

# Incidence of Cancers Associated with Modifiable Risk Factors and Late Stage Diagnoses for Cancers Amenable to Screening

Idaho 2011-2014

A Publication of the



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### SUGGESTED CITATION:

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## Background and Introduction

Idaho's comprehensive cancer strategic plan includes overarching goals to reduce health disparities that may exist by race, ethnicity, socioeconomic position, geographic location and other characteristics. This report illustrates cancer incidence by local area in Idaho for several cancers associated with modifiable risk factors and/or with effective population-based screening tests and effective treatment regimens supporting decreased morbidity and mortality with early detection. The purpose of this report is to provide information to the Comprehensive Cancer Alliance for Idaho, the Idaho Department of Health and Welfare, the Centers for Disease Control and Prevention, and other partners in order to drive cancer prevention and early detection improvement efforts at both the local and state levels.

The U.S. Preventive Services Task Force (USPSTF) is "an independent panel of experts in primary care and prevention that systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services."<sup>1</sup> In January 2016, the USPSTF released recommendations on screening for breast cancer, including biennial screening mammography for women ages 50 to 74 years.<sup>2</sup> In October 2015, the American Cancer Society updated recommendations for mammography to include yearly mammograms for women ages 45 to 54 and yearly or biennial mammograms for women 55 years and older continuing as long as a woman is in good health with life expectancy of 10 years or longer.<sup>3</sup> Based on these recommendations, CDRI selected the measure of late stage breast cancer incidence rate among women ages 50 years and older as the indicator for inadequate breast cancer screening.

In March 2012, the USPSTF released recommendations on screening for cervical cancer, recommending general population screening for cervical cancer in women ages 21 to 65 years with cytology (Pap smear) every 3 years or, for women ages 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years.<sup>4</sup> The American Cancer Society has similar recommendations.<sup>3</sup> Based on these recommendations, the availability of population estimates by age group, and Idaho's historically low cervical cancer screening rates,<sup>5</sup> CDRI selected the measure of late stage cervical cancer incidence rate among women ages 20 years and older as the indicator for inadequate cervical cancer screening and prevention.

In June 2016, the USPSTF updated 2008 recommendations on screening for colon & rectum cancers, which included using stool-based tests, sigmoidoscopy, or colonoscopy, in adults beginning at age 50 years and continuing until age 75 years.<sup>6</sup> The American Cancer Society recommends that, beginning at age 50, men and women should follow a testing schedule depending on the type of test.<sup>3</sup> Based on these recommendations, CDRI selected the measure of late stage colon & rectum cancer incidence rate among adults ages 50 years and older as the indicator for inadequate colon & rectum cancer screening and prevention.

Many cancers have modifiable risk factors, such as tobacco use, excess body weight, certain HPV infections, and sun exposure. CDRI selected several cancer primary sites as indicators for cancers associated with modifiable risk factors, including endometrium, esophagus, kidney & renal pelvis, lung & bronchus, and melanoma of the skin.

Lung cancer is the most preventable form of cancer death in the United States.<sup>7</sup> Tobacco use accounts for at least 30% of all cancer deaths and 87% of lung cancer deaths. Besides lung cancer, tobacco use also increases the risk for cancers of the mouth, lips, nasal cavity and sinuses, larynx, pharynx, esophagus, stomach, pancreas, kidney & renal pelvis, bladder, uterus, cervix, colon & rectum, ovary, and acute myeloid leukemia.

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<sup>1</sup> <http://www.ahrq.gov/clinic/uspstfix.htm>

<sup>2</sup> <https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/breast-cancerscreening1>

<sup>3</sup> <https://www.cancer.org/healthy/find-cancer-early/cancer-screening-guidelines/american-cancer-societyguidelines-for-the-early-detection-of-cancer.html>

<sup>4</sup> <http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm>

<sup>5</sup> <http://www.cdc.gov/brfss/>

<sup>6</sup> <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/colorectal-cancer-screening2>

<sup>7</sup> <http://www.cancer.org/cancer/cancercauses/tobaccocancer/tobacco-related-cancer-fact-sheet>

## Background and Introduction

Excess body weight contributes to as many as 1 out of 5 cancer-related deaths.<sup>8</sup> Overweight (body mass index [BMI] 25 to 29.9) and obesity (BMI 30 or more) are clearly linked with an increased risk of many cancers, including breast (in women past menopause), colon & rectum, endometrium, esophagus, kidney & renal pelvis, and pancreas.

HPV has been found to be associated with cancers of the cervix, vulva, vagina, penis, anus, rectum, and oropharynx.<sup>9</sup> The most common HPV-associated cancers are cervix among women and oropharynx among men.

Ultraviolet (UV) radiation exposure from the sun and man-made sources such as tanning beds is associated with an increased risk of squamous and basal cell carcinomas, and intermittent acute sun exposure leading to sunburn is associated with an increased risk of melanoma.<sup>10</sup>

### Geographic Areas Used in Analysis

This report presents cancer incidence statistics for Idaho's public health districts and the eleven most populous counties in Idaho. The primary outlets for delivering public health services in Idaho are the seven independent public health districts. Each district has a board of health appointed by county commissioners within that region. The districts are not part of any state agency, but work closely with the Idaho Department of Health and Welfare and other state and local agencies. Each district responds to local needs to provide services that may vary from district to district. Many services, including some cancer prevention and control activities, are provided through contracts with the Idaho Department of Health and Welfare.

Statistics are also reported for the eleven most populous counties in Idaho. Each public health district contains at least one such county. Combined, these eleven of Idaho's forty-four counties comprise 77% of the state population. The populations (2014 estimates) in these counties range from 426,847 persons in Ada County to 38,068 persons in Madison County.<sup>11</sup> The eleven counties typically have sufficient numbers of cases to provide statistically reliable rates. Counties with smaller populations often have fewer cases by primary site and statistically unreliable rates. Nonetheless, even among the most populous counties, there are instances when rates are based on small numbers of cases. Rates and percentages based upon 10 or fewer cases (numerator) should be interpreted with caution. Table 1 shows 2014 population estimates for Idaho's public health districts and the eleven most populous counties in Idaho (see also map on page 11).

Geographic Area	All Ages	20+	50+	
	Male & Female	Female	Female	Male
<b>State of Idaho</b>	<b>1,634,806</b>	<b>583,711</b>	<b>277,846</b>	<b>259,349</b>
<b>District 1</b>	<b>221,225</b>	<b>84,718</b>	<b>46,464</b>	<b>43,196</b>
Bonner County	41,533	16,244	9,888	9,700
Kootenai County	147,245	56,122	29,141	26,208
<b>District 2</b>	<b>107,054</b>	<b>40,227</b>	<b>20,786</b>	<b>19,868</b>
Latah County	38,585	13,958	5,547	5,152
Nez Perce County	39,932	15,635	8,290	7,503
<b>District 3</b>	<b>267,710</b>	<b>93,716</b>	<b>43,933</b>	<b>40,562</b>
Canyon County	202,951	69,915	30,550	27,700
<b>District 4</b>	<b>469,739</b>	<b>170,866</b>	<b>77,302</b>	<b>70,973</b>
Ada County	426,847	155,539	69,486	63,005
<b>District 5</b>	<b>190,641</b>	<b>66,158</b>	<b>32,231</b>	<b>30,322</b>
Twin Falls County	81,109	29,028	13,846	12,337
<b>District 6</b>	<b>168,934</b>	<b>58,424</b>	<b>27,287</b>	<b>25,812</b>
Bannock County	83,471	29,887	13,097	11,992
Bingham County	45,204	15,051	7,089	6,821
<b>District 7</b>	<b>209,503</b>	<b>69,602</b>	<b>29,843</b>	<b>28,616</b>
Bonneville County	108,526	36,743	16,337	15,040
Madison County	38,068	11,723	3,075	2,811

Table 1. Idaho Resident Population, 2014, by Public Health District and Eleven Most Populous Counties.<sup>11</sup>

<sup>8</sup> <http://www.cancer.org/cancer/cancercauses/dietandphysicalactivity/bodyweightandcancerrisk/body-weightand-cancer-risk-effects>

<sup>9</sup> <http://www.cdc.gov/cancer/hpv/>

<sup>10</sup> <https://www.cancer.gov/types/skin/hp/skin-prevention-pdq>

<sup>11</sup> Source: National Center for Health Statistics, 2016. [http://www.cdc.gov/nchs/nvss/bridged\\_race/data\\_documentation.htm#vintage2015](http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2015)



## Methods

### Cancer Cases

A “cancer case” is defined as a primary cancer site (where the cancer started), not a metastatic cancer site (where the cancer spread to). Since an individual can have more than one primary cancer during their lifetime, the number of incident cancer cases is greater than the number of persons who are diagnosed with cancer. CDRI queried our Registry Plus database for Idaho resident incident cancer cases and exported the case data for analysis in SEER\*Stat.<sup>12</sup>

### Population Estimates

Annual county population estimates by age group and sex were obtained from the National Center for Health Statistics (NCHS).<sup>11</sup>

### Stage at Time of Diagnosis

Staging measures the extent of disease at the time of initial diagnosis. Summary staging attempts to group cases with similar prognoses into categories of:

- in-situ (non-invasive),
- localized (cancer confined to the primary site),
- regional (direct extension of tumor to adjacent organs, and/or lymph nodes),
- distant (metastasis to tissues or lymph nodes remote from the primary site), or
- unstaged.

Stage at diagnosis was collected and coded using Collaborative Stage<sup>13</sup> and the Collaborative Stage algorithm was used to derive SEER Summary Stage 2000.<sup>14</sup> For stage-specific incidence rate calculations, late stage was considered to mean regional and distant stages combined.

### Age-Adjusted Incidence Rates

Age-adjusted incidence rates published within this report were adjusted using the direct method and standardized to the age distribution of the 2000 U.S. population.<sup>15</sup> Incidence rates represent the average number of new cases diagnosed annually per 100,000 persons. Age adjustment allows rates from one geographic area or time period to be compared with rates from other geographic areas or time periods that may have differences in age distributions. Any observed differences in age-adjusted incidence rates between populations are not due to differing age structures. Age-adjusted incidence rates, rate ratios, and 95% confidence intervals were calculated using SEER\*Stat software.<sup>12</sup> The state of Idaho served as the reference group for rate ratio calculations.

### Limitations to Data Interpretation and Comparisons

Rates based on population estimates: In non-census years, state and county population figures are estimates. Errors in the estimates will impact the rates. Rate comparisons: Age-adjusted incidence rates based on small numbers of cases (fewer than 10 cases) may be unstable. In comparing rates among public health districts or counties, factors such as the absolute numbers of cases and differences in demographics should be considered. Interpretations without consideration of these factors may be misleading or inaccurate.

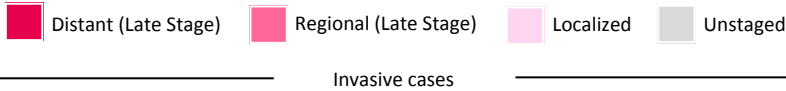
<sup>12</sup> Surveillance Research Program, National Cancer Institute SEER\*Stat software ([www.seer.cancer.gov/seerstat](http://www.seer.cancer.gov/seerstat)) version 8.3.3.

<sup>13</sup> Collaborative Stage Work Group of the American Joint Committee on Cancer. Collaborative Stage Data Collection system Coding Instructions, version 02.05, released October 2013. Available at: <https://cancerstaging.org/cstage/software/Pages/Version-02.05.aspx>.

<sup>14</sup> Young JL Jr., Roffers SD, Reis LAG, Fritz AG, Hurlbut AA (eds). SEER Summary Staging Manual – 2000: Codes and Coding Instructions. National Cancer Institute, NIH Pub. No. 01-4969, Bethesda, MD, 2001.

<sup>15</sup> Source: SEER Program, National Cancer Institute, 2017. <http://seer.cancer.gov/stdpopulations/stdpop.19ages.html>

## Results



\* Indicates that the district rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

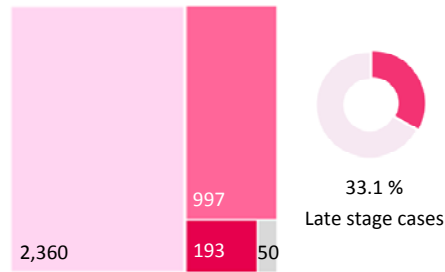
— Indicates upper and lower confidence interval.

### Breast Females Ages 50+

There were 3,600 invasive and 645 in situ cases of breast cancer diagnosed among Idaho resident females ages 50 years and older from 2011-2014. Late stage cases comprised 33.1% of invasive cases. Bonner County had a significantly lower rate of late stage breast cancer incidence among females ages 50+. See tables 2 and 3 for complete results.

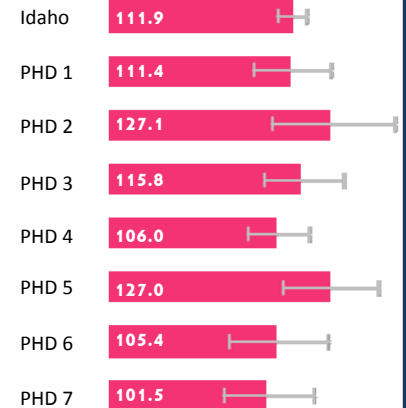
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 3,600



Total In-situ cases: 645

#### Late Stage Diagnosis Cancer Rate by Public Health District

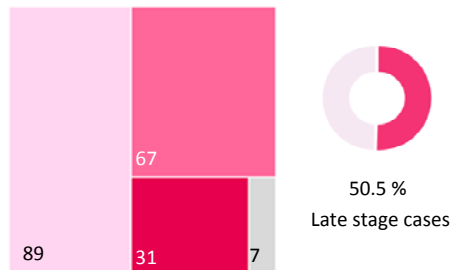


### Cervical Females Ages 20+

There were 194 invasive cases of cervical cancer diagnosed among Idaho resident females ages 20 years and older from 2011-2014. Late stage cases comprised 50.5% of invasive cases. Nez Perce County had a significantly higher rate of late stage cervical cancer incidence among females ages 20+. See tables 4 and 5 for complete results.

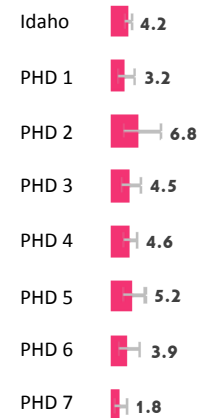
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 194



In situ cervix cases are not reportable according to national cancer statistics governing bodies and under Idaho Code 57-1703

#### Late Stage Diagnosis Cancer Rate by Public Health District

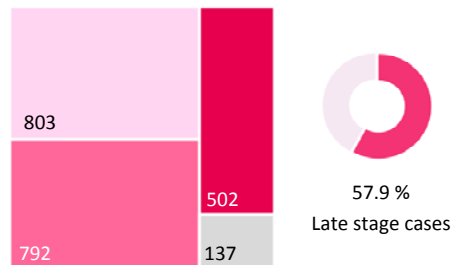


### Colon & Rectum Ages 50+

There were 2,234 invasive and 55 in situ cases of colon & rectum cancers diagnosed among Idaho residents ages 50 years and older from 2011-2014. Late stage cases comprised 57.9% of invasive cases. No public health district or county had a significantly higher or lower rate of late stage colon & rectum cancer incidence among Idahoans ages 50+. See tables 6 and 7 for complete results.

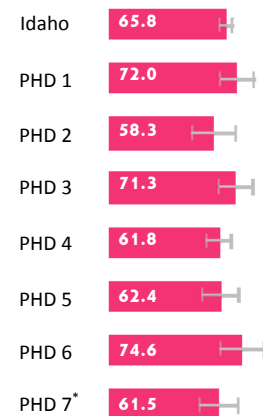
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 2,234

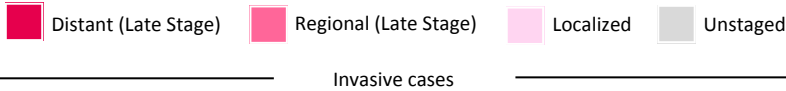


Total in-situ cases: 55

#### Late Stage Diagnosis Cancer Rate by Public Health District



## Results



\* Indicates that the district rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

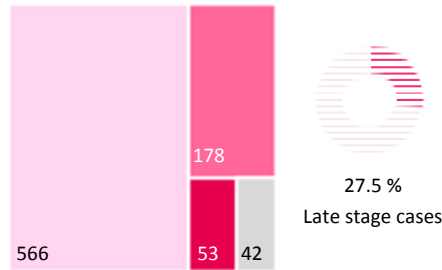
— Indicates upper and lower confidence interval.

### Endometrium Females All Ages

There were 839 invasive and 4 in situ cases of endometrium cancer diagnosed among Idaho resident females from 2011-2014. Late stage cases comprised 27.5% of invasive cases. Public Health District 3 had a significantly higher rate of invasive endometrium cancer incidence. See tables 8 and 9 for complete results.

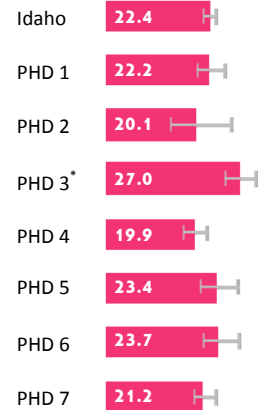
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 839



Total In-situ cases: 4

#### Cancer Incidence Rate by Public Health District

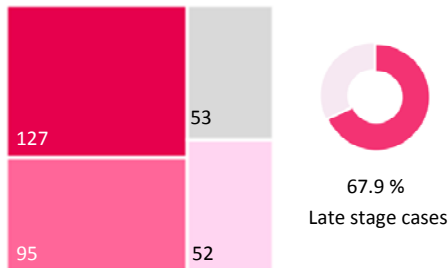


### Esophagus All Ages

There were 327 invasive and 2 in situ cases of esophagus cancer diagnosed among Idaho residents from 2011-2014. Late stage cases comprised 67.9% of invasive cases. Public Health District 1 and Bonner County had significantly higher rates of invasive esophagus cancer incidence, and Latah County had a significantly lower rate. See tables 10 and 11 for complete results.

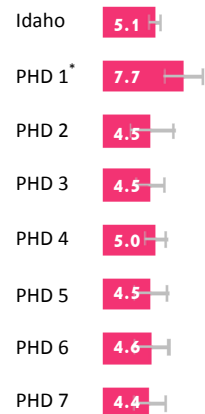
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 327



Total in-situ cases: 2

#### Cancer Incidence Rate by Public Health District

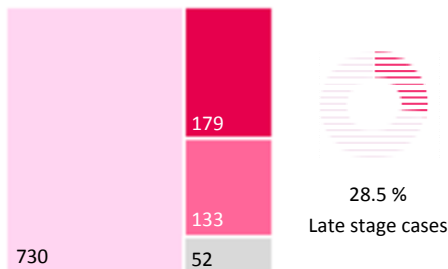


### Kidney & Renal Pelvis All Ages

There were 1,094 invasive and 24 in situ cases of kidney & renal pelvis cancer diagnosed among Idaho residents from 2011-2014. Late stage cases comprised 28.5% of invasive cases. Public Health District 1 and Kootenai County had significantly higher rates of invasive kidney & renal pelvis cancer incidence, and Public Health District 7 and Bannock and Madison Counties had significantly lower rates. See tables 12 and 13 for complete results.

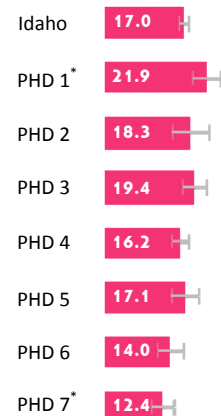
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 1,094

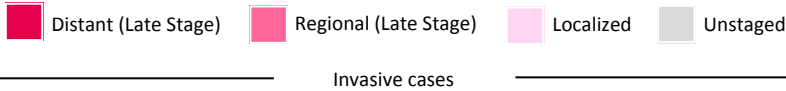


Total in-situ cases: 24

#### Cancer Incidence Rate by Public Health District



## Results



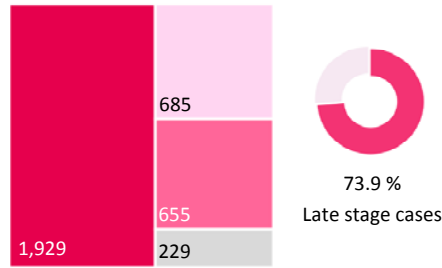
\* Indicates that the district rate is significantly different than the rate for Idaho ( $p < 0.05$ ).  
 Indicates upper and lower confidence interval.

### Lung & Bronchus All Ages

There were 3,498 invasive and 10 in situ cases of lung & bronchus cancer diagnosed among Idaho residents from 2011-2014. Late stage cases comprised 73.9% of invasive cases. Public Health Districts 1, 2, and 3 and Bonner, Kootenai, and Nez Perce Counties had significantly higher rates of invasive lung & bronchus cancer incidence, and Public Health Districts 6 and 7 and Ada, Bannock, Bingham, Bonneville, and Madison Counties had significantly lower rates. See tables 14 and 15 for complete results.

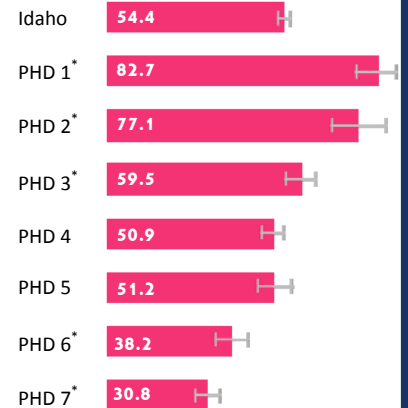
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 3,498



Total In-situ cases: 10

#### Cancer Incidence Rate by Public Health District

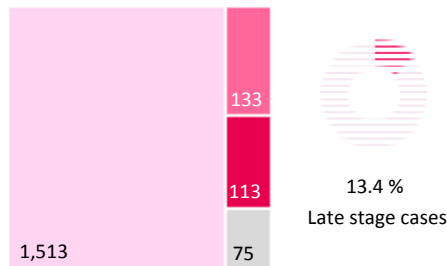


### Melanoma of the Skin All Ages

There were 1,834 invasive and 1,621 in situ cases of melanoma of the skin diagnosed among Idaho residents from 2011-2014. Late stage cases comprised 13.4% of invasive cases. Public Health District 4 and Ada and Bonneville Counties had significantly higher rates of invasive melanoma of the skin incidence, and Public Health District 6 and Bingham County had significantly lower rates. See tables 16 and 17 for complete results.

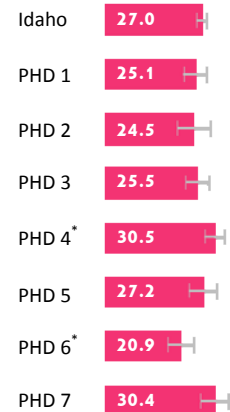
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 1,834



Total in-situ cases: 1,621

#### Cancer Incidence Rate by Public Health District

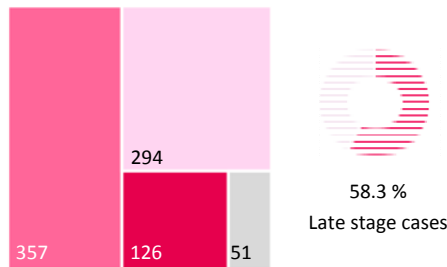


### Oral Cavity & Pharynx All Ages

There were 828 invasive and 20 in situ cases of oral cavity & pharynx cancer diagnosed among Idaho residents from 2011-2014. Late stage cases comprised 58.3% of invasive cases. Public Health District 1 and Bonner, Kootenai, and Twin Falls Counties had significantly higher rates of invasive oral cavity & pharynx cancer incidence, and Public Health Districts 6 and 7 and Bannock, Bonneville, and Madison Counties had significantly lower rates. See tables 18 and 19 for complete results.

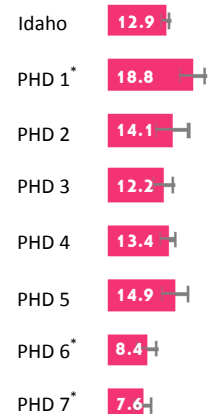
#### Number of Cases by Stage at Diagnosis

Total invasive cases: 828



Total in-situ cases: 20

#### Cancer Incidence Rate by Public Health District



## Discussion

### Geographic Patterns & Disparities

This report describes geographic patterns in cancer sites that are amenable to interventions including cancer screening, diet and physical activity modifications, avoidance of excessive UV light exposure, and tobacco cessation. Based on late stage incidence rates for cancer sites with effective population-based screening tests and effective treatment regimens (breast, cervix, and colon & rectum), there is some evidence of disparities by public health district or among the eleven most populous counties in Idaho. For smoking-related cancers (in particular, lung & bronchus), there are significant geographic differences within Idaho.

No public health district or county had a significantly higher late stage incidence rate for breast cancer among women ages 50 and older and only Nez Perce County had a higher late stage cervix cancer incidence rate among women ages 20 and older. Higher rates of cervix cancer incidence have previously been observed among Hispanic women in Idaho.<sup>16,17</sup> For colon & rectum cancer among Idahoans ages 50 and older, no public health district or county had a significantly higher late stage incidence rate. No other geographic areas had late stage incidence rates significantly higher than the state of Idaho for these screening-amenable cancer sites. A previous CDRI report found significant disparities in cancer incidence patterns in Idaho by race and ethnicity and area-based contextual variables.<sup>16</sup> The current report did not investigate race, ethnicity, or contextual differences.

Although there is little evidence in this report for geographic disparities within Idaho in late stage incidence for cancers amenable to screening, overall Idaho continues to have among the lowest rates of cancer screening among all states and the District of Columbia. In 2014, Idaho ranked lowest in the U.S. for Pap test screening, next to lowest for mammography utilization, and 44th for colorectal cancer screening. These statistics suggest that strategies are needed to improve cancer screening statewide.

### Cancer Sites Associated With Obesity

Idaho ranks in the middle of states for overweight and obesity prevalence, with 65.0% of adults overweight or obese in 2014.<sup>18</sup> For cancer sites associated with obesity in this report (postmenopausal breast cancer, colon & rectum, endometrium, esophagus, and kidney & renal pelvis), there were not consistent geographic patterns. Only Health District 1 (Panhandle) had rates significantly higher than the state of Idaho across more than one of these obesity-associated site categories. Other factors besides obesity, including tobacco use, impact the rates of some of these cancers and may make interpreting the geographic patterns difficult.

### Cancer Sites Associated With Smoking

Idaho ranked 12th lowest among states for tobacco use, with 16.3% of adults current smokers in 2014.<sup>18</sup> Nonetheless, lung cancer is the leading cause of cancer deaths in both men and women in Idaho. For cancer sites associated with tobacco use in this report (cervix, colon, esophagus, kidney & renal pelvis, lung & bronchus, oral cavity & pharynx), there were some consistent patterns. Public Health District 1 had significantly higher incidence rates than the state of Idaho for esophagus, kidney & renal pelvis, lung & bronchus, and oral cavity & pharynx cancers. Bonner County had significantly higher incidence rates for esophagus, lung & bronchus, and oral cavity & pharynx cancers. Kootenai County had significantly higher incidence rates for kidney & renal pelvis, lung & bronchus, and oral cavity & pharynx cancers. These patterns lend support for targeted, coordinated cancer prevention and control strategies.

<sup>16</sup> Johnson CJ, Carson SL. Cancer Disparities in Idaho, Phase I – Incidence: Understanding Disparities in Cancer Incidence Using Individual and Area-Based Measures. Boise, ID: Cancer Data Registry of Idaho; May 2007.

<sup>17</sup> <http://www.idcancer.org/ContentFiles/AnnualReports/Cancer%20in%20Idaho%202014.pdf>

<sup>18</sup> Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. [accessed Mar 20, 2017]. URL: <https://www.cdc.gov/brfss/brfssprevalence/>.

## Discussion

### Cancers Sites Associated With HPV

HPV causes nearly all cervix cancers and about 70% of oropharyngeal squamous cell carcinomas (subset of oral cavity & pharynx). In 2015, about 30% of Idaho adolescent females ages 13-17 and 26% of adolescent males had completed 3 doses of the HPV vaccine.<sup>19</sup> For cancer sites associated with HPV in this report (cervix, oral cavity & pharynx) there were not consistent geographic patterns.

### Cancers Sites Associated With Excessive UV Light Exposure

Idaho regularly has among the highest melanoma mortality rates in the U.S. There was a lower rate of invasive melanoma incidence in Public Health District 6 (Southeastern) that was likely related to incomplete reporting from non-hospital sources. Incomplete reporting of melanoma cases to cancer registries by U.S. dermatologists results in underestimates of the true incidence.<sup>20</sup> CDRI is working with laboratories and dermatology offices in partnership with the Centers for Disease Control and Prevention to improve the reporting of melanoma cases statewide.

### Conclusions

Cancer is multifactorial. Several of the cancer sites included in this report are related to more than one modifiable risk factor, and the incidence rates of some late stage cancers are also related to screening practices. In addition, the population-attributable fractions of certain risk factors are not well-established for all of the cancer sites studied.

Nonetheless, there are geographic differences in incidence rates and patterns for many of the cancers studied. It is hoped that this report will aid in targeting specific geographic areas for cancer prevention and control activities.

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<sup>19</sup> National Immunization Survey-Teen, United States, 2015. <http://www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/data-reports/hepb/dashboard/2015.html>

<sup>20</sup> Melanoma reporting to central cancer registries by US dermatologists: an analysis of the persistent knowledge and practice gap. <http://www.ncbi.nlm.nih.gov/pubmed/22018061>

## Idaho Public Health Districts

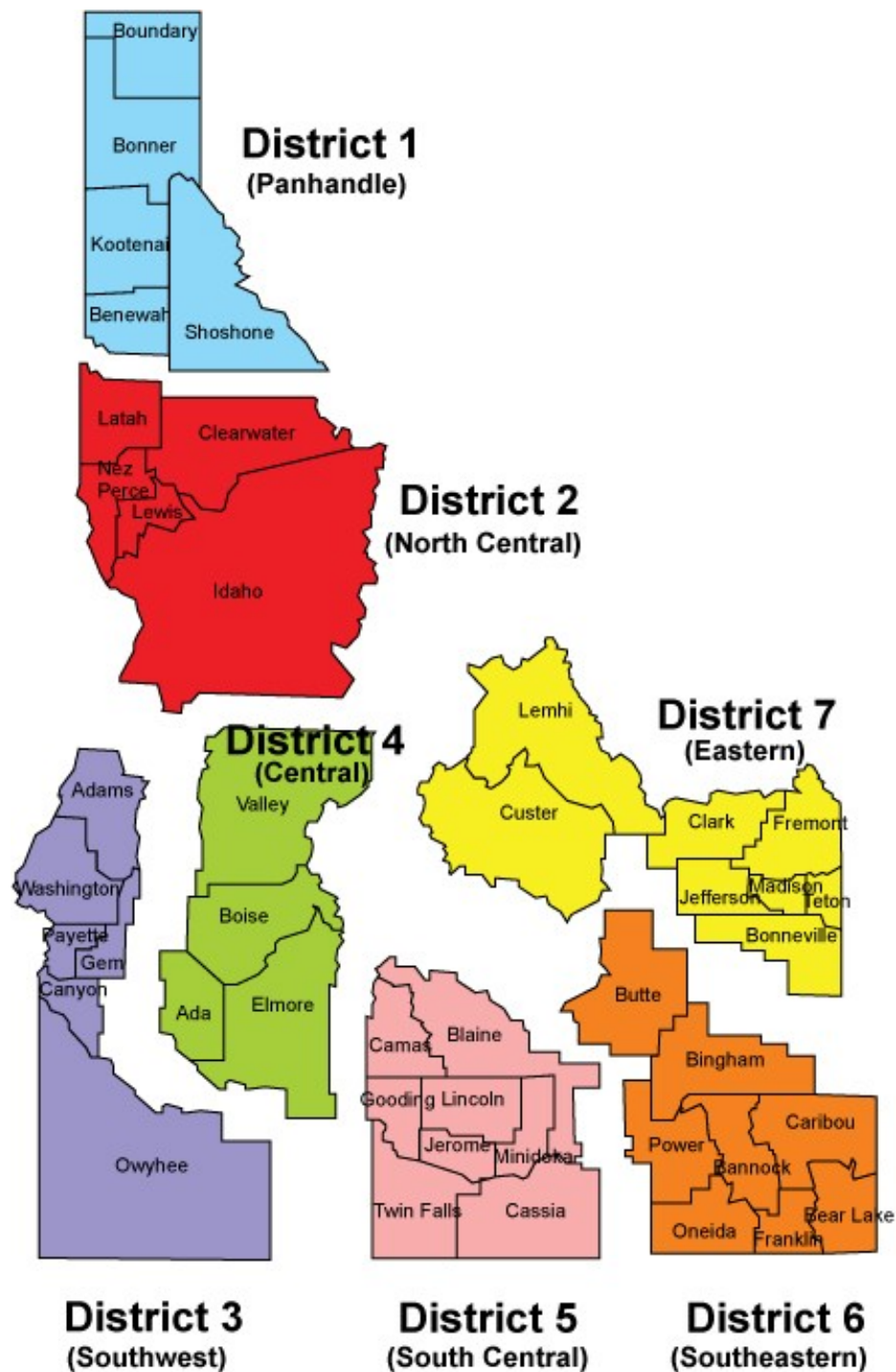


Figure 1. Map of Idaho Counties and Public Health Districts.<sup>21</sup>

<sup>21</sup> <http://www.healthandwelfare.idaho.gov/?TabId=97>



## Breast Cancer

**Table 2. Idaho resident female breast cancer cases, ages 50+, by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>645</b>	<b>2,360</b>	<b>997</b>	<b>193</b>	<b>50</b>
District 1	131	439	152	45	16
Bonner County	31	96	19	9	5
Kootenai County	88	286	108	25	9
District 2	42	198	86	16	6
Latah County	13	60	25	-	-
Nez Perce County	23	87	36	12	4
District 3	108	353	158	41	11
Canyon County	70	241	104	27	8
District 4	195	725	263	38	6
Ada County	178	654	239	34	6
District 5	62	269	139	21	3
Twin Falls County	27	125	66	10	-
District 6	43	191	98	13	5
Bannock County	17	95	45	5	3
Bingham County	14	50	26	2	2
District 7	64	185	101	19	3
Bonneville County	32	109	53	11	-
Madison County	5	12	6	3	1

**Table 3. Late stage breast cancer statistics, Idaho resident females ages 50+, by public health district and county, 2011-2014.**

Geographic Area	Late Stage (Regional + Distant) Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>111.9</b>	<b>105.6</b>	<b>118.6</b>	<b>1,190</b>	<b>-</b>
District 1	111.4	96.1	128.4	197	1.00
Bonner County	70.2	45.9	103.0	28	0.63 *
Kootenai County	122.3	102.1	145.3	133	1.09
District 2	127.1	103.4	154.6	102	1.14
Latah County	118.9	76.0	177.0	25	1.06
Nez Perce County	149.5	109.8	198.7	48	1.34
District 3	115.8	100.1	133.3	199	1.03
Canyon County	110.3	92.0	131.3	131	0.99
District 4	106.0	94.1	119.0	301	0.95
Ada County	107.7	95.0	121.5	273	0.96
District 5	127.0	107.9	148.4	160	1.13
Twin Falls County	139.7	109.9	175.2	76	1.25
District 6	105.4	86.5	127.2	111	0.94
Bannock County	98.9	73.0	130.9	50	0.88
Bingham County	105.3	69.8	152.5	28	0.94
District 7	101.5	84.0	121.6	120	0.91
Bonneville County	99.9	76.7	127.9	64	0.89
Madison County	72.6	33.0	139.6	9	0.65

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

## Cervical Cancer

**Table 4. Idaho resident cervical cancer cases, ages 20+, by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	-	<b>89</b>	<b>67</b>	<b>31</b>	<b>7</b>
District 1	-	14	7	5	2
Bonner County	-	5	-	-	-
Kootenai County	-	8	6	4	2
District 2	-	8	6	4	1
Latah County	-	4	2	-	-
Nez Perce County	-	4	3	4	-
District 3	-	22	10	5	-
Canyon County	-	15	5	4	-
District 4	-	19	21	8	2
Ada County	-	18	20	8	2
District 5	-	13	10	6	-
Tw in Falls County	-	4	7	2	-
District 6	-	5	8	2	2
Bannock County	-	4	7	1	1
Bingham County	-	-	1	1	1
District 7	-	8	5	1	-
Bonneville County	-	4	2	1	-
Madison County	-	-	-	-	-

**Table 5. Late stage cervical cancer statistics, Idaho resident females ages 20+, by public health district and county, 2011-2014.**

Geographic Area	Late Stage (Regional + Distant) Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>4.2</b>	<b>3.4</b>	<b>5.2</b>	<b>98</b>	<b>-</b>
District 1	3.2	1.6	5.9	12	0.76
Bonner County	-	-	6.6	-	-
Kootenai County	4.3	2.0	8.1	10	1.01
District 2	6.8	3.1	12.7	10	1.60
Latah County	4.8	0.6	16.8	2	1.14
Nez Perce County	12.6	4.9	26.2	7	2.98 *
District 3	4.5	2.5	7.4	15	1.06
Canyon County	3.8	1.7	7.1	9	0.89
District 4	4.6	3.0	6.6	29	1.08
Ada County	4.8	3.2	7.0	28	1.14
District 5	5.2	2.9	8.7	16	1.23
Tw in Falls County	7.0	3.1	13.7	9	1.66
District 6	3.9	1.8	7.3	10	0.92
Bannock County	6.4	2.7	12.8	8	1.51
Bingham County	2.9	0.3	11.0	2	0.68
District 7	1.8	0.7	4.1	6	0.43
Bonneville County	1.6	0.3	5.1	3	0.38
Madison County	-	-	12.4	-	-

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

## Colon & Rectum Cancer

**Table 6. Idaho resident colon & rectum cancer cases, ages 50+, by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>55</b>	<b>803</b>	<b>792</b>	<b>502</b>	<b>137</b>
District 1	2	140	149	88	30
Bonner County	-	22	35	17	11
Kootenai County	2	89	88	54	15
District 2	3	66	55	39	10
Latah County	-	18	13	7	3
Nez Perce County	3	32	19	15	3
District 3	6	139	125	96	25
Canyon County	5	95	76	65	13
District 4	8	197	185	125	29
Ada County	6	177	156	116	27
District 5	1	96	97	53	17
Tw in Falls County	-	43	57	27	4
District 6	14	68	91	59	15
Bannock County	7	31	39	24	9
Bingham County	3	20	24	19	3
District 7	21	97	90	42	11
Bonneville County	14	47	50	21	3
Madison County	-	8	5	5	-

**Table 7. Late stage colon & rectum cancer statistics, Idaho residents ages 50+, by public health district and county, 2011-2014.**

Geographic Area	Late Stage (Regional + Distant) Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>65.8</b>	<b>62.2</b>	<b>69.6</b>	<b>1,294</b>	<b>-</b>
District 1	72.0	63.0	82.0	237	1.09
Bonner County	75.3	55.8	99.4	52	1.14
Kootenai County	70.0	58.8	82.7	142	1.06
District 2	58.3	47.0	71.6	94	0.89
Latah County	54.5	32.9	84.5	20	0.83
Nez Perce County	54.7	37.7	76.6	34	0.83
District 3	71.3	62.1	81.5	221	1.08
Canyon County	67.7	56.8	80.1	141	1.03
District 4	61.8	55.0	69.3	310	0.94
Ada County	61.3	54.0	69.3	272	0.93
District 5	62.4	52.8	73.4	150	0.95
Tw in Falls County	83.1	66.1	103.0	84	1.26
District 6	74.6	63.0	87.7	150	1.13
Bannock County	67.3	51.4	86.6	63	1.02
Bingham County	82.8	59.6	111.9	43	1.26
District 7	61.5	51.3	73.1	132	0.93
Bonneville County	61.4	47.8	77.7	71	0.93
Madison County	52.3	25.0	95.8	10	0.80

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

## Endometrium Cancer

**Table 8. Idaho resident female endometrium cancer cases by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>4</b>	<b>566</b>	<b>178</b>	<b>53</b>	<b>42</b>
District 1	1	88	24	10	20
Bonner County	-	15	3	4	6
Kootenai County	1	59	18	6	12
District 2	-	32	18	2	6
Latah County	-	7	4	1	1
Nez Perce County	-	8	8	-	1
District 3	2	104	34	13	6
Canyon County	2	71	22	8	4
District 4	-	147	49	11	2
Ada County	-	135	40	10	2
District 5	1	72	22	4	3
Tw in Falls County	-	36	9	1	2
District 6	-	62	15	6	4
Bannock County	-	33	8	3	3
Bingham County	-	12	4	3	-
District 7	-	61	16	7	1
Bonneville County	-	35	9	6	1
Madison County	-	12	1	-	-

**Table 9. Invasive endometrium cancer statistics by public health district and county, Idaho 2011-2014.**

Geographic Area	Invasive Incidence Statistics				
	Rate	Low er CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>22.4</b>	<b>20.9</b>	<b>24.1</b>	<b>839</b>	<b>-</b>
District 1	22.2	18.6	26.4	142	0.99
Bonner County	18.1	11.9	27.5	28	0.81
Kootenai County	24.1	19.4	29.7	95	1.07
District 2	20.1	15.2	26.4	58	0.90
Latah County	17.2	9.0	30.0	13	0.77
Nez Perce County	15.1	8.6	24.9	17	0.67
District 3	27.0	22.8	31.7	157	1.20 *
Canyon County	25.2	20.6	30.7	105	1.12
District 4	19.9	17.3	22.9	209	0.89
Ada County	19.9	17.1	23.1	187	0.89
District 5	23.4	19.0	28.6	101	1.04
Tw in Falls County	26.6	19.4	35.6	48	1.18
District 6	23.7	18.8	29.3	87	1.05
Bannock County	26.9	19.6	36.1	47	1.20
Bingham County	19.0	11.4	30.0	19	0.85
District 7	21.2	16.9	26.3	85	0.95
Bonneville County	23.6	17.4	31.2	51	1.05
Madison County	30.2	15.9	51.4	13	1.34

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

## Esophagus Cancer

**Table 10. Idaho resident esophagus cancer cases by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>2</b>	<b>52</b>	<b>95</b>	<b>127</b>	<b>53</b>
District 1	-	13	19	24	11
Bonner County	-	1	7	7	2
Kootenai County	-	10	9	13	5
District 2	-	2	4	11	2
Latah County	-	1	-	1	-
Nez Perce County	-	-	2	6	1
District 3	-	11	11	18	7
Canyon County	-	5	9	14	6
District 4	1	16	29	37	10
Ada County	1	15	27	36	10
District 5	-	2	8	14	10
Tw in Falls County	-	-	2	6	4
District 6	1	6	12	8	5
Bannock County	-	2	8	7	3
Bingham County	1	2	4	1	1
District 7	-	2	12	15	8
Bonneville County	-	1	6	12	2
Madison County	-	-	1	1	2

**Table 11. Invasive esophagus cancer statistics by public health district and county, Idaho 2011-2014.**

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>5.1</b>	<b>4.6</b>	<b>5.7</b>	<b>327</b>	<b>-</b>
District 1	7.7	6.0	9.8	67	1.52 *
Bonner County	10.4	6.1	16.7	17	2.04 *
Kootenai County	6.4	4.5	8.9	37	1.27
District 2	4.5	2.7	7.0	19	0.88
Latah County	1.3	0.2	4.7	2	0.26 *
Nez Perce County	5.7	2.6	10.8	9	1.11
District 3	4.5	3.3	6.0	47	0.88
Canyon County	4.3	3.0	6.0	34	0.85
District 4	5.0	4.1	6.2	92	0.99
Ada County	5.3	4.3	6.6	88	1.05
District 5	4.5	3.1	6.3	34	0.89
Tw in Falls County	3.8	2.0	6.6	12	0.74
District 6	4.6	3.1	6.5	31	0.90
Bannock County	6.0	3.7	9.2	20	1.18
Bingham County	4.4	1.9	8.7	8	0.86
District 7	4.4	3.1	6.1	37	0.87
Bonneville County	4.9	3.0	7.5	21	0.96
Madison County	2.6	0.7	6.8	4	0.52

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

## Kidney & Renal Pelvis Cancer

**Table 12. Idaho resident kidney & renal pelvis cancer cases by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>24</b>	<b>730</b>	<b>133</b>	<b>179</b>	<b>52</b>
District 1	9	139	14	29	8
Bonner County	5	23	4	6	2
Kootenai County	4	96	7	18	3
District 2	-	41	16	18	3
Latah County	-	13	3	5	-
Nez Perce County	-	14	6	9	3
District 3	2	142	21	34	6
Canyon County	1	106	13	25	6
District 4	6	214	35	37	10
Ada County	5	185	33	31	9
District 5	6	77	15	27	10
Tw in Falls County	2	32	6	12	4
District 6	1	51	17	21	6
Bannock County	1	20	8	8	2
Bingham County	-	11	3	5	3
District 7	-	66	15	13	9
Bonneville County	-	42	12	7	4
Madison County	-	7	1	1	2

**Table 13. Invasive kidney & renal pelvis cancer statistics by public health district and county, Idaho 2011-2014.**

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>17.0</b>	<b>16.0</b>	<b>18.1</b>	<b>1,094</b>	<b>-</b>
District 1	21.9	18.9	25.2	190	1.29 *
Bonner County	21.4	14.9	29.8	35	1.26
Kootenai County	21.6	17.9	25.7	124	1.27 *
District 2	18.3	14.5	22.8	78	1.07
Latah County	13.7	8.5	21.0	21	0.81
Nez Perce County	20.1	13.8	28.4	32	1.18
District 3	19.4	16.8	22.3	203	1.14
Canyon County	19.1	16.1	22.4	150	1.12
District 4	16.2	14.4	18.2	296	0.95
Ada County	15.6	13.8	17.6	258	0.92
District 5	17.1	14.3	20.3	129	1.01
Tw in Falls County	17.0	12.8	22.2	54	1.00
District 6	14.0	11.3	17.1	95	0.82
Bannock County	11.4	8.0	15.6	38	0.67 *
Bingham County	12.1	7.6	18.3	22	0.71
District 7	12.4	10.1	15.0	103	0.73 *
Bonneville County	15.2	11.7	19.3	65	0.89
Madison County	7.3	3.6	13.0	11	0.43 *

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).



## Lung & Bronchus Cancer

**Table 14. Idaho resident lung & bronchus cancer cases by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>10</b>	<b>685</b>	<b>655</b>	<b>1,929</b>	<b>229</b>
District 1	1	113	126	429	50
Bonner County	-	18	21	78	15
Kootenai County	1	76	77	256	25
District 2	2	61	63	182	23
Latah County	1	13	14	43	7
Nez Perce County	1	31	27	75	5
District 3	1	134	132	300	56
Canyon County	1	101	90	192	32
District 4	3	238	175	485	30
Ada County	3	211	151	418	26
District 5	1	66	75	219	26
Tw in Falls County	-	34	40	93	9
District 6	2	31	40	159	29
Bannock County	-	13	23	86	16
Bingham County	1	10	10	36	6
District 7	-	42	44	155	15
Bonneville County	-	24	27	86	7
Madison County	-	1	1	4	1

**Table 15. Invasive lung & bronchus cancer statistics by public health district and county, Idaho 2011-2014.**

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>54.4</b>	<b>52.6</b>	<b>56.3</b>	<b>3,498</b>	<b>-</b>
District 1	82.7	76.7	88.9	718	1.52 *
Bonner County	80.7	67.6	95.8	132	1.48 *
Kootenai County	75.5	68.6	82.9	434	1.39 *
District 2	77.1	69.0	85.9	329	1.42 *
Latah County	50.4	39.7	62.9	77	0.93
Nez Perce County	86.9	73.0	102.6	138	1.60 *
District 3	59.5	54.9	64.3	622	1.09 *
Canyon County	52.7	47.8	58.0	415	0.97
District 4	50.9	47.7	54.3	928	0.93
Ada County	48.8	45.4	52.2	806	0.90 *
District 5	51.2	46.2	56.6	386	0.94
Tw in Falls County	55.4	47.5	64.2	176	1.02
District 6	38.2	33.7	43.2	259	0.70 *
Bannock County	41.3	34.7	48.8	138	0.76 *
Bingham County	34.1	26.1	43.7	62	0.63 *
District 7	30.8	27.1	34.8	256	0.57 *
Bonneville County	33.6	28.3	39.5	144	0.62 *
Madison County	4.6	1.9	9.5	7	0.09 *

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).



## Melanoma of the Skin

**Table 16. Idaho resident melanoma of the skin cases by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>1,621</b>	<b>1,513</b>	<b>133</b>	<b>113</b>	<b>75</b>
District 1	336	236	18	14	5
Bonner County	70	44	8	3	1
Kootenai County	240	162	7	11	2
District 2	93	109	12	4	5
Latah County	29	23	5	-	2
Nez Perce County	34	49	5	3	2
District 3	219	219	14	18	18
Canyon County	168	152	10	12	14
District 4	540	473	31	39	22
Ada County	510	436	31	35	20
District 5	90	169	22	18	10
Tw in Falls County	33	72	8	7	4
District 6	124	104	18	11	9
Bannock County	77	52	9	7	3
Bingham County	31	23	3	4	1
District 7	219	203	18	9	6
Bonneville County	137	119	10	5	3
Madison County	20	17	2	1	2

**Table 17. Invasive melanoma of the skin statistics by public health district and county, Idaho 2011-2014.**

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>27.0</b>	<b>25.8</b>	<b>28.3</b>	<b>1,834</b>	<b>-</b>
District 1	25.1	22.1	28.5	273	0.93
Bonner County	24.3	17.8	32.6	56	0.90
Kootenai County	26.9	23.0	31.2	182	0.99
District 2	24.5	20.3	29.3	130	0.91
Latah County	22.0	14.6	31.7	30	0.81
Nez Perce County	28.3	21.3	37.1	59	1.05
District 3	25.5	22.5	28.8	269	0.94
Canyon County	25.8	22.2	29.8	188	0.96
District 4	30.5	28.0	33.2	565	1.13 *
Ada County	31.4	28.7	34.3	522	1.16 *
District 5	27.2	23.6	31.1	219	1.01
Tw in Falls County	26.7	21.4	33.0	91	0.99
District 6	20.9	17.5	24.7	142	0.77 *
Bannock County	22.3	17.3	28.3	71	0.83
Bingham County	17.8	12.0	25.4	31	0.66 *
District 7	30.4	26.6	34.6	236	1.13
Bonneville County	32.8	27.5	38.9	137	1.21 *
Madison County	25.6	15.6	39.3	22	0.95

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).

## Oral Cavity & Pharynx Cancer

**Table 18. Idaho resident oral cavity & pharynx cancer cases by public health district and county, and stage at diagnosis, 2011-2014.**

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
<b>State of Idaho</b>	<b>20</b>	<b>294</b>	<b>357</b>	<b>126</b>	<b>51</b>
District 1	3	37	83	29	14
Bonner County	-	11	21	5	3
Kootenai County	3	24	51	17	8
District 2	2	18	27	8	7
Latah County	-	5	6	2	-
Nez Perce County	1	6	13	4	4
District 3	3	51	54	14	9
Canyon County	2	38	41	9	5
District 4	7	78	119	39	9
Ada County	6	75	107	35	7
District 5	5	54	30	22	6
Tw in Falls County	2	25	17	14	2
District 6	-	28	17	10	2
Bannock County	-	12	8	6	-
Bingham County	-	9	4	1	2
District 7	-	28	27	4	4
Bonneville County	-	12	12	3	3
Madison County	-	4	2	-	1

**Table 19. Invasive oral cavity & pharynx cancer statistics by public health district and county, Idaho 2011-2014.**

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
<b>State of Idaho</b>	<b>12.9</b>	<b>12.0</b>	<b>13.8</b>	<b>828</b>	<b>-</b>
District 1	18.8	16.0	21.9	163	1.46 *
Bonner County	24.5	17.5	33.3	40	1.90 *
Kootenai County	17.4	14.2	21.2	100	1.35 *
District 2	14.1	10.7	18.1	60	1.09
Latah County	8.5	4.5	14.5	13	0.66
Nez Perce County	17.0	11.2	24.7	27	1.32
District 3	12.2	10.2	14.6	128	0.95
Canyon County	11.8	9.5	14.5	93	0.92
District 4	13.4	11.8	15.2	245	1.04
Ada County	13.5	11.8	15.4	224	1.05
District 5	14.9	12.2	17.9	112	1.15
Tw in Falls County	18.3	13.9	23.6	58	1.42 *
District 6	8.4	6.4	10.9	57	0.65 *
Bannock County	7.8	5.1	11.4	26	0.60 *
Bingham County	8.8	5.0	14.3	16	0.68
District 7	7.6	5.8	9.7	63	0.59 *
Bonneville County	7.0	4.7	10.0	30	0.54 *
Madison County	4.6	1.9	9.5	7	0.36 *

\* The rate ratio indicates that the rate is significantly different than the rate for Idaho ( $p < 0.05$ ).