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## Health and Injury-Related Behaviors in Colorado Rural Resort Counties: Results from the Behavioral Risk Factor Surveillance System, 1997-1998

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### Introduction

The Colorado Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing statewide telephone survey designed to monitor the prevalence of health behaviors and preventive health practices associated with the leading causes of premature death, disability, and disease. The survey was initiated in 1990 as a joint project of the Colorado Department of Public Health and Environment, and the Centers for Disease Control and Prevention. Using random digit dialing techniques, approximately 150 Colorado residents ages 18 years and older were interviewed by telephone each month in 1998. While the Colorado BRFSS provides reliable statewide estimates, the sample reflects the state population and 80 percent of respondents reside in the urbanized Front Range.

In 1998, a special point-in-time BRFSS survey of five rural resort counties (Eagle, Garfield, Lake, Pitkin, and Summit) was conducted from September through December. One subject of particular importance in the rural resort counties is injuries. Therefore, additional information related to unintentional injuries was collected. This report compares population-based prevalence estimates for the rural resort region to the rest of the state. The estimates presented in this report are weighted to adjust for differences in the probability of selection and to reflect the population characteristics of each region.

### Statistics Primer

#### How is the BRFSS Sample Selected?

BRFSS protocol specifies that the sample used must be a state-based probability sample in which all households with telephones have a chance of being selected. The sampling design used by the BRFSS is called *Disproportionate Stratified Sampling*, or *DSS*. The sampling frame for a DSS plan includes all possible telephone numbers in the state. Telephone numbers are grouped into sets of 100 numbers with the same first eight digits and all possible final two digits (i.e. 303-692-53xx, where xx ranges from 00 to 99). These blocks are then separated into strata: those known to contain one or more residential numbers (called '1+ blocks'), and those with no known residential phone numbers (called '0 blocks'). '1+ blocks' are expected to contain a large proportion of households and are sampled at a higher rate than '0 blocks'.

Once a household is selected, the sex and age of each household member age 18 and older is listed. A respondent is then randomly selected for interview.

## Demographic Characteristics

Table 1 displays the demographic characteristics of the rural resort area and the rest of the state. The age, race/ethnicity, and education distributions for the rural resort area are statistically significantly different from the rest of the state. The rural resort area has a smaller proportion of adults ages 55 and older, fewer racial/ethnic minorities, and a higher proportion of adults with some college or more, than the rest of the state. Since the age distributions of the two areas are statistically significantly different, subsequent tables including estimates for both regions will show both crude and age-adjusted prevalences. In addition, all data noted in the text will cite age-adjusted estimates.

**Table 1. Demographic characteristics by area: Rural Resort Area and remainder of Colorado BRFSS, 1998**

	Rural Resort (N=568)	Remainder of State (N=1,741)
	%	%
<b>Age group*</b>		
18-24	10.0	11.9
25-34	21.1	20.0
35-44	30.6	24.5
45-54	21.2	17.5
55-64	8.9	11.2
65+	8.2	14.8
<b>Sex</b>		
Male	51.7	48.7
Female	48.3	51.3
<b>Race/Ethnicity*</b>		
White/non-Hispanic	88.5	77.7
Black/non-Hispanic	0.5	2.6
Other/non-Hispanic	2.2	3.9
Hispanic	8.9	15.8
<b>Education*</b>		
Less than high school	7.5	11.1
High school graduate	20.6	26.6
Some college or more	71.9	62.3

\*difference between the two areas is significant at  $P \leq .05$

## Health Behaviors

### Self-Reported Health Status

Adults in rural resort counties are less likely to report fair or poor health status (9 percent) compared to adults in the rest of the state (12 percent), but the difference is not statistically significant (see Table 2). The difference by region increases

with age, with only 8 percent of rural resort residents ages 55-64 years reporting fair or poor health compared to 21 percent of adults of the same age group in the remainder of the state.

### Health Care Coverage

The proportion of adults with health care coverage is similar in both areas. In both the rural resort area and the rest of the state, men are more likely than women to lack coverage.

### Cardiovascular Disease Risk Factors

BRFSS data can estimate the prevalence of several cardiovascular disease risk factors including overweight, tobacco use, hypertension, elevated blood cholesterol, and diabetes.

Body mass index (BMI) is defined as weight in kilograms divided by height in meters squared, and overweight is defined as a BMI of 25.0 or higher. A person who has smoked at least 100 cigarettes and currently smokes every day or some days is designated a current smoker. Adults in rural resort counties are statistically significantly less likely to be overweight, to currently smoke cigarettes, and to have high blood pressure compared to adults in the rest of the state. The prevalence of high blood cholesterol is also lower in the rural resort area compared to the rest of the state, but the difference is not statistically significant. The prevalence of these four risk factors is consistently lower in the rural resort area for all age groups presented and for males and females.

Compared to the rural resort region, the overall prevalence of diagnosed diabetes is slightly higher in the remainder of the state, but the difference is not statistically significant. However, diagnosed diabetes is statistically significantly higher for males and those ages 45 to 54 in the rest of the state compared to their counterparts in the rural resort region.

### Motor Vehicle Safety

Close to one third of adults in both the rural resort area and the rest of the state do not always use safety belts while

Table 2. Health behaviors by sex, age group, and region: rural resort area and the rest of the state, Colorado BRFSS, 1997-1998

	Crude <sup>1</sup> Prevalence	Age-adjusted Prevalence	Crude Prevalence		Age-specific Prevalence					
			Male	Female	18-24	25-34	35-44	45-54	55-64	65+
<b>Self-reported health status of fair or poor</b>										
Rural resort area	<b>7.4</b>	9.0	<b>5.2</b>	9.6	—	7.7	4.9	<b>1.5</b>	<b>8.2</b>	—
Remainder of state	<b>11.4</b>	11.9	<b>9.5</b>	13.2	6.8	5.2	8.4	<b>8.8</b>	<b>21.3</b>	24.4
<b>No health care coverage</b>										
Rural resort area	14.7	14.2	17.2	12.0	—	31.4	<b>7.5</b>	6.3	7.9	—
Remainder of state	14.9	14.5	17.1	12.8	30.5	21.1	<b>17.1</b>	7.4	12.3	1.2
<b>Overweight</b>										
Rural resort area	<b>36.3</b>	<b>36.8</b>	<b>44.5</b>	<b>27.4</b>	—	<b>29.6</b>	40.4	<b>37.1</b>	40.7	—
Remainder of state	<b>49.4</b>	<b>49.5</b>	<b>59.1</b>	<b>39.9</b>	29.7	<b>46.9</b>	49.9	<b>55.3</b>	58.3	54.5
<b>Current smoker</b>										
Rural resort area	<b>16.3</b>	<b>16.1</b>	<b>18.5</b>	<b>13.9</b>	—	23.2	<b>13.6</b>	<b>11.3</b>	<b>7.1</b>	—
Remainder of state	<b>22.7</b>	<b>22.4</b>	<b>26.0</b>	<b>19.6</b>	29.6	29.6	<b>22.4</b>	<b>22.6</b>	<b>18.6</b>	11.7
<b>If checked, ever been told blood pressure is high</b>										
Rural resort area	<b>14.2</b>	<b>16.8</b>	<b>12.7</b>	<b>15.8</b>	—	7.3	11.5	14.9	21.9	—
Remainder of state - 1997	<b>20.4</b>	<b>21.3</b>	<b>19.5</b>	<b>21.3</b>	5.8	11.1	13.2	21.9	38.0	41.9
<b>If checked, ever been told blood cholesterol is high</b>										
Rural resort area	22.8	23.9	22.2	23.4	—	8.1	20.0	23.4	28.3	—
Remainder of state - 1997	27.8	26.2	29.7	26.1	6.0	16.3	21.4	30.8	38.9	44.5
<b>Ever been told have diabetes</b>										
Rural resort area	3.6	4.0	<b>2.2</b>	5.0	—	3.9	4.0	<b>1.3</b>	4.0	—
Remainder of state	4.8	5.1	<b>4.7</b>	4.8	1.0	0.8	1.6	<b>4.8</b>	9.9	14.5
<b>Does not always use safety belt</b>										
Rural resort area	29.4	28.5	37.6	20.6	—	<b>41.8</b>	27.2	20.1	32.1	—
Remainder of state - 1997	28.6	28.7	32.1	25.2	43.3	<b>27.4</b>	25.8	27.0	27.0	25.7
<b>Had 5 or more drinks in one sitting in the past month</b>										
Rural resort area	<b>23.6</b>	<b>21.7</b>	<b>35.3</b>	11.0	—	<b>45.5</b>	21.8	13.1	8.6	—
Remainder of state - 1997	<b>15.0</b>	<b>14.5</b>	<b>23.5</b>	7.2	30.8	<b>24.4</b>	15.0	9.2	7.0	1.7
<b>Had 60 or more drinks in the past month</b>										
Rural resort area	<b>6.6</b>	<b>6.3</b>	<b>11.2</b>	1.7	—	<b>12.9</b>	2.9	7.9	6.2	—
Remainder of state - 1997	<b>2.5</b>	<b>2.5</b>	<b>4.6</b>	0.6	6.4	<b>2.1</b>	2.6	1.3	2.9	0.8
<b>Have driven after having too much to drink in the past month</b>										
Rural resort area	3.8	4.1	5.9	1.7	—	7.8	1.8	2.2	0.0	—
Remainder of state - 1997	2.4	2.3	4.1	0.9	5.2	3.4	3.6	1.0	0.0	0.2
<b>Flu shot in past year</b>										
Rural resort area	<b>27.7</b>	<b>31.9</b>	<b>25.7</b>	<b>29.8</b>	—	<b>12.5</b>	24.1	30.5	<b>32.0</b>	—
Remainder of state - 1997	<b>37.6</b>	<b>38.9</b>	<b>37.6</b>	<b>37.5</b>	21.9	<b>25.7</b>	25.1	37.8	<b>54.8</b>	74.2
<b>Ever had pneumonia vaccination</b>										
Rural resort area	<b>11.5</b>	15.2	14.6	<b>8.3</b>	—	8.3	6.6	4.3	11.1	—
Remainder of state - 1997	<b>17.6</b>	18.7	19.8	<b>15.7</b>	20.6	11.8	5.6	8.9	17.5	53.0
<b>Seen a dentist in last year</b>										
Rural resort area	68.5	68.4	64.7	72.6	—	46.6	74.5	83.4	77.9	—
Remainder of state - 1997	66.6	66.7	64.1	68.9	58.3	58.2	71.4	76.5	66.9	65.3
<b>Any permanent tooth loss</b>										
Rural resort area	<b>36.0</b>	<b>39.8</b>	<b>32.9</b>	39.3	—	30.9	32.6	<b>35.1</b>	46.4	—
Remainder of state - 1997	<b>45.2</b>	<b>47.1</b>	<b>44.4</b>	45.9	13.4	26.4	36.3	<b>54.3</b>	67.2	87.6

Bold=difference between rural resort area and remainder of the state is statistically significant at  $P \leq .05$

<sup>1</sup> in this column bold percentages represent statistical significance before adjusting for sex or age group

— unable to estimate due to small number of respondents in this category

driving or riding in a car. In both regions, males are less likely than females to always use safety belts. Males ages 25 to 34 in the rural resort area are statistically significantly less likely to always wear seatbelts than males of the same age group in the remainder of the state.

### Alcohol Consumption

Two measures of alcohol consumption are available from BRFSS data: binge drinking (5 or more drinks on an occasion, one or more times in the last month), and chronic drinking (60 or more drinks in the last month). Adults in rural resort counties are statistically significantly more likely to report binge drinking (22 percent) and chronic drinking (6 percent) than adults in the rest of the state (15 percent and 3 percent, respectively). This difference is especially pronounced for males ages 25 to 34. In both regions, males are more likely than females to report both binge and chronic drinking. The overall prevalence of drinking and driving is higher in the rural resort area than the rest of the state (4 percent compared to 2 percent, respectively), but the difference is not statistically significant. Males in both regions are more likely than females to drive after having too much to drink.

### Vaccination

Adults residing in the rural resort area are statistically significantly less likely to have had a flu shot in the past year (32 percent) than adults in the rest of the state (39 percent). Rural resort residents are also less likely to have ever had a pneumonia vaccination compared to residents in the rest of the state, but the difference is not statistically significant.

### Oral Health

Although the prevalence of dental visits is similar for the two regions, rural resort residents are statistically significantly less likely to have any permanent tooth loss compared to residents in the rest of the state (40 percent and 47 percent, respectively).

### Women's Cancer Screening

The proportion of women ages 40 and older who have ever had both a mammogram and a clinical breast exam is slightly higher in the rural resort area compared to the rest of the state (86 percent and 83 percent, respectively; see Table 3), but the difference is not statistically significant. For women ages 50

Table 3. Women's cancer screening by area of the state\* and age group: Colorado BRFSS, 1998

Health Behavior	Crude <sup>1</sup> Prevalence	Age-adjusted Prevalence	Age-specific Prevalence				
			18-24	25-39	40-49	50-64	65+
<b>Mammogram and Clinical Breast Exam ever, ages 40 and older</b>							
Rural resort area	86.4	86.1			82.5	—	—
Remainder of state	84.9	83.1			79.2	91.2	85.3
<b>Mammogram and Clinical Breast Exam in past 2 years, 50 and older</b>							
Rural resort area	74.2	75.4				—	—
Remainder of state	69.9	70.0				70.3	69.3
<b>Pap test ever</b>							
Rural resort area	95.3	94.0	—	98.0	97.8	—	—
Remainder of state	95.5	95.4	83.8	97.2	100.0	98.1	92.1
<b>Pap test in past 3 years</b>							
Rural resort area	90.9	86.6	—	94.0	95.7	—	—
Remainder of state	86.8	85.5	82.0	88.8	93.5	85.1	71.7

\*Differences by area of the state are not statistically significant  
 —unable to estimate due to small number of respondents in this category

and older, 75 percent of those in the rural resort area had both a mammogram and a clinical breast exam in the past two years, compared to 70 percent of women in the rest of the state. The difference is not statistically significant.

Both the proportion of women who have ever had a pap smear and the proportion who have had a pap smear in the last 3 years are similar for the two regions.

## Injury

### Injury in past month

Respondents in the rural resort region were asked a series of questions about injuries they had suffered in the preceding 12 months. An injury was defined as an accident that resulted in seeking medical attention other than first aid or caused restriction of usual activity for one day or more. Approximately 21 percent of adults in the rural resort area suffered an injury in the preceding year (see Table 4). Forty-six percent of all injuries occurred during a recreational or sporting activity, followed by injuries on the job, and at home. An estimated 16 percent of rural resort area residents had a condition caused by an injury that happened more than three months ago.

**Table 4. Rural resort area injury prevalence estimates, Colorado BRFSS, 1998**

	%
<b>Any injuries in past year<sup>1</sup></b>	
Yes	21.1
<b>Number of injuries in past year</b>	
1	76.1
2	12.8
3+	11.2
<b>Place of injury (for most recent injury)</b>	
On the street/highway	5.5
At home	15.9
At work	23.9
At school	0.0
Recreation/sports	45.9
Other	8.7
<b>Any condition from injury &gt; 3 months ago</b>	
Yes	15.5

<sup>1</sup> Injury is defined as an accident that results in seeking medical attention other than first aid or causing restriction of usual activity for one day or more

## Biking

Persons in the rest of the state are less likely to have ridden a bike in the past month compared to those residing in a rural resort county (see Table 5). Among adults who bike, remainder-of-the-state residents are less likely to always wear a helmet than persons in the rural resort area. Children in the remainder of the state are also less likely to always wear a helmet when riding a bike than children in rural resort counties.

**Table 5. Injury prevention estimates, by region: rural resort area and the rest of the state\*: Colorado BRFSS**

Characteristic	%	
	Crude Prevalence	Age-adjusted Prevalence
<b>Did not ride a bike in past month</b>		
Rural resort area	<b>65.5</b>	<b>67.3</b>
Remainder of state	<b>78.9</b>	<b>79.7</b>
<b>Does not always wear helmet (of bike riders)</b>		
Rural resort area	<b>43.2</b>	<b>50.3</b>
Remainder of state	<b>66.1</b>	<b>65.0</b>
<b>Oldest child in household did not always wear helmet when riding bike in past year</b>		
Rural resort area	57.8	53.9
Remainder of state	62.2	63.2

\*rural resort data are from 1998; remainder-of-state data are from 1997  
 Bold=difference between rural resort area and remainder of the state is statistically significant at  $P \leq .05$

## Summary

Overall, rural resort area adult residents are younger and more educated than adult residents in the rest of the state. These results show differences in health status, health behaviors, and preventive health practices as well. Rural resort area residents have many positive health indicators. They are less likely to be overweight, to smoke cigarettes, and to have hypertension. However, negative health indicators are also evident. Residents of the rural resort region have substantially higher prevalences of binge and chronic drinking. Of particular concern are estimates that show males ages 25 to 34 in the rural resort area are both significantly less likely to always wear seatbelts, as well as substantially more likely to report binge drinking, chronic drinking, and driving after having too much to drink, compared to males ages 25 to 34 in the remainder of the state. The proportion of residents who have had the flu vaccine is also much lower in the rural resort region than the rest of the state. Approximately 21 percent of adult rural resort residents sustained an injury in the past year serious enough to require medical attention other than first aid or causing restriction of usual activity for one day or more (remainder-of-state comparison not available). Public health practitioners can use these findings to focus on the specific needs of this rural region of the state.



## Additional Information

For more information about the Behavioral Risk Factor Surveillance System (BRFSS), visit the Colorado BRFSS Web site at [www.cdph.state.co.us/hs/cobrfss.asp](http://www.cdph.state.co.us/hs/cobrfss.asp), and the national BRFSS Web site at [www.cdc.gov/brfss/](http://www.cdc.gov/brfss/), or contact the Health Statistics Section at the Colorado Department of Public Health and Environment, 303-692-2160.

Data from the Colorado Behavioral Risk Factor Surveillance System can also be queried using the Colorado Health Information Dataset (CoHID) at [www.cdph.state.co.us/cohid/](http://www.cdph.state.co.us/cohid/)

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