

Wyoming Cancer Surveillance Program

Annual Report

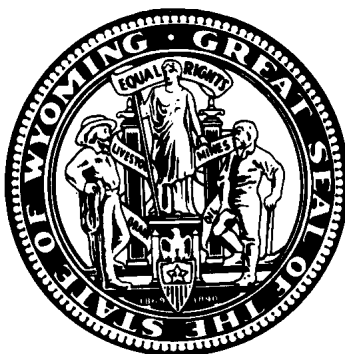
Cancer in Wyoming - 2021



Wyoming
Department
of Health



State of Wyoming



Department of Health

Annual Report on Cancer in Wyoming - 2021

Stefan Johansson
Director

November 1, 2023

State of Wyoming Department of Health

Annual Report on Cancer in Wyoming—2021

Annual Report on Cancer in Wyoming 2021
is published by the
Public Health Division

Stephanie Pyle, MBA
Senior Administrator,
Alexia Harrist, MD, PhD
State Health Officer

Additional information and copies may be obtained from:
Wyoming Cancer Surveillance Program
122 West 25th St., 3rd Floor West
Cheyenne, WY 82002
(307) 777-3477 telephone
(307) 777-3419 fax

[https://health.wyo.gov/publichealth/chronic-disease-and-maternal-child-health-epidemiology-unit/
cancer-surveillance/](https://health.wyo.gov/publichealth/chronic-disease-and-maternal-child-health-epidemiology-unit/cancer-surveillance/)

This publication was supported by Grant/Cooperative Agreement
Number NU58/DP007145 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.

This page left intentionally blank

Table of Contents

Executive Summary	7
Introduction	9
Methodology and Definitions	10
Cancer Health Districts Map	13
Wyoming Incidence for 2021 Cases by Gender/Age	16
Wyoming Mortality for 2021 Deaths by Gender/Age	18
Wyoming Incidence for 2021 Cases by Race/Ethnicity	20
Wyoming Mortality for 2021 Deaths by Race/Ethnicity	21
Top Incidence Cancer Sites	24
Top Mortality Cancer Sites	25
Wyoming Relative Survival Rates	28
Summaries of All Cancer Sites Combined and the Top 15 Cancer Sites	
All Sites Combined	32
Bladder (Urinary)	34
Brain/CNS	36
Breast (Female)	38
Colorectal	40
Kidney/Renal Pelvis	42
Leukemia	44
Lung/Bronchus	46
Melanoma (of the skin)	48
Non-Hodgkin Lymphoma	50
Oral Cavity and Pharynx	52
Ovary	54
Pancreas	56
Prostate	58
Thyroid	60
Uterine	62
Appendix A: References	65
Definition of Age-Adjustment	66

This page left intentionally blank

Executive Summary

The overall incidence rate for cancer in Wyoming was 390.3/100,000 in 2021, which is lower than the national rate of 407.1/100,000. The 2021 incidence rate for Wyoming men (388.7/100,000) was significantly lower than the national rate of 438.4/100,000. Many other Wyoming cancer rates were also lower than the national rates, but none were statistically significant. The overall cancer mortality rates for women and total population were higher than the national rate, while male mortality was lower than the national rate for 2021, though not significantly.

The top five cancer sites for incidence in 2020 were: female breast, prostate, lung/bronchus, Colorectal, and melanoma of the skin. The most common cancers for incidence by age group were leukemia (0-4); thyroid (20-34); breast (35-59); prostate (60-79); lung (80-84); and breast (85+). There was a total of ten cases of cancer diagnosed in children under the age of 15 in 2021.

The top five cancer sites for mortality were lung, colorectal, ill-defined, pancreas, and breast cancer. The most common cancers associated with mortality by age group were breast (30-44); colorectal (45-54); and lung cancer (55-85+). There were fewer than two deaths per cancer site for all age groups from 0 to 29 years of age. There were eight deaths from cancer in Wyoming residents under the age of 20 in 2021.

The 5-year (60 months) relative survival rate for Wyoming cancer patients diagnosed between 2010 and 2021 was 72.6%. This means that over seven out of every ten cancer patients in Wyoming were alive five years after diagnosis during this time period. Those diagnosed with prostate cancer (98.1%), melanoma (98.1%) cancer of the thyroid (97.9%), and breast cancer (93.7%), had the highest survival rates among Wyoming residents. The survival rates for those diagnosed with cancer of the pancreas (13.7%); lung cancer (21.9%); and brain/CNS cancer (32.0%), are still the lowest survival rates among Wyoming cancer patients. Children/ adolescents (0-19 years) in Wyoming have an excellent 5-year survival rate of 89.1% for all cancer sites combined.

This page left intentionally blank

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.

Ensuring 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, nonprofit 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 2021 except for the 12-year incidence trend, which used 3-year averages (e.g., 2018-2020 for 2018 or 2016-2018 for 2017). 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 2021 cancer cases among Wyoming residents received by WCSP as of July 1, 2023.

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 2020 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 2019 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 2020 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 2021. 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 2021 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

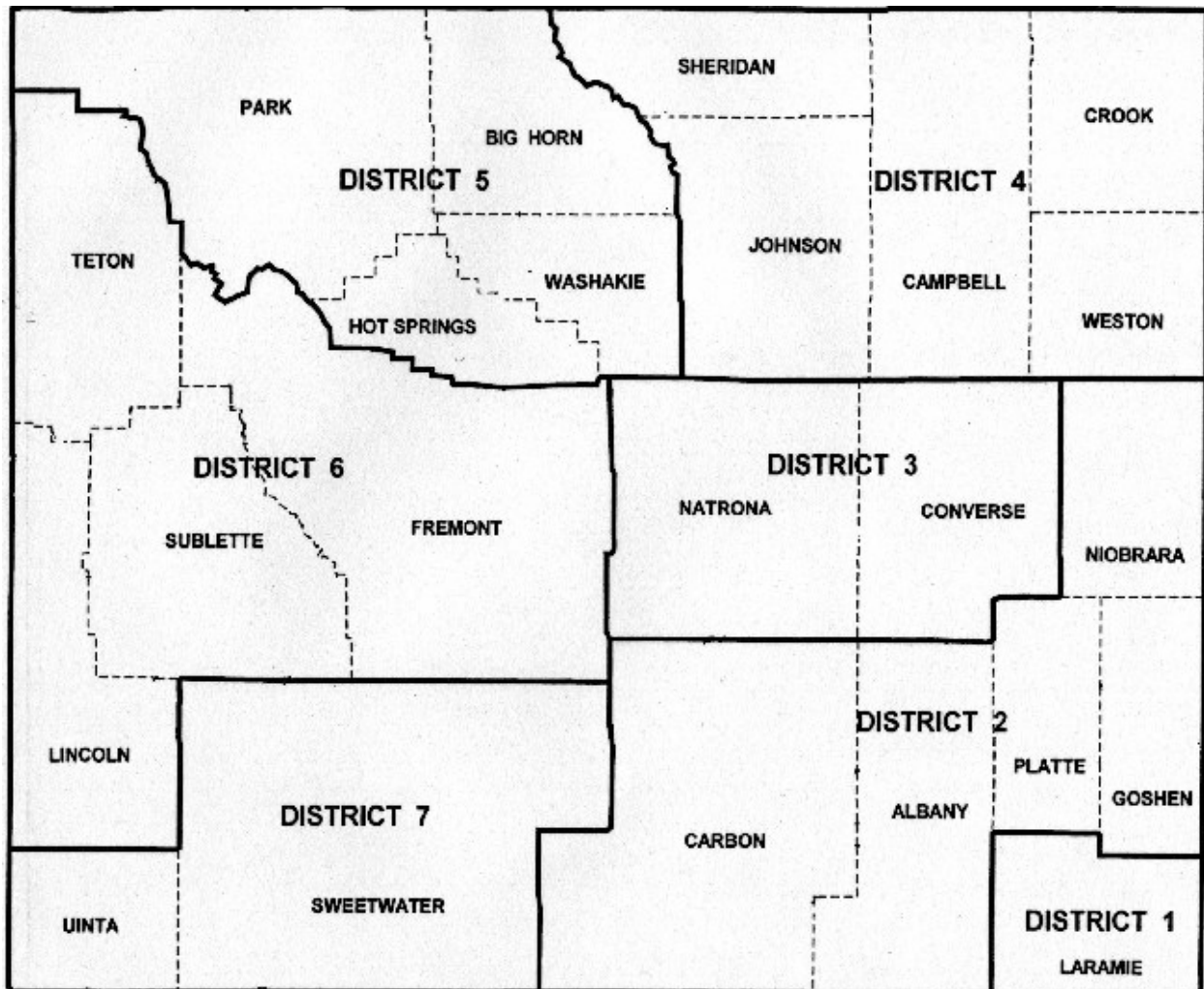
<u>In Situ</u>	cancer has not invaded the organ.
<u>Local Stage</u>	cancer has invaded the organ of origin.
<u>Regional Stage</u>	cancer has invaded beyond the organ of origin by direct extension to adjacent organs/tissues and/or regional lymph nodes.
<u>Distant Stage</u>	direct extension beyond adjacent 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



This page left intentionally blank

State of Wyoming - 2021

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 2021: 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	14	18	0	0	0	0	0	0	0
Bladder w/ in situ	109	28	137	0	0	0	0	0	1	0
Bones and Joints	3	0	3	0	0	0	1	0	0	0
Brain	18	10	28	0	2	0	1	1	0	3
Breast	3	498	501	0	0	0	0	1	2	2
Cervix	0	20	20	0	0	0	0	0	2	0
Colorectal	138	113	251	0	0	1	0	0	3	2
Esophagus	38	7	45	0	0	0	0	0	0	0
Eye	1	0	1	0	0	0	0	0	0	0
Gallbladder	1	2	3	0	0	0	0	0	0	0
Hodgkin	11	7	18	0	0	0	2	2	0	1
Ill-Defined	76	54	130	0	0	0	0	0	0	0
Kidney	66	40	106	0	0	0	0	0	0	2
Larynx	15	4	19	0	0	0	0	0	0	0
Leukemia	53	22	75	3	1	0	1	0	1	1
Liver	17	11	28	0	0	0	0	0	0	0
Lung	134	132	266	0	0	0	0	0	0	0
Melanoma	102	83	185	1	0	0	0	3	5	1
Myeloma	16	16	32	0	0	0	0	0	0	0
Nasal	3	3	6	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	66	46	112	0	0	0	0	0	0	1
Oral Cavity	44	17	61	0	0	0	0	2	0	2
Other Biliary	14	15	29	0	0	0	0	0	0	0
Other Digestive	2	1	3	1	0	0	0	0	0	0
Other Endocrine	1	3	4	0	0	0	0	0	0	0
Other Female	0	21	21	0	0	0	0	0	0	0
Other Male	1	0	1	0	0	0	0	0	0	0
Other Skin	7	2	9	0	0	0	0	0	0	0
Other Respiratory	1	0	1	0	0	0	0	0	0	0
Other Urinary	5	2	7	0	0	0	0	0	0	0
Ovary	0	29	29	0	0	0	0	2	1	0
Pancreas	33	53	86	0	0	0	0	0	0	0
Prostate	464	0	464	0	0	0	0	0	0	0
Small Intestine	14	7	21	0	0	0	0	0	0	1
Soft Tissue including Heart	9	6	15	1	0	0	0	0	0	0
Stomach	20	11	31	0	0	0	0	0	0	0
Testis	20	0	20	0	0	0	1	2	2	5
Thyroid	21	65	86	0	0	0	0	4	5	9
Uterine	0	95	95	0	0	0	0	0	0	0
Mesothelioma	4	1	5	0	0	0	0	0	0	0
All Sites	1,534	1,438	2,972	6	3	1	6	17	22	30

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	1	1	1	3	0	5	3	3	1	0	0
Bladder w/ in situ	0	0	2	2	12	18	21	36	18	16	11
Bones and Joints	1	0	0	0	0	0	1	0	0	0	0
Brain	3	0	1	3	0	2	5	1	3	2	1
Breast	10	31	35	39	54	64	82	95	37	26	23
Cervix	1	0	2	3	6	2	1	1	2	0	0
Colorectal	1	5	5	27	26	28	43	38	32	19	21
Esophagus	0	1	2	1	5	7	6	12	5	3	3
Eye	0	0	0	0	0	1	0	0	0	0	0
Gallbladder	0	0	0	0	0	1	0	1	1	0	0
Hodgkin	0	0	1	0	2	3	2	2	3	0	0
III-Defined	2	1	2	9	9	7	24	30	15	9	22
Kidney	2	3	5	3	12	11	17	19	15	7	10
Larynx	0	0	0	0	3	2	4	6	2	1	1
Leukemia	1	2	3	0	7	9	14	13	4	8	7
Liver	0	0	0	2	7	4	6	5	0	1	3
Lung	2	2	1	9	23	28	47	53	41	41	19
Melanoma	7	6	5	10	25	19	31	29	22	11	10
Myeloma	0	0	0	3	1	6	6	7	5	2	2
Nasal	0	1	1	0	0	0	0	3	1	0	0
Non-Hodgkin Lymphoma	2	1	4	3	5	15	18	23	14	15	11
Oral Cavity	0	1	1	8	9	7	14	9	3	5	0
Other Biliary	0	0	0	3	0	3	4	8	5	3	3
Other Digestive	0	1	0	0	0	0	0	1	0	0	0
Other Endocrine	0	1	0	0	1	0	2	0	0	0	0
Other Female	0	0	1	1	1	4	5	6	1	1	1
Other Male	0	0	0	0	0	0	0	1	0	0	0
Other Skin	0	0	0	0	1	2	3	1	0	1	1
Other Respiratory	0	1	0	0	0	0	0	0	0	0	0
Other Urinary	0	0	0	0	0	0	0	2	0	2	3
Ovary	2	1	0	3	6	1	4	5	3	1	0
Pancreas	0	0	2	4	9	12	16	15	13	9	6
Prostate	0	0	3	13	38	101	118	103	49	28	11
Small Intestine	0	0	1	0	4	4	2	3	2	1	3
Soft Tissue including Heart	0	1	1	2	3	2	1	1	1	0	2
Stomach	0	0	2	0	4	6	5	8	2	2	2
Testis	5	2	0	2	0	0	1	0	0	0	0
Thyroid	10	6	8	6	1	8	10	11	4	2	2
Uterine	1	3	6	6	16	12	23	15	6	4	3
Mesothelioma	0	0	0	0	1	0	1	0	3	0	0
All Sites	51	71	95	165	291	394	540	566	313	220	181

Wyoming Cancer Mortality¹ for 2021: 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	0	2	2	0	0	0	0	0	0	0
Bladder	30	11	41	0	0	0	0	0	0	0
Bones and Joints	6	1	7	0	0	0	4	1	0	1
Brain	16	17	33	1	1	0	0	0	1	1
Breast	0	81	81	0	0	0	0	0	0	2
Cervix	0	7	7	0	0	0	0	0	0	0
Colorectal	57	47	104	0	0	0	0	0	0	0
Esophagus	29	9	38	0	0	0	0	0	0	0
Eye	0	1	1	0	0	0	0	0	0	0
Gallbladder	1	2	3	0	0	0	0	0	0	0
Hodgkin	2	1	3	0	0	0	0	0	0	0
Ill-Defined	53	50	103	0	0	0	0	0	0	0
Kidney	18	9	27	0	0	0	0	0	0	0
Larynx	8	5	13	0	0	0	0	0	0	0
Leukemia	24	20	44	1	0	0	0	1	0	0
Liver	26	14	40	0	0	0	0	0	0	0
Lung	105	131	236	0	0	0	0	0	0	0
Melanoma	15	3	18	0	0	0	0	0	0	0
Myeloma	21	7	28	0	0	0	0	0	0	0
Nasal	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	30	9	39	0	0	0	0	0	0	0
Oral Cavity	11	6	17	0	0	0	0	0	0	0
Other Biliary	9	10	19	0	0	0	0	0	0	0
Other Digestive	4	1	5	0	0	0	0	0	0	0
Other Endocrine	1	0	1	0	0	0	0	0	0	0
Other Female	0	5	5	0	0	0	0	0	0	0
Other Male	1	0	1	0	0	0	0	0	0	0
Other Skin	5	2	7	0	0	0	0	0	0	0
Other Respiratory	0	2	2	0	0	0	0	0	0	0
Other Urinary	0	2	2	0	0	0	0	0	0	0
Ovary	0	23	23	0	0	0	0	0	1	0
Pancreas	37	41	78	0	0	0	0	0	0	0
Prostate	65	0	65	0	0	0	0	0	0	0
Small Intestine	2	2	4	0	0	0	0	0	0	0
Soft Tissue including Heart	3	7	10	0	0	1	0	1	0	0
Stomach	4	9	13	0	0	0	0	0	0	0
Testis	0	0	0	0	0	0	0	0	0	0
Thyroid	7	2	9	0	0	0	0	0	0	0
Uterine	0	16	16	0	0	0	0	0	0	0
Mesothelioma	4	2	6	0	0	0	0	0	0	0
All Sites	594	557	1,151	2	1	1	4	3	2	4

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	0	1	0	1	0	0	0	0
Bladder	0	0	1	0	4	4	6	7	5	6	8
Bones and Joints	0	0	0	0	0	0	0	0	1	0	0
Brain	0	2	1	3	3	6	6	2	3	2	1
Breast	2	3	2	3	4	7	10	11	10	7	20
Cervix	1	0	1	1	0	1	0	0	1	1	1
Colorectal	1	0	6	4	4	11	16	14	11	15	22
Esophagus	0	0	0	0	5	11	3	8	4	5	2
Eye	0	0	0	0	0	0	1	0	0	0	0
Gallbladder	0	0	0	0	1	0	0	1	1	0	0
Hodgkin	0	0	1	0	0	2	0	0	0	0	0
Ill-Defined	1	0	1	4	8	11	11	20	12	13	22
Kidney	0	0	0	3	3	7	3	2	3	2	4
Larynx	0	1	0	0	1	2	3	3	2	1	0
Leukemia	0	1	0	0	1	2	9	5	10	2	12
Liver	0	0	0	0	2	11	6	9	6	1	5
Lung	0	0	1	3	16	29	31	46	29	48	33
Melanoma	0	0	0	1	3	2	2	6	3	1	0
Myeloma	0	0	0	0	1	1	4	5	8	6	3
Nasal	0	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	0	0	1	1	0	3	7	4	8	7	8
Oral Cavity	0	0	0	0	1	5	3	2	1	4	1
Other Biliary	0	0	1	1	2	0	3	4	2	4	2
Other Digestive	0	0	0	0	0	0	2	1	0	1	1
Other Endocrine	0	0	0	0	0	0	0	0	0	0	1
Other Female	0	0	0	0	0	0	0	3	1	0	1
Other Male	0	0	0	0	0	0	0	0	0	0	1
Other Skin	0	0	1	0	2	0	2	0	1	1	0
Other Respiratory	0	0	0	1	0	0	1	0	0	0	0
Other Urinary	0	0	0	0	0	0	0	0	1	0	1
Ovary	0	0	0	1	4	2	2	5	3	2	3
Pancreas	0	0	0	4	11	9	7	16	12	11	8
Prostate	0	0	0	0	1	5	9	10	13	6	21
Small Intestine	0	0	0	0	0	0	0	0	0	1	3
Soft Tissue including Heart	0	0	0	0	2	0	2	2	1	0	1
Stomach	0	0	1	0	1	1	4	1	2	1	2
Testis	0	0	0	0	0	0	0	0	0	0	0
Thyroid	0	0	0	0	1	2	1	0	0	3	2
Uterine	0	0	0	2	1	3	2	2	1	1	4
Mesothelioma	0	0	0	0	1	0	0	2	3	0	0
All Sites	5	7	18	32	84	137	157	191	158	152	193

**Wyoming Cancer Incidence for 2021: Cases by Race and Ethnicity
(Top 15 Sites Only)**

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	2,972	2,902	16	28	17	4	104
Bladder	137	135	0	1	0	1	2
Brain	28	27	0	0	1	0	2
Breast (Female)	501	489	1	6	4	1	16
Colorectal	251	244	4	1	2	0	12
Kidney	106	105	0	1	0	0	7
Leukemia	75	73	1	1	0	0	2
Lung	266	260	0	3	3	0	8
Melanoma	185	185	0	0	0	0	1
Non-Hodgkin Lymphoma	112	109	1	1	1	0	4
Oral Cavity	61	61	0	0	0	0	2
Ovary	29	27	0	1	1	0	1
Pancreas	86	83	0	3	0	0	2
Prostate	464	456	5	2	0	1	13
Thyroid	86	85	0	1	0	0	7
Uterine	95	93	0	1	1	0	3

**Wyoming Cancer Mortality for 2021: Cases by Race and Ethnicity
(Top 15 Sites Only)**

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	1,151	1,101	9	28	6	5	42
Bladder	41	40	0	1	0	0	0
Brain/CNS	33	32	0	0	1	0	3
Breast (Female)	81	79	1	1	0	0	4
Colorectal	104	95	1	8	0	0	4
Kidney	27	26	0	1	0	0	0
Leukemia	44	44	0	0	0	0	0
Lung	236	226	1	3	4	2	7
Melanoma	18	18	0	0	0	0	0
Non-Hodgkin Lymphoma	39	39	0	0	0	0	1
Oral Cavity	17	16	0	1	0	0	0
Ovary	22	20	0	2	0	0	3
Pancreas	78	76	0	2	0	0	2
Prostate	65	62	1	1	0	1	1
Thyroid	9	9	0	0	0	0	0
Uterine	16	15	1	0	0	0	1

This page left intentionally blank

State of Wyoming - 2021

Top Cancer Sites by Gender and Age - Incidence and Mortality

Top Cancer Incidence - Site by Gender - 2021

Total		Male		Female	
Breast	501	Prostate	464	Breast	498
Prostate	464	Colorectal	138	Lung	132
Lung	266	Lung	134	Colorectal	113
Colorectal	251	Bladder/w in situ	109	Uterine	95
Melanoma	185	Melanoma	102	Melanoma	83

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

NHL = Non-Hodgkin's Lymphoma

		<u>0-4</u>		<u>5-9</u>		<u>10-14</u>		<u>15-19</u>	
		Leukemia	3	Each site has less than 3 cases		Each site has less than 3 cases		Each site has less than 3 cases	
<u>20-24</u>		<u>25-29</u>		<u>30-34</u>		<u>35-39</u>		<u>40-44</u>	
Thyroid	4	Thyroid	5	Thyroid	9	Breast	10	Breast	31
Melanoma	3	Melanoma	5	Testis	5	Thyroid	10	Melanoma	6
		Colorectal	3	Brain/CNS	3	Melanoma	7	Thyroid	6
						Testis	5	Colorectal	5
								Uterine	3
<u>45-49</u>		<u>50-54</u>		<u>55-59</u>		<u>60-64</u>		<u>65-69</u>	
Breast	35	Breast	39	Breast	54	Prostate	101	Prostate	118
Thyroid	8	Colorectal	27	Prostate	38	Breast	64	Breast	82
Uterine	6	Prostate	13	Colorectal	26	Colorectal	28	Lung	47
Colorectal, Kidney, & Melanoma	5	Melanoma	10	Melanoma	25	Lung	28	Colorectal	43
		Lung	9	Lung	23	Bladder	18	Melanoma	31
<u>70-74</u>		<u>75-79</u>		<u>80-84</u>		<u>85+</u>			
Prostate	103	Prostate	49	Lung	41	Breast	23		
Breast	95	Lung	41	Prostate	28	Colorectal	21		
Lung	53	Breast	37	Breast	26	Lung	19		
Colorectal	38	Colorectal	32	Colorectal	19	Bladder, NHL, & Prostate	11		
Bladder	36	Melanoma	22	Bladder	16				

Top Cancer Mortality - Site by Gender - 2021

Total		Male		Female	
Lung	236	Lung	105	Lung	131
Colorectal	104	Prostate	65	Breast	81
Ill-Defined	103	Colorectal	57	Ill-Defined	50
Breast	81	Ill-Defined	53	Colorectal	47
Pancreas	78	Pancreas	37	Pancreas	41

Top Five 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		Bone & Joints	4
<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		Breast	2	Breast	2	Breast	3
								Brain/CNS	2
<u>45-49</u>		<u>50-54</u>		<u>55-59</u>		<u>60-64</u>		<u>65-69</u>	
Colorectal	6	Colorectal	4	Lung	16	Lung	29	Lung	31
Breast	2	Pancreas	4	Pancreas	11	Colorectal	11	Colorectal	16
		Ill-Defined	4	Ill-Defined	8	Esophagus	11	Ill-Defined	11
		Brain, Breast, Kidney, & Lung	3	Esophagus	5	Ill-Defined	11	Breast	10
					Liver	11	Prostate	9	
<u>70-74</u>		<u>75-79</u>		<u>80-84</u>		<u>85+</u>			
Lung	46	Lung	29	Lung	48	Lung	33		
Ill-Defined	20	Prostate	13	Colorectal	15	Colorectal	22		
Pancreas	16	Ill-Defined	12	Ill-Defined	13	Ill-Defined	22		
Colorectal	14	Pancreas	12	Pancreas	11	Prostate	21		
Breast	11	Colorectal	11	Breast & NHL	7	Breast	20		

This page left intentionally blank

**Relative Survival Rates State of Wyoming
2010-2021
All Sites and Top 15 Cancers**

Relative Survival by Cancer Type: 2010-2021 (All Ages and Stages Combined)

Cancer Site	12 Months	24 Months	36 Months	48 Months	60 Months
All Sites	84.20%	78.90%	76.10%	74.00%	72.60%
Bladder w/in situ	91.30%	84.80%	82.20%	80.60%	79.50%
Brain/CNS	56.70%	42.90%	37.10%	32.80%	32.00%
Breast (Female)	98.30%	97.40%	95.70%	94.50%	93.70%
Colorectal	83.90%	76.10%	71.20%	66.10%	62.80%
Kidney	89.60%	86.10%	84.50%	81.60%	80.10%
Leukemia	79.40%	73.50%	70.50%	67.30%	65.70%
Lung	48.00%	34.00%	28.40%	24.70%	21.90%
Melanoma	99.20%	98.50%	98.50%	98.30%	98.10%
Non-Hodgkin's	84.50%	79.70%	77.00%	74.80%	73.40%
Oral Cavity	88.60%	81.50%	76.30%	72.80%	71.60%
Ovary	82.30%	70.80%	64.10%	58.60%	52.20%
Pancreas	34.40%	19.90%	15.10%	14.30%	13.70%
Prostate	99.50%	99.20%	98.40%	98.30%	98.10%
Thyroid	98.70%	98.50%	98.20%	97.90%	97.90%
Uterine	95.10%	90.80%	88.70%	86.70%	85.50%

Relative Survival by Cancer Type: 2010-2021 all stages (Ages 0-19 years old)

Cancer Site	12 Months	24 Months	36 Months	48 Months	60 Months
All Sites	96.20%	93.30%	92.00%	90.40%	89.10%
Bones & Joints	100.00%	89.50%	77.60%	71.20%	63.30%
Brain/CNS	89.40%	85.10%	85.10%	78.30%	78.30%
Hodgkin's Lymphoma	95.30%	95.30%	95.30%	95.30%	95.30%
Leukemia	95.90%	94.50%	91.50%	91.50%	89.60%
Soft Tissue, including Heart	95.70%	87.00%	87.00%	87.00%	87.00%
Testis	100.00%	100.00%	100.00%	100.00%	100.00%
Thyroid	100.00%	100.00%	100.00%	100.00%	93.00%

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

This page left intentionally blank

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

2021 Wyoming Incidence and Mortality Rates

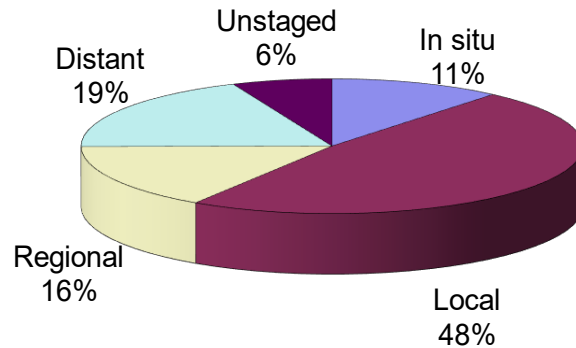
All Cancer Sites

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	1,479	1,425	2,904
In situ Cases	175	188	363
WY Incidence	388.7*	396.6	390.3
US Incidence	438.4	387.3	407.1
Cancer Deaths	594	557	1,151
WY Mortality	169.3	146.8	156.8
US Mortality	171.5	125.3	145.2

* 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 males were both lower than the national rates in 2021. Both rates for Wyoming females were higher than the national rates. The total incidence rate was lower while the total mortality rate was higher than the national rates in 2021.

The 12-year incidence trend for Wyoming remained about level while the national trend dipped from 2018-2020 to 2019-2021.

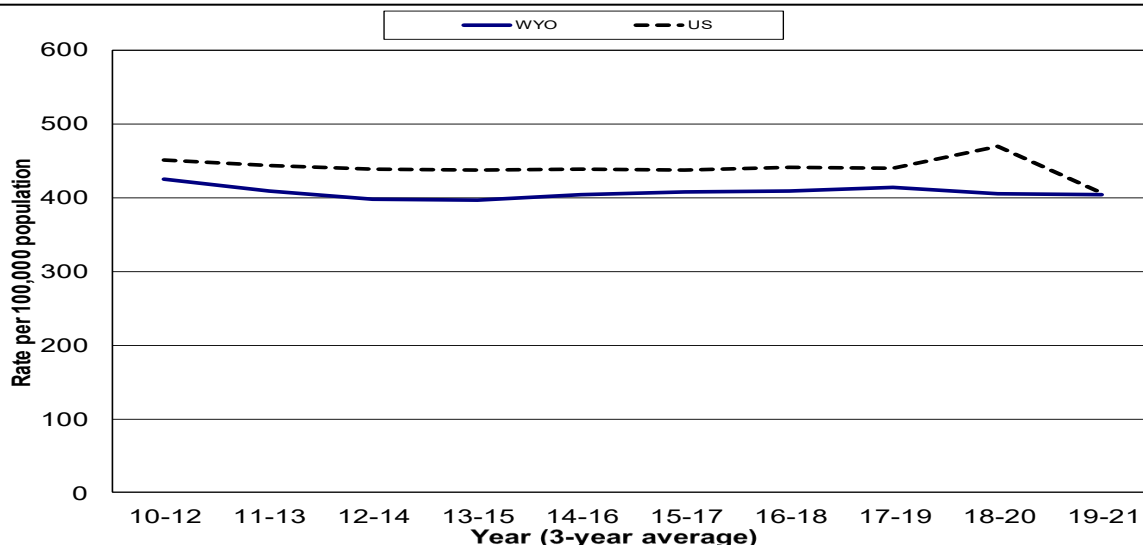
The percent of cancers diagnosed at each stage in 2021 are similar to those in 2020

There were only ten cancers diagnosed in children under the age of 15 in 2021.

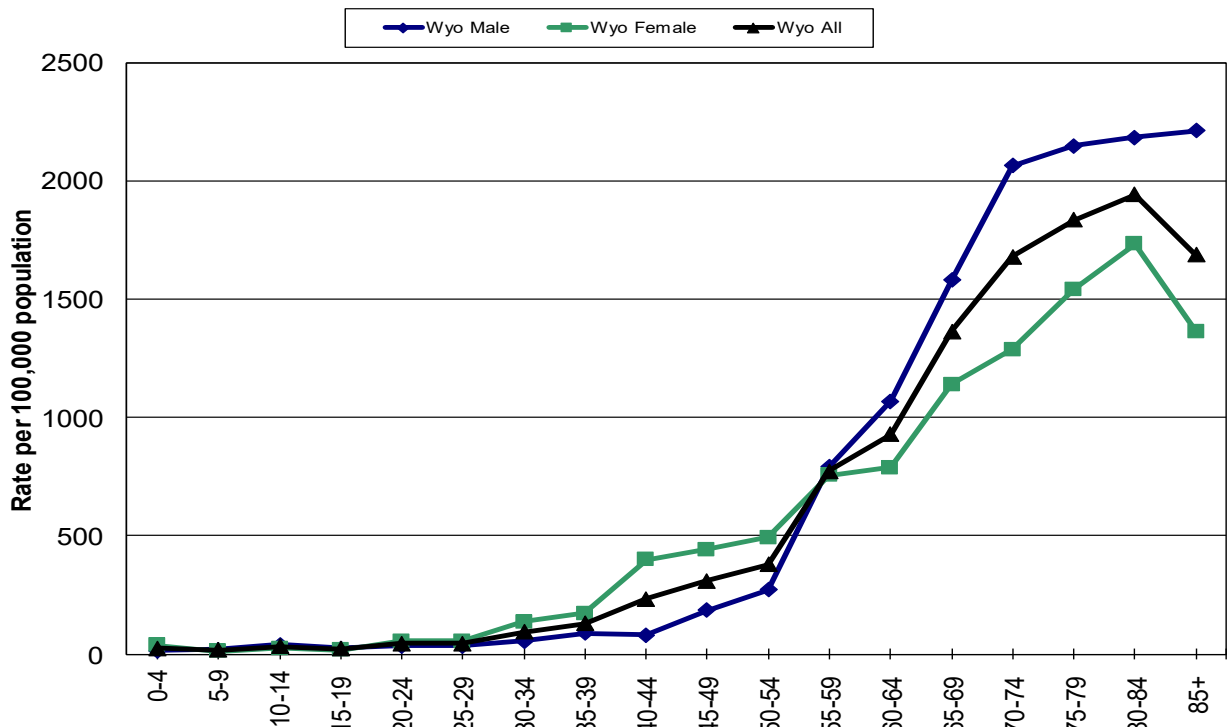
No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

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

12-Year Incidence Trend

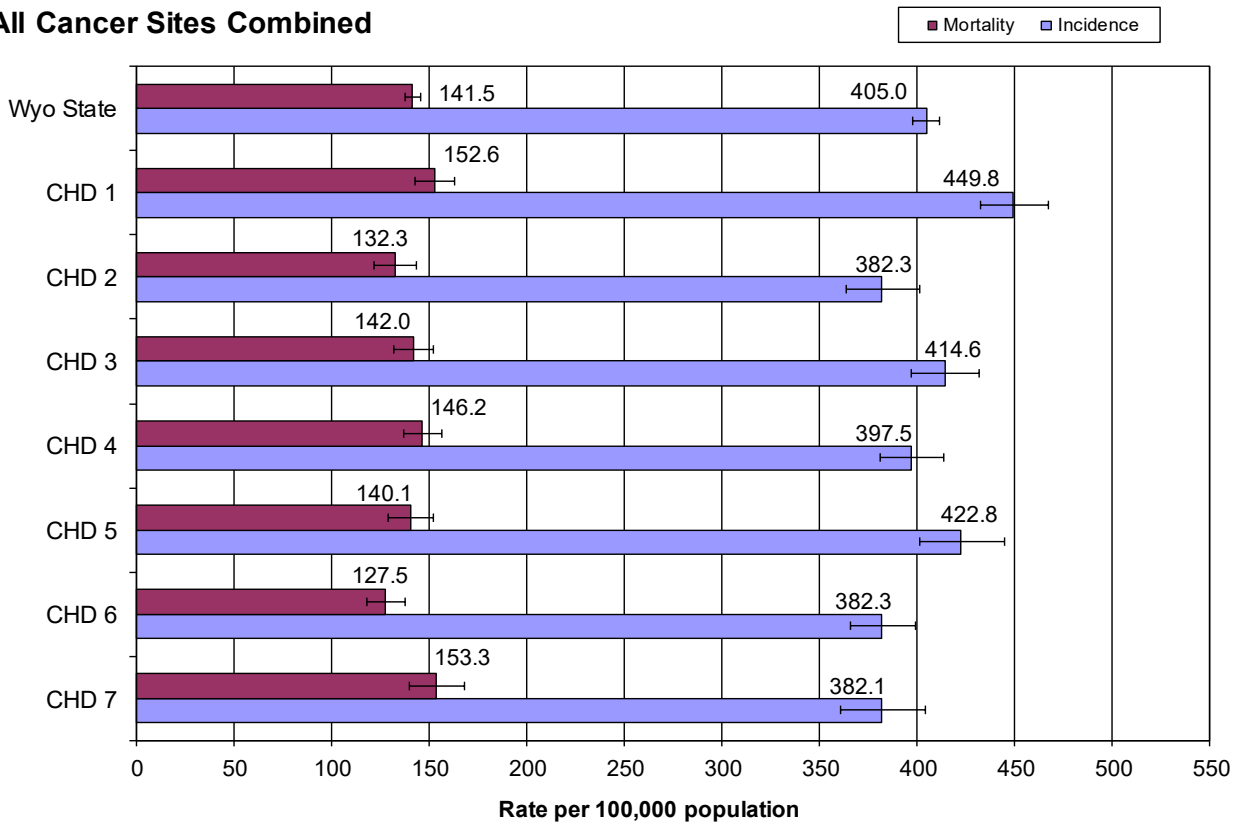


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

All Cancer Sites Combined



Bladder (Urinary)

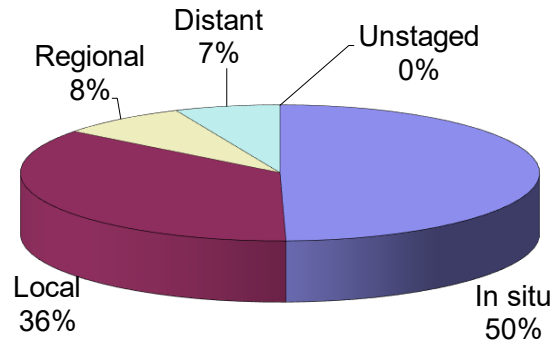
includes In Situ Cases

Incidence and Mortality Summary

	Male	Female	Total
All Cases	109	28	137
In situ Cases	55	13	68
WY Incidence	28.8	7.0	17.5
US Incidence	31.6	7.5	18.2
Cancer Deaths	30	11	41
WY Mortality	8.5	2.8	5.5
US Mortality	7.3	2.0	4.3

* 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 rates for males, females and total population were all lower than the national rate in 2021. The mortality rates for Wyoming males, females, and total population were all slightly higher than their corresponding national rates.

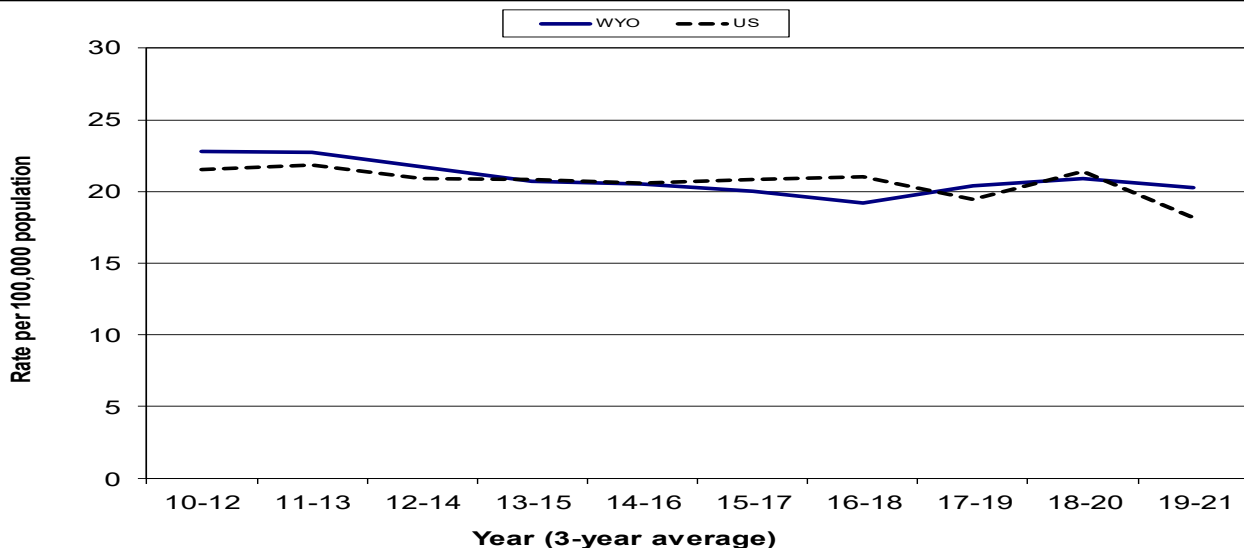
The incidence trend in Wyoming was relatively steady from 2018-2020 to 2019-2021, while the national trend dipped lower.

The percent of cancers diagnosed at each stage were basically the same as in 2020.

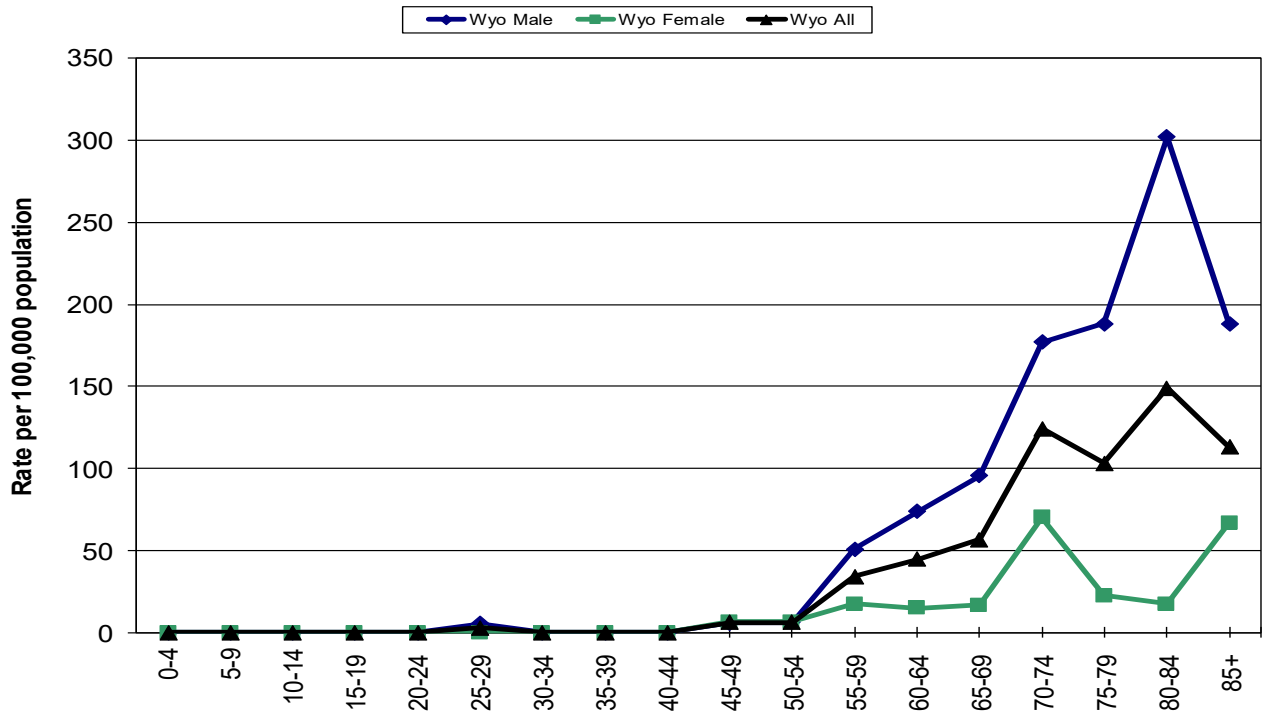
There were only three cases diagnosed in people under 50 years of age in 2021.

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

12-Year Incidence Trend

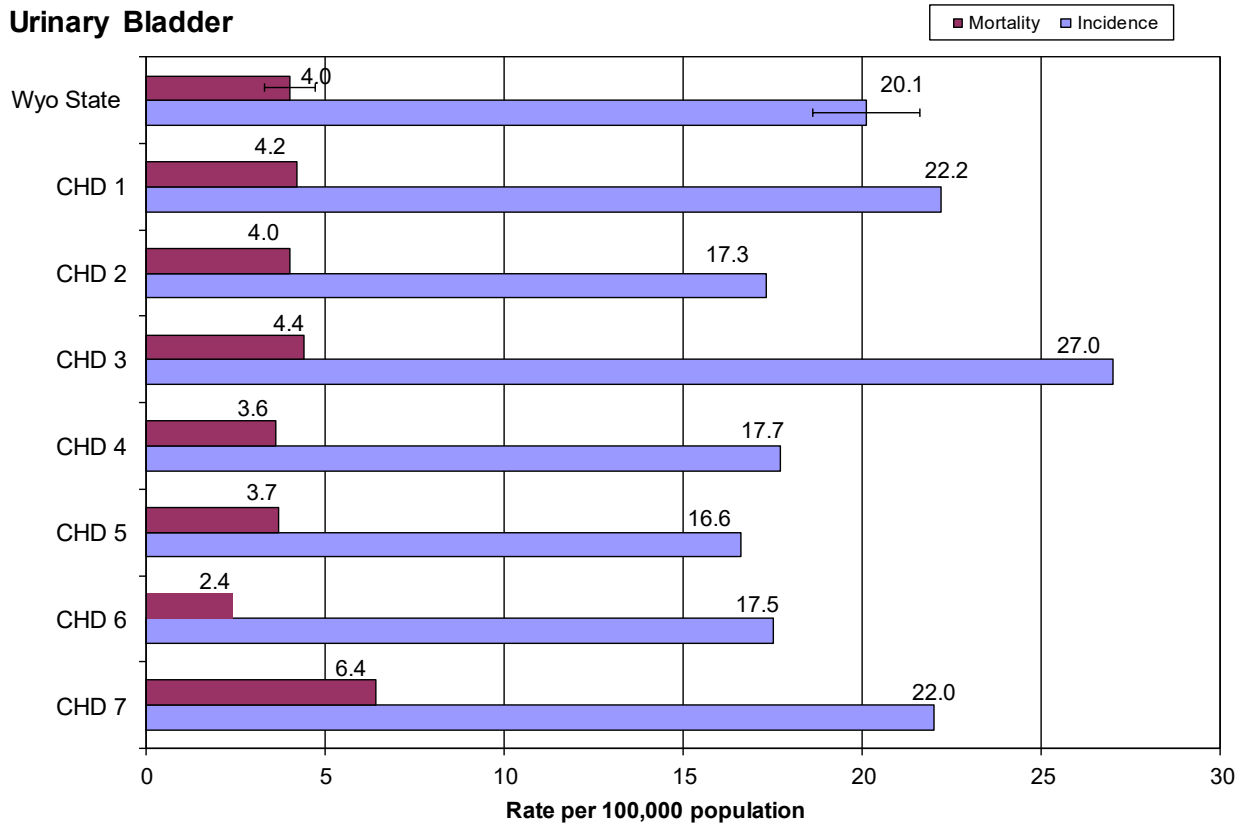


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Urinary Bladder



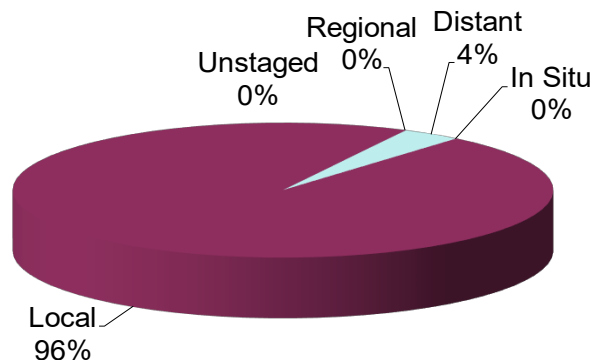
Brain/Central Nervous System (CNS)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	18	10	28
WY Incidence	5.7	3.3	4.5
US Incidence	7.7	5.4	6.5
Cancer Deaths	16	17	33
WY Mortality	4.6	5.0	4.8
US Mortality	5.9	3.9	4.9

* 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 males, females, and total population were lower than the national rates. The mortality rate for females was higher than the national rates, with the male and total rates lower.

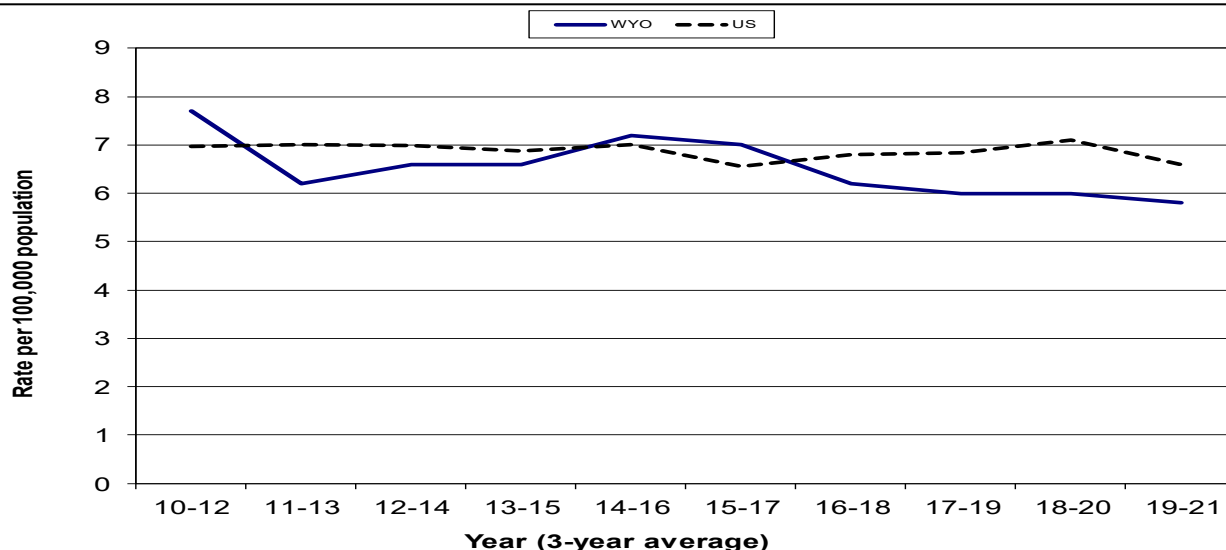
The 12-year trend shows the Wyoming and national trends both going down between 2018-2020 and 2019-2021.

The percentage of cases diagnosed as local has increased significantly over 2020 (66%). The fact that there were only 28 cases total diagnosed in 2021 led to substantial decreases in the other stages.

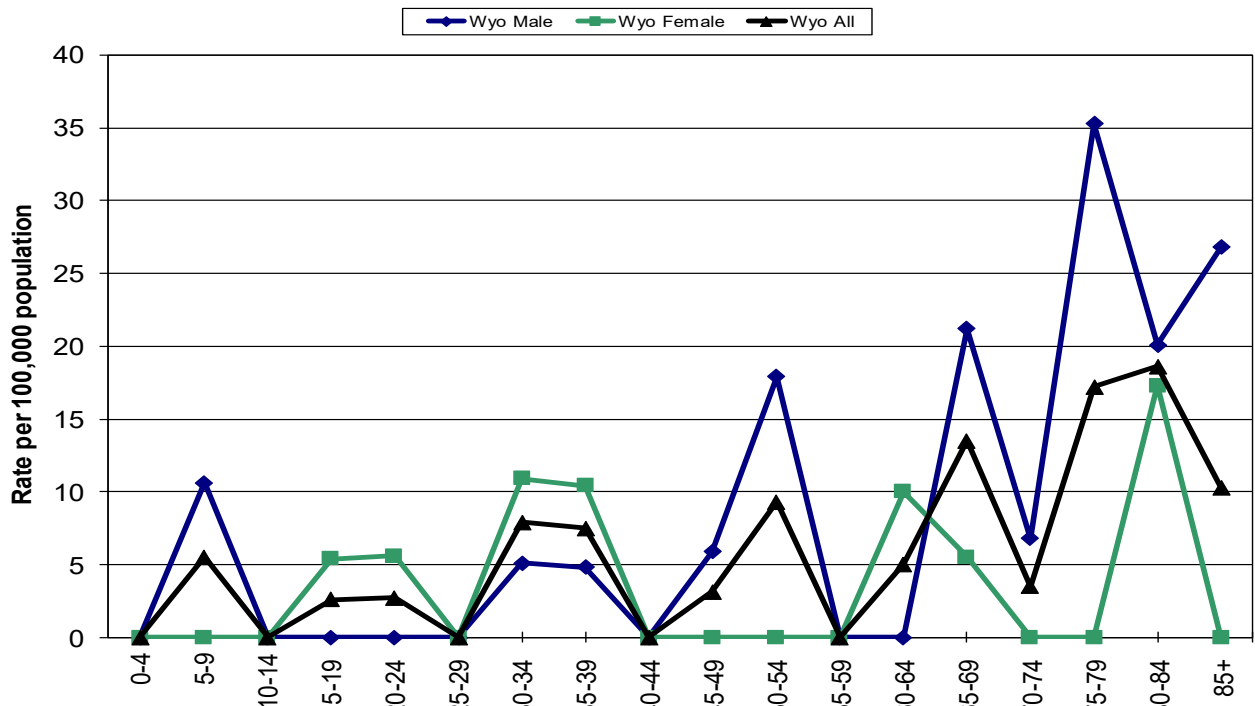
There were only four brain/CNS cancers diagnosed in people under 30 years of age in 2021.

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

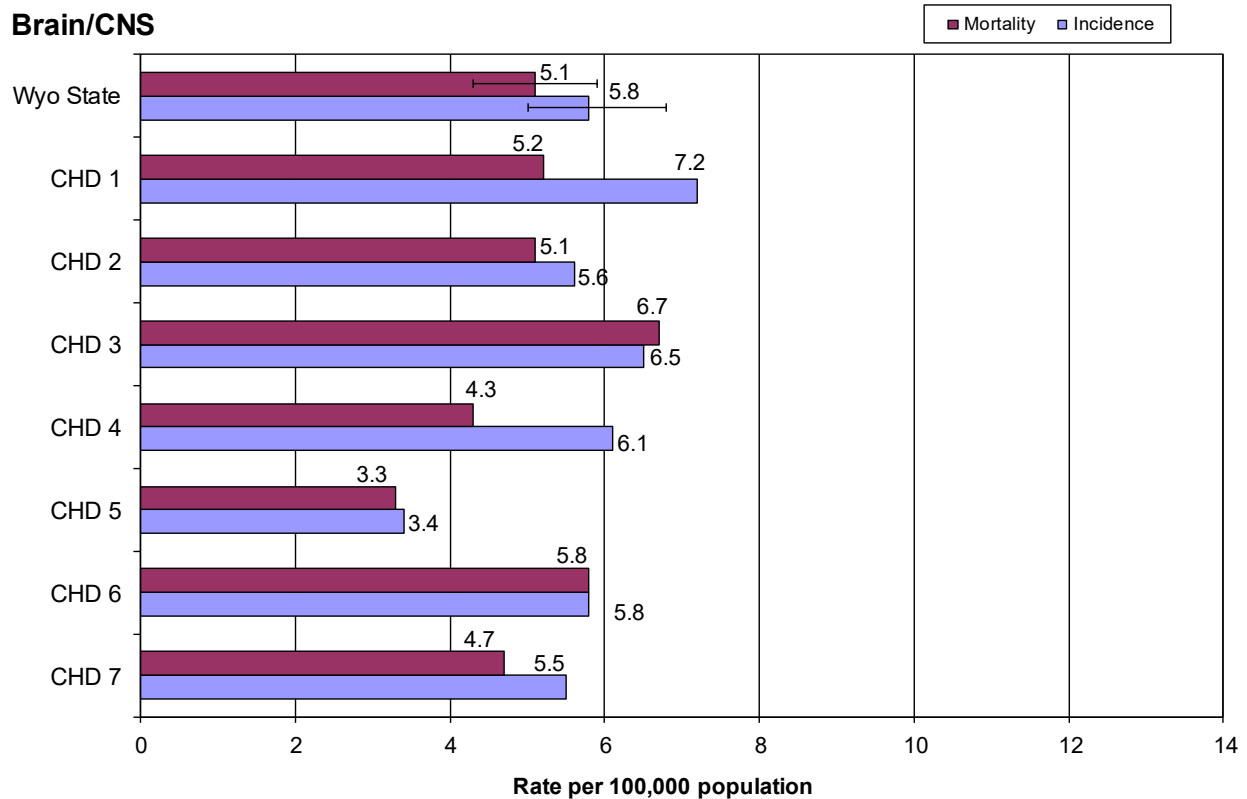
12-Year Incidence Trend



Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021



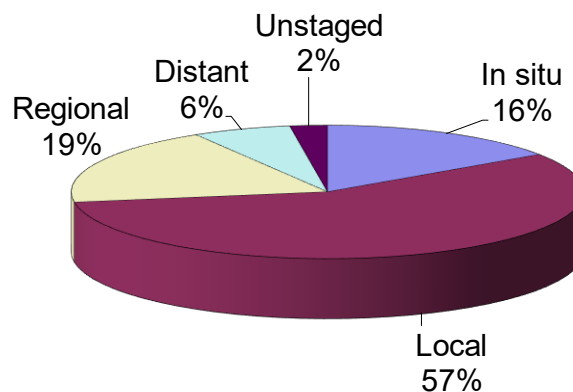
Breast (Female Only)

Incidence and Mortality Summary

	Female
Invasive Cases	498
In situ Cases	92
WY Incidence	141.1
US Incidence	119.8
Cancer Deaths	81
WY Mortality	22.3
US Mortality	18.7

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

Stage at Diagnosis



The incidence and mortality rates for Wyoming females were both higher than the national rates in 2021. Neither difference was statistically significant.

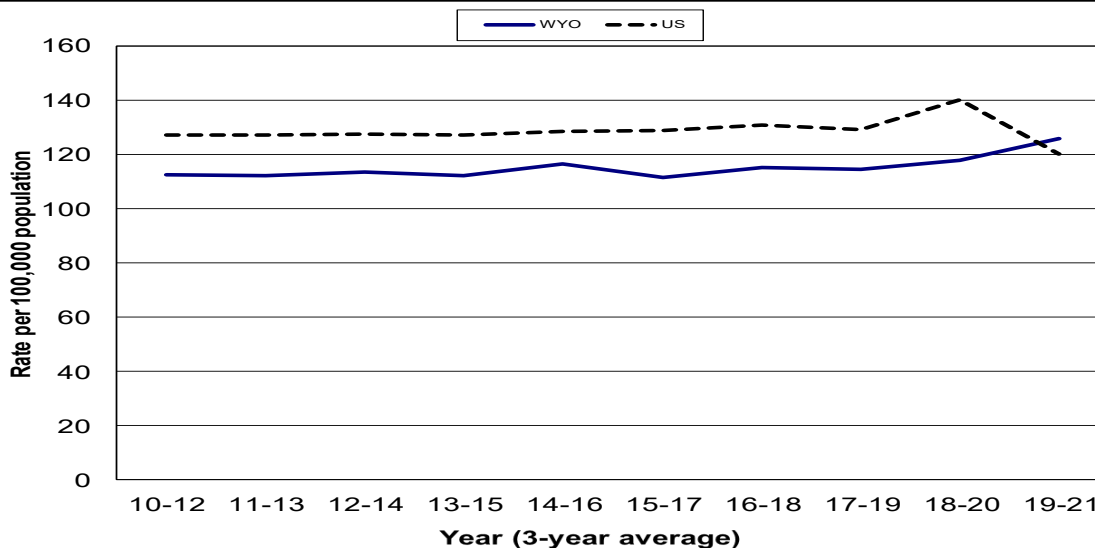
The 12-year incidence trend shows an increase from 2018-2020 for Wyoming women, but a decrease for the U.S. rate.

The percentage of cases diagnosed at each stage in 2021 is very similar to 2020.

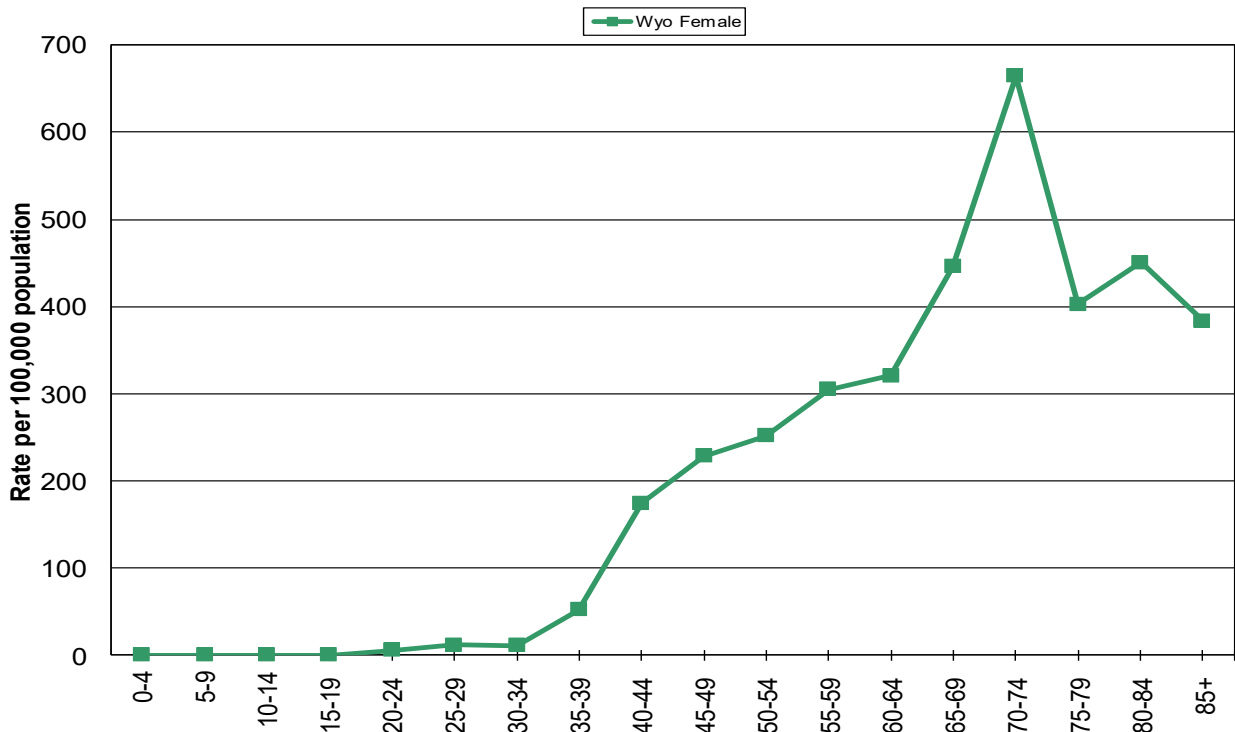
There were only five cases diagnosed in women under the age of 35 in 2021. There were also three cases of breast cancer diagnosed in men in Wyoming in 2021.

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

12-Year Incidence Trend

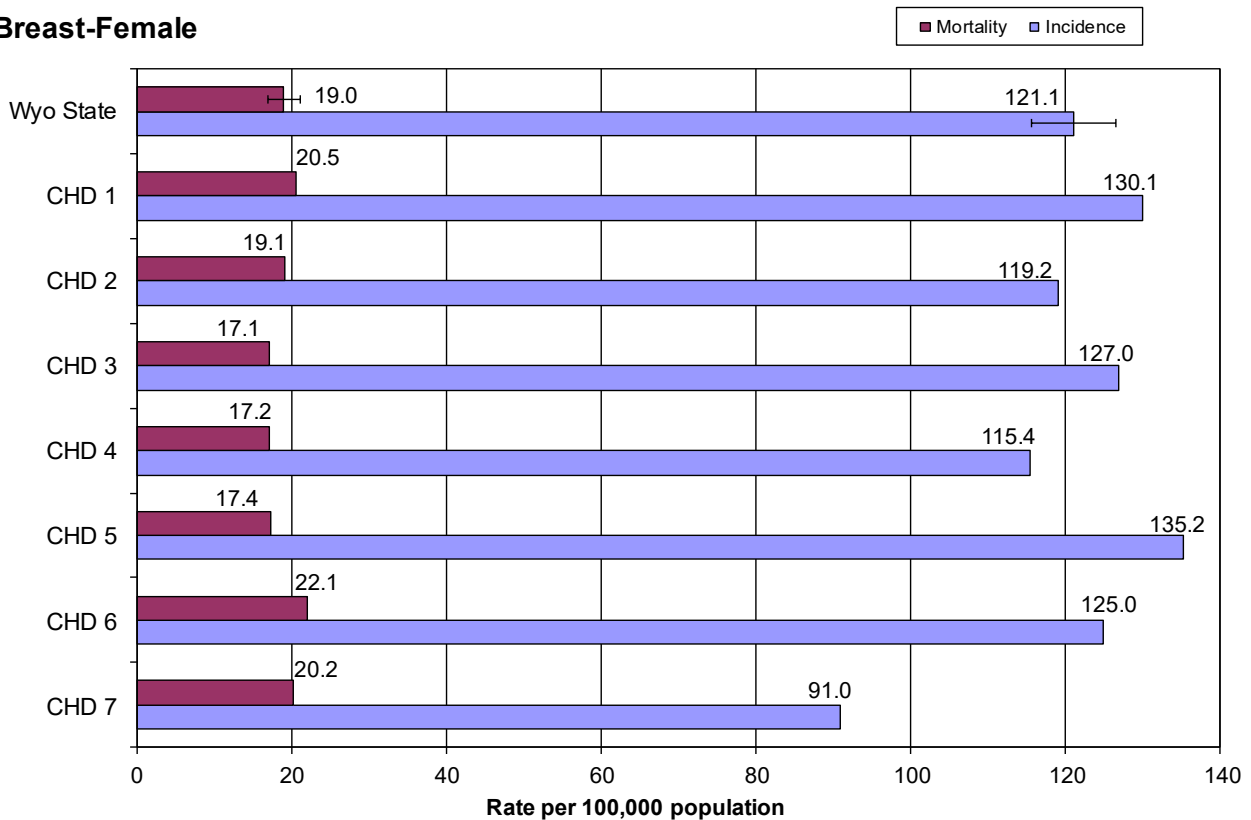


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Breast-Female



Colorectal

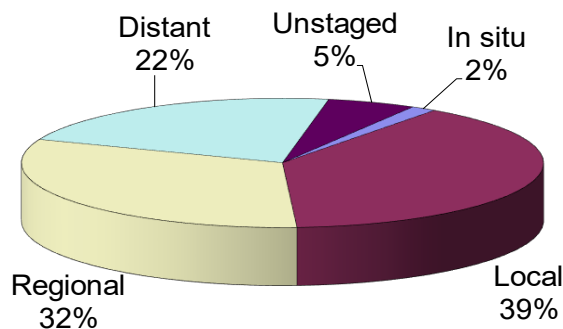
(Colorectal = Colon and Rectum)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	138	113	251
WY Incidence	38.5	30.9	34.7
US Incidence	37.2	28.7	32.7
Cancer Deaths	57	47	104
WY Mortality	17.3	12.1	14.7
US Mortality	14.8	10.3	12.4

* 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 higher than the national rates in 2021. None of the differences were statistically significant.

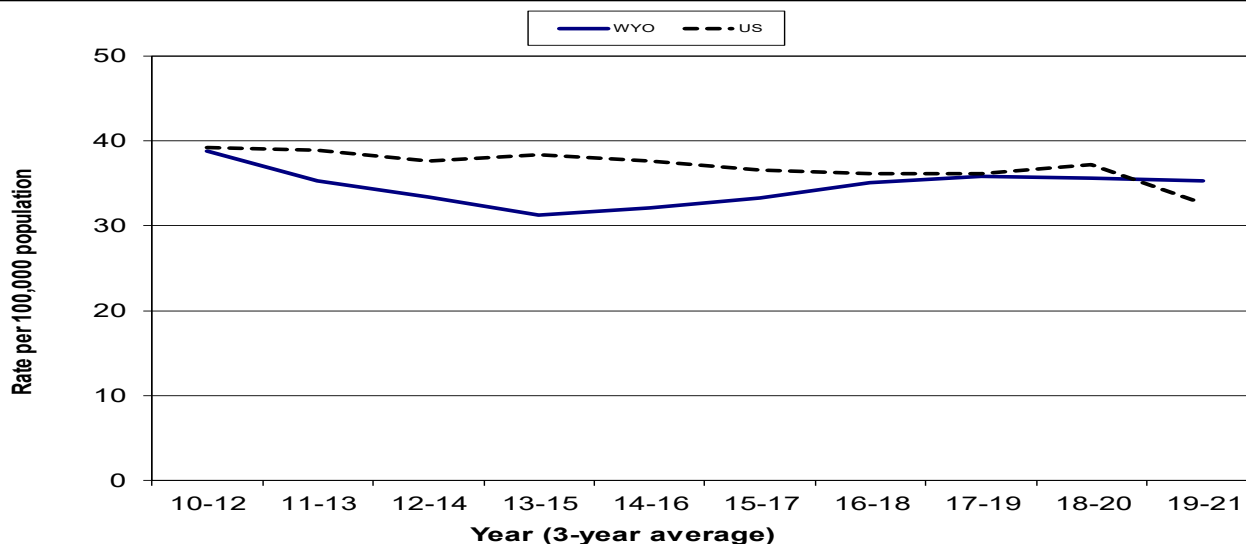
The 12-year incidence graph shows Wyoming staying steady while again the national trend dipped between 2018-2020 and 2019-2021.

The percentage of colorectal cancers diagnosed as regional decreased from 2020 (43%) while the percent diagnosed as local increased from 2020 (30%). The rest of the stages were similar to 2020.

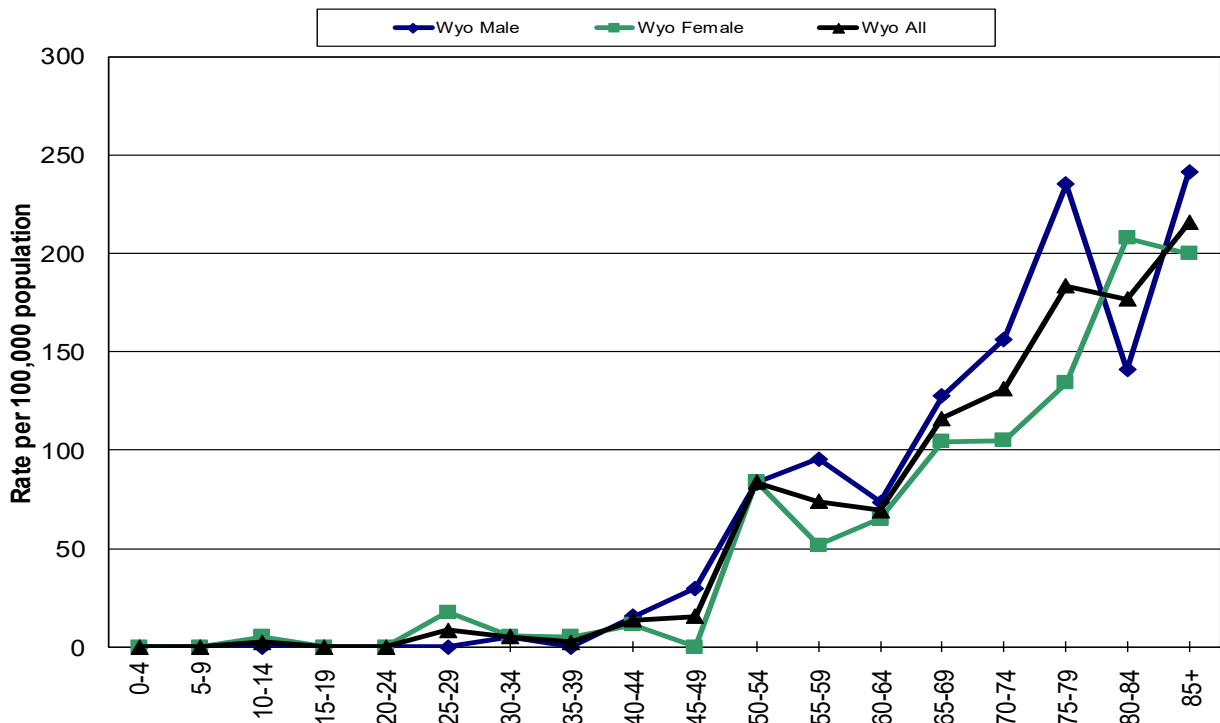
There were seven (7) cases diagnosed in people under 40 years of age in 2021.

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

12-Year Incidence Trend

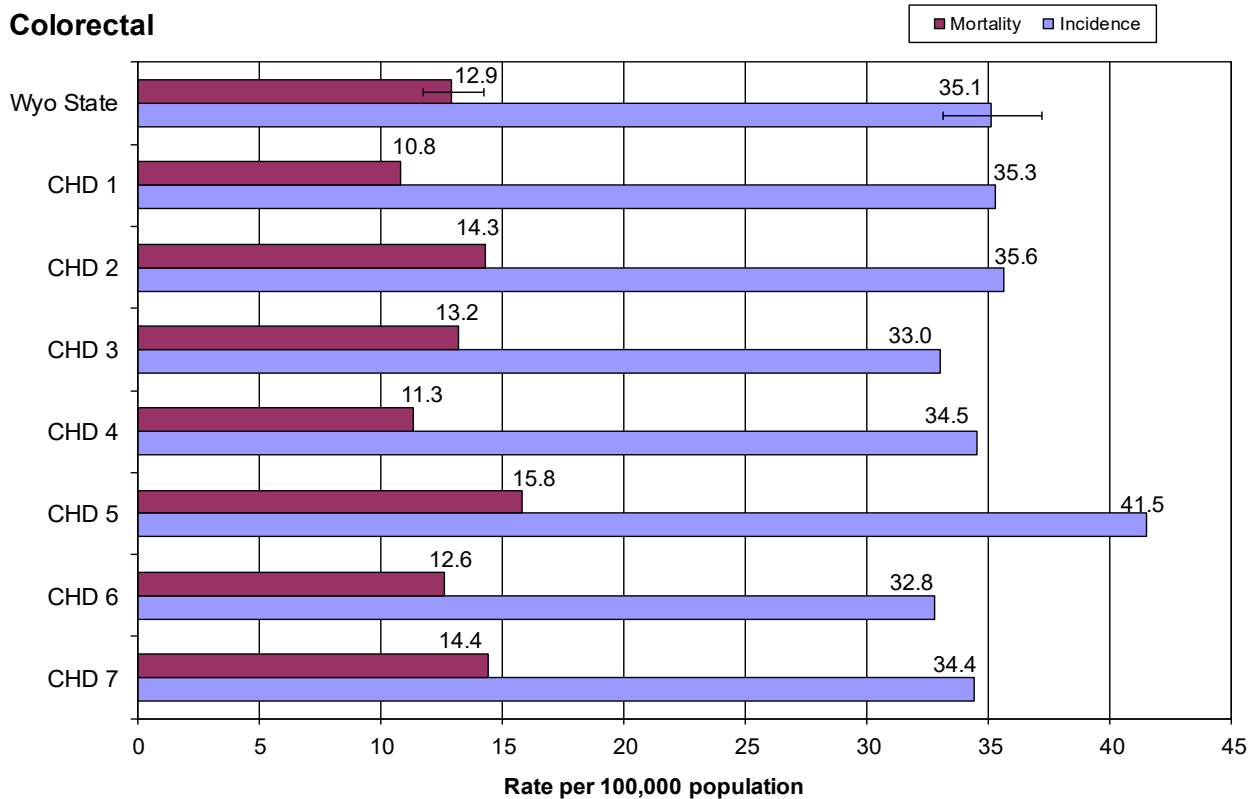


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Colorectal



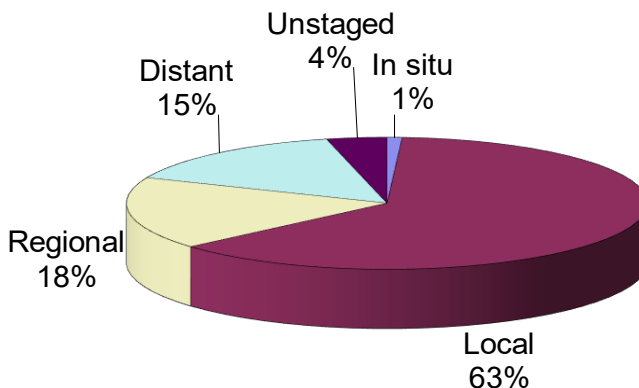
Kidney/Renal Pelvis

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	66	40	106
WY Incidence	18.1	11.0	14.6
US Incidence	22.6	11.0	16.4
Cancer Deaths	18	9	27
WY Mortality	4.7	2.3	3.6
US Mortality	5.2	2.2	3.6

* 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 rates for Wyoming males and total population were both lower than the national rate, while the female rate was exactly the same as the national rate in 2021. The mortality rates for males was slightly lower than the national rate, but the female and total rate were basically the same as the national rate.

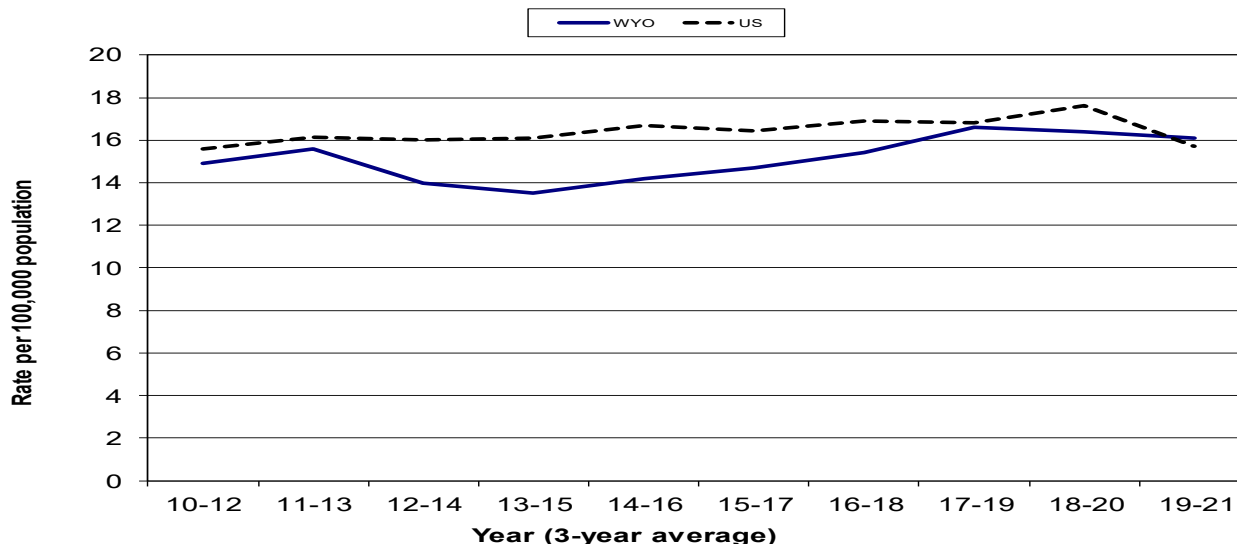
The 12-year incidence trend shows a continued decrease for Wyoming that started in 2017-2019, and the same decrease in the national rate from 2018-2020 to 2019-2021.

The percent of cases diagnosed at each stage is very similar to each percent in 2020.

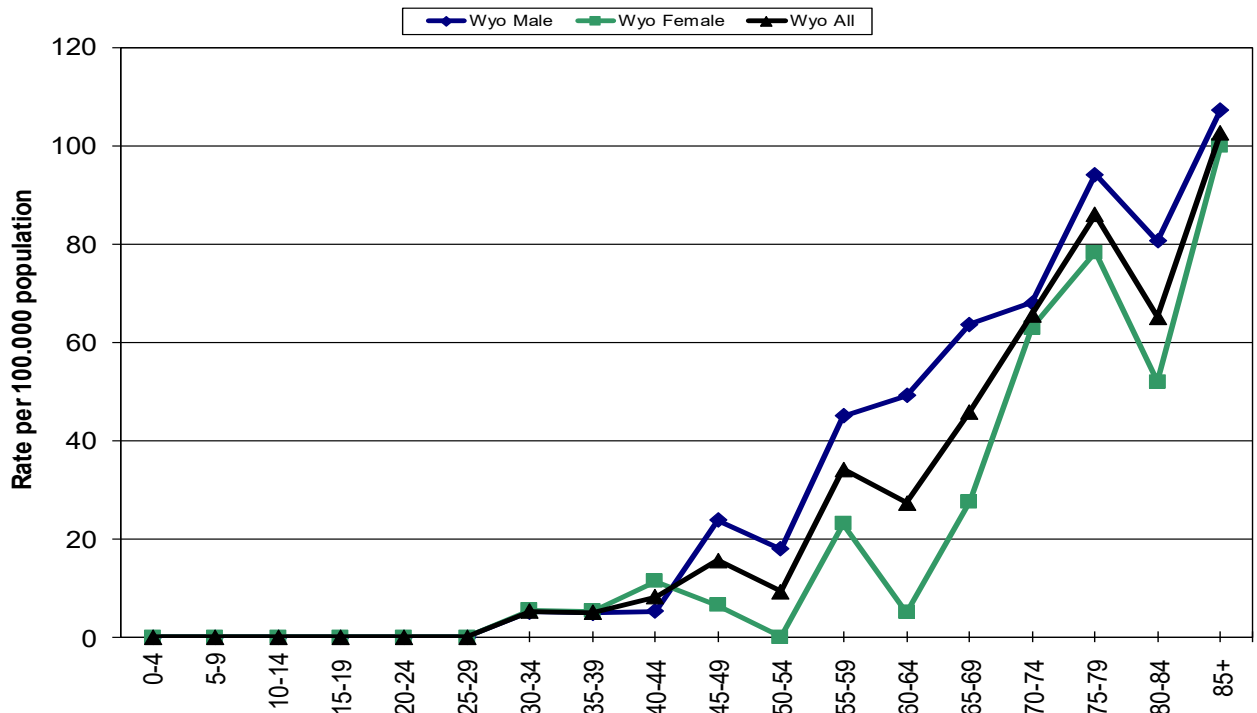
There were no cases diagnosed in persons under 30 years of age in 2021.

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

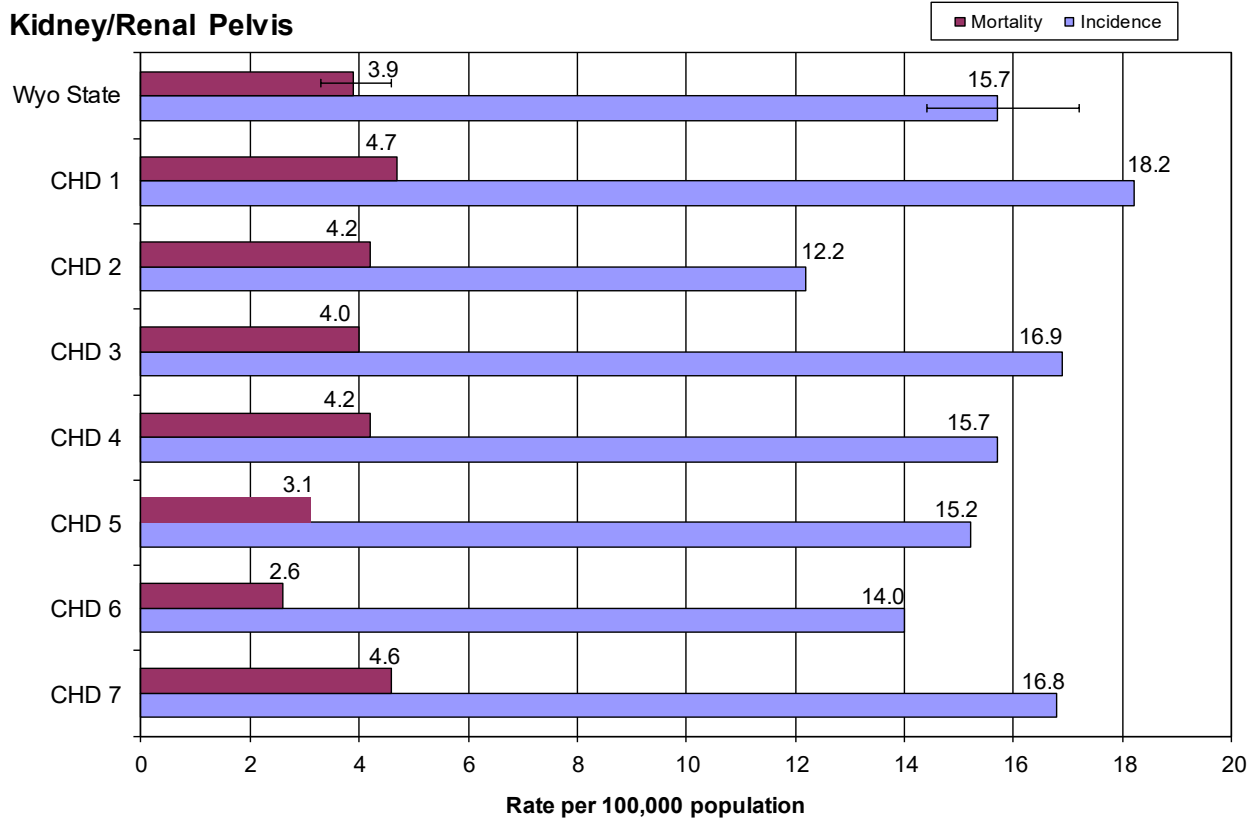
12-Year Incidence Trend



Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021



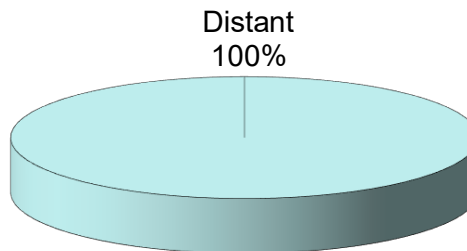
Leukemia

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	53	22	75
WY Incidence	15.1	5.9	10.3
US Incidence	17.1	10.6	13.6
Cancer Deaths	24	20	44
WY Mortality	7.4	5.1	6.1
US Mortality	8.1	4.5	6.1

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

Stage at Diagnosis



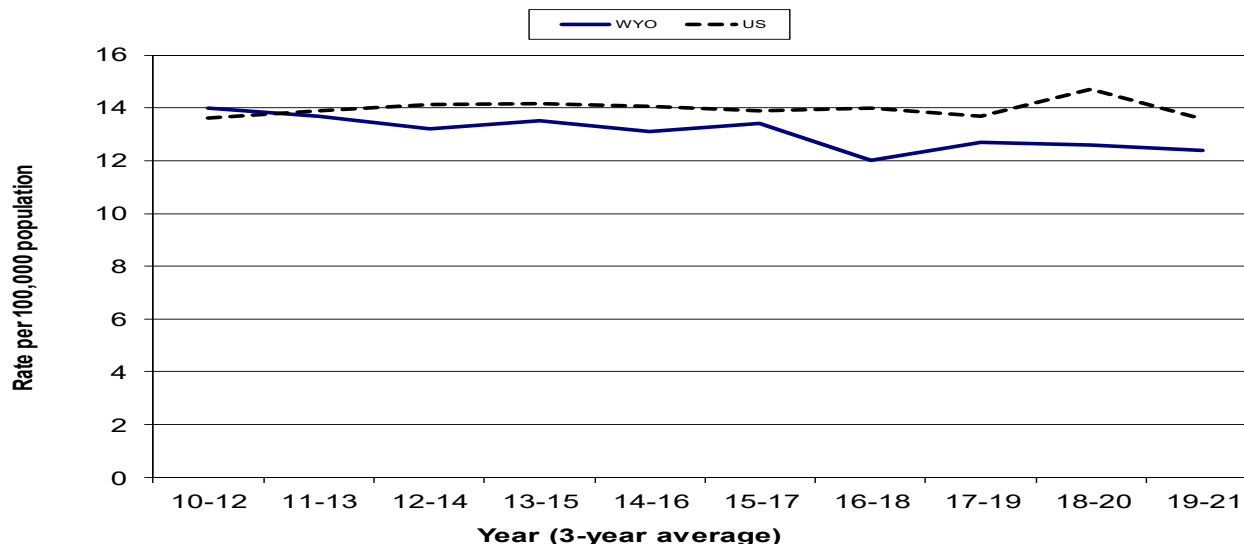
The incidence and mortality rates leukemia in Wyoming for males, females, and total population were all lower or the same as the national rates in 2021. None of the differences were statistically significant.

The incidence trend for Wyoming shows a continuing of a small decrease that started in 2017-2019. The national rate decreases from 2018-2020.

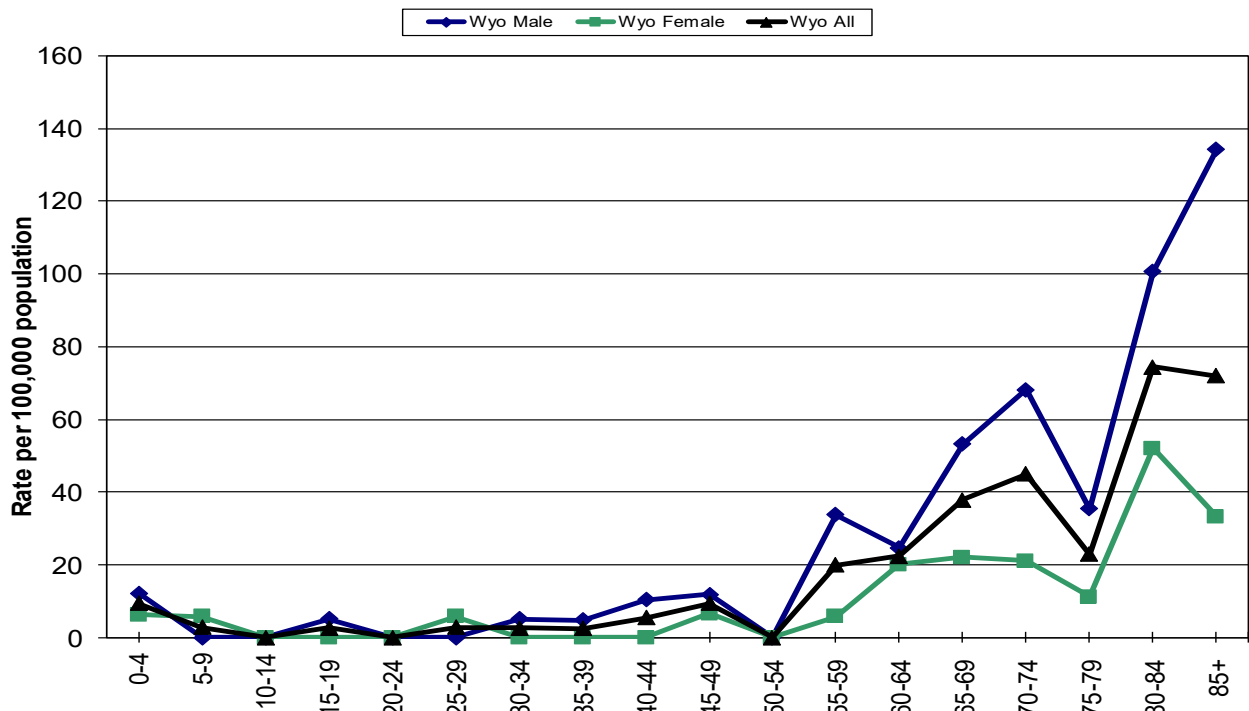
There were five (5) cases of leukemia diagnosed in children/adolescents under 20 years of age in 2021.

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

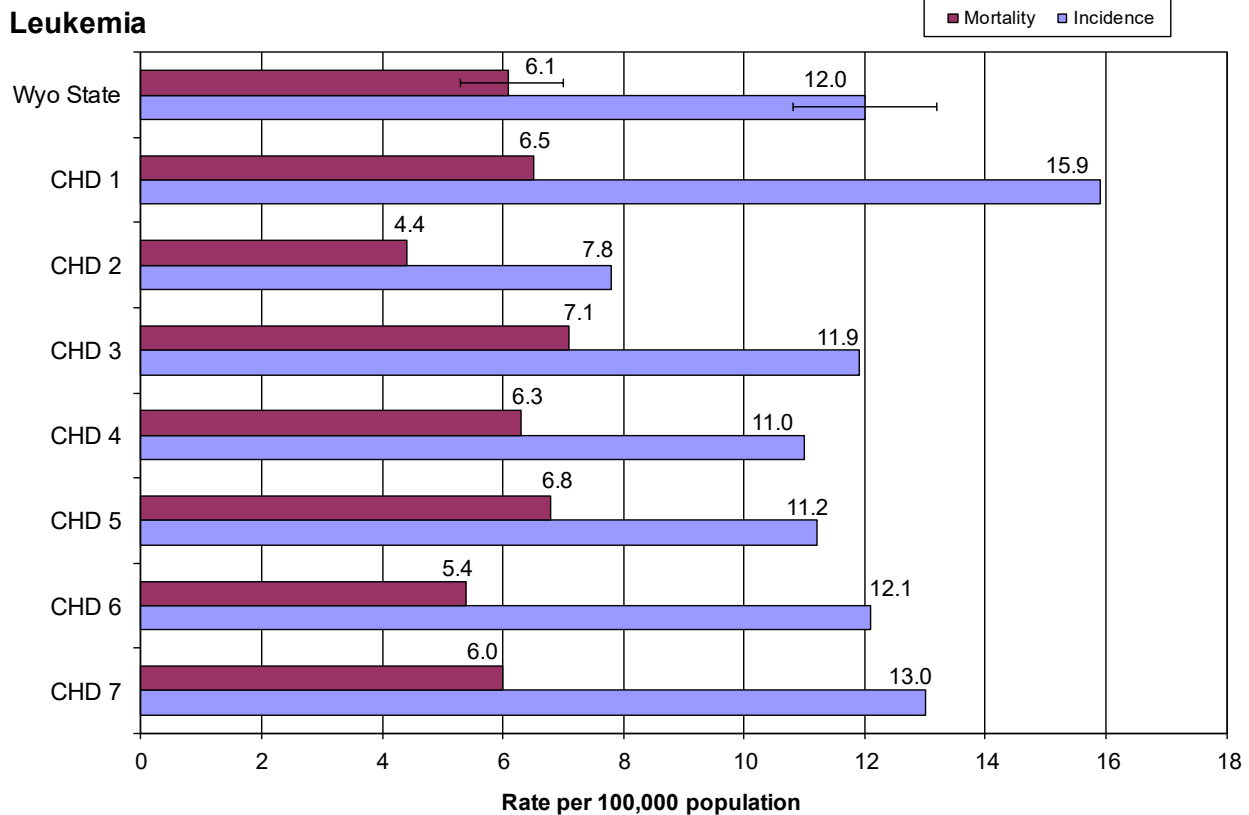
12-Year Incidence Trend



Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021



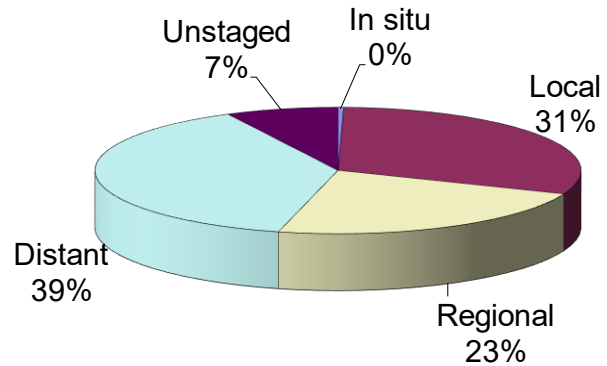
Lung and Bronchus

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	134	132	266
WY Incidence	37.6	32.6	35.0
US Incidence	49.0	41.5	44.7
Cancer Deaths	105	131	236
WY Mortality	30.6	32.9	31.5
US Mortality	38.3	28.1	32.6

* 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 rates for Wyoming for males, females and total population were all lower than the national rates. The mortality rates for males and total population were also lower than the national rates, but the female mortality rate in Wyoming was higher than the national rate.

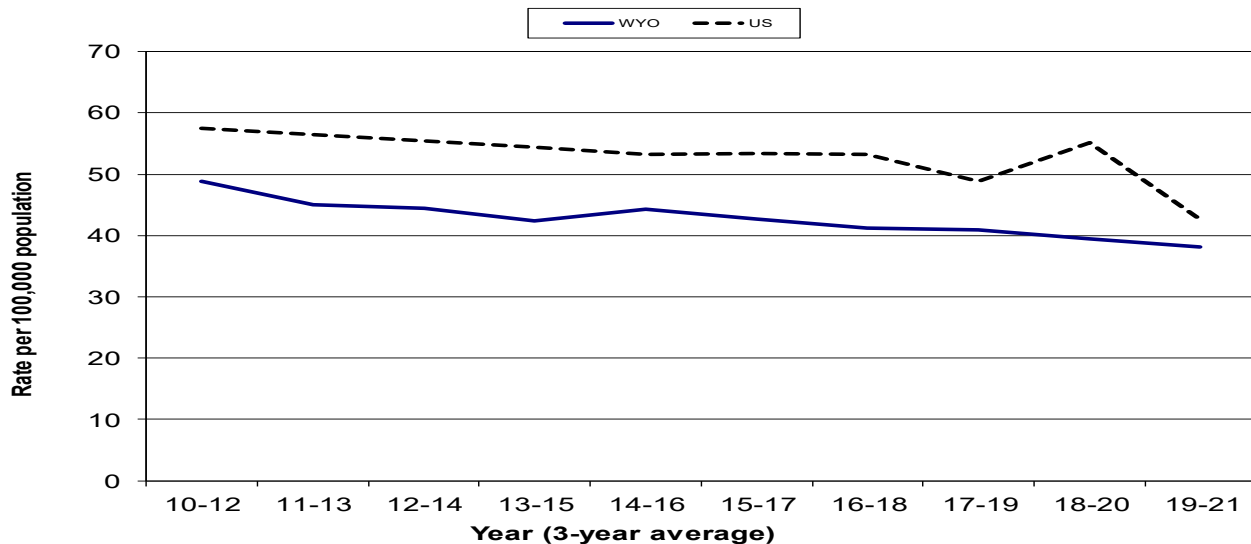
The 12-year incidence trend shows a continuing of a downward trajectory that started in 2014-2016. Nationally, the rate decreased sharply from 2018-2020.

The percent of cases diagnosed as Distant decreased a little from 2020 (44%) while the percentage diagnosed as Local increased from 2020 (26%).

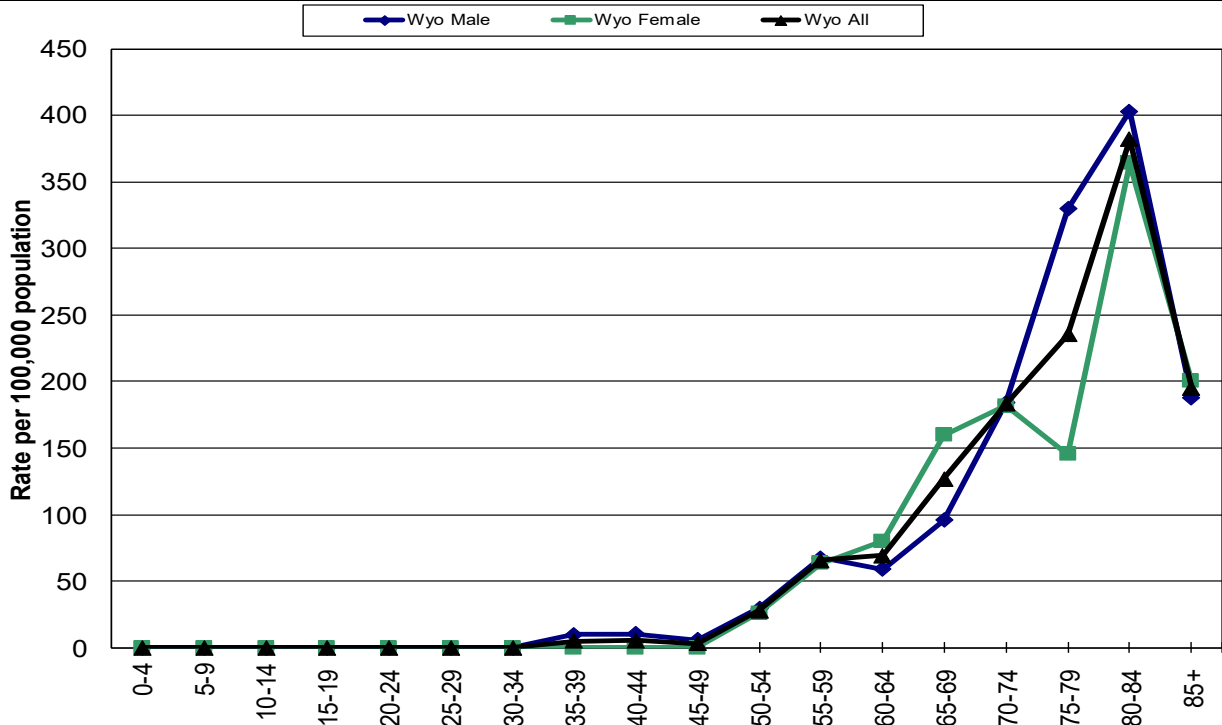
Only five cases were diagnosed in Wyoming residents under the age of 50 in 2021.

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

12-Year Incidence Trend

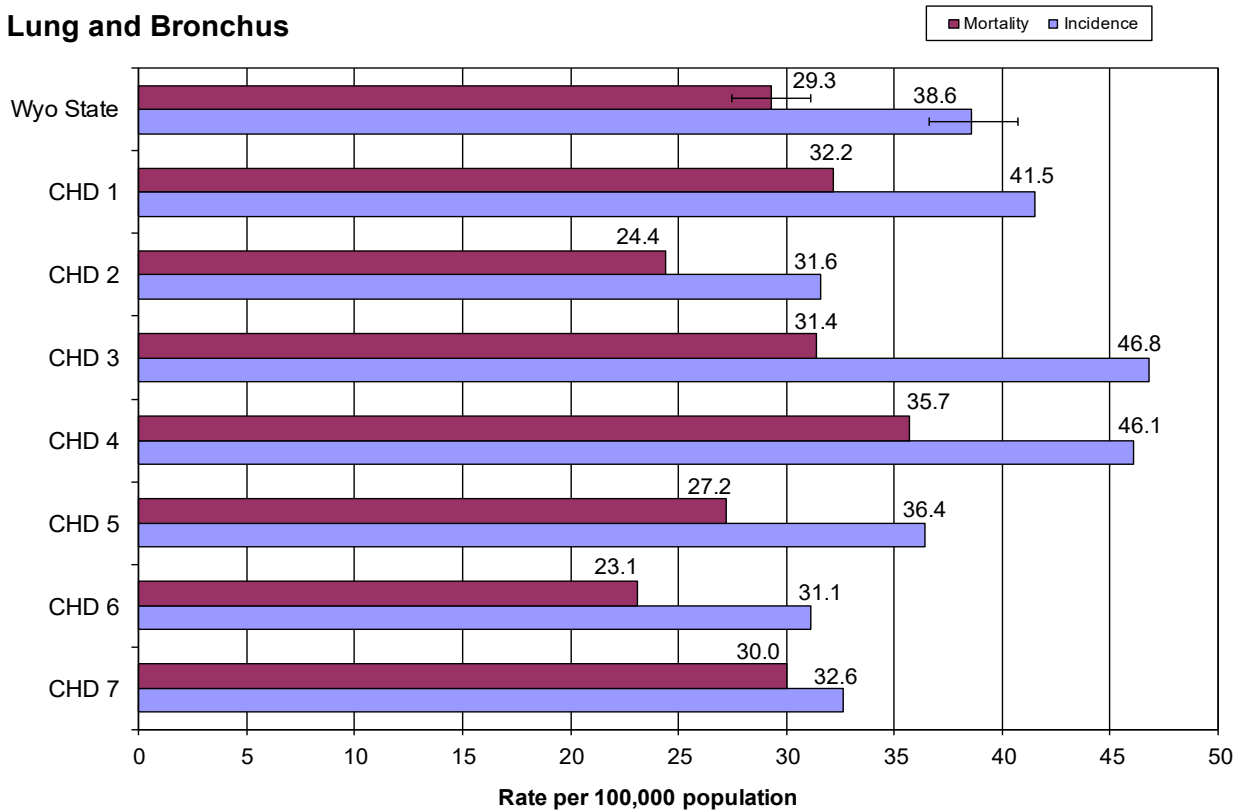


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Lung and Bronchus



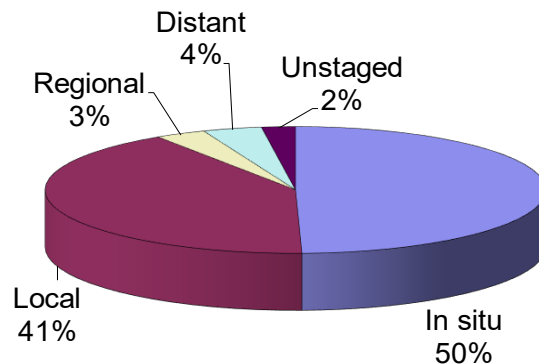
Melanoma (of the skin)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	102	83	185
In situ Cases	110	72	182
WY Incidence	27.3	24.9	25.8
US Incidence	26.9	17.7	21.6
Cancer Deaths	15	3	18
WY Mortality	3.8	NC	2.3
US Mortality	3.4	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 in males, females, and total population were all higher than the national rate in 2021. The mortality rate for males was slightly higher than the national rate, while the total population was basically the same as the national rate.

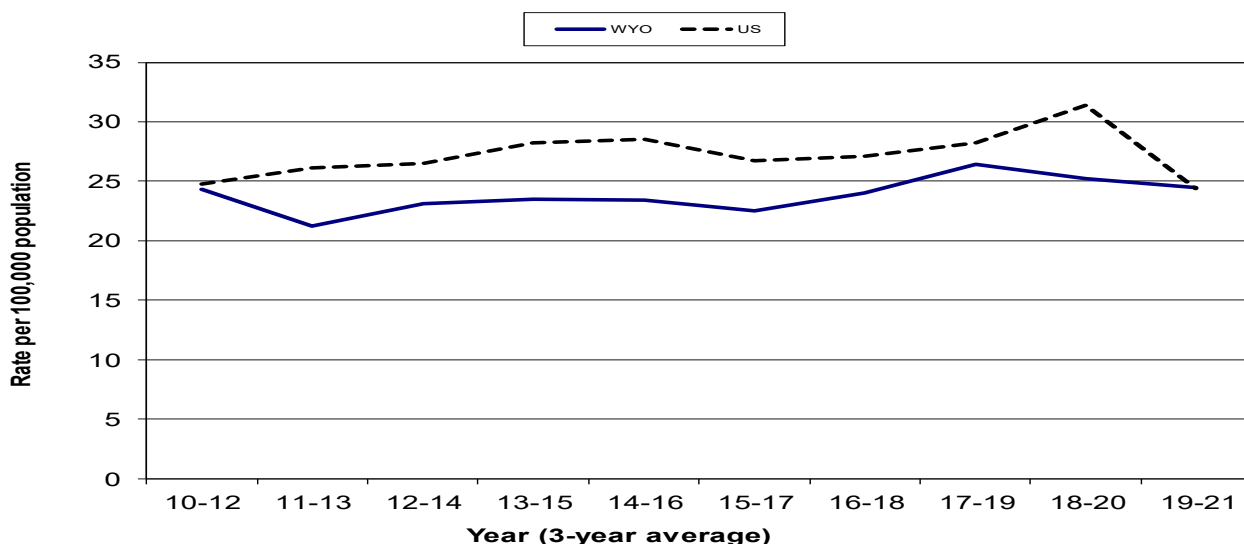
The Wyoming rate has continued decreasing since 2017-2019, while the national trend dropped sharply between 2018-2020 and 2019-2021.

The percentage of cases diagnosed as In Situ decreased from 2020 (57%) while the percent diagnosed as Local increased from 2020 (34%).

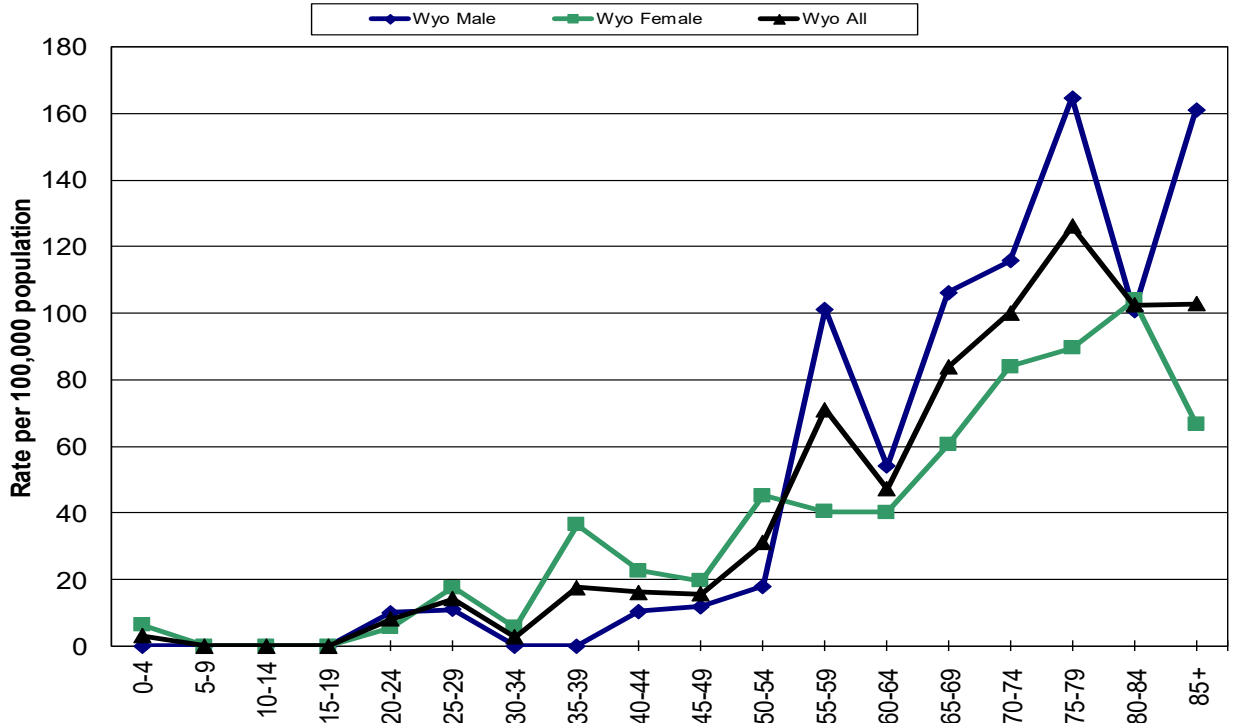
There were nine (9) cases of melanoma in individuals under 30 years of age in 2020.

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

12-Year Incidence Trend

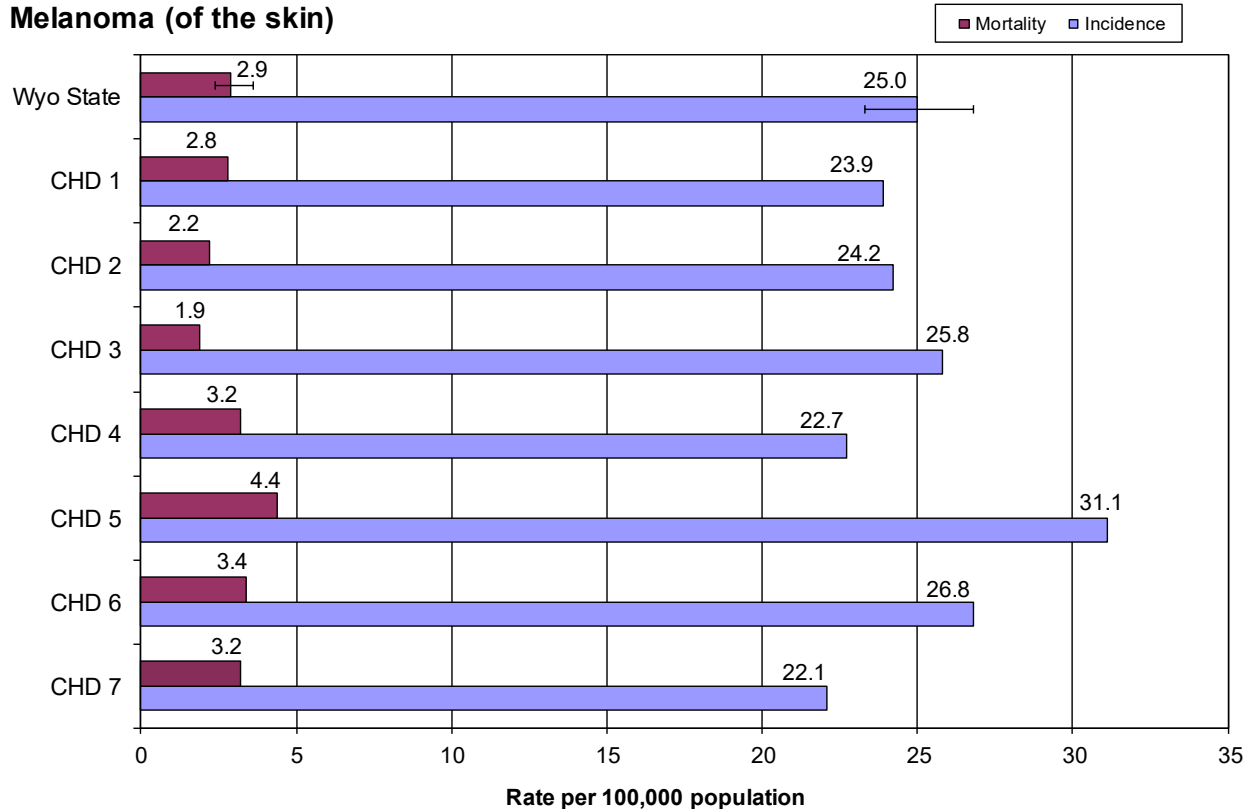


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Melanoma (of the skin)



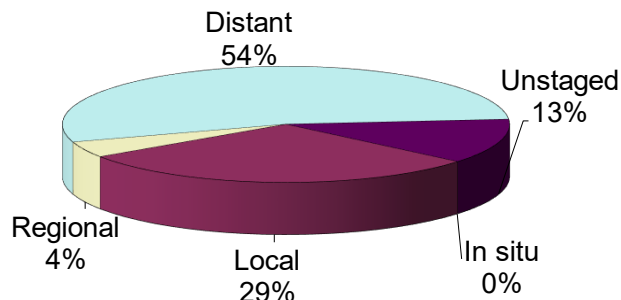
Non-Hodgkin Lymphoma (NHL)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	66	46	112
WY Incidence	18.2	12.4	15.0
US Incidence	21.6	14.9	17.9
Cancer Deaths	30	9	39
WY Mortality	8.9	2.5	5.5
US Mortality	6.7	3.9	5.1

* 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 rates for Non-Hodgkin lymphoma in Wyoming were all lower than the national rates in 2021. The mortality rate for males and total population were each higher than the national rate, while the female rate was lower than the national rate.

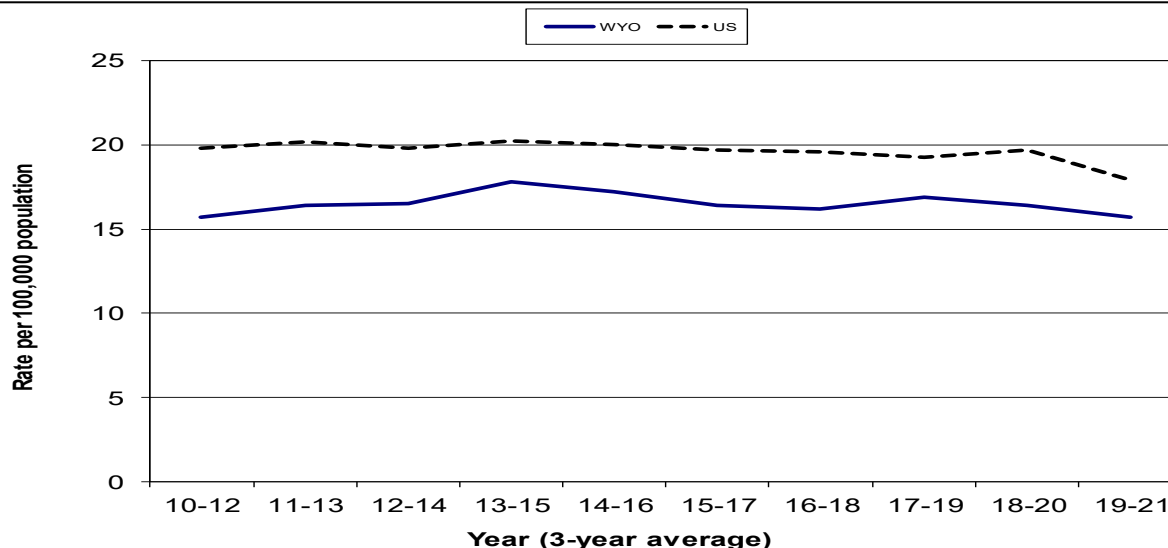
The incidence trend for Wyoming continued a decrease that started in 2017-2019, while the national rate again dropped from 2018-2020 to 2019-2021.

The percentage of cases diagnosed at each stage in 2021 were similar to the percentages in 2020.

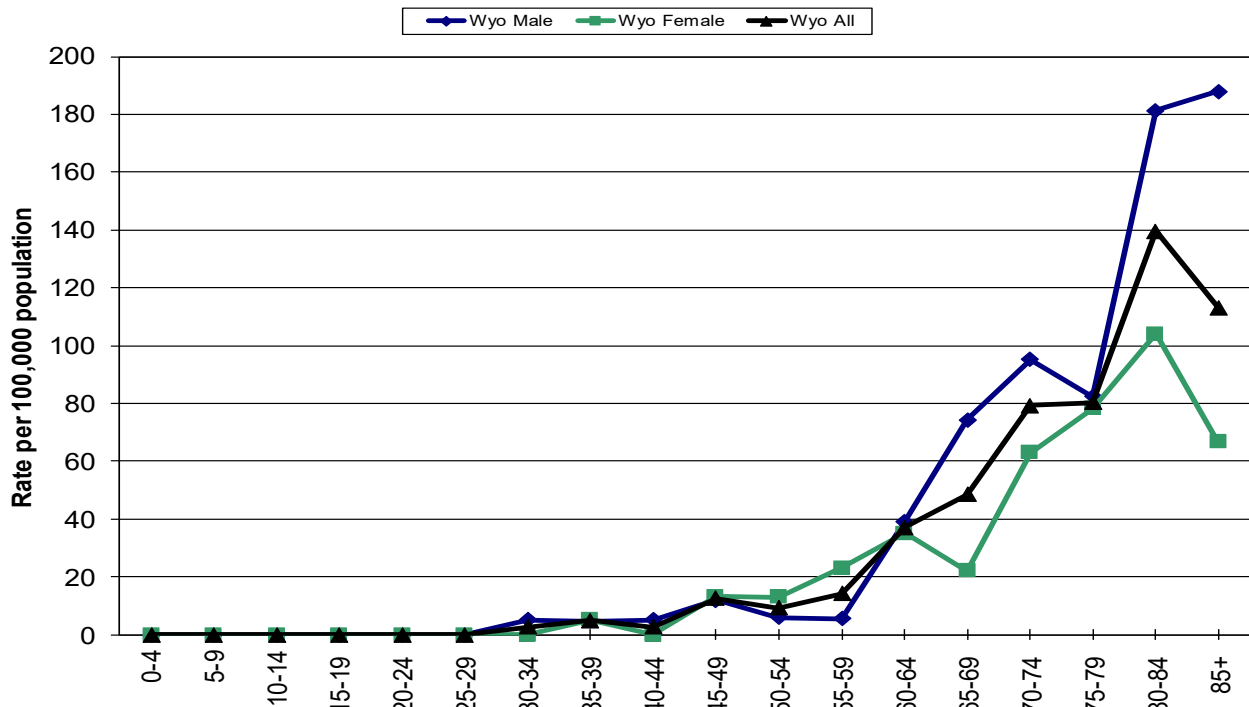
No cases of NHL were diagnosed in persons under the age of 30 in 2021.

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

12-Year Incidence Trend

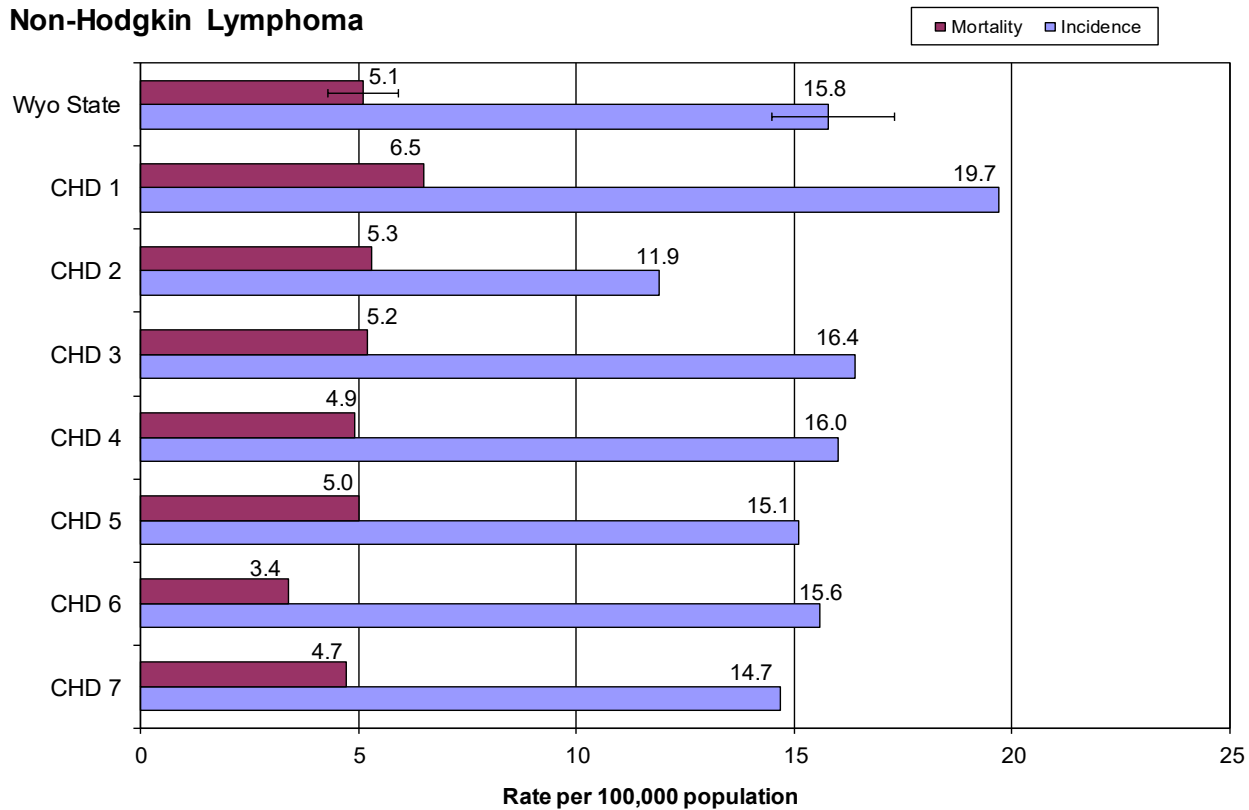


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Non-Hodgkin Lymphoma



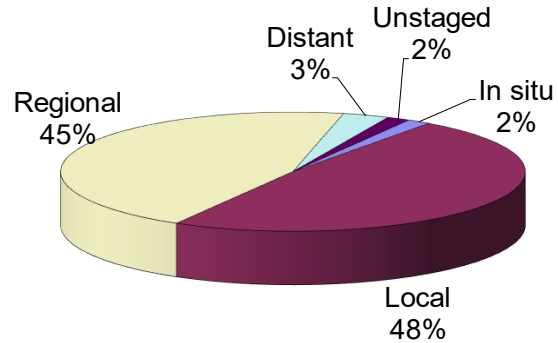
Oral Cavity and Pharynx

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	44	17	61
WY Incidence	11.3	5.1	8.2
US Incidence	16.9	6.2	11.3
Cancer Deaths	11	6	17
WY Mortality	2.6	1.5	2.1
US Mortality	4.0	1.5	2.6

* 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 males, females, and total population were all lower or the same as the national rates in 2021. None of the differences were statistically significant.

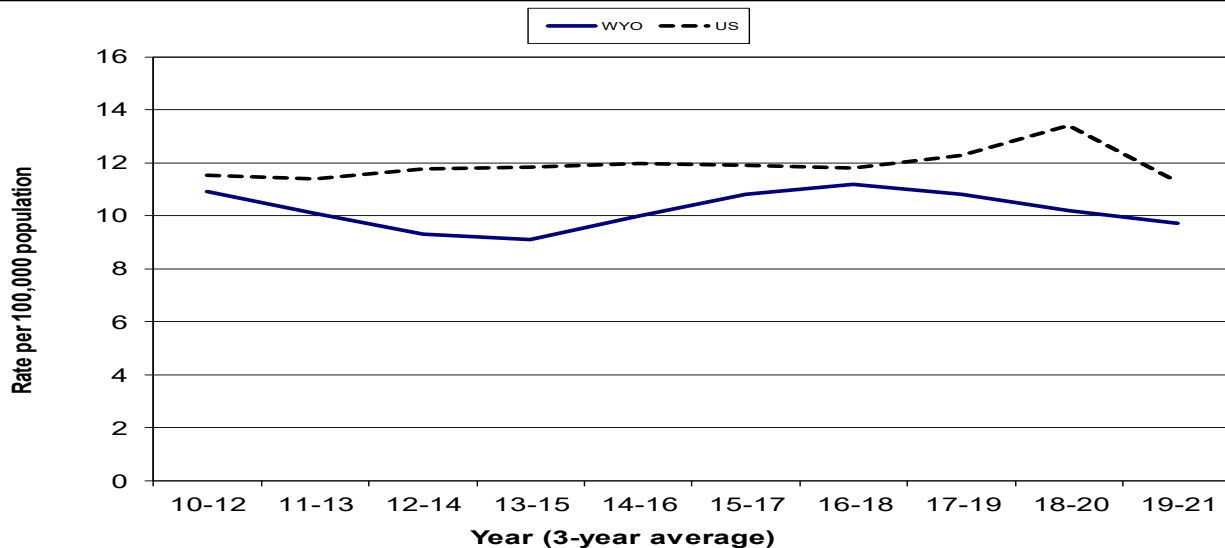
The incidence trend for Wyoming continued a gradual decrease that started in 2016-2018, while the national trend decreased sharply from 2018-2020 to 2019-2021.

The percent of cancers at the Regional stage decreased from 2020 (54%), while the percent of cases diagnosed at the Local stage increased from 2020 (32%).

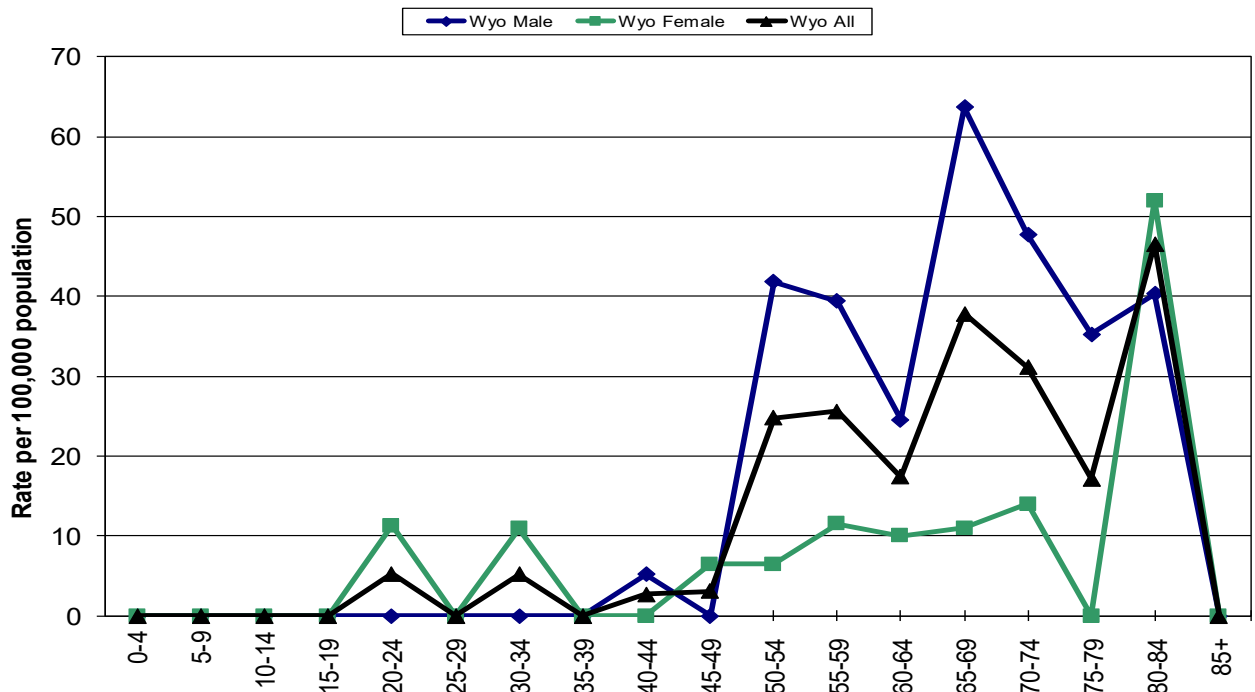
There were two (2) cases diagnosed in persons under 40 years of age in 2021.

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

12-Year Incidence Trend

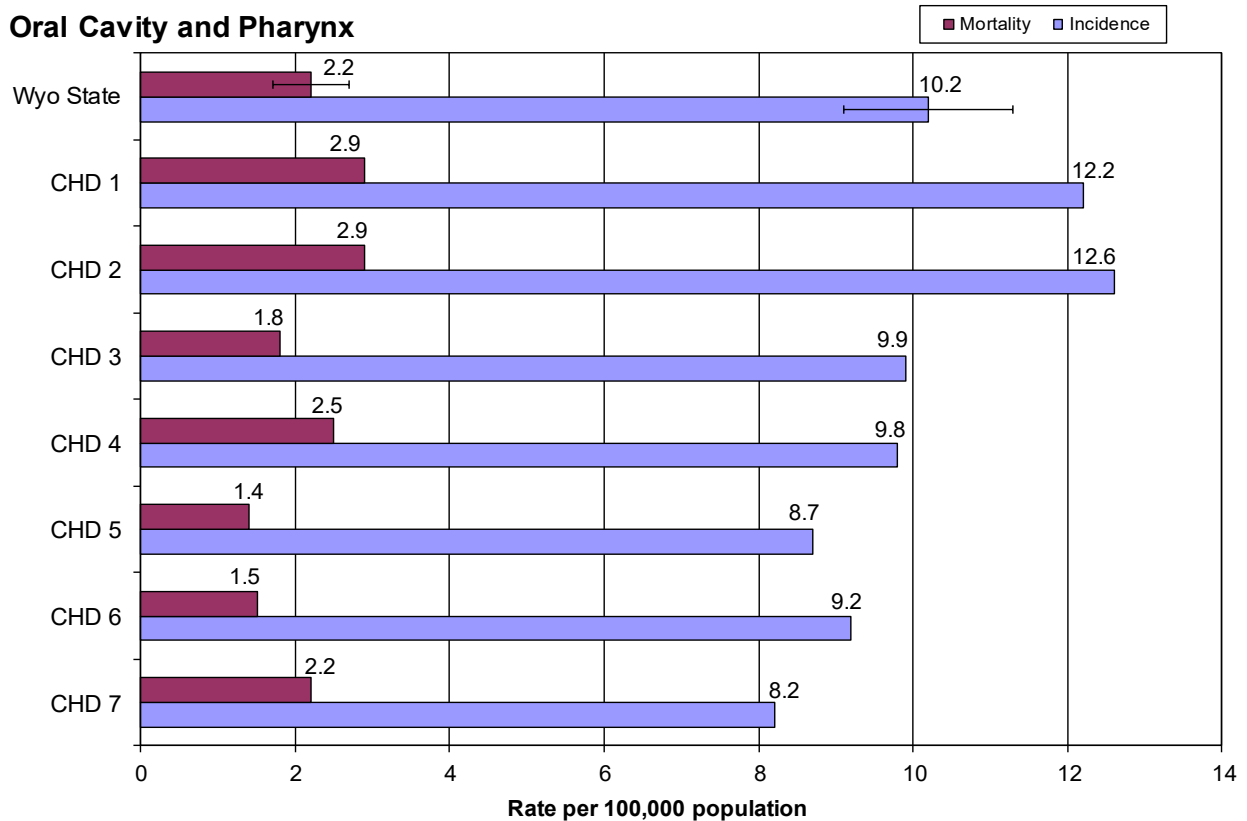


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Oral Cavity and Pharynx



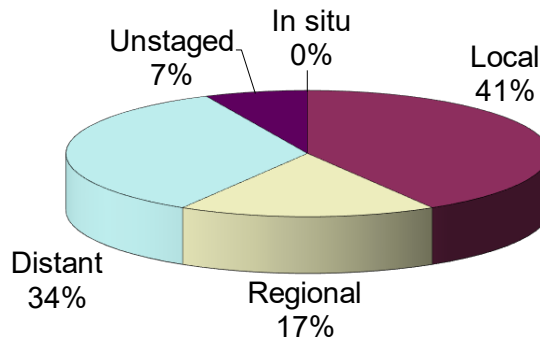
Ovary

Incidence and Mortality Summary

	Female
Invasive Cases	29
WY Incidence	8.6
US Incidence	9.4
Cancer Deaths	23
WY Mortality	6.1
US Mortality	6.1

* 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 Wyoming females for ovarian cancer was lower than the national rate in 2021, while the Wyoming mortality rate was the same as the national rate.

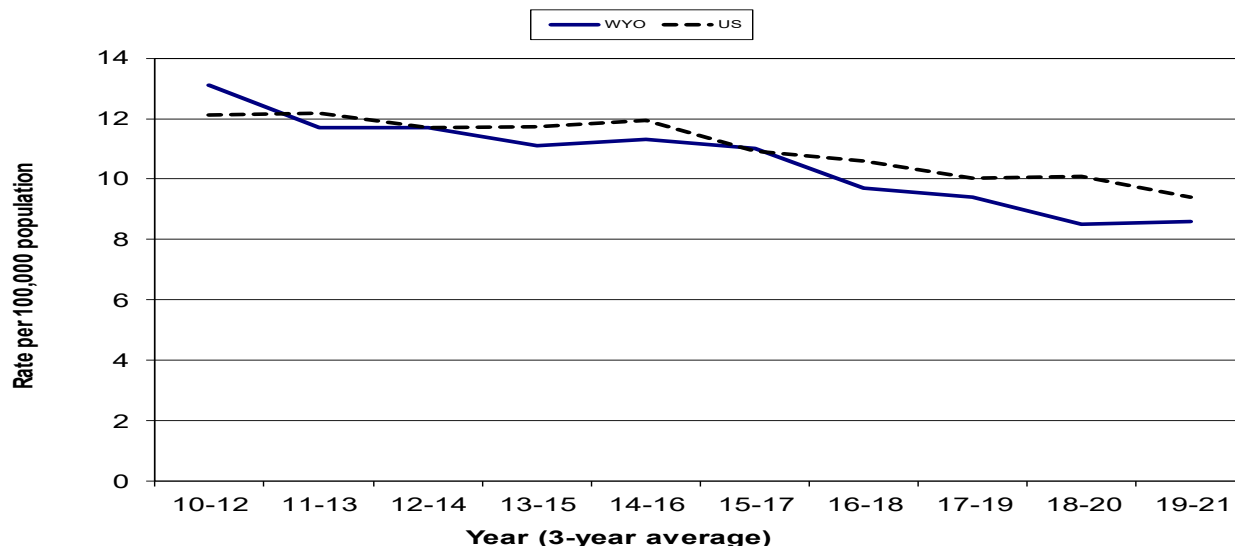
The 12-year incidence trend for Wyoming leveled off from 2018-2020, while the national rate decreased slightly.

The percent of cases diagnosed as Distant decreased significantly from 2020 (55%), whereas Local cases increased significantly from 2020 (19%).

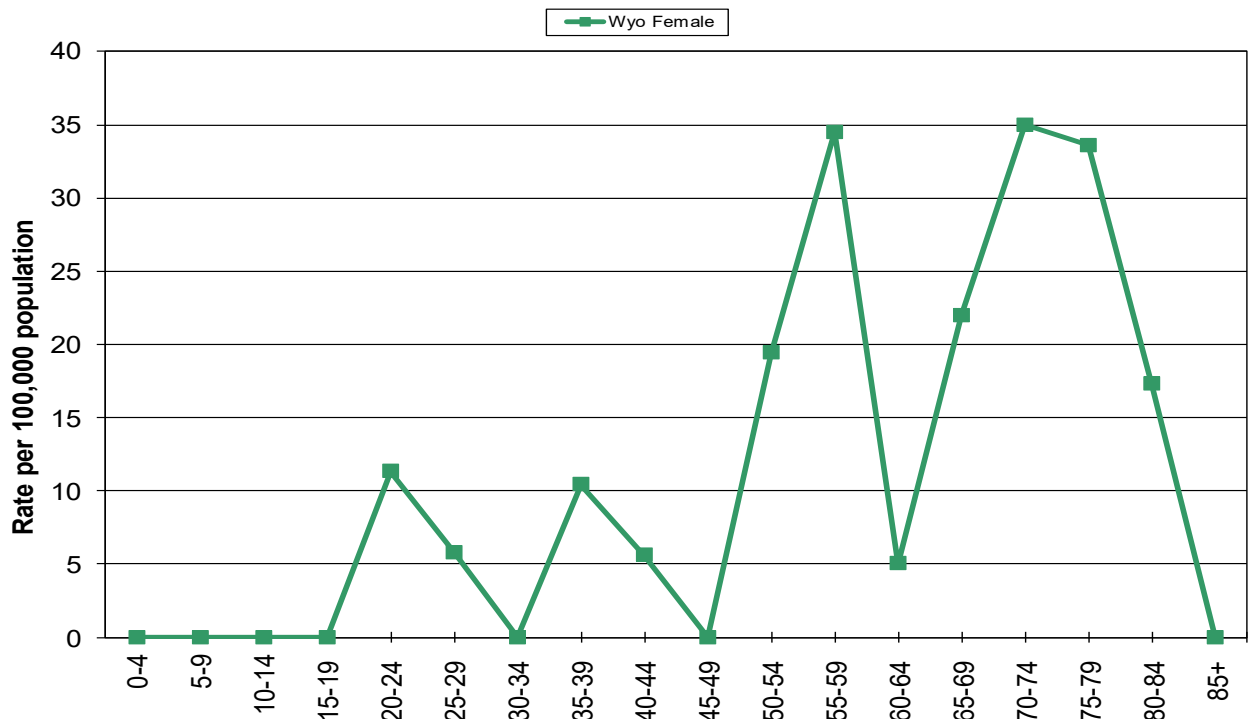
There were five (5) cases diagnosed in Wyoming women under 40 years of age in 2020, with two cases being diagnosed in women between 20–24 years of age.

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

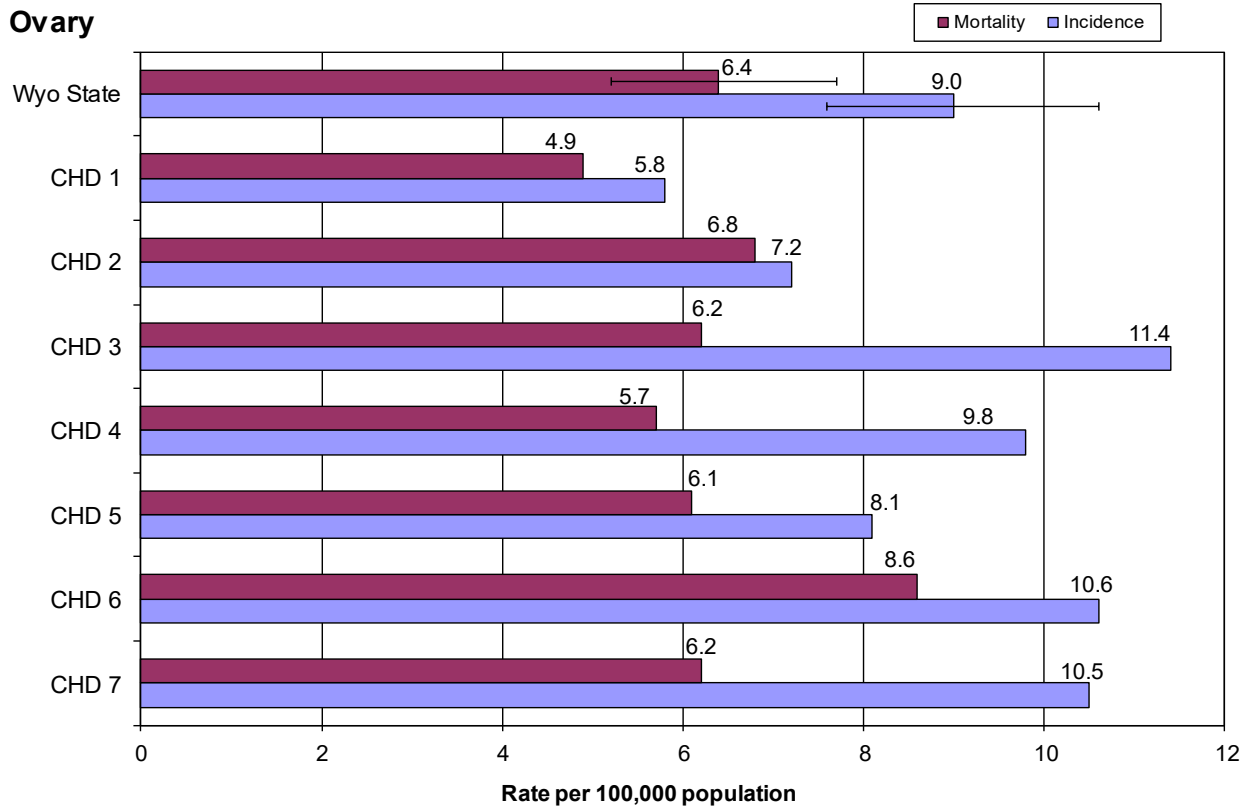
12-Year Incidence Trend



Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021



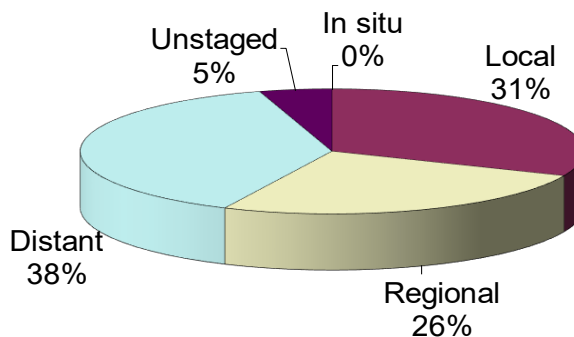
Pancreas

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	33	53	86
WY Incidence	8.6	13.6	11.2
US Incidence	14.7	11.2	12.8
Cancer Deaths	37	41	78
WY Mortality	10.0	10.9	10.5
US Mortality	12.8	9.5	11.0

* 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 males and total population were both lower than the national rates in 2021. The Wyoming female incident and mortality rates were both a bit higher than the national rates.

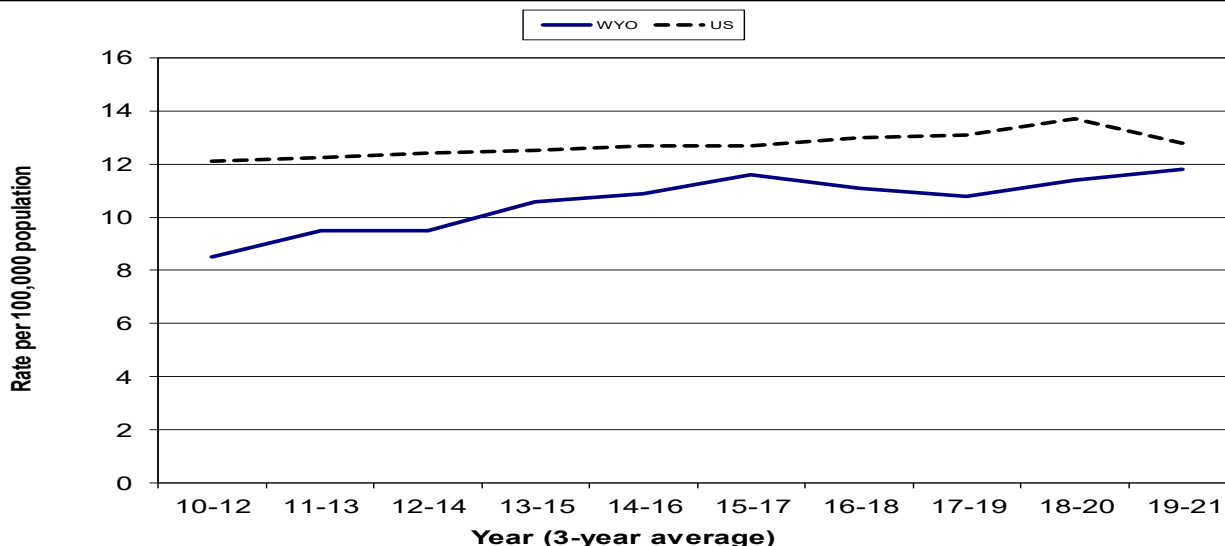
The incidence trend for Wyoming and the nation shows an continuing increase that started in 2017-2019, while the national rate again decreased from 2018-2020 to 2019-2021.

The percentage of cancers diagnosed as Local and Regional both increased from 2020 (24% and 16% respectively), while the percent of cases staged as Distant decreased (50%).

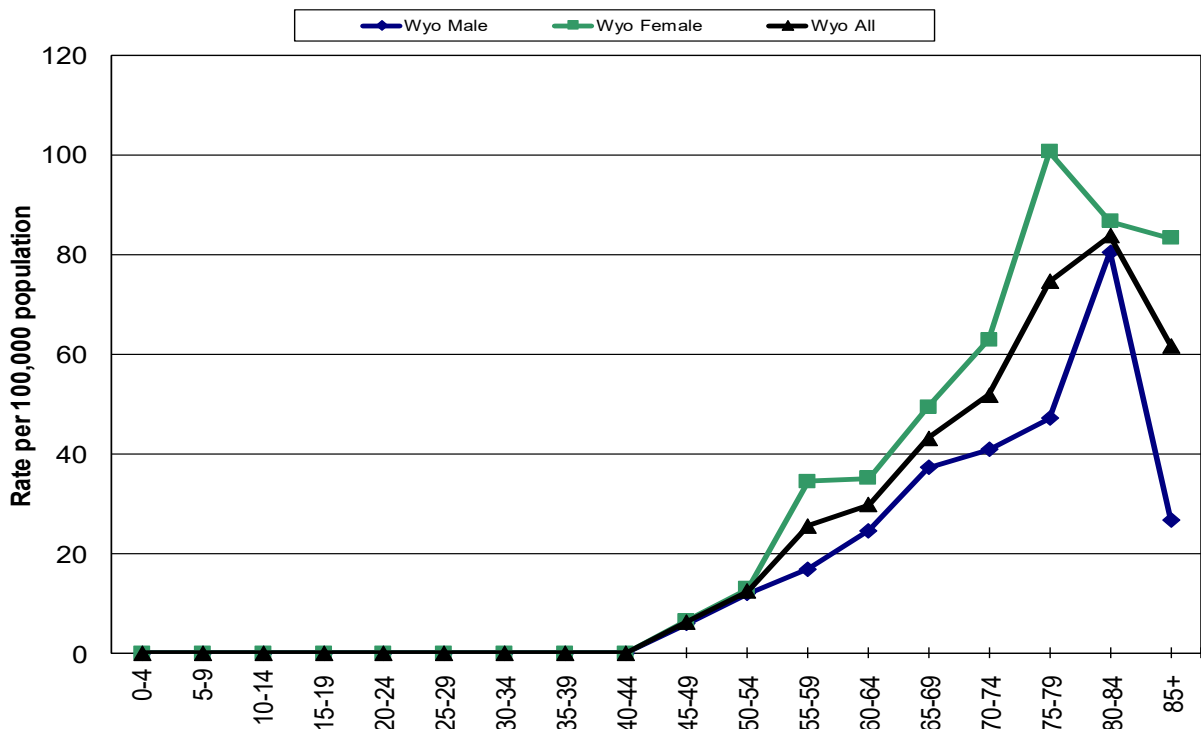
There were zero cases diagnosed in a Wyoming resident under the age of 45 in 2021.

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

12-Year Incidence Trend

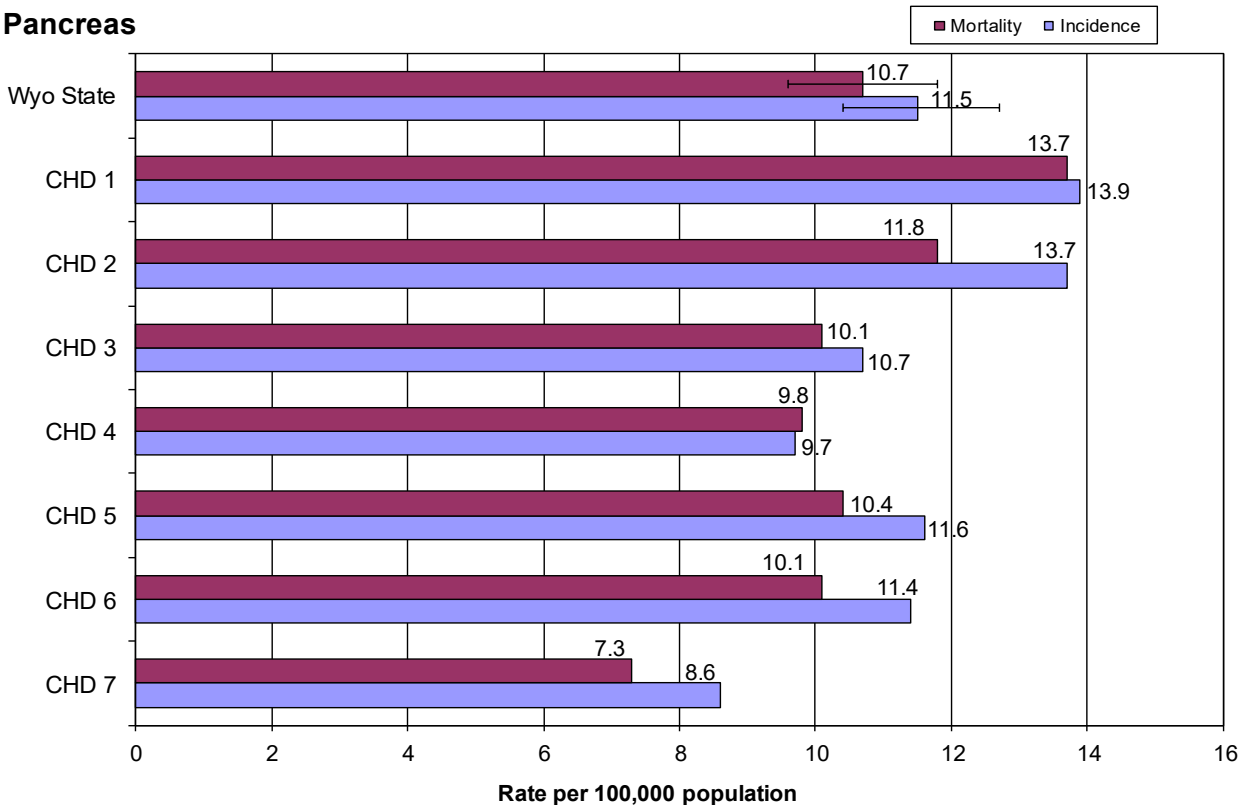


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Pancreas



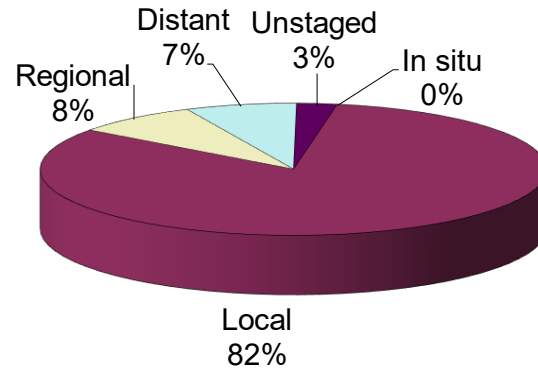
Prostate

Incidence and Mortality Summary

	Male
Invasive Cases	464
WY Incidence	109.7
US Incidence	96.8
Cancer Deaths	65
WY Mortality	20.1
US Mortality	17.4

* 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 prostate cancer in Wyoming males were both higher than the national rate in 2021. Neither difference was statistically significant.

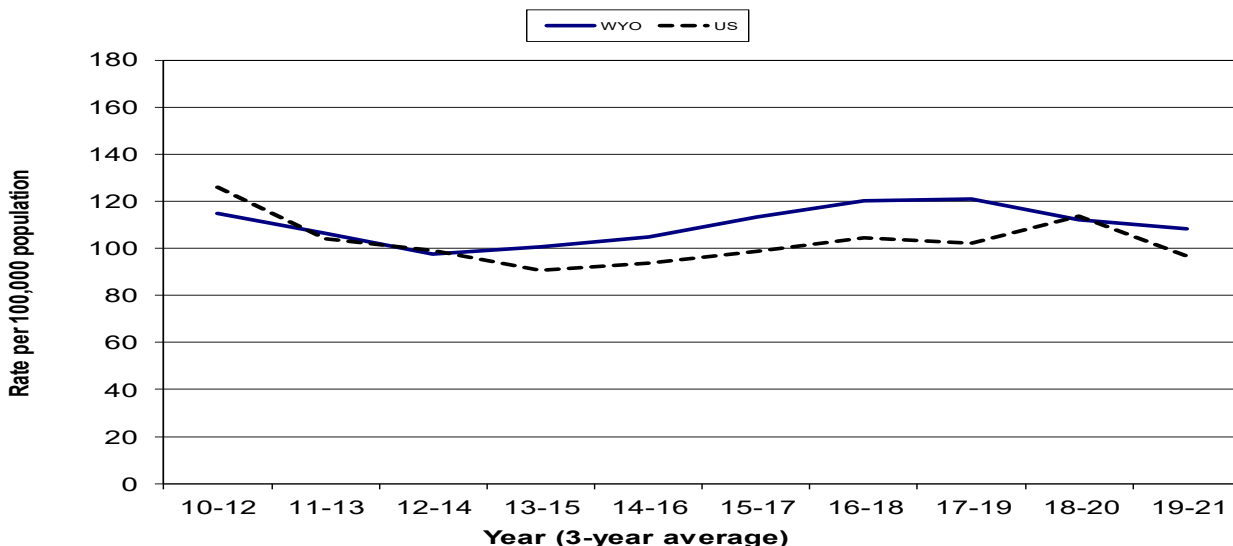
The incidence trend shows the Wyoming trend decreasing since 2017-2019 and the national trend decreasing sharply in 2018-2020.

The percentage of cases diagnosed at each stage in 2021 were very similar to those in 2020.

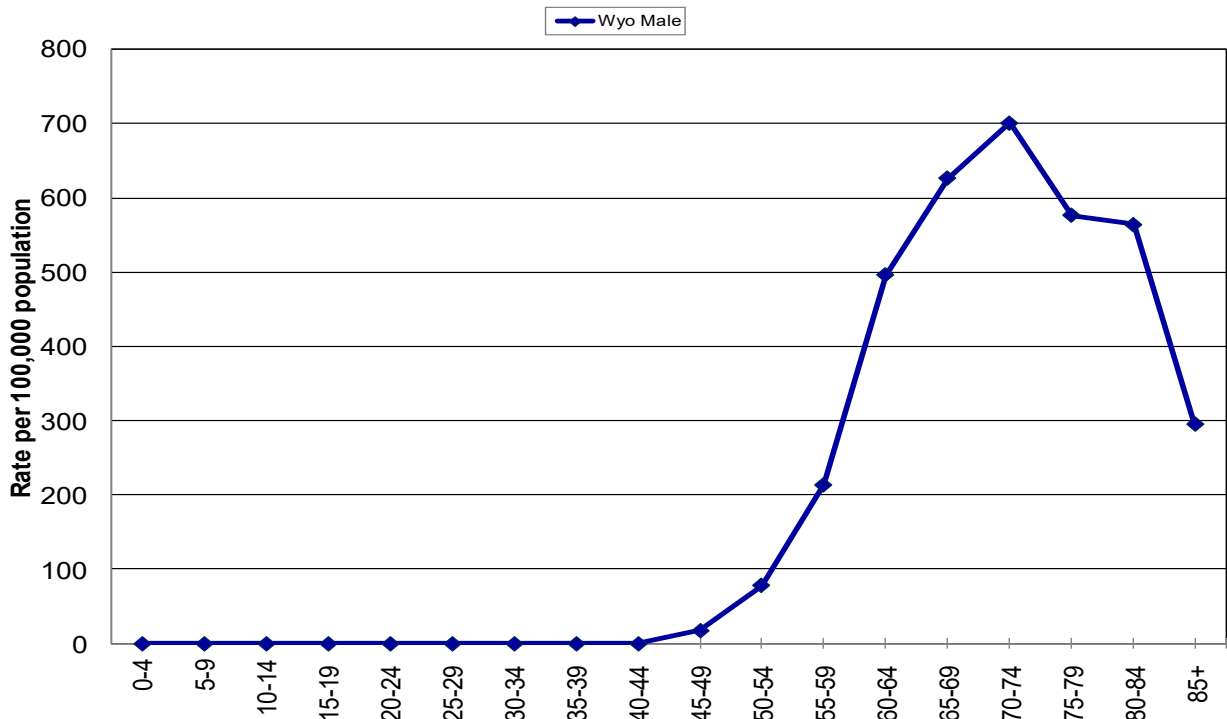
There were only three (3) cases of prostate cancer in Wyoming men under the age of 50 in 2021.

The incidence rate for CHD 1 was significantly higher than the state rate for 2017-2021. No other significant differences were found for incidence or mortality.

12-Year Incidence Trend

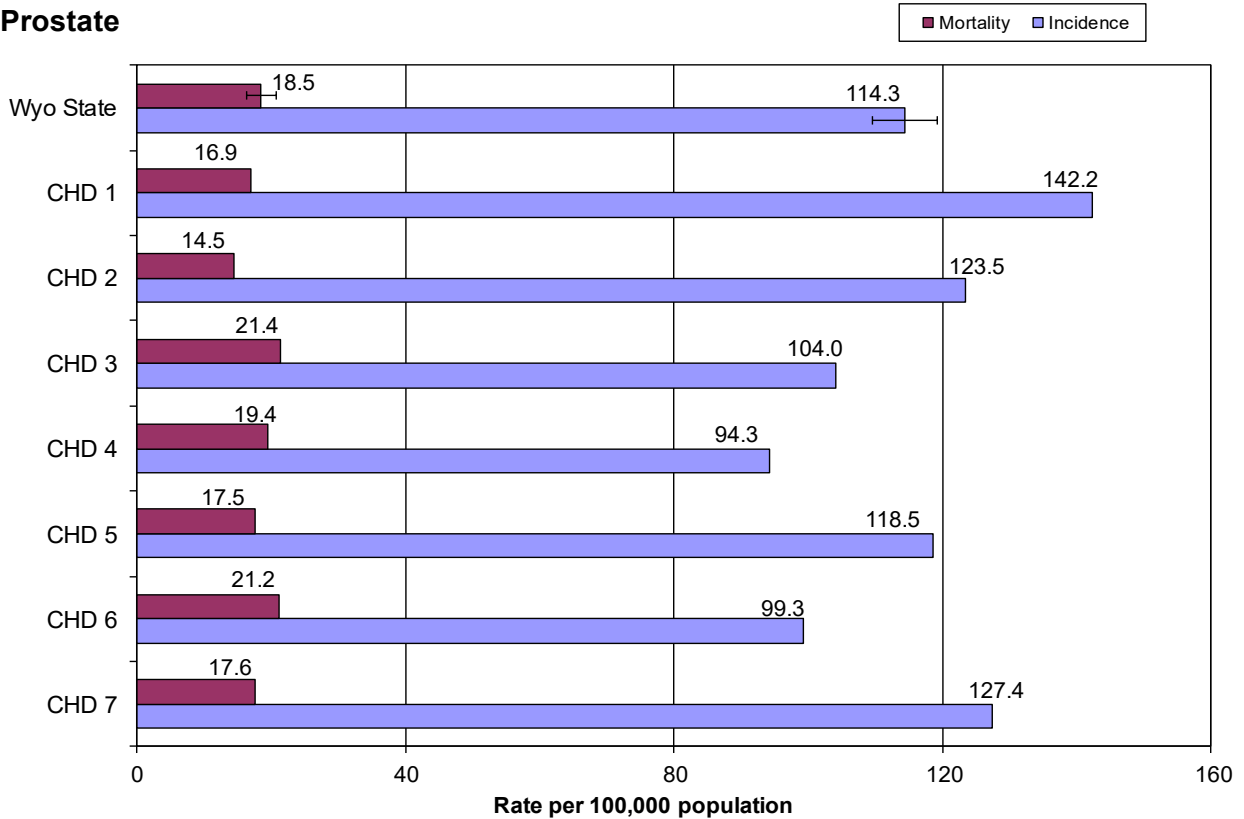


Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021

Prostate



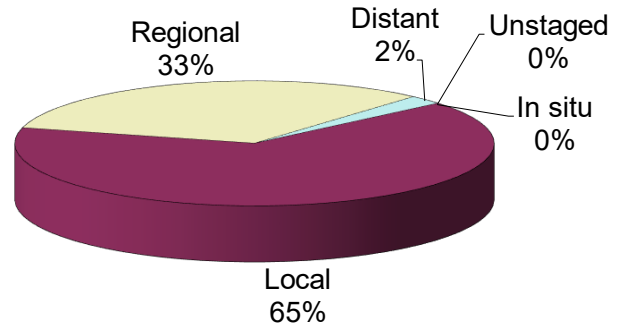
Thyroid

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	21	65	86
WY Incidence	6.5	21.8	13.9
US Incidence	7.1	17.6	12.3
Cancer Deaths	7	2	9
WY Mortality	2.0	NC	1.2
US Mortality	0.5	0.4	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 Wyoming females and total population were higher than the national rate in 2020, while the male rate was lower than the national rate. The Wyoming mortality rates for males and total were both higher than the national rates.

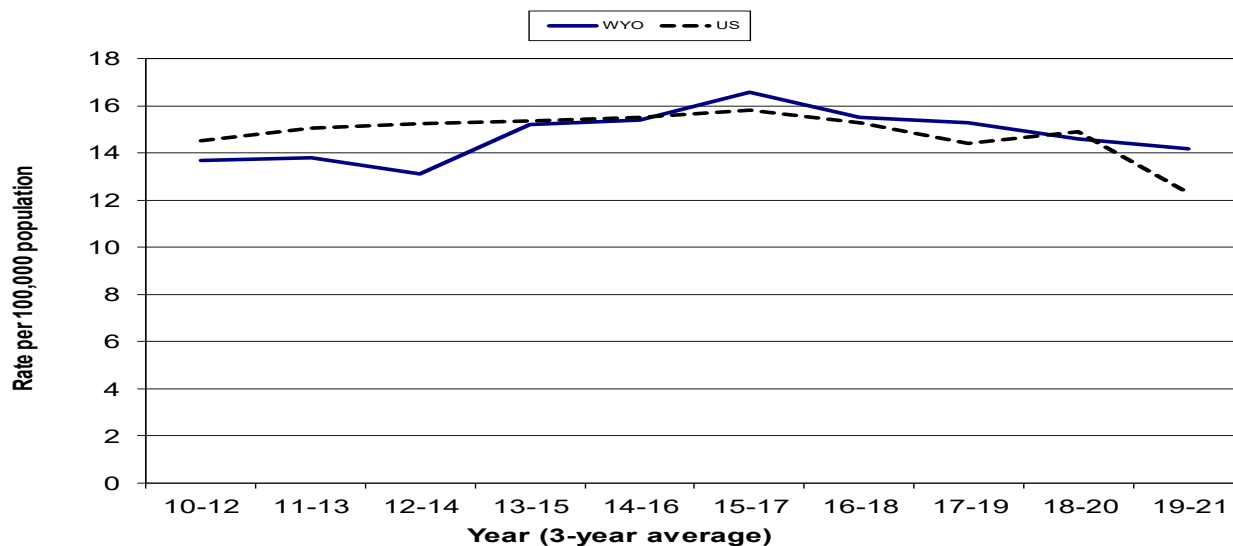
The Wyoming trend continued to decrease since 2017-2019, while the national trend again decreased from 2018-2020 to 2019-2021.

The percentage diagnosed at each stage in 2021 was very similar to the percentages found in 2020.

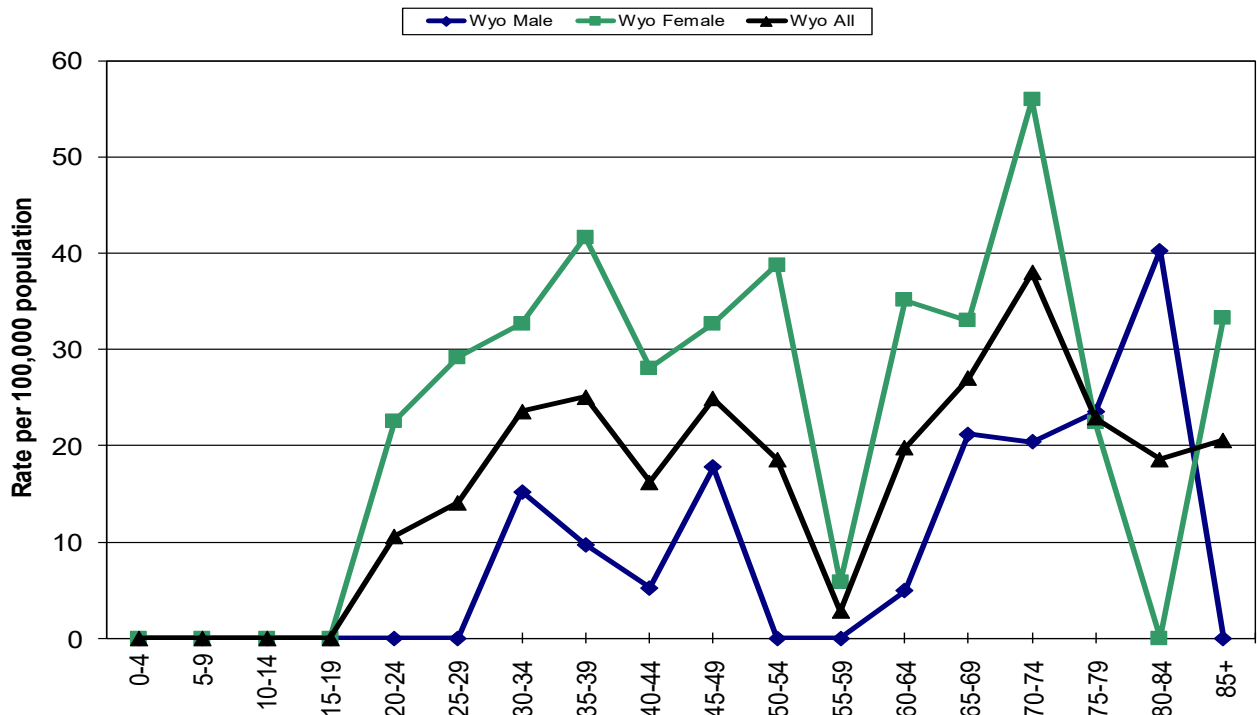
There were nine (9) cases of thyroid cancer diagnosed in Wyoming residents under 30 years of age in 2021.

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

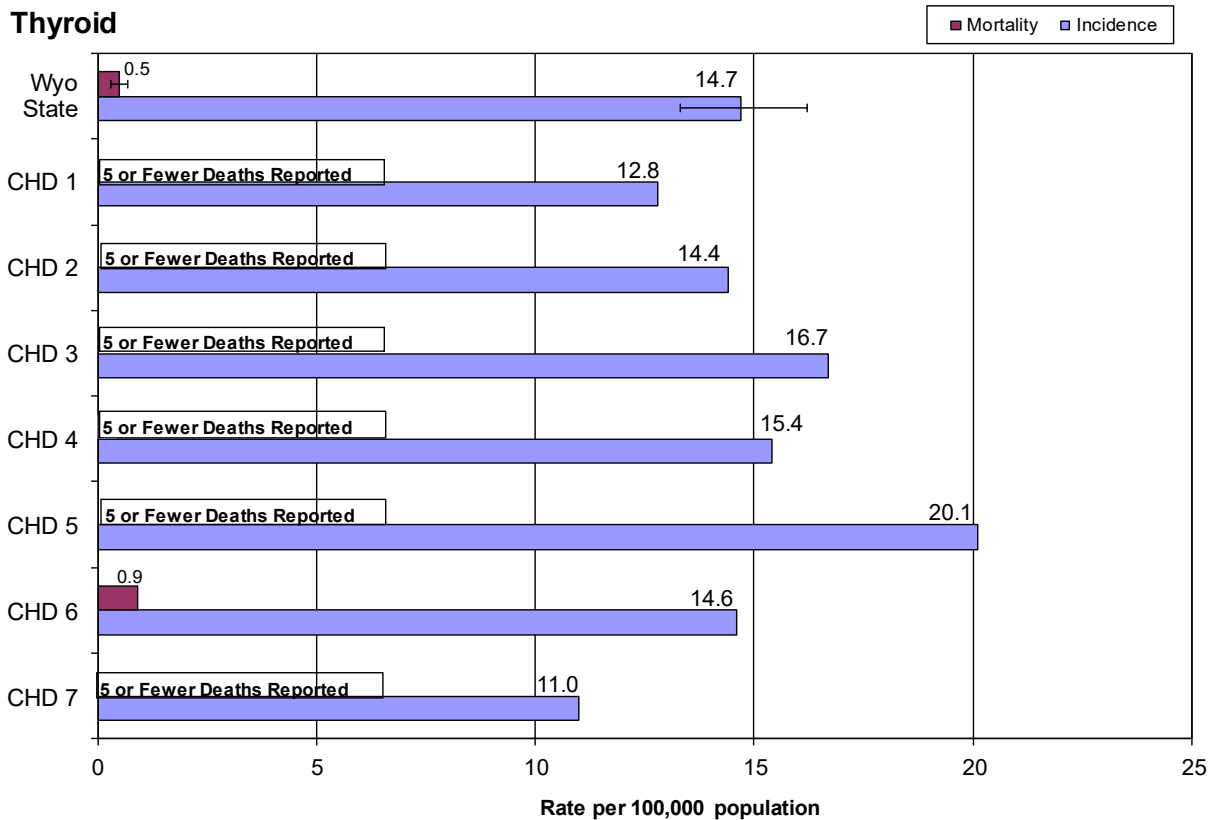
12-Year Incidence Trend



Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021



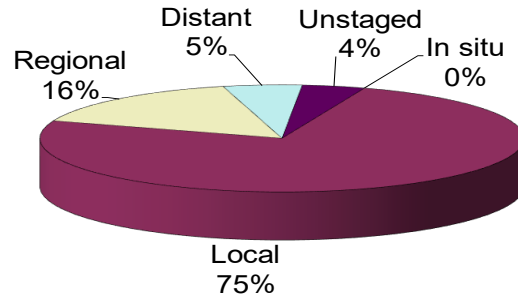
Uterine (Corpus Uteri + Uterus)

Incidence and Mortality Summary

	Female
Invasive Cases	95
WY Incidence	25.3
US Incidence	25.8
Cancer Deaths	16
WY Mortality	4.1
US Mortality	4.7

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

Stage at Diagnosis



The incidence and mortality rates for Wyoming females were both slightly lower than the national rates in 2020.

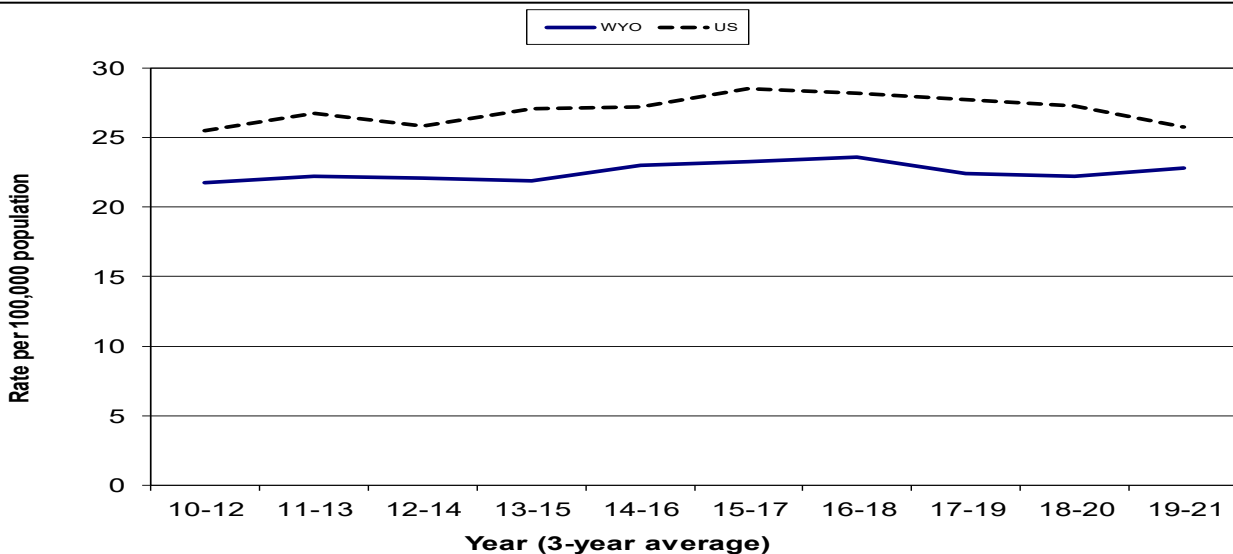
The incidence trend for Wyoming increased very slightly between 2018-2020 and 2019-2021, while at the same time the national trend decreased slightly.

The percentage of cases diagnosed as Local increased from 2020 (68%), while cases diagnosed as Distant decreased from 2020 (9%).

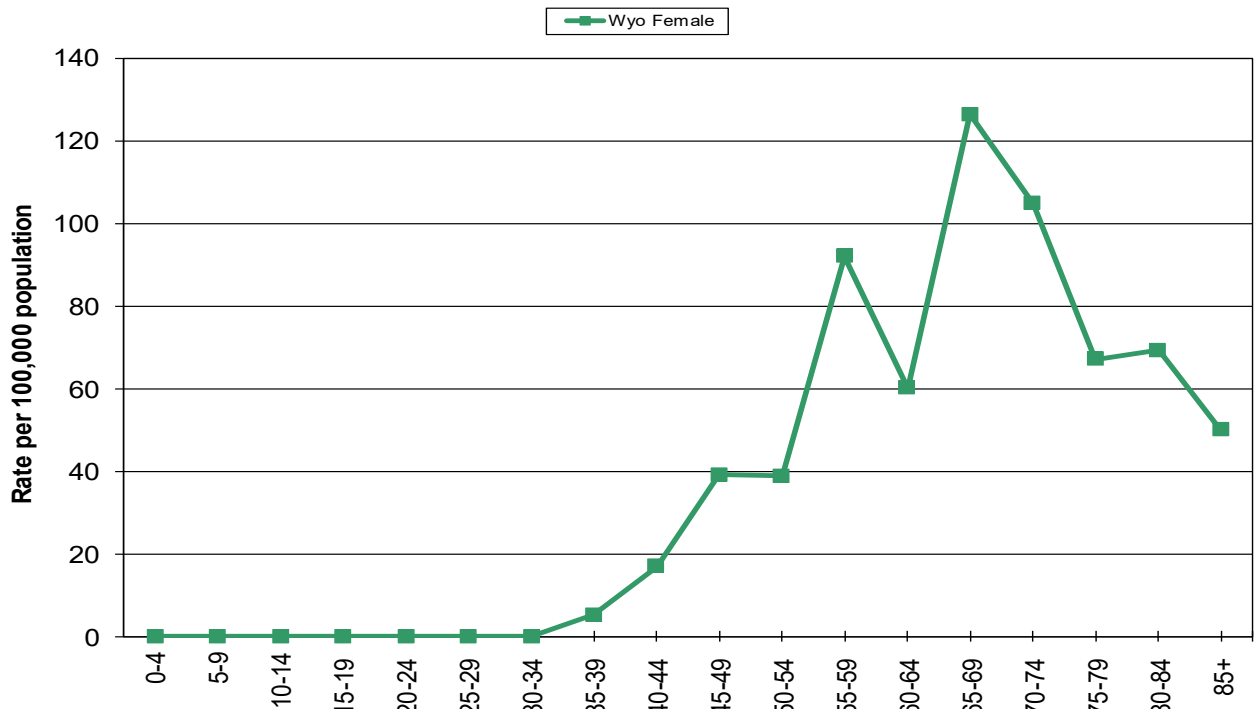
There was only one (1) case diagnosed in a Wyoming woman under the age of 40 in 2021.

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

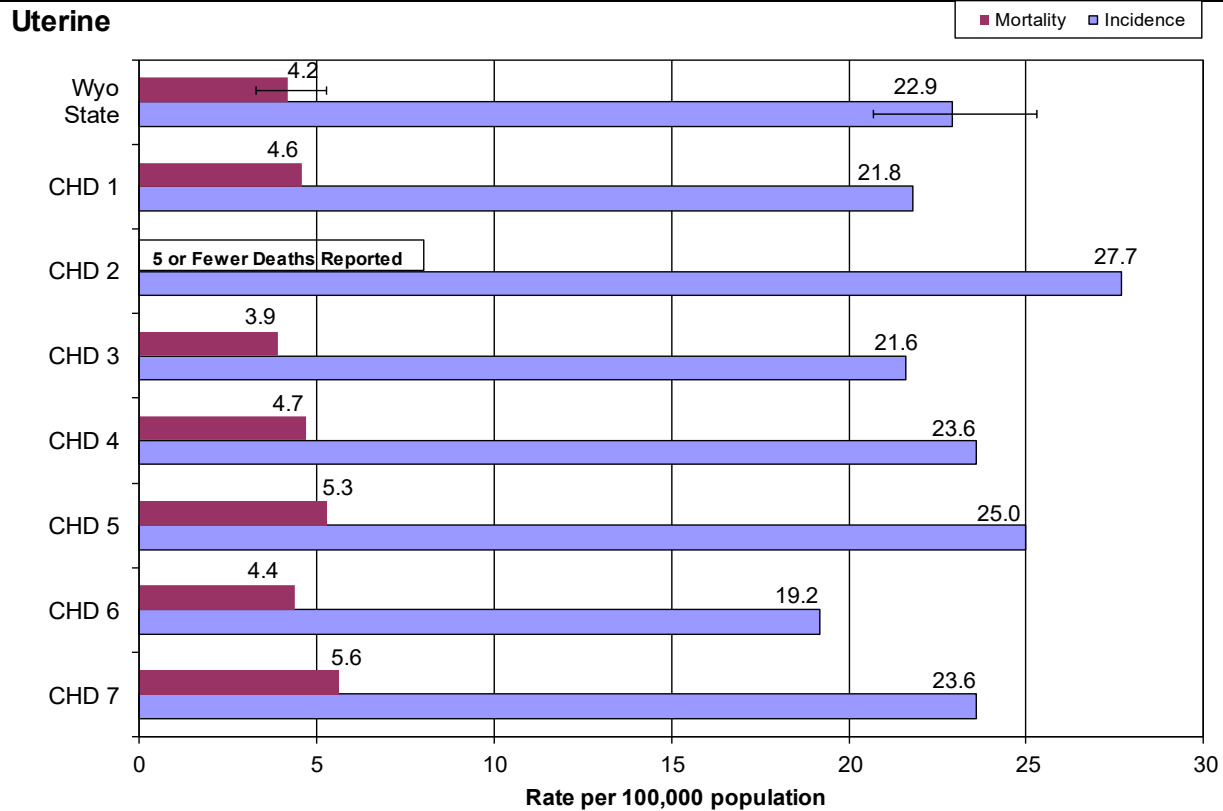
12-Year Incidence Trend



Age-Specific Incidence Rates - 2021



Cancer Health District Incidence and Mortality 5-Year Average, 2017-2021



This page left intentionally blank

Appendix A

References

Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) version 8.4.0. SEER*Stat Database: Incidence - SEER Research Limited-Field Research Data, 22 Registries, Nov 2022 Sub (2000-2020)-Linked to County Attributes—Time Dependent (1990-2020) Income/Rurality, 1969-2020 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2023, based on the November 2022 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:

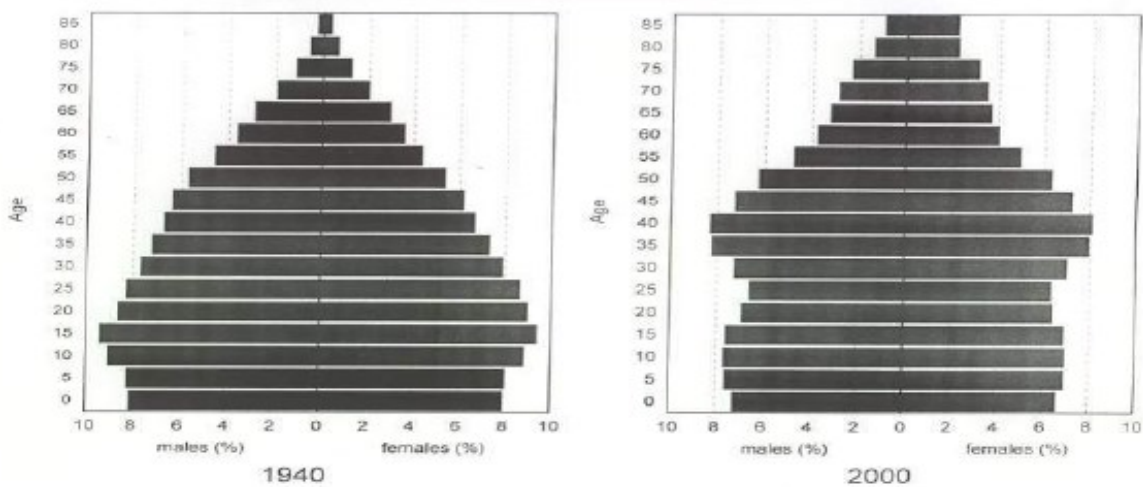
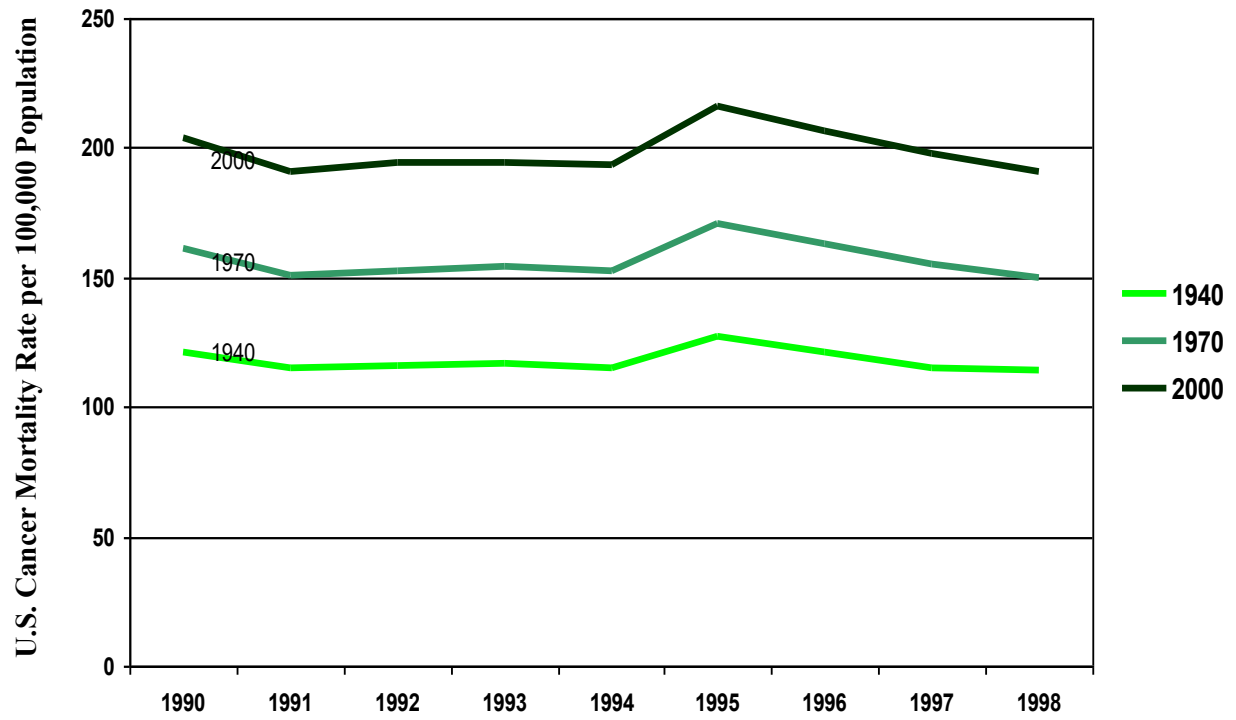


Chart B:

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





Wyoming Cancer
SURVEILLANCE PROGRAM