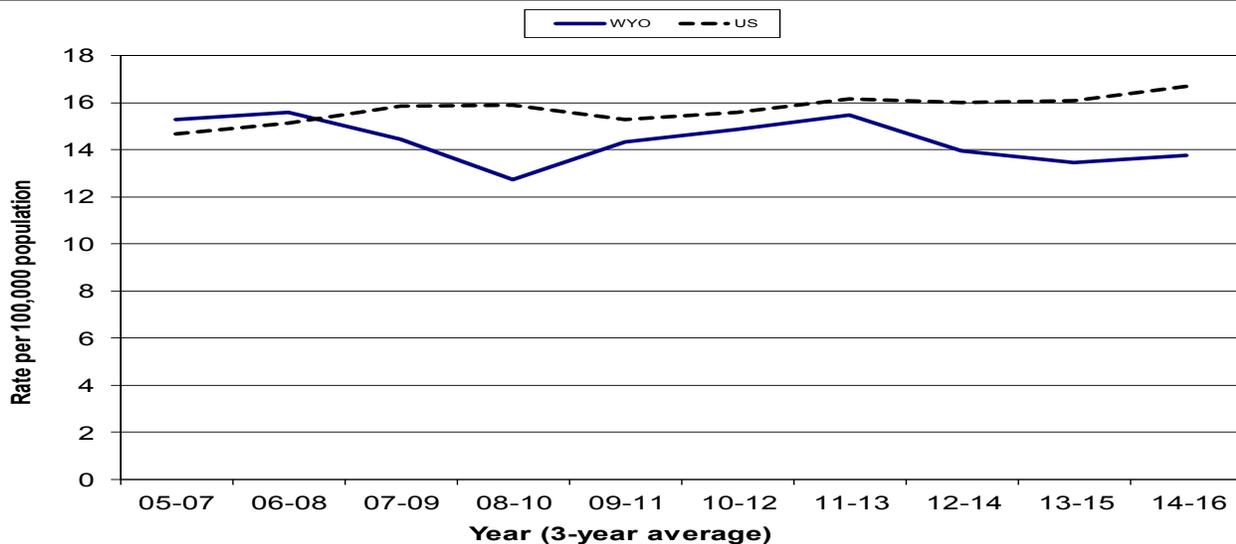
The 12-year trend shows a leveling off from 2013-2015 to 2014-2016, but the national rate shows a increase across the same time period.

The percent of cases diagnosed at each stage were very similar to their 2015 percentages.

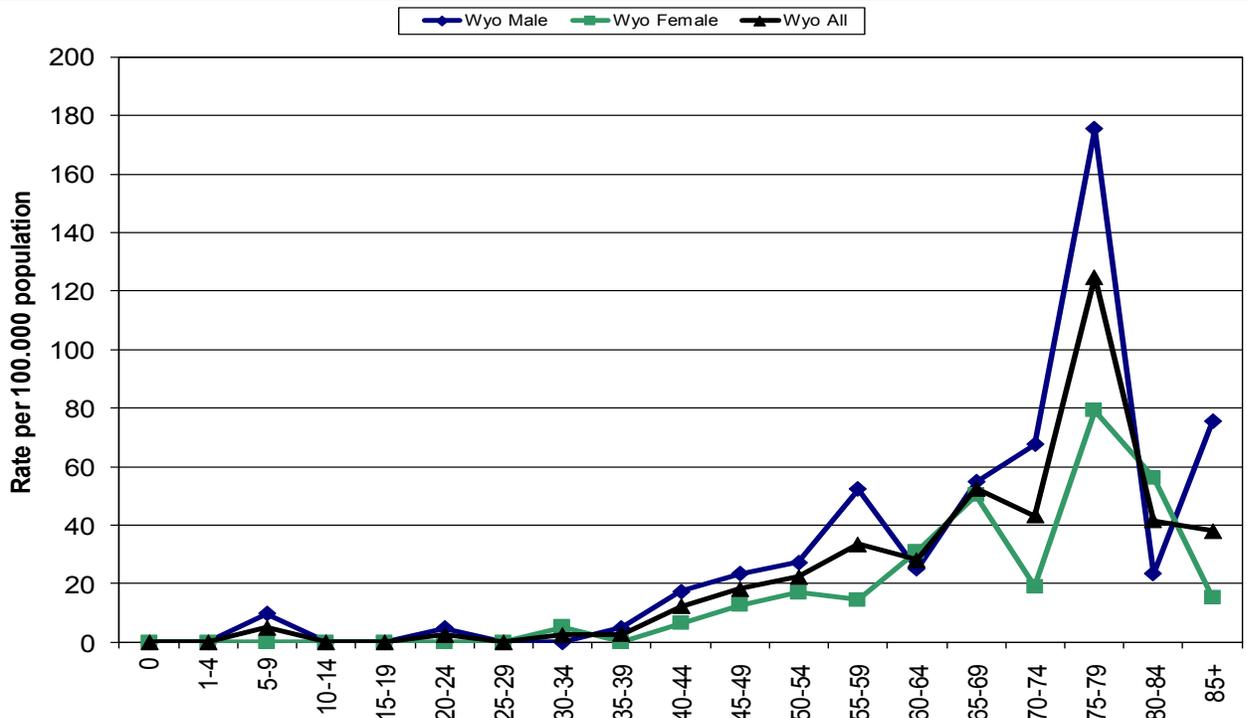
There were two cases diagnosed in Wyomingites under 10 years of age in 2016.

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

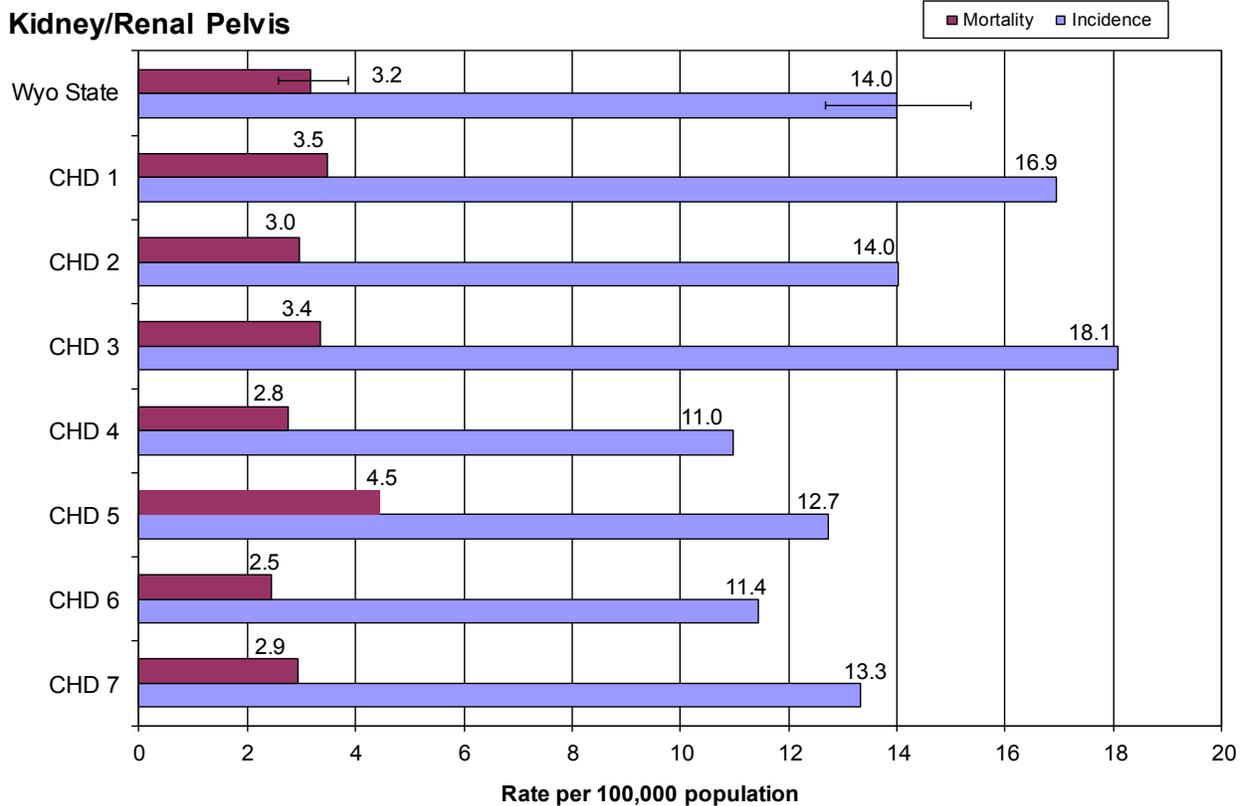
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



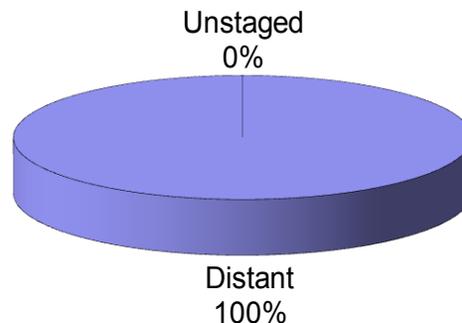
Leukemia

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	45	32	77
WY Incidence	13.7	8.6	10.9
US Incidence	17.9	10.9	14.1
Cancer Deaths	24	18	42
WY Mortality	7.9	4.6	5.9
US Mortality	8.8	4.8	6.6

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

Stage at Diagnosis



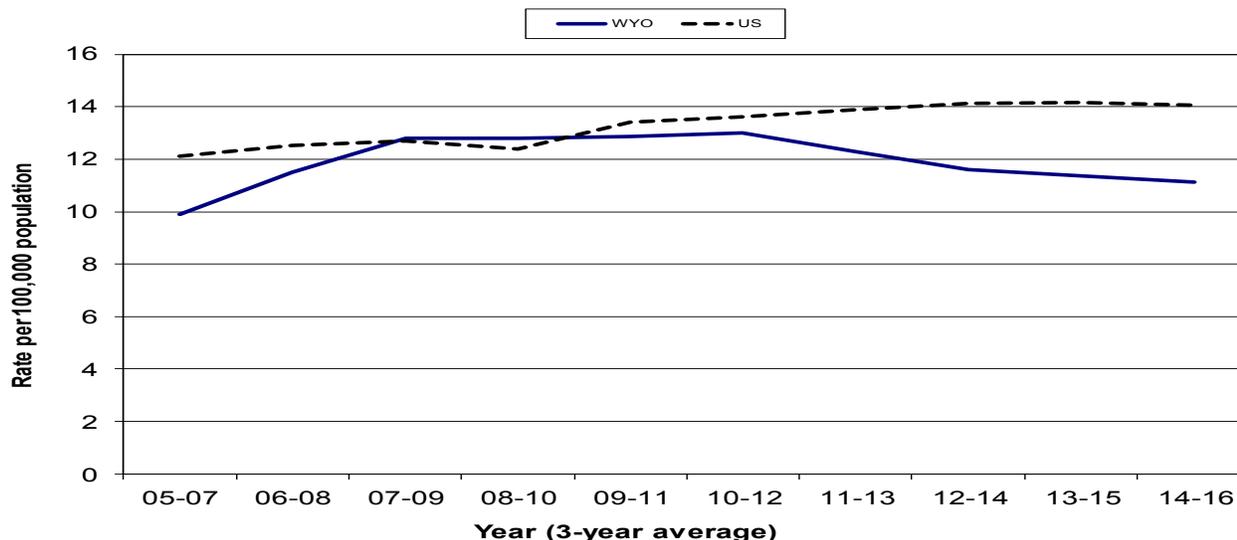
The incidence and mortality rates for leukemia in Wyoming for males, females, and total population were all lower than the national rates in 2016

The incidence trend for Wyoming continues the decrease that began in 2010-2012, while the national rate has remained level since 2012-2014.

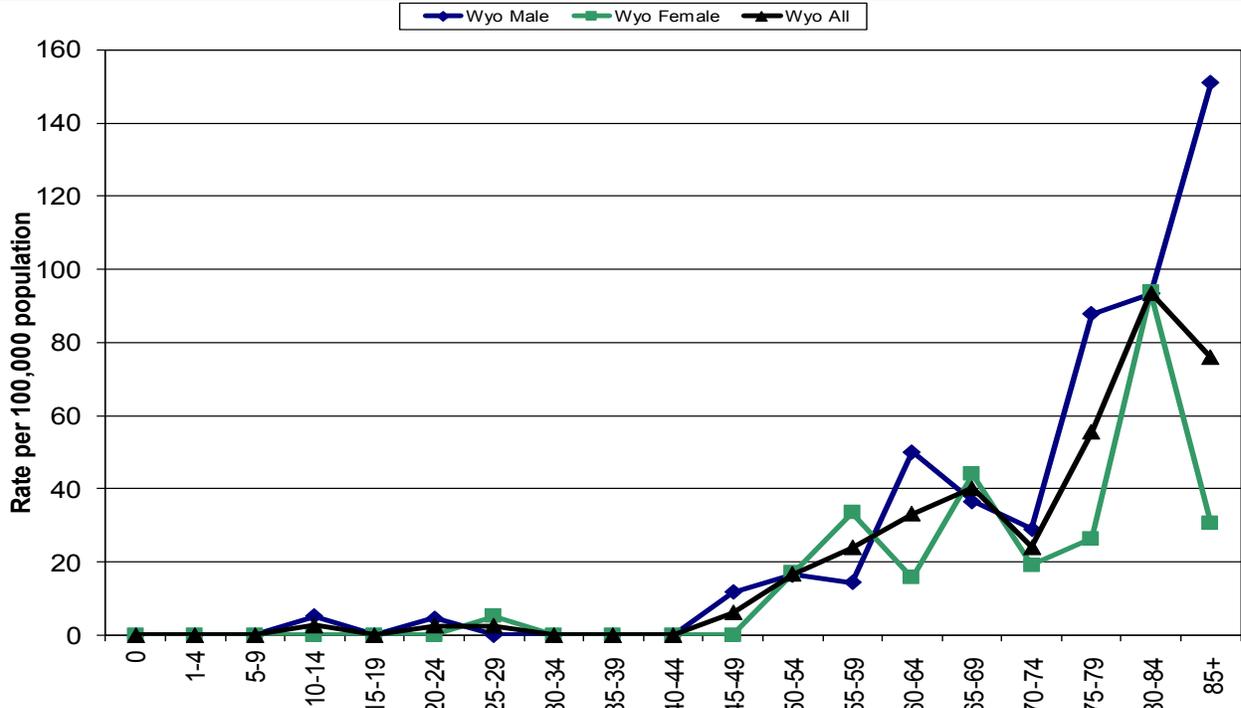
There was only one case of leukemia diagnosed in a child under 15 years of age in 2016.

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

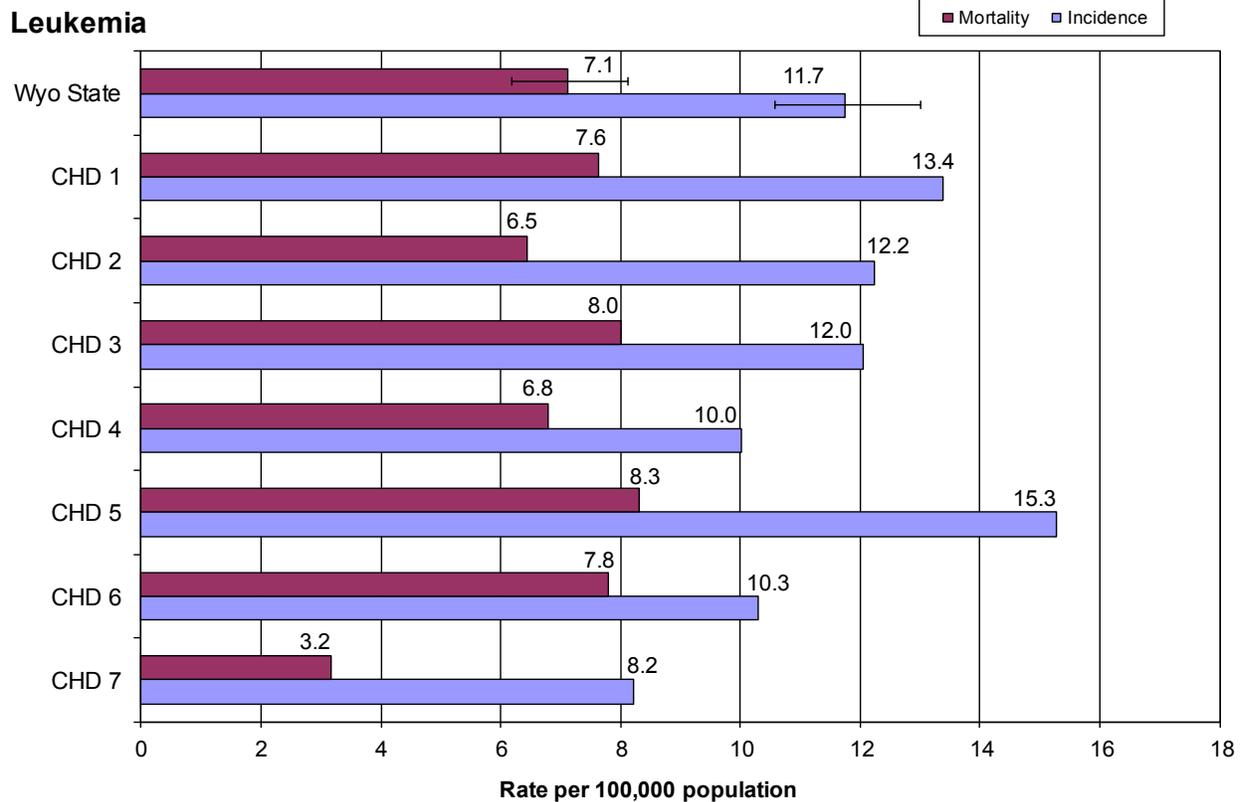
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



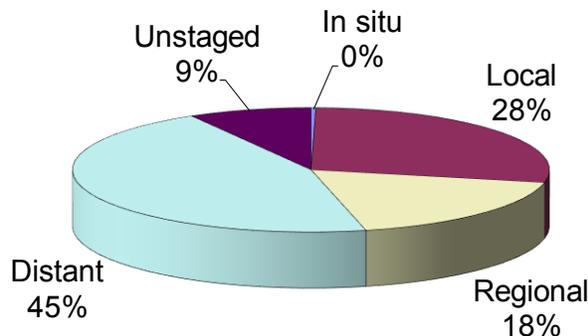
Lung and Bronchus

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	164	146	310
WY Incidence	48.6	40.4	44.1
US Incidence	59.8	48.4	53.2
Cancer Deaths	113	89	202
WY Mortality	35.6	26.1	30.2
US Mortality	49.9	34.9	41.5

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

Stage at Diagnosis



Lung cancer incidence and mortality rates in Wyoming males, females, and total population continue to all be lower than the national rates in 2016. None of these differences were statistically significant.

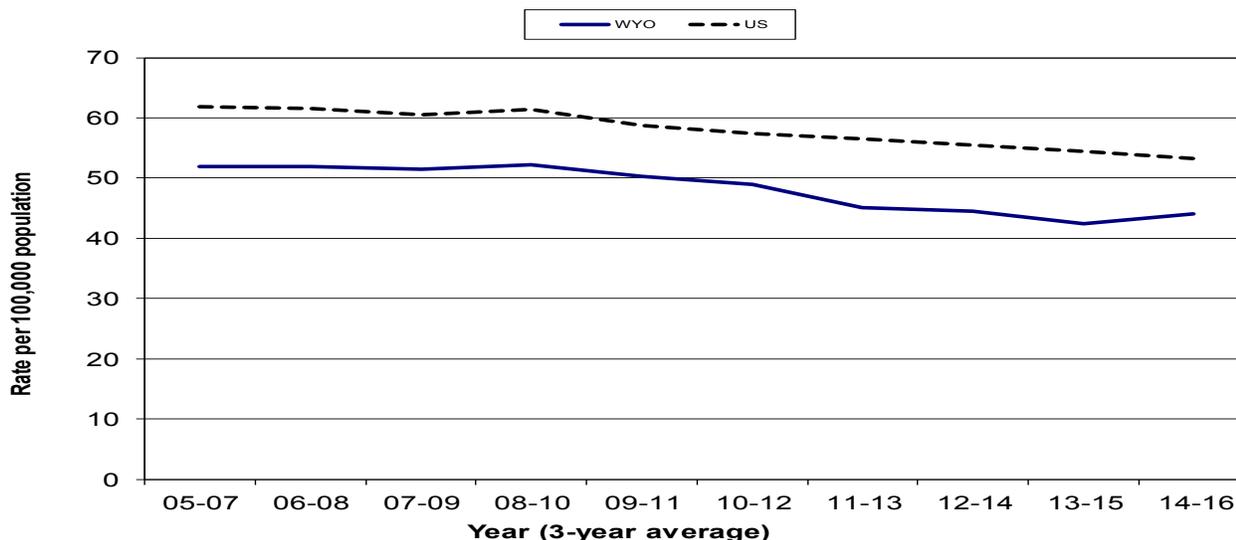
The 12-year incidence trend showed the rates for lung cancer show a slight increase in Wyoming starting in 2013-2015. The national rate continues on a decreasing trend.

The percent of cases diagnosed at each stage in 2016 are nearly identical to those in 2015.

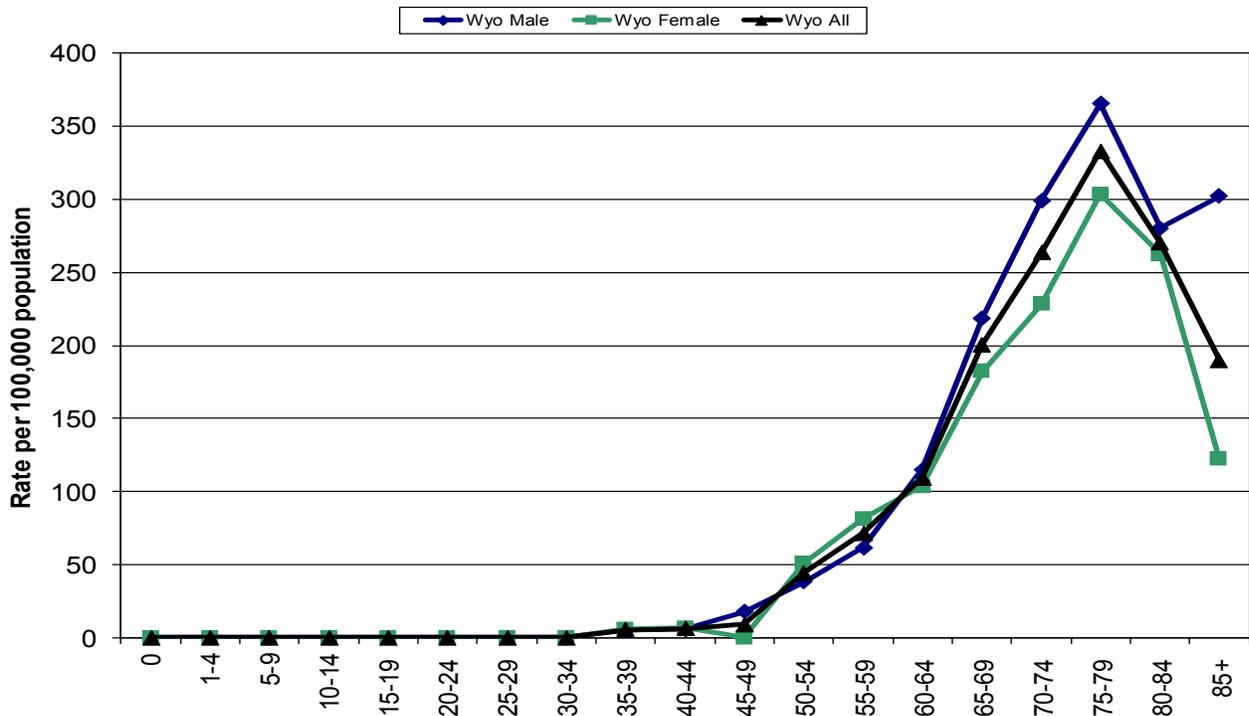
There were no cases of lung cancer diagnosed in anyone under the age of 35 in 2016.

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

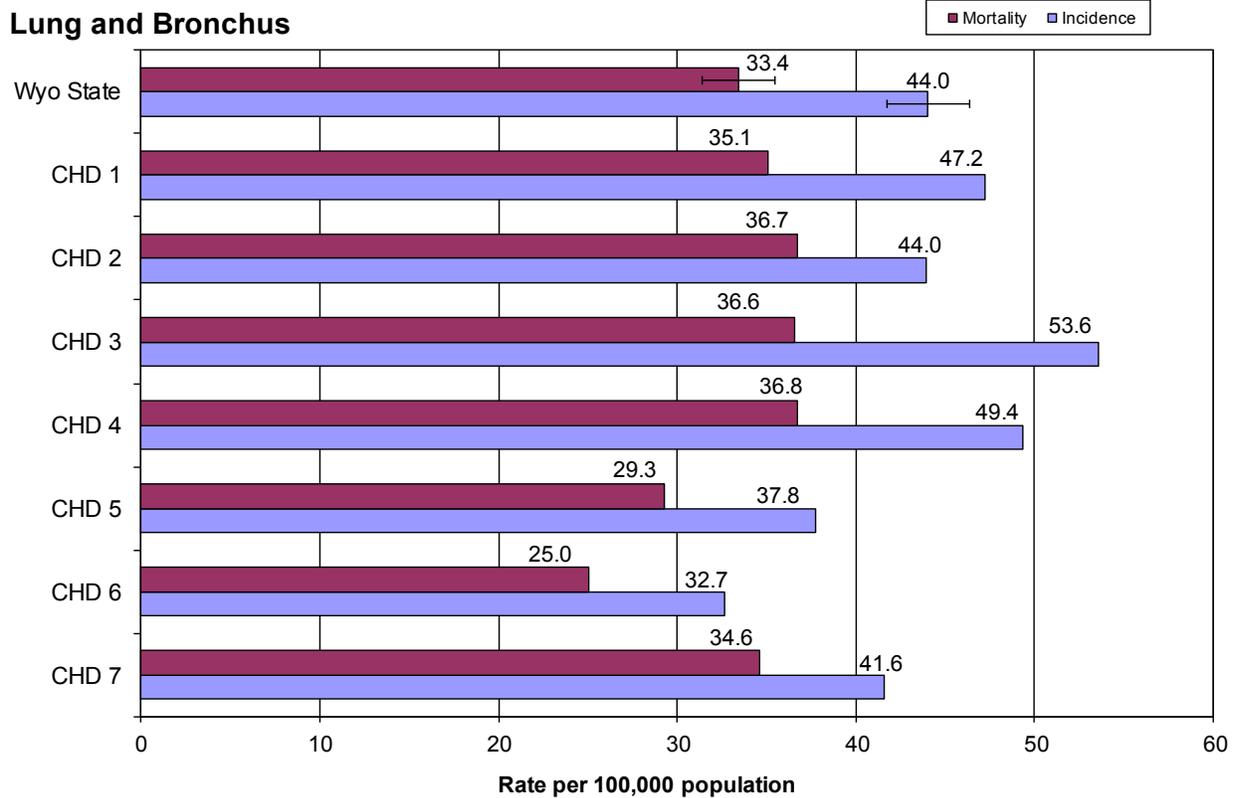
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



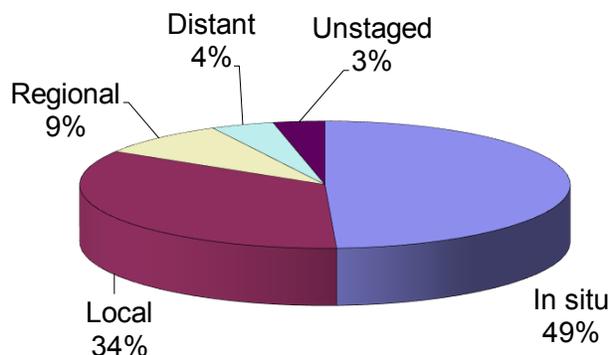
Melanoma (of the skin)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	84	50	134
In situ Cases	73	57	130
WY Incidence	24.2	15.9	19.6
US Incidence	36.1	22.9	28.5
Cancer Deaths	18	5	23
WY Mortality	5.2	1.4	3.1
US Mortality	4.1	1.8	2.8

* 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 rates for melanoma of the skin for Wyoming were all lower than the national rates in 2016. The mortality rates for males and total population were both higher than the national rates, while the female rate was slightly lower than the national rate.

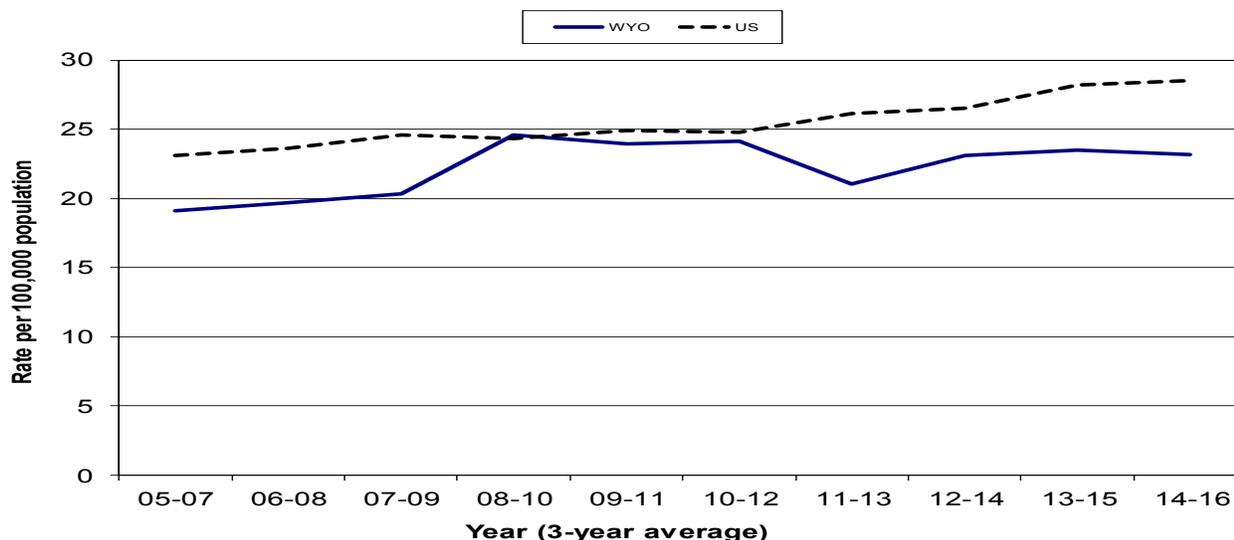
There were six cases of melanoma in individuals under 30 years of age in 2016.

The incidence trend of melanoma in Wyoming has remained level since 2012-2014, while the national trend continues to increase slowly.

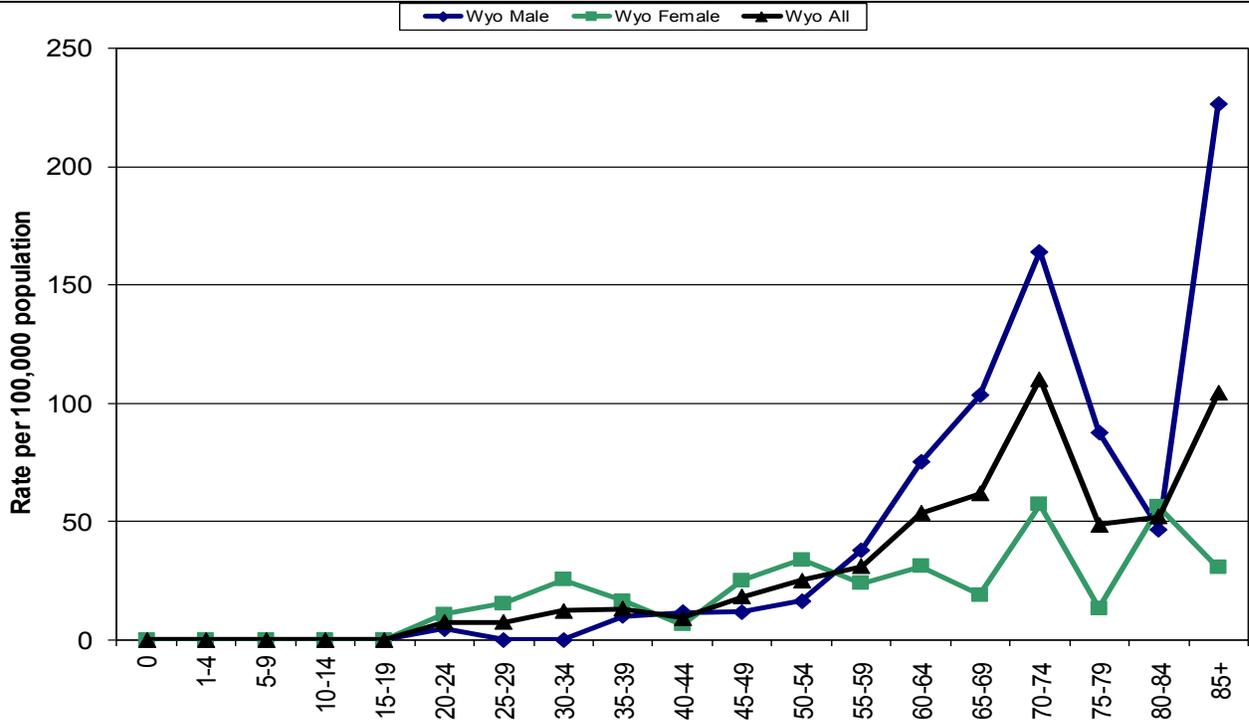
The percentage of cases diagnosed as Regional increased significantly from 2015 (3%), while those diagnosed as Local decreased from its 2015 level (43%).

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

12-Year Incidence Trend

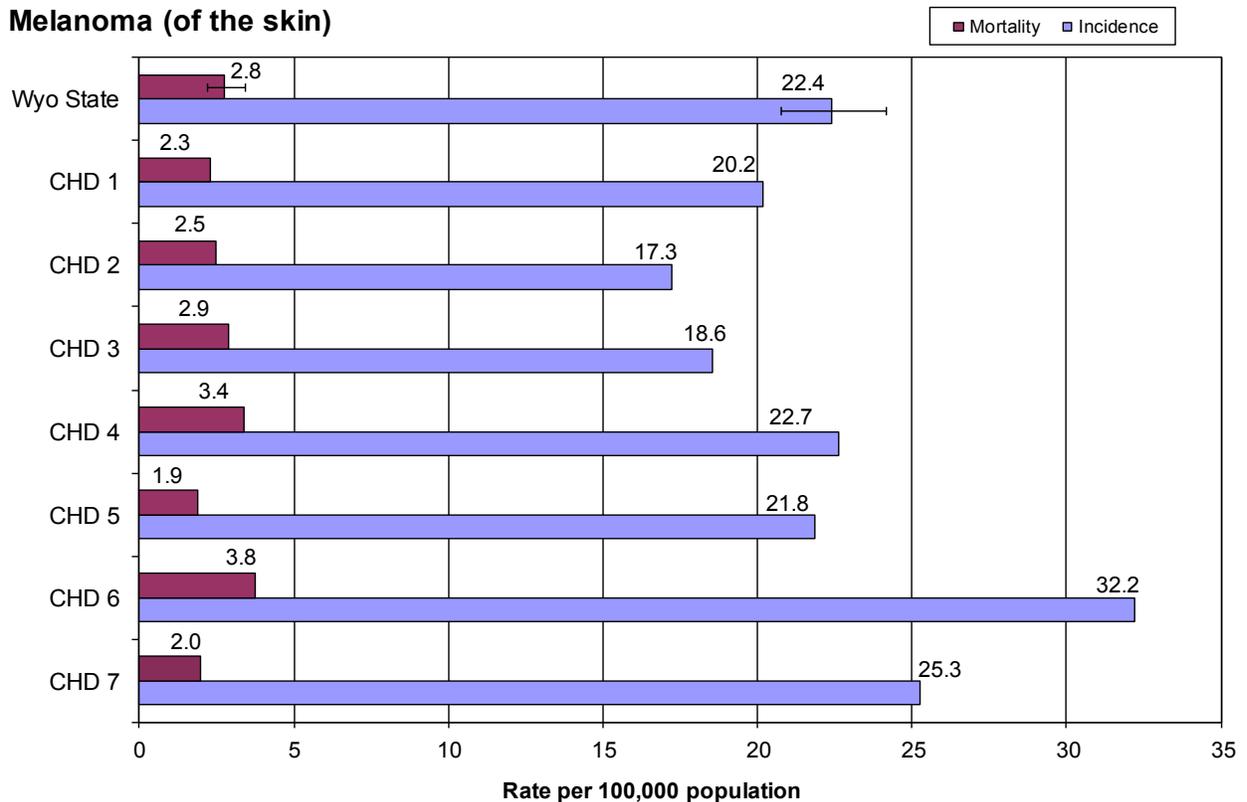


Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016

Melanoma (of the skin)



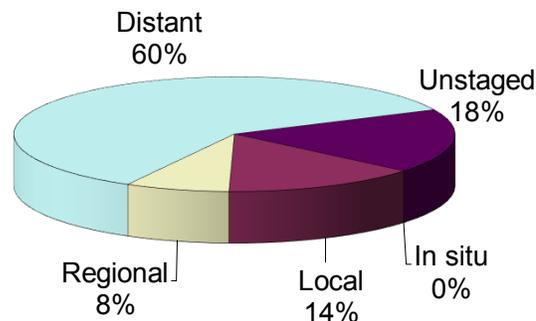
Non-Hodgkin Lymphoma (NHL)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	61	51	112
WY Incidence	19.3	15.9	17.5
US Incidence	24.7	16.6	20.2
Cancer Deaths	22	18	40
WY Mortality	7.1	4.9	6.1
US Mortality	7.6	4.6	5.9

* 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 Non-Hodgkin lymphoma in males, females, and total population in Wyoming were all lower than the national rates. The mortality rate for females and total population were both slightly higher than the national rate, while the rate for males was a little lower.

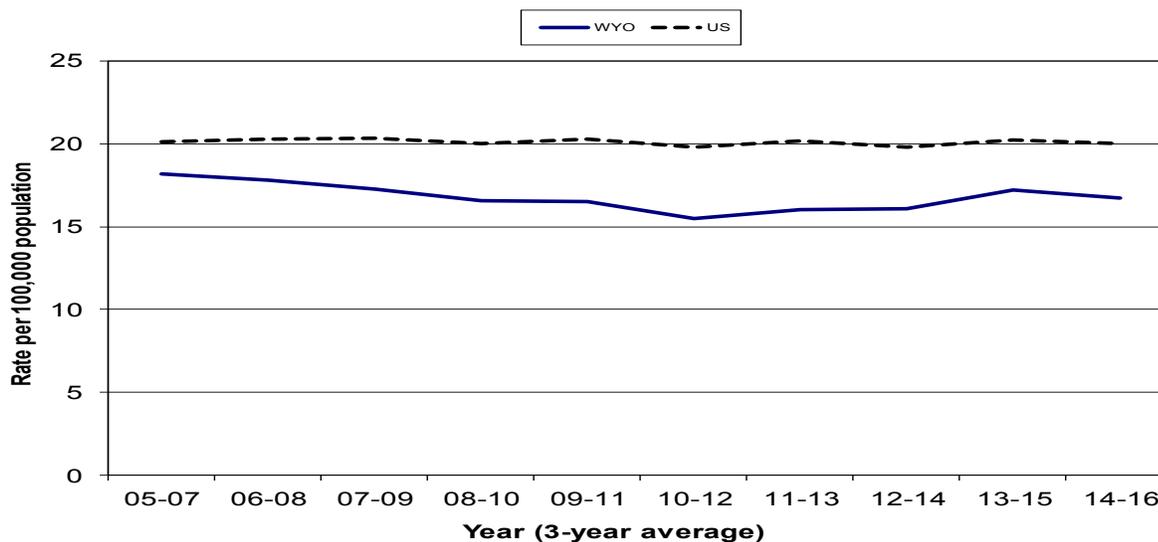
The incidence trend for Wyoming shows a possible decrease between 2013-2015 and 2014-2016, while the national rate remained basically level since 2005-2007.

There were two cases of NHL diagnosed in residents under the age of 25 in 2016.

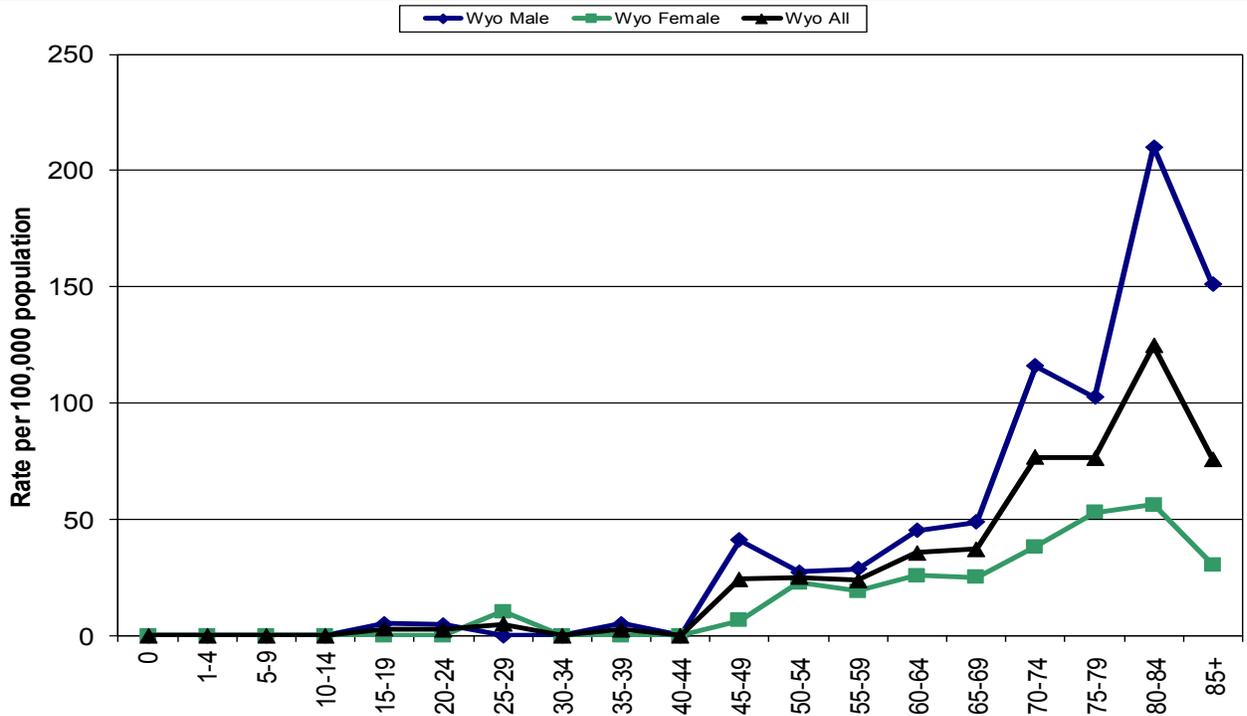
The percentage of cases diagnosed as Distant increased significantly from 2015 (36%) while the percent diagnosed as Local decreased significantly (35%)

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

12-Year Incidence Trend

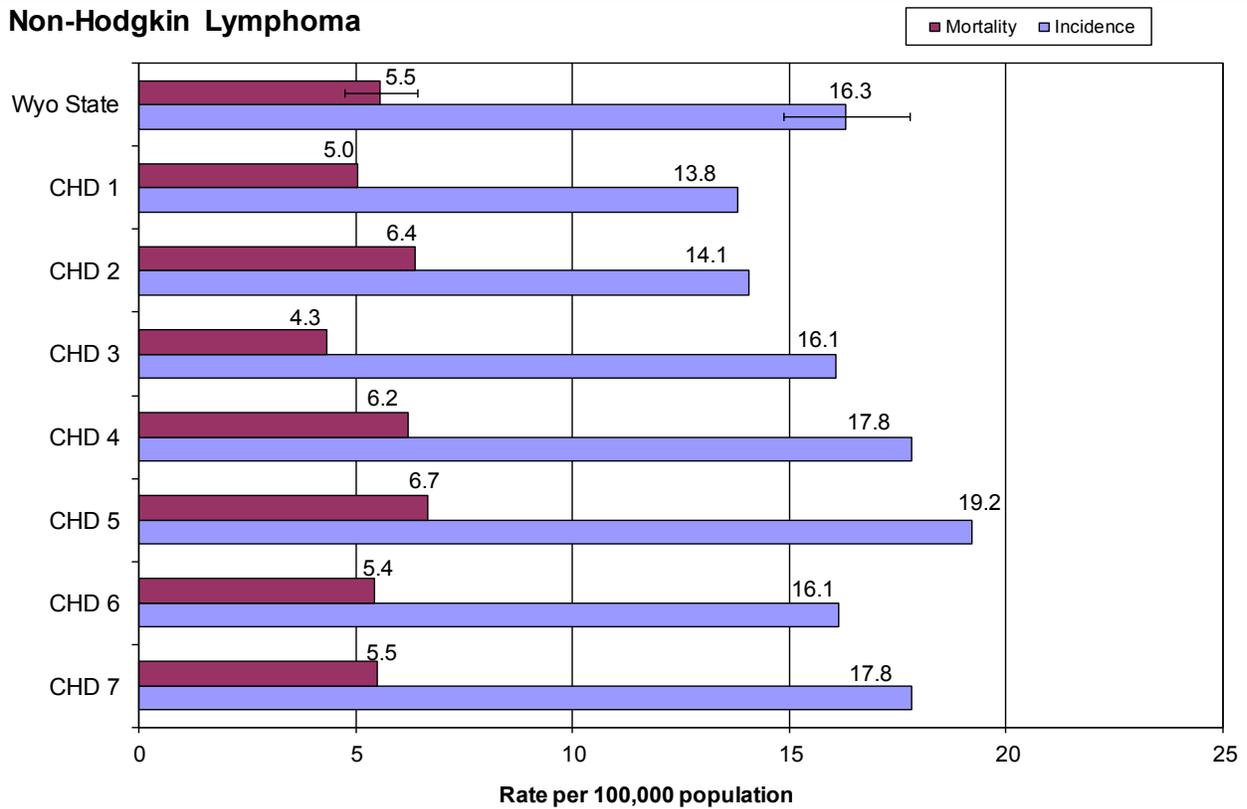


Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016

Non-Hodgkin Lymphoma



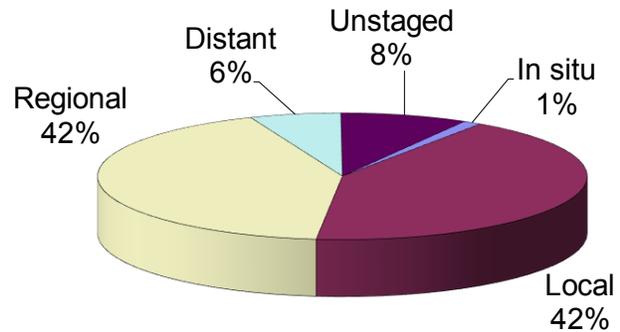
Oral Cavity and Pharynx

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	46	12	58
WY Incidence	13.0	3.4	8.1
US Incidence	17.9	6.4	11.8
Cancer Deaths	11	NC	13
WY Mortality	3.1	NC	1.9
US Mortality	3.9	1.3	2.5

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

Stage at Diagnosis



Incidence and mortality rates for cancer of the oral cavity and pharynx in Wyoming were all lower than the national rates. The female mortality rate was not calculated due to low numbers.

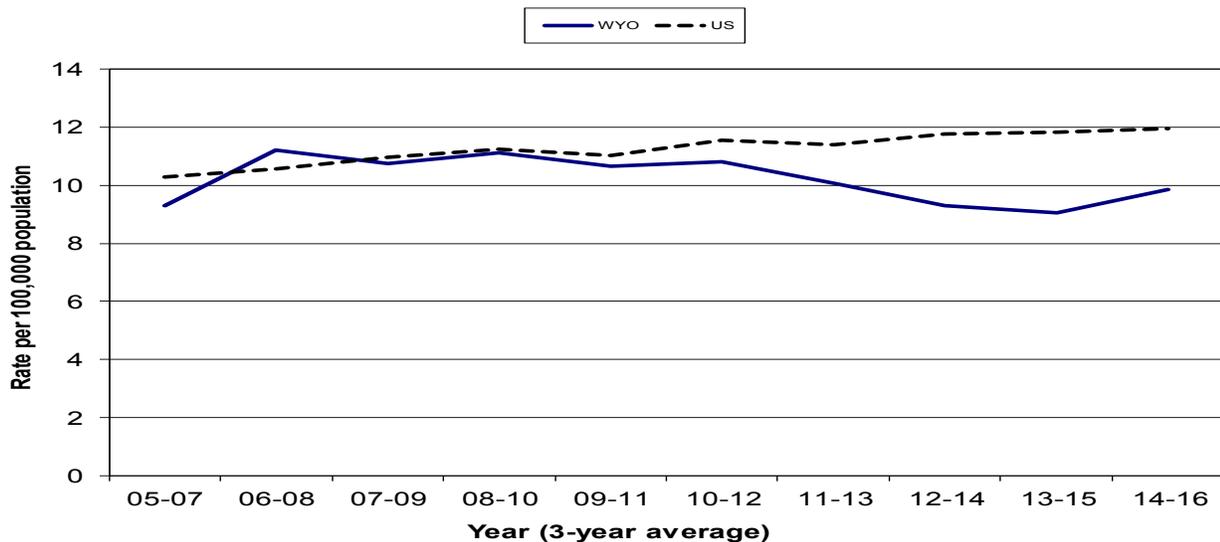
The incidence trend for Wyoming shows an increase from 2013-2015 to 2014-2016, while the national rate looks basically level.

There were no cases diagnosed in people under 25 years of age in 2016.

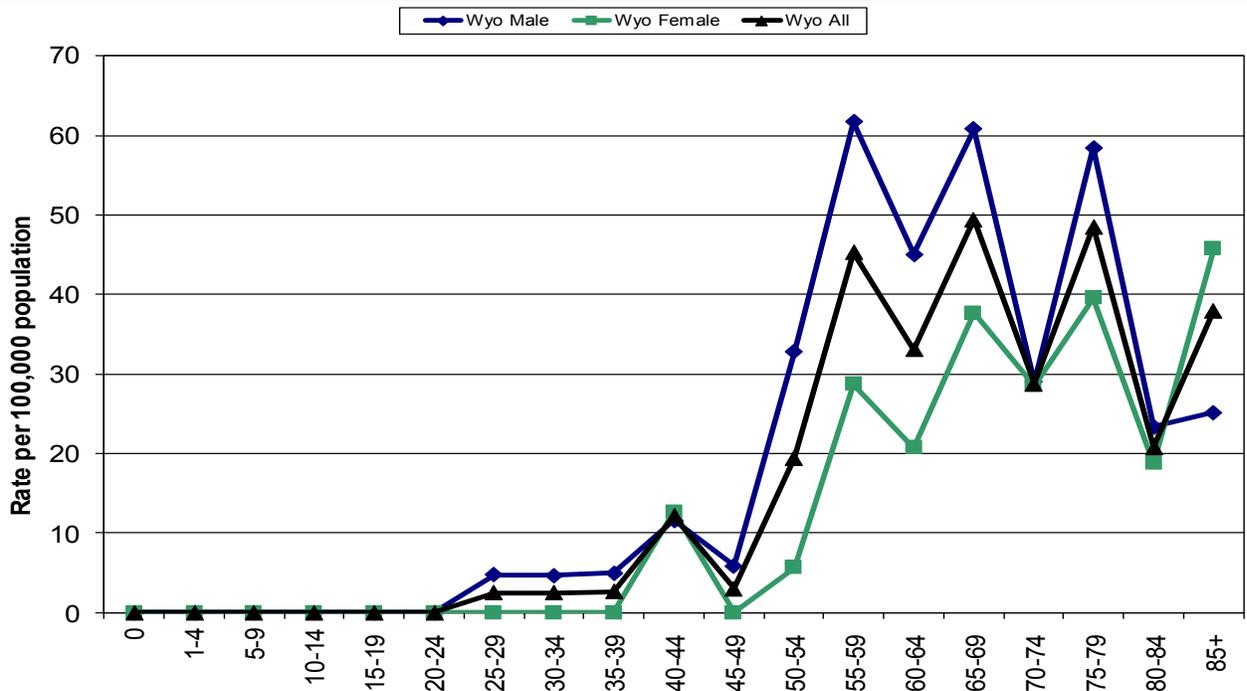
The percent of cancers diagnosed at the Local stage increased a bit from 2015 (33%), while the percent diagnosed as Distant decreased slightly from 2015 (10%).

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

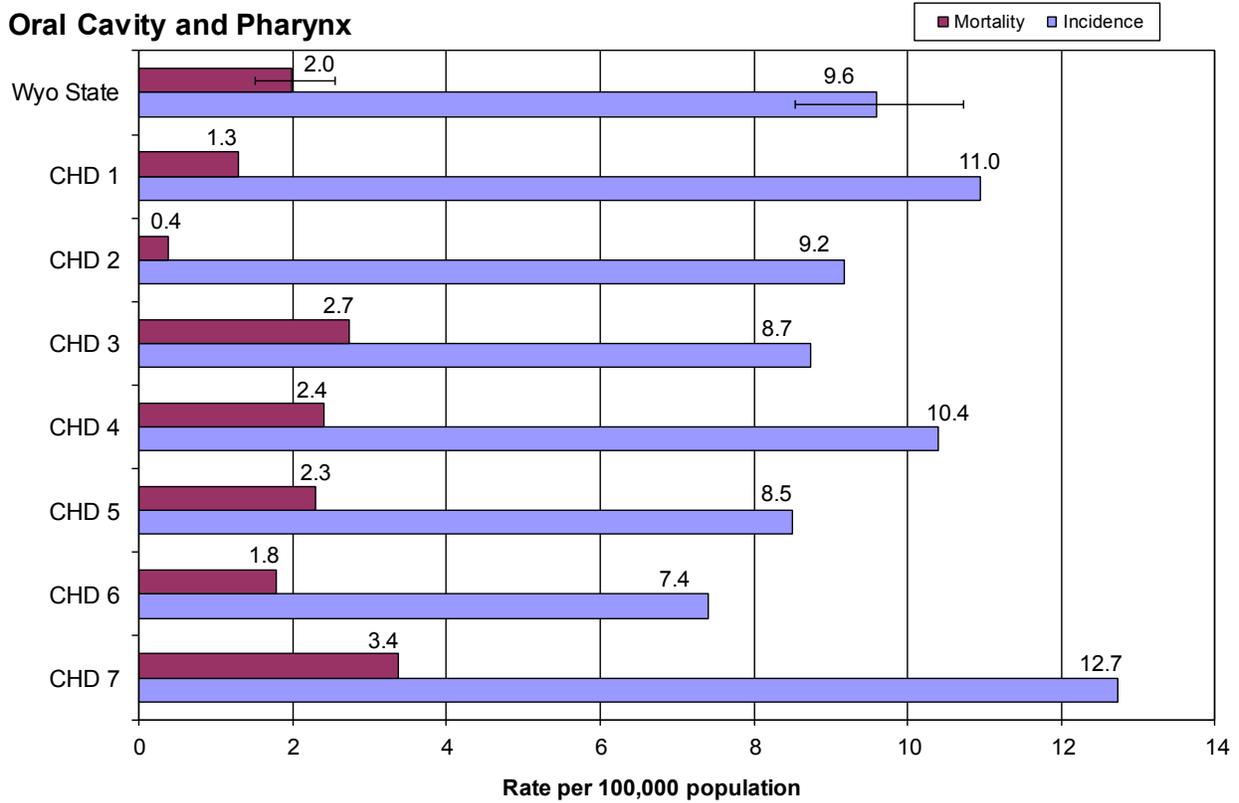
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



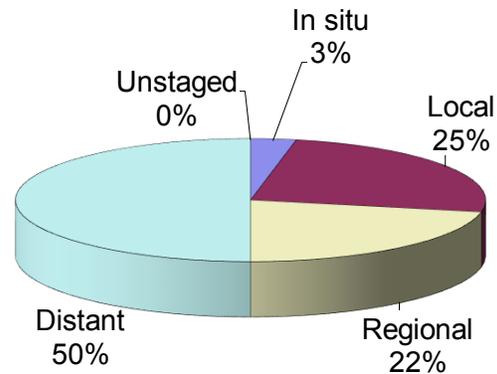
Ovary

Incidence and Mortality Summary

	Female
Invasive Cases	38
WY Incidence	11.9
US Incidence	11.7
Cancer Deaths	23
WY Mortality	6.5
US Mortality	7.3

* 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 Wyoming females for ovarian cancer was slightly higher than the national rate in 2016, while the mortality rate was lower.

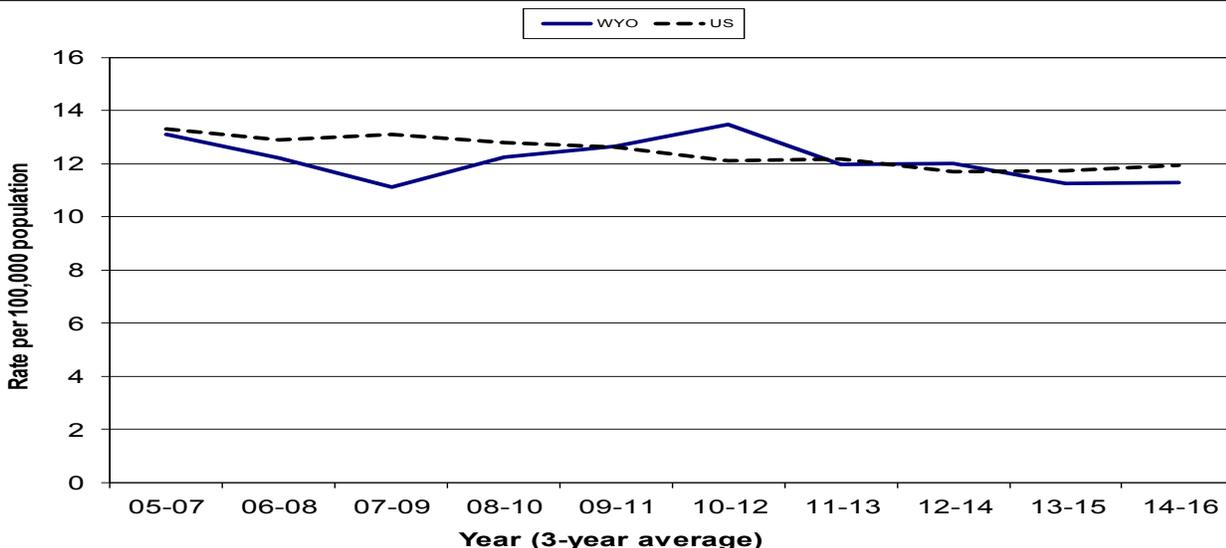
The 12-year incidence trend shows the Wyoming rate holding steady just below the national rate in 2014-2016.

There was one case diagnosed in a Wyoming woman under 20 years of age.

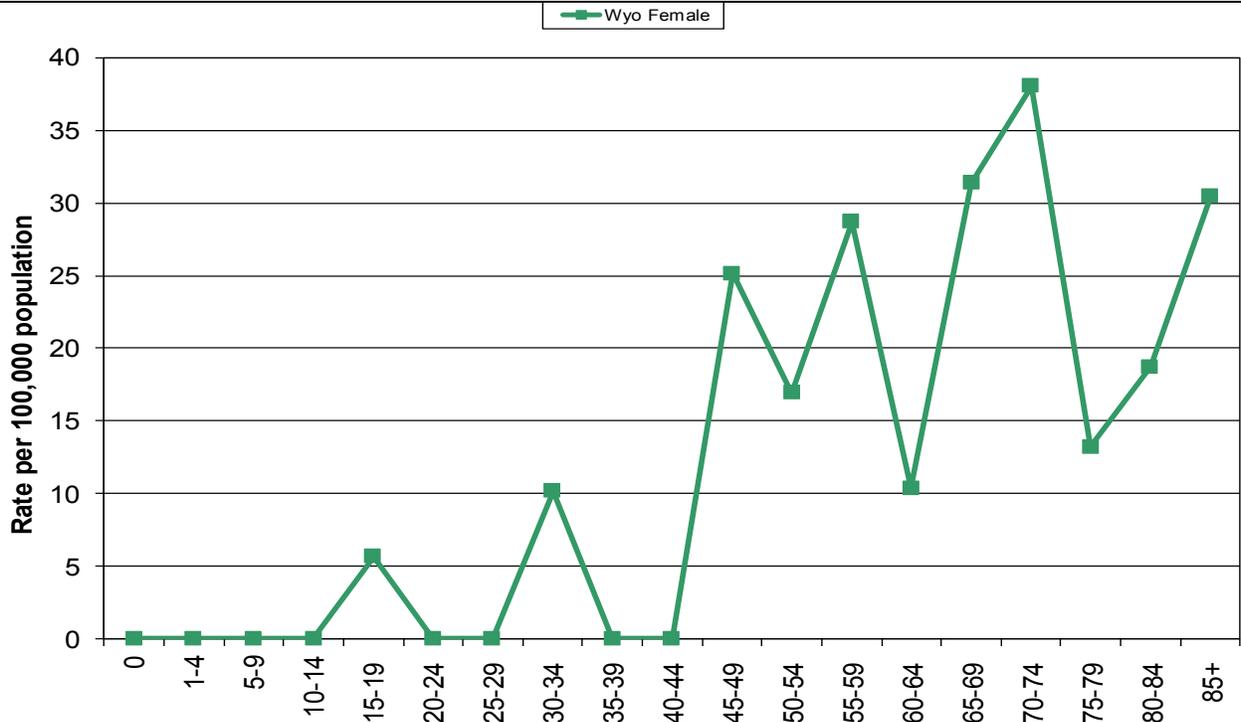
There was a substantial but non-significant decrease in the percentage of diagnosed as Distant (66%), but an increase in cases diagnosed as Local (8%) from 2015.

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

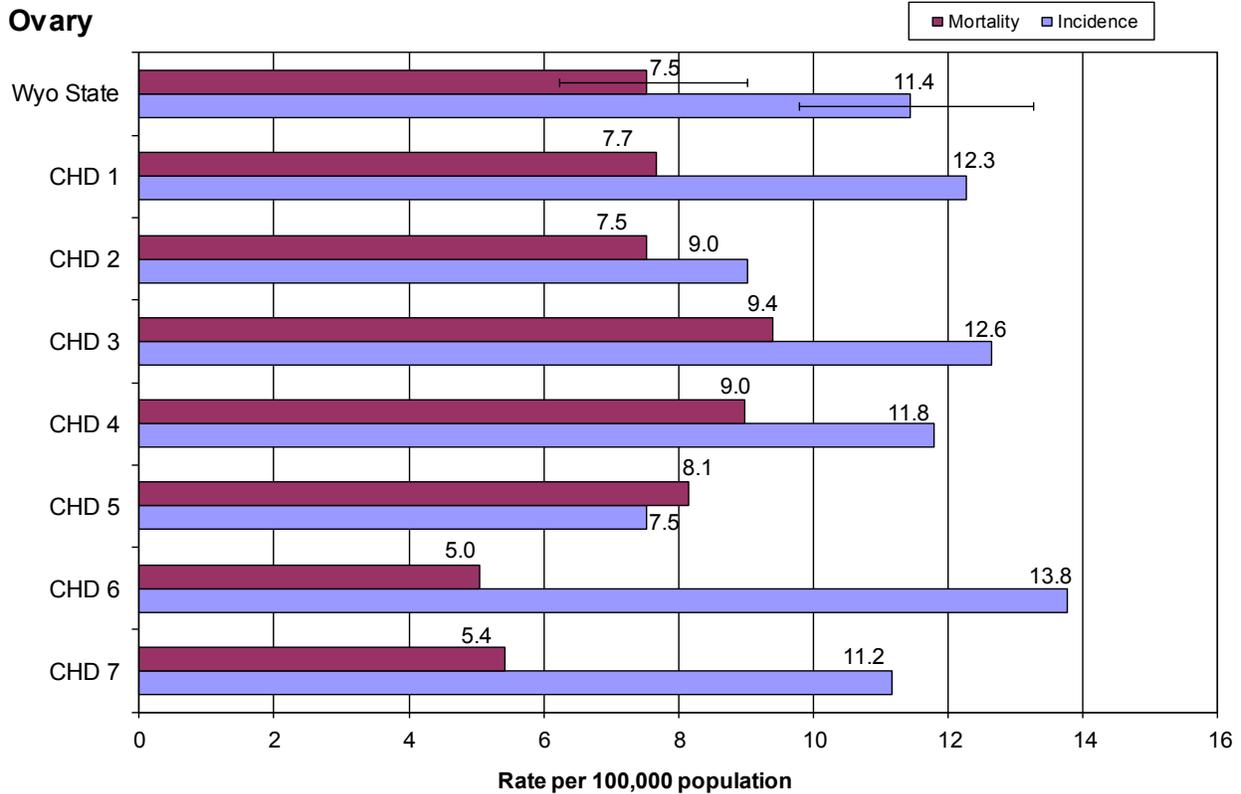
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



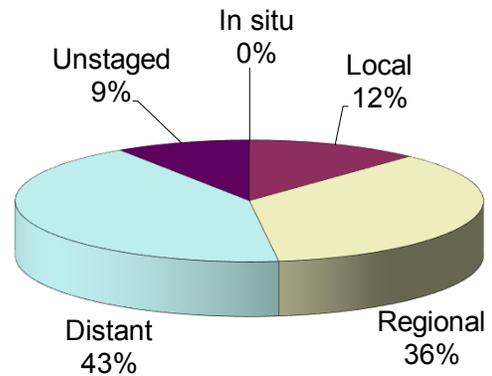
Pancreas

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	42	36	78
WY Incidence	13.1	9.9	11.5
US Incidence	14.3	11.0	12.5
Cancer Deaths	38	29	67
WY Mortality	11.3	8.5	10.0
US Mortality	12.7	9.4	10.9

* 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 of cancer of the pancreas in Wyoming males, females and total population were all lower than the national rates in 2016.

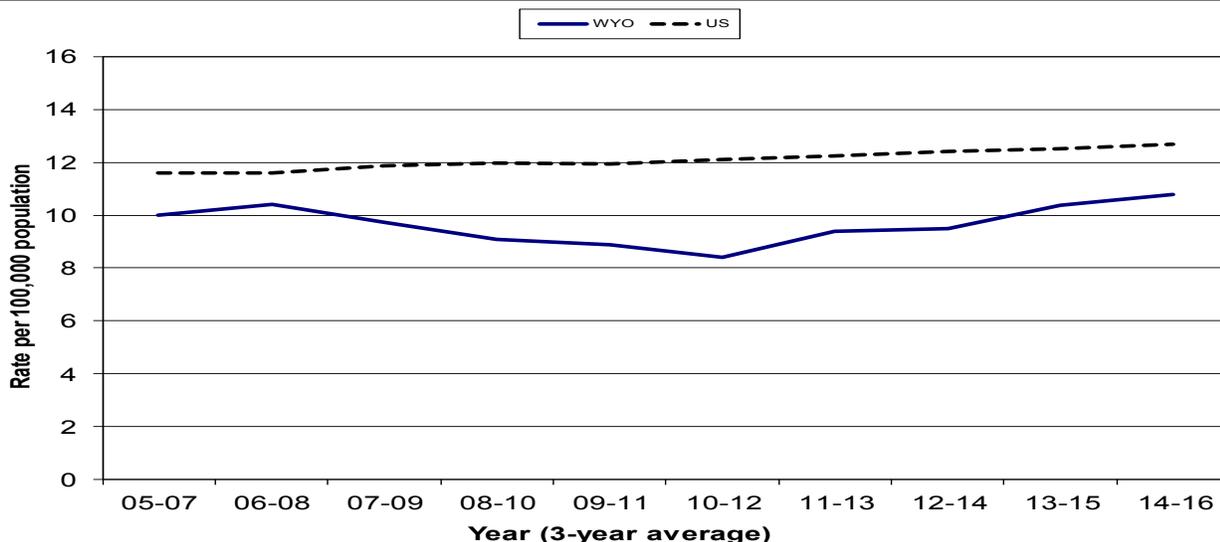
The incidence trend for Wyoming and the nation continue to increase since 2010-2012.

The percentage of cancer diagnosed as Distant decreased from its 2015 level (51%) while the percent diagnosed as Regional increased from 2015 (27%). Neither change was statistically significant.

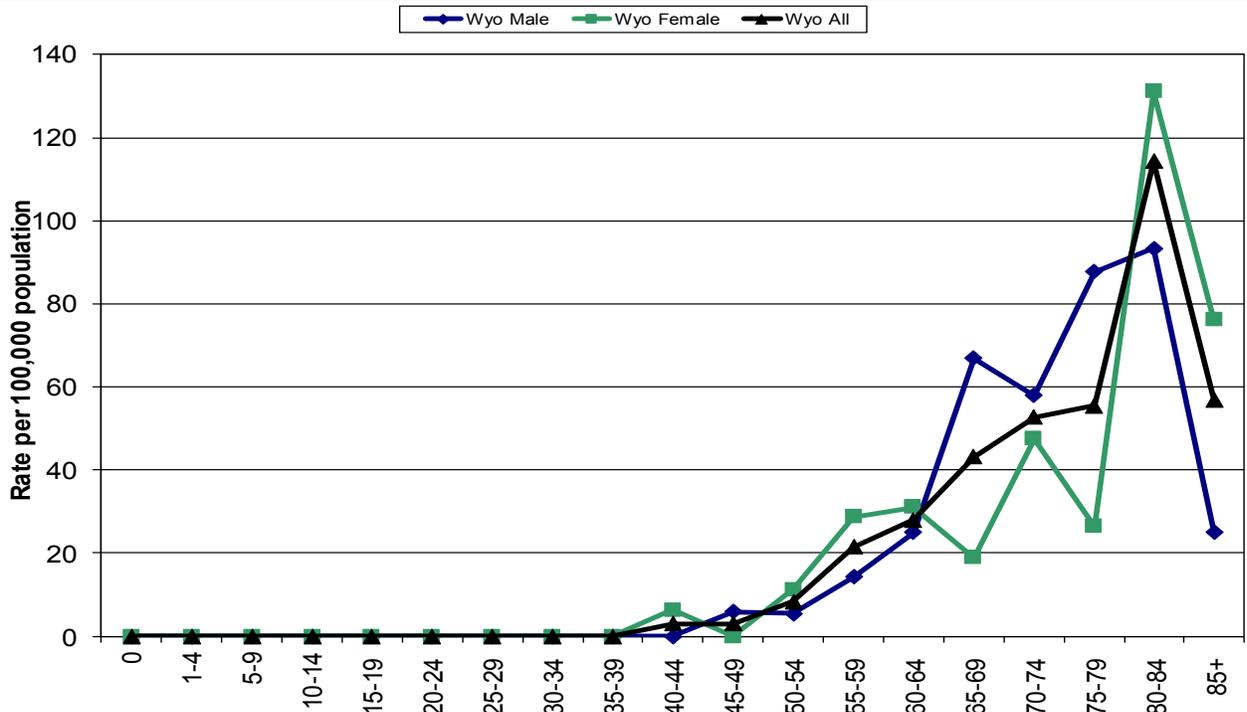
There were no cases diagnosed in a Wyoming resident under the age of 40 in 2016.

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

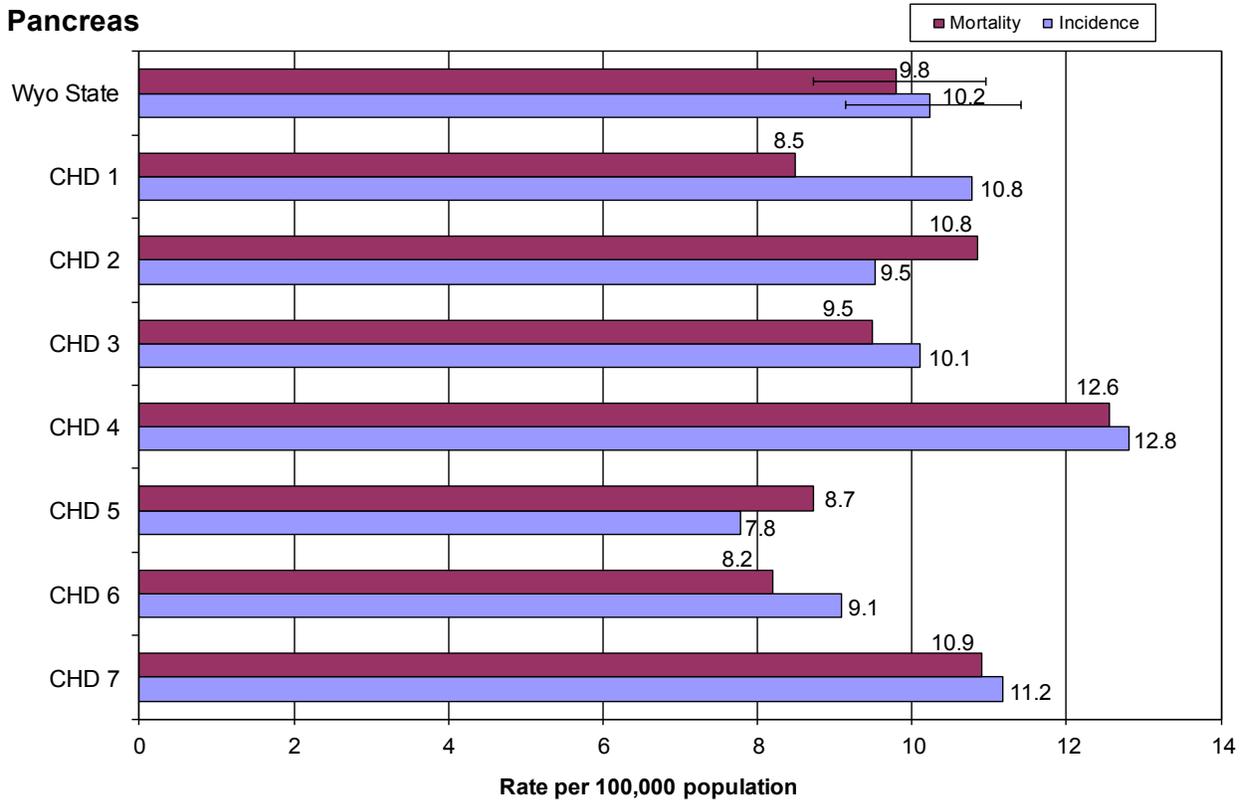
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



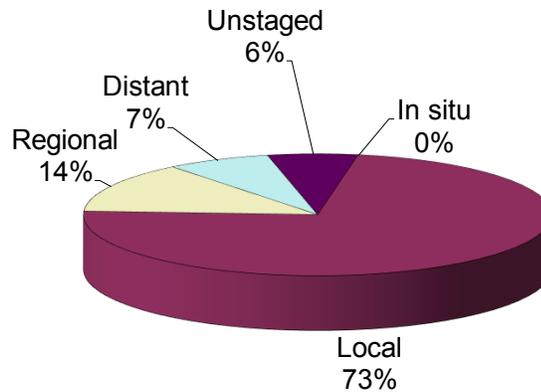
Prostate

Incidence and Mortality Summary

	Male
Invasive Cases	352
WY Incidence	96.3
US Incidence	90.8
Cancer Deaths	39
WY Mortality	14.0
US Mortality	17.9

* 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 prostate cancer in Wyoming males was higher than the national rate in 2016, but the mortality rate was lower than the national rate. Neither difference was statistically significant.

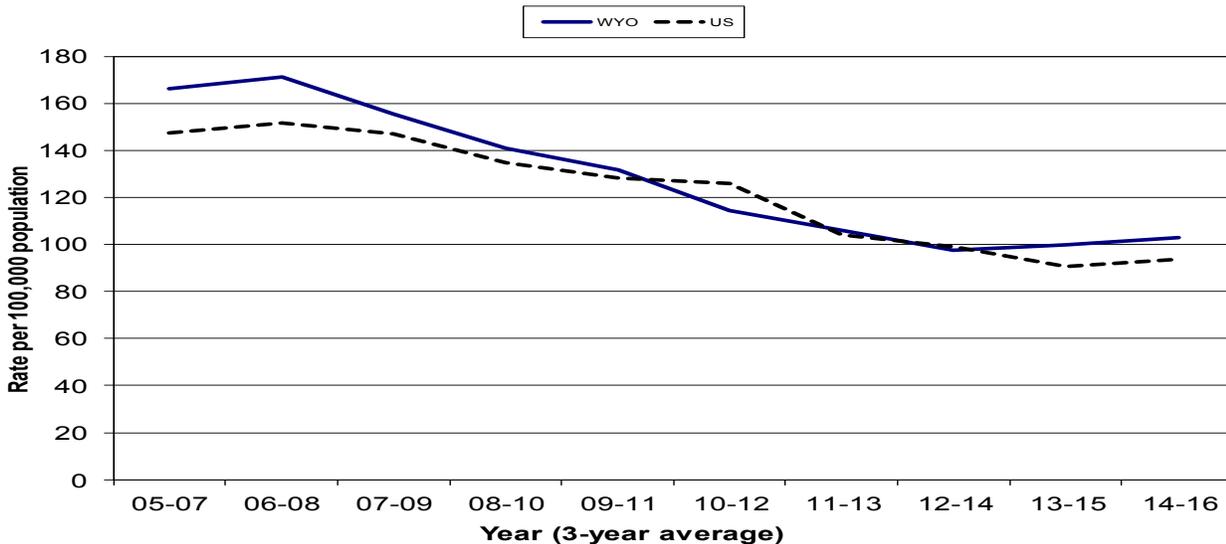
The incidence trend shows the Wyoming rate on a slight increase since 2012-2014 with the national trend leveling off between 2013-2015 and 2014-2016.

There were four cases diagnosed in Wyoming men under the age of 50 in 2016.

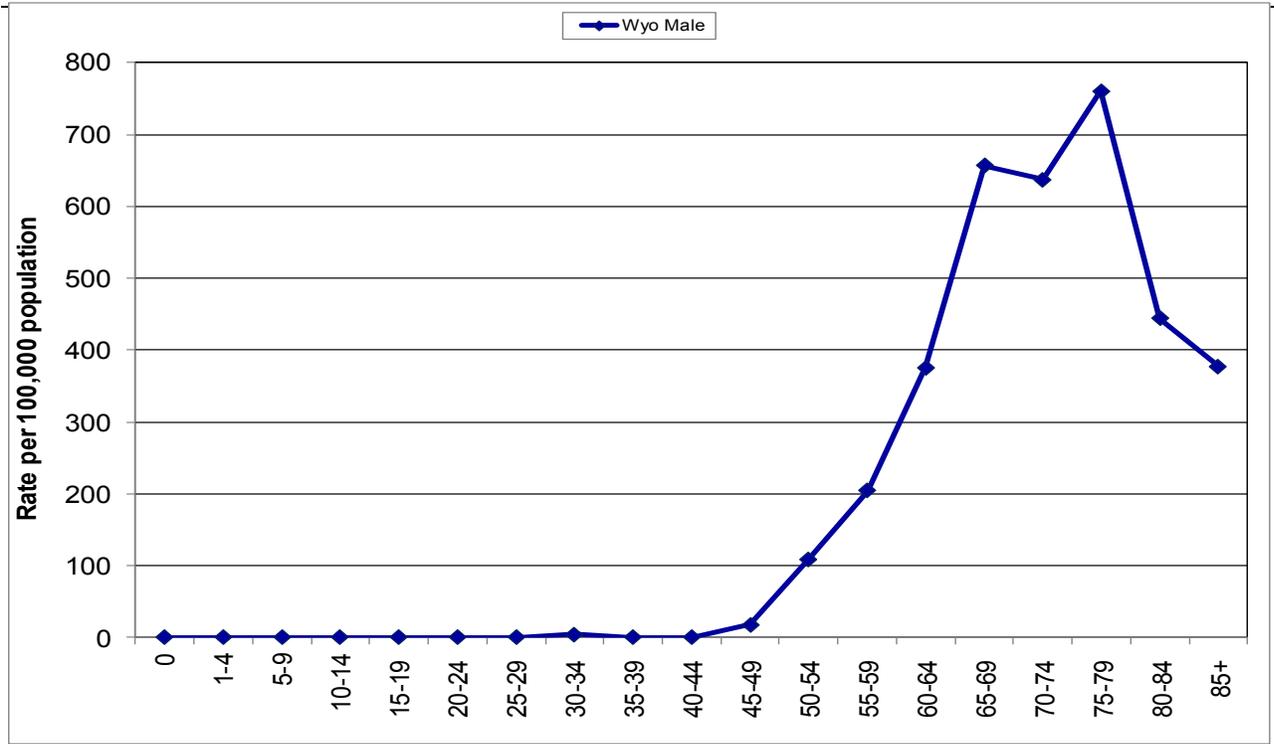
The number of cases and the percent of cases diagnosed at each stage in 2016 were basically the same as the percentages in 2015.

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

12-Year Incidence Trend

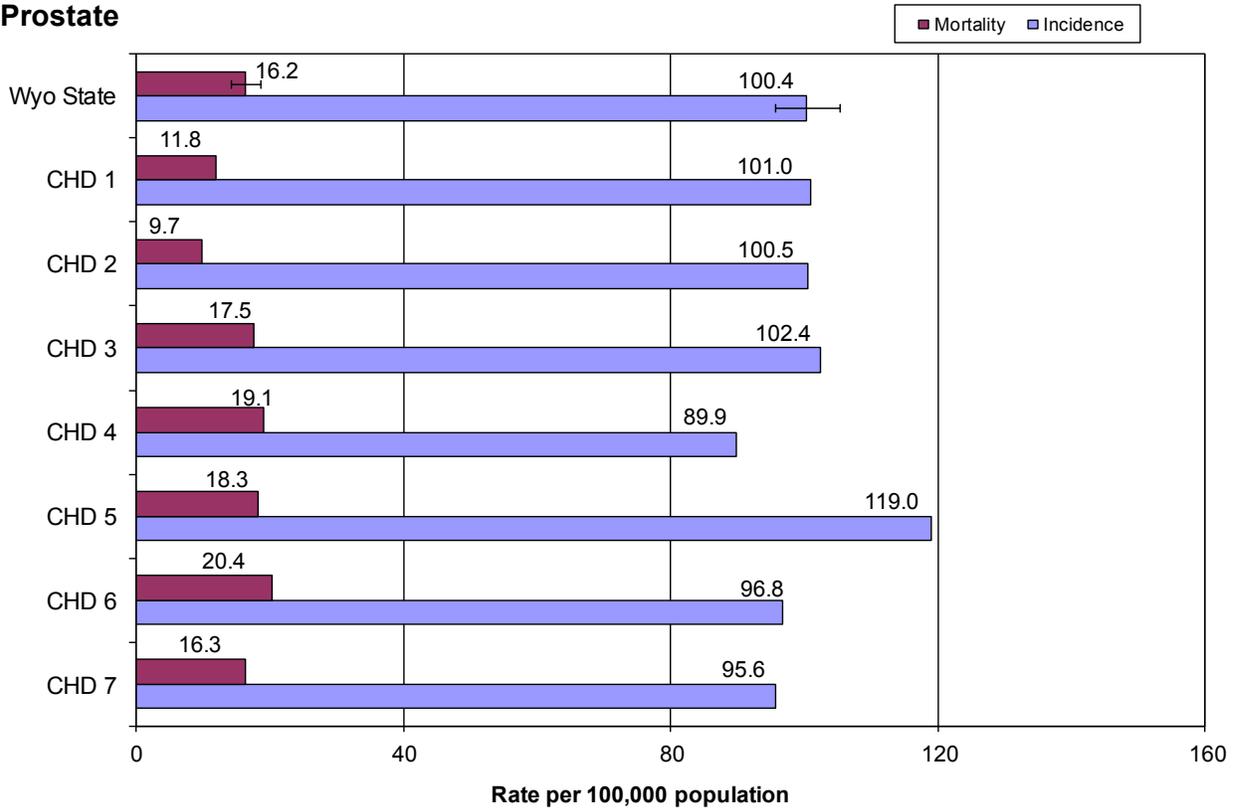


Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016

Prostate



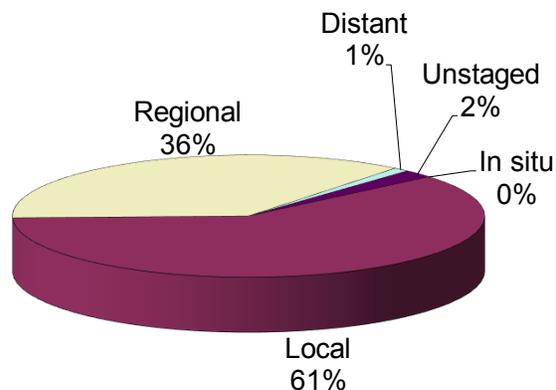
Thyroid

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	24	77	101
WY Incidence	7.5	29.5	18.0
US Incidence	7.7	23.1	15.4
Cancer Deaths	NC	NC	NC
WY Mortality	NC	NC	NC
US Mortality	0.52	0.48	0.50

* 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 Wyoming females and total population were both higher than the national rate in 2016. The incidence rate for males was slightly lower than the national rate. None of the Wyoming mortality rates were calculated due to low numbers.

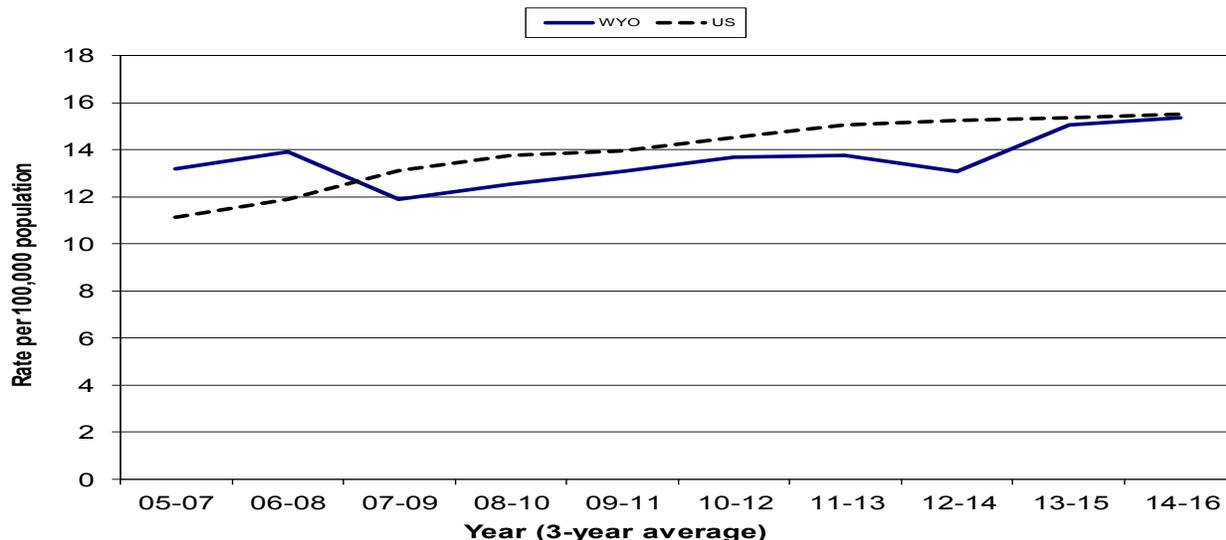
The trend of thyroid cancer incidence in Wyoming and the nation seems to have leveled off between 2013-2015 and 2014-2016.

There were three cases diagnosed in Wyoming residents under the age of 20 in 2016.

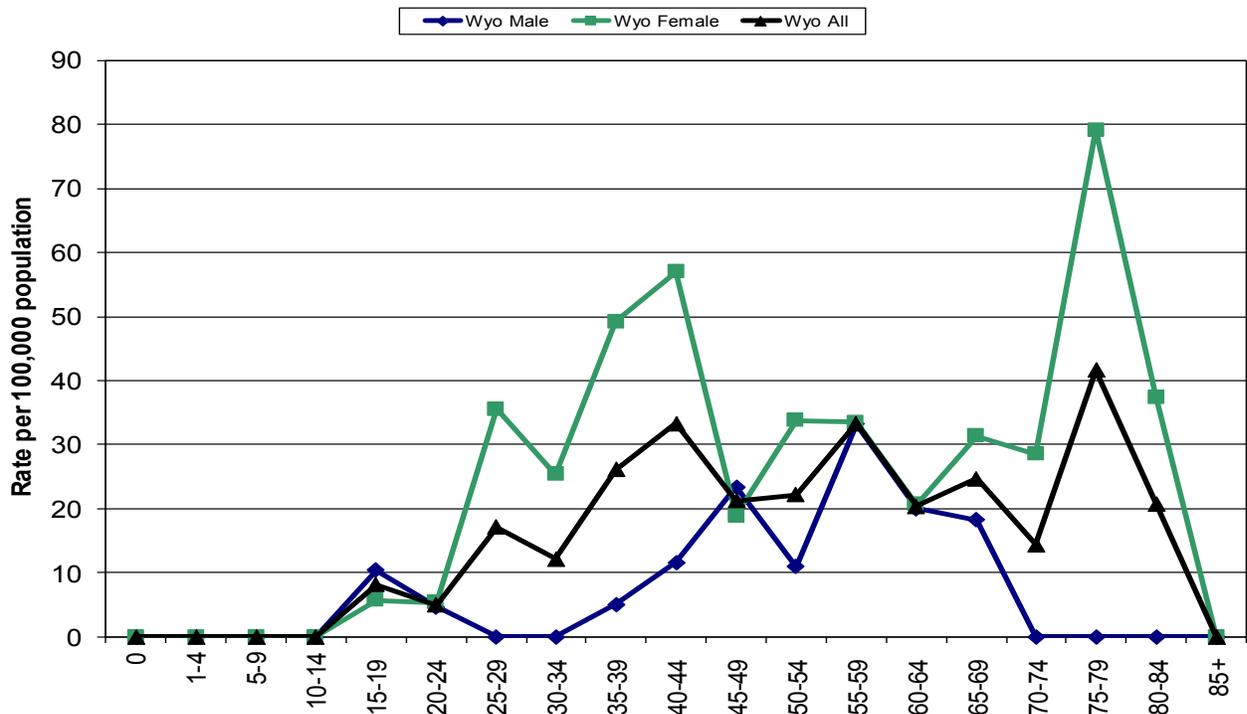
The percentage diagnosed as Regional increased significantly from 2015 (18%) while those diagnosed as Local decreased from 2015 (76%).

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

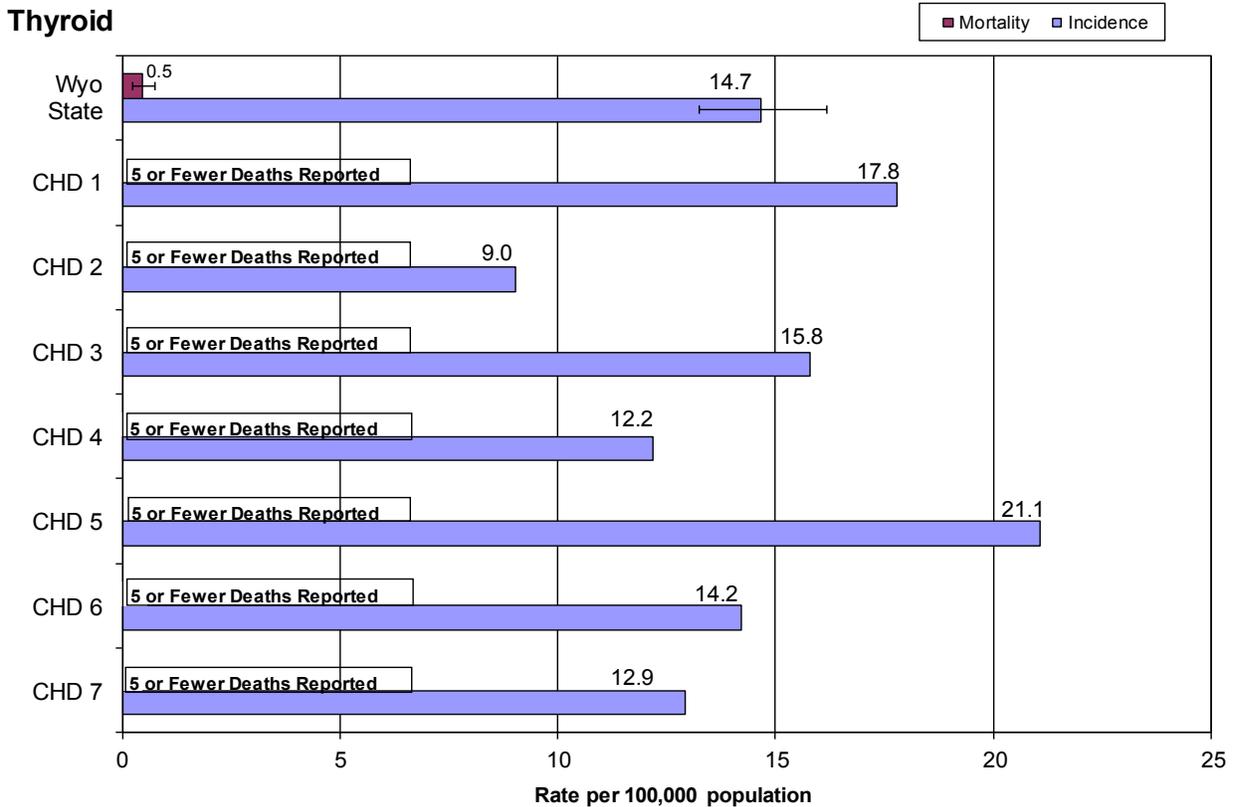
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



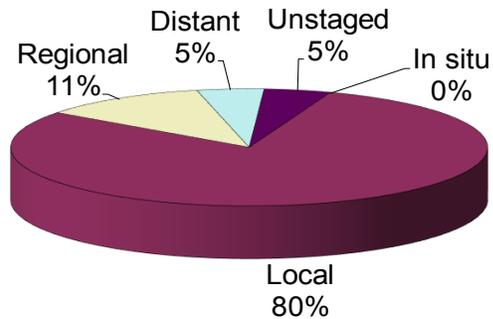
Uterine (Corpus Uteri + Uterus)

Incidence and Mortality Summary

	Female
Invasive Cases	82
WY Incidence	23.0
US Incidence	27.1
Cancer Deaths	16
WY Mortality	4.4
US Mortality	4.4

* 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 in Wyoming females for uterine cancer was lower than the U.S. rate, while the mortality rate was identical to the national rate.

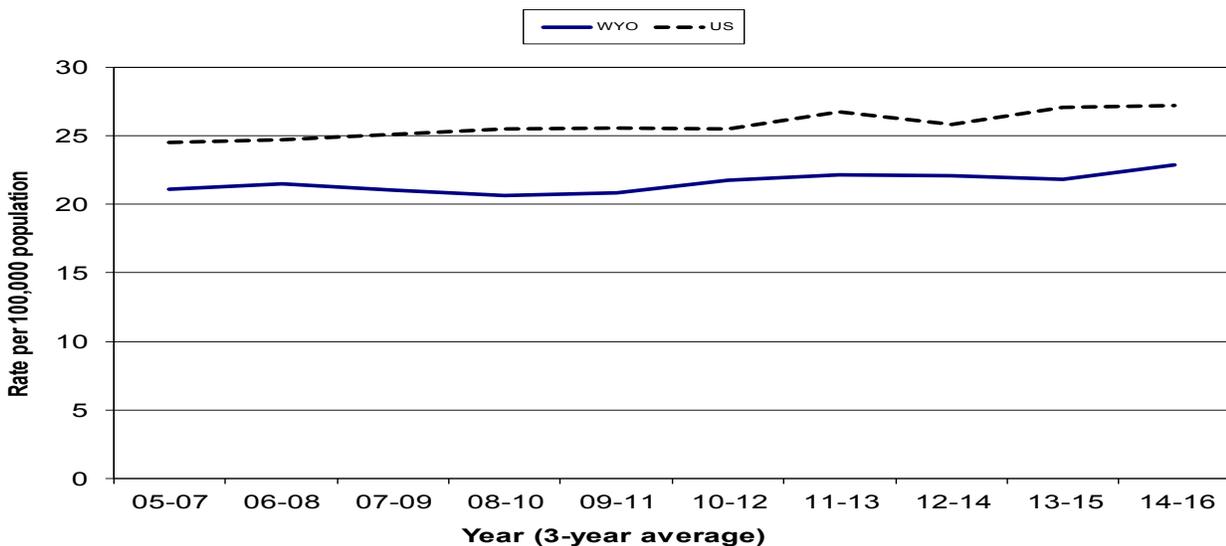
The Wyoming incidence trend shows a slight increase from 2013-2015 to 2014-2016, while the national rate appears steady.

The percentage of cases diagnosed at each stage are similar to those in 2015.

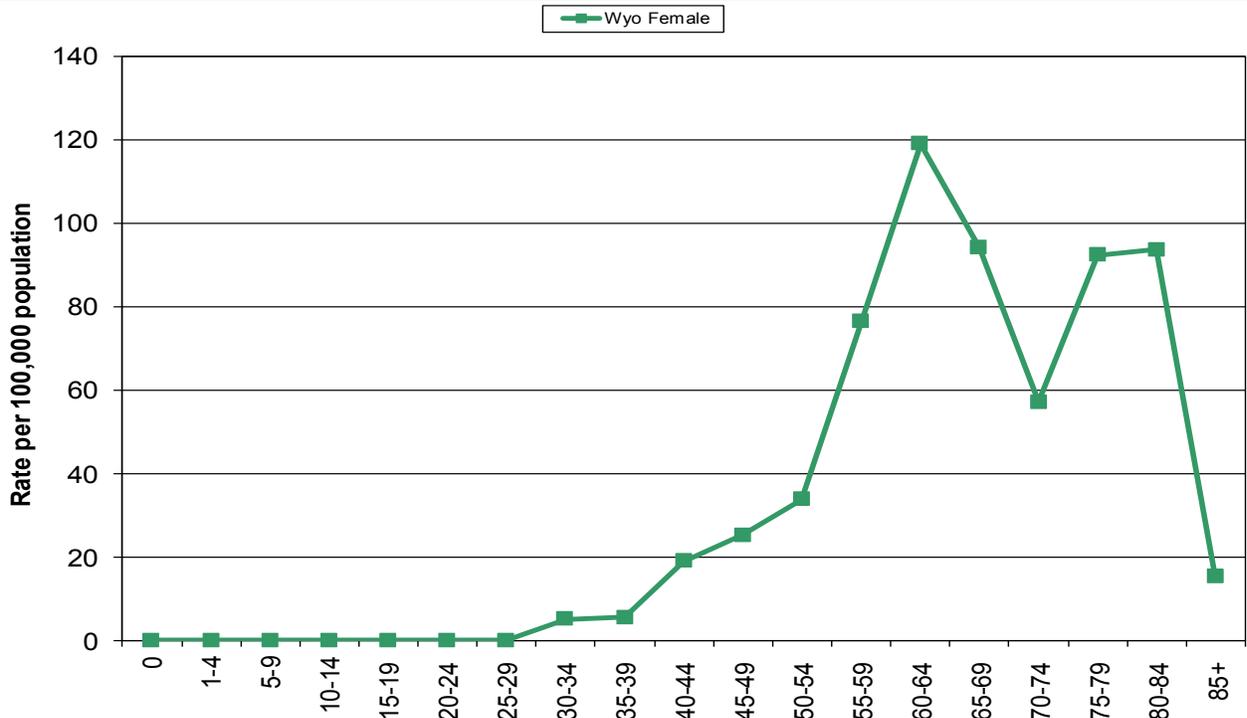
There were only two cases diagnosed in Wyoming women under the age of 40 in 2016.

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

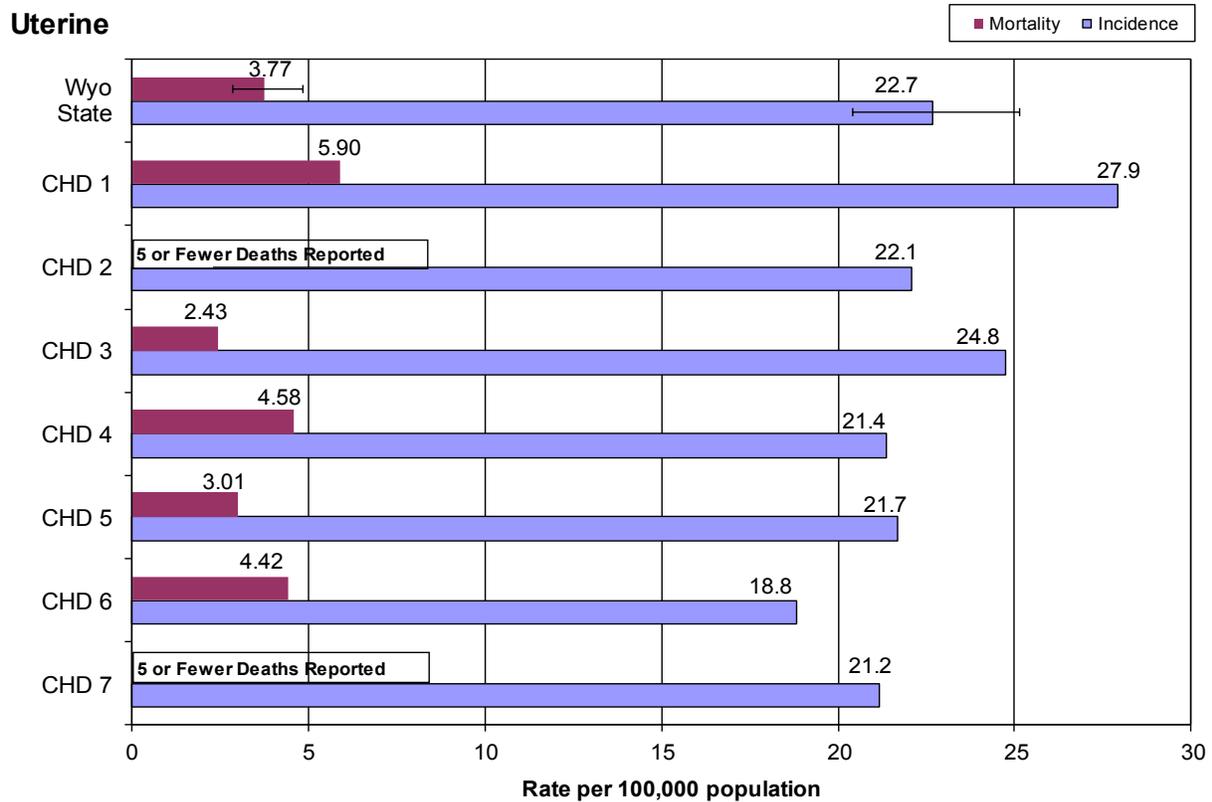
12-Year Incidence Trend



Age-Specific Incidence Rates - 2016



Cancer Health District (CHD) Incidence and Mortality 5-Year Average, 2012-2016



Appendix A

References

Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) version 8.3.4. SEER*Stat Database: Incidence - SEER 18 Regs Research Data + Hurricane Katrina Impacted Louisiana Cases, Nov 2016 Sub (2000-2014) <Katrina/Rita Population Adjustment> Linked To County Attributes - Total U.S., 1969-2015 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2017, based on the November 2016 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:

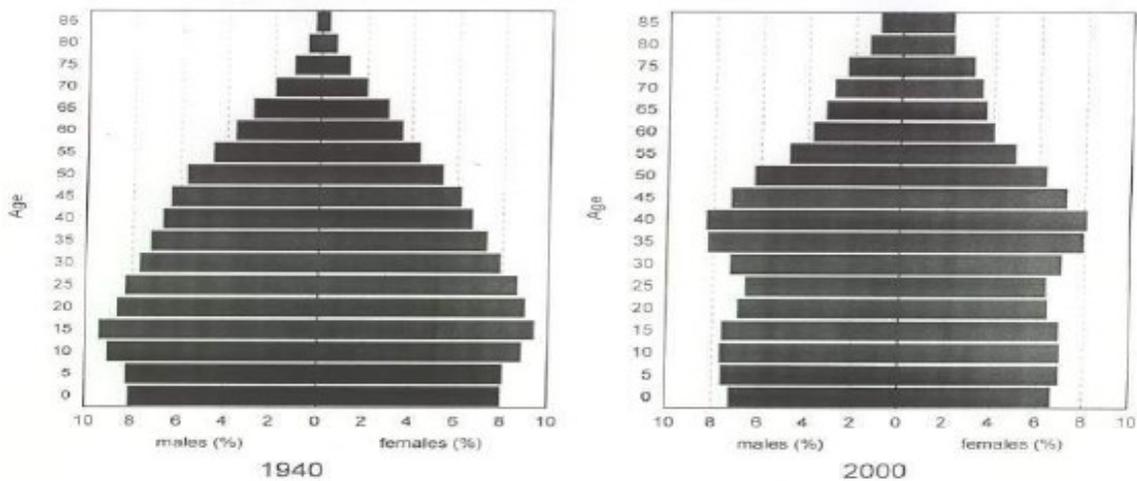


Chart B:

U.S. Age-Adjusted Cancer Mortality, All Sites Combined by Standard Year Populations 1940, 1970, 2000

