

# Multiple chronic disease risk factors in Alaskan adults: Who are the riskiest and who are the healthiest?

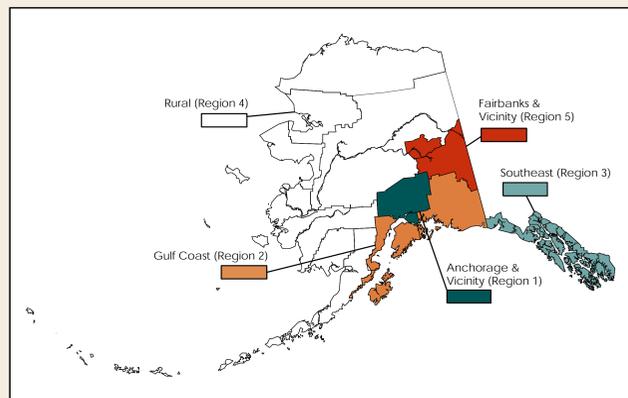


## Background:

One quarter of Alaskan adults currently smoke, nearly two thirds are overweight or obese, three quarters do not eat enough fruits and vegetables, and less than one half get the recommended amount of physical activity. Having more than one of these risk factors may put Alaskans at increased risk for chronic and other diseases. The objective of this analysis was to compare the demographic and chronic disease status of Alaskans with multiple chronic disease risk factors to those who have none.

## Methods:

The BRFSS is an ongoing random-digit-dial survey of non-institutionalized adults aged 18 years and older that is conducted in all 50 states, the District of Columbia and US territories. All BRFSS questionnaires and the BRFSS methods and weighting procedure are available on the CDC BRFSS website ([www.cdc.gov/brfss](http://www.cdc.gov/brfss)). In Alaska, a stratified sampling plan was used and sample drawn from 5 regions defined by combinations of census areas and boroughs (Anchorage and Vicinity, Gulf Coast, Southeast, Rural, and Fairbanks and Vicinity).



Alaska BRFSS data from 2003 and 2005 were used to examine the demographic characteristics and chronic disease status of Alaskans with 0 versus 4 target risk factors for chronic disease:

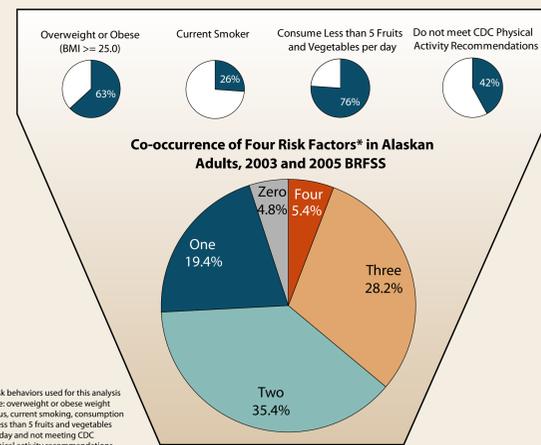
- current smoking
- overweight or obese weight status (BMI greater than or equal to 25.0)
- consumption of less than 5 servings of fruits and vegetables per day
- do not meet CDC recommendations for physical activity (for moderate or vigorous activity)

These two years of data were combined to allow for large enough sample sizes for analysis on all variables of interest. The BRFSS data were weighted to represent the distribution of Alaskan adults by sex, age and region. SAS v9 combined with SUDAAN was used to produce weighted percentages and 95% confidence intervals. Groups were considered significantly different if their confidence intervals did not overlap.

## Results:

Target Risk Factors in Alaska

**Figure 1: Selected Risk Factors in Alaskan Adults, 2003 and 2005 BRFSS**



\* Risk behaviors used for this analysis were: overweight or obese weight status, current smoking, consumption of less than 5 fruits and vegetables per day and not meeting CDC physical activity recommendations.

Compared to those with 0 target risk factors, the following significant contrasts ( $\alpha = 0.05$ ) occurred for those with all 4:

- More likely to be male.
- Much more likely to be Alaska Native.
- Four times as likely have an annual income less than \$25,000.
- Three times as likely to have a high school education or less.
- More likely to be previously married.
- Nearly five times as likely to live in the rural region of Alaska. In addition, those with all 4 risk factors were significantly more likely to live in the rural region than any other area.

**Table 1: Risk Factor Status by Demographics, 2003 and 2005 Alaska BRFSS**

	Had All 4 Risk Factors			Had 0 Risk Factors			N
	n	Wt %	95% CI	n	Wt %	95% CI	
<b>Sex</b>							
Male	181	7%	5.3 - 8.1	84	3%	2.3 - 4.0	2,530
Female	209	6%	4.9 - 7.3	223	8%	7.0 - 9.7	2,948
<b>Race</b>							
Native (any mention)	164	12%	10.1 - 15.2	25	3%	1.5 - 4.3	1,173
Non-Native	225	5%	4.2 - 6.1	278	6%	5.2 - 7.1	4,269
<b>Age</b>							
18-44	189	6%	5.0 - 7.6	148	6%	4.6 - 6.9	2,613
45-64	173	7%	5.9 - 8.8	117	5%	4.1 - 6.5	2,205
65+	25	4%	2.0 - 6.1	40	6%	4.2 - 9.4	616
<b>Income</b>							
< \$25,000	139	9%	7.4 - 11.7	27	2%	1.2 - 3.3	1,237
\$25 - 49,999	97	5%	3.8 - 6.7	89	6%	4.4 - 7.5	1,505
\$50,000 +	109	5%	3.8 - 6.5	162	7%	5.8 - 8.5	2,196
<b>Education</b>							
HS graduate or less	225	10%	7.9 - 11.4	57	3%	1.9 - 3.9	2,199
Some College	112	6%	4.3 - 7.6	79	5%	3.5 - 6.0	1,645
College Graduate	51	2%	1.6 - 3.4	171	10%	8.5 - 12.4	1,622
<b>Marital Status</b>							
Married	150	5%	3.8 - 5.9	174	6%	5.1 - 7.3	2,944
Divorced/Separated/Widowed	133	9%	7.2 - 11.6	66	5%	3.3 - 6.3	1,315
Never Married/Member unmarried couple	107	8%	6.0 - 10.7	64	5%	3.5 - 6.6	1,197
<b>Geographic Region of Residence</b>							
Anchorage and Vicinity	67	5%	4.1 - 7.2	86	6%	4.9 - 7.6	1,159
Gulf Coast	67	5%	3.9 - 6.7	51	5%	3.5 - 6.6	1,091
Southeast	77	7%	5.4 - 8.9	79	6%	5.1 - 8.2	1,111
Rural	120	11%	9.1 - 13.7	23	2%	1.1 - 2.8	1,027
Fairbanks and Vicinity	59	6%	4.4 - 8.1	68	6%	4.5 - 7.5	1,090

Compared to those with 0 target risk factors, those with all 4 target risk factors were also significantly different ( $\alpha = 0.05$ ) on the following characteristics:

- More likely to not have health care coverage.
- Less likely to report excellent or very good health and much more likely to report good, fair or poor health.
- Three times as likely to have a disability.
- More likely to have high blood pressure.
- Two times as likely to report binge drinking.

Those with all 4 risk factors were also more likely to have diabetes or have ever had an MI, CHD or a stroke than those with 0 target risk factors. These differences did not reach statistical significance, possibly due to limited sample size for analysis.

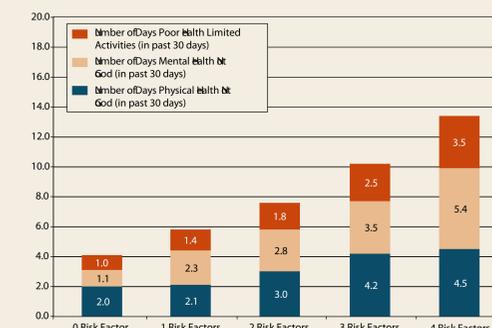
**Table 2: Risk Factor Status by Chronic Disease Prevalence and QOL, Alaska and 2005 Alaska BRFSS**

	n	Wt %	95% CI	n	Wt %	95% CI	N
Do Not Have Healthcare Coverage	92	8%	6.2 - 10.8	33	4%	2.4 - 5.6	930
Excellent or Very Good Health	140	4%	3.3 - 5.7	250	8%	6.8 - 9.3	3,033
Good, Fair or Poor Health	249	9%	7.4 - 10.4	57	2%	1.7 - 3.3	2,434
Self-Reported Disability	125	9%	7.4 - 11.9	35	3%	1.7 - 3.9	1,148
Ever Told Have Diabetes (non-gestational)	21	4%	2.5 - 7.2	5	2%	0.6 - 5.6	279
Ever had MI, CHD or Stroke	28	6%	3.9 - 9.5	8	2%	0.9 - 6.1	308
Have Doctor Diagnosed Arthritis	115	6%	4.5 - 7.5	58	4%	3.1 - 6.0	1,423
Ever Told Have High Blood Pressure	123	8%	6.0 - 9.6	44	3%	2.2 - 5.0	1,412
Ever Told Have High Cholesterol	100	7%	5.3 - 9.2	51	4%	2.8 - 5.6	1,288
Binge Drinking Past 30 Days	272	8%	6.1 - 10.8	27	4%	2.3 - 5.9	920

\* Binge drinking is defined as 4 or more drinks on one or more occasions in the past 30 days for women and 5 or more drinks on one or more occasions in the past 30 days for men.

Alaskans with 4 risk factors report more days when their physical health was not good, more days when their mental health was not good, and more days of activity limitation in the past 30 days compared to those with 0 risk factors (all comparisons significant at  $\alpha = 0.05$ ). Further, there is a clear pattern of more unhealthy days reported as the number of risk factors present increases.

**Figure 2: Unhealthy Days by Number of Risk Factors, Alaska, 2003 and 2005 BRFSS**



\* Risk behaviors used for this analysis were: overweight or obese weight status, current smoking, consumption of less than 5 fruits and vegetables per day and not meeting CDC physical activity recommendations.

This pattern of associations between number of risk factors and presence of chronic disease does not appear to be limited to the four specific risk factors selected for this analysis. A similar analysis was conducted using overweight or obese weight status, high blood pressure, high cholesterol and not meeting physical activity recommendations as the four target risk factors (data not shown). The demographic distribution of those with 0 and those with 4 risk factors varied a bit from the current analysis but many of the same patterns of association with chronic disease were revealed.

## Conclusions:

There are small but not insignificant percentages of Alaskans at either end of the risk factor spectrum. Combinations of risk factors may differ between individuals but there appears to be an additive nature of risk factors that results in more adverse health outcomes as the number of risk factors increase.

Healthcare funding agencies (private insurers as well as Medicare and Medicaid) need to be aware of the complexity of risk factors and disease co-morbidities in trying to stem the increasing cost of health care in the nation. The high prevalence of Alaskans having several risk factors for chronic disease points to a need for broad-based health promotion programs.

One example of such a program is Living Well Alaska, a chronic disease self-management program run by the Section of Chronic Disease Prevention and Health Promotion in the Alaska Department of Health and Social Services. This program involves a series of workshops aimed at people with chronic illnesses. The workshops are held throughout Alaska and target multiple risk factors for chronic disease through healthy eating, physical activity, medication management and relaxation techniques. More information on this program can be found at: <http://www.hss.state.ak.us/dph/chronic/smp/default.htm>.



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