



**Adolescent tobacco use and exposure
Colorado 2008**

January 2010

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Background

The Healthy Kids Colorado Survey on Tobacco and Health (HKCS-TH)^{*} was first conducted in fall 2001 and was repeated in fall 2006 and fall 2008. In each year, students in a stratified random sample of Colorado public schools are randomly chosen to represent the statewide student population, with two classrooms per grade chosen in each school. The questionnaire is available in English and Spanish. Participating schools inform parents in advance of the survey, and students voluntarily complete the survey or decline anonymously, with no benefit or consequence from either choice. A total of 16,157 students in 130 schools completed the survey in 2001, 18,064 students from 137 schools completed it in 2006, and 21,517 students from 140 schools completed it in 2008.

This report was prepared by the Tobacco Program Evaluation Group (TPEG), University of Colorado Denver. The work was supported by a grant from the State Tobacco Education & Prevention Partnership (STEPP), Colorado Department of Public Health and Environment. The grant is funded by the 2004 voter approved tobacco tax increase.

^{*} The name in 2001 was Tobacco Attitudes and Behaviors Survey (TABS).

About the Report

This report describes changes in tobacco-related knowledge, attitudes and behaviors among Colorado's public middle and high school students. The topics include cigarette smoking, quitting, non-cigarette tobacco use, access to cigarettes, secondhand smoke exposure, and susceptibility to smoking initiation.

Some apparent differences between years represent real change, while others may be chance findings that occur when studying samples instead of the whole population. This report uses a "95% confidence" standard ($p < 0.05$) to decide between the two possibilities. A rate that appears in **bold** typeface (or **boxed bold** in charts) is significantly different from the comparable rate. All **bold** comparisons are between 2006 and 2008 unless otherwise noted. Rates that are described as "unchanged" are not *significantly* different – any apparent gap between them falls within the margins of error.

Differences between years also may arise from shifts in the population. For this report, tests of differences were adjusted ("standardized") to avoid being misled by possible shifts from year to year in the population mix of genders and ethnicities. These adjustments were *not* used to generate the rates shown in the report, which are estimates of the actual rate for the population in the year they represent.

Summary of Findings

Between 2006 and 2008, the following progress occurred in Colorado:

- The percentage of students in grades 6-12 who ever smoked declined by a factor of 14%, from 31.7% to **27.2%**.
- Among high school students:
 - Ever smoking of cigarettes declined by a factor of 15%, from 43.2% to **36.8%**.
 - Current cigarette smoking declined by a factor of 18%, from 14.6% to **11.9%**.
- Secondhand smoke exposure decreased by a factor of 23%, from 48.8% to **37.5%** of students exposed on one or more days a week.
 - Among middle school students, prevalence of exposure decreased by a factor of 32%, from 43.3% to **29.3%**.
 - Among high school students, prevalence of exposure decreased by a factor of 18%, from 53.0% to **43.5%**.
 - Exposure declined among all ethnic groups.

The following measures did not improve:

- Current cigarette smoking among middle school students was unchanged from a low level (2.6% to 2.7%).
- Average number of cigarettes smoked per day did not decrease.
- The percentage of high school smokers during the past year who tried to quit declined by a factor of 18%, from 63.2% to **51.7%**.
- The level of dual use (smokeless tobacco use among students who smoke cigarettes) was unchanged (21.2% to 20.1%).
- Nearly half (44.7%) of high school current smokers were not asked for proof of age when they tried to buy cigarettes compared to 48.7% in 2006.
- The number of underage high school smokers who were sold cigarettes when they tried to buy them increased by a factor of 24%, from 47.9% to **60.7%**.
- Current cigar use among high school students remained unchanged from its elevated 2006 level (16.2% to 15.0%).

Disparities:

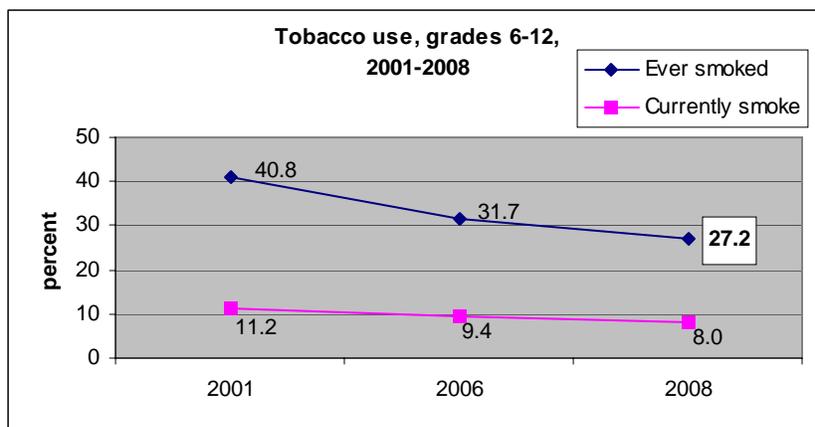
- Current smoking in high school continued to be most common among American Indian students, followed by Hispanic and Anglo students.
- Native American students were more exposed than Anglo students to secondhand smoke.
- The high school decline in current smoking occurred only among Anglo and multiracial students.
- Quit attempts in high school declined among Hispanic, Anglo, and multiracial students, however there were no differences in quit attempts between Anglo students and other ethnicities.

Adolescent Smoking Behavior

Cigarette Smoking

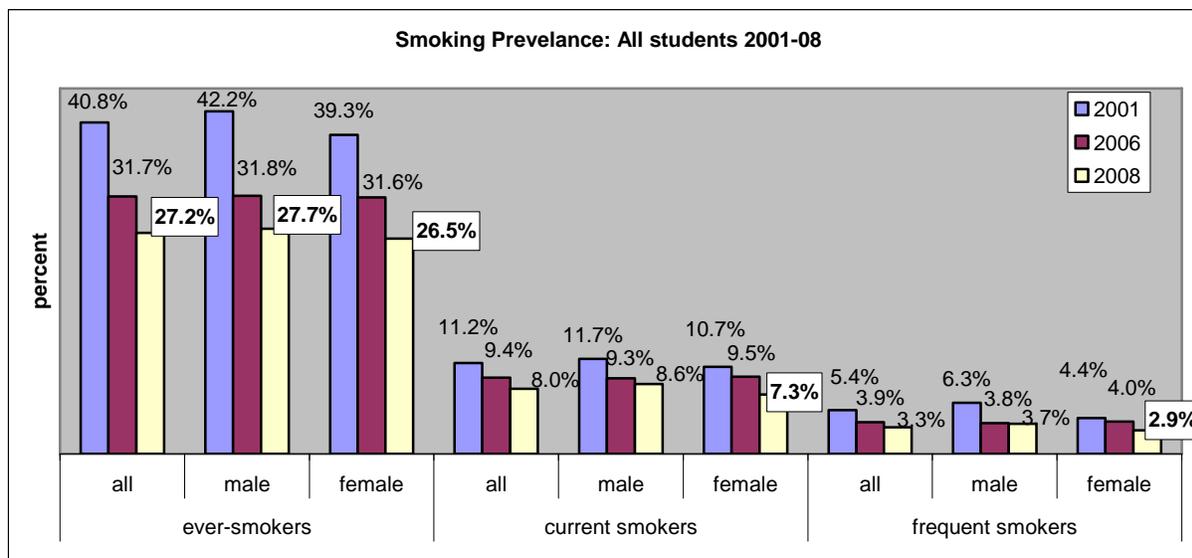
Cigarette use among students in grades 6-12:

In order to assess lifetime smoking, students were asked if they had *ever* tried smoking a cigarette, even one or two puffs. In 2008, the number of students in grades 6-12 who indicated they had ever smoked any cigarettes (“ever-smokers”) continued to decline significantly, to 27.2%



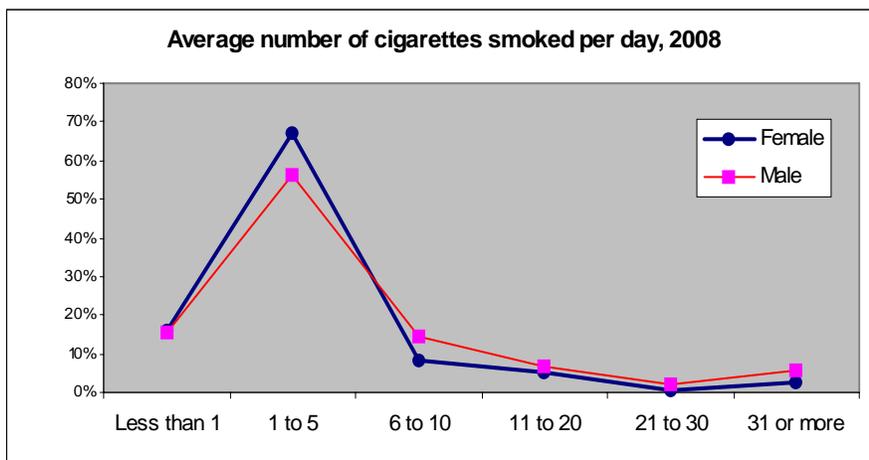
compared with 31.7% in 2006 and 40.8% in 2001. Current smoking (defined as smoking *any* cigarettes in the past 30 days) was unchanged from 2006 but was significantly lower than the 2001 rate (8.0% vs. 11.2%), indicating a gradual downward trend. Of those students who were classified as current smokers, 41.2% of them indicated they were smoking on a

frequent basis in 2008 (smoking on 20 or more days of the last 30 days). This remains unchanged from 2006.



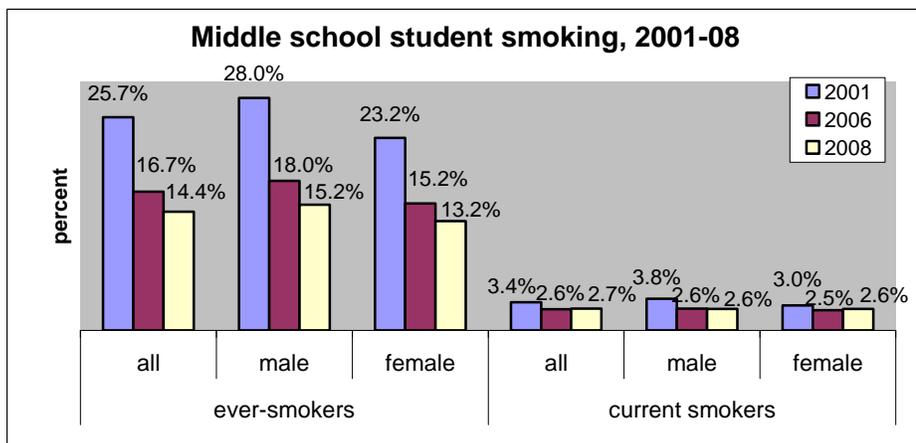
While there was no statistically significant difference in ever smoking prevalence rates between males and females in 2008, significantly more males than females were classified as current smokers and as frequent smokers. These differences suggest that although males and females are trying cigarettes at the same rate, males appear more likely to continue smoking past their first cigarette and become frequent smokers more often than females.

The average number of cigarettes smoked per day did not change significantly from 2006. Of the students who said they had smoked in the past 30 days ("current smokers"), 72.8% smoked between one and 10 cigarettes on average per day with 61.3% indicating they smoked one to five cigarettes a day on average. Males were more likely than females to smoke six to 10 cigarettes a day (**14.3% males vs 8.3% females**) and females were more likely than males to smoke one to five cigarettes a day (**67.1% females vs. 56.2% males**). The rates were not significantly different between males and females for the other categories.



Among middle school students: Ever-smoking rates were unchanged from 2006, indicating that the rate of decline during 2001-06 slowed during 2006-08. Current smoking rates were low and remained unchanged from 2006. More males than females reported having ever smoked but there were no gender differences in current smoking rates. Approximately one-quarter (24.3%) of middle school students who were current smokers reported smoking cigarettes on 20 or more of the last 30 days ("frequent smokers").

A majority (88.1%) of middle school current smokers reported smoking five or fewer cigarettes per day on average, unchanged from 2006.



A national survey in 2008 (Monitoring the Future¹) reported that 6.8% of 8th grade students were current smokers, a higher rate than the 5.1% among Colorado 8th graders. Other national data for 2008 were unavailable at the time of this report.

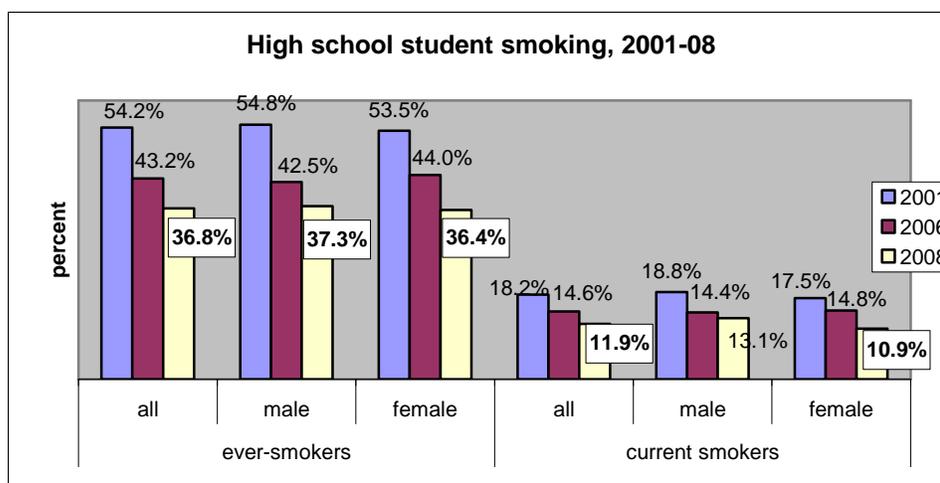
Among high school students: Both ever-smoking and current smoking continued to decline, although the improvement in current smoking was limited to female students. Ever-smoking prevalence was 36.8% in 2008, more than one-third lower than the rate in 2001. Current smoking among female students declined to **10.9%** in 2008 and was less common than among male students (13.1%). A national survey in 2008 (Monitoring the Future¹) reported that 12.3% of 10th

grade students and 20.4% of 12th grade students were current smokers, both higher rates than the those reported among Colorado 10th and 12th graders (10.9% and 16.8% respectively). National data for other high school grades in 2008 were unavailable at the time of this report.

The percentage of high school frequent smokers was unchanged overall in 2008 (44.0% of current smokers) but increased among male current smokers (**45.9%**, up from 41.8% in 2006).

Three-fourths (74.9%) of high school current smokers reported smoking five or fewer cigarettes per day, unchanged from 2006.

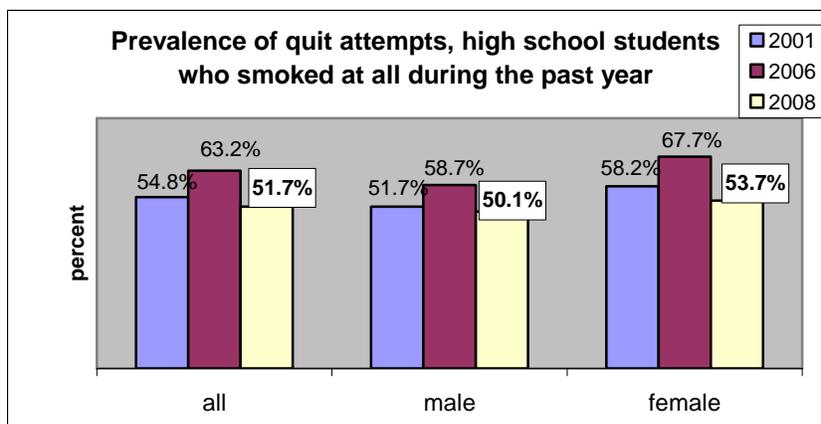
Federal health objectives (*Healthy People 2010*) call for current smoking prevalence among high school students to be lower than 16%. The rate in Colorado surpassed this goal in 2006 and was ahead of the goal in 2008 by a factor of 25%.



Quit Attempts

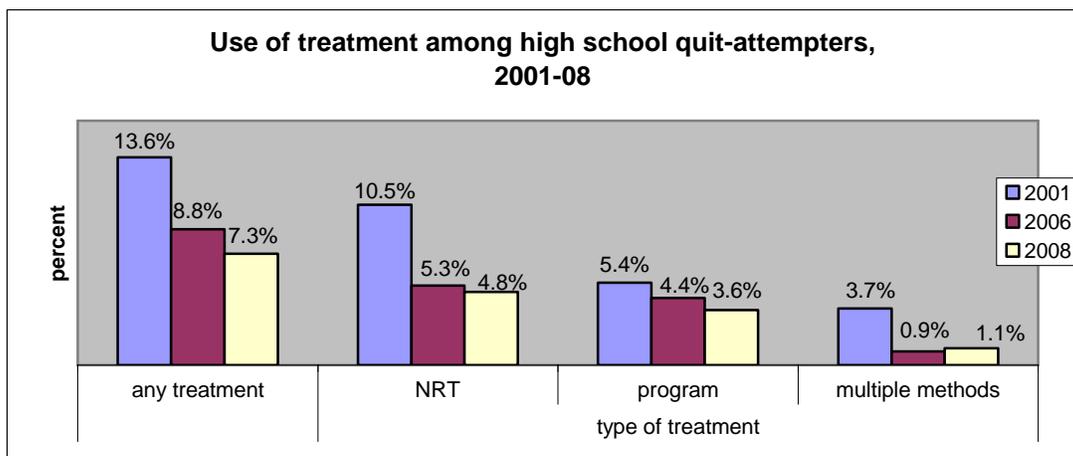
Among students who currently smoked in 2008 (one or more cigarettes in past 30 days), 39.4% said they did not consider themselves smokers. Even among frequent smokers (smoked on 20 or more of the last 30 days), 12.4% said they did not consider themselves smokers. The apparent disconnect between smoking behavior and self-perception was similarly common in middle and high school. Although this finding is striking, its meaning and importance are not currently well understood.

Among high school students who smoked at all during the previous year, quit attempts* decreased during 2006-08 among both male and female students. This apparent decrease is in part attributable to the addition of a 'not sure' answer option. When responses of 'not sure' are excluded, the differences between 2006 and 2008 are no longer significant. Quit attempts among middle school students are not presented because smoking prevalence and quit attempts are so low among middle school students that the estimates may be unreliable.



When current smokers in high school were asked if they wanted to quit smoking, 54.6% indicated they did want to quit sometime in the future.

Meta-analysis of teen smoking cessation treatments concludes that they are efficacious,² but adolescents do not widely use treatment in trying to quit.^{3,4} There was no change from 2006 in the proportion of students using cessation treatment in trying to quit smoking.



* The estimates for quit attempts in 2001 are slightly different than reported previously due to data merging across three years.

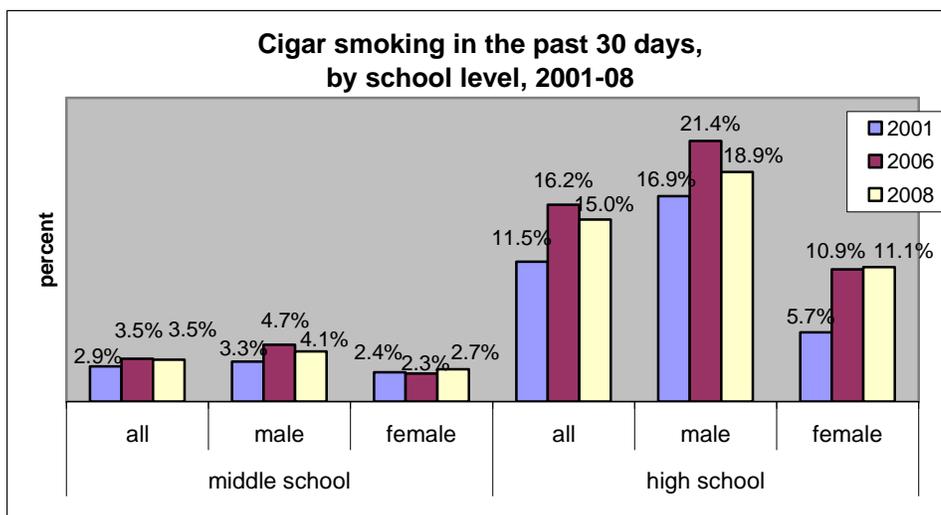
Non-Cigarette Tobacco

Non-cigarette tobacco use remained fairly steady among both middle and high school students during 2006-08. Current use of smokeless tobacco among current smokers remained consistent across all three survey administrations, at 20.1% in 2008. These findings suggest little or no switching by cigarette smokers to non-cigarette forms of tobacco.

Cigars

Prevalence of current cigar smoking (use on at least one day in the past 30 days) was unchanged during 2006-08. In 2008, high school students were about as likely to be current cigar smokers as they were to be current cigarette smokers. Both cigar smoking and cigarette smoking were more common among male students than among female students.

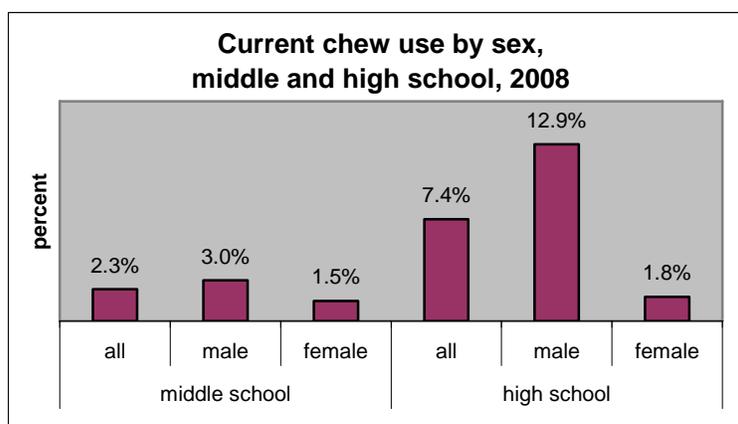
Nationally (YRBSS), 13.6% of high school students in 2007 were current cigar smokers, more commonly among males (19.4%) than females (7.6%).⁵ In Colorado the number of high school females who smoke cigars was higher than the national rate.



Smokeless ("Spit") Tobacco

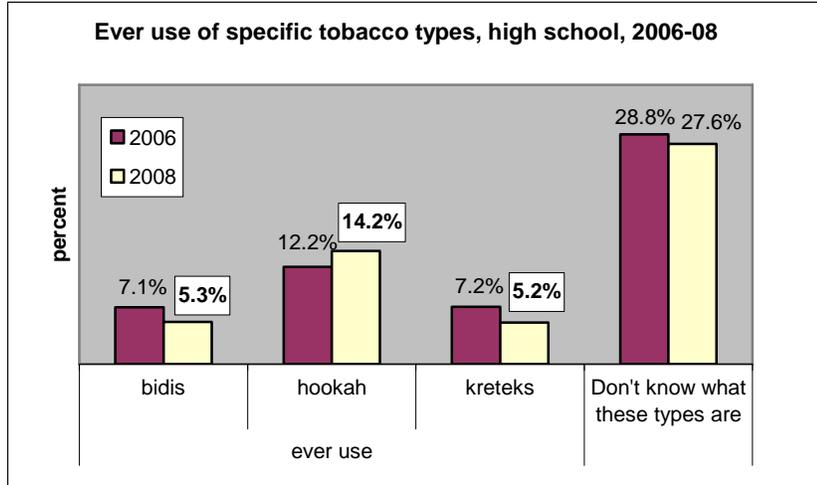
Current use of smokeless tobacco (chew and moist snuff, also known as spit tobacco; current use is use on at least one day in the past 30 days) remained unchanged during 2006-08 among middle school students and high school males. High school females reported a decrease in smokeless tobacco use (1.8%, down from 2.6% in 2006). Female students continued to be less likely than male students to use smokeless tobacco.

Nationally, an estimated 13.4% (YRBSS) of male high school students and 2.3% of female high school students were current smokeless tobacco users in 2007.⁶



Other Tobacco

Other forms of tobacco include bidis (leaf-wrapped cigarettes), kreteks (clove-flavored cigarettes), hookahs (waterpipes), and spitless tobacco (dry tobacco pouches like teabags). These types of tobacco may be easier for adolescents to purchase, are marketed to adolescents, and have added flavorings like vanilla, chocolate and fruit flavors. Some marketers have promoted the mistaken impression that smoking these types of tobacco is less harmful than smoking cigarettes.



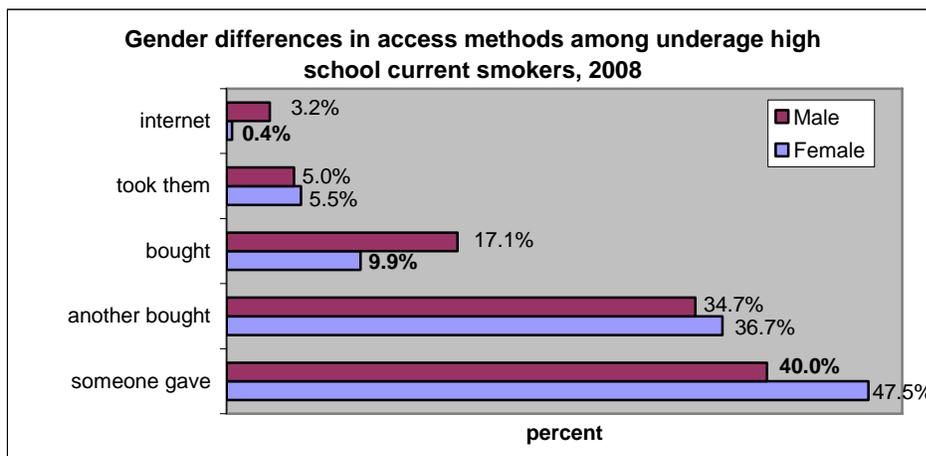
In both 2006 and 2008, somewhat less than a third of high school students responded they were not at all familiar with these types of tobacco. During 2006-08, ever use of bidis and kreteks showed a decline, while the ever use of hookah increased (14.2%, up from 12.2% in 2006).

Access to Cigarettes

Despite legal restrictions, underage smokers are able to purchase cigarettes from retail outlets. More than half of the students (53.1%) in grades 6-12 said they thought it would be “very easy” or “pretty easy” to get cigarettes if they wanted.

Nearly 14% of underage high school current smokers said they usually bought their cigarettes from retail outlets; males were nearly twice as likely as females to cite retail outlets as their usual source of cigarettes. Being given cigarettes became the most common way in 2008 for underage high school current smokers to obtain their cigarettes, replacing the most common way in 2006 of having someone else buy the cigarettes. Among middle school current smokers, self-purchase declined significantly as the usual way of obtaining cigarettes (2.3%, down from 13.0% in 2006).

| | Middle School | High School |
|----------------|---------------|-------------|
| bought | 2.3% | 13.8% |
| another bought | 21.6% | 35.6% |
| someone gave | 56.1% | 43.4% |
| took them | 19.0% | 5.2% |
| internet | 1.0% | 1.9% |



Enforcement

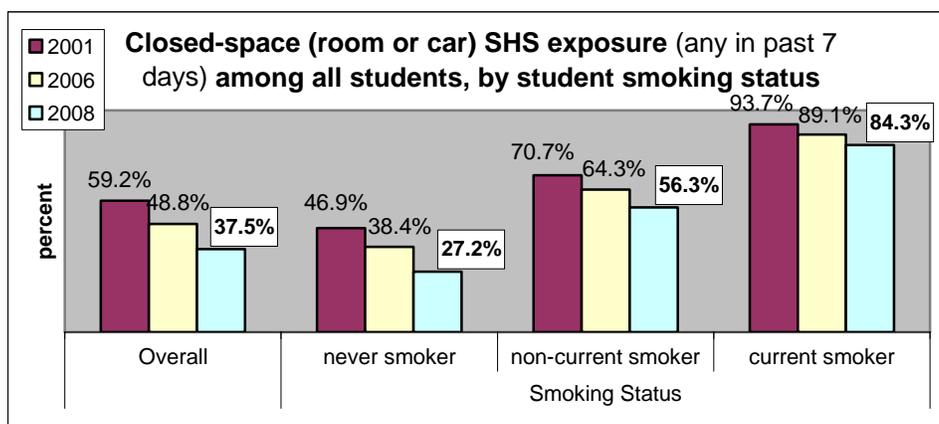
Colorado law requires clerks to examine a government-issued photo identification document when tobacco customers look 30 or younger. In 2008, almost half (44.7%) of high school current smokers were not asked for proof of age when trying to buy cigarettes; cigarettes were sold to more than half of underage high schoolers who tried to buy them (60.7%, up from 47.9% in 2006).

Colorado law requires school buildings, grounds and sponsored events to be completely tobacco-free for students, staff, and visitors. Almost half of current smokers reported smoking on school grounds at least once in the past 30 days; rates were similar among middle and high school current smokers (45.9% and 48.2%, respectively) and unchanged from 2006. At the same time, students were less likely in 2008 than in 2006 to report seeing teachers or other school employees smoking on school grounds (14.5% among high school students, down from 19.2%; 10.9% among middle school students, down from 14.1%).

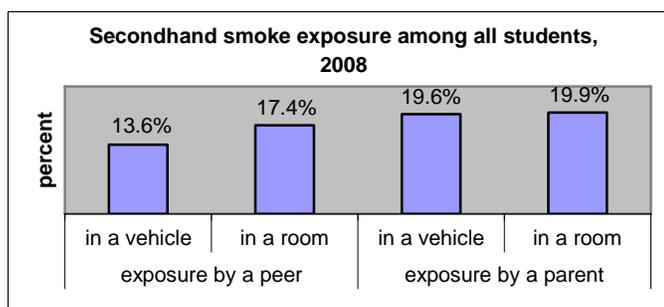
Secondhand Smoke Exposure

Secondhand smoke (SHS) exposure causes numerous negative health effects. Among children, exposure causes bronchitis, pneumonia, asthma attacks, coughing, phlegm, wheezing, breathlessness, and ear infections. Adolescents' exposure to secondhand smoke has been associated with metabolic syndrome, a condition characterized by obesity, high cholesterol levels, high blood sugar levels, and high blood pressure⁶. Research has also found levels of secondhand smoke exposure are directly proportional to the likelihood of the child becoming a smoker as an adolescent or an adult.^{7,8} Unfortunately, youth aged 12-19 are more likely than people of other ages to live in a household with at least one smoker, and youth are exposed to more SHS than adults.⁹

During 2006-08, SHS exposure continued to decline among Colorado youth. In 2008, the proportion of students exposed to SHS at least once a week in a closed space (room or car) was **37.5%**, down from 48.8% in 2006. * Current smokers were more likely to be exposed than non-current smokers, who were more likely to be exposed than never-smokers. Middle school students were less likely to be exposed than high school students.



In 2008, the survey asked students to report whether SHS exposure came from a parent or guardian vs. a peer. While high school and middle school students were similarly exposed overall, peers were significantly less involved in exposure of middle school students than high school students (in rooms, 7.9% vs. 24.5%; in cars, 4.3% vs. 20.4%).



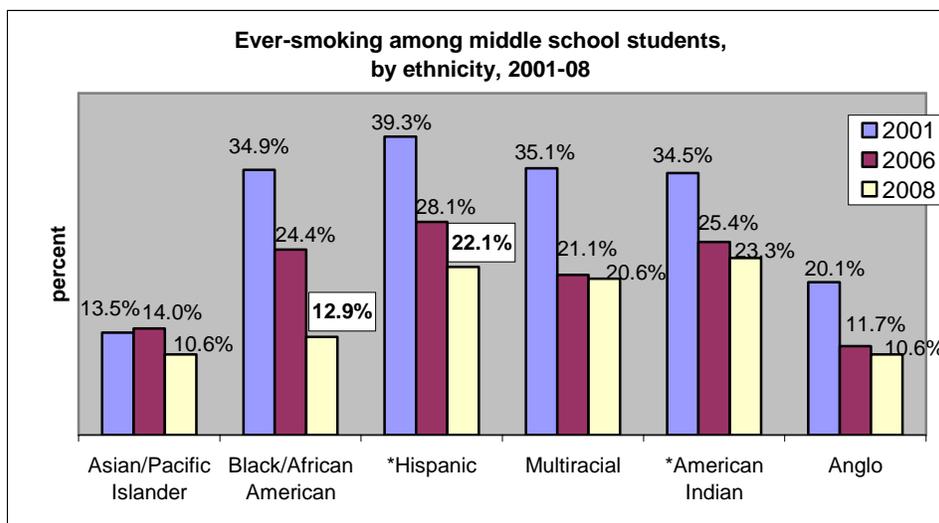
* In 2001 and 2006, the questions were: "In the past 7 days, on how many days were you inside a room with someone who was smoking a cigarette?" and "In the past 7 days, on how many days were you inside a car with someone who was smoking a cigarette?" In 2008, each of these questions was split into two questions, one asking about smoking by a parent or guardian and the other asking about smoking by "someone your age."

Tobacco and Ethnicity

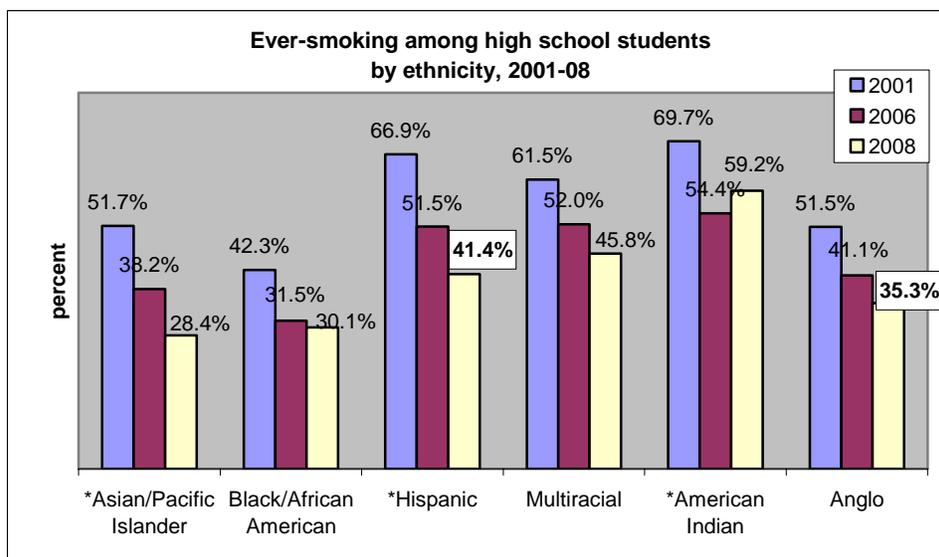
In this section, the 2008 rate for each ethnic group is compared with its 2006 rate and with the 2008 rate among non-Hispanic white (“Anglo”) students.† Significant differences from the Anglo population are noted with an asterisk (*).

Cigarette Smoking

Ever-smoking decreased during 2006-08 among African American and Hispanic students in middle school, and Hispanic and Anglo students in high school. In 2008, ever-smoking was more common among Hispanic and American Indian

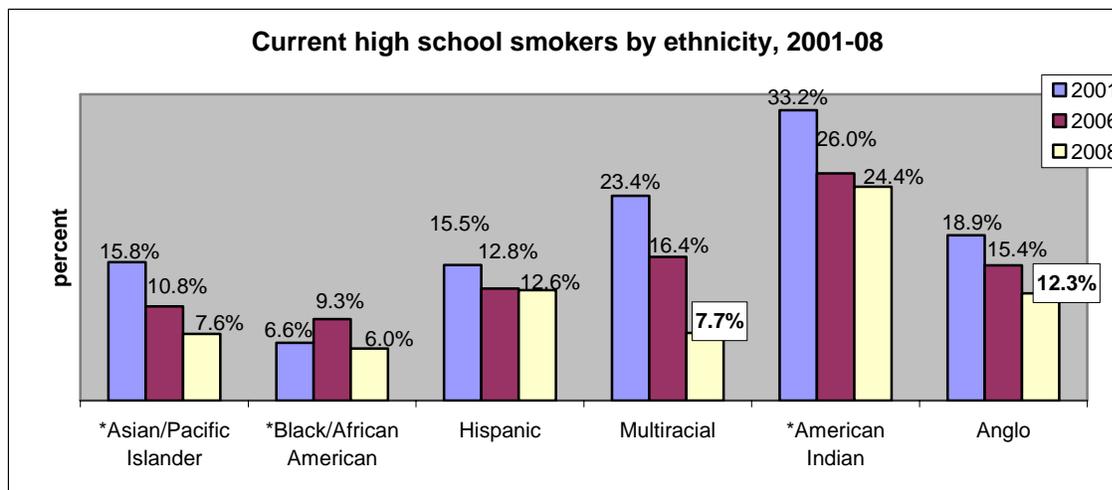


students in both middle and high school than Anglo students. In high school, ever-smoking was less common among Asian American students compared to Anglo students.

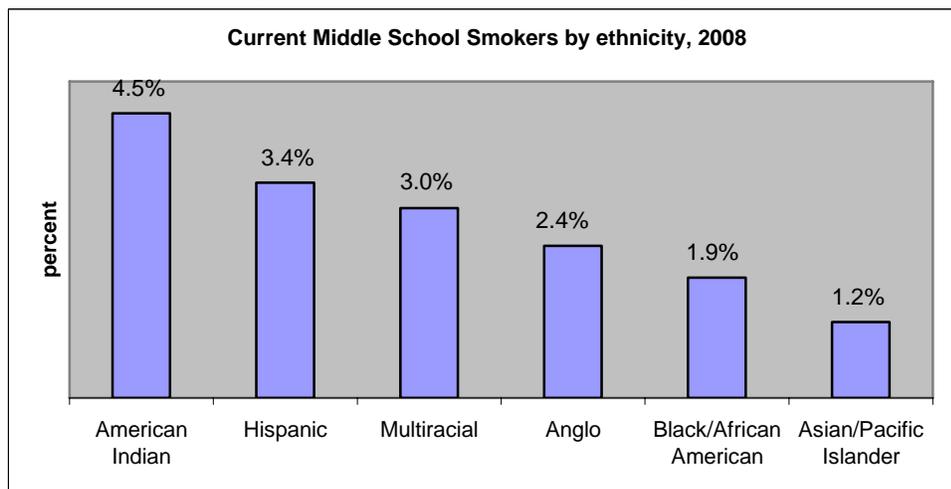


† Comparison to the Anglo population is omitted for the multiracial category due to small sample size.

Current smoking decreased during 2006-08 among Anglo and multiracial high school students. In 2008, current smoking was more common among Native American students than Anglo students and less common among black/African American and Asian American students than Anglo students.



Middle school current smoking rates were unchanged among all ethnic groups during 2006-08, and there were no significant differences between Anglo rates and other ethnicities in 2008.



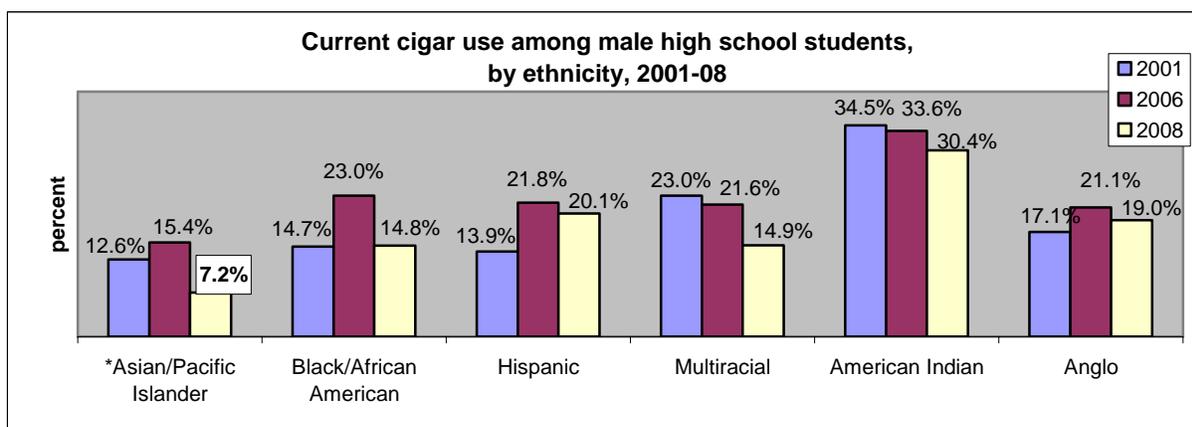
Among high school current smokers, the number of Anglo students making a quit attempt in the last 12 months declined in 2008 (**53.5%**, down from 63.0%) as did Hispanic quit attempts (**50.1%**, down from 63.0%). The quit attempt rate was unchanged among Asian, Black and Native American students (50.4%, 43.7% and 49.8% respectively).^{*} There were no significant differences between Anglo rates and other ethnicities in 2008 for quit attempts.

^{*} Rates were not computed for the multiracial category due to small sample size.

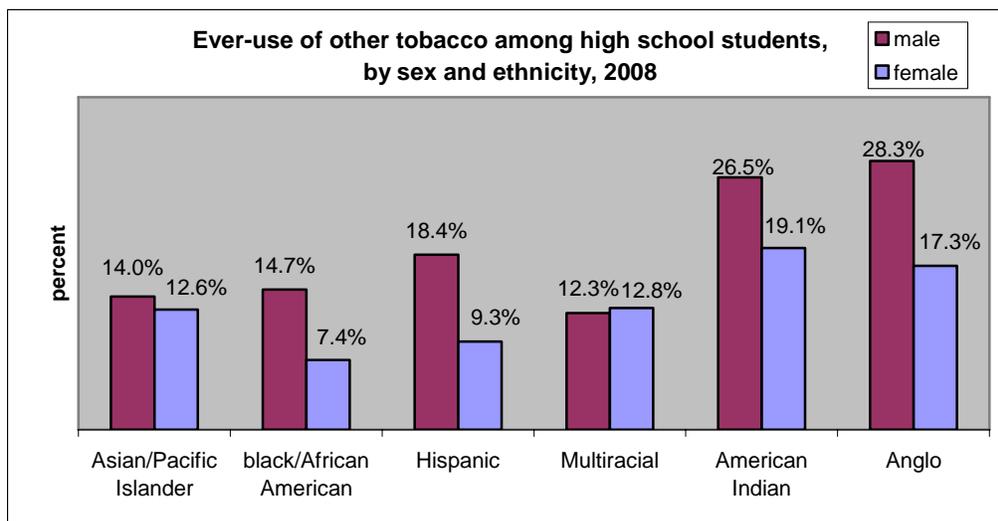
Non-cigarette tobacco

Smokeless tobacco use rates for both middle school and high school students were unchanged among all ethnicities during 2006-08 (no chart shown). Use was more common among high school Anglo males (14.8%) than among Hispanic males (9.4%), African American males (8.7%) or Asian American males (7.3%).

Cigar smoking rates were generally unchanged among high school students of all ethnicities during 2006-08, except the rate declined among male Asian high school students (7.2%, down from 15.4%) to a level below that of Anglo male high school students (19.0%). Cigar smoking remained more common among high school Native American students (25.8%, both sexes combined) than among Anglo students (14.6%, both sexes combined).

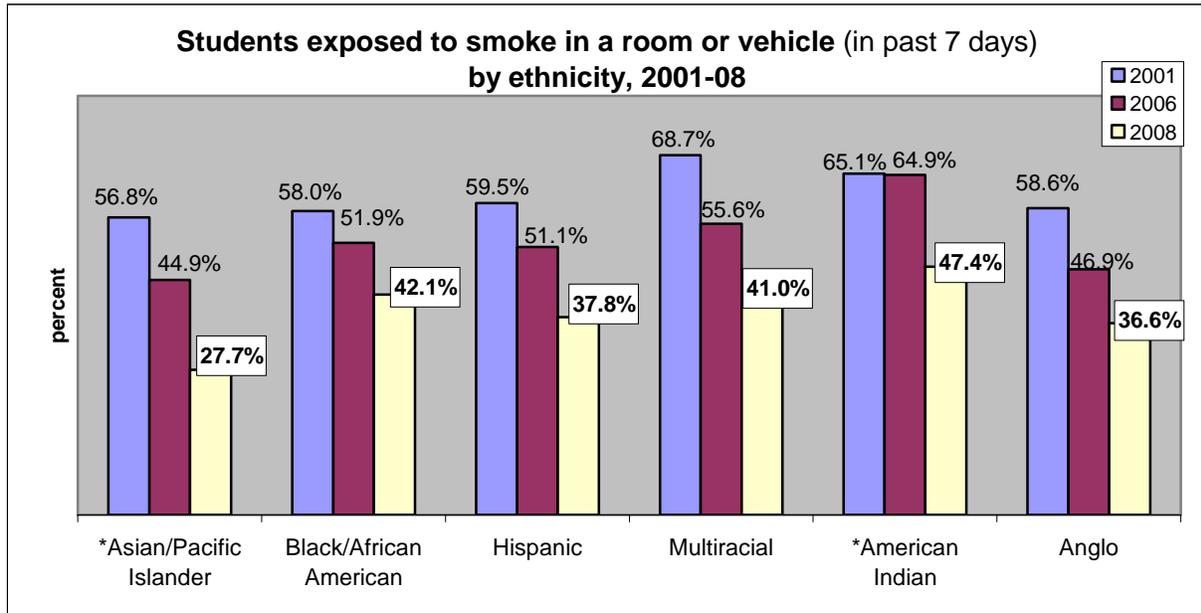


Other tobacco forms: Among high school students, ever-use of other tobacco (bidis, kreteks, hookahs/waterpipes or spitless tobacco) remained unchanged during 2006-08 among all ethnicities and both sexes, except that the rate increased among white males (28.3%, up from 25.0%) and African American females (7.4%, up from 2.6%). Use of other tobacco forms was higher among white males than Hispanic, African American, and Asian American males and higher among white females than Latina and African American females.



Secondhand Smoke

In 2008, SHS exposure in closed spaces declined significantly among all ethnicities. Exposure was similarly common among Anglo, Hispanic and African American students, significantly less common among Asian American students, and significantly more common among Native American students.



Susceptibility, Knowledge, and Other Factors

In 2008, 17.7% of never-smokers were susceptible to smoking* (unchanged from 2006). Other characteristics were also related to student intentions to smoke.

| Percent of susceptible never smokers who have additional risk factors, 2008 | |
|---|-------|
| | Yes |
| at least one best friend smokes | 48.5% |
| think it's easy to get cigarettes | 60.1% |
| no adult at school said don't smoke | 47.8% |
| parents do not often express desire that student not smoke | 32.9% |

Nearly all current smokers had one or more best friends who smoked (92.7%), compared to two-thirds (65.7%) of non-current smokers and one-fourth (26.5%) of never-smokers.

During 2006-08, the belief became significantly more widespread among students that quitting smoking is not difficult.

| Percent of students who believe quitting is not difficult, 2006-08 | | | |
|---|--------------------------|--------------------------|--------------------------|
| % agreeing with this statement: | Current smokers | Noncurrent smokers | Never smokers |
| A person can quit smoking without too much trouble, even if they smoke longer than a year or two. | 42.0% (up from 26.8%) | 31.9% (up from 20.6%) | 20.3% (up from 11.6%) |

* Susceptibility is assessed by asking, "At any time in the next year, do you think you will smoke a cigarette?" and "If one of your best friends offers you a cigarette, will you smoke it?" Students are susceptible to smoking if they fail to answer "definitely not" to both questions.

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