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, it can result in death. Many cancers 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 fat in a person's diet may prevent the start 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 improves the survival rates and decreases mortality.

Central Cancer Registry

Cancer is a reportable disease in Wyoming. State law requires physicians and hospitals to report information on all cases of cancer they diagnose or treat in Wyoming to the program. Through special interstate agreements, information on Wyoming residents diagnosed or treated in other states is included in the programs database.

The registry is a population-based surveillance system for the collection, management, and analysis of information on incidence and survival of persons diagnosed with cancer.

The purpose of the registry is to gather data to determine cancer incidence, mortality, treatment and survival in Wyoming. The data is used by a variety of medical professionals and others concerned about cancer. Within the State Department of Health the data is used to monitor early detection, to determine year-to-year trends that develop and to see how Wyoming compares to the rest of the nation. The Department also uses the data to plan and evaluate the effectiveness of its cancer control programs such as the Breast and Cervical Cancer Early Detection Program. Outside of the Department, the data is used by physicians, legislators, nonprofit organizations, and the general public. If you have a concern about cancer and would like more information about cancer in your community, please feel free to call the Wyoming Cancer Surveillance Program at 307-777-7958. Written correspondence should be addressed to 4th Floor Hathaway Building, Cheyenne, WY 82002. Or visit our web site at:

http://wdhfs.state.wy.us/tumor

Health Service Areas

A Health Service Area (HSA) is an area that is relatively self-contained with respect to hospital care.[1] In other words, individuals living in the same HSA are likely to receive their medical care at the same hospital. HSA 2, HSA 3 and HSA 4 were combined and HSA 9 and HSA 10 were combined to allow calculation of more accurate incidence rates.

Health Service Area 1 - Laramie County
Health Service Area 2 - Platte County
Health Service Area 3 - Goshen County, Niobrara County
Health Service Area 4 - Weston County
Health Service Area 5 - Campbell County, Crook County
Health Service Area 6 - Albany County, Carbon County
Health Service Area 7 - Converse County, Natrona County
Health Service Area 8 - Johnson County, Sheridan County
Health Service Area 9 - Sweetwater County
Health Service Area 10 - Uinta County
Health Service Area 11 - Fremont County, Hot Springs County, Washakie County
Health Service Area 12 - Big Horn County, Park County
Health Service Area 13 - Lincoln County, Sublette County, Teton County

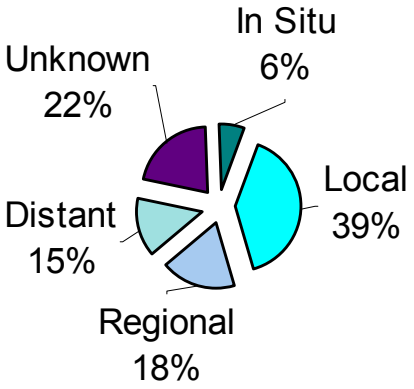
[1] *Atlas of United States Mortality*

Summaries of All Cancer Sites Combined and 18 Most Reported Sites in Wyoming

All Cancer Sites, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	377.0	294.9	331.3
Number of New Invasive Cases	917	827	1,744
Number of New In Situ Cases[1]	35	86	121
Number of Deaths	452	417	869

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women	Total
Albany	48	44	92
Big Horn	15	30	45
Campbell	29	29	29
Carbon	39	31	70
Converse	32	22	54
Crook	9	13	22
Fremont	87	70	157
Goshen	25	22	47
Hot Springs	16	12	28
Johnson	19	18	37
Laramie	176	179	355
Lincoln	24	23	47
Natrona	142	136	278
Niobrara	11	2	13
Park	55	48	103
Platte	25	34	59
Sheridan	69	60	129
Sublette	12	9	21
Sweetwater	50	56	106
Teton	17	18	35
Uinta	26	34	60
Washakie	24	17	41
Weston	13	7	20

Risk and Associated Factors[2]

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

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

Race & SES* Rates are higher for African Americans than for Caucasians and other ethnic groups. Rates are generally higher among lower-income groups.

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

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

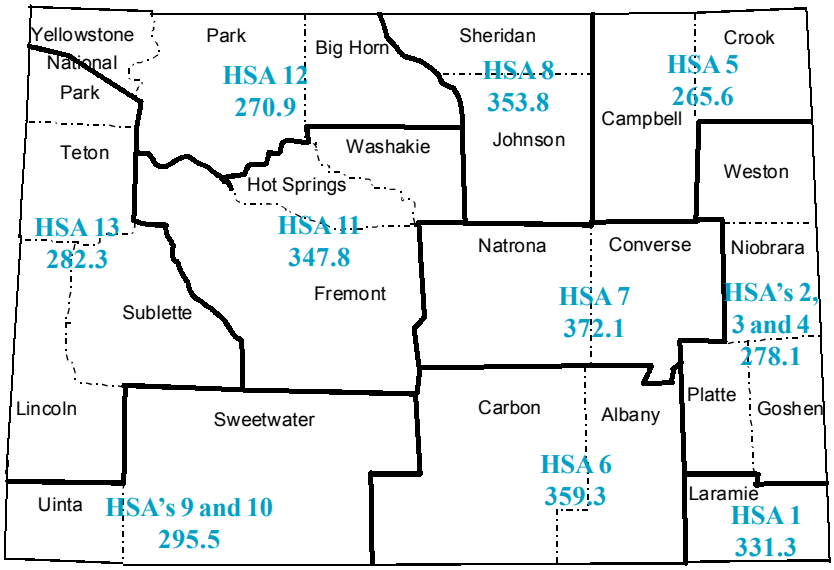
Other Tobacco use is the single most important risk factor for cancer incidence and mortality.

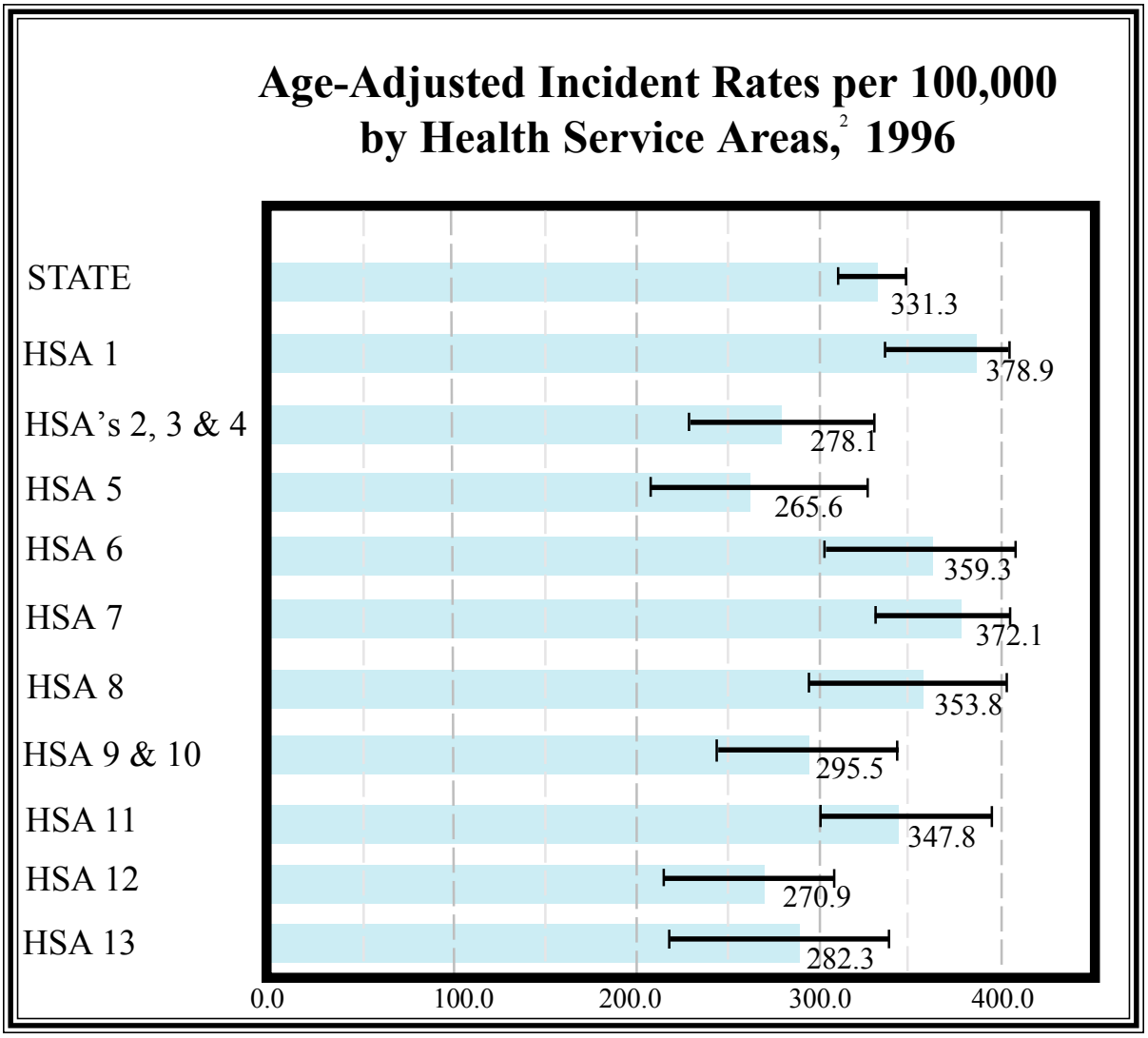
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 315.6 - 347.0

Range of age-adjusted incidence rate for health districts 265.6 - 378.9





[1]See explanation on confidence intervals on page 39.

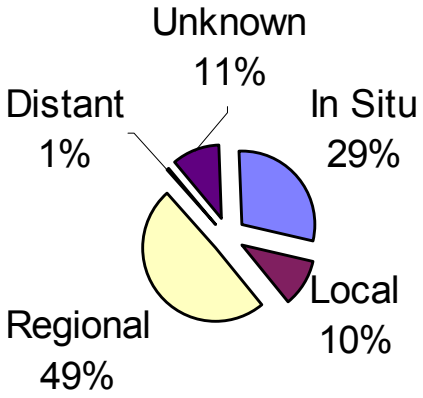
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.

NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Bladder Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	16.9	3.9	9.8
Number of New Invasive Cases	41	11	52
Number of New In Situ Cases[1]	16	5	21
Number of Deaths	11	3	14

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	5	2
Big Horn	3	0
Campbell	1	0
Carbon	5	0
Converse	3	1
Crook	1	0
Fremont	4	1
Goshen	2	1
Hot Springs	1	1
Johnson	0	0
Laramie	10	6
Lincoln	2	0
Natrona	4	2
Niobrara	1	0
Park	6	0
Platte	0	1
Sheridan	3	0
Sublette	2	0
Sweetwater	3	1
Teton	1	0
Uinta	0	0
Washakie	0	0
Weston	0	0

Risk and Associated Factors

Age Rates usually increase steadily with age

Gender Males have a substantially higher rate than females

Race & SES* Incidence rates are slightly higher in African Americans

Occupation Occupational exposures, most prominently aniline dye used in textile, rubber, and cable industries, are associated with a large proportion of cases

Other Tobacco consumption has been associated with a six-fold higher incidence of bladder tumor. Beta-naphthylamine, 4-amino-diphenyl, and tobacco tar also have been implicated in animal studies as possible causative factors. Chronic infections, calculus disease, and Schistosoma hematobium also may cause bladder tumors.

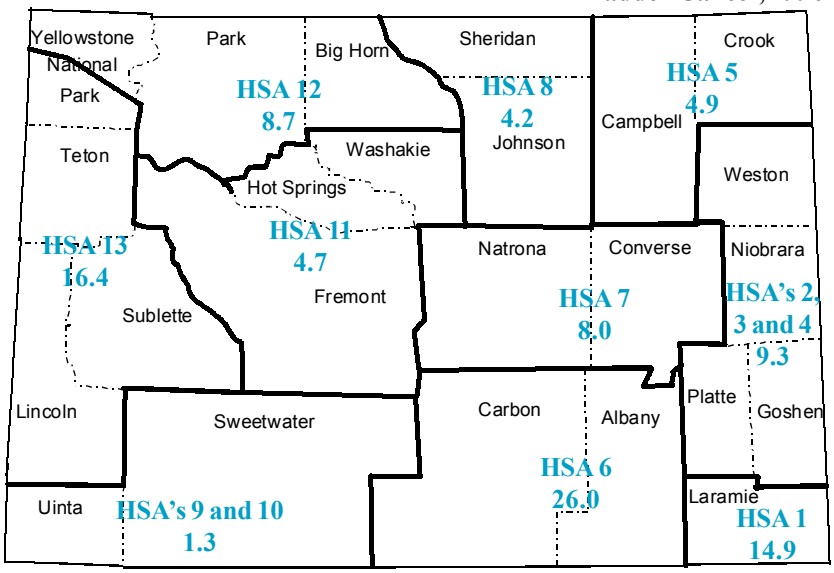
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

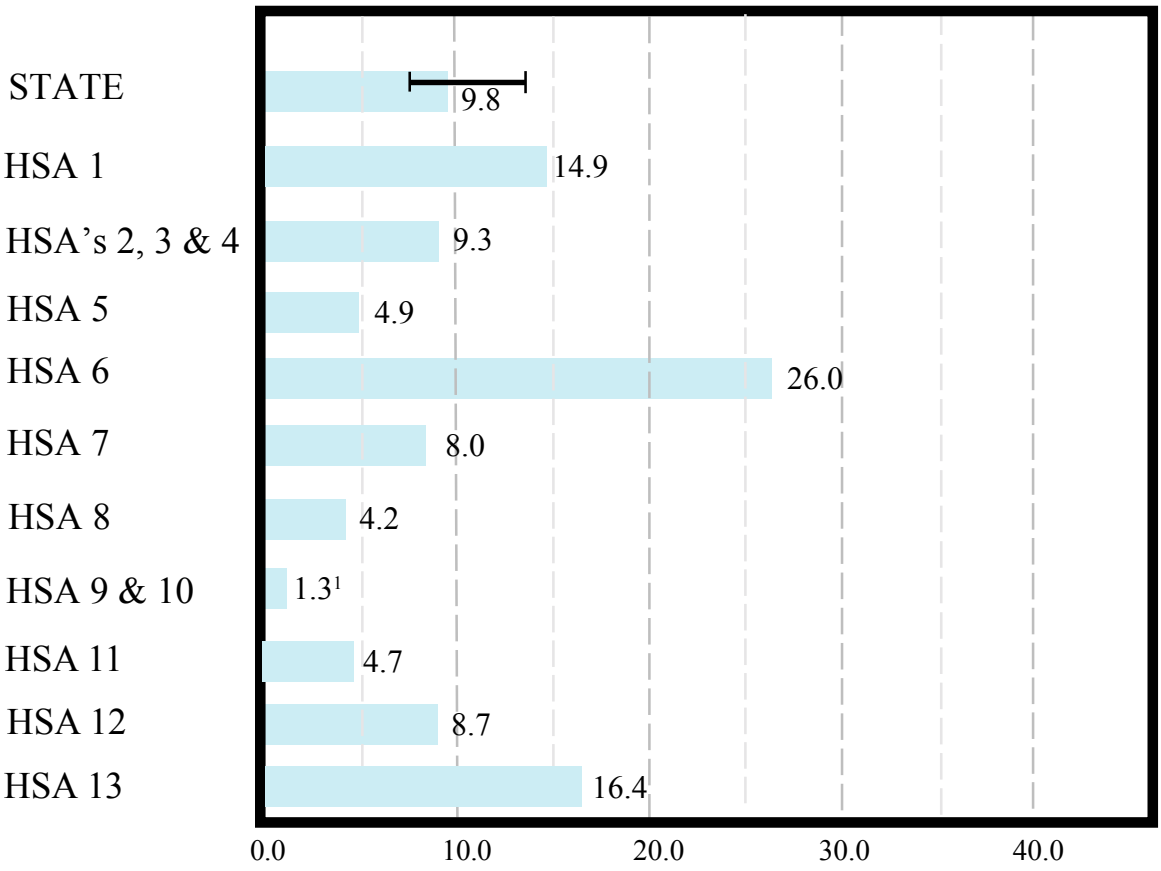
95% confidence interval[1] on the state age-adjusted incidence 7.1 - 12.5

Range of age-adjusted incidence rate for health districts 1.3 - 26.0

Bladder Cancer, 1996



Age-Adjusted Incident Rates per 100,000 by Health Service Areas,[2] 1996



[1]See explanation on confidence intervals on page 39.

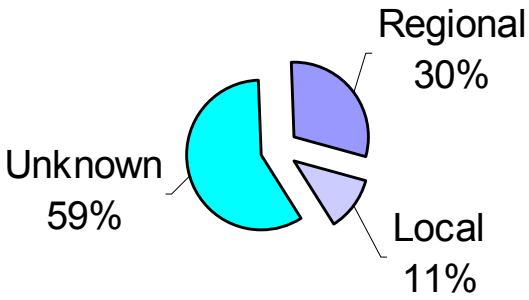
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.

[3]Difference between the HSA rate and the State rate is statistically significant.

Brain Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	7.4	4.9	6.1
Number of New Invasive Cases	18	12	30
Number of New In Situ Cases[1]	0	0	0
Number of Deaths	22	16	28

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	2	1
Big Horn	0	0
Campbell	1	0
Carbon	0	1
Converse	0	0
Crook	0	0
Fremont	1	1
Goshen	2	0
Hot Springs	0	0
Johnson	1	0
Laramie	4	4
Lincoln	0	0
Natrona	1	2
Niobrara	1	0
Park	0	0
Platte	0	0
Sheridan	0	0
Sublette	0	0
Sweetwater	3	1
Teton	0	0
Uinta	1	0
Washakie	0	1
Weston	0	0

Risk and Associated Factors

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

Gender Males have higher rates than females.

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

Genetics Certain genetic factors may cause an increased risk of some malignant brain tumors.

Occupation Many occupational and environmental exposures have shown suggestive associations with elevated rates of brain cancer, including radiation, vinyl chloride, and agricultural chemicals. Studies about these associations are still inconclusive.

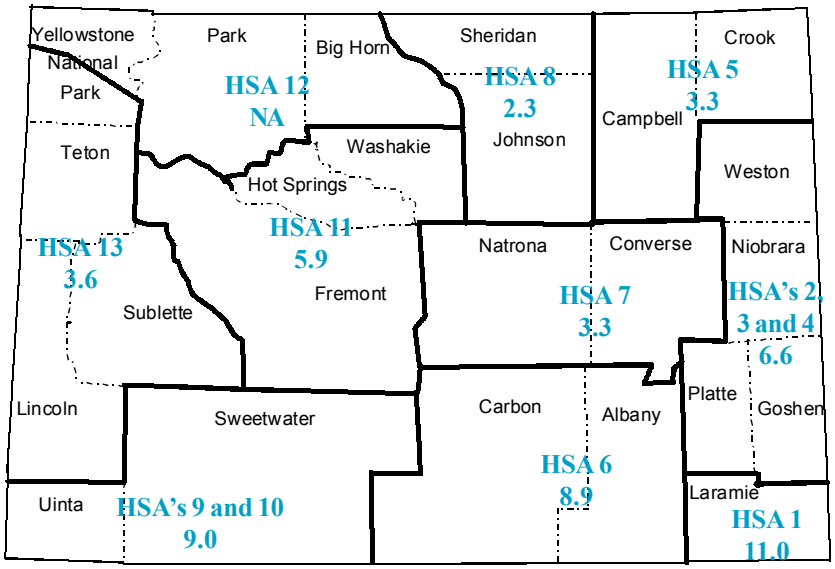
Other Human Immunodeficiency Virus (HIV) infected individuals have a much increased risk of developing brain lymphoma.

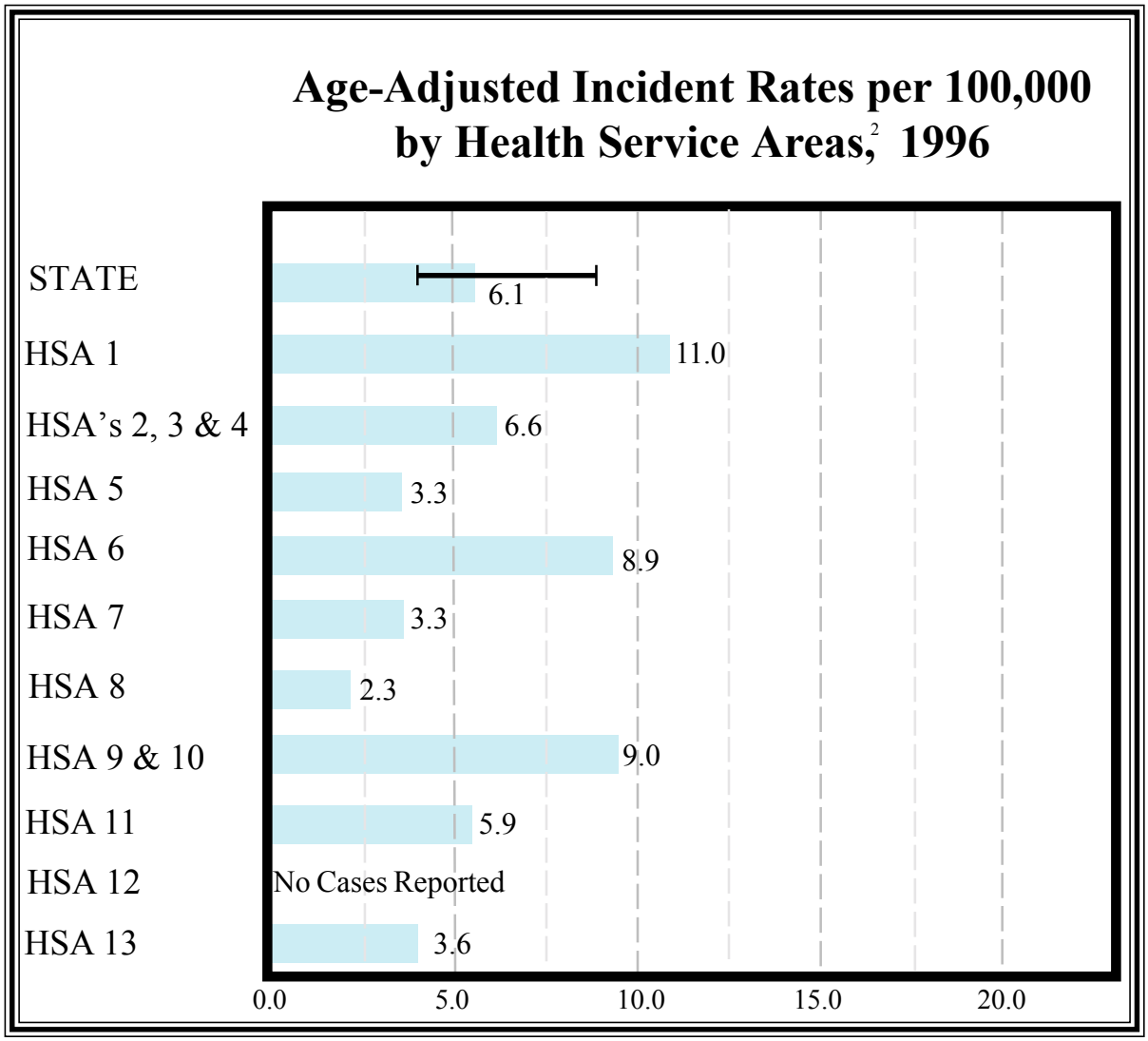
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 3.9 - 8.3

Range of age-adjusted incidence rate for health districts 2.3 - 11.0



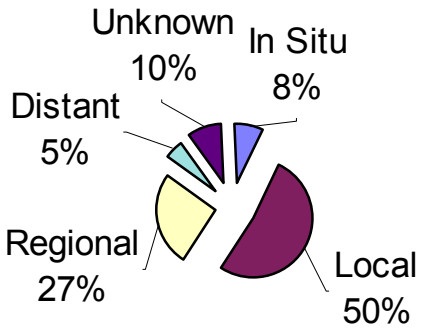


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Breast (female) Cancer, 1996

	Women
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	101.7
Number of New Invasive Cases	281
Number of New In Situ Cases[1]	25
Number of Deaths	67

Stage at Diagnosis[1]



Number of Cases by County

	Women		Women
Albany	13	Natrona	50
Big Horn	15	Niobrara	1
Campbell	9	Park	16
Carbon	9	Platte	9
Converse	5	Sheridan	21
Crook	1	Sublette	5
Fremont	22	Sweetwater	18
Goshen	6	Teton	6
Hot Springs	2	Uinta	14
Johnson	8	Washakie	4
Laramie	63	Weston	3
Lincoln	6		

Risk and Associated Factors, 1996

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

Race & SES* Caucasians have higher incidence rates as do women in higher income groups.

Genetics Specific genes associated with breast cancers have been identified and are being studied.

Hormonal There is evidence of hormonal influence in the risk of developing breast cancer. Longer intervals of menarche to the first fullterm pregnancy and menarche to menopause, as well as menarche before age 13, have been associated with higher risks of breast cancer.

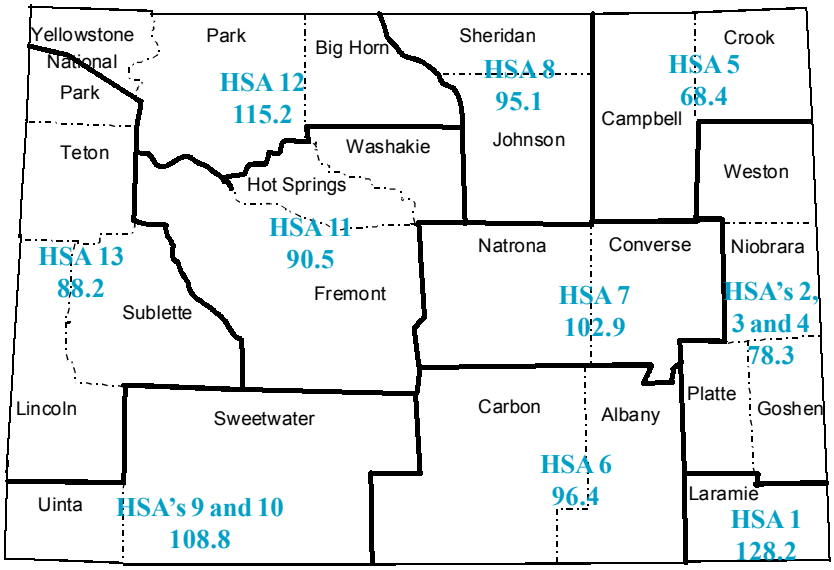
Other High dietary fat intake, obesity, sedentary life-style, and having a mother or sister with breast cancer have all been implicated as associated risk factors.

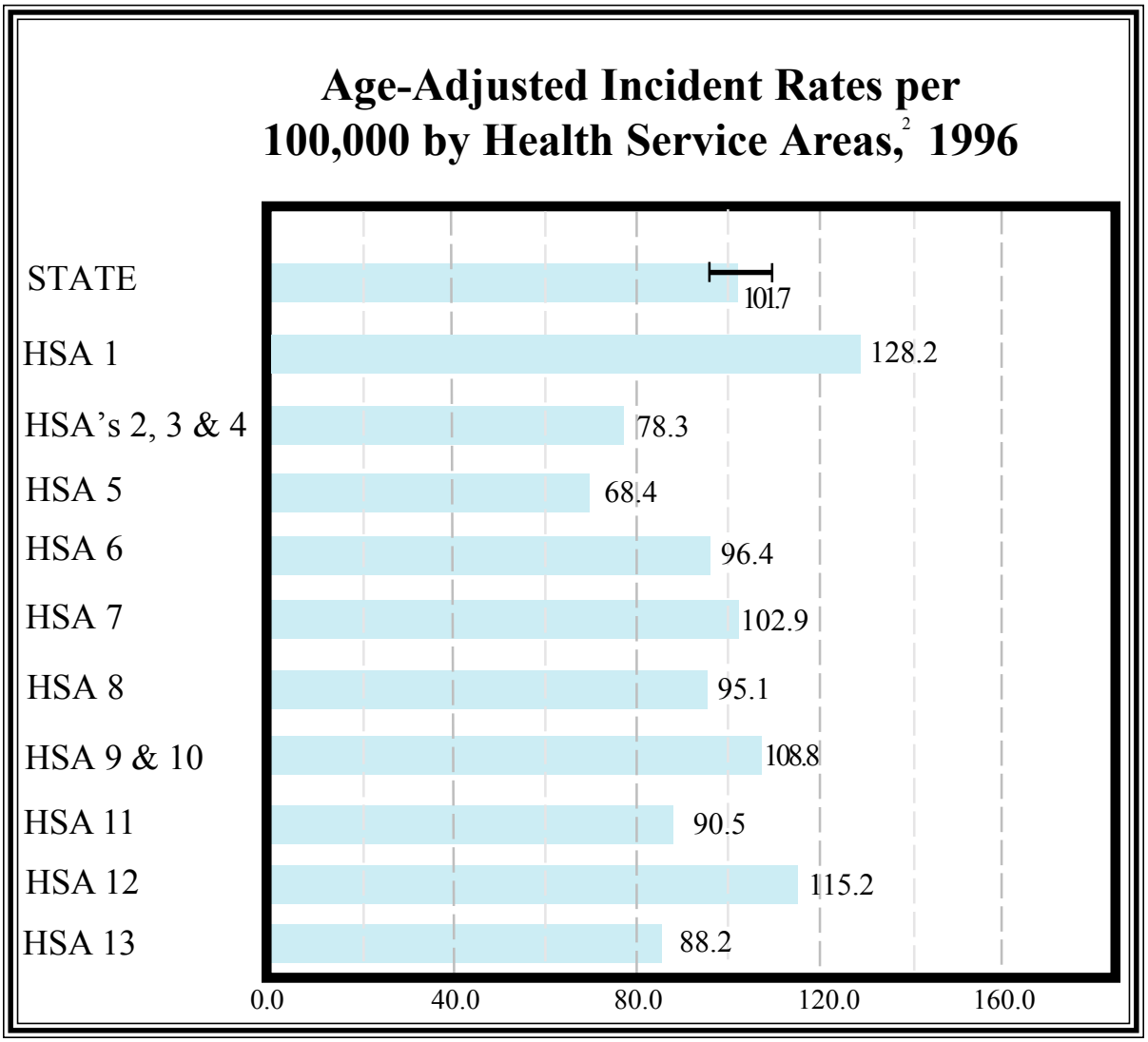
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 89.6 - 133.8

Range of age-adjusted incidence rate for health districts 68.4 - 128.2



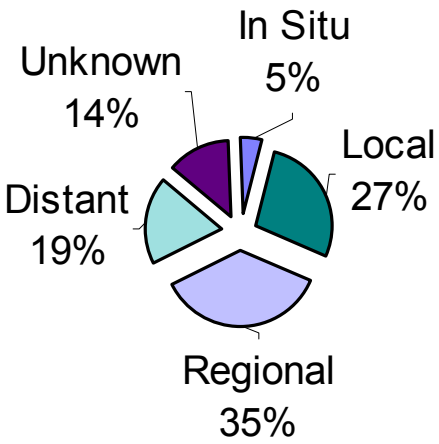


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Colon Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	24.7	19.3	21.7
Number of New Invasive Cases	60	57	117
Number of New In Situ Cases[1]	4	2	6
Number of Deaths	41	53	94

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	5	2
Big Horn	2	2
Campbell	1	0
Carbon	2	3
Converse	0	2
Crook	1	1
Fremont	6	1
Goshen	3	2
Hot Springs	0	2
Johnson	1	0
Laramie	10	11
Lincoln	3	3

	Men	Women
Natrona	4	10
Niobrara	0	0
Park	6	6
Platte	1	3
Sheridan	6	4
Sublette	1	1
Sweetwater	1	3
Teton	2	1
Uinta	4	0
Washakie	1	3
Weston	4	0

Risk and Associated Factors

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

Gender Incidence rates are slightly higher in males.

Genetics Specific genetic alternations have been recognized in several hereditary conditions with high risk for colon cancer such as familial polyposis. These conditions account for about six percent of colon cancer cases.

Diet Strong evidence that diets high in fat and low in fiber contribute to increased risk of colon cancer have been shown.

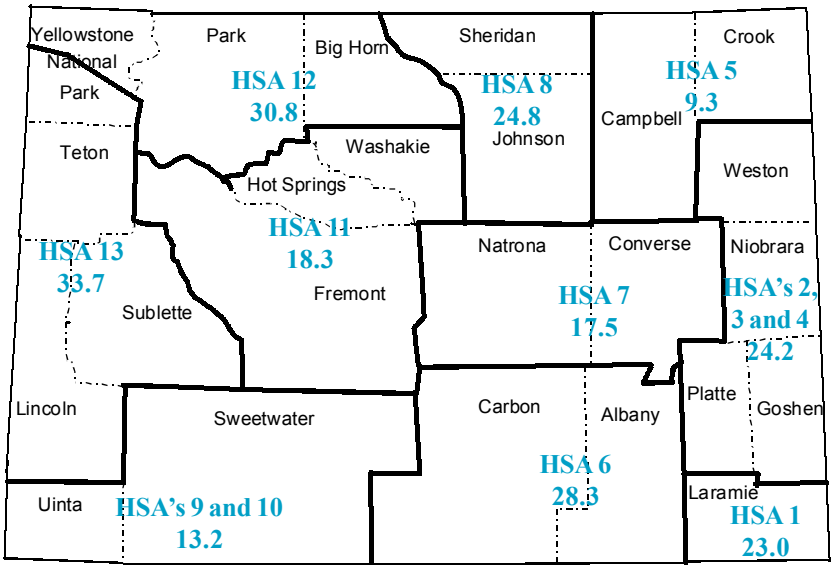
Other Individuals with a close family history of this cancer and those with a personal history of certain other cancers are at increased risk. Regular, moderate physical activity is associated with lower rates of this cancer.

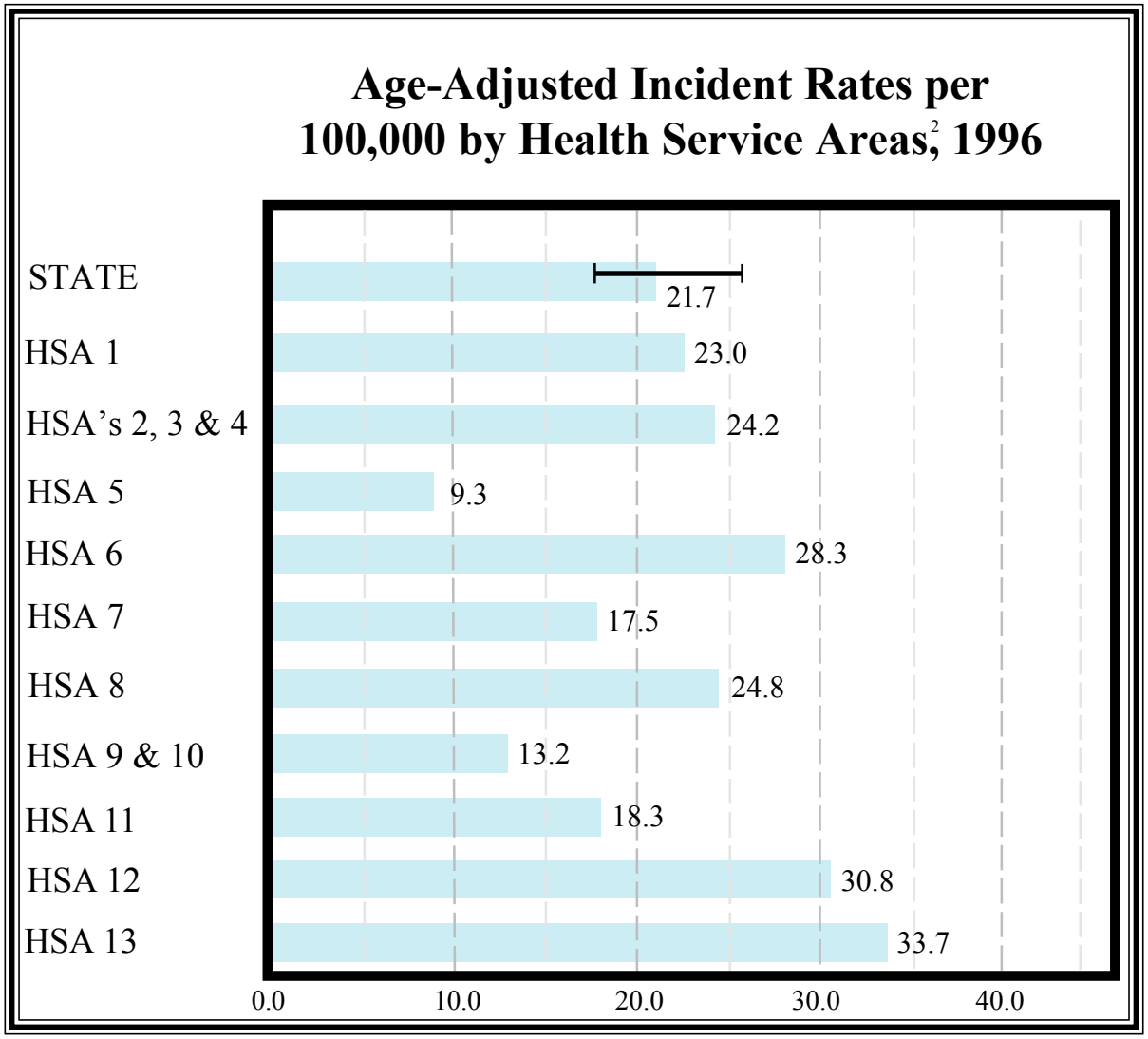
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 17.7 - 25.7

Range of age-adjusted incidence rate for health districts 9.3 - 33.7



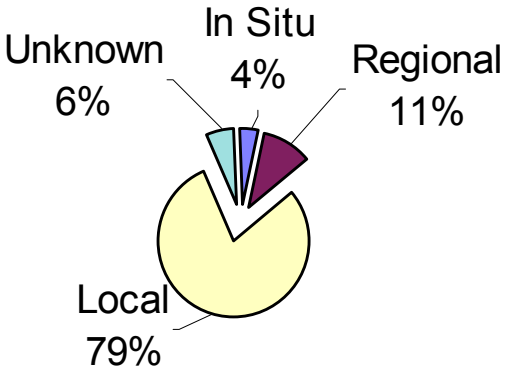


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Corpus Uteri Cancer, 1996

	Women
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	19.0
Number of New Invasive Cases	52
Number of New In Situ Cases[1]	2
Number of Deaths	6

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Women
Albany	4
Big Horn	2
Campbell	0
Carbon	4
Converse	2
Crook	0
Fremont	3
Goshen	0
Hot Springs	0
Johnson	2
Laramie	13
Lincoln	0

	Women
Natrona	7
Niobrara	0
Park	3
Platte	3
Sheridan	3
Sublette	0
Sweetwater	5
Teton	1
Uinta	0
Washakie	1
Weston	1

Risk and Associated Factors

Age Occurs predominantly after menopause.

Race & SES* Caucasian women have higher rates than African American women.

Genetics Familial tendency has been observed.

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

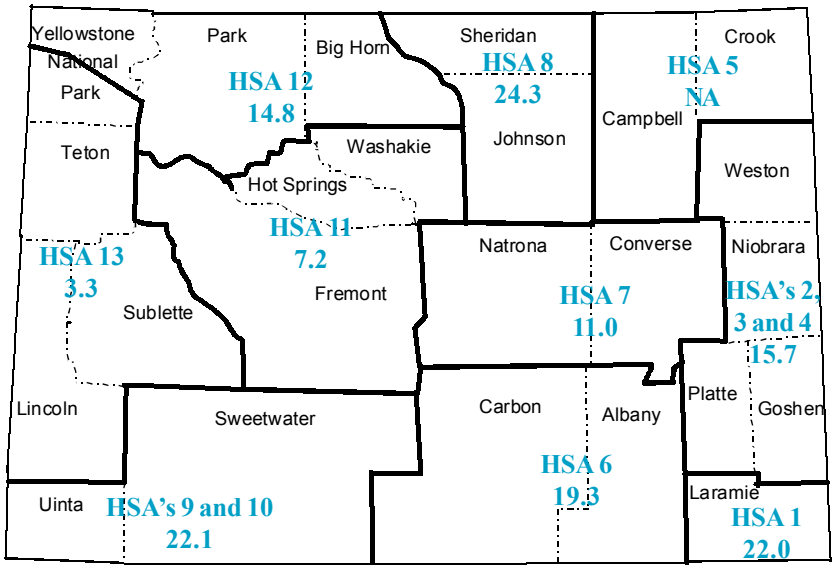
Hormonal Factors that elevate levels of estrogen or decrease progesterone levels enhance the risk. Women who have never carried a pregnancy to term are at a relatively high risk. The risk reduces as the number of pregnancies increases. An increased incidence of endometrial cancer has been found in association with prolonged, unopposed estrogen exposure as well as with tamoxifen treatment of breast cancer.

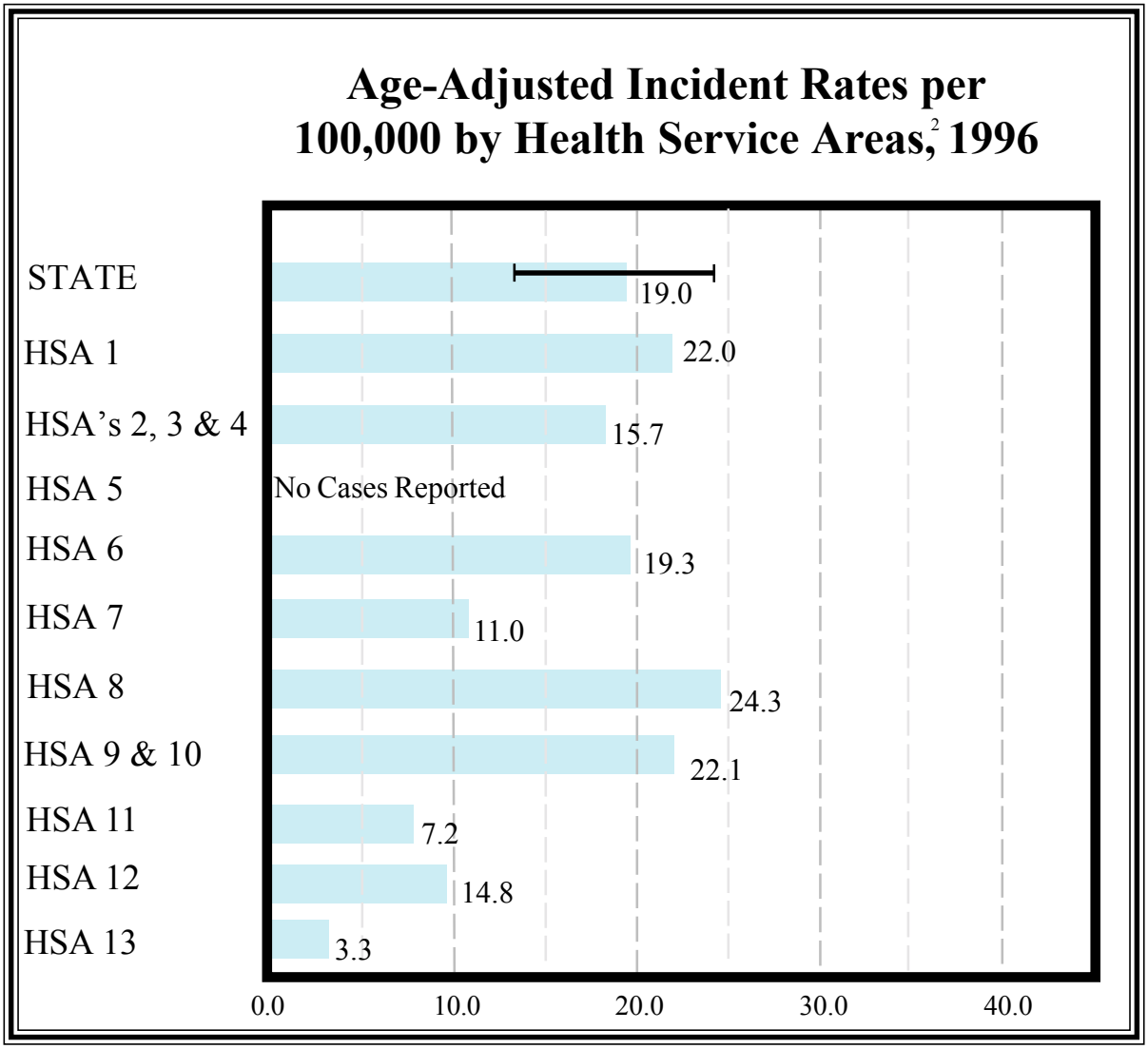
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 13.7 - 24.3

Range of age-adjusted incidence rate for health districts 3.3 - 24.3



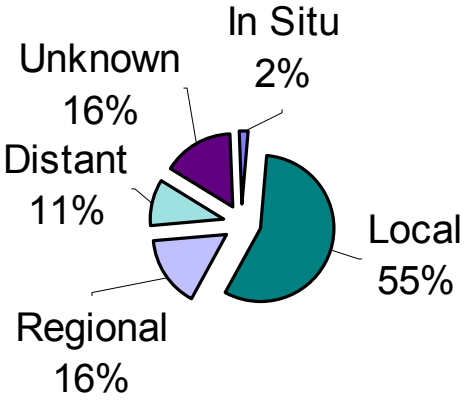


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Kidney/Renal Pelvis Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	12.1	5.1	8.3
Number of New Invasive Cases	30	14	44
Number of New In Situ Cases[1]	1	0	1
Number of Deaths	9	4	13

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	1	0
Big Horn	1	1
Campbell	0	0
Carbon	2	0
Converse	2	0
Crook	0	0
Fremont	3	5
Goshen	1	1
Hot Springs	1	1
Johnson	0	0
Laramie	2	1
Lincoln	0	0

	Men	Women
Natrona	7	1
Niobrara	0	0
Park	5	0
Platte	1	1
Sheridan	1	2
Sublette	0	0
Sweetwater	1	1
Teton	2	0
Uinta	0	0
Washakie	0	0
Weston	0	0

Risk and Associated Factors

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

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

Genetics Wilm's tumor often occurs with congenital defects.

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

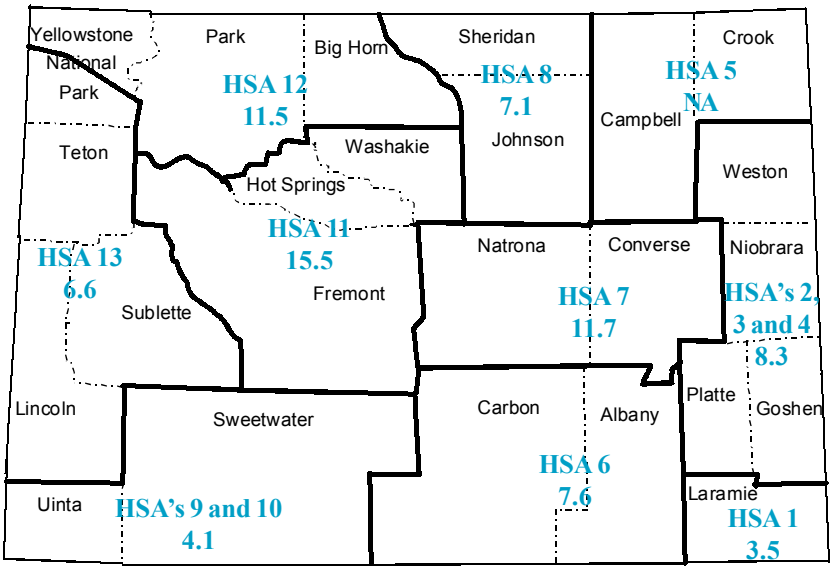
Other Cigarette smoking is strongly associated with adult kidney cancer. Smokers are at twice the risk of developing kidney cancer as nonsmokers.

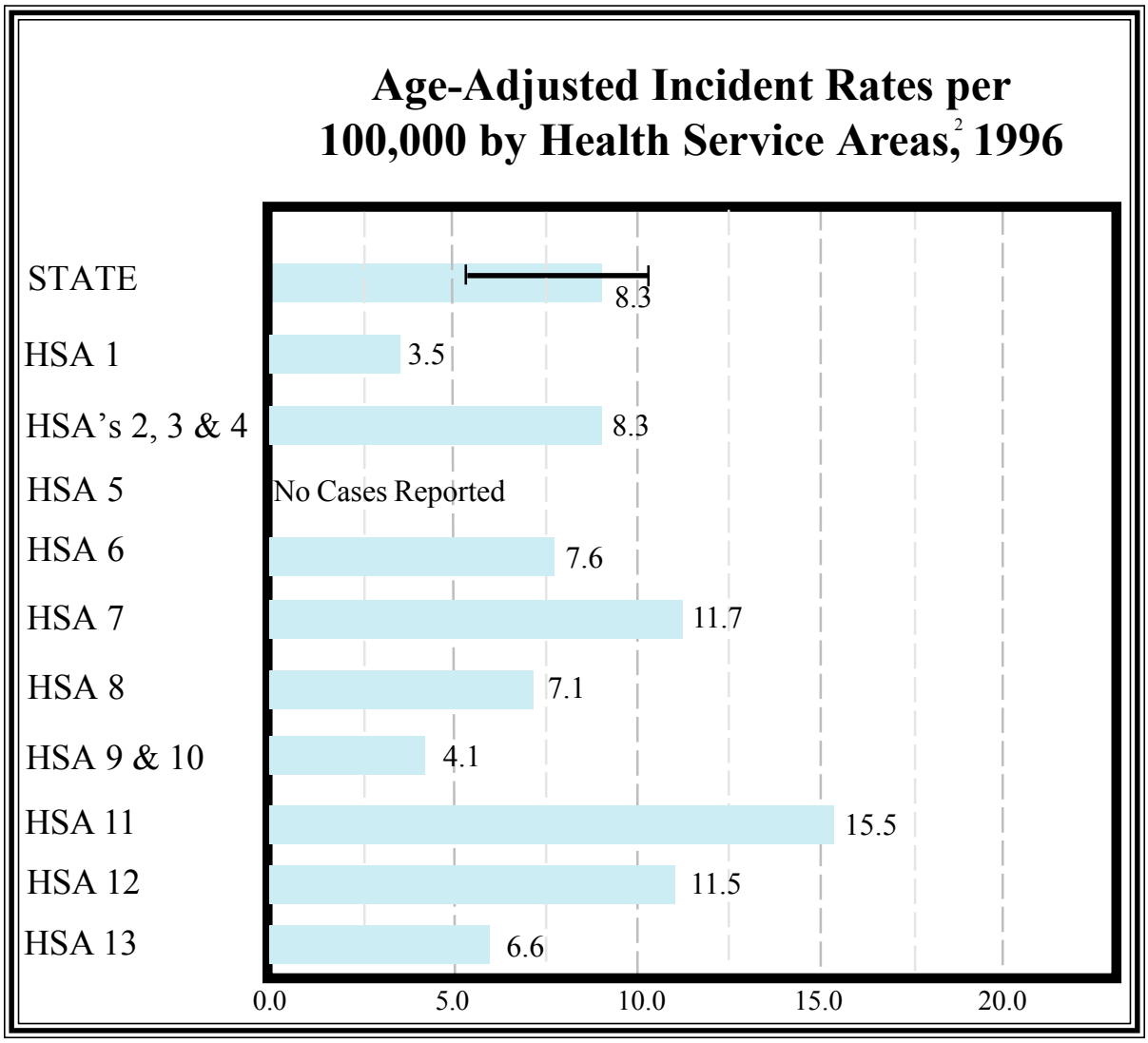
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 5.8 - 10.8

Range of age-adjusted incidence rate for health districts 3.5 - 15.5





[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Leukemia, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	9.0	5.3	6.9
Number of New Invasive Cases	23	15	38
Number of New In Situ Cases[1]	-	-	-
Number of Deaths	28	18	46

Stage at Diagnosis[1]

Hematopoietic diseases such as leukemia are considered disseminated (distant) at time of diagnosis.

Number of Cases by County, 1996

	Men	Women
Albany	0	2
Big Horn	0	1
Campbell	0	1
Carbon	1	0
Converse	1	0
Crook	2	0
Fremont	1	1
Goshen	2	0
Hot Springs	0	0
Johnson	0	0
Laramie	4	5
Lincoln	1	0

	Men	Women
Natrona	3	2
Niobrara	3	0
Park	0	1
Platte	0	1
Sheridan	1	0
Sublette	0	0
Sweetwater	2	1
Teton	0	0
Uinta	1	0
Washakie	0	0
Weston	1	0

Risk and Associated Factors

Age This is the most common form of cancer in children. Incidence usually increases with age in adults. This highest rates occur in individuals over age 60.

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

Race ALL is less common among African Americans. CLL is rare in Asians.

Race & SES* Certain congenital defects such as trisomy 21, Fanconi's anemia, Bloom syndrome, ataxiatelangectasia, increase risk in children to variuos types of leukemia.

Occupation Exposure to benzene is known to increase the risk for acute myelogenous leukemia (AML).

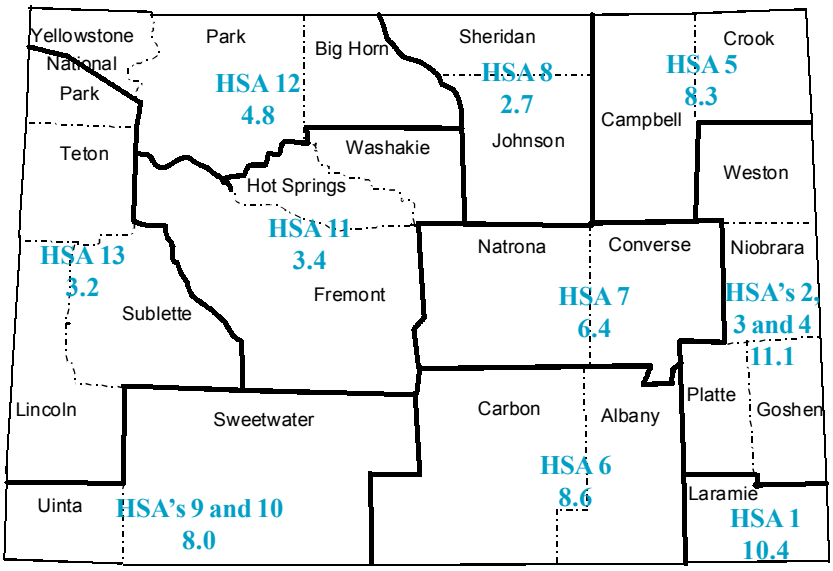
Other Ionizing radiation exposure increases the risk. Environmental exposure to low frequency, non-ionizing radiation and its association with leukemia incidence is being investigated.

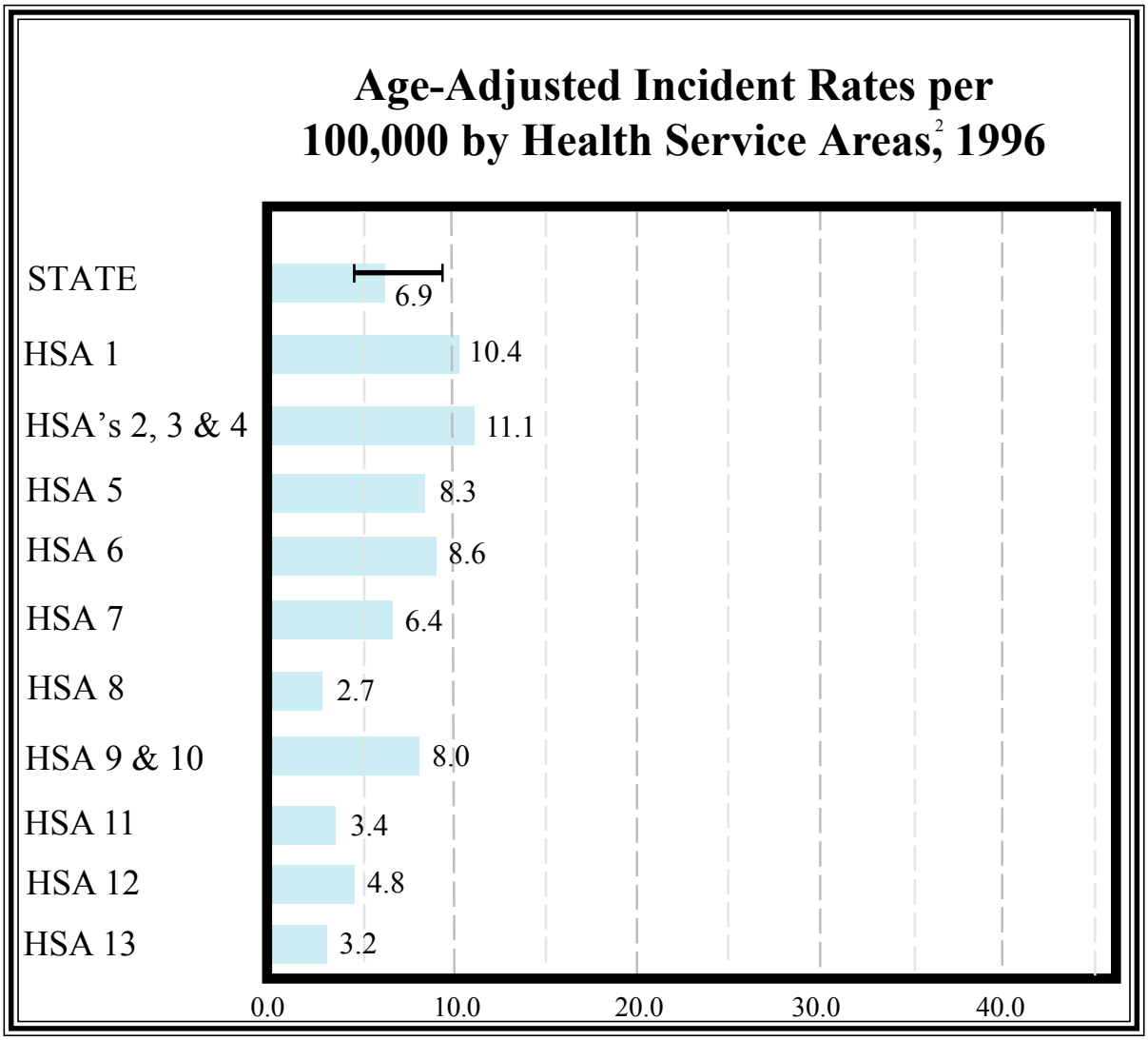
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 4.6 - 9.2

Range of age-adjusted incidence rate for health districts 2.7 - 11.1





[1]See explanation on confidence intervals on page 39.

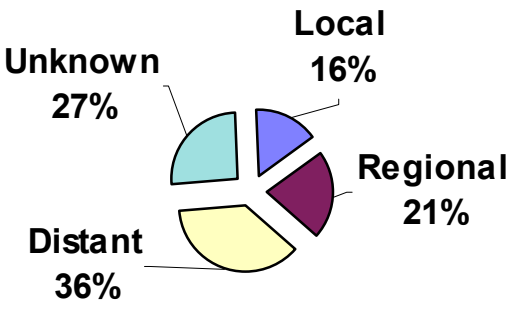
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.

NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Lung Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	55.4	35.1	44.5
Number of New Invasive Cases	134	97	231
Number of New In Situ Cases[1]	0	0	21
Number of Deaths	121	77	198

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	1	5
Big Horn	1	1
Campbell	5	3
Carbon	5	2
Converse	7	3
Crook	1	3
Fremont	18	8
Goshen	2	2
Hot Springs	1	2
Johnson	3	2
Laramie	22	15
Lincoln	6	1
Natrona	22	22
Niobrara	1	0
Park	6	3
Platte	2	3
Sheridan	7	6
Sublette	0	0
Sweetwater	10	8
Teton	2	1
Uinta	4	4
Washakie	5	3
Weston	4	1

Risk and Associated Factors

Age Lung cancer incidence rates increase with age.

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

Race & SES* Generally, incidence is higher among African Americans than other racial groups and also is higher in lower income groups.

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

Occupation Occupational or environmental exposures to asbestos, radon, polycyclic aromatic hydrocarbons and other substances increase the risk.

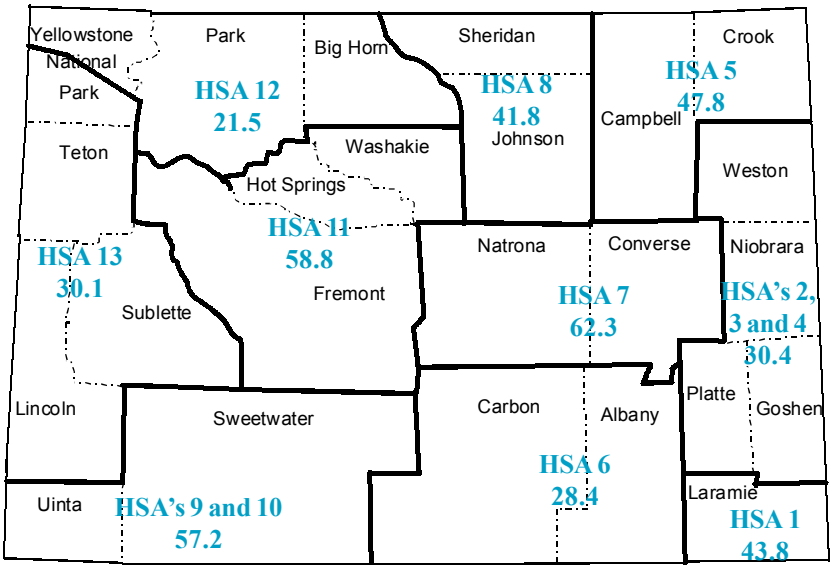
Other Cigarette smoking, including exposure to second-hand smoke, is the most important risk factor accounting for over 85% of lung cancer deaths.

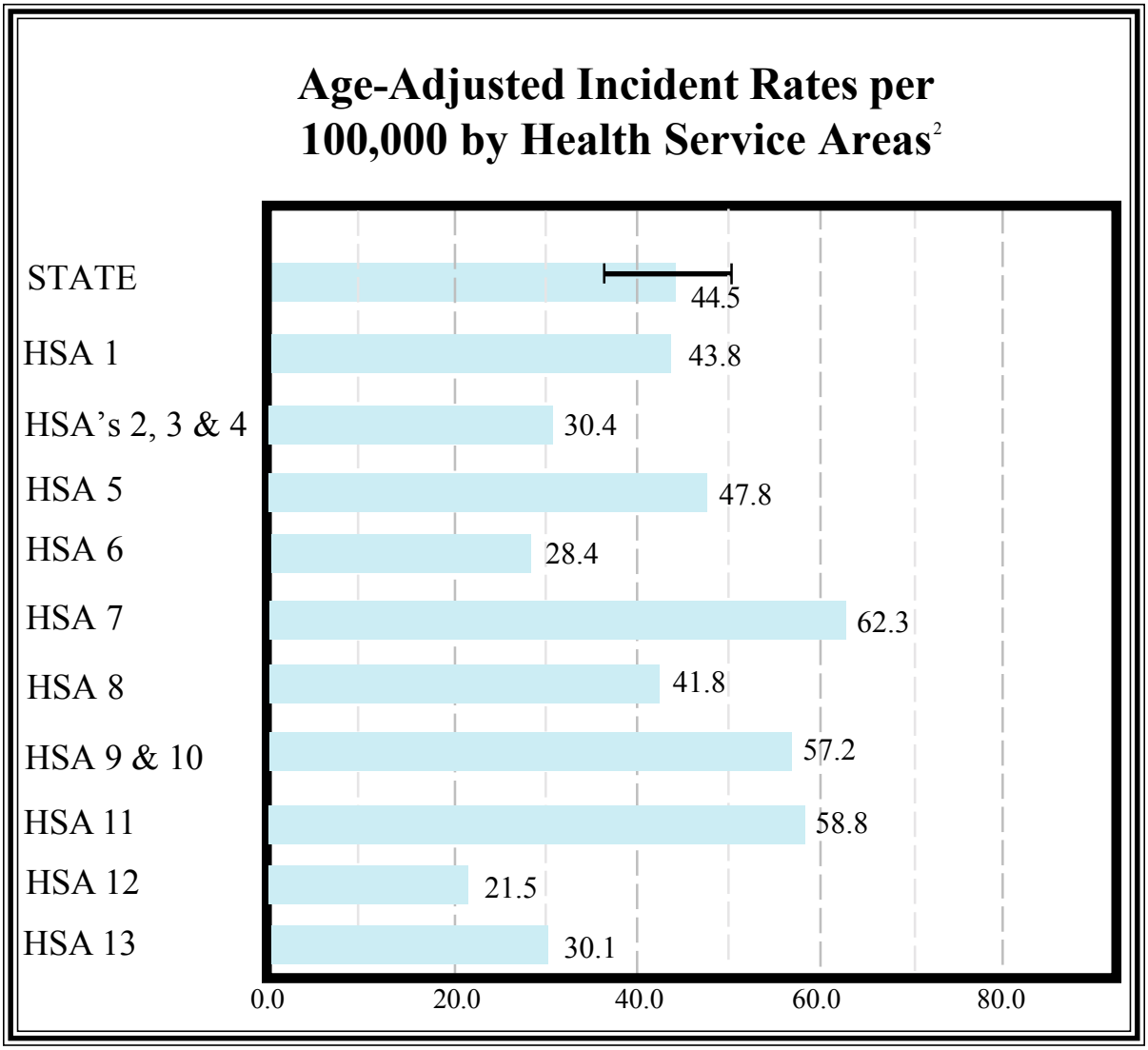
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 38.7 - 50.3

Range of age-adjusted incidence rate for health districts 21.5 - 62.3



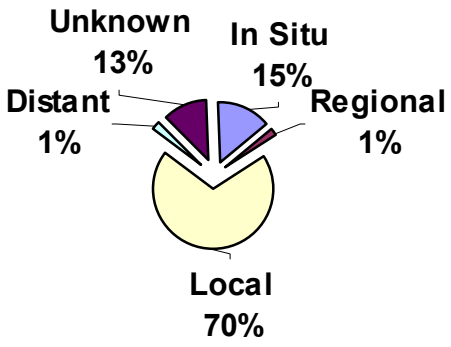


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Melanoma (of the skin), **1996**

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	14.9	9.5	12.1
Number of New Invasive Cases	36	22	58
Number of New In Situ Cases[1]	6	4	10
Number of Deaths	3	6	9

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	0	0
Big Horn	1	2
Campbell	4	1
Carbon	0	1
Converse	2	1
Crook	0	0
Fremont	2	1
Goshen	1	0
Hot Springs	0	0
Johnson	2	1
Laramie	5	3
Lincoln	0	0

	Men	Women
Natrona	10	8
Niobrara	1	0
Park	5	3
Platte	1	1
Sheridan	3	2
Sublette	0	0
Sweetwater	3	1
Teton	1	0
Uinta	0	1
Washakie	1	0
Weston	0	0

Risk and Associated Factors

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

Gender It occurs more frequently in males than females.

Race & SES* The incidence rate is highest in Caucasians and is uncommon in African Americans. It has an increased incidence in higher income groups.

Occupation Persons working in occupations associated with increased sun exposure have a higher incidence.

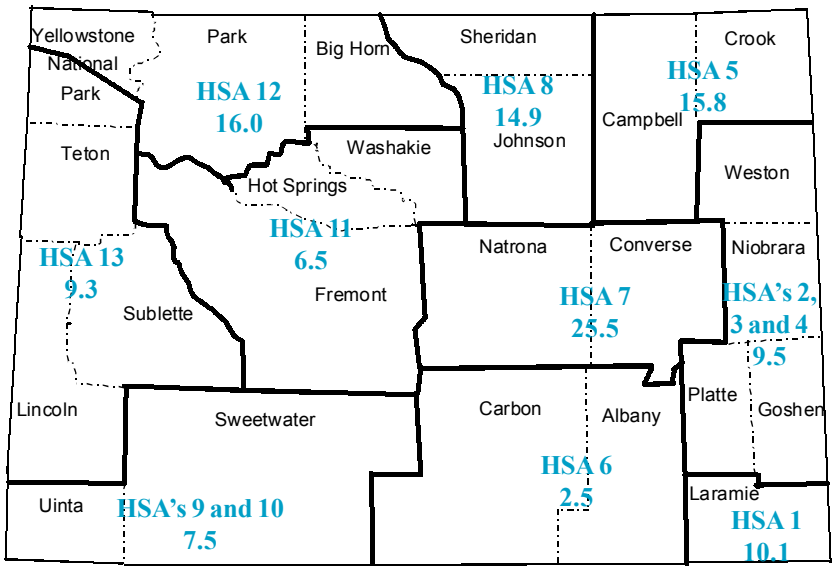
Other Ultra violet light exposure, especially blistering sunburns during childhood, is a major risk factor. Melanoma has been on the increase nationally for several decades. People with light skin and individuals with numerous or atypical moles are at increased risk.

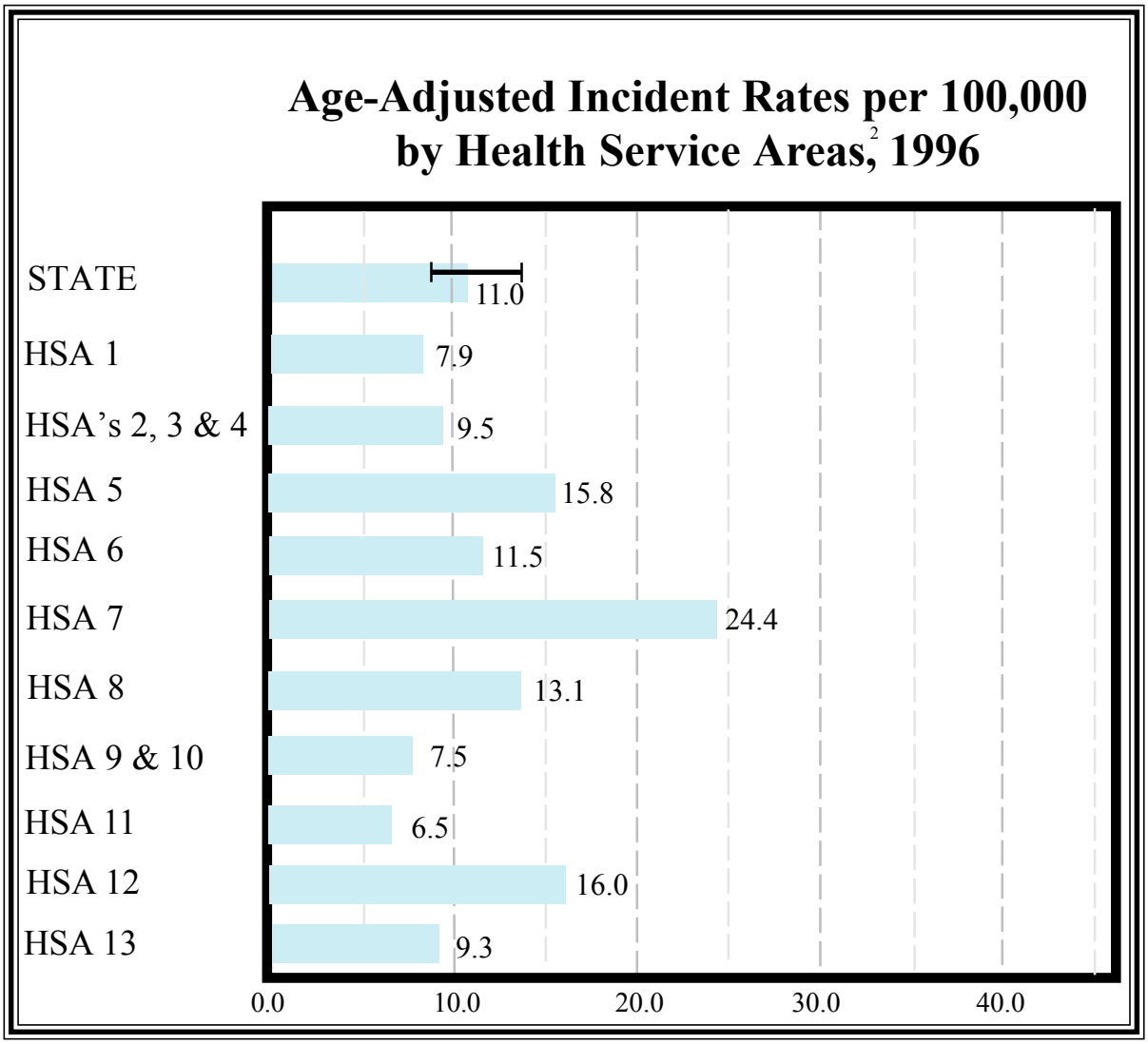
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 9.1 - 15.1

Range of age-adjusted incidence rate for health districts 2.5 - 25.5



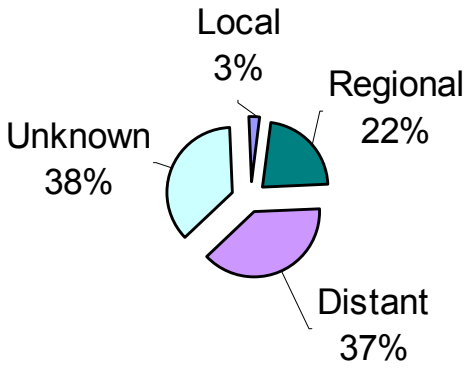


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Non-Hodgkin's Lymphoma, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	13.2	10.6	11.8
Number of New Invasive Cases	33	29	62
Number of New In Situ Cases[1]	-	-	-
Number of Deaths	16	23	39

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	0	1
Big Horn	0	1
Campbell	0	1
Carbon	1	1
Converse	1	0
Crook	0	2
Fremont	3	1
Goshen	1	1
Hot Springs	0	0
Johnson	2	0
Laramie	3	3
Lincoln	2	1
Natrona	8	4
Niobrara	0	0
Park	3	0
Platte	2	3
Sheridan	3	4
Sublette	0	0
Sweetwater	1	5
Teton	1	1
Uinta	1	0
Washakie	1	0
Weston	0	0

Risk and Associated Factors

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

Gender Males have higher rates than females.

Race & SES* Generally in the United States incidence rates are slightly lower in African Americans. Rates are higher in upper income groups.

Other Non-Hodgkin's lymphoma develops with increased frequency in individuals infected with certain viruses, particularly the human immunodeficiency virus (HIV), which causes acquired immunodeficiency syndrome (AIDS). Exposures to agricultural chemicals and high-dose radiation exposures also have been implicated.

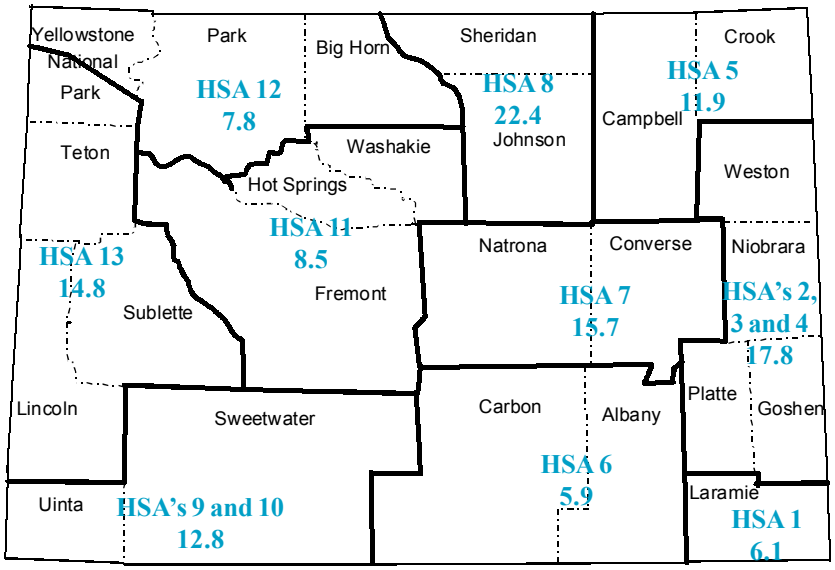
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

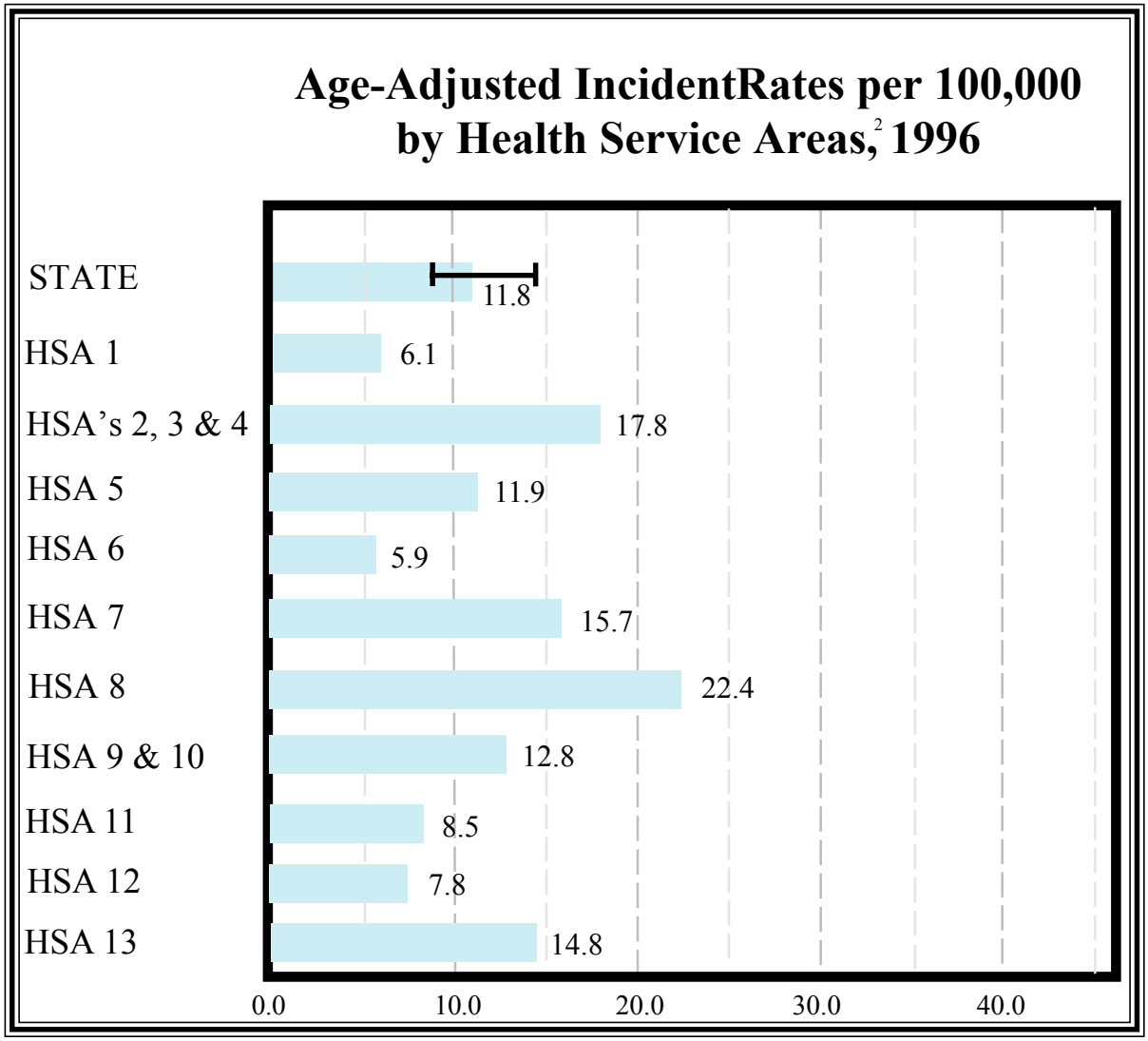
Important Notes

95% confidence interval[1] on the state age-adjusted incidence 8.8 - 14.8

Range of age-adjusted incidence rate for health districts 5.9 - 22.4

Non-Hodgkin's Lymphoma, 1996





[1]See explanation on confidence intervals on page 39.

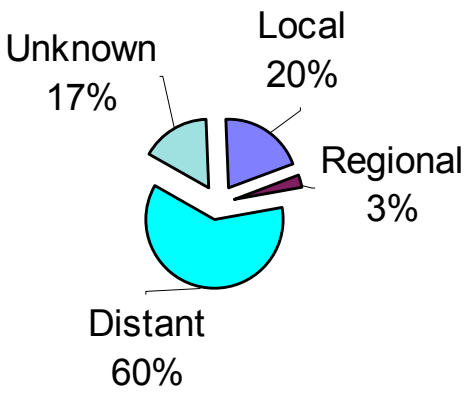
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.

NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Ovary Cancer, 1996

	Women
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	12.4
Number of New Invasive Cases	35
Number of New In Situ Cases[1]	0
Number of Deaths	15

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Women
Albany	1
Big Horn	0
Campbell	2
Carbon	0
Converse	0
Crook	0
Fremont	6
Goshen	1
Hot Springs	1
Johnson	1
Laramie	7
Lincoln	2

	Women
Natrona	1
Niobrara	0
Park	4
Platte	1
Sheridan	2
Sublette	1
Sweetwater	0
Teton	3
Uinta	1
Washakie	1
Weston	0

Risk and Associated Factors

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

Race & SES* Rates are slightly higher in Caucasian females than in African American females. The rate is higher among upper income groups.

Genetics The most important risk factor for ovarian cancer is a family history of a first-degree relative (mother, daughter, or sister) with the disease. The risk is higher still in women with two or more first-degree relatives with ovarian cancer.

Hormonal Risk of ovarian cancer is significantly reduced among women having at least one live-born child, a history of breast-feeding, or sustained oral contraceptive use. Highest risk is in postmenopausal women. It also is associated with a personal history of breast, endometrial, and colon cancers.

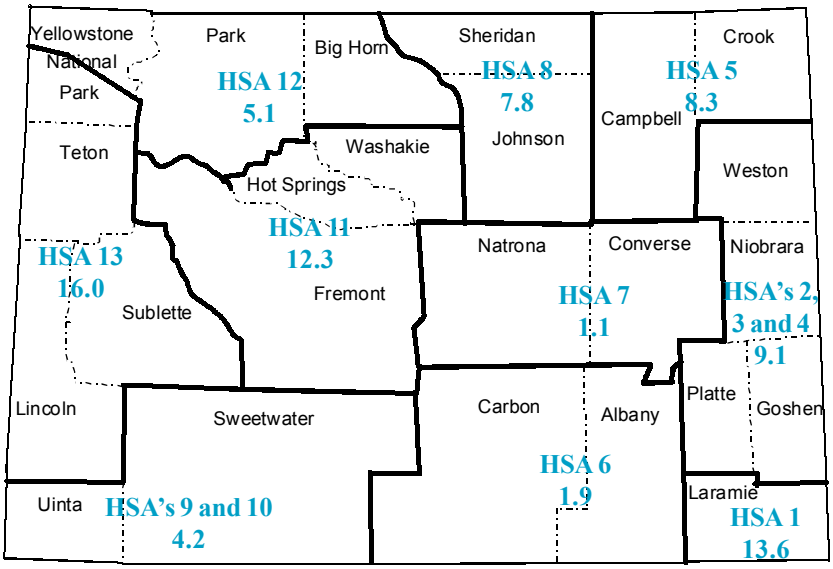
Diet Dietary fat may increase the risk.

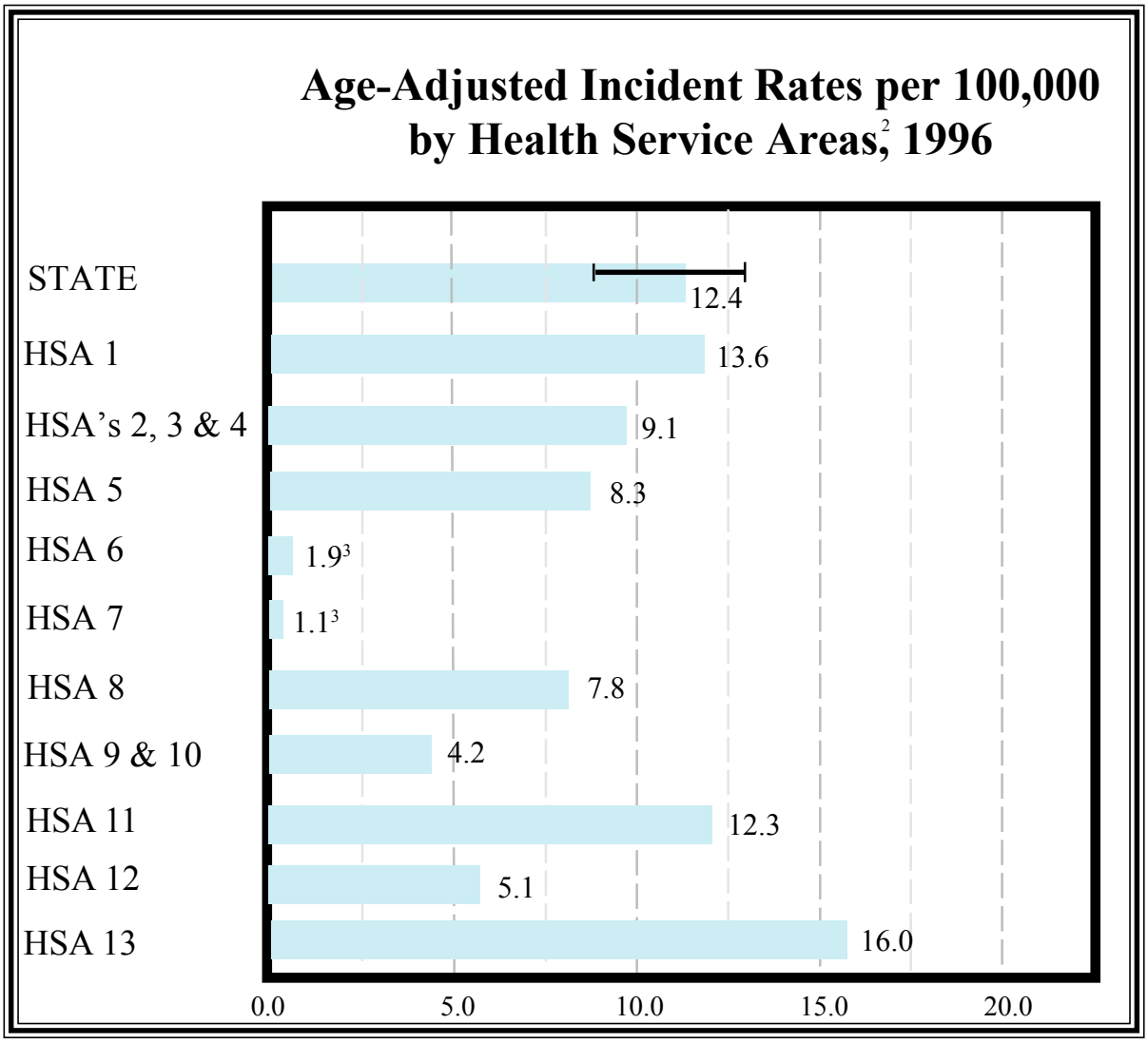
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publicaiton Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 8.2 - 16.6

Range of age-adjusted incidence rate for health districts 1.1 - 16.0



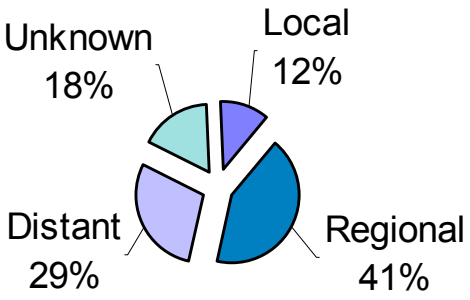


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
[3]Difference between the HSA rate and the State rate is statistically significant.

Pancreatic Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	5.8	6.3	6.2
Number of New Invasive Cases	14	20	34
Number of New In Situ Cases[1]	0	0	0
Number of Deaths	15	24	39

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	2	0
Big Horn	1	0
Campbell	0	0
Carbon	2	1
Converse	0	1
Crook	0	1
Fremont	1	0
Goshen	0	2
Hot Springs	0	0
Johnson	0	1
Laramie	3	7
Lincoln	0	1
Natrona	1	1
Niobrara	0	0
Park	1	1
Platte	0	0
Sheridan	0	3
Sublette	1	0
Sweetwater	0	0
Teton	0	0
Uinta	0	0
Washakie	2	0
Weston	0	1

Risk and Associated Factors

Age Rates increase with age. It is rare in people younger than 40 years old.

Gender Incidence is slightly higher in males.

Race & SES* In the United States, the incidence is higher in African Americans, Native Americans, and Hispanics than in the population at large.

Diet High dietary fat intake has been implicated as a potential risk factor.

Occupation Certain occupations are believed to produce a higher risk, such as chemists, metal workers, as well as men employed in the manufacture of benzidine and betanaphthylene.

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

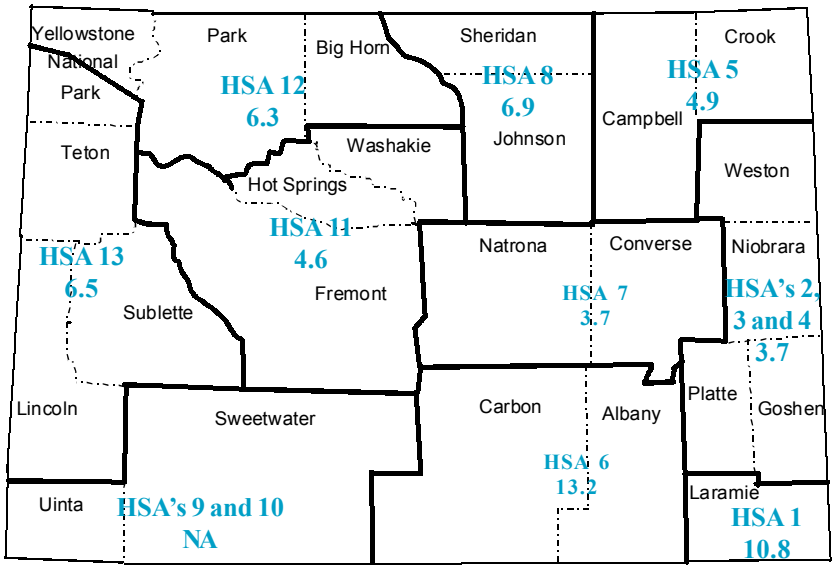
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

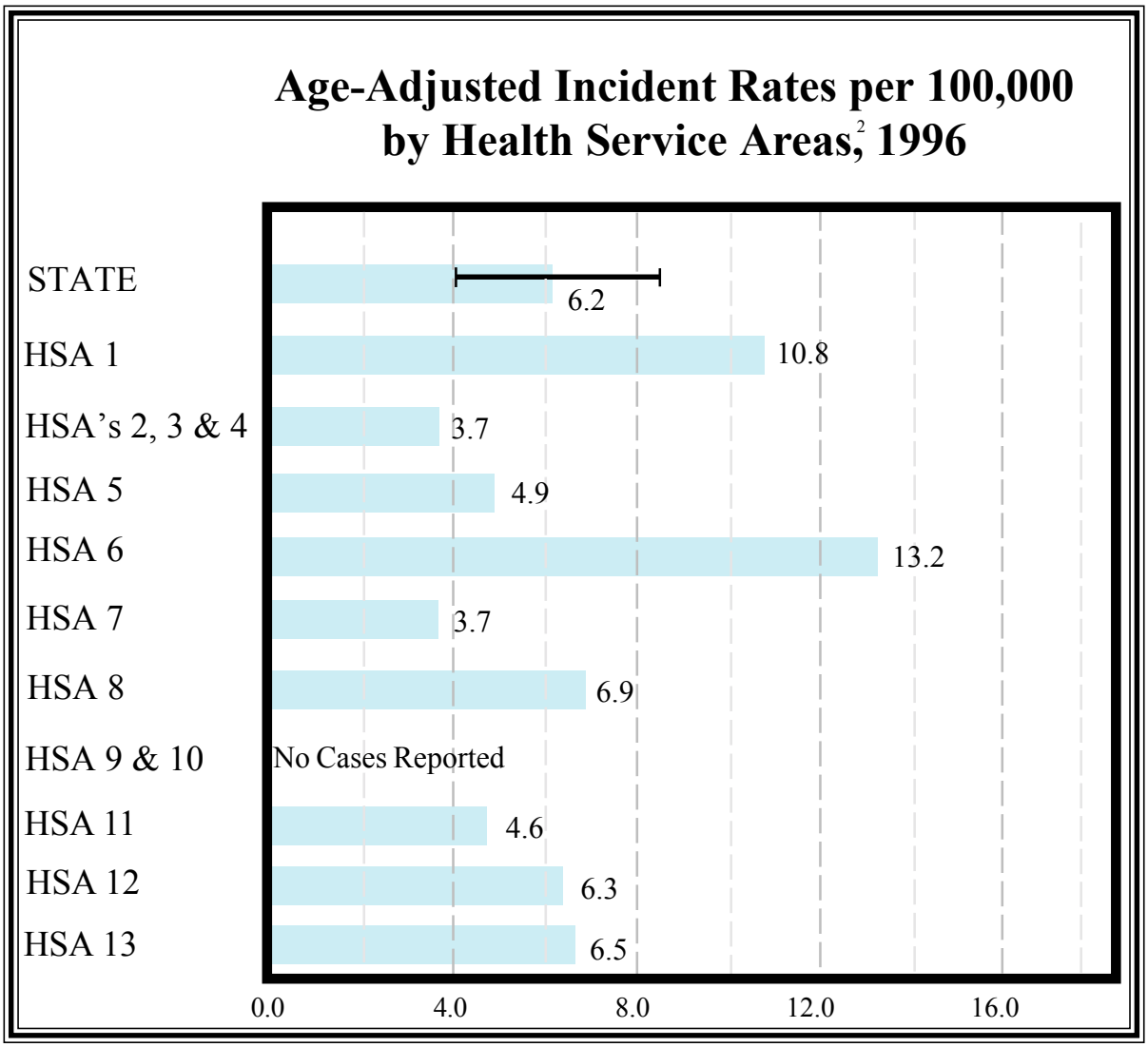
Important Notes

95% confidence interval[1] on the state age-adjusted incidence 4.1 - 8.3

Range of age-adjusted incidence rate for health districts 3.7 - 13.2

Pancreatic Cancer, 1996



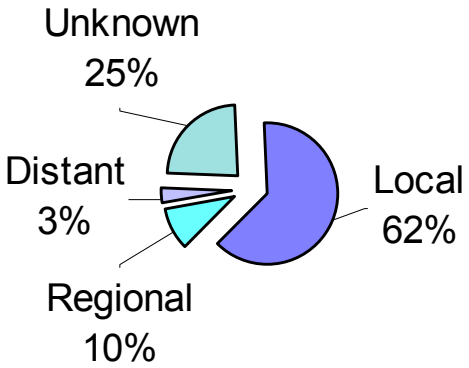


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Prostate Cancer, 1996

	Men
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	136.0
Number of New Invasive Cases	322
Number of New In Situ Cases[1]	1
Number of Deaths	66

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men
Albany	19
Big Horn	4
Campbell	8
Carbon	12
Converse	11
Crook	2
Fremont	25
Goshen	6
Hot Springs	7
Johnson	4
Laramie	68
Lincoln	9

	Men
Natrona	52
Niobrara	1
Park	10
Platte	8
Sheridan	32
Sublette	7
Sweetwater	14
Teton	6
Uinta	7
Washakie	9
Weston	2

Risk and Associated Factors

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

Race African American males have a substantially higher rate than Caucasian males.

Occupation A family history of prostate cancer is associated with increased risk.

Diet Dietary fat has been implicated in some studies.

Other Environmental and familial factors may contribute to an increased incidence, but no specific factor in these two groups of potential risk factors has been clearly identified.

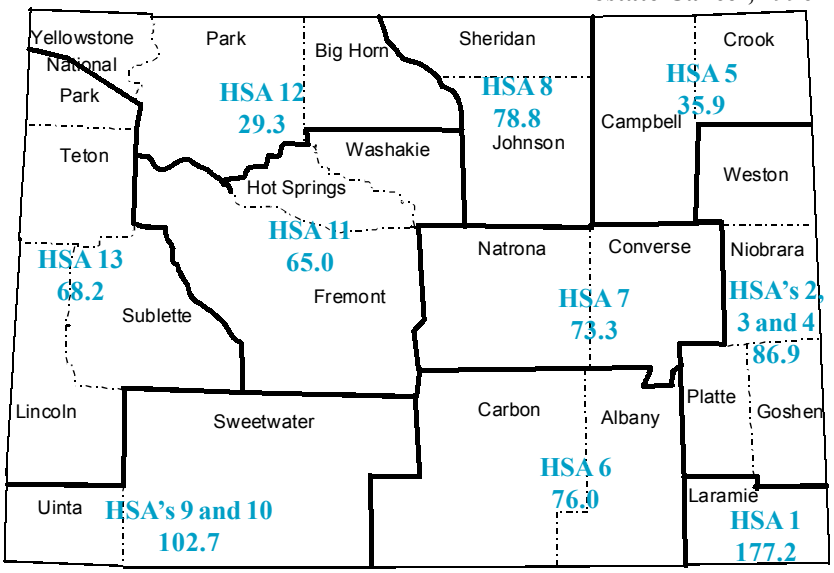
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996

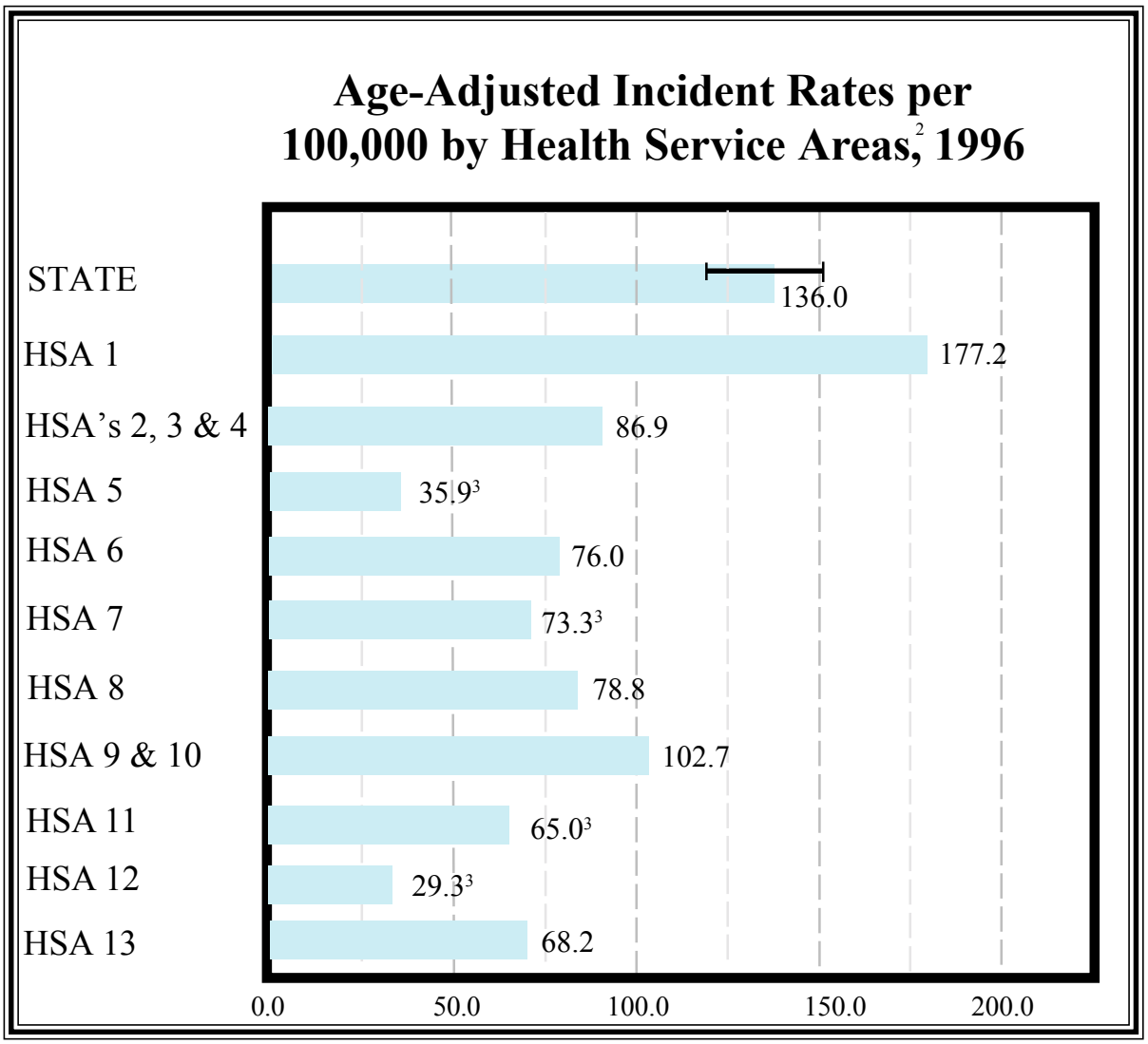
Important Notes

95% confidence interval[1] on the state age-adjusted incidence 121.2 - 150.8

Range of age-adjusted incidence rate for health districts 29.3 - 177.2

Prostate Cancer, 1996





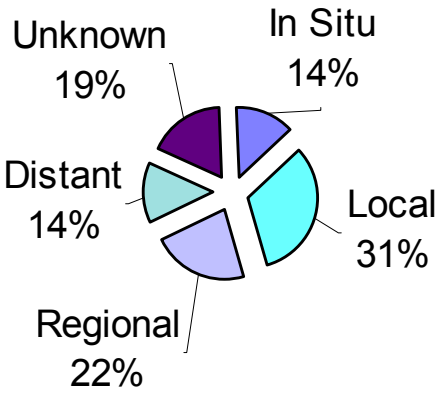
[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
[3]Difference between the HSA rate and the State rate is statistically significant.

Rectum Cancer, 1996

Includes Rectosigmoid Junction

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	10.0	8.5	9.3
Number of New Invasive Cases	25	25	50
Number of New In Situ Cases[1]	2	6	8
Number of Deaths			

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	2	0
Big Horn	0	0
Campbell	1	1
Carbon	0	2
Converse	0	2
Crook	1	0
Fremont	2	5
Goshen	0	1
Hot Springs	0	1
Johnson	2	0
Laramie	7	6
Lincoln	0	3

	Men	Women
Natrona	2	4
Niobrara	0	0
Park	1	0
Platte	0	1
Sheridan	2	1
Sublette	1	0
Sweetwater	2	3
Teton	1	0
Uinta	1	1
Washakie	1	0
Weston	1	0

Risk and Associated Factors

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

Gender Incidence rates are higher in males.

Genetics Specific genetic alterations have been recognized in several hereditary conditions with high risk of rectal cancer. These conditions account for about six percent of rectal cancer cases.

Diet Strong evidence exists that diets high in fat and low in fiber contribute to increased risk of rectal cancer.

Other Individuals with a close family history of this cancer and those with a personal history of certain other cancers are at increased risk. Regular, moderate physical activity is associated with lower rates of this cancer.

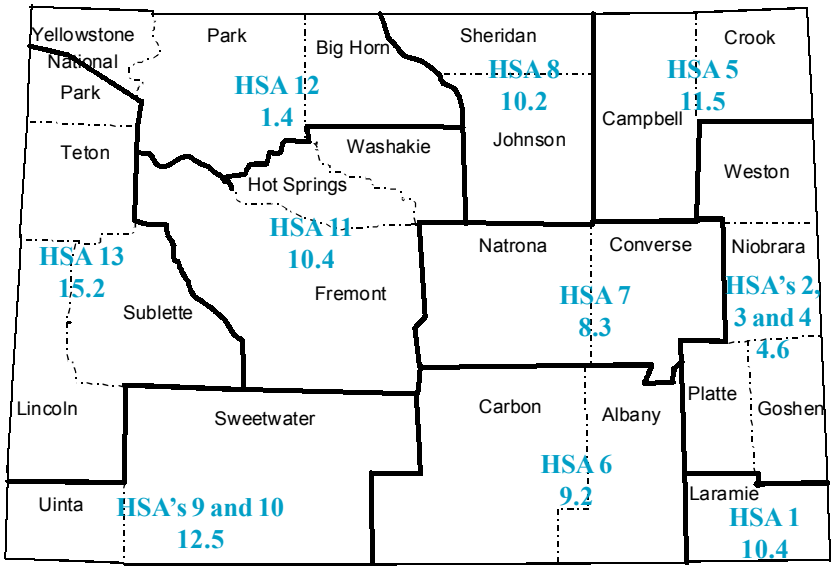
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996

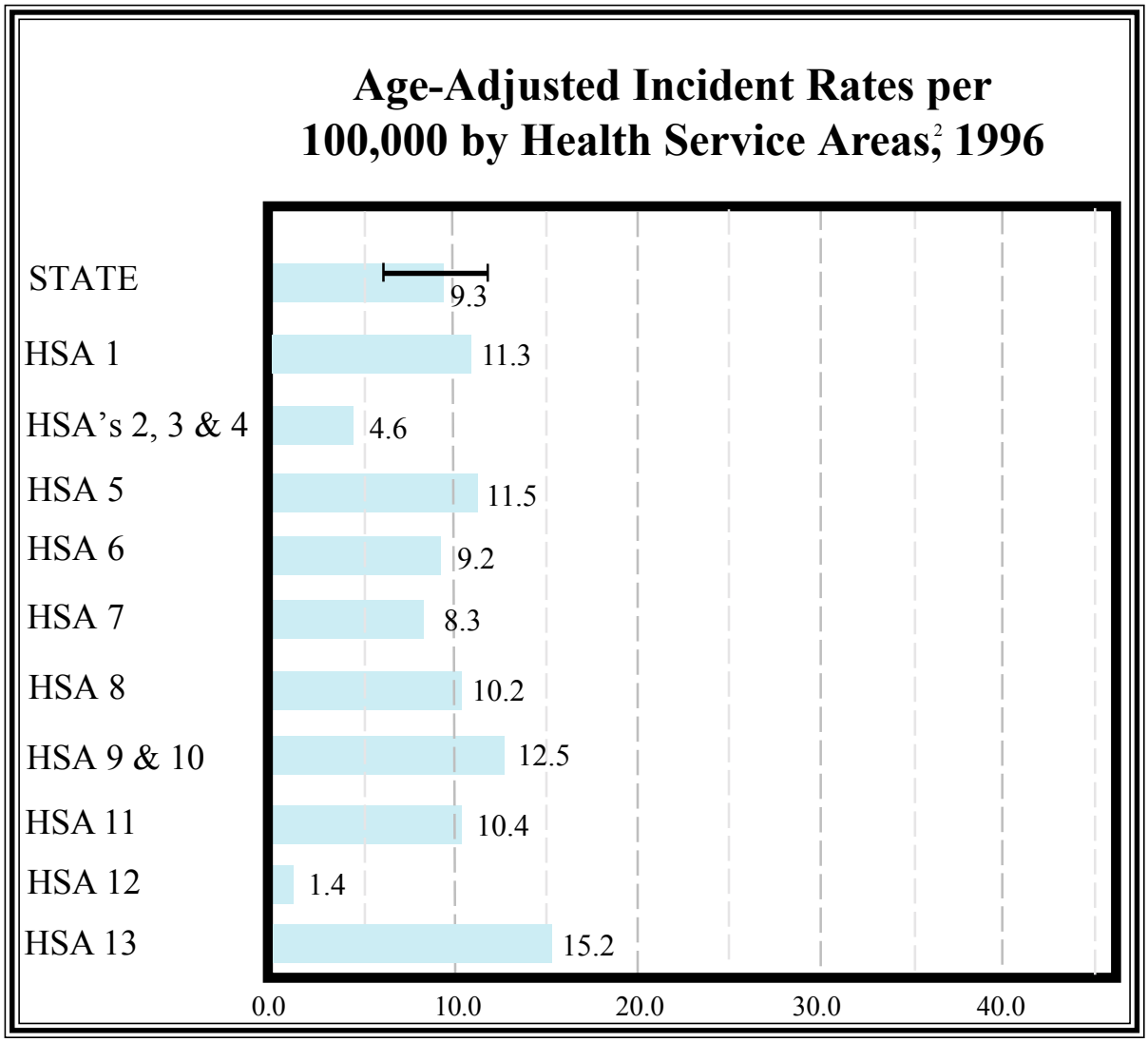
Important Notes

95% confidence interval[1] on the state age-adjusted incidence 6.7 - 11.9

Range of age-adjusted incidence rate for health districts 1.4 - 15.2

Rectum Cancer, 1996



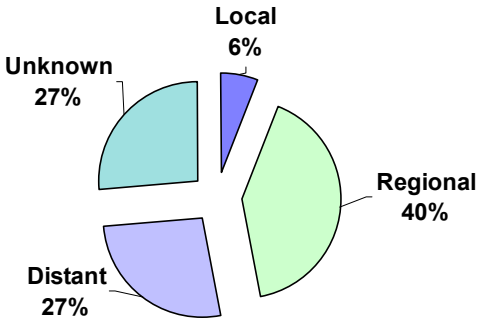


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Stomach Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	8.9	3.7	6.3
Number of New Invasive Cases	22	12	34
Number of New In Situ Cases[1]	0	0	0
Number of Deaths	11	8	19

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	1	0
Big Horn	0	0
Campbell	0	0
Carbon	1	0
Converse	0	1
Crook	1	0
Fremont	3	1
Goshen	1	0
Hot Springs	2	0
Johnson	0	1
Laramie	3	0
Lincoln	0	0
Natrona	3	2
Niobrara	1	0
Park	0	1
Platte	1	0
Sheridan	1	0
Sublette	0	0
Sweetwater	1	0
Teton	0	0
Uinta	2	3
Washakie	2	2
Weston	1	1

Risk and Associated Factors

Age Rates increase with age.

Gender Incidence rate for males is usually more than twice as high as in females.

Race & SES* There is a higher incidence in African Americans, as well as Asians, and incidence also is higher in lower income groups.

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

Occupation Elevated rates have been found in certain occupational groups, especially coal miners and asbestos workers.

Other Stomach cancer has recently been linked to peptic ulcer disease and to certain bacteria associated with increased risk for both diseases.

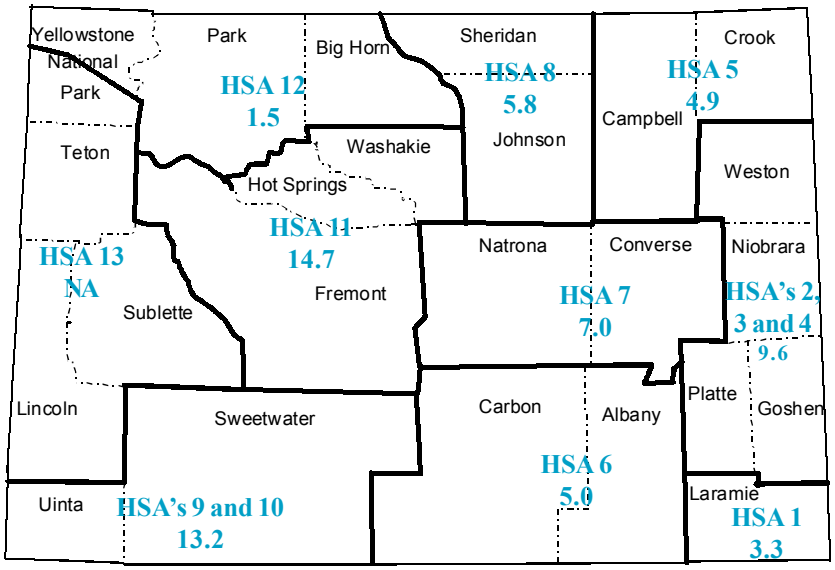
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

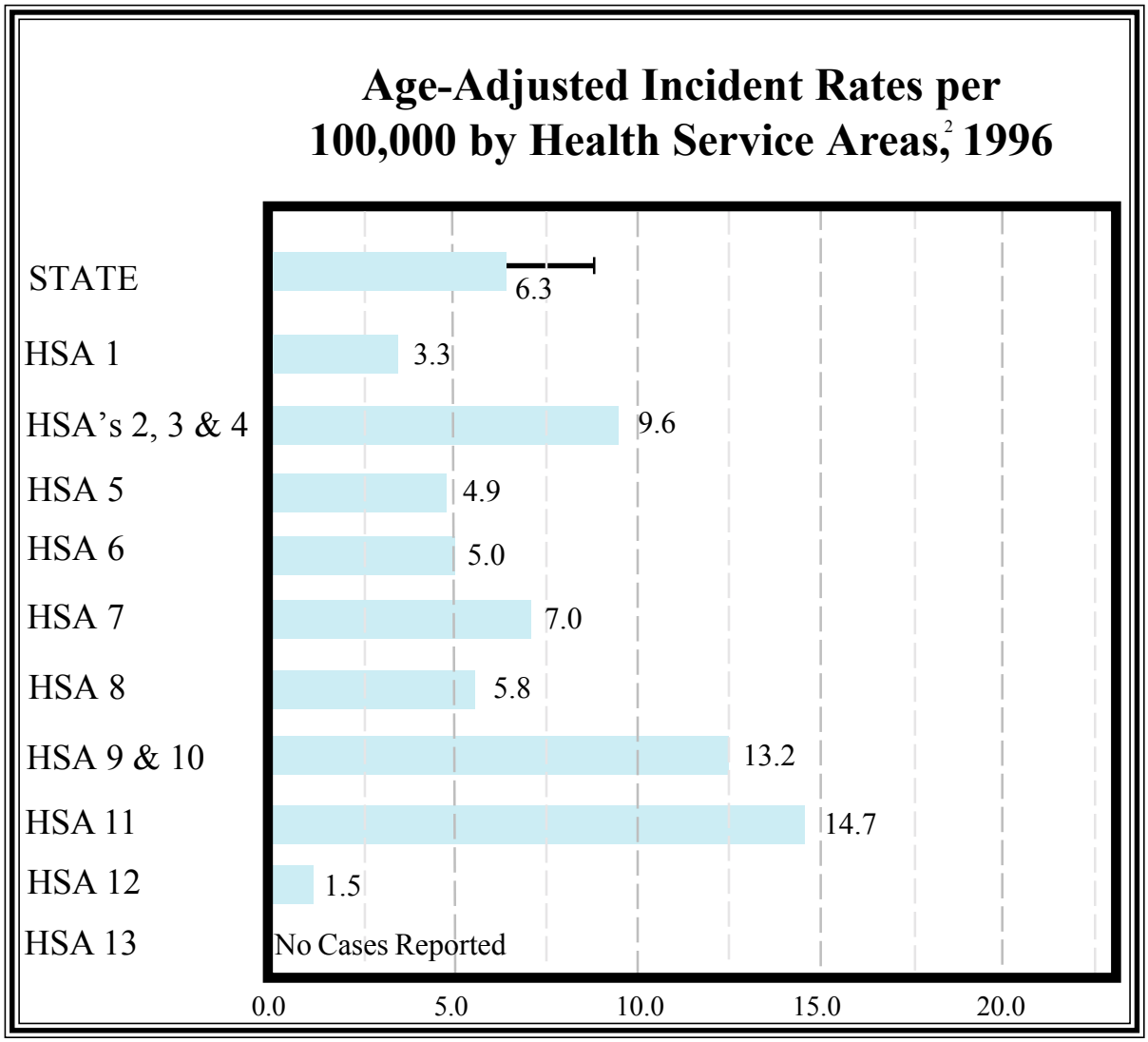
Important Notes

95% confidence interval[1] on the state age-adjusted incidence 4.1 - 8.4

Range of age-adjusted incidence rate for health districts 1.5 - 14.7

Stomach Cancer, 1996



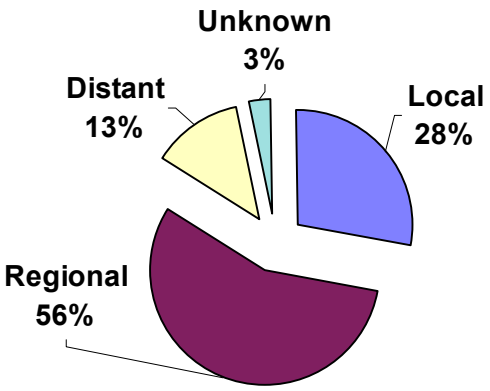


[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

Thyroid Cancer, 1996

	Men	Women	Total
Age-Adjusted Incidence[1] Rate per 100,000 (invasive cases only)	2.5	8.3	5.4
Number of New Invasive Cases	7	23	30
Number of New In Situ Cases[1]	0	0	0
Number of Deaths	1	1	2

Stage at Diagnosis[1]



Number of Cases by County, 1996

	Men	Women
Albany	1	5
Big Horn	0	0
Campbell	1	2
Carbon	1	2
Converse	1	0
Crook	0	0
Fremont	0	2
Goshen	0	1
Hot Springs	0	0
Johnson	0	1
Laramie	1	3
Lincoln	0	0

	Men	Women
Natrona	1	1
Niobrara	0	0
Park	1	0
Platte	0	0
Sheridan	0	2
Sublette	0	0
Sweetwater	1	4
Teton	0	1
Uinta	0	0
Washakie	0	0
Weston	0	0

Risk and Associated Factors

Age Though relatively unusual, it is still one of the most common malignancies affecting adolescents and adults up to 50 years of age.

Gender Two-thirds of the cases are among females.

Race & SES* The incidence is higher in Caucasians and in upper income groups.

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

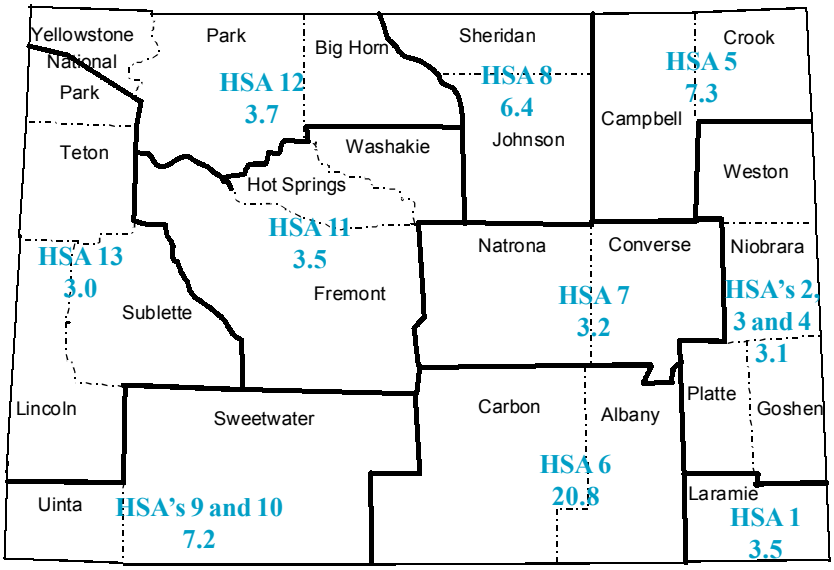
Other Occupational and environmental exposures to ionizing radiation have been associated with higher rates of thyroid cancer. Radiation exposure to the head and neck in childhood is a well-known risk factor. Family history of thyroid cancer substantially increases the risk. Death due to thyroid cancer under age 40 is rare. Prognosis worsens with each decade of age over 50.

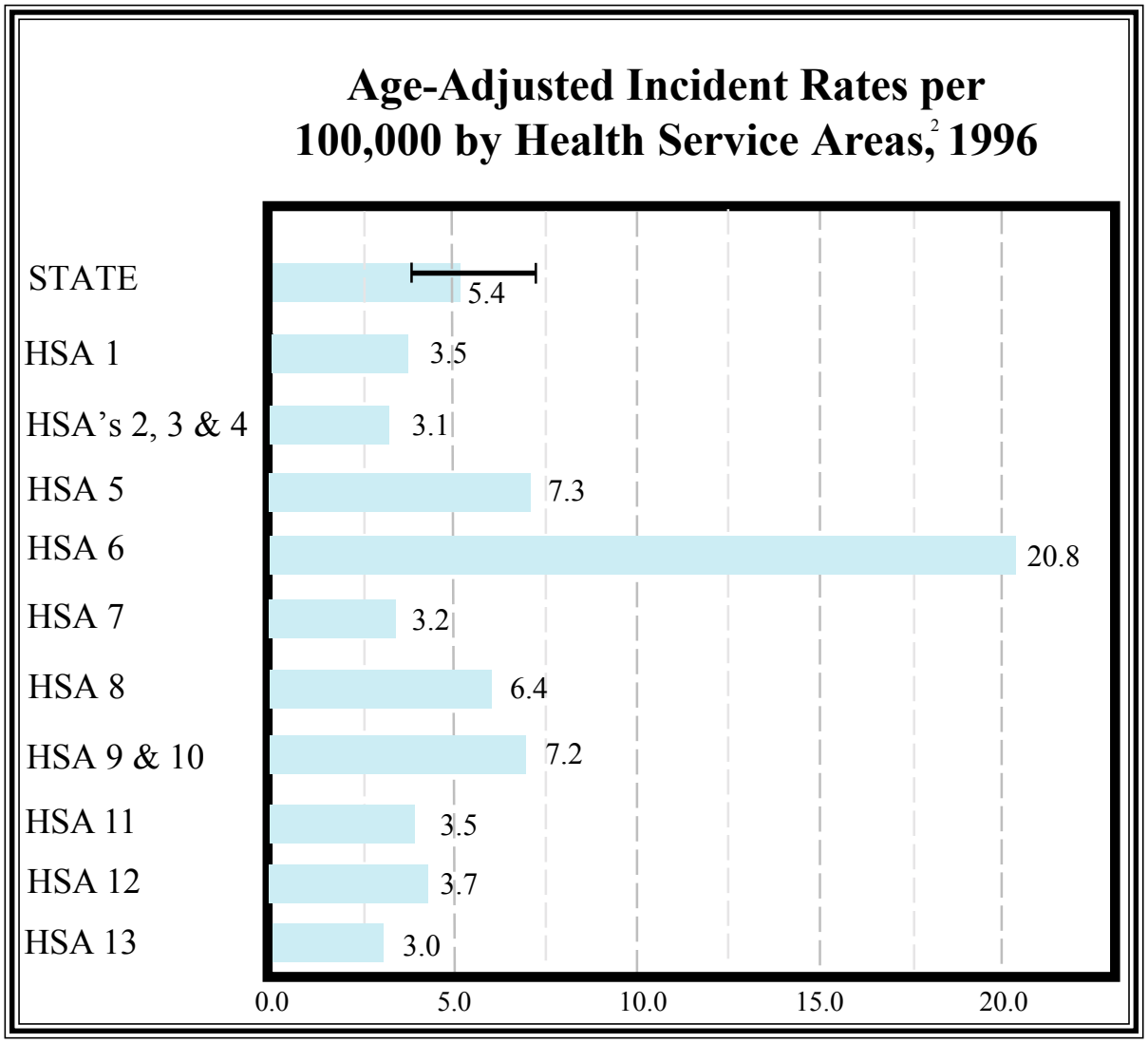
[1]See Methodology for information regarding stage, incidence rates and in situ cases.
[2]Taken from the publication Cancer in Idaho - 1996
*SES - Socio-Economic Status

Important Notes

95% confidence interval[1] on the state age-adjusted incidence 3.4 - 7.4

Range of age-adjusted incidence rate for health districts 3.0 - 20.8





[1]See explanation on confidence intervals on page 39.
[2]Health Service Area indicates a geographic region where residents are likely to obtain hospital care at the same hospital.
NOTE: None of the HSA rates are significantly different (statistically) from the overall state rate.

METHODOLOGY

Data Collection

The Wyoming Cancer Surveillance Program 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 also is collected from 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.

Once a patient is diagnosed with cancer, the cancer surveillance program works with the patient's doctors to monitor the effectiveness of different cancer treatment protocols. Each year surveillance program staff contact doctors to determine the status of cancer patients listed in the program's registry.

Quality Assurance

Insuring accurate data is one of the most important roles of the cancer registry. The program 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. A Certified Tumor Registrar reviews the data. WCSP conducts casefinding and reabstracting audits annually.

Expected Cases

The expected number of cases were calculated by applying Wyoming population numbers to SEER Cancer Rates. The SEER cancer registry is considered to be one of the most complete registries in the U.S.

Incidence Rates

Incidence rates include 1996 invasive cases of Wyoming residents received by the Wyoming Cancer Surveillance Program/Central Cancer Registry as of 2/6/98. Incidence rates presented are calculated for total cases and separately for males and females. The incidence rates are age-adjusted to the 1970 US Standard population. Age-adjustment 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 guideslines, the incidence rates excluded the following:

- insitu cases (121 cases)
- basal and squamous cell skins (12 cases)
- cases with unknown age (19 of cases)
- cases with unknown gender (0 cases)

Of the total number of cases reported for 1996 (1,896), a total of 1,744 cases were used for calculating age-adjusted incidence rates.

Statistical Significance

Differences between health service areas and state rates were evaluated for statistical significance. By determining whether the HSA rate fell within the state rate confidence interval. If the HSA rate fell outside of the state rate confidence interval, the HSA rate was considered to be significantly difference from the state rate.

Confidence Intervals

A confidence interval is a way of telling how confident we are in the accuracy of a cancer rate. For example, we will often say that the rate of cancer in an area is 130 per 100,000 people and that the confidence interval is 120 to 140 per 100,000. This means that even though when we calculated the rate we came up with 130 per 100,000, we would feel better talking about the rate as being between 120 and 140 per 100,000. Confidence intervals are especially important when looking at rates based on just a few cancer cases (like the cancer rate in a small county, for example) because the confidence interval will be very wide and will almost always encompass the state and national rates.

Cancer Clusters

Concerns regarding a possible "cluster" of cancer usually occur when someone has a family member, friend or neighbor diagnosed with cancer. This close contact with cancer often brings an awareness of others who have cancer and may lead to the perception that there is an unusually large number of cancer cases in a certain area. Determining that a true "cluster" or elevated number of cases exists, requires several statistical tests to establish if the number of cases is significantly higher than expected.

Definitions

Incidence – the number of times a particular event occurs.
Invasive – cancer has infiltrated surrounding tissue.
Rate - rates in this report are per 100,000 population and age adjusted to the 1970 US standard population.
Risk Factor - anything that increases a person's chance of getting a disease such as cancer.

Stage at Diagnosis – extent of disease at the time it is detected.

In Situ – cancer has not invaded the organ
Local – cancer has invaded the organ of origin
Regional – cancer has invaded beyond the organ of origin by direct extension to adjacent organs/ tissues and/or regional lymph nodes
Distant – direct extension beyond adjacent organs or tissues or metastases to distant site(s) or distant lymph node(s)
Unknown – not enough information available to determine the extent of disease

Risk and Associated Factors

Risk and associated factors were taken from *Cancer in Idaho - 1996* which was developed from extracts of the 1993 annual report of the Washington State Cancer Registry and the *American Cancer Society Textbook of Clinical Oncology*.

Sources

Pickle LW, Mungiole M, Jones GK, WhiteAA. *Atlas of United States Mortality*. Hyattsville, Maryland: National Center for Health Statistics. 1996.

Carson, Stacey L, ART, CTR, and Johnson, Christopher J, MPH, (eds), *Cancer in Idaho - 1996*, Cancer Data Registry of Idaho, Idaho Hospital Association, December 1997.

Population figures, by five-year age groups, were provided by the Wyoming Department of Administration and Information, Economic Analysis Division.