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

Idaho 2008-2011

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CDRI Cancer Data Registry of Idaho

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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 status, 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 monitor the effectiveness of the state of Idaho and local communities in cancer prevention and early detection and to provide the Comprehensive Cancer Alliance for Idaho, the Idaho Department of Health and Welfare, the Centers for Disease Control and Prevention, and other partners with data to drive improvement efforts.

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."[1] In November 2009, the USPSTF released recommendations on screening for breast cancer, including biennial screening mammography for women ages 50 to 74 years.[2] The American Cancer Society recommends yearly mammograms starting at age 40 and continuing as long as a woman is in good health.[3] Based on these recommendations, CDRI selected the measure of late stage breast cancer incidence rate among women ages 40 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.[4] The American Cancer Society has similar recommendations.[3] Based on these recommendations, the

[1] http://www.ahrq.gov/clinic/uspstfix.htm

[2] http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm

[3] http://www.cancer.org/Healthy/FindCancerEarly/CancerScreeningGuidelines/american-cancer-society-guidelines-for-the-early-detection-of-cancer

[4] http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm

availability of population estimates by age group, and Idaho's historically low cervical cancer screening rates,[5] 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 October 2008, the USPSTF released recommendations on screening for colon & rectum cancers, including using fecal occult blood testing, sigmoidoscopy, or colonoscopy, in adults beginning at age 50 years and continuing until age 75 years.[6] The American Cancer Society recommends that, beginning at age 50, men and women should follow a testing schedule depending on the type of test.[3] 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.[7] 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.

Excess body weight contributes to as many as 1 out of 5 cancer-related deaths.[8] 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, and oral cavity & pharynx.[9] The most common HPV-associated cancers are cervix among women and oral cavity & pharynx among men.

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[5] http://www.cdc.gov/brfss/

[6] http://www.uspreventiveservicestaskforce.org/uspstf/uspscolo.htm

[7] http://www.cancer.org/cancer/cancercauses/tobaccocancer/tobacco-related-cancer-fact-sheet

[8] http://www.cancer.org/cancer/cancercauses/dietandphysicalactivity/bodyweightandcancerrisk/body-weight-and-cancer-risk-effects

[9] http://www.cdc.gov/cancer/hpv/

Ultraviolet 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.[10]

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 76% of the state population. The populations (2011 estimates) in these counties range from 400,842 persons in Ada County to 37,704 persons in Latah County.[11] 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 2011 population estimates for Idaho's public health districts and the eleven most populous counties in Idaho (see also map on page 6).

[10] http://www.cancer.gov/cancertopics/pdq/prevention/skin/HealthProfessional

Table 1. Idaho Resident Population, 2011, by Public Health District and Eleven Most Populous Counties.[11]

Geographic Area	All Ages Male & Female	20+ Female	40+ Female	50+ Female	50+ Male
State of Idaho	1,584,985	559,172	355,276	257,475	240,045
District 1	214,625	81,039	57,141	43,000	40,169
Bonner County	40,808	15,694	11,865	9,275	9,100
Kootenai County	141,132	53,082	36,047	26,537	23,968
District 2	106,217	39,610	26,135	20,084	19,355
Latah County	37,704	13,537	7,051	5,195	4,899
Nez Perce County	39,543	15,345	10,556	8,071	7,254
District 3	256,653	88,490	56,009	40,202	36,632
Canyon County	191,694	64,920	39,097	27,421	24,455
District 4	443,851	159,837	99,485	68,911	63,258
Ada County	400,842	144,618	89,447	61,557	55,757
District 5	187,012	64,477	41,883	30,946	28,944
Twin Falls County	78,005	28,024	17,698	13,271	11,686
District 6	170,147	57,964	35,754	26,321	24,930
Bannock County	83,691	29,502	17,146	12,599	11,574
Bingham County	45,952	14,999	9,415	6,794	6,480
District 7	206,480	67,755	38,869	28,011	26,757
Bonneville County	105,772	35,698	21,596	15,566	14,206
Madison County	37,864	11,382	3,849	2,718	2,462

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.[12]

Population Estimates

Annual county population estimates by age group and sex were obtained from the National Center for Health Statistics (NCHS).[11]

[11] Source: National Center for Health Statistics, 2012. http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2011

[12] Surveillance Research Program, National Cancer Institute SEER*Stat software (www.seer.cancer.gov/seerstat) version 8.0.4.

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[13] and the Collaborative Stage algorithm was used to derive SEER Summary Stage 2000.[14] 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.[15] 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.[12] 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.

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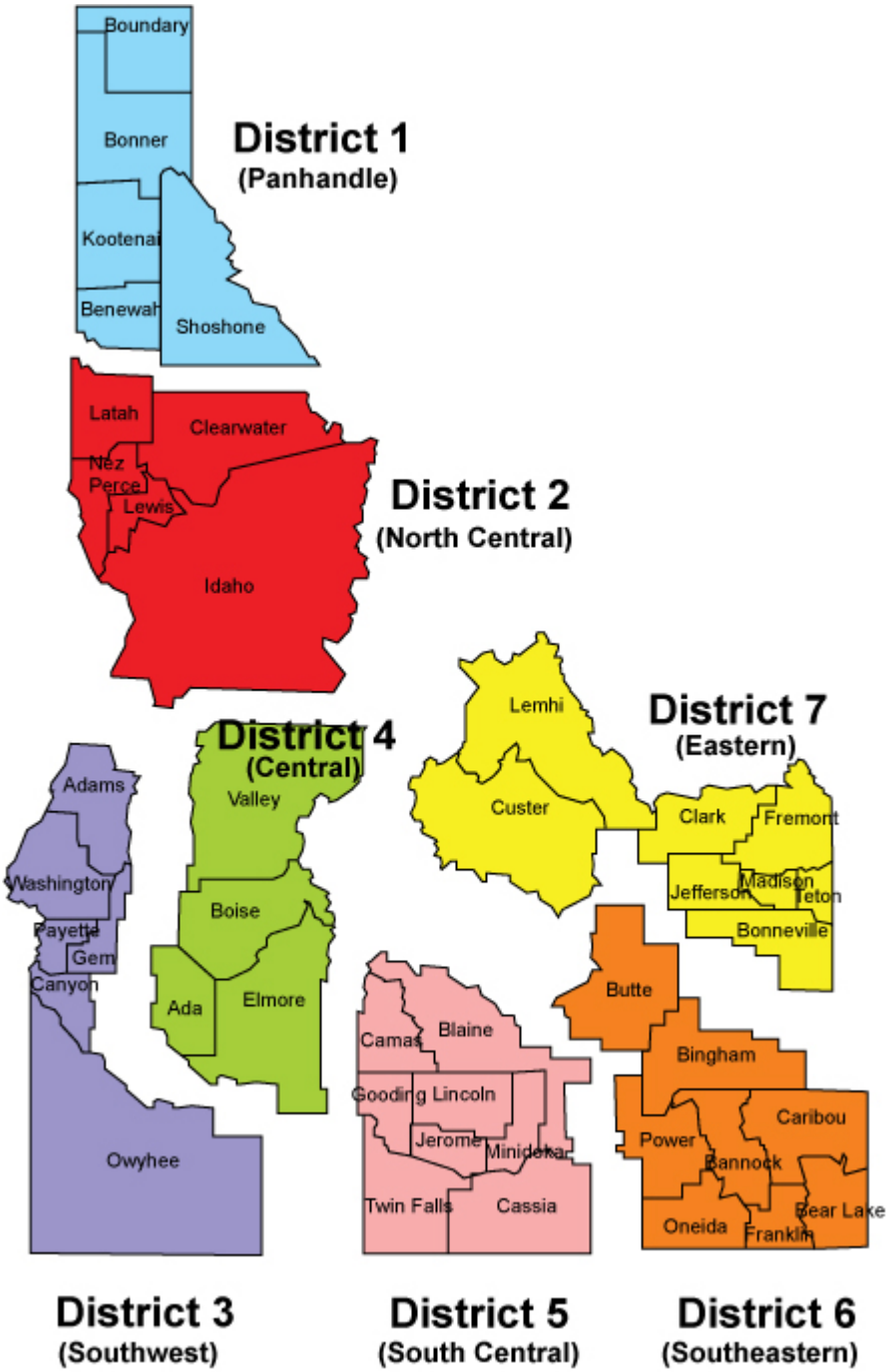
[13] Collaborative Stage Work Group of the American Joint Committee on Cancer. Collaborative Stage Data Collection System Coding Instructions, version 02.03.02, published January 2011, updated October 2011. Available at: http://www.cancerstaging.org/cstage/manuals/coding0202.html.

[14] 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.

[15] Source: SEER Program, National Cancer Institute, 2012.
http://seer.cancer.gov/stdpopulations/stdpop.19ages.html

Figure 1. Map of Idaho Counties and Public Health Districts.[16]



[16] http://www.healthandwelfare.idaho.gov/?TabId=97

RESULTS

Breast Cancer – Females Ages 40+

There were 3,735 invasive and 825 in situ cases of breast cancer diagnosed among Idaho resident females ages 40 years and older from 2008-2011. Late stage cases comprised 34.5% of invasive cases. Breast cancer case counts by public health district and county are shown in Table 2. Table 3 shows counts of late stage breast cancer cases among Idaho resident females ages 40+, age-adjusted rates of late stage breast cancer incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. No public health district or county had a significantly higher or lower rate of late stage breast cancer incidence among females ages 40+.

Cervical Cancer – Ages 20+

There were 182 invasive cases of cervical cancer diagnosed among Idaho resident females ages 20 years and older from 2008-2011.[17] Late stage cases comprised 48.4% of invasive cases. Cervical cancer case counts by public health district and county are shown in Table 4. Table 5 shows counts of late stage cervical cancer cases among Idaho resident females ages 20+, age-adjusted rates of late stage cervical cancer incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. Public Health District 3 (Southwest) had a significantly higher rate of late stage cervical cancer incidence among females ages 20+.

Colon & Rectum Cancer – Ages 50+

There were 2,192 invasive and 56 in situ cases of colon & rectum cancers diagnosed among Idaho residents ages 50 years and older from 2008-2011. Late stage cases comprised 54.1% of invasive cases. Colon & rectum cancer case counts by public health district and county are shown in Table 6. Table 7 shows counts of late stage colon & rectum cancer cases among Idaho residents ages 50+, age-adjusted rates of late stage colon & rectum cancer incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. Twin Falls County had a significantly higher rate of late stage colon & rectum cancer incidence among Idahoans ages 50+.

Endometrium Cancer – All Ages

There were 746 invasive and 6 in situ cases of endometrium cancer diagnosed among Idaho resident females from 2008-2011. Late stage cases comprised 26.1% of invasive cases. Endometrium cancer case counts by public health district and county are shown in Table 8. Table 9 shows counts of invasive endometrium cancer cases among Idaho resident females, age-adjusted rates of invasive endometrium cancer incidence, 95%

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

confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. No public health district or county had a significantly higher or lower rate of invasive endometrium cancer incidence.

Esophagus Cancer – All Ages

There were 280 invasive and 3 in situ cases of esophagus cancer diagnosed among Idaho residents from 2008-2011. Late stage cases comprised 63.6% of invasive cases. Esophagus cancer case counts by public health district and county are shown in Table 10. Table 11 shows counts of invasive esophagus cancer cases among Idaho residents, age-adjusted rates of invasive esophagus cancer incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. Latah County had a significantly lower rate of invasive esophagus cancer incidence.

Kidney & Renal Pelvis Cancer – All Ages

There were 918 invasive and 15 in situ cases of kidney & renal pelvis cancer diagnosed among Idaho residents from 2008-2011. Late stage cases comprised 28.4% of invasive cases. Kidney & renal pelvis cancer case counts by public health district and county are shown in Table 12. Table 13 shows counts of invasive kidney & renal pelvis cancer cases among Idaho residents, age-adjusted rates of invasive kidney & renal pelvis cancer incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. Public Health District 3 (Southwest) and Canyon County had significantly higher rates of invasive kidney & renal pelvis cancer incidence, and Public Health District 5 (South Central) had a significantly lower rate.

Lung & Bronchus Cancer – All Ages

There were 3,266 invasive and 3 in situ cases of lung & bronchus cancer diagnosed among Idaho residents from 2008-2011. Late stage cases comprised 74.5% of invasive cases. Lung & bronchus cancer case counts by public health district and county are shown in Table 14. Table 15 shows counts of invasive lung & bronchus cancer cases among Idaho residents, age-adjusted rates of invasive lung & bronchus cancer incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. Public Health Districts 1 and 3 (Panhandle and Southwest) and Kootenai and Nez Perce Counties had significantly higher rates of invasive lung & bronchus cancer incidence, and Public Health Districts 6 and 7 (Southeastern and Eastern) and Bannock, Bonneville, and Madison Counties had significantly lower rates.

Melanoma of the Skin – All Ages

There were 1,518 invasive and 1,295 in situ cases of melanoma of the skin diagnosed among Idaho residents from 2008-2011. Late stage cases comprised 13.6% of invasive cases. Melanoma of the skin case counts by public health district and county are shown in Table 16. Table 17 shows counts of invasive melanoma of the skin cases

among Idaho residents, age-adjusted rates of invasive melanoma of the skin incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. Public Health District 6 (Southeastern) had a significantly lower rate of invasive melanoma of the skin incidence.

Oral Cavity & Pharynx Cancer – All Ages

There were 819 invasive and 26 in situ cases of oral cavity & pharynx cancer diagnosed among Idaho residents from 2008-2011. Late stage cases comprised 49.3% of invasive cases. Oral cavity & pharynx cancer case counts by public health district and county are shown in Table 18. Table 19 shows counts of invasive oral cavity & pharynx cancer cases among Idaho residents, age-adjusted rates of invasive oral cavity & pharynx cancer incidence, 95% confidence intervals (CIs) for the rates, and rate ratios comparing the rates in the public health districts and counties to the state of Idaho. Public Health District 5 (South Central) and Twin Falls County had significantly higher rates of invasive oral cavity & pharynx cancer incidence, and Public Health District 3 (Southwest) had a significantly lower rate.

DISCUSSION

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 40 and older. For cervix cancer among women ages 20 and older, Public Health District 3 (Southwest) had a higher rate of late stage incidence. Higher rates of cervix cancer incidence have previously been observed among residents of Canyon County,[18] the most populous county in Public Health District 3, and Hispanic women.[19,20] For colon & rectum cancer among Idahoans ages 50 and

[18] http://www.idcancer.org/special/CountyProfiles/CANYON.pdf

[19] 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.

[20] http://www.idcancer.org/annual%20reports/Cancer%20in%20Idaho%202010.pdf

older, Twin Falls County had a higher rate of late stage incidence. No other geographic areas had late stage incidence rates significantly higher or lower 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.[19] 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 2010, Idaho ranked lowest in the U.S. for mammography utilization, 4th lowest for Pap tests, 5th lowest for ever having a sigmoidoscopy or colonoscopy, and 7th lowest for fecal occult blood test utilization. These statistics suggest that strategies are needed to improve cancer screening statewide.

Idaho ranks in the middle of states for overweight and obesity prevalence, with 62.3% of adults overweight or obese.[21] 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. No public health districts or counties had significantly higher or lower rates of breast (late stage) or endometrium cancers. No geographic area had rates significantly different from the state of Idaho for any more than one of the other obesity-associated sites. Other factors besides obesity impact the rates of these cancers and may make interpreting the geographic patterns difficult. In particular, trends in the use of hormone replacement therapy among women have impacted the incidence rates of hormone-dependent cancers.

Idaho ranks 7th lowest among states for tobacco use, with 17.2% of adults current smokers.[22] 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 3 had significantly higher incidence rates than the state of Idaho for cervix, kidney & renal pelvis, and lung & bronchus cancers. Twin Falls County has significantly higher incidence rates for colon & rectum and oral cavity & pharynx cancers. These patterns lend support for targeted, coordinated cancer prevention and control strategies.

[21] Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, Overweight and Obesity (BMI), 2011. http://apps.nccd.cdc.gov/brfss/list.asp?cat=OB&yr=2011&qkey=8261&state=All

[22] Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, Tobacco Use, 2011. http://apps.nccd.cdc.gov/brfss/list.asp?cat=TU&yr=2011&qkey=8161&state=All

HPV causes nearly all cervix cancers and about 60% of oral cavity & pharynx cancers. In 2010, Idaho had the lowest estimated HPV vaccination coverage among states for adolescent females ages 13-17.[23] For cancer sites associated with HPV in this report (cervix, oral cavity & pharynx) there were not consistent geographic patterns.

Idaho consistently has among the highest melanoma mortality rates in the US. There was no evidence for geographic differences in invasive melanoma incidence by public health district or among Idaho's eleven most populous counties, except for a lower rate 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 US dermatologists results in underestimates of the true incidence.[24] 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.

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.

[23] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6033a1.htm

[24] 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

Table 2. Idaho resident female breast cancer cases, ages 40+, by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	825	2376	1109	180	70
District 1	139	421	185	43	20
Bonner County	42	92	32	7	3
Kootenai County	84	269	118	26	14
District 2	84	196	89	9	5
Latah County	19	52	21	1	1
Nez Perce County	37	103	35	6	3
District 3	136	358	170	31	5
Canyon County	88	233	104	20	1
District 4	275	706	297	42	14
Ada County	247	647	275	38	13
District 5	77	278	140	27	10
Twin Falls County	40	129	59	12	4
District 6	47	205	112	11	5
Bannock County	26	105	59	6	1
Bingham County	9	52	29	4	2
District 7	67	211	116	17	11
Bonneville County	38	121	60	10	3
Madison County	3	15	14	1	5

Table 3. Late stage breast cancer statistics, Idaho resident females ages 40+, by public health district and county, 2008-2011.

Geographic Area	Late Stage (Regional + Distant) Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	90.8	85.8	95.9	1,289	-
District 1	95.6	83.3	109.3	228	1.05
Bonner County	70.9	49.4	99.0	39	0.78
Kootenai County	99.3	83.4	117.2	144	1.09
District 2	84.5	68.3	103.5	98	0.93
Latah County	70.7	44.0	108.2	22	0.78
Nez Perce County	89.0	63.4	121.6	41	0.98
District 3	92.0	79.6	105.9	201	1.01
Canyon County	83.4	69.2	99.7	124	0.92
District 4	88.6	79.3	98.7	339	0.98
Ada County	91.4	81.4	102.3	313	1.01
District 5	97.8	83.3	114.1	167	1.08
Twin Falls County	96.5	75.0	122.2	71	1.06
District 6	85.6	70.9	102.4	123	0.94
Bannock County	95.2	73.1	121.9	65	1.05
Bingham County	87.6	60.0	123.5	33	0.97
District 7	83.2	69.5	98.8	133	0.92
Bonneville County	78.0	60.7	98.9	70	0.86
Madison County	96.2	53.6	159.2	15	1.06

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

Table 4. Idaho resident cervical cancer cases, ages 20+, by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	-	85	56	32	9
District 1	-	13	5	8	1
Bonner County	-	3	2	1	0
Kootenai County	-	8	3	7	1
District 2	-	2	1	3	2
Latah County	-	1	0	0	0
Nez Perce County	-	1	1	1	1
District 3	-	24	18	6	1
Canyon County	-	20	10	6	1
District 4	-	20	13	6	1
Ada County	-	20	11	5	0
District 5	-	13	9	2	1
Twin Falls County	-	5	6	0	1
District 6	-	6	6	4	2
Bannock County	-	3	4	1	1
Bingham County	-	2	0	2	1
District 7	-	7	4	3	1
Bonneville County	-	6	1	3	1
Madison County	-	0	0	0	0

Table 5. Late stage cervical cancer statistics, Idaho resident females ages 20+, by public health district and county, 2008-2011.

Geographic Area	Late Stage (Regional + Distant) Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	3.8	3.1	4.7	88	-
District 1	3.1	1.6	5.4	13	0.80
Bonner County	3.5	0.7	11.9	3	0.92
Kootenai County	3.8	1.8	7.2	10	0.99
District 2	2.8	0.7	7.2	4	0.73
Latah County	0.0	0.0	8.3	0	0.00
Nez Perce County	3.1	0.4	11.7	2	0.82
District 3	6.9	4.4	10.4	24	1.81 *
Canyon County	6.5	3.7	10.6	16	1.70
District 4	3.1	1.8	4.8	19	0.80
Ada County	2.9	1.7	4.8	16	0.76
District 5	3.8	1.9	6.9	11	0.99
Twin Falls County	4.8	1.7	10.7	6	1.25
District 6	4.1	1.9	7.7	10	1.07
Bannock County	4.3	1.3	10.2	5	1.11
Bingham County	3.2	0.4	11.8	2	0.84
District 7	2.6	1.0	5.4	7	0.68
Bonneville County	2.8	0.8	7.3	4	0.73
Madison County	0.0	0.0	13.6	0	0.00

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

Table 6. Idaho resident colon & rectum cancer cases, ages 50+, by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	56	830	751	435	176
District 1	5	159	143	76	38
Bonner County	0	31	32	22	19
Kootenai County	5	100	79	40	13
District 2	8	86	50	34	13
Latah County	0	20	9	10	1
Nez Perce County	2	29	21	14	8
District 3	6	117	113	68	21
Canyon County	4	78	66	46	13
District 4	12	194	166	114	37
Ada County	12	170	138	105	33
District 5	4	105	120	53	20
Twin Falls County	3	49	62	26	8
District 6	10	90	73	48	26
Bannock County	1	39	40	19	12
Bingham County	2	27	16	16	5
District 7	11	79	86	41	20
Bonneville County	9	41	56	24	9
Madison County	1	9	5	2	6

Table 7. Late stage colon & rectum cancer statistics, Idaho residents ages 50+, by public health district and county, 2008-2011.

Geographic Area	Late Stage (Regional + Distant) Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	66.2	62.4	70.1	1,186	-
District 1	73.7	64.1	84.3	219	1.11
Bonner County	87.4	65.1	114.8	54	1.32
Kootenai County	65.4	54.1	78.5	119	0.99
District 2	56.6	45.0	70.2	84	0.86
Latah County	55.8	33.3	87.3	19	0.84
Nez Perce County	54.4	37.7	76.0	35	0.82
District 3	64.2	55.1	74.4	181	0.97
Canyon County	59.5	48.8	71.8	112	0.90
District 4	62.7	55.4	70.7	280	0.95
Ada County	61.2	53.5	69.6	243	0.92
District 5	76.7	65.6	89.2	173	1.16
Twin Falls County	92.1	73.8	113.6	88	1.39 *
District 6	63.4	52.5	75.9	121	0.96
Bannock County	66.7	50.6	86.3	59	1.01
Bingham County	65.2	44.4	92.4	32	0.99
District 7	63.7	52.9	75.9	127	0.96
Bonneville County	74.5	58.8	93.0	80	1.13
Madison County	36.9	14.7	76.2	7	0.56

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

Table 8. Idaho resident endometrium cancer cases by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	6	506	147	48	45
District 1	2	80	24	10	16
Bonner County	0	18	2	4	2
Kootenai County	1	50	19	4	13
District 2	1	30	18	3	4
Latah County	0	7	6	1	0
Nez Perce County	1	11	5	1	3
District 3	1	90	27	10	6
Canyon County	1	66	14	6	4
District 4	0	128	34	6	4
Ada County	0	110	32	6	3
District 5	2	70	24	11	2
Twin Falls County	2	33	6	5	1
District 6	0	50	10	3	7
Bannock County	0	23	2	2	3
Bingham County	0	11	4	1	2
District 7	0	57	10	5	6
Bonneville County	0	32	6	5	2
Madison County	0	11	0	0	3

Table 9. Invasive endometrium cancer statistics by public health district and county, Idaho 2008-2011.

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	21.6	20.1	23.3	746	-
District 1	22.6	18.7	27.0	130	1.04
Bonner County	17.5	11.4	26.8	26	0.81
Kootenai County	25.1	20.0	31.2	86	1.16
District 2	20.5	15.3	27.1	55	0.95
Latah County	19.6	10.5	33.5	14	0.91
Nez Perce County	18.2	10.9	28.9	20	0.84
District 3	24.9	20.8	29.6	133	1.15
Canyon County	24.4	19.6	30.1	90	1.13
District 4	18.5	15.8	21.5	172	0.85
Ada County	18.2	15.4	21.5	151	0.84
District 5	25.9	21.1	31.4	107	1.20
Twin Falls County	25.5	18.4	34.5	45	1.18
District 6	19.9	15.5	25.3	70	0.92
Bannock County	18.5	12.4	26.6	30	0.86
Bingham County	19.6	11.5	31.2	18	0.91
District 7	20.6	16.2	25.8	78	0.95
Bonneville County	20.9	15.2	28.1	45	0.97
Madison County	37.1	20.2	61.9	14	1.72

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

Table 10. Idaho resident esophagus cancer cases by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	3	48	83	95	54
District 1	0	11	17	19	14
Bonner County	0	2	4	4	4
Kootenai County	0	5	11	12	8
District 2	1	5	5	4	0
Latah County	0	1	0	0	0
Nez Perce County	0	3	3	1	0
District 3	0	7	12	21	7
Canyon County	0	4	8	16	4
District 4	1	10	18	21	13
Ada County	1	9	16	17	10
District 5	0	6	13	12	7
Twin Falls County	0	3	6	6	3
District 6	1	5	10	6	5
Bannock County	0	2	2	3	2
Bingham County	1	2	6	2	2
District 7	0	4	8	12	8
Bonneville County	0	3	5	7	3
Madison County	0	0	1	0	1

Table 11. Invasive esophagus cancer statistics by public health district and county, Idaho 2008-2011.

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	4.3	3.8	4.8	280	-
District 1	5.5	4.2	7.1	61	1.28
Bonner County	5.3	2.8	9.5	14	1.24
Kootenai County	5.5	3.8	7.6	36	1.28
District 2	2.5	1.3	4.4	14	0.59
Latah County	0.6	0.0	3.9	1	0.13 *
Nez Perce County	3.5	1.3	7.6	7	0.82
District 3	4.5	3.3	6.1	47	1.06
Canyon County	4.7	3.2	6.6	32	1.09
District 4	3.8	2.9	4.9	62	0.88
Ada County	3.6	2.6	4.7	52	0.84
District 5	4.7	3.3	6.5	38	1.11
Twin Falls County	5.0	2.9	7.9	18	1.16
District 6	3.9	2.5	5.7	26	0.91
Bannock County	2.9	1.3	5.6	9	0.69
Bingham County	6.8	3.5	11.9	12	1.59
District 7	4.3	2.9	6.1	32	1.01
Bonneville County	4.4	2.6	7.0	18	1.03
Madison County	2.9	0.3	9.8	2	0.67

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

Table 12. Idaho resident kidney & renal pelvis cancer cases by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	15	603	135	126	54
District 1	2	93	19	28	10
Bonner County	0	19	6	5	2
Kootenai County	1	59	11	20	5
District 2	0	46	14	14	4
Latah County	0	11	5	4	0
Nez Perce County	0	22	4	6	2
District 3	1	137	33	14	9
Canyon County	0	107	20	8	8
District 4	6	172	30	29	8
Ada County	5	151	26	23	7
District 5	5	48	15	19	6
Twin Falls County	3	25	7	10	2
District 6	1	52	10	11	7
Bannock County	0	28	3	4	3
Bingham County	0	9	6	2	2
District 7	0	55	14	11	10
Bonneville County	0	30	8	6	8
Madison County	0	4	1	1	0

Table 13. Invasive kidney & renal pelvis cancer statistics by public health district and county, Idaho 2008-2011.

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	14.3	13.4	15.3	918	-
District 1	13.8	11.6	16.3	150	0.97
Bonner County	14.3	9.6	20.8	32	1.00
Kootenai County	14.2	11.5	17.5	95	1.00
District 2	16.4	12.8	20.7	78	1.15
Latah County	15.9	9.5	24.8	20	1.11
Nez Perce County	18.2	12.4	25.8	34	1.27
District 3	18.7	16.1	21.5	193	1.31 *
Canyon County	19.9	16.8	23.5	143	1.39 *
District 4	14.5	12.7	16.6	239	1.02
Ada County	14.1	12.2	16.3	207	0.99
District 5	11.2	9.0	13.8	88	0.78 *
Twin Falls County	13.5	9.8	18.2	44	0.94
District 6	12.0	9.5	15.0	80	0.84
Bannock County	12.0	8.4	16.6	38	0.84
Bingham County	11.0	6.6	17.3	19	0.77
District 7	12.6	10.1	15.5	90	0.88
Bonneville County	13.8	10.2	18.1	52	0.96
Madison County	7.1	2.5	15.7	6	0.50

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

Table 14. Idaho resident lung & bronchus cancer cases by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	3	536	665	1767	298
District 1	0	105	135	370	51
Bonner County	0	19	21	70	17
Kootenai County	0	64	81	213	22
District 2	1	58	57	173	24
Latah County	0	5	8	28	9
Nez Perce County	1	28	30	85	5
District 3	0	112	130	301	60
Canyon County	0	71	88	182	38
District 4	0	152	177	437	52
Ada County	0	135	156	370	46
District 5	0	47	66	206	50
Twin Falls County	0	32	38	107	19
District 6	1	32	45	136	33
Bannock County	1	16	22	67	13
Bingham County	0	7	18	40	13
District 7	1	30	55	144	28
Bonneville County	1	15	33	81	13
Madison County	0	1	3	4	1

Table 15. Invasive lung & bronchus cancer statistics by public health district and county, Idaho 2008-2011.

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	51.8	50.0	53.6	3,266	-
District 1	62.5	57.8	67.6	661	1.21 *
Bonner County	58.5	48.4	70.1	127	1.13
Kootenai County	58.7	52.9	65.1	380	1.13 *
District 2	57.5	51.2	64.4	312	1.11
Latah County	39.0	28.7	51.7	50	0.75
Nez Perce County	67.3	56.8	79.4	148	1.30 *
District 3	60.1	55.3	65.1	603	1.16 *
Canyon County	57.3	51.6	63.4	379	1.11
District 4	53.0	49.3	56.8	818	1.02
Ada County	51.6	47.8	55.7	707	1.00
District 5	47.0	42.2	52.1	369	0.91
Twin Falls County	57.9	50.0	66.7	196	1.12
District 6	36.7	32.2	41.6	246	0.71 *
Bannock County	38.8	32.0	46.5	118	0.75 *
Bingham County	44.3	34.9	55.4	78	0.86
District 7	37.1	32.6	41.9	257	0.72 *
Bonneville County	38.3	32.2	45.2	142	0.74 *
Madison County	13.2	6.0	24.5	9	0.25 *

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

Table 16. Idaho resident melanoma of the skin cases by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	1295	1217	133	74	94
District 1	313	191	19	16	9
Bonner County	49	37	3	5	2
Kootenai County	232	135	11	9	5
District 2	55	94	9	3	11
Latah County	23	24	5	0	4
Nez Perce County	18	48	2	0	4
District 3	134	176	20	15	17
Canyon County	100	128	12	9	11
District 4	335	360	39	21	22
Ada County	306	329	32	19	21
District 5	137	157	24	6	8
Twin Falls County	38	73	9	2	3
District 6	93	87	12	4	14
Bannock County	56	45	3	2	7
Bingham County	24	19	3	2	5
District 7	215	140	10	9	11
Bonneville County	134	77	5	5	7
Madison County	20	15	0	1	1

Table 17. Invasive melanoma of the skin statistics by public health district and county, Idaho 2008-2011.

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	24.1	22.9	25.4	1,518	-
District 1	22.6	19.7	25.8	235	0.94
Bonner County	20.2	14.6	27.6	47	0.84
Kootenai County	25.2	21.3	29.5	160	1.05
District 2	23.0	18.9	27.8	117	0.96
Latah County	24.9	17.0	35.3	33	1.04
Nez Perce County	25.7	19.2	33.9	54	1.07
District 3	23.2	20.3	26.5	228	0.96
Canyon County	23.7	20.1	27.7	160	0.98
District 4	26.1	23.7	28.7	442	1.08
Ada County	26.5	24.0	29.3	401	1.10
District 5	25.3	21.8	29.1	195	1.05
Twin Falls County	26.7	21.3	33.0	87	1.11
District 6	18.8	15.5	22.5	117	0.78 *
Bannock County	18.7	14.1	24.3	57	0.78
Bingham County	18.8	12.5	27.0	29	0.78
District 7	23.7	20.2	27.6	170	0.98
Bonneville County	24.5	19.7	30.1	94	1.02
Madison County	19.4	10.6	32.1	17	0.80

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

Table 18. Idaho resident oral cavity & pharynx cancer cases by public health district and county, and stage at diagnosis, 2008-2011.

Geographic Area	Cancer Stage at Diagnosis				
	In situ	Localized	Regional	Distant	Unstaged
State of Idaho	26	338	305	99	77
District 1	2	39	54	15	14
Bonner County	1	8	10	1	6
Kootenai County	1	27	38	10	7
District 2	2	13	32	12	2
Latah County	0	1	6	2	1
Nez Perce County	2	7	12	7	0
District 3	3	36	46	13	9
Canyon County	2	27	33	8	5
District 4	10	90	99	18	21
Ada County	9	81	85	16	20
District 5	3	76	34	15	9
Twin Falls County	2	34	20	7	5
District 6	2	36	17	13	7
Bannock County	1	11	9	6	2
Bingham County	1	14	4	2	4
District 7	4	47	23	13	15
Bonneville County	2	22	13	9	8
Madison County	2	6	0	0	1

Table 19. Invasive oral cavity & pharynx cancer statistics by public health district and county, Idaho 2008-2011.

Geographic Area	Invasive Incidence Statistics				
	Rate	Lower CI	Upper CI	Cases	Rate Ratio
State of Idaho	12.7	11.8	13.6	819	-
District 1	11.6	9.6	14.0	122	0.92
Bonner County	11.1	7.0	17.0	25	0.88
Kootenai County	12.9	10.2	16.1	82	1.02
District 2	11.5	8.7	15.1	59	0.91
Latah County	6.8	3.2	12.9	10	0.54
Nez Perce County	12.9	8.3	19.3	26	1.02
District 3	10.1	8.2	12.2	104	0.79 *
Canyon County	10.5	8.2	13.2	73	0.83
District 4	13.4	11.6	15.2	228	1.06
Ada County	13.3	11.5	15.3	202	1.05
District 5	16.9	14.2	20.1	134	1.34 *
Twin Falls County	20.0	15.5	25.6	66	1.58 *
District 6	11.0	8.6	13.9	73	0.87
Bannock County	9.1	6.0	13.2	28	0.72
Bingham County	13.9	8.9	20.7	24	1.10
District 7	13.8	11.2	16.9	98	1.09
Bonneville County	13.5	10.0	17.7	52	1.07
Madison County	10.4	4.1	21.0	7	0.82

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