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Tobacco Use in Colorado: Results from the Behavioral Risk Factor Surveillance System

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Introduction

Tobacco use is one of Colorado's most serious public health problems. Responsible for more than 4,200 deaths every year, it is the leading cause of preventable death in our state. Cigarette smoking is a direct cause of heart disease, chronic lung disease, and several kinds of cancer (lung, larynx, esophagus, pharynx, mouth and bladder), and is a contributing factor in cancers of the pancreas, kidney and cervix. For each tobacco-related death, another 20 adults suffer from a tobacco-caused illness.¹

Tobacco use is also responsible for enormous economic burdens in our state. With approximately 130,000 smokers developing tobacco-caused illnesses each year, annual healthcare costs in Colorado directly related to tobacco use exceed \$1 billion (\$259 per capita).¹

Smoking during pregnancy is associated with numerous adverse outcomes, including spontaneous abortion, low birth weight, and sudden infant death syndrome.² The health of nonsmokers can also be affected by tobacco use.

This report examines the prevalence of and health and economic indicators associated with tobacco use in Colorado.

Methodology

The Colorado Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing state-wide telephone health survey of Colorado adults ages 18 years and older. Over 300 interviews are completed each month throughout every year. All households with

telephones have a chance of being selected to participate in the survey, with individual survey respondents being randomly selected from each household successfully contacted.

Prevalence of tobacco use

Approximately 19 percent of Colorado adults – over 630,000 – are current smokers, compared to 23 percent nationwide. Table 1 shows the demographic characteristics of current smokers in Colorado and the U.S. In this table, you will see that smoking prevalence decreases steadily as age increases: 22.5 percent of 18 to 24-year-olds smoke compared to 8.6 percent of those older than 64. A slightly higher percent of Colorado men smoke compared to women; however, the

difference is not statistically significant. Although current smoking prevalence is lowest among non-Hispanic whites (17.7 percent) and highest among non-Hispanics of all other races combined (22.5 percent), differences by race/ethnicity are not statistically significant.^a

Approximately nine percent of pregnant women in Colorado smoke. Individuals who have completed some college are less likely to smoke compared to those with lower levels of education. There are no substantial differences in smoking prevalence between urban and rural regions of the state.

Table 2 displays demographic differences between smokers and nonsmokers.

Table 1. Demographic characteristics of current smokers, Colorado and U.S.: BRFSS

	Colorado (2003) %	U.S. (2002) ¹ %
Total	18.6	23.0
Age group		
18-24	22.5	31.2
25-34	22.2	25.9
35-44	21.9	27.2
45-54	18.2	24.8
55-64	14.2	20.8
65+	8.6	10.0
Sex		
Male	19.6	25.7
Female	17.6	20.8
Pregnant ²	9.3	na
Race/Ethnicity		
White/non-Hispanic	17.7	23.3
Hispanic	21.6	22.0
Other/non-Hispanic	22.5	27.4
Education		
Less than high school	28.6	34.6
High school graduate	24.3	28.7
Some college or more	14.9	18.3
Region		
Urban	18.3	na
Rural	19.8	na

¹2003 nationwide results not available at time of publication; includes the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands.

²2000-2003 Colorado BRFSS

Table 2. Demographic profiles by smoking status, 2003 Colorado BRFSS

	Smokers %	Nonsmokers %
Age group		
18-24	15.9	12.5
25-34	23.1	18.4
35-44	25.5	20.7
45-54	20.0	20.5
55-64	9.4	12.9
65+	6.2	14.9
Sex		
Male	52.8	49.4
Female	47.2	50.6
Race/Ethnicity		
White/non-Hispanic	73.9	78.5
Hispanic	19.0	15.8
Other/non-Hispanic	7.2	5.7
Education		
Less than high school	13.4	7.6
High school graduate	33.9	24.0
Some college or more	52.8	68.4
Region		
Urban	80.1	81.6
Rural	19.9	18.4

^a The Health Statistics Section joins the Centers for Disease Control and Prevention in recognizing that race and ethnicity do not represent valid biological or genetic categories but are social constructs with cultural and historical meaning.³

Other tobacco products

Approximately nine percent of Colorado adults use a tobacco product other than cigarettes, such as smokeless tobacco, cigars, pipes, and bidi cigarettes. The use of these products also causes many serious health problems including mouth, esophagus, and lung cancer.² Among those who use other tobacco products, 60 percent smoke a cigar or pipe, 25 percent use smokeless tobacco, one percent smoke bidis, and 14 percent use more than one other tobacco product. Men are much more likely than women to use other tobacco products (16.9 percent vs. 1.2 percent). The prevalence of other tobacco product use is somewhat

higher in rural compared to urban areas (11.3 percent and 8.6 percent, respectively), but the difference is not statistically significant.

Trends in current smoking

Nationwide, the prevalence of cigarette smoking changed very little between 1993 and 2002^b (22.6 percent and 23.0 percent, respectively). In Colorado, the prevalence has decreased significantly, from 23.8 percent in 1993 to 18.6 percent in 2003 (see Figure 1). Smoking prevalence declined for both men and women: from 25.1 in 1993 to 19.6 in 2003 for men and from 22.6 in 1993 to 17.6 in 2003 for women (see Figure 2).

Figure 1. Current smoking prevalence among adults 18 and older, Colorado BRFSS 1993-2003

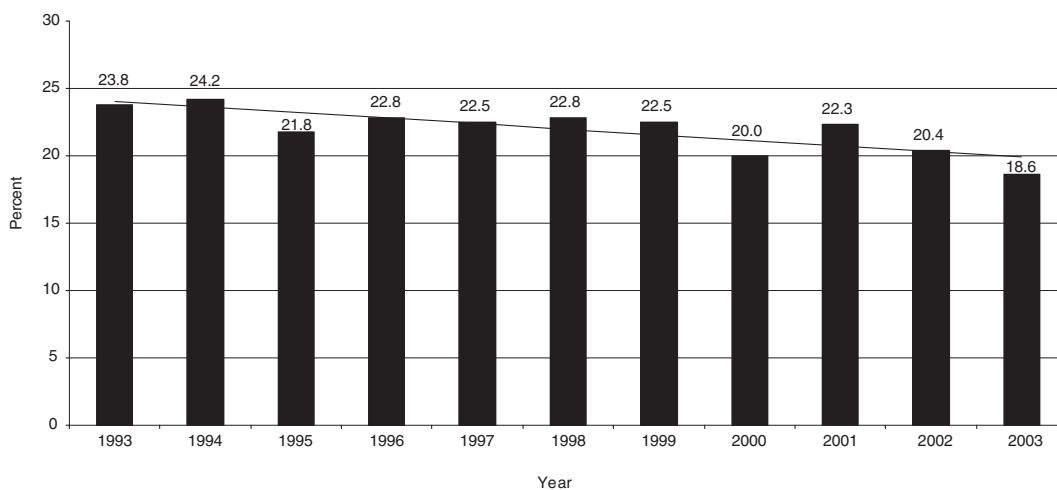
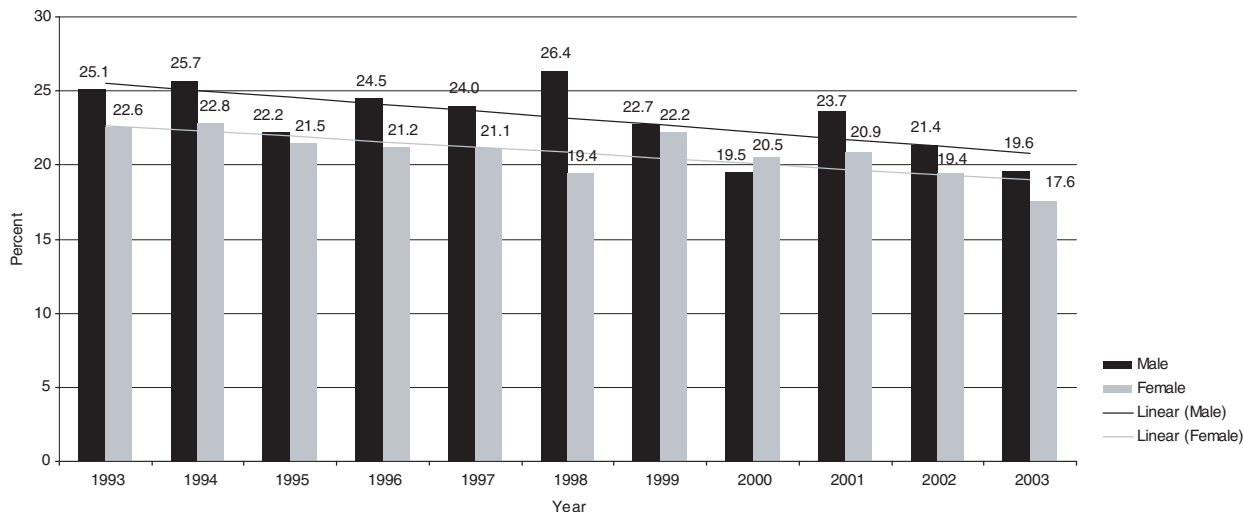


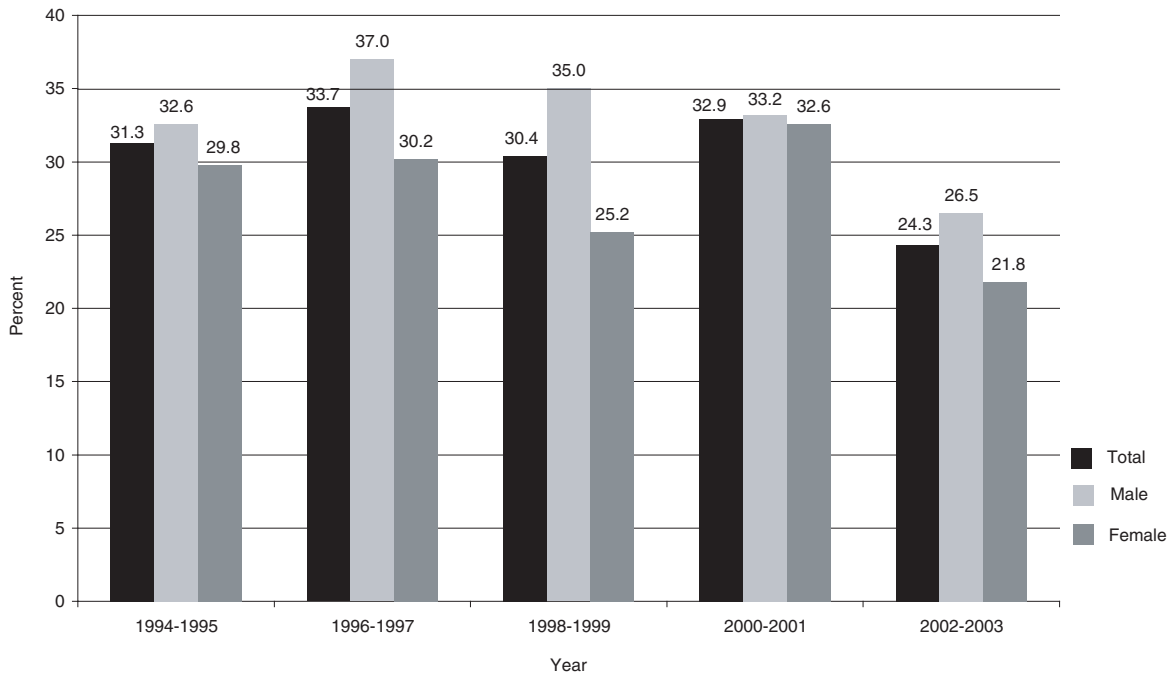
Figure 2. Current smoking prevalence among adults 18 and older by sex, Colorado BRFSS 1993-2003



^b 2003 nationwide prevalence not available at time of publication.

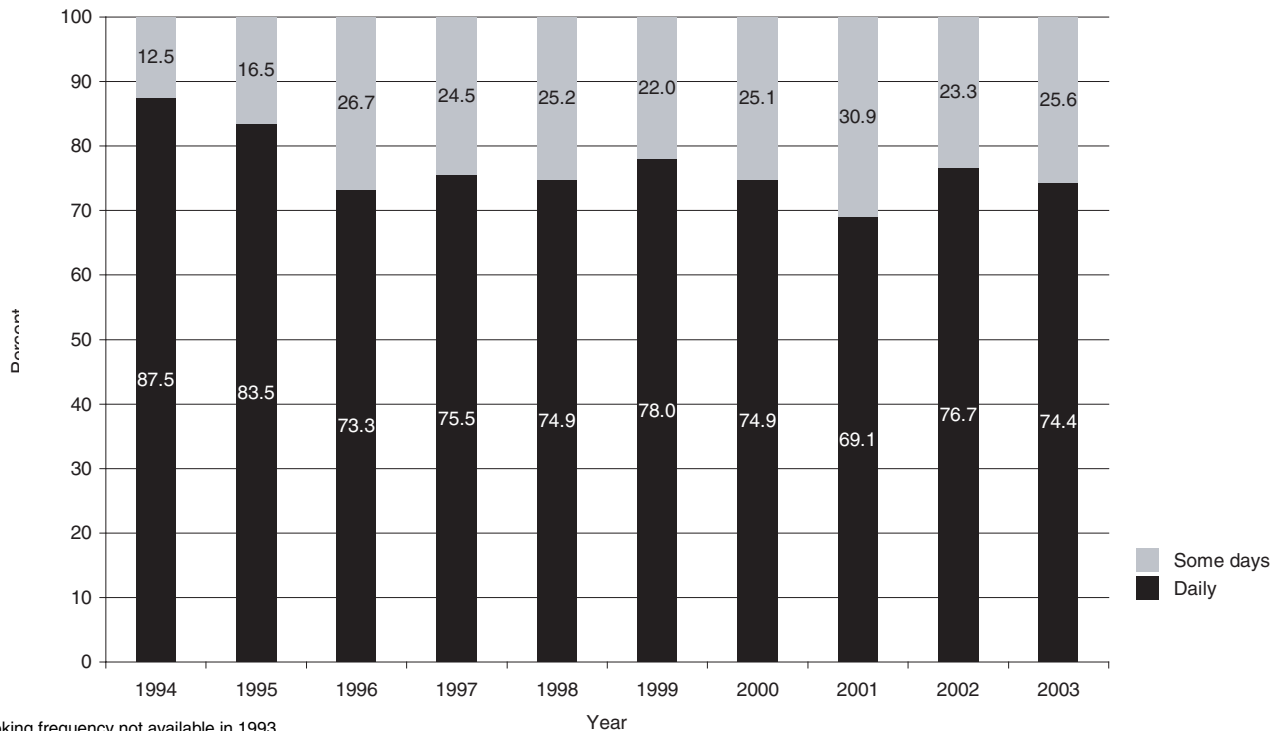
While overall smoking prevalence among 18- to 24-year-olds has varied over the past decade, it decreased 22 percent between 1994-1995 and 2002-2003 (data years combined to increase sample size; see Figure 3). Smoking decreased 19 percent for men and 27 percent for women within this age group.

Figure 3. Current smoking prevalence among adults ages 18 to 24, Colorado BRFSS 1994-2003



Of all current smokers in 2003, 74 percent smoke daily with the remaining 26 percent smoking only *some* days, exhibiting a 15 percent decrease in the number of daily smokers since 1994 (see Figure 4).

Figure 4. Smoking frequency among adult current smokers 18 and older, Colorado BRFSS 1994-2003¹



¹ smoking frequency not available in 1993

Attempts to quit smoking

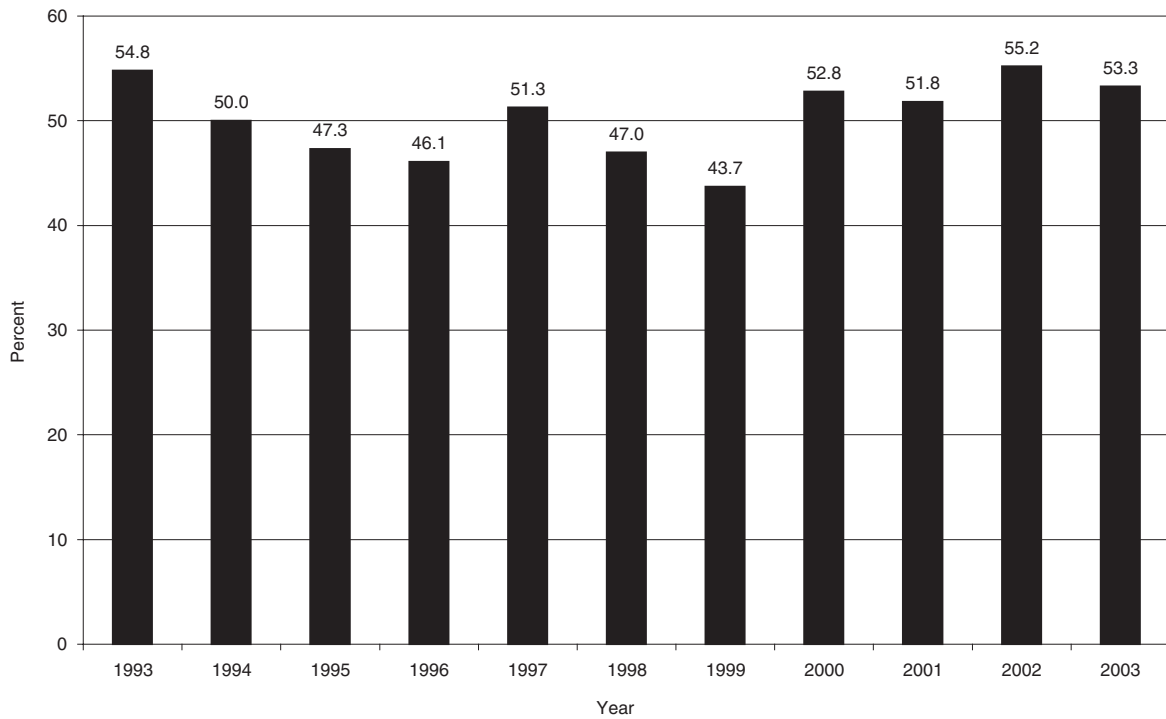
Fifty-three percent of current smokers in Colorado have attempted to quit smoking during the past year. Table 3 shows very little difference in the profiles of those who have and have not attempted to quit smoking. Overall, attempts to quit smoking in Colorado have been stable over the past decade (see Figure 5). For men, quit attempts declined 12 percent between 1993 and 1999 and have since slightly increased (see Figure 6). For women, the decline in quit attempts between 1993 and 1999 was even greater, but the prevalence has since increased by 43 percent.

Table 3. Profiles of current smokers by quit attempt status, 2003 Colorado BRFSS

	Quit attempt = yes %	Quit attempt = no %
Age group		
18-24	19.4	12.1
25-34	25.5	20.5
35-44	24.7	26.4
45-54	18.1	21.7
55-64	7.9	11.1
65+	4.4	8.1
Sex		
Male	51.1	54.6
Female	48.9	45.4
Race/Ethnicity		
White/non-Hispanic	72.6	75.8
Hispanic	21.2	16.0
Other/non-Hispanic	6.2	8.2
Education		
Less than high school	10.2	17.1
High school graduate	34.4	33.1
Some college or more	55.4	49.8
Region		
Urban	79.5	80.9
Rural	20.5	19.1
No advice from doctor to quit	25.7	27.5

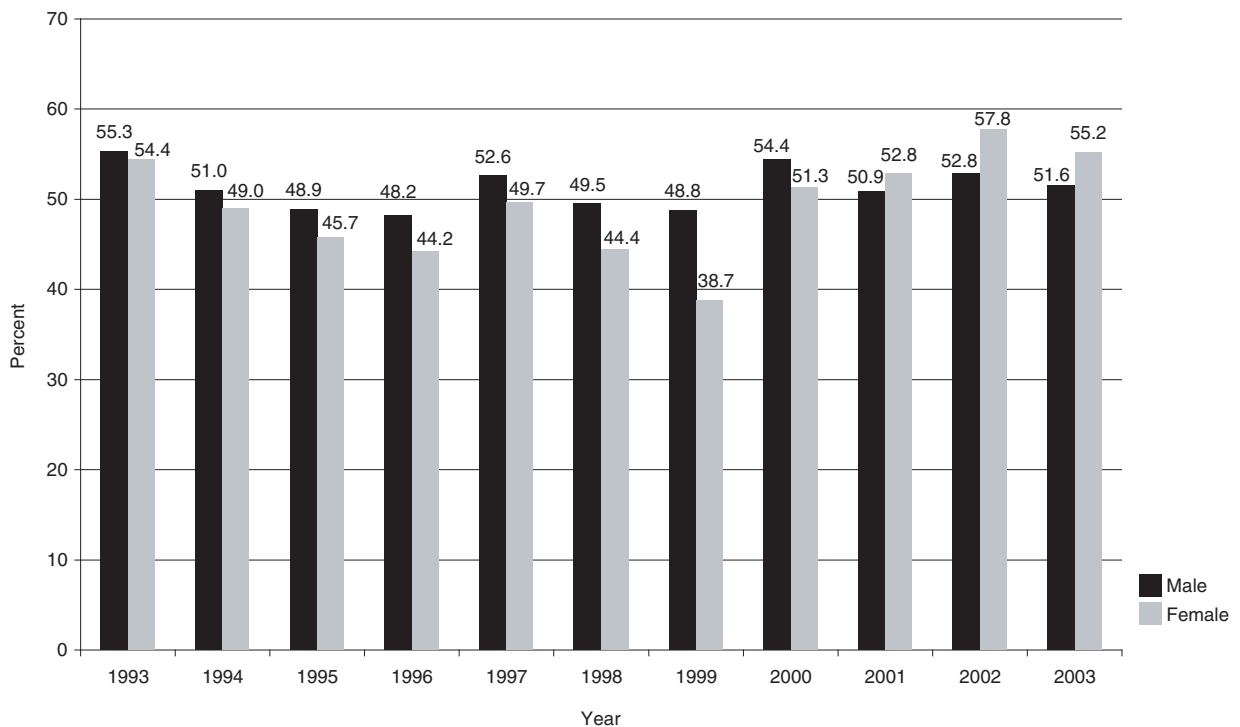
Among current smokers who have been to the doctor in the past year, 73 percent have been advised by their physician to quit smoking.

Figure 5. Quit attempts among adult smokers 18 and older, Colorado BRFSS 1993-2003¹



¹ Between 1994 and 2000, this question was only asked of everyday smokers, for all other years the question was asked of all current smokers.

Figure 6. Quit attempts among adult smokers 18 and older, by sex: Colorado BRFSS 1993-2003¹



¹ Between 1994 and 2000, this question was only asked of everyday smokers, for all other years the question was asked of all current smokers.

Secondhand smoke

Secondhand smoke is a direct cause of serious health problems including cancer, heart disease, and asthma.¹ Approximately 23 percent of adult nonsmokers in Colorado are frequently exposed to secondhand smoke at home or other places. Secondhand smoke exposure is significantly higher for men compared to women (27 percent and 20 percent, respectively). The prevalence of secondhand smoke exposure is significantly lower for White non-Hispanics (21 percent) compared to non-Hispanics of all other races (31 percent) and Hispanics (33 percent).

Nonsmokers with some college or more have a much lower prevalence (19 percent) of secondhand smoke exposure compared to high school graduates and those with less than a high school education (33 percent and 34 percent, respectively).

In 2003, 78 percent of Colorado adults did not allow smoking in their homes. This is a substantial increase from 58 percent in 2001. Smoking is also not allowed in most Colorado work settings. In 2003, 75 percent of adults had employers that did not allow smoking in the workplace.

Health and economic outcomes attributable to smoking

Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) software, provided by the Centers for Disease Control and Prevention, is used to estimate the health and economic consequences of cigarette smoking. The SAMMEC

estimates presented in this report are based on 1998-2002 estimates of smoking prevalence from the Colorado BRFSS, 1998-2002 Colorado mortality data, age-adjusted relative risk estimates from the American Cancer Society's Cancer Prevention Study, and updated age-specific estimates of the present value of lifetime future earnings from Haddix et al.^{4,5} According to these estimates, every year in Colorado over 4,300 deaths – 15 percent of all deaths – are caused by smoking. Annually in Colorado, 57,380 years of potential life are lost because of smoking.

The economic costs related to smoking include direct medical expenditures and productivity costs. Medical expenditures due directly to tobacco use total more than \$1 billion each year in Colorado.¹ Productivity costs include lost income and productivity resulting from premature death. Productivity costs related to tobacco use exceed \$800 million each year in Colorado.

These estimates likely underestimate the actual health and economic costs of cigarette smoking because: 1) although current prevalence of smoking is used to calculate the estimates, smoking-attributable deaths result from smoking in previous decades, when prevalence was much higher; and 2) estimates of productivity costs do not include work absences due to smoking-caused illnesses nor costs resulting from secondhand smoke morbidity and mortality.⁶

State and county comparisons

Prevalence estimates for tobacco indicators vary by county (see Table 4). Compared to the state as a whole, both Boulder and

Table 4. Tobacco indicators, statewide and by county: Colorado BRFSS

	Current smoker (2003)	Exposure to secondhand smoke among nonsmokers (2002)	Strict Clean Indoor Air Ordinance?	Quit attempt in past year (2001-2003)	Doctor advice to quit in past year ¹ (2001-2003)	Smoking not allowed at home (2003)	Smoking not allowed at work (2003)
	%	%	%	%	%	%	%
Colorado	18.6	23.4	no	53.4	69.5	77.9	75.3
Adams	22.2	35.7	no	48.9	77.7	66.0	66.1
Arapahoe	17.5	25.4	no	52.7	70.3	79.9	76.3
Boulder	11.4	12.8	yes	—*	—*	81.5	83.3
Denver	18.6	23.7	no	54.7	70.2	73.9	74.0
Douglas	11.9	12.7	no	—*	—*	95.3	86.1
El Paso	17.7	21.7	no	59.2	70.1	78.8	75.8
Jefferson	21.5	23.7	no	49.2	68.7	76.8	77.2
Larimer	15.1	21.0	Ft. Collins	—*	—*	82.9	76.3
Mesa	25.9	26.5	no	—*	—*	82.9	—*
Pueblo	22.6	—*	no	—*	—*	71.7	83.4
Weld	16.2	30.5	Greeley	—*	—*	83.5	—*

* Estimate is statistically unreliable and is not presented

¹ Denominator includes former smokers who quit smoking within the past year

Douglas Counties have much lower percentages for current smoking and secondhand smoke exposure. In addition, Douglas County has higher percentages for banning smoking in the home and at work compared to the entire state. Adams County has a lower prevalence of banning smoking in the home and a higher prevalence of secondhand smoke exposure compared to the state as a whole. All of these differences are statistically significant.

Summary

The prevalence of cigarette smoking in Colorado has decreased 22 percent over the past decade and is now lower than the prevalence nationwide. In addition, the prevalence of daily smokers has decreased substantially, increasing the percentage of smokers who smoke only *some* days. About 53 percent of current smokers have attempted to quit smoking in the past year, which has not changed significantly over the last ten years.

Over 4,300 Coloradans die every year because of smoking, resulting in annual health care costs totaling more than \$1 billion and productivity costs of more than \$800 million. About nine percent of Colorado adults use a tobacco product other than cigarettes, and almost a quarter of adult nonsmokers are frequently exposed to secondhand smoke.

References

- 1 State Tobacco Education and Prevention Partnership web site, Colorado Department of Public Health and Environment, <http://www.cdphe.state.co.us/pp/tobacco/tobaccohom.asp>
- 2 U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.
- 3 Barnett E., Casper M.L., Halverson J.A., Elmes G.A., Braham V.E., Majeed Z.A., Bloom A.S., Stanley S. *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality*, First Edition. Office for Social Environment and Health Research, West Virginia University, Morgantown WV: June 2001. ISBN 0-9665085-2-1.
- 4 Haddix A.C., Teutsch S.M., Shaffer P.A., Dunnet D.O. *Prevention Effectiveness: A Guide to Decision Analysis and Economic Evaluation*. New York, NY: Oxford University Press, 1996.
- 5 CDC. Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC): Adult SAMMEC and Maternal and Child Health (MCH) SAMMEC software, 2002c. Available at: <http://www.cdc.gov/tobacco/sammec>.
- 6 CDC. "Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Economic Costs-United States, 1995-1999." *MMWR* 2002;51:300-303.

Additional Information

For more information about tobacco use in Colorado, visit the State Tobacco Education and Prevention Partnership Web site at:

www.cdphe.state.co.us/pp/tobacco/tobaccohom.asp

or call 303-692-2510.

For more information about the Colorado BRFSS, visit the Colorado Department of Public Health and Environment Web site at:

www.cdphe.state.co.us

and click on *Health/Disease Statistics* or contact the Health Statistics Section at the Colorado Department of Public Health and Environment, 303-692-2160.