

State of Wyoming



Department of Health

Cancer Risk Factors in Wyoming

Results from the 2003 Wyoming
Behavioral Risk Factor Surveillance System

Deborah K. Fleming, Ph.D., Director

August 2004

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Cancer Risk Factors in Wyoming is published by the
Preventive Health and Safety Division
Karl Musgrave, D.V.M., M.P.H., Administrator

Additional information and copies may be obtained from:

Menlo Futa
BRFSS Coordinator
Wyoming Department of Health
Hathaway Building, 4th Floor
Cheyenne, WY 82002
307-777-6012
307-777-5402 (Fax)
mfuta@state.wy.us

Funded by the Centers for Disease Control and Prevention
Cooperative Agreement No. U58/CCU822796-01-1

This document is available in alternative format upon request.

Acknowledgements

Cancer Risk Factors in Wyoming
was written under contract by:

Mary L. Adams, M.P.H.
On Target Health Data LLC
247 North Stone Street
West Suffield, CT 06093

The assistance of the Wyoming residents who participated
in the survey is gratefully acknowledged.

For more information about the Behavioral Risk Factor Surveillance System (BRFSS),
visit the CDC website at www.cdc.gov/brfss.

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Executive Summary

Several lifestyle behaviors addressed on the 2003 Wyoming Behavioral Risk Factor Surveillance System (BRFSS) are known to increase the risk of one or more types of cancer. Six potentially modifiable risk factors for cancer are included in this report: tobacco use, overweight, poor nutrition, heavy alcohol consumption (drinking), physical inactivity, and sunburn. Each risk factor is addressed separately, and multiple risk factors, from one to six, are also included. In addition, workplace exposure to environmental tobacco smoke among non-smokers was measured, and is considered as a separate risk factor. Associations among risk factors and between risk factors and measures of current quality of life are also included in the report. Finally, information on utilization of selected cancer screening tests that may reduce cancer morbidity and mortality is included.

A total of 4,004 randomly selected non-institutionalized adults 18 years and older were surveyed by telephone in the Wyoming BRFSS during 2003. Results were adjusted for different probabilities of selection and further adjusted to represent the adult population in Wyoming by age and gender. Data were analyzed by sex, age group, race/ethnicity, educational attainment, household income, marital status, population density group, employment, and health insurance status. Nearly 97% of all respondents, or an estimated 368,000 Wyoming adults, reported one or more of the six potentially modifiable cancer risk factors, and over half reported three or more. Results showed considerable variation among groups, as noted in the table below.

Summary of Results
Wyoming BRFSS 2003

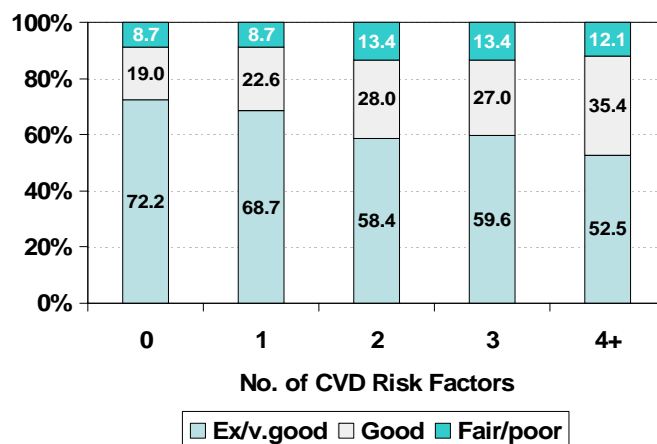
Risk Factor	Prevalence % (CI)	Range of Prevalence Rates (%) and Group			
		Low	Group	High	Group
Tobacco use	32.7 (31.0-34.4)	16.7	Age 65+	49.6	< HS grad
Overweight (BMI≥25)	57.1 (55.3-58.9)	42.5	Students	67.8	Age 55-64
Fruits & veg < 5x /day	77.9 (76.5-79.3)	66.2	Homemakers	83.3	Men
Heavy drinking*	6.6 (5.7-7.5)	2.3	Age 65+	11.1	Age 18-24
Physical inactivity **	44.6 (42.8-46.4)	23.9	Students	59.5	Age 65+
Sunburn	48.2 (46.4-49.9)	12.7	Age 65+	78.0	Students
Any cancer risk factor	96.9 (96.4-97.4)	93.6	Age 65+	100.0	Students
3 or more risk factors	54.4 (52.5-56.1)	36.3	Age 65+	64.8	Men

* >1/day for women and >2/day for men **Did not meet recommendation for vigorous or moderate exercise

Prevalence rates tended to be higher among younger adults and students, and also for men, the uninsured, and those with less education. Most rates were lower for older adults, those with highest incomes, homemakers, retirees, and insured adults. Results for overweight and inactivity appeared to be in contrast to results for the other four risk factors, with rates higher among older adults. The range of results shown above suggests that improvement is possible. Results for mammography, Pap testing, and colorectal cancer screening rates also suggest room for improvement.

Although the risk factors were addressed because they have been shown to increase future cancer risk, the results also showed a correlation between these risk factors and current quality of life. For example, the more risk factors respondents reported, the more likely they were to report fair or poor health, and the less likely to report excellent or very good health, as shown below. Other measures of current quality of life that were associated with one or more risk factors included reporting frequent mental distress, or being out of work. These results suggest that both long-range and immediate rewards might be reaped by successful behavior modification.

Health Status by No. of Cancer Risk Factors 2003 WY BRFSS



I. Introduction

Cancer is the second leading cause of death in Wyoming, accounting for 20% of all deaths in 2002.¹ Nationally, one in every three persons is likely to develop cancer in their lifetime.² There are many different types of cancer, each characterized by uncontrolled growth and spread of abnormal cells, often in the form of tumors. Cancers may spread to other organs or tissue, but are classified according to where they originate. Estimated U.S. cancer costs in 2003 were \$189 billion, including \$64 billion in direct costs such as nursing home care, hospitalizations, surgery, doctor visits, drugs, medical equipment, and home health care, and \$125 billion for indirect costs such as lost productivity.³ Wyoming's share of these expenditures was estimated to be about \$329 million, assuming similar disease rates and charges.

The choice of cancer-related behavioral risk factors to include in this report was made after consulting various sources,^{2,4,5} and was limited to those measured on the 2003 BRFSS. These include tobacco use, overweight, eating fruits and vegetables fewer than 5 times a day, heavy alcohol consumption (drinking), physical inactivity, and recent sunburn. The percent of non-smokers who were exposed to secondhand tobacco smoke at work was also measured. In addition to these potentially modifiable risks, there are also inherent risk factors such as age, race, gender, and family history which cannot be changed. Environmental and other factors may also be involved in the development of cancer, some of which may remain unknown at this time. Cancers may develop rapidly, or more often, may develop slowly for many years after exposure to the risk. Some factors may not initiate cancer but may affect later development. About 65% of all cancers have been estimated to be attributed to these risk factors, primarily due to tobacco use, diet, physical inactivity, and overweight.² Modifying behavioral risk factors may offer the best chance of reducing the risk of developing cancer.

Relative risk is the ratio of the risk of disease (or death) in two groups, usually one with a risk factor and one without, obtained from epidemiologic studies of large populations. For example, such studies have found that men who smoke are about ten times as likely to develop lung cancer as non-smoking men. This does not mean that all men who smoke will develop lung cancer, or that non-smokers will not. It simply means that the chances of developing lung cancer are increased among smokers. Using the relative risk and the prevalence of the risk factor in the population, it is possible to estimate the proportion of death or disease in the population attributable to each risk factor. Table 1 shows the proportion of all cancer in the United States attributed to the risk factors included in this report.

Table 1.
Proportion of Cancer Attributed to Selected Risk Factors, U.S.²

Risk Factor	Range of estimates (%)
Tobacco Use	29-30
Diet, including overweight	20-35
Alcohol	3-6
Sedentary lifestyle	5
Sunlight	1

This report discusses each of the six selected cancer risk factors, the presence of one or more, or three or more of these risk factors, and associations among the risk factors. Associations between each of these risk factors and selected measures of quality of life are also included. In addition, the percent of non-smokers who were exposed to secondhand tobacco smoke at work is addressed. Early identification of cancers through various screening tests is an important secondary prevention method for reducing cancer morbidity and mortality. This report also includes a brief section on screening for breast, cervical, and colorectal cancers.

II. Methods

The Behavioral Risk Factor Surveillance System (BRFSS) collects data from randomly selected non-institutionalized adults age 18 and older, through monthly telephone surveys. All 50 states currently conduct the survey, with the collaboration and support of the federal Centers for Disease Control and Prevention (CDC). In 2003, Wyoming conducted 4,004 surveys, using the established BRFSS protocol. Following data collection, the results were adjusted by the CDC to account for different probabilities of selection, and further adjusted to be representative of the total adult population of Wyoming by age and gender. Demographics of the sample are shown in Table 2. Note that the sample of respondents under-represents younger adults and males, compared with the weighted percentages which have been adjusted to match the actual population.

Prevalence estimates and confidence intervals were determined with Stata version 8, which takes into account the complex sample design of the BRFSS. The *95% confidence intervals*, or margin of error, define the range of values within which the true population prevalence rate would fall in 95 out of 100 samples taken from the population. Respondents with missing values were excluded from analysis of that variable, unless otherwise noted. With the exception of overweight and income measures, this usually had little effect on the results. Confidence intervals are presented in the Supplemental Tables S-1 through S-12 on pages 27-32 of the report. When comparisons such as “more likely” or “higher than” are made in the findings presented in the report, these results were statistically significant based on Chi square tests of association, as noted in the Supplemental Tables with P values <0.05.

Table 2.
Demographics of Sample
Wyoming BRFSS 2003
Adults aged 18 and older

	Unweighted Respondents		Weighted Population		Unweighted Respondents		Weighted Population
	N	%	%*		N	%	%*
Total	4,004	100	100	Education			
				<HS grad	276	6.9	7.5
Sex				HS grad	1,310	32.8	33.8
Male	1,657	41.4	50.0	Some coll.	1,303	32.6	33.0
Female	2,347	58.6	50.0	College grad	1,109	27.7	25.8
Race/Ethnicity				Population density			
White	3,626	91.4	90.2	Ctys >50K**	1,179	30.2	30.4
Hispanic	173	4.4	5.3	Ctys 10K-50K	1,562	40.0	40.7
Other	170	4.3	4.5	Ctys <10,000	1,166	29.8	28.9
Age				Insurance status			
18-24	286	7.2	14.7	Insured	3,379	84.7	82.9
25-34	560	14.1	15.7	Uninsured	610	15.3	17.1
35-44	712	17.9	18.8				
45-54	942	23.7	20.8	Marital status			
55-64	674	16.9	13.6	Married	2,382	59.6	64.9
65+	804	20.2	16.4	Not married	1,615	40.4	35.1
Income				Employment			
<\$15,000	382	9.5	8.8	Employed	2,568	64.3	66.0
\$15-<\$25,000	658	16.4	15.8	Out of work	288	7.2	6.7
\$25-<\$50,000	1,301	32.5	33.2	Homemaker	336	8.4	8.2
\$50-<\$75,00	701	17.5	18.1	Student	106	2.7	4.9
\$75,000+	588	14.7	14.9	Retired	699	17.5	14.2
Unknown	374	9.3	9.2				

*WY population, approximate, from weighted data. ** Laramie and Natrona counties; 10K-50K = Albany, Campbell, Fremont, Sheridan, Sweetwater, Teton, and Uinta counties. Totals may not add to 100% (or 4,004) due to rounding (or missing values).

All estimates obtained from survey data are subject to errors from several sources. Measurement error may occur from survey inconsistencies, such as different interviewers reading a question in a slightly different manner. Data entry errors are also possible, although methods are in place to minimize such errors. Non-response error is introduced when respondents refuse to answer, and recall error occurs when their memory of past events is inaccurate. There is also potential error involved in self-reporting information that the respondent may recognize as socially undesirable, such as smoking. Studies have shown that errors in self-reporting height and weight do exist on surveys such as the BRFSS, with women tending to under-report their weight, and men to overestimate their height.⁶ While these types of errors cannot easily be measured for a particular survey, the sampling error, which results because only a fraction of the target population answers the questions, can be estimated. The confidence interval, described above, estimates sampling error and provides an indication of the precision of the survey results.

Another limitation is that these data are from a phone survey, and thus the homeless, persons in households without phones (or with only cell phones), and certain disabled persons are not represented. In Wyoming, the rate of phone coverage is about 96% and generally is not a problem overall. Phone coverage may be an issue for deriving accurate estimates among lower income persons, certain demographic groups, or when the item of interest is likely to be much higher among those with no phones (such as lack of health insurance). College students living in dormitories, incarcerated persons, and adults in nursing homes are also not included in the sample. Declining response rates for telephone surveys are another concern. BRFSS response rates in general have declined from about 70% ten years ago to about 50% or less in recent years.

III. Results

A. Primary Prevention: Cancer Risk Factors

Tobacco Use

Measure: Tobacco use included any of the following: current cigarette smoking (smoking 100 cigarettes in a person's lifetime and currently smoking every day or some days), current smokeless tobacco use, or current cigar, bidi, or pipe smoking. No distinction was made between daily and less frequent use.

Cigarette smoking increases the risk of cancers of the lung, pharynx, mouth, esophagus, larynx, and cervix, and contributes to cancers of the bladder, kidney and pancreas. Smokeless tobacco use is a risk factor for oral and pharyngeal cancers.² Smoking other forms of tobacco does not eliminate the risk.

Findings:

- Nearly one third (32.7%) of all Wyoming respondents reported current use of some form of tobacco, representing about 124,000 persons.
- Over three fourths of current tobacco users were smokers, 23.1% used smokeless tobacco, 18.8% smoked cigars, 4.8% smoked pipes, and less than 1% currently smoked bidis. Figures add up to greater than 100% because about 6% of all respondents used more than one type of tobacco.
- Highest current tobacco use was among persons who didn't finish high school (49.6%), the uninsured (47.8%), out of work (47.5%), and persons of other race (46.7%).
- Tobacco use was also high among 18-24 year olds (41.9%), 25-34 year olds (41.5%; Figure 1), Hispanic adults (41.5%), men (40.6%), high school graduates (40.0%), and persons who were not married (39.9%).
- Wyoming adults in lower income households were more likely to use tobacco than those in higher income households, with rates above 35% for income groups less than \$50,000.
- Those least likely to use tobacco included adults age 65 and older (16.7%; Figure 1), college graduates (18.6%), retirees (19.0%), homemakers (21.7%), and persons in households with incomes above \$75,000 (25.2%).
- Tobacco use was similar for respondents in counties with varying population density.
- Tobacco users were more likely than non-users to report fair or poor health (15.0% vs. 11.0%), frequent mental distress (defined as 14 or more days when mental health was poor in the past month; 13.2% vs. 7.1%), and being out of work (9.8% vs. 5.3%).
- Cigarette smoking, the major component of tobacco use, has been steady or slightly increasing in Wyoming since 1994 (Figure 2).

Figure 1.

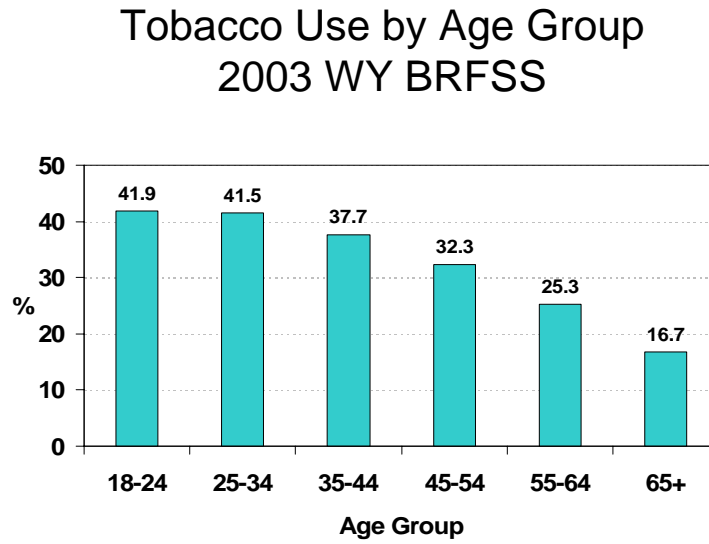
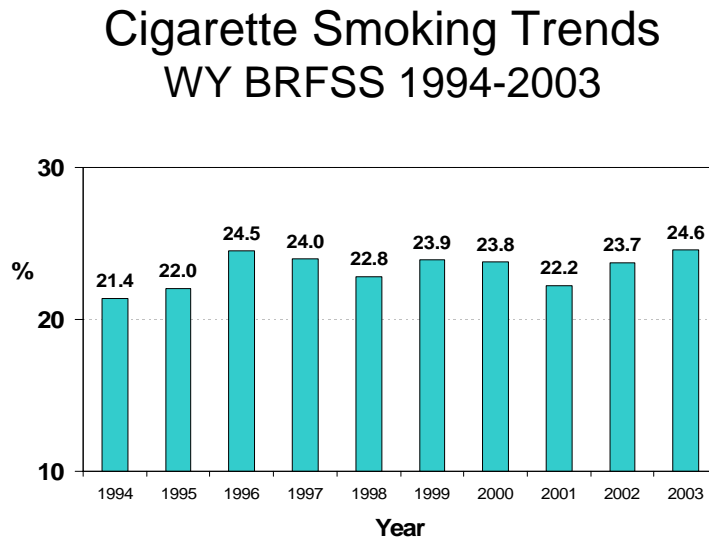


Figure 2.



Overweight

Measure: The definition of overweight was based on Body Mass Index (BMI), which is calculated from the following formula: $BMI = \text{body weight (in kilograms)} / \text{height (in meters)}^2$

Persons with $BMI \geq 30$ are considered *obese* and those with BMI 25-29.9 are *overweight (but not obese)*. In this report, unless otherwise noted, *overweight* refers to persons that are overweight or obese, having a BMI of 25 or above, based on self-reported height and weight. Results from self-reports may differ from actual measurements because it has been found that women tend to under-report their weight and all persons tend to exaggerate their height.^{6,7}

Obesity is associated with breast cancer and overweight and/or obesity may also be a factor in colorectal, prostate, and endometrial cancers.^{8,9}

Findings:

- Over half of all Wyoming respondents (57.1%) were overweight based on their self-reported height and weight, representing nearly 217,000 persons.
- One in five adults (20.1%) was obese, included in the 57.1% who were overweight.
- The prevalence of overweight was at least 42%, or over 2 in every 5 adults, in every demographic group studied. Rates ranged from 42.5% for students and 42.6% for 18-24 year olds to 67.8% for 55-64 year olds (Figure 3).
- Other demographic groups with higher rates of overweight included men (66.3%), 45-54 year olds (62.7%), those out of work (62.3%), high school graduates (61.7%), and the retired (60.3%).
- Married adults were significantly more likely than the unmarried (which includes divorced and widowed) to be overweight (59.8% vs. 52.3%).
- There were no significant differences between racial/ethnic groups, or by insurance status, household income, or population density.
- Overweight persons were more likely than those not overweight to report that their current health was fair or poor (13.5% vs. 10.6%), but not to report frequent mental distress or being out of work.
- Overweight and obesity have been increasing in Wyoming since 1994 (Figure 4).

Figure 3.

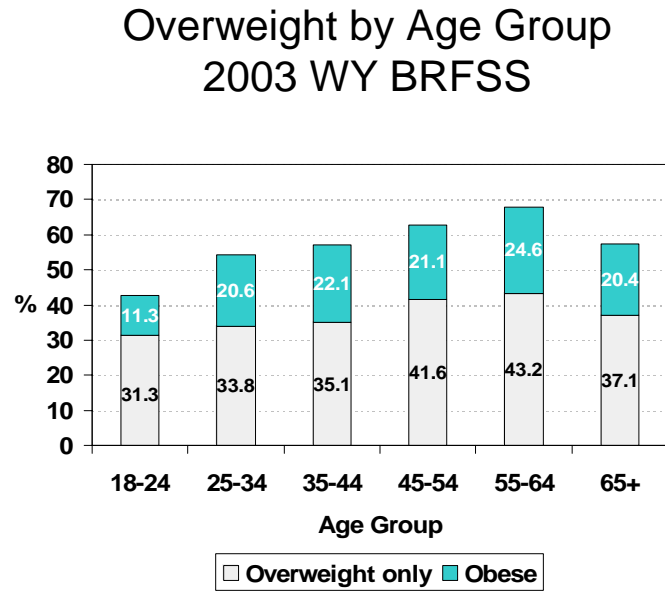
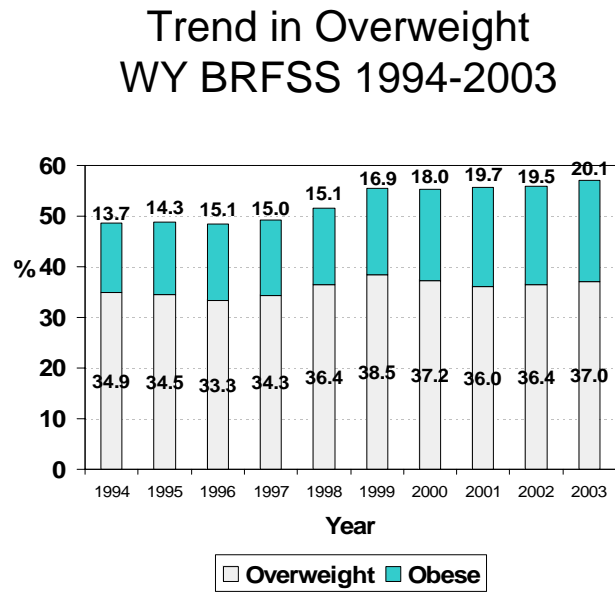


Figure 4.



Poor Nutrition: Eating Fruits & Vegetables Fewer Than 5 Times per Day

Measure: Six questions were asked about the frequency of consumption of fruit juice, fruits, and vegetables. Serving size was not considered. Responses were compiled into the number of times a day that fruits and vegetables were consumed either at home or away from home. This measure includes respondents who consumed fruits, fruit juice, and vegetables fewer than 5 times a day.

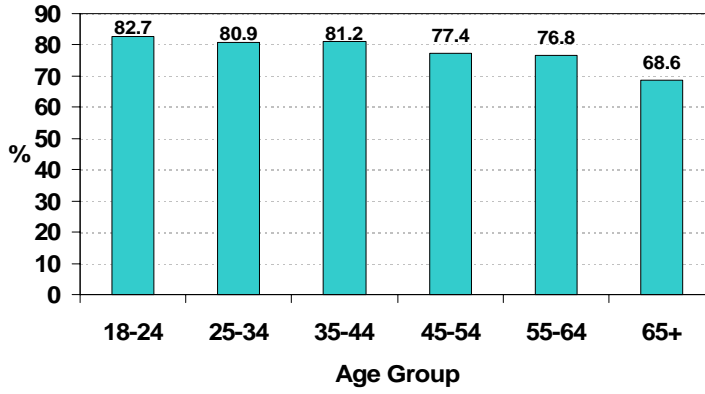
It has been estimated that as many as half of all colorectal cancers may be related to diet, including 25-35% related to inadequate consumption of fruits and vegetables. Other cancers that have been shown to be related to low intake of fruits and vegetables include cancers of the lung, stomach, esophagus, oral cavity, larynx, bladder, pancreas, cervix, and endometrium.² The current recommendation for adults is to consume a total of five servings of fruits and vegetables each day.

Findings:

- Over three-fourths (77.9%) of respondents ate fruits and vegetables fewer than 5 times each day, representing 296,000 Wyoming adults.
- Inadequate consumption of fruits and vegetables was the most prevalent of the cancer risk factors examined.
- Homemakers (66.2%), adults age 65 and older (68.6%; Figure 5), and college graduates (69.9%) had the lowest (best) rates of consuming fruits and vegetables fewer than 5 times a day, but in all cases examined, rates were over 66%.
- Highest rates of inadequate consumption of fruits and vegetables were found among men (83.3%), 18-24 year olds (82.7%; Figure 5), those without a high school diploma (81.8%), those living in Natrona or Laramie Counties (81.2%), the employed (80.9%), and students (80.0%).
- There were no significant differences among racial/ethnic groups, or by household income, marital status, or insurance status for this measure.
- Fruits and vegetables were consumed an average of 3.61 times per day (95% CI 3.54-3.68); Women ate fruits and vegetables an average of 3.93 times a day while men averaged 3.29 times a day.
- Persons who ate fruits and vegetables fewer than five times a day were more likely to report frequent mental distress (9.6% vs. 7.3%) but not to report fair or poor health status, or being out of work.
- No trend in inadequate fruit and vegetable consumption is evident between 1994 and 2003 (Figure 6).

Figure 5.

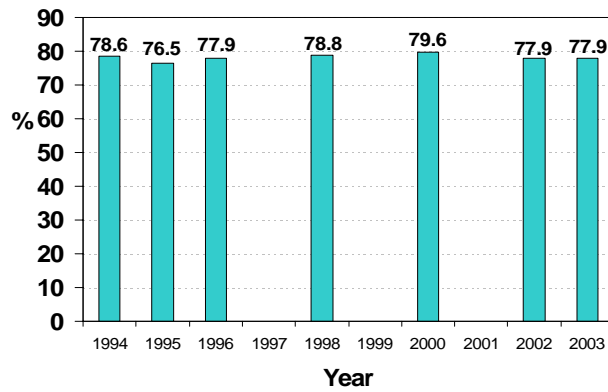
Eating < 5-A-Day* by Age Group 2003 WY BRFSS



* Eating fruits and vegetables < 5 times per day

Figure 6.

Eating Fruits & Vegetables <5 Times/Day WY BRFSS 1994-2003



Heavy Drinking

Measure: Respondents were asked how many days they drank at least one drink in the past month, and on the days they drank, how many drinks they drank, on average. Responses were compiled to determine the total number of drinks consumed per month, which was divided by 30 to determine the average number of drinks per day. Women who consumed an average of more than one drink per day, and men who drank more than two drinks per day, on average, were considered to be heavy drinkers.

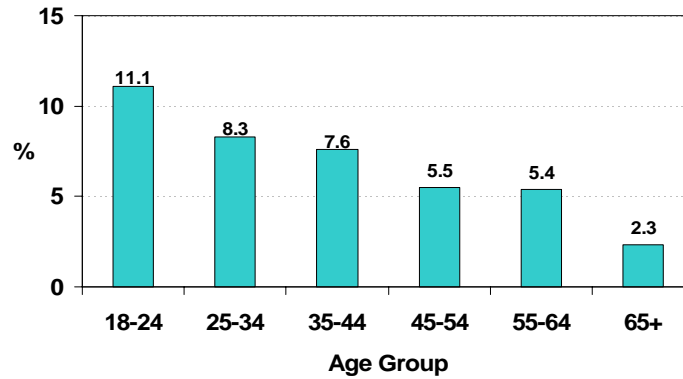
Alcohol consumption has been shown to be associated with cancers of the liver, esophagus, nasolarynx, and larynx, and possibly with cancers of the stomach, colon, and breast.² The combined effect of alcohol and tobacco increases risk even more.

Findings:

- Overall, 6.6% of Wyoming adults were classified as heavy drinkers, representing 25,000 persons.
- These figures included 6.7% of men who consumed more than two drinks per day, and 6.4% of women who consumed more than one drink per day, on average.
- Highest rates of heavy drinking were among 18-24 year olds (11.1%) and rates decreased with age, to 2.3% for adults age 65 and older (Figure 7).
- Unmarried adults were more likely than married persons to be heavy drinkers (10.2% vs. 4.6%).
- Heavy drinking was also high among students (8.9%).
- Heavy drinking rates were similar for men and women, for different racial and ethnic groups, and by household income, population density, and health insurance status.
- About 60% of heavy drinkers also used tobacco, further increasing their cancer risk.
- Heavy drinkers were more likely to report frequent mental distress (14.2% vs. 8.6% for non-heavy drinkers), but not fair or poor health or being out of work.
- Heavy drinking appears to be increasing in the three years this measure has been obtained (Figure 8).

Figure 7.

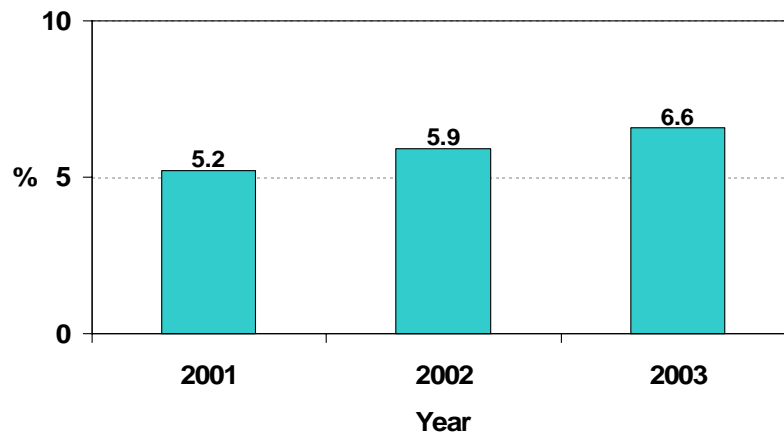
Heavy Drinking* by Age Group 2003 WY BRFSS



* >2 drinks/day for men or >1 drink/day for women

Figure 8.

Heavy Drinking* WY BRFSS 2001-2003



* >2 drinks/day for men or >1 drink/day for women

Physical Inactivity

Measure: Several questions were asked about the frequency and duration of both moderate and vigorous activities that persons engaged in while not at work. Results were combined to determine the percent of respondents that met the recommendations to engage in moderate activities for 30 minutes a day at least 5 times a week or vigorous activities for 20 minutes a day at least 3 times a week. Those that did not meet either of these recommendations were considered to be physically inactive or “at risk.”

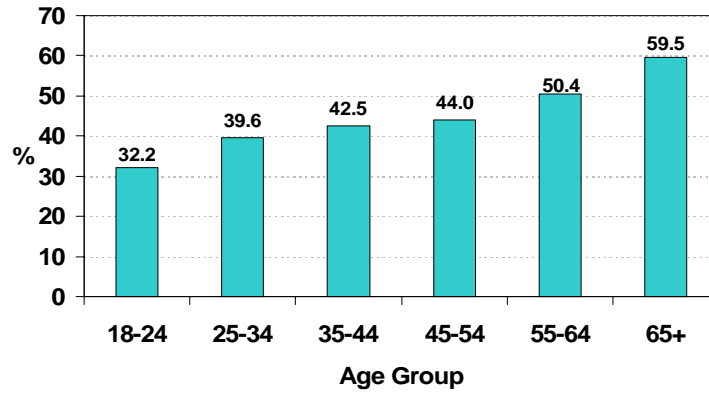
Nearly one third of colorectal cancer cases have been estimated to be attributed to physical inactivity.¹⁰ Although the relative risk is small, the attributable risk is high because so many adults fail to exercise adequately.

Findings:

- Over two in every five respondents (44.6%) were not meeting the recommendations for physical activity, representing an estimated 169,500 persons.
- Adults who were least likely to be exercising adequately included those age 65 and older (59.5%), the retired (58.4%), the obese (55.3%), the out of work (54.8%), those with less than a high school education (53.2%), those from low income households (>50%), and 55-64 year olds (50.4%; Figure 9).
- Students were the least likely to be at risk for physical inactivity, with 23.9% not meeting the recommendations.
- Young adults age 18-24, or 25-34 years of age (Figure 9) or adults from households with incomes of \$75,000 or more were also less likely to be at risk (32.2%, 39.6%, and 35.7% respectively *not* meeting the recommendations).
- Physical inactivity was not associated with gender, marital status, or race/ethnicity, and was only weakly associated with population density.
- About one fourth of those who did not meet the exercise recommendation engaged in no activity at all outside of their job duties (10.5% of all respondents).
- Persons who did not meet the exercise recommendations were twice as likely to report fair or poor health as those that exercised regularly (16.6% vs. 8.1%) and were also more likely to be out of work (7.8% vs. 5.2%). There was no significant difference in rates of frequent mental distress between these two groups.
- This was a new measure in 2003; data for a related measure, no leisure time physical activity, show no apparent trend between 1994 and 2003 (Figure 10).

Figure 9.

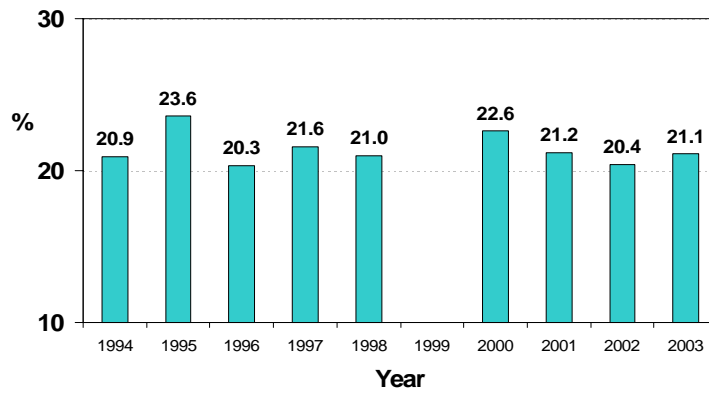
Physical Inactivity* by Age Group 2003 WY BRFSS



*Not meeting recommendation for vigorous or moderate exercise

Figure 10.

Trend in No Leisure Time Activity* WY BRFSS 1994-2003



* Respondents reporting no physical activity in the past 30 days other than their regular job

Sunburn

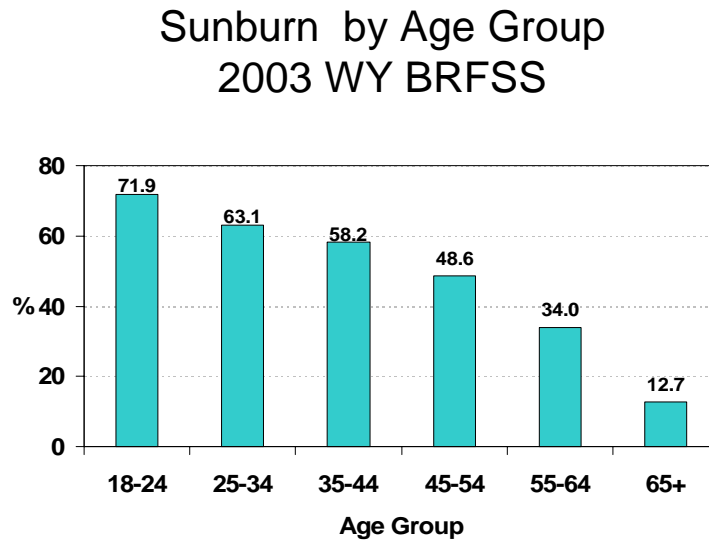
Measure: Respondents were asked if they had a sunburn in the past 12 months, and if so, how many sunburns they had. A sunburn was defined as when even a small part of the skin was red for more than 12 hours. Persons who had one or more sunburns in the past year were considered to be at risk.

A fraction of the total number of skin cancer cases are skin melanoma, which accounts for virtually all of skin cancer mortality. Fair-skinned persons who sunburn easily are most susceptible to skin cancer of any type. Voluntary sun exposure, especially repeated blistering sunburns in childhood increase risk. Using effective sunscreen or wearing protective clothing are preventive measures that should be employed when exposure, especially between 10 AM and 3 PM, can't be avoided.²

Findings:

- Nearly half (48.2%) of all respondents reported they had a sunburn in the past 12 months, representing about 183,000 adults.
- Highest rates for reported sunburn were among students (78.0%) and 18-24 year olds (71.9%; Figure 11).
- Sunburn rates decreased with age to 12.7% among adults age 65 and older (Figure 11).
- Relatively low sunburn rates were also reported for retirees (16.2%) and those of race/ethnicities other than non-Hispanic white or Hispanic (32.4%).
- Men were significantly more likely than women to report sunburn (52.7% vs. 43.6%).
- High sunburn rates were also found among those with higher incomes (58.6% for \$50-\$74,999 and 50.1% for incomes above \$75,000), the uninsured (54.4%), the employed (54.5%), especially those not working indoors most of the time (59.5%, data not shown).
- Sunburn rates were similar for married and unmarried persons and for counties with varying population density.
- Breaking the results down by the number of sunburns among all adults, 12.9% reported one, 12.1% reported two, 8.0% reported three, 4.2% reported four, 3.5% reported five, and 7.5% reported six or more. Men were twice as likely as women to report six or more sunburns in the past year (10.3% vs. 4.6% of women; Figure 12).
- Persons who reported sunburn were less likely to report fair or poor health (7.2% vs. 17.1%) and being out of work (5.5% vs. 7.8%) but not frequent mental distress, when compared with those who did not report any sunburn.
- No trend data are available for this measure which was only measured in 2003.

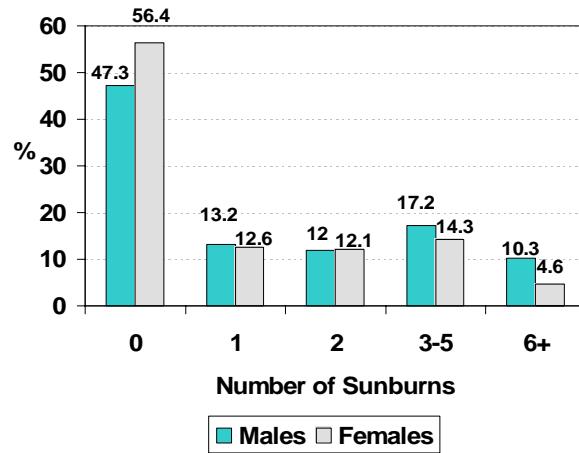
Figure 11.



One or more in past year

Figure 12.

Sunburns in Past Year by Gender 2003 WY BRFSS



Multiple Risk Factors

Measure: The number of potentially modifiable cancer risk factors reported by each respondent was tallied and could be anywhere from zero to six. Persons with missing values were included in the denominator and thus were assumed to not have the risk factor. Analyses were done comparing persons reporting no risk factors with those reporting any, and those with fewer than three cancer risk factors with those who reported three or more.

Findings:

- Only 3.1% of respondents reported none of the cancer risk factors, with 96.9% reporting at least one, representing an estimated 368,000 Wyoming adults.
- Men were more likely than women to report any of the potentially modifiable cancer risk factors (98.9% vs. 95.0%), and tended to report more risk factors than women (Figure 13).
- While only about 3% reported no cancer risk factors, 13.5% of all respondents reported one risk factor, 29.0% reported two, 31.8% reported three, 17.8% reported four, and 4.9% reported five or all six.
- Men reported an average of 2.89 risk factors compared with 2.36 for women.
- Over half (54.4%) of all adults reported three or more cancer risk factors.
- Younger adults, students, men, those with less education, those having lower household incomes, and the uninsured, out of work, and the employed were more likely than other persons to report three or more risk factors.
- The number of cancer risk factors was strongly associated with self-reported general health status as shown in Figure 14. The more risk factors reported, the more likely the respondent was to report fair or poor health, and the less likely to report excellent or very good health.
- Prevalence of four of the risk factors was highest among younger adults, and decreased with age (tobacco use, eating fruits and vegetables < 5 times per day, sunburns, and heavy drinking). Prevalence rates for overweight and physical inactivity tended to increase with age and be lower among students. These results are in contrast to results for cardiovascular disease, where risk factor prevalence rates for five of the six risk factors (except smoking) increased with age.¹¹
- Persons with 3 or more cancer risk factors were more likely to report frequent mental distress (11.0% vs. 6.7% for < 3 cancer risks) but not fair or poor health or being out of work.

Figure 13.

No. of Cancer Risk Factors by Sex 2003 WY BRFSS

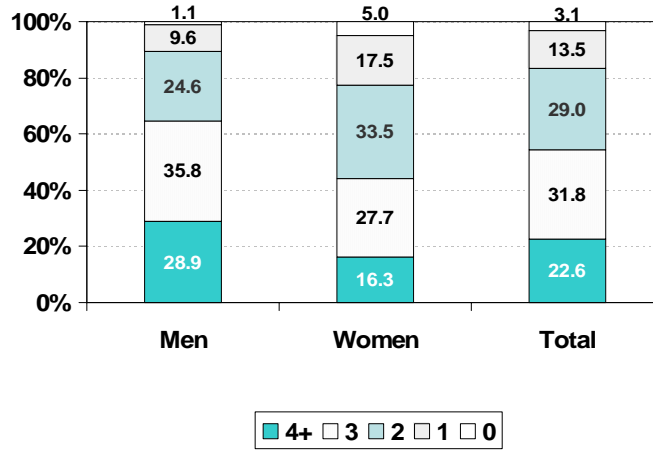
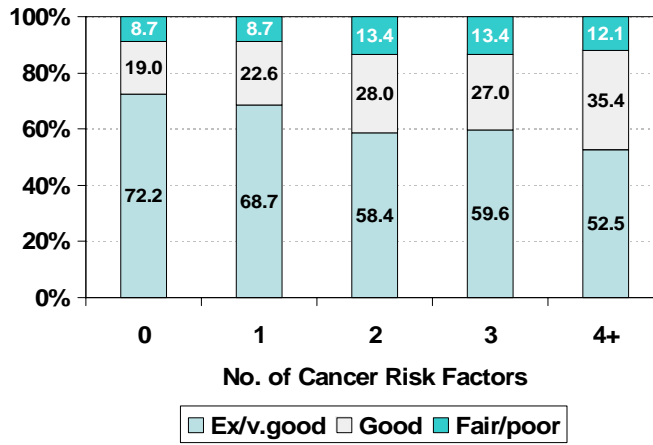


Figure 14.

Health Status by No. of Cancer Risk Factors 2003 WY BRFSS



Risk Factor Associations

Many of the cancer risk factors were associated; that is, they tended to occur together in the same person. Table 3 illustrates these associations, with those that were significantly more likely to occur together indicated in teal. In a few cases, risk factors were negatively associated, or occurred together less often than expected; those are indicated in light gray.

Table 3.
Risk Factor Associations

Of those in this risk group:	Prevalence of this risk factor					
	BMI \geq 25	Eat <5 a day	Sunburn	Heavy drinking	Does Not Meet Exercise recomm. *	Current Tobacco use
All adults	57.1	77.9	48.2	6.6	44.6	32.7
BMI \geq 25	Yes	79.6	47.4	5.0	47.4	31.7
	No	75.7	49.7	8.9	40.4	34.4
Eat <5 a day	Yes	58.4	50.0	6.9	47.0	35.4
	No	52.9	41.8	5.5	36.3	23.1
Sunburn	Yes	56.0	80.9	7.4	40.3	35.9
	No	58.3	75.3	5.8	48.6	29.7
Heavy drinking	Yes	43.1	81.5	54.1	40.7	61.3
	No	58.2	77.5	47.8	44.9	30.4
Exercise recomm. *	Doesn't meet	61.3	81.7	44.2	6.1	32.9
	Does meet	54.4	74.1	52.6	7.2	32.5
Current Tobacco use	Yes	55.1	84.4	52.9	12.5	44.9
	No	58.1	74.8	45.9	3.8	44.5

* Recommendation is for moderate or vigorous activity.

Guide to reading table: Select a risk factor from the left hand column and compare those with the risk factor (yes), to those without the risk factor (no). Example: 5.0% of overweight persons were heavy drinkers, compared with 8.9% of those who were not overweight. Risk factors that were associated ($p < 0.05$) are indicated in teal. Negative associations, where persons were *less* likely to report the risk factor, are indicated by light gray shading.

Associations between the risk factors and measures of current quality of life are shown in Table 4. These data were reported in the findings for each risk factor but are summarized here for convenience.

Table 4.
Associations of Cancer Risk Factors
with Selected Measures of Health and Health Status

Of those in this risk group:	Prevalence of this factor		
	F/P Health	Frequent Mental Distress	Out of Work
All adults	12.3	9.1	6.7
Current Tobacco			
Yes	15.0	13.2	9.8
No	11.0	7.1	5.3
BMI \geq 25			
Yes	13.5	9.2	7.1
No	10.6	8.9	5.7
Eat f/v < 5x/day			
Yes	12.5	9.6	6.8
No	11.8	7.3	6.6
Sunburn			
Yes	7.2	9.5	5.5
No	17.1	8.6	7.8
PA recommendation*			
Doesn't meet	16.6	10.0	7.8
Does meet	8.1	8.0	5.2
Heavy Drinking			
Yes	10.2	14.2	5.7
No	12.4	8.6	6.7
3+ cancer risks			
Yes	12.9	11.0	7.5
No	11.7	6.7	5.8

* PA: physical activity; Recommendation is for either moderate or vigorous exercise

Out of work = those unemployed or unable to work, compared with all others, including the retired, self-employed, homemakers, etc.

Guide to reading table: Select a risk factor from the left hand column and compare those with the risk factor (yes), to those without the risk factor (no). Risk factors that were positively associated ($p < 0.05$) are indicated in teal. Light gray shading indicates an inverse association; that is, those with the risk factor were *less* likely to report that measure.

Exposure to Workplace Environmental Tobacco Smoke (ETS)

Measure: Employed or self-employed persons who worked indoors most of the time were asked a state-added question about how often they were exposed to secondhand cigarette smoke at work. Persons who were frequently or sometimes exposed were considered to be at risk. Those who were exposed seldom or never were considered not at risk, although they could be exposed to ETS at home or other places. Unless otherwise noted, this measure is only reported for non-smokers who worked mostly indoors because smokers already have considerable elevated risk of cancer due to their smoking and exposure to their own secondhand smoke. In addition to the usual demographics, this measure was also analyzed by region. Counties were grouped into the following five regions: **Southeast** (Albany, Goshen, Laramie, Platte), **Southwest** (Carbon, Lincoln, Sweetwater, Sublette, Uinta), **Northwest** (Big Horn, Hot Springs, Park, Teton, Washakie), **Northeast** (Campbell, Crook, Johnson, Sheridan, Weston), and **Central** (Converse, Fremont, Natrona, Niobrara).

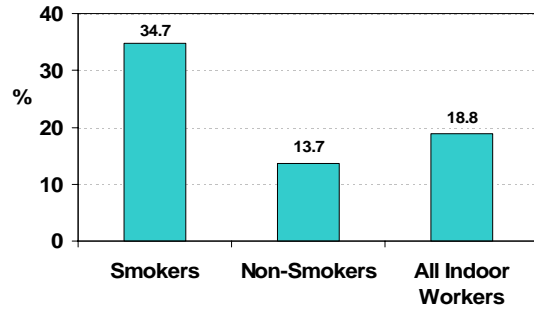
Exposure to environmental tobacco smoke may be responsible for as many as 2% of all lung cancer cases in the U.S.²

Findings:

- Among all 1,788 respondents who worked indoors most of the time, 18.8% (representing approximately 31,000 workers) reported being exposed to secondhand tobacco smoke at work. Smokers were much more likely than non-smokers to be exposed (Figure 15).
- Over half (55%) of these exposed employees were non-smokers, representing about 17,000 non-smoking workers exposed to ETS.
- Considering only the 1,357 *non-smokers* who worked indoors, 13.7% of these non-smokers who worked indoors reported they were exposed to ETS at work.
- Non-smoking high school graduates who worked indoors and residents of the Southwest Region (Figure 16) had highest rates of exposure to ETS (20.8% and 21.6% respectively).
- College graduates (5.2%), residents of the Northwest Region (6.5%; Figure 16) and adults age 65 and older (8.7%) were among the non-smokers least likely to be exposed to environmental tobacco smoke at work.
- Uninsured non-smokers were also more likely than insured non-smokers to report exposure to ETS at work (20.5% vs. 12.8% for the insured).
- The rate of non-smoker exposure to ETS among all non-smokers who were employed was 9.7%, or nearly one in every ten employed non-smokers.
- A total of 29.7% of all respondents either smoked or were non-smokers exposed to ETS at work.
- No differences were noted between non-smokers who were exposed and those not exposed to ETS at work for health status or frequent mental distress.

Figure 15.

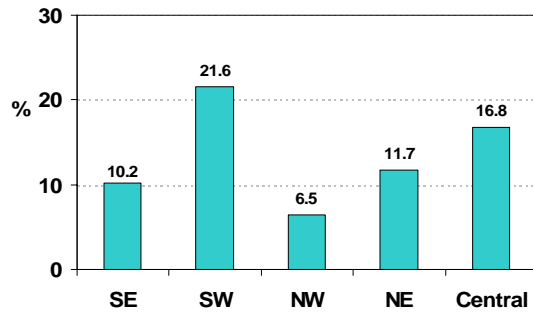
ETS* Exposure Among Indoor Workers 2003 WY BRFSS



* Environmental Tobacco Smoke

Figure 16.

ETS* Exposure Among Non-Smoking Indoor Workers By Region, 2003 WY BRFSS



* Environmental Tobacco Smoke

B. Secondary Prevention: Screening

Breast and Cervical Cancer

Measure: Women age 40 and older who have had a mammogram and a clinical breast exam.

Findings:

- A total of 83.6% of women age 40 and older had ever had a clinical breast exam and a mammogram.
- Lowest screening rates were found among Hispanic women (62.9%), women with less than a high school diploma (65.1%), and the uninsured (74.1%).
- Highest screening rates were for women ages 50-59 (92.1%), and women with household incomes of \$75,000 and above (91.8%; Figure 17).
- Findings were not associated with population density.

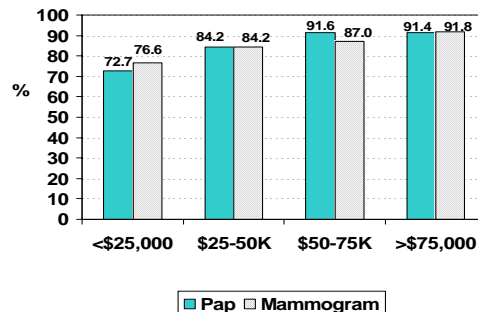
Measure: Women with an intact cervix who had a Pap test within the past three years.

Findings:

- Over four fifths of all women (83.2%) who hadn't had a hysterectomy reported they had a Pap test in the previous three years.
- Those least likely to have had a recent Pap included women age 65 and older (59.5%), women without a high school diploma (71.0%), women in households with incomes below \$25,000 (72.7%), and uninsured women (74.1%).
- Women most likely to have had a recent Pap included those 25-34 year olds (92.7%), and those in highest income groups (91.6% and 91.4% for incomes \$50-74,999 and above \$75,000 respectively; Figure 17).
- Receipt of a recent Pap test was not associated with the race/ethnicity of the respondent or population density.

Figure 17.

Women's Cancer Screenings* by Income
2003 WY BRFSS



*Had Pap in past 3 years for women with intact cervix, age 18+;
Ever had mammogram & clinical breast exam for women 40+

Colorectal Cancer Screening

Measure: Adults age 50 and older who had a blood stool test in the past two years.

Findings:

- Only about one in five adults age 50 and older (18.5%) had a blood stool test in the past 2 years.
- Adults ages 50-59 (14.3%; Figure 18), those in the lowest density counties (15.8%), and the uninsured (8.6%) were least likely to have had a recent blood stool test.
- Highest screening rates were among adults ages 60-69 (23.3%; Figure 18), Natrona and Laramie Counties (21.9%) and the insured (19.6%).
- Results were not associated with gender, education level, household income, or race/ethnicity.

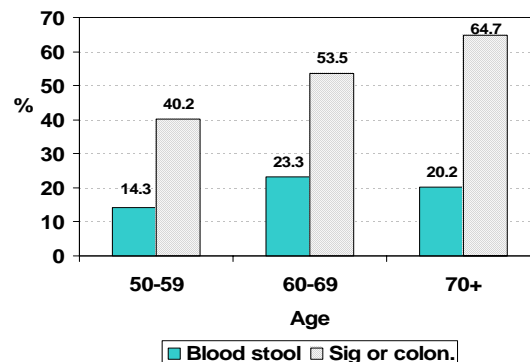
Measure: Adults age 50 and older who have ever had either a sigmoidoscopy or colonoscopy.

Findings:

- About half (50.9%) of all respondents age 50 and older had ever had a sigmoidoscopy or colonoscopy,
- Adults ages 50-59 (40.2%; Figure 18), those in the lowest density counties (45.2%), and the uninsured (32.9%) were least likely to have received either of these tests.
- Highest screening rates were found for adults ages 70 and older (64.7%; Figure 18) and Natrona and Laramie Counties (60.3%).
- Results were not associated with gender, education level, household income, or race/ethnicity.

Figure 18.

Colorectal Cancer Screenings* by Age 2003 WY BRFSS



*Blood stool test in 2 years for adults, age 50+
Had sigmoidoscopy or colonoscopy, age 50+

IV. Summary

The results presented in this report indicate that in 2003, 96.9% of all Wyoming adults, or an estimated 368,000 persons, had one or more of six potentially modifiable risk factors related to cancer. Or, conversely, only about 3% of all adults appear to be practicing lifestyles that were not increasing their risk of cancer. Over one half (54.4%) of all adults reported three or more risk factors for cancer. There was a wide range of results for different demographic groups, summarized in Table 5 below.

Table 5.
Summary of Results
Wyoming BRFSS 2003

Risk Factor	Prevalence % (CI)	Range of Prevalence Rates (%) and Group			
		Low	Group	High	Group
Tobacco use	32.7 (31.0-34.4)	16.7	Age 65+	49.6	< HS grad
Overweight (BMI \geq 25)	57.1 (55.3-58.9)	42.5	Students	67.8	Age 55-64
Fruits & veg < 5x /day	77.9 (76.5-79.3)	66.2	Homemakers	83.3	Men
Heavy drinking*	6.6 (5.7-7.5)	2.3	Age 65+	11.1	Age 18-24
Physical inactivity **	44.6 (42.8-46.4)	23.9	Students	59.5	Age 65+
Sunburn	48.2 (46.4-49.9)	12.7	Age 65+	78.0	Students
Any cancer risk factor	96.9 (96.4-97.4)	93.6	Age 65+	100.0	Students
3 or more risk factors	54.4 (52.5-56.1)	36.3	Age 65+	64.8	Men

* >1/day for women and >2/day for men

**Did not meet recommendation for vigorous or moderate exercise

In contrast to the results for cardiovascular disease¹¹, cancer risk factors tended to be higher among younger adults and students, and also for men, the uninsured, and those with less education. Most rates were lower for older adults, those with highest incomes, homemakers, retirees, and insured adults. Results for overweight and inactivity appeared to be in contrast to results for the other four risk factors, with rates higher among older adults. The range of results shown in Table 5 suggests that improvement is possible. Results for screening rates for mammography, Pap testing, and colorectal cancer screening also suggest room for improvement.

Although tobacco use, overweight, heavy drinking, poor nutrition, physical inactivity, and sunburn were addressed because they have been shown to increase future risk for cancer, the results also showed a correlation between these risk factors and current quality of life. For example, the more risk factors respondents reported, the more likely they were to report fair or poor health, and the less likely to report excellent or very good health. Persons reporting certain cancer risk factors were also more likely to report frequent mental distress, or being out of work. These results suggest that both long-range and immediate rewards may be reaped by successful behavior modification.

Table S-1: Tobacco Use (Cigarettes, smokeless, cigars, pipes, or bidis)

Population Group	Weighted Percent	Confidence Interval
Total	32.7	31.0-34.4
Gender		
Male	40.6	37.9-43.3
Female	24.7	22.8-26.9
	P<0.001	
Age Group		
18-24	41.9	35.9-48.3
25-34	41.5	37.1-46.1
35-44	37.7	33.9-41.7
45-54	32.3	29.1-35.7
55-64	25.3	21.9-29.1
65+	16.7	14.0-19.7
	P<0.001	
Race		
White, non-Hispanic	31.4	29.6-33.2
Hispanic	41.5	33.1-50.5
Other race	46.7	38.1-55.4
	P<0.001	
Education		
< High School grad	49.6	42.6-56.6
High School grad	40.0	36.9-43.0
Some college	32.5	29.6-35.6
College grad	18.6	16.2-21.4
	P<0.001	
Household Income		
<\$15,000	35.7	29.9-42.0
\$15K-\$24,999	38.7	34.3-43.2
\$25K-\$49,999	35.5	32.5-38.6
\$50K-\$74,999	28.6	25.0-32.6
\$75,000+	25.2	21.3-29.4
Unknown	29.7	24.2-35.7
	P<0.001	
Marital Status		
Married	28.8	26.8-30.9
Not married	39.9	36.9-43.0
	P<0.001	
Population Density		
Counties >50,000	35.4	32.2-38.7
Counties 10,000-50,000	32.0	29.3-34.8
Counties <10,000	30.0	27.1-33.1
	P=0.059	
Employment		
Employed	35.6	33.5-37.8
Out of work	47.5	40.9-54.3
Homemaker	21.7	16.7-27.8
Student	30.8	21.7-41.7
Retired	19.0	16.1-22.4
	P<0.001	
Insurance status		
Insured	29.6	27.8-31.4
Uninsured	47.8	43.1-52.4
	P<0.001	

Table S-2: Overweight (BMI ≥25)

Population Group	Weighted Percent	Confidence Interval
Total	57.1	55.3-58.9
Gender		
Male	66.3	63.6-68.9
Female	47.6	45.3-50.0
	P<0.001	
Age Group		
18-24	42.6	36.4-49.0
25-34	54.4	49.8-58.9
35-44	57.2	53.2-61.2
45-54	62.7	59.3-66.0
55-64	67.8	63.8-71.6
65+	57.5	53.7-61.2
	P<0.001	
Race		
White, non-Hispanic	56.5	54.6-58.3
Hispanic	63.5	54.6-71.5
Other race	64.1	55.4-72.0
	P=0.086	
Education		
< High School grad	51.1	44.1-58.0
High School grad	61.7	58.6-64.7
Some college	55.7	52.5-58.9
College grad	55.1	51.7-58.3
	P=0.004	
Household Income		
<\$15,000	57.2	50.8-63.3
\$15K-\$24,999	58.5	53.8-62.9
\$25K-\$49,999	57.9	54.8-60.9
\$50K-\$74,999	57.7	53.6-61.8
\$75,000+	57.7	53.2-62.1
Unknown	49.9	43.6-56.2
	P=0.298	
Marital Status		
Married	59.8	57.7-61.9
Not married	52.3	49.1-55.4
	P<0.001	
Population Density		
Counties >50,000	55.3	51.9-58.6
Counties 10,000-50,000	57.8	55.0-60.7
Counties <10,000	58.3	55.0-61.5
	P=0.379	
Employment		
Employed	57.9	55.7-60.1
Out of work	62.3	55.4-68.8
Homemaker	50.4	44.4-56.5
Student	42.5	32.0-53.8
Retired	60.3	56.3-64.1
	P=0.001	
Insurance status		
Insured	57.5	55.5-59.4
Uninsured	56.5	51.7-61.1
	P=0.708	

Excludes missing values. P<0.05 indicates a statistically significant association

Excludes missing values. P<0.05 indicates a statistically significant association

Table S-3: Eats Fruits and Vegetables < 5 Times/day

Population Group	Weighted Percent	Confidence Interval
Total	77.9	76.5-79.3
Gender		
Male	83.3	81.2-85.3
Female	72.6	70.5-74.5
	P<0.001	
Age Group		
18-24	82.7	77.4-86.9
25-34	80.9	77.3-84.1
35-44	81.2	77.9-84.1
45-54	77.4	74.3-80.3
55-64	76.8	73.3-80.1
65+	68.6	65.0-72.0
	P<0.001	
Race		
White, non-Hispanic	77.8	76.3-79.3
Hispanic	82.9	75.8-88.2
Other race	74.7	66.1-81.7
	P=0.247	
Education		
< High School grad	81.8	75.8-86.6
High School grad	82.3	79.9-84.5
Some college	78.8	76.2-81.2
College grad	69.9	66.8-72.8
	P<0.001	
Household Income		
<\$15,000	78.1	72.9-82.6
\$15K-\$24,999	78.4	74.5-81.8
\$25K-\$49,999	78.3	75.7-80.7
\$50K-\$74,999	78.5	75.0-81.6
\$75,000+	75.2	71.2-78.8
Unknown	79.0	74.2-83.2
	P=0.762	
Marital Status		
Married	77.6	75.8-79.3
Not married	78.6	76.0-80.9
	P=0.531	
Population Density		
Counties >50,000	81.2	78.5-83.6
Counties 10,000-50,000	76.2	73.7-78.5
Counties <10,000	76.4	73.7-79.0
	P=0.010	
Employment		
Employed	80.9	79.2-82.5
Out of work	78.4	72.2-83.6
Homemaker	66.2	60.5-71.5
Student	80.0	69.9-87.3
Retired	70.1	66.4-73.6
	P<0.001	
Insurance status		
Insured	77.5	75.9-79.0
Uninsured	80.5	76.5-83.9
	P=0.159	

Excludes missing values. P<0.05 indicates a statistically significant association

Table S-4: Heavy Drinking (>2 drinks/day for men and > 1 drink/day for women)

Population Group	Weighted Percent	Confidence Interval
Total	6.6	5.7-7.5
Gender		
Male	6.7	5.5-8.2
Female	6.4	5.3-7.8
	P=0.749	
Age Group		
18-24	11.1	7.7-15.6
25-34	8.3	6.2-11.0
35-44	7.6	5.7-10.0
45-54	5.5	4.1-7.3
55-64	5.4	3.8-7.5
65+	2.3	1.4-3.7
	P<0.001	
Race		
White, non-Hispanic	6.6	5.7-7.7
Hispanic	7.1	3.8-13.0
Other race	5.0	2.6-9.3
	P=0.705	
Education		
< High School grad	11.0	7.0-16.9
High School grad	6.3	5.0-8.0
Some college	6.6	5.2-8.4
College grad	5.7	4.3-7.5
	P=0.067	
Household Income		
<\$15,000	8.1	5.3-12.4
\$15K-\$24,999	6.8	4.6-9.9
\$25K-\$49,999	6.3	4.9-8.0
\$50K-\$74,999	6.0	4.4-8.2
\$75,000+	6.8	4.8-9.7
Unknown	6.6	4.3-10.0
	P=0.912	
Marital Status		
Married	4.6	3.8-5.6
Not married	10.2	8.4-12.3
	P<0.001	
Population Density		
Counties >50,000	7.2	5.6-9.2
Counties 10,000-50,000	7.0	5.6-8.6
Counties <10,000	5.4	4.1-7.0
	P=0.264	
Employment		
Employed	7.5	6.4-8.7
Out of work	5.6	3.3-9.5
Homemaker	4.9	2.6-8.9
Student	8.9	4.7-16.4
Retired	3.2	2.0-5.0
	P=0.020	
Insurance status		
Insured	6.3	5.4-7.4
Uninsured	7.6	5.5-10.4
	P=0.325	

Excludes missing values. P<0.05 indicates a statistically significant association

Table S-5: Physical Inactivity: Does Not Meet Recommendation for Moderate or Vigorous Activity

Population Group	Weighted Percent	Confidence Interval
Total	44.6	42.8-46.4
Gender		
Male	43.4	40.6-46.1
Female	45.9	43.6-48.2
	P=0.170	
Age Group		
18-24	32.2	26.5-38.4
25-34	39.6	35.1-44.2
35-44	42.5	38.6-46.6
45-54	44.0	40.4-47.6
55-64	50.4	46.1-54.6
65+	59.5	55.6-63.3
	P<0.001	
Race		
White, non-Hispanic	44.8	42.9-46.7
Hispanic	45.7	37.2-54.5
Other race	39.5	31.3-48.3
	P=0.517	
Education		
< High School grad	53.2	45.9-60.4
High School grad	48.0	44.8-51.2
Some college	42.8	39.6-46.0
College grad	40.2	37.0-43.5
	P=0.001	
Household Income		
<\$15,000	50.3	43.8-56.9
\$15K-\$24,999	51.5	46.9-56.1
\$25K-\$49,999	43.5	40.4-46.6
\$50K-\$74,999	42.4	38.3-46.5
\$75,000+	35.7	31.5-40.0
Unknown	51.7	45.1-58.2
	P<0.001	
Marital Status		
Married	44.4	42.2-46.6
Not married	45.0	41.8-48.2
	P=0.780	
Population Density		
Counties >50,000	46.9	43.6-50.3
Counties 10,000-50,000	41.7	38.8-44.6
Counties <10,000	45.3	42.0-48.7
	P=0.049	
Employment		
Employed	42.4	40.2-44.7
Out of work	54.8	47.7-61.6
Homemaker	44.0	38.1-50.2
Student	23.9	16.2-33.9
Retired	58.4	54.3-62.4
	P<0.001	
Insurance status		
Insured	45.3	43.3-47.2
Uninsured	41.8	37.1-46.6
	P=0.187	

Table S-6: Sunburn in Past Year

Population Group	Weighted Percent	Confidence Interval
Total	48.2	46.4-49.9
Gender		
Male	52.7	50.0-55.4
Female	43.6	41.4-45.9
	P<0.001	
Age Group		
18-24	71.9	66.0-77.2
25-34	63.1	58.6-67.4
35-44	58.2	54.2-62.1
45-54	48.6	45.1-52.1
55-64	34.0	30.2-38.1
65+	12.7	10.3-15.4
	P<0.001	
Race		
White, non-Hispanic	48.8	47.0-50.7
Hispanic	53.0	44.5-61.4
Other race	32.4	24.5-41.3
	P=0.002	
Education		
< High School grad	35.3	28.7-42.7
High School grad	48.0	44.9-51.1
Some college	49.4	46.3-52.6
College grad	50.6	47.3-53.8
	P=0.001	
Household Income		
<\$15,000	42.6	36.3-49.2
\$15K-\$24,999	41.5	37.1-46.1
\$25K-\$49,999	49.1	46.1-52.2
\$50K-\$74,999	58.6	54.6-62.5
\$75,000+	50.1	45.6-54.5
Unknown	37.6	31.7-43.9
	P<0.001	
Marital Status		
Married	47.9	45.7-50.0
Not married	48.8	45.6-51.9
	P=0.646	
Population Density		
Counties >50,000	45.8	42.5-49.2
Counties 10,000-50,000	50.6	47.8-53.5
Counties <10,000	46.6	43.4-49.9
	P=0.059	
Employment		
Employed	54.5	52.3-56.6
Out of work	39.5	33.0-46.5
Homemaker	41.3	35.6-47.3
Student	78.0	67.7-85.7
Retired	16.2	13.4-19.4
	P<0.001	
Insurance status		
Insured	46.8	44.9-48.7
Uninsured	54.4	49.8-59.0
	P=0.003	

Excludes missing values. P<0.05 indicates a statistically significant association

Excludes missing values. P<0.05 indicates a statistically significant association

Table S-7: Any Cancer Risk Factors

Population Group	Weighted Percent	Confidence Interval
Total	96.9	96.4-97.4
Gender		
Male	98.9	98.3-99.3
Female	95.0	94.0-95.8
	P<0.001	
Age Group		
18-24	99.3	97.7-99.8
25-34	98.0	96.7-98.8
35-44	97.1	95.4-98.2
45-54	97.2	95.9-98.1
55-64	96.6	94.9-97.8
65+	93.6	91.6-95.2
	P<0.001	
Race		
White, non-Hispanic	96.9	96.3-97.4
Hispanic	98.9	96.6-99.7
Other race	97.7	94.3-99.1
	P=0.158	
Education		
< High School grad	98.4	96.1-99.4
High School grad	97.9	97.1-98.6
Some college	97.0	95.9-97.8
College grad	95.3	93.8-96.4
	P=0.001	
Household Income		
<\$15,000	98.2	95.9-99.2
\$15K-\$24,999	97.4	95.8-98.5
\$25K-\$49,999	97.2	96.2-97.9
\$50K-\$74,999	97.1	95.6-98.1
\$75,000+	96.8	95.3-97.9
Unknown		
	P=0.013	
Marital Status		
Married	96.5	95.7-97.1
Not married	97.8	97.0-98.4
	P=0.011	
Population Density		
Counties >50,000	98.2	97.2-98.8
Counties 10,000-50,000	96.3	95.2-97.1
Counties <10,000	96.4	95.1-97.3
	P=0.009	
Employment		
Employed	97.6	96.9-98.1
Out of work	98.0	95.8-99.0
Homemaker	93.8	90.5-96.0
Student	100	
Retired	94.1	91.9-95.7
	P<0.001	
Insurance status		
Insured	96.8	96.1-97.3
Uninsured	97.9	96.5-98.8
	P=0.132	

Excludes missing values. P<0.05 indicates a statistically significant association

Table S-8: Three or More Cancer Risk Factors

Population Group	Weighted Percent	Confidence Interval
Total	54.4	52.6-56.1
Gender		
Male	64.8	62.1-67.3
Female	44.1	41.8-46.3
	P<0.001	
Age Group		
18-24	59.6	53.2-65.6
25-34	62.8	58.4-67.0
35-44	61.1	57.2-64.9
45-54	54.1	50.6-57.6
55-64	52.9	48.7-56.9
65+	36.3	32.7-40.1
	P<0.001	
Race		
White, non-Hispanic	54.2	52.3-56.0
Hispanic	58.3	49.8-66.3
Other race	55.1	46.5-63.4
	P=0.616	
Education		
< High School grad	58.1	51.2-64.7
High School grad	60.9	57.9-63.8
Some college	54.0	50.8-57.1
College grad	45.6	42.3-48.8
	P<0.001	
Household Income		
<\$15,000	54.2	47.8-60.4
\$15K-\$24,999	57.5	53.1-61.8
\$25K-\$49,999	56.3	53.2-59.3
\$50K-\$74,999	56.8	52.8-60.8
\$75,000+	47.4	43.0-51.9
Unknown	49.1	43.1-55.1
	P=0.006	
Marital Status		
Married	53.1	51.0-55.3
Not married	56.8	53.7-59.9
	P=0.053	
Population Density		
Counties >50,000	56.1	52.9-59.3
Counties 10,000-50,000	53.2	50.4-56.1
Counties <10,000	53.6	50.4-56.8
	P=0.378	
Employment		
Employed	58.2	56.1-60.4
Out of work	60.5	53.9-66.8
Homemaker	39.1	33.4-45.2
Student	56.2	44.9-66.9
Retired	42.0	38.0-46.0
	P<0.001	
Insurance status		
Insured	52.6	50.7-54.5
Uninsured	63.8	59.3-68.0
	P<0.001	

Excludes missing values. P<0.05 indicates a statistically significant association

Table S-9: Non-Smokers Exposed to Secondhand Smoke (N= 1,357 non-smokers who work mostly indoors)

Population Group	Weighted Percent	Confidence Interval
Total	13.7	11.7-16.0
Gender		
Male	18.1	14.5-22.3
Female	10.3	8.2-12.8
	P<0.001	
Age Group		
18-24	18.8	11.4-29.5
25-34	14.0	9.9-19.4
35-44	12.4	9.0-16.8
45-54	13.6	10.3-17.7
55-64	11.9	8.1-17.1
65+	8.7	3.2-21.5
	P=0.462	
Race		
White, non-Hispanic	13.6	11.6-16.0
Hispanic	17.1	8.8-30.8
Other race	---	----
	P=0.572	
Education		
< High School grad	---	----
High School grad	20.8	16.0-26.6
Some college	17.4	13.6-21.9
College grad	5.2	3.6-7.4
	P<0.001	
Household Income		
<\$15,000	---	----
\$15K-\$24,999	17.4	11.3-25.7
\$25K-\$49,999	16.1	12.6-20.3
\$50K-\$74,999	12.7	8.8-18.0
\$75,000+	8.1	5.4-12.1
Unknown	14.4	7.7-25.2
	P=0.043	
Marital Status		
Married	12.9	10.7-15.4
Not married	15.8	11.8-20.9
	P=0.239	
Population Density		
Counties >50,000	10.8	8.0-14.4
Counties 10,000-50,000	16.2	12.9-20.1
Counties <10,000	12.5	8.7-17.5
	P=0.086	
Insurance status		
Insured	12.8	10.8-15.2
Uninsured	20.5	14.1-28.9
	P=0.024	
Region		
Southeast	10.2	7.3-14.3
Southwest	21.6	16.1-28.4
Northwest	6.5	3.8-10.8
Northeast	11.7	7.3-18.3
Central	16.8	12.7-21.9
	P<0.001	

Excludes missing values. P<0.05 indicates a statistically significant association

Table S-10: Comparisons
Comparisons with a P value <0.05 are shaded

Measure/comparison	Weighted Percent	Confidence Interval
Fair/poor health (total)	12.3	11.3-13.5
Tobacco use yes	15.0	12.9-17.4
Tobacco use no	11.0	9.9-12.3
Overweight	13.5	12.0-15.0
Not overweight	10.6	9.0-12.4
Eat 5 a day	11.8	9.8-14.1
Eat< 5 a day	12.5	11.3-13.9
Heavy drinking yes	10.2	6.8-15.0
Heavy drinking no	12.4	11.3-13.7
Phys inactive	16.6	14.8-18.6
Meets recommendation	8.1	6.9-9.5
Sunburn	7.2	6.0-8.7
No sunburn	17.1	15.5-18.9
Any cancer risks	12.5	11.4-13.6
No cancer risks	8.7	4.8-15.3
3+ cancer risks	12.9	11.4-14.5
<3 cancer risks	11.7	10.3-13.4
*FMD (total)	9.1	8.1-10.1
Tobacco use yes	13.2	11.2-15.5
Tobacco use no	7.1	6.1-8.2
Overweight	9.2	8.0-10.7
Not overweight	8.9	7.4-10.5
Eat 5 a day	7.3	5.7-9.3
Eat< 5 a day	9.6	8.5-10.8
Heavy drinking yes	14.2	10.1-19.7
Heavy drinking no	8.6	7.7-9.7
Phys inactive	10.0	8.5-11.7
Meets recommendation	8.0	6.8-9.4
Sunburn	9.5	8.1-11.2
No sunburn	8.6	7.4-10.0
Any cancer risks	9.2	8.2-10.3
No cancer risks	4.8	2.2-10.1
3+ cancer risks	11.0	9.6-12.6
<3 cancer risks	6.7	5.6-8.1
Out of work (total)	6.7	5.9-7.7
Tobacco use yes	9.8	8.1-11.9
Tobacco use no	5.3	4.4-6.3
Overweight	7.1	6.0-8.3
Not overweight	5.7	4.5-7.1
Eat 5 a day	6.6	4.9-8.8
Eat< 5 a day	6.8	5.9-7.8
Heavy drinking yes	5.7	3.3-9.6
Heavy drinking no	6.7	5.9-7.7
Phys inactive	7.8	6.5-9.3
Meets recommendation	5.2	4.2-6.3
Sunburn	5.5	4.4-6.8
No sunburn	7.8	6.6-9.1
Any cancer risks	6.8	6.0-7.8
No cancer risks	4.5	2.1-9.2
3+ cancer risks	7.5	6.3-8.9
<3 cancer risks	5.8	4.8-7.1

*FMD: Frequent mental distress=14 or more days of poor mental health in past 30 days

Measure/group	Weighted Percent	Confidence Interval
Ever had mammogram & CBE, women 40+		
Total	83.6	81.4-85.6
Age Group		
40-49	77.4	73.0-81.2
50-59	92.1	89.0-94.4
60-69	86.2	81.2-90.1
70+	80.6	75.3-85.0
	P<0.001	
Race		
White, non-Hispanic	84.6	82.4-86.5
Hispanic	62.9	44.6-78.2
Other race	80.8	67.2-89.6
	P=0.003	
Education		
< High School grad	65.1	53.9-74.8
High School grad	81.6	77.5-85.1
Some college	85.3	81.7-88.3
College grad	89.0	85.2-91.9
	P<0.001	
Household Income		
<\$25,000	76.6	71.7-80.9
\$25K-\$49,999	84.2	79.9-87.8
\$50K-\$74,999	87.0	82.0-90.7
\$75,000+	91.8	87.3-94.9
	P<0.001	
Insurance status		
Insured	85.9	83.7-87.8
Uninsured	67.2	58.5-74.9
	P<0.001	
Pap test in past 3 years, women w/intact cervix		
Total	83.2	81.0-85.3
Age Group		
18-24	85.9	78.5-91.0
25-34	92.7	88.6-95.4
35-49	85.3	81.1-88.6
50-64	83.6	79.2-87.3
65+	59.5	52.1-66.4
	P<0.001	
Education		
< High School grad	71.0	57.2-81.8
High School grad	79.2	74.7-83.1
Some college	84.9	81.3-87.9
College grad	88.4	84.5-91.5
	P<0.001	
Household Income		
<\$25,000	72.7	67.3-77.5
\$25K-\$49,999	84.2	80.1-87.6
\$50K-\$74,999	91.6	87.3-94.5
\$75,000+	91.4	85.9-94.8
	P<0.001	
Insurance status		
Insured	85.6	83.3-87.6
Uninsured	74.1	67.4-79.8
	P<0.001	

Excludes missing values. P<0.05 indicates a statistically significant association

Measure/group	Weighted Percent	Confidence Interval
Blood stool in past 2 yrs		
Total	18.5	16.6-20.4
Gender		
Male	16.5	13.8-19.5
Female	20.3	17.8-23.0
	P=0.054	
Age Group		
50-59	14.3	11.9-17.2
60-69	23.3	19.6-27.5
70+	20.2	16.7-24.1
	P<0.001	
Education		
< High School grad	16.8	11.3-24.2
High School grad	16.2	13.3-19.7
Some college	17.8	14.5-21.6
College grad	22.3	18.8-26.3
	P=0.088	
Population Density		
Counties >50,000	21.9	18.3-26.0
Counties 10,000-50,000	17.4	14.5-20.8
Counties <10,000	15.8	13.0-19.0
	P=0.037	
Insurance status		
Insured	19.6	17.6-21.8
Uninsured	8.6	5.2-14.0
	P=0.001	
Ever had colonoscopy or sigmoidoscopy, age 50+		
Total	50.9	48.5-53.4
Gender		
Male	50.9	47.1-54.6
Female	51.0	47.8-54.2
	P=0.946	
Age Group		
50-59	40.2	36.6-44.0
60-69	53.5	48.9-58.0
70+	64.7	60.1-69.1
	P<0.001	
Education		
< High School grad	44.3	36.1-52.8
High School grad	52.2	47.9-56.4
Some college	49.2	44.6-53.7
College grad	53.4	48.9-57.9
	P=0.216	
Population Density		
Counties >50,000	60.3	55.7-64.6
Counties 10,000-50,000	48.1	44.0-52.3
Counties <10,000	45.2	41.1-49.5
	P<0.001	
Insurance status		
Insured	52.9	50.3-55.5
Uninsured	32.9	25.5-41.3
	P<0.001	

Excludes missing values. P<0.05 indicates a statistically significant association

References

- ¹ Wyoming Department of Health. "2002 Data Tables." Wyoming Department of Health, Vital Records Services website, accessed at http://wdh.state.wy.us/vital_records/02DATA/2002tables.pdf on May 25, 2004.
- ² Brownson, RC, Remington, PL, and Davis, JR. Chronic Disease Epidemiology and Control. Second Edition. Am. Public Health Assoc. 1998.
- ³ Centers for Disease Control and Prevention, http://www.cdc.gov/nccdphp/aag/aag_dcpc.htm, accessed June 1, 2003.
- ⁴ The American Cancer Society: http://www.cancer.org/docroot/PED/ped_0.asp, accessed June 1, 2004
- ⁵ National Cancer Institute: <http://www.cancer.gov/cancertopics/prevention-genetics-causes/causes>, accessed June 1, 2004.
- ⁶ Bowlin, SJ, Morrill, BD, Nafziger, AN, Jenkins, PL, Lewis, C., and Pearson, TA. Validity of cardiovascular disease risk factors assessed by telephone survey. The Behavioral Risk Factor Survey. J. Clinical Epidemiology 46: 561-571: 1993.
- ⁷ Centers for Disease Control and Prevention. Update: Prevalence of overweight among children, adolescents, and adults – United States, 1988-94. MMWR 46: 199-202, 1997.
- ⁸ Cancer Risk Report, American Cancer Society, Atlanta, GA, 1998.
- ⁹ Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Institute of Health, 1998.
- ¹⁰ Powell, KE, Blair, SN. The public health burdens of sedentary living habits: Theoretical but realistic estimates. Med. Sci Sports Exer. 26: 851-856, 1994
- ¹¹ Wyoming Department of Health. Cardiovascular Disease Risk Factors: Results from the 2003 BRFSS. Cheyenne, WY. July 2004.