

Teens and Tobacco in Minnesota, 2011 Update

Results from the Minnesota Youth Tobacco and Asthma Survey

Minnesota Department of Health
Division of Health Policy
Center for Health Statistics

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Finally, we would like to thank the many dedicated people throughout the state who nourish the well-being of our young people by encouraging them to reject tobacco use and other threats to health. We hope this information will help all of us better understand the trends and characteristics of teen tobacco use in Minnesota.

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EXECUTIVE SUMMARY

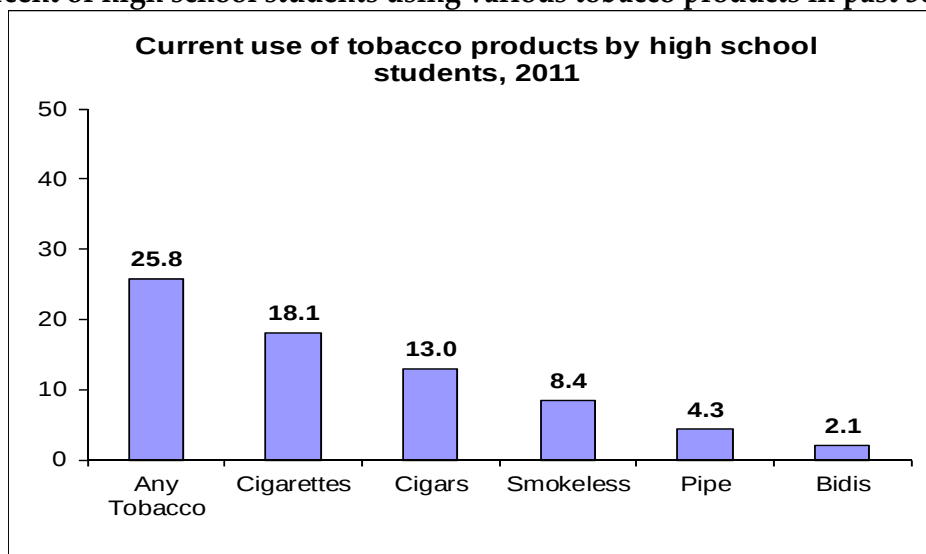
The 2011 Minnesota Youth Tobacco and Asthma Survey is the latest in a series of youth tobacco surveys conducted by the Minnesota Department of Health. Previous surveys took place in 2000, 2002, 2005 and 2008. This survey provides current statewide information that can be used for education and planning by public and private sector programs aimed at reducing tobacco use. Topics covered include the extent of tobacco use, characteristics of smokers, secondhand smoke exposure, and media awareness. Public schools and classrooms across the state were selected at random for the 2011 survey, and 3,446 students in grades 6 through 12 participated.

Findings

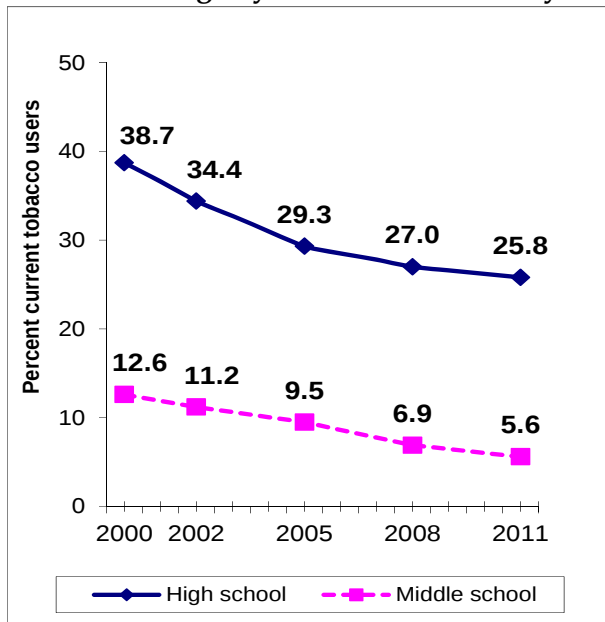
Current Tobacco Use

- In middle school (grades 6-8), 5.6 percent of students are current tobacco users, meaning that they used any form of tobacco in the past 30 days; 3.7 percent are current cigarette smokers.
- In high school (grades 9-12), 25.8 percent of students used tobacco in the past 30 days. Nearly one in five high school students (18.1%) smoked cigarettes; 13.0 percent smoked cigars, cigarillos or little cigars, and 8.4 percent used smokeless tobacco in the past 30 days. Many cigarette smokers use other forms of tobacco.
- In 2011, an estimated 77,000 public school students are current tobacco users.
- At the high school level, males are considerably more likely to use various tobacco products than are females.

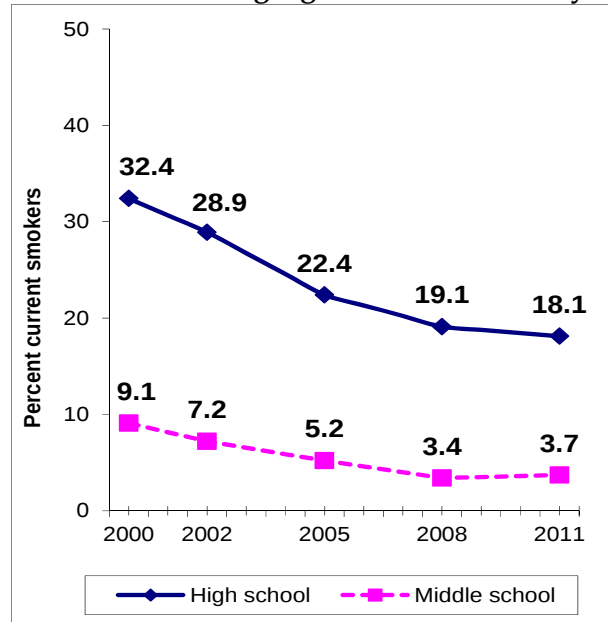
Percent of high school students using various tobacco products in past 30 days, 2011



Percent using any tobacco in last 30 days



Percent smoking cigarettes in last 30 days



Trends in Current Tobacco Use

- After a decade of sharp declines in tobacco use among teens, progress in reducing tobacco use appears to be slowing down.
- Between 2008 and 2011, the percentage of middle school students who used any tobacco products in the past 30 days declined from 6.9 percent to 5.6 percent. At the high school level, the percentage of students using any tobacco products declined slightly from 27.0 percent to 25.8 percent. Neither of these decreases is statistically significant.
- Between 2008 and 2011, the percentage of students who smoked cigarettes in the past 30 days remained the same in middle school (3.4% in 2008 and 3.7% in 2011) and declined slightly from 19.1 to 18.1 percent in high school.
- In 2011, an estimated 77,000 public school students used tobacco in the past 30 days, down from 85,000 in 2008 and 124,600 in 2000.
- While cigarette smoking has declined since 2000, there has been no change since 2000 in the percentage of students smoking cigars, cigarillos or little cigars and little change in the percentage of students using smokeless tobacco.

Any Tobacco Use in Lifetime

- Fifteen percent (15%) of middle school students have tried some form of tobacco in their lifetime, a significant decrease from 22.5 percent in 2008 and 41.3 percent in 2000. The percentage of high school students who have tried some form of tobacco in their lifetime also fell from 53.6 percent in 2008 to 46.2 percent in 2011.

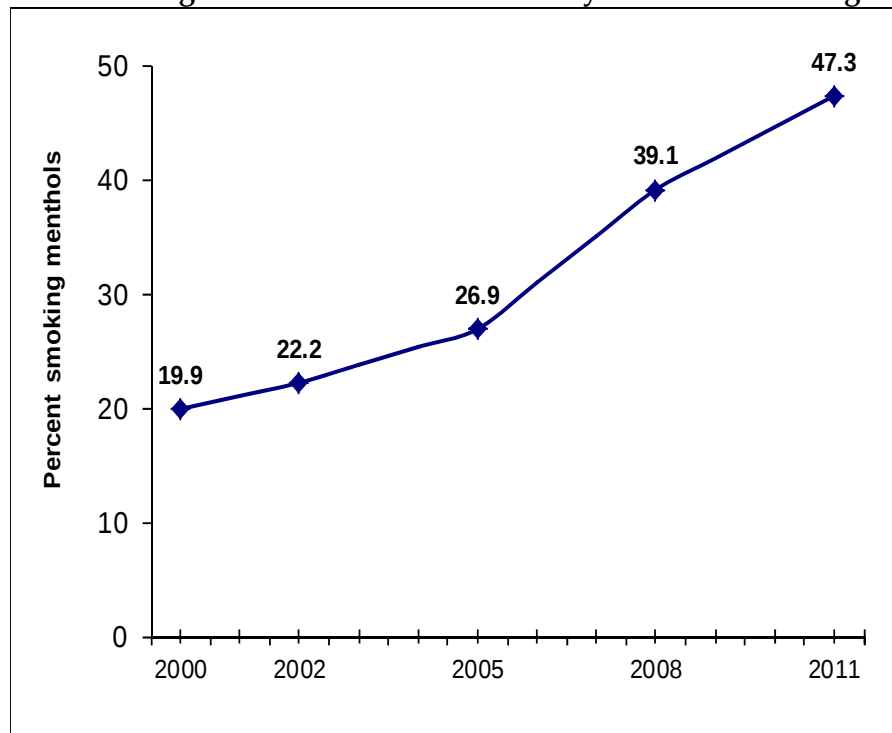
Emerging Tobacco Products

- Snus (rhymes with “moose”) is a moist smokeless tobacco product that comes in small pouches. It came on the market in Minnesota in 2008. One in seven high school students (14.3%) report that they have tried snus in their lifetime, and 4.9% report using snus in the last 30 days.
- Flavored cigarillos and little cigars have been around for some time, but the variety of flavors has proliferated in the past few years. More than one-fourth of high school students (28.6%) and 6.8 percent of middle school students report that they have tried flavored cigars, cigarillos or little cigars at some point in their lives. The FDA recently banned candy flavors, fruit flavors, chocolate and other sweet flavors in cigarettes, but not in cigar products.

Menthol Cigarettes

- About half of teen smokers usually smoke menthol cigarettes (49.8% MS; 47.3% HS).
- Among high school students, preference for menthols has more than doubled since 2000 and is continuing to rise; 47.3 percent of high school smokers usually smoke menthols, compared to 39.1 percent in 2008 and 19.9 percent in 2000.

Percent of high school smokers who usually smoke menthol cigarettes



Access to Cigarettes

- Over two-thirds of smokers under 18 (66.9% MS; 72.3% HS) get their cigarettes through social sources, such as borrowing cigarettes or giving someone else money to buy for them. About 10 percent (9.7%) of underage high school smokers usually get their cigarettes by purchasing them in a store.

Quitting

- About half of high school smokers want to stop smoking (48.7%) and just over half have made a quit attempt in the past 12 months (51.6%). These figures are unchanged from 2008.

Health Professionals

- In the past 12 months, 38.3 percent of high school students report being asked by a doctor, dentist, nurse or other health professional if they smoke, and 27.8 percent report being advised by a health professional not to smoke.

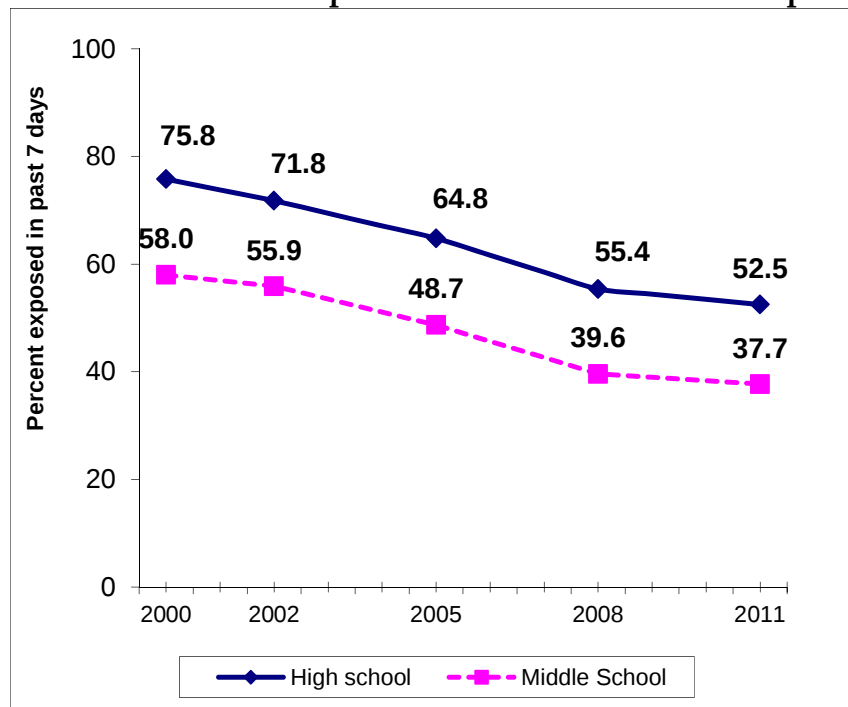
Home Environment, Friends, and Smoking

- Three-fourths of middle school smokers (75.0%) and over half of high school smokers (57.8%) live with someone else who smokes. Living with a smoker greatly increases the odds of becoming a smoker.
- Current smokers tend to form friendship groups with other smokers. In high school, 78.5 percent of current smokers but only 14.7 percent of non-smokers have two or more smokers among their four closest friends.

Exposure to Secondhand Smoke

- Progress in reducing exposure to secondhand smoke has slowed since 2008, after many years of strong declines earlier in the decade. The survey period showing the greatest declines in exposure in 2002-2008, a period when many local governments and then the state enacted and implemented laws that banned smoking in indoor public places, including bars and restaurants.
- Exposure to secondhand smoke during the past seven days declined slightly between 2008 and 2011, from 55.4 to 52.5 percent for high school students and from 39.6 to 37.7 percent for middle school students.
- Repeated exposure to secondhand smoke in the past seven days did not change between 2008 and 2011.

Percent of students exposed to secondhand smoke in past seven days



Perceptions, Rules and Opinions about Secondhand Smoke

- Over 90 percent of students agree that secondhand smoke is harmful.
- Among high school students, 79.7 percent report that smoking is never allowed inside their home and 64.0 percent report that smoking is never allowed in the vehicle they drive or ride in the most.
- Current smokers are much less likely than non-smokers to have smoke-free rules in their homes and vehicles.
- Support for public and private smoke-free rules is very high. Nearly 90 percent of middle school students believe that smoking should never be allowed inside their homes, in their vehicles, at workplaces, and in indoor public places. Support by high school students ranges from 70.9 percent for smoke-free rules in vehicles to 84.4 percent for smoke-free rules in indoor public places.

Tobacco Promotional Merchandise

- Between 2008 and 2011, the percentage of students who received or bought tobacco brand promotional merchandise declined from 8.4 to 5.4 percent in middle school and from 17.5 to 10.9 percent in high school, continuing a long-term trend over the past decade. Interest in using or wearing tobacco promotional merchandise also declined. All changes between 2008 and 2011 are statistically significant.

School Curriculum and Community Activities

- The percentage of students who were taught about the dangers of tobacco use in school declined in middle school but increased slightly in high school between 2008 and 2011. Neither change was statistically significant.
- Among high school students, the percentage who reported participating in community activities to discourage young people from using tobacco fell from 12.1 percent in 2008 to 8.0 percent in 2011, a statistically significant drop.

Media Exposure

- The percentage of students who see or hear commercials about the dangers of smoking one or more times per week declined significantly between 2008 and 2011 for both middle school students (from 41.2% to 31.8%) and high school students (from 48.4% to 36.0%).
- A large majority of students (69.9% MS; 78.3% HS) report that they see actors using tobacco most or some of the time when they watch TV or go to the movies.
- One-third of students (33.8% MS; 35.3% HS) report seeing ads for tobacco products most or some of the time when they are on the internet, up from about one-fourth of students in 2000.
- The tobacco industry is increasingly active on popular video-sharing and social networking internet sites. One in four high school students (26.3%) report seeing videos or clips showing smoking most or some of the time on YouTube or other video-sharing sites, and 20.2 percent report seeing “pages” or “groups” for tobacco products on Facebook.

Discussion

The survey results described in this summary reveal many positive developments during the period from 2008 to 2011. These developments, however, are overshadowed by the finding that progress in reducing key outcomes appears to be slowing down. Current tobacco use, current cigarette smoking, and secondhand smoke exposure declined between 2008 and 2011, but only slightly and at a much slower rate than the rapid progress seen between 2000 and 2008.

In addition, survey results point to several issues that tobacco prevention programs and public health officials should monitor and address:

- First, while the prevalence of cigarette smoking is now much lower than it was in 2000, there has been no reduction in use of cigars, cigarillos or little cigars and very little reduction in the use of smokeless tobacco. Cigars, cigarillos and little cigars are taxed and regulated much less extensively than cigarettes, and are

available in candy or sweet flavors. Little cigars are the same size and shape as cigarettes but are sold for far less than cigarettes.

- Second, use of menthol cigarettes by students continues to increase and has more than doubled since 2000. Menthol appears to make it easier for young people to start smoking. The Tobacco Products Scientific Advisory Committee of the Food and Drug Administration concluded that: “Removal of menthol cigarettes from the marketplace would benefit public health in the United States.” The FDA is now considering whether to ban menthol in cigarettes.
- Third, the tobacco industry has been rolling out new smokeless products designed to enable people to develop and maintain a nicotine habit without always having to smoke. Some teens have tried or currently use snus, and dissolvable tobacco products (strips, orbs, etc.) may come to Minnesota soon.
- Fourth, about a third or less of students report being asked if they smoke or being advised not to smoke by a doctor, dentist or nurse or other health professional in the past 12 months. While the findings are not conclusive (many youth report they could not remember and some may not have seen a health professional), they should serve to remind health professionals to fully adopt the clinical guidelines that call for asking and advising all adolescent patients about tobacco use.
- Fifth, tobacco products are being advertised over the internet and are being unofficially promoted on video-sharing and social networking sites such as YouTube and Facebook. The industry has been finding ways to get around some of the restrictions against direct advertising on these sites. Public health officials should monitor how tobacco products are portrayed and promoted on the internet and should consider ways to increase public health messages on social media sites.

SECTION 1 INTRODUCTION

Tobacco use is a tragic addiction that continues to be the leading cause of premature death in the U.S. Cigarette smoking was responsible for the premature death of an estimated 5,135 Minnesotans in 2007, about one of every seven deaths in the state.¹ That same year, excess medical costs due to smoking reached \$2.87 billion.² Tobacco use begins its damaging work early in life. At least 80 percent of adult smokers report that they had their first cigarette before the age of 18.³ Preventing young people from starting to smoke in the first place is a necessary strategy in reducing the long-term harm caused by tobacco use.

This report describes tobacco use by Minnesota adolescents through data provided by the 2011 Minnesota Youth Tobacco and Asthma Survey (MYTAS). It also describes changes over time since the survey was first conducted in 2000.

The Minnesota Department of Health has conducted the youth tobacco survey in 2000, 2002, 2005, 2008 and 2011. The survey includes questions on the use of various tobacco products, characteristics of smokers, exposure to secondhand smoke, media awareness, and other topics. Questions about asthma were added in 2008, and the survey was renamed the Minnesota Youth Tobacco and Asthma Survey. Nearly 3,500 Minnesota public school students from grades 6-12 participated in the 2011 survey. Information about the survey methods can be found in Appendix A. Results from earlier surveys can be found at <http://www.health.state.mn.us/divs/chs/tobacco/index.html>.

In accordance with guidelines from the Centers for Disease Control and Prevention, results are presented separately for middle school students (grades 6-8) and high school students (grades 9-12). Trend results have been tested for statistical significance, and any significant differences between the 2000 and 2011 results or between the 2008 and 2011 results are noted in the tables.

SECTION 2

THE EXTENT OF CURRENT TOBACCO USE

Current Tobacco Use

The 2011 survey found that 25.8 percent of high school students and 5.6 percent of middle school students are current tobacco users, meaning that they have used some form of tobacco in the past 30 days. (Table 1) Using these percentages, we estimate that nearly 77,000 public school students are current tobacco users.

Cigarettes are the most common form of tobacco used – 18.1 percent of high school students and 3.7 percent of middle school students have smoked cigarettes in the past 30 days. At the high school level, substantial numbers of students use other forms of tobacco – 13.0 percent smoked cigars, cigarillos or little cigars, and 8.4 percent used smokeless tobacco, including snuff, dip and chewing tobacco, in the past 30 days. (Table 1) Just under half of current tobacco users report using two or more forms of tobacco during the past month. In this age group, experimentation with a variety of tobacco products is widespread.

One-third of male high school students (31.9%) are current tobacco users, compared to one-fifth of females (19.1%). Males are slightly more likely than females to smoke cigarettes, and are far more likely to smoke cigars/cigarillos/little cigars and use smokeless tobacco. (Table 1)

Table 1. Percent of students who used various tobacco products on one or more of the past 30 days, by gender, 2011.

	Middle School			High School		
	Female	Male	Total	Female	Male	Total
Any tobacco products	4.8%	6.5%	5.6%	19.1%	31.9%	25.8%
Cigarettes	3.5%	4.0%	3.7%	16.2%	19.9%	18.1%
Cigars, cigarillos, little cigars	1.6%	3.3%	2.5%	6.3%	19.6%	13.0%
Smokeless tobacco	1.4%	4.0%	2.7%	1.6%	15.0%	8.4%
Pipe	1.3%	1.3%	1.3%	1.7%	6.7%	4.3%
Bidis*	.8%	1.1%	.9%	.6%	3.4%	2.1%

* Bidis are small brown cigarettes from India consisting of tobacco wrapped in a leaf and tied with a thread.

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

It is worth noting that among high school males, the percentages who smoke cigars, cigarillos or little cigars and use smokeless tobacco are almost as high as the percentage who smoke cigarettes. This does not necessarily mean that these products are used as frequently as cigarettes. Among high school students, while four in ten cigarette smokers say they smoked on at least 20 of the past 30 days, only one in ten cigar or little cigar smokers say they smoked that often. Nevertheless, cigarettes clearly do not have a monopoly on the tobacco market, particularly among teenage males.

Trends in Tobacco Use

The rapid progress in reducing tobacco use that had been made earlier in the decade appears to be slowing down in recent years. The percentage of middle school students who used tobacco in the past 30 days declined from 6.9 percent in 2008 to 5.6 percent in 2011, a decrease that is not statistically significant. The percentage of students who smoked cigarettes in the past 30 days remained about the same, moving from 3.4 percent in 2008 to 3.7 percent in 2011. Over the long run, current tobacco use and smoking rates for middle school students are less than half of what they were in 2000. (Table 2)

In high school, current tobacco use declined slightly from 27.0 percent in 2008 to 25.8 percent in 2011, and the percentage who smoked cigarettes in the past 30 days fell slightly from 19.1 to 18.1 percent. Neither of these decreases is statistically significant. Since 2000, current use of any tobacco has fallen by 33 percent and current cigarette smoking has dropped by 44 percent, both statistically significant. Against this backdrop of long-term progress, use of cigars, cigarillos and little cigars has not budged at all since 2000, and use of smokeless tobacco has declined only slightly. (Table 2)

As a side note, the number of students who smoke bidis, while never very large, dropped in half between 2008 and 2011 in both middle school and high school. (Table 2) This recent trend may be an indication that this particular product is losing popularity and may be on the way out.

Table 2. Change in percent of students who used various tobacco products on one or more days in the past 30 days, 2000-2011.

Middle School							
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Any tobacco use	12.6	11.2	9.5	6.9	5.6	-56%	§ --
Cigarettes	9.1	7.2	5.2	3.4	3.7	-59%	§ --
Cigars, cigarillos	3.7	2.7	3.0	2.7	2.5	--	--
Smokeless tobacco	2.2	2.2	2.8	2.2	2.7	--	--
Pipe	2.7	2.6	2.4	2.2	1.3	--	--
Bidis*	2.8	2.8	2.8	1.8	0.9	-68%	§ --
High School							
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Any tobacco use	38.7	34.4	29.3	27.0	25.8	-33%	§ -4%
Cigarettes	32.4	28.9	22.4	19.1	18.1	-44%	§ -5%
Cigars, cigarillos	13.0	12.3	12.0	12.9	13.0	+1%	0%
Smokeless tobacco	10.2	9.7	7.9	9.4	8.4	-18%	--
Pipe	5.0	5.4	3.7	5.0	4.3	--	--
Bidis*	4.8	5.5	3.9	4.2	2.1	-56%	§ -50%

* Bidis are small brown cigarettes from India consisting of tobacco wrapped in a leaf and tied with a thread.

-- Percent change not shown when baseline percentage is below 10%, unless statistically significant.

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Figure 1. Percentage of students using tobacco in the past 30 days, 2000-2011.

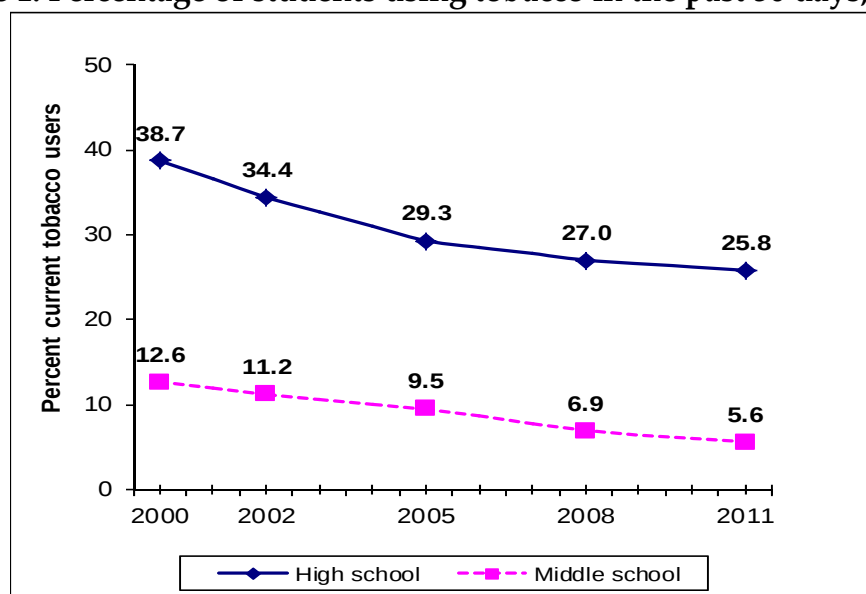
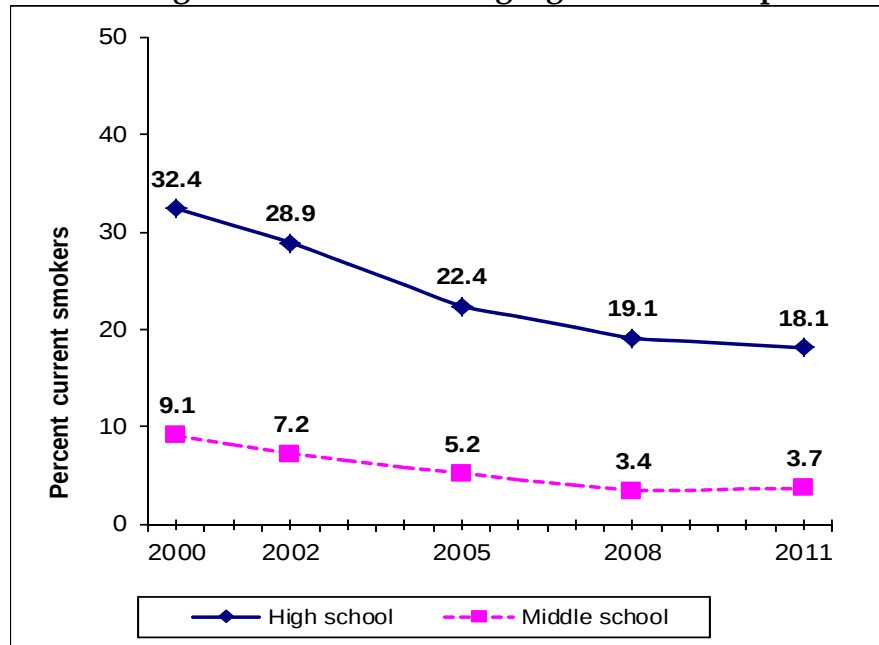


Figure 2. Percentage of students smoking cigarettes in the past 30 days, 2000-2011.



Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Trends in Tobacco use, by Gender

For middle school students, overall tobacco use declined slightly for both males and females between 2008 and 2011. (Table 3) Among high school students, overall tobacco use and cigarette smoking remained about the same for females between 2008 and 2011, while declining slightly for males. For example, the percentage of females who smoked cigarettes in the past 30 days moved from 15.9 percent in 2008 to 16.2 percent in 2011, while the percentage of males who smoked cigarettes in the past 30 days fell from 21.6 to 19.9 percent. However, over the full decade female high school students have shown stronger gains than their male counterparts, cutting overall tobacco use by 44 percent and cigarette smoking by 50 percent since 2000. (Table 3)

Table 3. Change in percent of students who used any form of tobacco and who smoked cigarettes on one or more days in the past 30 days, by gender, 2000-2011.

Middle School							
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Current tobacco user							
Females	12.3	10.7	8.0	5.7	4.8	-61%§	--
Males	12.9	11.5	10.8	8.0	6.5	-50%§	--
Current cigarette smoker							
Females	9.5	8.0	5.2	3.5	3.5	-63%§	--
Males	8.7	6.4	5.0	3.2	4.0	-54%§	--
High School							
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Current tobacco user							
Females	34.1	28.8	25.9	19.5	19.1	-44%§	-2%
Males	42.7	39.5	32.3	33.3	31.9	-25%§	-4%
Current cigarette smoker							
Females	32.6	27.4	22.9	15.9	16.2	-50%§	+2%
Males	32.0	30.1	21.7	21.6	19.9	-38%§	-8%

-- Percent change not shown when baseline percentage is below 10%, unless statistically significant.

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Comparison with National Trends

Several surveys provide national results that can be compared to Minnesota's. The survey that is most similar to the Minnesota Youth Tobacco and Asthma Survey is the National Youth Tobacco Survey (NYTS). The NYTS uses the same questions and similar methods to select students as the Minnesota survey. Though the state and national surveys are not always conducted during the same year, long-term trends are readily apparent.

For middle school students, the percentage of current tobacco users in Minnesota has been slightly below the national percentage. (Figure 3) For high school students, on the other hand, Minnesota's current tobacco use rate has always run higher than the national figure, although the gap has become very small in recent years. (Figure 4) The overall trends are similar. Like Minnesota, the national trends show sharp declines in

tobacco use in the early part of the decade, followed by much smaller declines in more recent years.

Figure 3. Percentage of middle school students using any tobacco in the past 30 days, Minnesota and United States, 2000 to present.

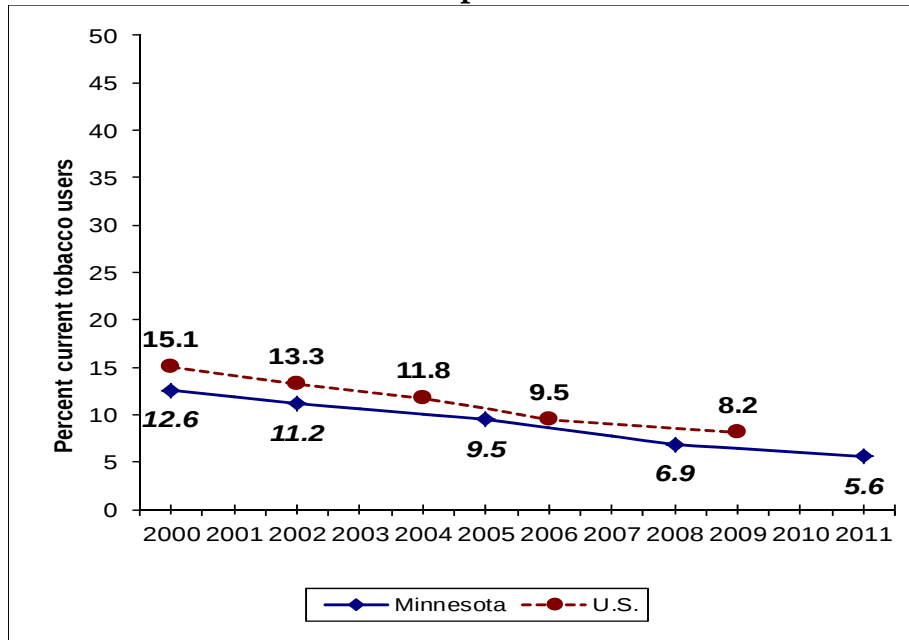
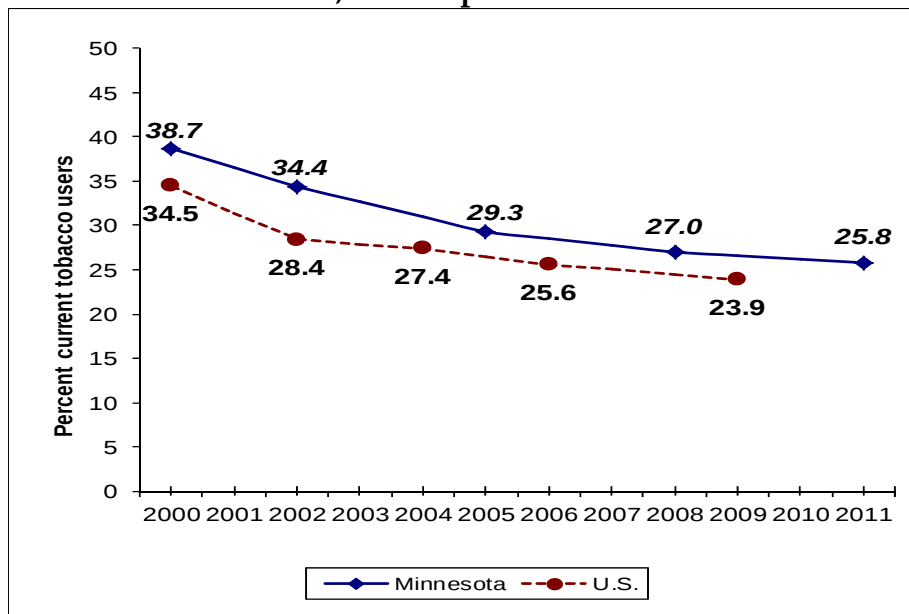


Figure 4. Percentage of high school students using any tobacco in the past 30 days, Minnesota and United States, 2000 to present.



Source: Minnesota Youth Tobacco Surveys, 2000 through 2011, and National Youth Tobacco Survey, 2000 through 2009. "Tobacco Use Among Middle and High School Students—United States, 2000-2009", *MMWR*, August 27, 2010, 59(33); 1063-68.

SECTION 3

THE EXTENT OF ANY USE OF TOBACCO IN LIFETIME

Trying various kinds of tobacco is a first step that may eventually lead to regular use. Therefore, health organizations track the proportion of youth who have ever tried or used tobacco, with the goal of reducing the number who have taken this initial step. In this section, we look at students who have ever used cigarettes or other tobacco products, even if it was only one or two puffs.

Any Use of Tobacco Products in Lifetime

In 2011, 15.0 percent of middle school students and nearly one-half of high school students (46.2%) reported that they had ever used one or more forms of tobacco in their lifetime. Males were more likely than females to report that they had ever smoked cigarettes and were two or three times more likely than females to report ever smoking cigars, cigarillos or little cigars or using smokeless tobacco. (Table 4)

Among high school males, the percentage who had ever smoked cigars, cigarillos or little cigars was almost as high as the percentage who had ever smoked cigarettes. Rather than being wedded solely to cigarettes, many young people are experimenting with and using a variety of tobacco products.

Table 4. Percent of students who have ever used specific tobacco products in lifetime, by gender, 2011.

	Middle School			High School		
	Female	Male	Total	Female	Male	Total
Any tobacco products	12.1%	17.8%	15.0%	40.1%	51.8%	46.2%
Cigarettes	10.4%	15.0%	12.7%	37.1%	42.5%	39.9%
Cigars, cigarillos, little cigars	4.4%	9.8%	7.1%	21.1%	40.6%	31.0%
Smokeless tobacco	3.3%	7.8%	5.6%	8.8%	30.9%	20.0%

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Trends in Ever Use of Tobacco

At the middle school level, the proportion of students who have ever used tobacco fell by one-third from 22.5 percent to 15.0 percent between 2008 and 2011. This decline is statistically significant and continues the long-term trend that has seen lifetime use of any tobacco products drop by 64 percent since 2000. (Table 5)

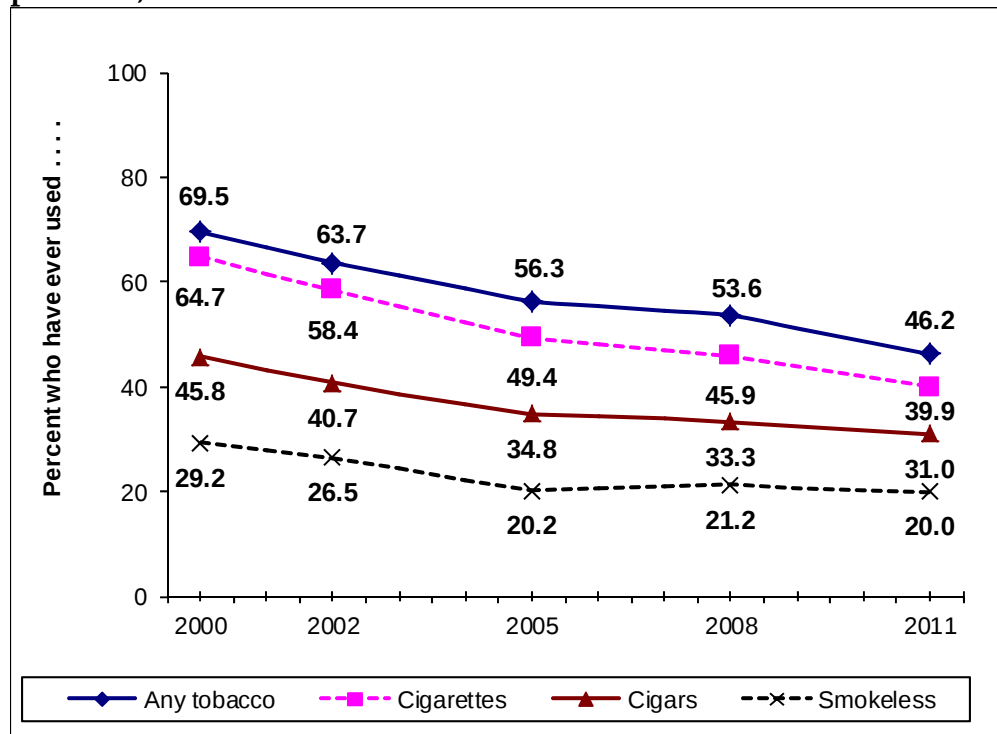
Among high school students, the percentage who have ever used tobacco fell substantially from 53.6 percent to 46.2 percent between 2008 and 2011. This recent decrease is also statistically significant. The percentage who have ever smoked cigarettes dropped by six percentage points between 2008 and 2011, but there were only slight decreases in the lifetime use of cigars and smokeless tobacco over the same period. In fact, the proportion of students who have ever used cigars and smokeless tobacco has changed little since 2005, in contrast to the strong decreases that were in place between 2000 and 2005. (Table 5, Figure 5)

Table 5. Change in percent of students who have ever used various tobacco products in lifetime, 2000-2011.

Middle School							
Ever used.....	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Any form of tobacco	41.3	36.5	27.8	22.5	15.0	-64%§	-33%§
Cigarettes	33.3	27.4	19.7	14.8	12.7	-62%§	-14%
Cigars, cigarillos	18.3	16.3	12.8	9.5	7.1	-61%§	--
Smokeless tobacco	12.4	11.2	9.8	8.3	5.6	-55%§	--
High School							
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Any form of tobacco	69.5	63.7	56.3	53.6	46.2	-34%§	-14%§
Cigarettes	64.7	58.4	49.4	45.9	39.9	-38%§	-13%
Cigars, cigarillos	45.8	40.7	34.8	33.3	31.0	-32%§	-7%
Smokeless tobacco	29.2	26.5	20.2	21.2	20.0	-32%§	-6%

§ Differences between the stated years are statistically significant at $p < .05$.
Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Figure 5. Percent of high school students who have ever used various tobacco products, 2000-2011.



Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Trends in Ever Use of Tobacco, by Gender

In middle school, the percentage of students who have ever used any kind of tobacco declined from 20.1 to 12.1 percent for females and from 24.5 to 17.8 percent for males between 2008 and 2011. These reductions were statistically significant for females but did not reach statistical significance for males. (Table 6)

In high school, both male and female students showed substantial declines from 2008 to 2011 in the percentage who have ever used tobacco. For females, the decline in any lifetime use of tobacco from 47.5 to 40.1 percent was statistically significant. Over the long-term, both males and females have made significant reductions in experimentation with the major tobacco products, with females showing sharper reductions than males. Since 2005, however, the percentage male high school students who have ever used cigars, little cigars or smokeless tobacco has not declined at all, halting the progress that had been made between 2000 and 2005. (Table 6)

Table 6. Change in percent of students who ever used specific tobacco products in their lifetime, by gender, 2000-2011.

Middle School							
Percent ever used.....	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Any tobacco product							
Females	38.1	32.9	25.2	20.1	12.1	-68%§	-40%§
Males	44.2	39.8	30.3	24.5	17.8	-60%§	-27%
Cigarettes							
Females	31.2	25.2	18.5	14.2	10.4	-67%§	-27%
Males	35.2	29.4	20.7	15.1	15.0	-57%§	0%
Cigars, cigarillos							
Females	13.8	12.2	9.3	7.5	4.4	-68%§	--
Males	22.5	20.1	15.9	11.3	9.8	-56%§	-13%
Smokeless Tobacco							
Females	7.3	7.8	6.7	6.0	3.3	-55%§	--
Males	17.3	14.6	12.7	10.5	7.8	-55%§	-26%
High School							
Percent ever used.....	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Any tobacco product							
Females	66.0	58.9	53.6	47.5	40.1	-39%§	-16%§
Males	72.7	68.3	58.7	58.9	51.8	-29%§	-12%
Cigarettes							
Females	63.7	56.3	49.2	42.2	37.1	-42%§	-12%
Males	65.5	60.4	49.3	49.1	42.5	-35%§	-13%
Cigars, cigarillos							
Females	35.3	29.9	27.5	24.6	21.1	-40%§	-14%
Males	55.9	51.3	41.9	41.7	40.6	-27%§	-3%
Smokeless tobacco							
Females	16.9	14.2	11.2	12.1	8.8	-48%§	-27%
Males	41.2	38.5	28.9	30.1	30.9	-25%§	+3%

-- Percent change not shown when baseline percentage is below 10%, unless statistically significant.

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011.

SECTION 4

EMERGING TOBACCO PRODUCTS—SNUS AND FLAVORED LITTLE CIGARS

The tobacco industry has developed several new or emerging products in recent years. Some of these products were developed to allow smokers to continue to take in nicotine when they are in places where smoking is now banned. Other products are intended to appeal to young smokers and entice potential new smokers. In this section, we explore two of these products.

Snus—A New Smokeless Product

Snus (rhymes with “moose”) is moist, smokeless tobacco that comes in small pouches. Users place the pouch in their mouth between the gum and cheek. When finished, the pouch can be taken out of the mouth and discarded, removing the need for spitting. Snus originally came from Sweden. It is manufactured by several tobacco companies and has been on the market in Minnesota since 2008.

One in seven high school students (14.3%) and 3.1 percent of middle school students report that they have tried snus at some time in their lives. One in twenty high school students (4.9%) and 1.6 percent of middle school students report that they have used snus in the past 30 days, and thus would be considered current users. As with smokeless tobacco in general, males are far more likely than females to report current experimentation and use. (Table 7)

Figure 6 suggests that more than half of those who have tried any smokeless product have also tried snus, indicating curiosity about this new product.

Table 7. Percent of students who have tried snus and flavored little cigars, 2011.

	Middle School			High School		
	Female	Male	Total	Female	Male	Total
Have ever used snus*	1.8%	4.4%	3.1%	5.3%	23.0%	14.3%
Used snus in past 30 days	0.6%	2.5%	1.6%	0.8%	8.8%	4.9%
Have ever smoked flavored cigars or little cigars**	4.5%	9.1%	6.8%	21.1%	35.9%	28.6%

* Question wording: “Have you ever used snus, such as ‘Camel Snus’ or ‘Tourney Snus’?”

** Question wording: “Have you ever tried smoking cigars, cigarillos or little cigars that were flavored to taste like candy, fruit, chocolate, or other sweets?”

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

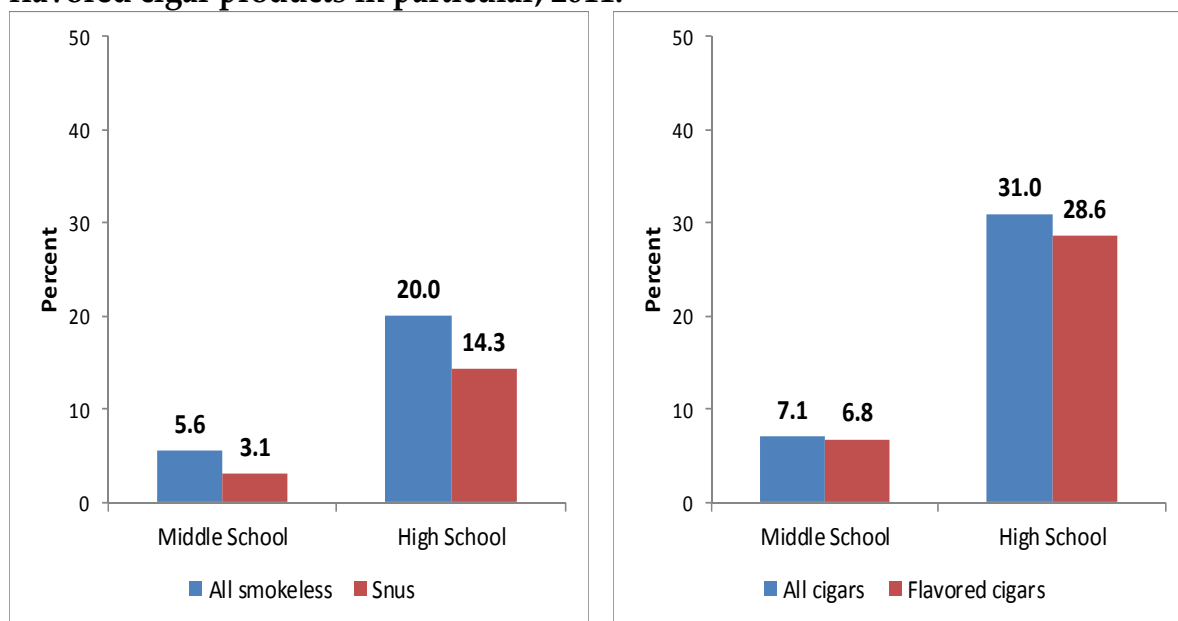
Flavored Cigars, Cigarillos and Little Cigars

The industry has added candy flavors, fruit flavors, chocolate and other sweets to cigars, primarily in cigarillos and little cigars, for some time. Observers have noted a proliferation of flavors in little cigars in the past few years. These flavors are especially attractive to children and adolescents. Interest and concern about flavored little cigars has intensified as sales of little cigars have increased sharply.⁴ The Food and Drug Administration recently banned the use of flavorings in cigarettes, but its ruling does not apply to cigars.

More than one-fourth of high school students (28.6%) and 6.8 percent of middle school students report that they have tried smoking flavored cigars, cigarillos or little cigars at some point in their lives. Males are more likely than females to have tried flavored cigars. (Table 7)

Figure 6 suggests that the great majority of students who have tried cigars, cigarillos or little cigars have also tried some form of flavored cigar. This finding indicates that flavored cigars are interesting to young smokers and are relatively easy to find. Concerns about the attractiveness of flavored products for young people appear to be well-founded.

Figure 6. Percent of students who have ever tried smokeless tobacco in general and snus in particular, and percent who have ever tried cigar products in general and flavored cigar products in particular, 2011.



Source: Minnesota Youth Tobacco and Asthma Survey, 2011

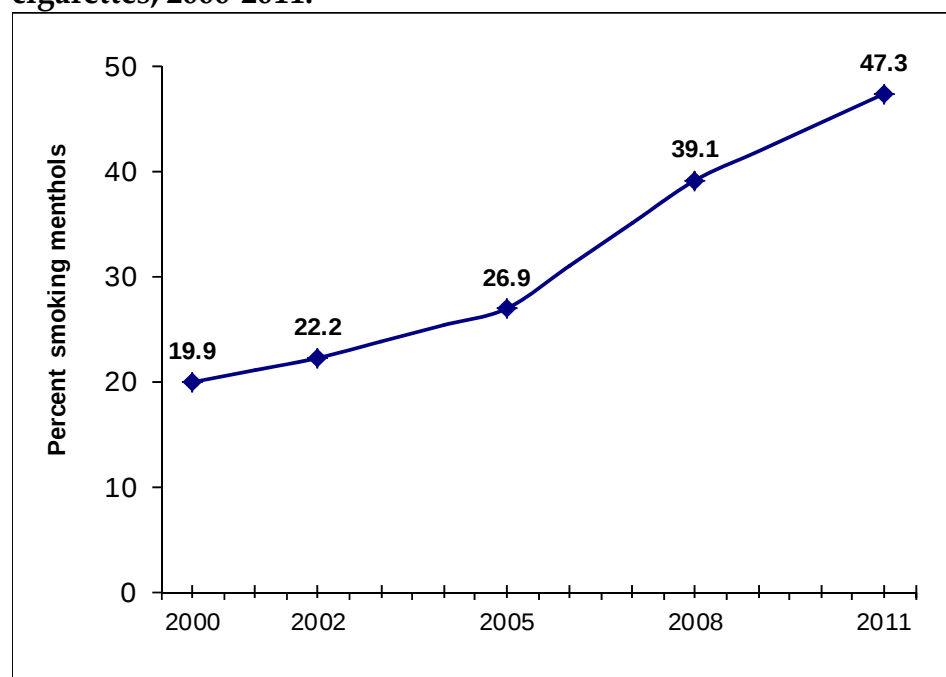
SECTION 5

MENTHOL CIGARETTES

Menthol is an ingredient derived from peppermint or other mint oils. It has been added to cigarettes for decades. The tobacco industry has known for many years that menthol serves to mask the harshness and irritation that new or younger smokers may feel when they inhale cigarette smoke, thus making it easier to start and continue smoking. The industry is aware that menthol is a key ingredient in the process of luring young smokers, and has devoted much research to finding the right amount of menthol that is most attractive to young smokers and other segments of their market.⁵ The Food and Drug Administration has begun a lengthy review process to determine if menthol should be banned from cigarettes.

Just under half of all current smokers in 2011 reported that they usually smoke menthol cigarettes (49.8% middle school, 47.3% high school). Preference for menthol cigarettes among high school smokers has more than doubled since 2000. This long-term upward trend has continued to show strength in recent years, rising from 39.1 percent in 2008 to 47.3 percent in 2011. (Figure 7) Females are more likely to prefer menthols than males, though both genders have seen rapid growth in menthol use since 2000. (Table 8)

Figure 7. Percent of current high school smokers who usually smoke menthol cigarettes, 2000-2011.



Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Table 8. Change in percent of current smokers who usually smoke menthols, 2000-2011 (high school students only).

	High School					Percent Change 2000-11	Percent Change 2008-11
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)		
Percent who usually smoke menthol cigarettes							
Females	20.8	23.3	30.4	48.7	51.7	+149%§	+6%
Males	18.9	21.2	23.4	31.7	42.9	+127%§	+35%
All smokers	19.9	22.2	26.9	39.1	47.3	+138%§	+21%

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

SECTION 6 ACCESS TO CIGARETTES

Getting Cigarettes

Most adolescent smokers under 18 usually obtain their cigarettes through other people rather than by walking into a store and buying them. More than two-thirds of smokers under 18 get their cigarettes through “social sources”, typically friends, siblings, or someone else they know; the most common method of getting cigarettes (30.9% middle school, 31.8% high school) is giving someone else money to make the purchase, followed closely by borrowing from someone else. Even though it is illegal for stores to sell tobacco products to anyone under 18, 5.4 percent of middle school smokers and 9.7 percent of underage high school smokers report that they usually get their cigarettes by purchasing them directly in a store, usually a gas station or convenience store. (Table 9)

Table 9. Usual method of obtaining cigarettes, 2011 (current smokers under 18 only).

	Middle School	High School
During the past 30 days, how did you usually get your own cigarettes?		
Social sources:		
Gave someone else money to buy them for me	30.9%	31.8%
Borrowed or bummed them from someone else	30.1%	29.0%
Person 18 or older gave them to me	5.9%	11.5%
Direct Purchase:		
Bought them in a store (convenience store, gas station, etc.)	5.4%	9.7%
Bought them from a vending machine	1.9%	0.2%
Other sources:		
Took them from a store or family member	5.7%	3.5%
Got them some other way	20.1%	14.3%
Total	100.0%	100.0%

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Table 10. Change in percentage of current smokers under 18 who usually obtain their cigarettes by buying them at a store, 2000-2011 (high school smokers under 18 only).

	High School					Percent Change 2000-11	Percent Change 2008-11
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)		
Percent who usually buy their own cigarettes at a store	15.9	16.3	11.1	9.5	9.7	-39%§	+2%

§ Differences between the stated years are statistically significant at $p < .05$.
Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Trends in Methods of Obtaining Cigarettes

The percentage of high school underage smokers who bought their own cigarettes directly from a store did not change between 2008 and 2011. Over the long-term, the percentage who were able to get their cigarettes through direct purchase in a store declined from 15.9 percent in 2000 to 9.7 percent in 2011, a statistically significant change. (Table 10) This trend drawn from the youth tobacco surveys is mirrored by a similar trend drawn from compliance checks of retail outlets. A statewide program of random undercover compliance checks found that underage teens were able to buy tobacco products in 4.1 percent of stores tested in 2010. This is down from 19.2 percent of stores tested in 2000.⁶ Greater enforcement of laws prohibiting sales to minors and stronger education programs for retail stores are often cited as reasons for this success.

SECTION 7 TRYING TO QUIT

Attempts to Quit

Nearly half of current high school smokers (48.7%) say they want to stop smoking, and just over half (51.6%) report that they have tried to quit in the past 12 months. (Table 11) To measure quit attempts, students are asked if they have stopped smoking for at least 24 hours explicitly because they were trying to quit. Many report that they have made multiple quit attempts.

Trends in Quit Attempts

The percentage of current high school smokers who expressed an interest in quitting and who made one or more quit attempts in the past year remained unchanged between 2008 and 2011. Over the long run, there has been a moderate decline in both indicators of quitting behavior. In 2002, 63.6 percent of high school smokers reported making at least one quit attempt in the past 12 months, compared to 51.6 percent in 2011, a statistically significant difference. (Table 11)

Table 11. Change in current smokers' desire to stop smoking and attempts to quit, 2000-2011 (high school smokers only).

	High School					Percent Change	Percent Change
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	2000-11	2008-11
Percent who want to stop smoking cigarettes	61.0	61.8	54.5	48.1	48.7	-20%§	+1%
Percent who stopped smoking for at least 24 hours because they were trying to quit	N/A	63.6	60.5	51.8	51.6	-19%§*	0%

§ Differences between the stated years are statistically significant at $p < .05$.

* Significance test compares 2002 with 2011, since the same question was not asked in the 2000 survey.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

SECTION 8

INTERACTIONS WITH HEALTH PROFESSIONALS ABOUT SMOKING

Doctors, dentists, nurses and other health professionals can play an important role in preventing smoking and encouraging quitting through their clinical interactions with adolescents. Current guidelines suggest that health professionals ask the patient if they smoke and advise them not to smoke.⁷ Health professionals can also refer smokers to stop-smoking programs and prescribe or suggest medications that help with quitting. The Minnesota Youth Tobacco and Asthma Survey contains two questions that address the “ask” and “advise” steps of these guidelines.

Nearly one in five middle school students (17.8%) and two in five high school students (38.3%) report that in the past 12 months a doctor, dentist, nurse or other health professional asked if they smoke. About one-fourth of students (25.9% middle school; 27.8% high school) report that a health professional directly advised them not to smoke in the past 12 months. (Table 12) It is likely that some of the students who answered “no” did not see any health professionals in the previous year.

Smokers were a bit more likely to say that a health professional had asked or advised them about smoking, and were less likely to respond with “do not know” or “not sure”, but these differences were not statistically significant. (Table 12)

Table 12. Interactions with health professionals about smoking, by current smoking status, 2011.

During the past 12 months, did any doctor, dentist, nurse, or other health professional....	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
...ask you if you smoke?						
Yes	26.6%	17.5%	17.8%	46.4%	36.6%	38.3%
No	65.7%	61.2%	61.4%	45.0%	49.2%	48.4%
Do not know or not sure	7.6%	21.3%	20.9%	8.6%	14.3%	13.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
...advise you not to smoke?						
Yes	34.5%	25.6%	25.9%	34.7%	26.5%	27.8%
No	52.5%	48.7%	48.7%	55.7%	54.5%	55.1%
Do not know or not sure	13.0%	25.7%	25.4%	9.5%	19.0%	17.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

SECTION 9

HOME ENVIRONMENT, FRIENDS AND SMOKING

The social surroundings of teens influence whether or not they are smokers. The example and acceptance of smoking at home and by friends can lead young people to take up and continue smoking. On the other hand, smokers also shape their own social environment, by gravitating toward other young people who smoke.⁸

Living with a Smoker

Just over one-third of students (34.2% in middle school; 36.0% in high school) report that they live with someone who smokes. This could be a parent, a brother or sister, a relative, or anyone else who lives in the same home. Current smokers are much more likely than non-smokers to live with a smoker. In fact, three-fourths of middle school smokers (75.0%) report that they live with another smoker. (Table 13) The fact that this figure is so high suggests that the home environment is a powerful factor leading these very young students to start smoking.

Table 13. Living with a smoker and having friends who are smokers, by current smoking status, 2011.

	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
Does anyone who lives with you now smoke cigarettes?						
Yes	75.0%	32.6%	34.2%	57.8%	31.0%	36.0%
No	25.0%	67.4%	65.8%	42.2%	69.0%	64.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
How many of your four closest friends smoke cigarettes?						
None	5.1%	89.0%	85.7%	5.2%	70.3%	58.8%
One	11.8%	5.6%	5.9%	16.3%	15.0%	15.3%
Two	21.4%	3.3%	3.9%	24.3%	7.8%	10.7%
Three	21.9%	1.2%	1.9%	16.3%	3.3%	5.7%
Four	39.9%	1.0%	2.5%	37.8%	3.6%	9.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Percent of students for whom at least two of four closest friends are smokers	83.1%	5.4%	8.4%	78.5%	14.7%	25.9%

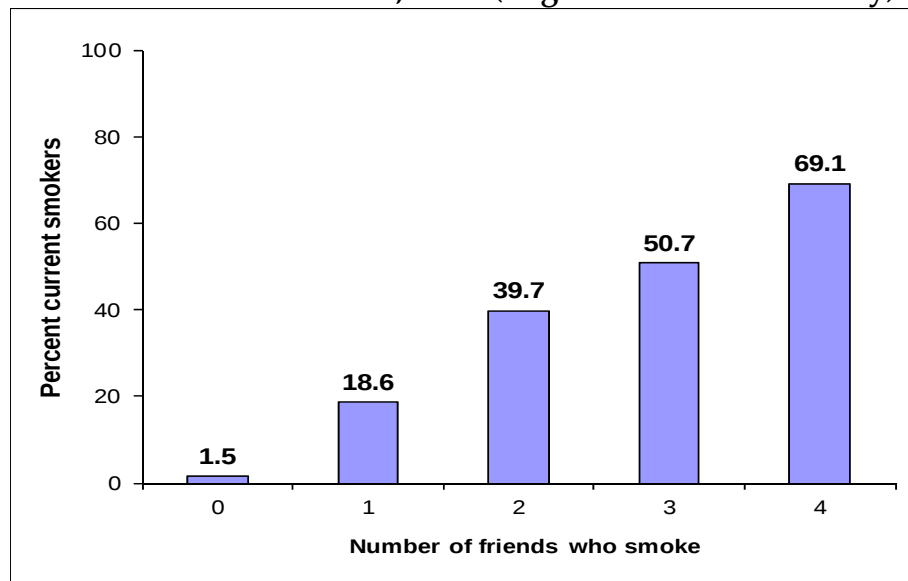
* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Friends and Peers

Current smokers tend to hang out with other smokers, and smoking plays an important role in the formation of social groups among teens. In middle school, 83.1 percent of current smokers report that two or more of their four closest friends are also smokers; only 5.4 percent of non-smokers have two or more smokers among their closest friends. In high school, 78.5 percent of current smokers have two or more smokers among their closest friends, compared to 14.7 percent of non-smokers. (Table 13) For each additional friend who is a smoker, the greater the likelihood that you are also a current smoker. (Figure 8)

Figure 8. Percent of students who are current smokers, by number of four closest friends who smoke, 2011. (High school students only)



Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Parent Discussions About Smoking

Well under half of middle school students (43.1%) report that their parents sometimes, often or very often discuss the dangers of tobacco use with them. In high school, that percentage is even smaller at 32.2 percent. (Table 14)

Table 14. Parent discussions about the dangers of smoking, by current smoking status, 2011.

	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
In the past 12 months, how often have your parents or guardians discussed the dangers of tobacco use with you?						
Never	44.8%	33.1%	33.4%	32.7%	41.7%	40.5%
Rarely	21.9%	23.8%	23.5%	30.4%	27.0%	27.3%
Sometimes	17.8%	28.7%	28.2%	21.1%	22.1%	21.8%
Often	10.1%	9.7%	9.9%	10.5%	6.4%	7.1%
Very often	5.4%	4.7%	4.9%	5.4%	2.7%	3.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Trends in Home and Friend Environment

Since 2000, the percentage of students living with someone who smokes has decreased slightly for students in general and non-smokers in particular, but the changes have not been large enough to be statistically significant. There have been no significant changes between 2008 and 2011. (Table 15)

As smoking rates have come down since 2000, the typical teen is likely to find that fewer of his or her friends are smoking. Between 2000 and 2011, for example, the percentage of high school students who had two or more smokers among their four closest friends fell from 39.8 percent to 25.9 percent, a statistically significant decrease. Among middle school students, the decline was from 13.2 percent to 8.4 percent, which was not statistically significant. In contrast, the percentage of current smokers in middle school who had two of their four best friends as smokers rose even higher from 61.9 percent in 2000 to 83.1 percent in 2011, a statistically significant increase. (Table 15) These very young smokers appear to have become more reliant on other smokers to form their friendship groups, even though the overall number of smokers to choose from has gone down.

Table 15. Change in percent of students who live with a smoker and have friends who are smokers, by current smoking status, 2000-2011.

Middle School							
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Lives with someone who smokes							
Current smoker	69.5	72.9	67.9	74.5	75.0	+8%	+1%
Not current smoker	37.3	37.7	36.2	30.8	32.6	-13%	+6%
All students	40.5	40.4	38.2	32.5	34.2	-16%	+5%
At least two of four closest friends are smokers							
Current smoker	61.9	64.4	65.0	67.9	83.1	+34%§	+22%
Not current smoker	8.2	7.7	5.8	4.4	5.4	--	--
All students	13.2	12.0	8.9	6.5	8.4	-36%	--
High School							
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Lives with someone who smokes							
Current smoker	52.9	57.2	56.4	58.3	57.8	+9%	-1%
Not current smoker	33.7	32.6	31.6	34.1	31.0	-8%	-9%
All students	39.9	39.7	37.0	38.9	36.0	-10%	-7%
At least two of four closest friends are smokers							
Current smoker	78.4	75.2	74.4	70.7	78.5	0%	+11%
Not current smoker	21.3	18.9	15.2	13.9	14.7	-31%§	+6%
All students	39.8	35.5	28.0	24.9	25.9	-35%§	+4%

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

SECTION 10

EXPOSURE TO SECONDHAND SMOKE

Reducing exposure to secondhand hand smoke is one of the major components of a comprehensive strategy to reduce the damage caused by tobacco use. The latest scientific evidence estimates that about 3,000 adult non-smokers die of lung cancer and an additional 46,000 die of coronary heart disease each year due to secondhand smoke exposure. An estimated 430 babies die each year of sudden infant death syndrome related to secondhand smoke. Breathing secondhand smoke can cause health problems in children, such as increased severity of asthma attacks, respiratory illnesses, chronic cough, bronchitis and middle ear problems.⁹

Current Exposure

The youth tobacco survey has traditionally asked about exposure to secondhand smoke in a room or in a car during the previous seven days. In 2008, a question was added about exposure in the workplace for those youth (less than half) who have jobs. Table 16 summarizes the responses to each of these questions, and also combines the responses to create measures of any exposure, repeated exposure, and everyday exposure.

High school students are more likely than middle school students to be exposed to secondhand smoke, whether in an enclosed room, in a car, or at work. Over half of high school students (53.4%) report exposure at some time in the past seven days, compared to 38.1 percent of middle school students. One-third of high school students (32.8%) report that they were repeatedly exposed (on three or more days), compared to 21.9 percent of middle school students. (Table 16)

Nearly all current smokers were exposed to someone else's smoke in the past seven days. Current smokers tend to grow up in households where there are other smokers, and they tend to hang out and share cigarettes with other smokers, so exposure is almost inevitable. At the high school level, 94.6 percent of current smokers and 44.2 percent of non-smokers report being exposed in the past seven days. The differences are even larger with repeated and everyday exposure. About half of high school smokers (48.4%) report everyday exposure, compared to 11.5 percent of non-smokers. (Table 16)

Table 16. Exposure to secondhand smoke, by current smoking status, 2011.

During the past 7 days....	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
...On how many days were you in the same room with someone who was smoking cigarettes?						
0 days	19.3%	69.5%	67.6%	13.3%	59.9%	51.6%
1 or 2 days	8.6%	14.0%	13.8%	24.2%	19.2%	20.0%
3 or 4 days	9.9%	5.8%	6.0%	12.2%	7.2%	8.3%
5 or 6 days	7.8%	2.6%	2.8%	11.4%	3.6%	5.0%
All 7 days	54.4%	8.0%	9.9%	39.0%	10.1%	15.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
...On how many days did you ride in a car with someone who was smoking cigarettes?						
0 days	16.3%	76.7%	74.2%	14.8%	73.2%	62.7%
1 or 2 days	19.5%	11.2%	11.6%	23.3%	14.3%	15.9%
3 or 4 days	16.0%	4.8%	5.2%	16.0%	6.3%	8.0%
5 or 6 days	12.9%	2.4%	2.8%	11.2%	2.7%	4.2%
All 7 days	35.3%	4.8%	6.1%	34.7%	3.5%	9.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
...On how many days did you breathe smoke from someone who was smoking in the place where you work?						
No job/did not work in past 7 days	--	--	94.0%	58.9%	70.7%	68.4%
0 days	--	--	2.4%	27.6%	23.9%	24.6%
1 to 3 days	--	--	1.4%	6.3%	4.1%	4.5%
4 to 6 days	--	--	.5%	1.2%	.6%	.7%
All 7 days	--	--	1.7%	5.9%	.7%	1.8%
Total	--	--	100.0%	100.0%	100.0%	100.0%
Any exposure to second-hand smoke in past 7 days	96.6%	35.6%	38.1%	94.6%	44.2%	53.4%
Repeated exposure to secondhand smoke in past 7 days**	81.7%	19.4%	21.9%	73.8%	23.7%	32.8%
Everyday exposure to secondhand smoke in past 7 days***	66.0%	10.0%	12.3%	48.4%	11.5%	18.1%

* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

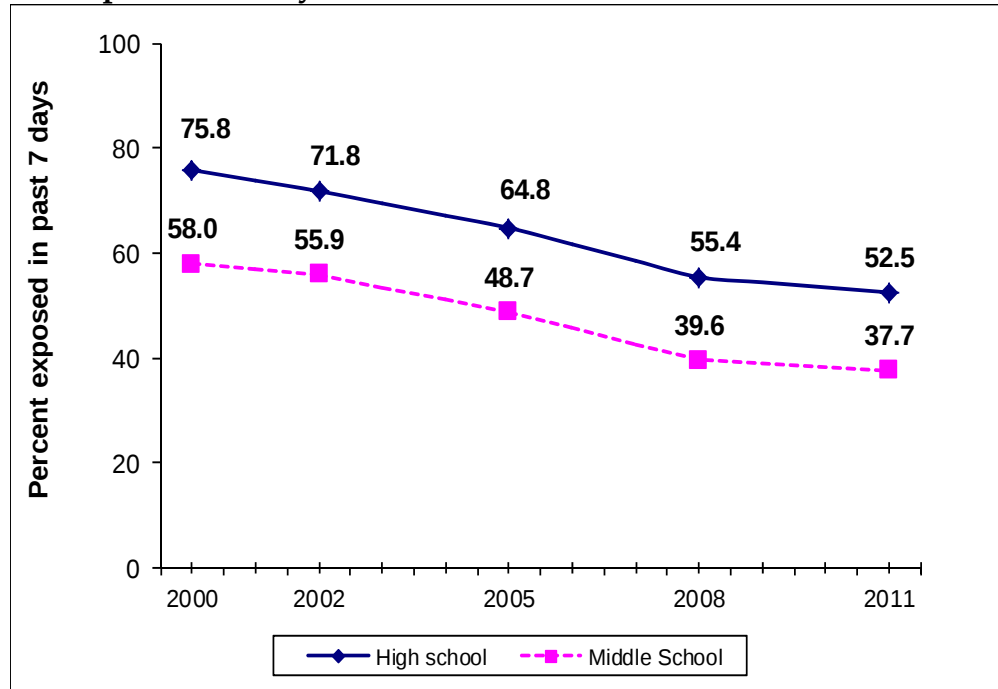
**Exposed in room on at least 3 days or in car on at least 3 days or at work on at least 4 days in past 7 days

***Exposed in room on all 7 days or in car on all 7 days or at work on all 7 days in past 7 days

-- The number of smokers and non-smokers who have jobs is too small for analysis.

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Figure 9. Change in percentage of students exposed to any secondhand smoke in the past seven days, 2000-2011.



Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Trends in Exposure to Secondhand Smoke

Progress in reducing exposure to secondhand smoke has slowed considerably in recent years after many years of strong declines earlier in the decade. Between 2008 and 2011, exposure to any secondhand smoke in the past seven days fell from 39.6 percent to 37.7 percent for middle school students, and from 55.4 percent to 52.5 percent for high school students. (Figure 9) Neither of these small decreases are statistically significant. Over the long run, exposure to secondhand smoke by middle school and high school students has fallen by 35 percent and 31 percent respectively since 2000, and these long-term decreases are statistically significant. (Table 17)

Measures of more frequent amounts of exposure show the same pattern. Repeated exposure and everyday exposure to secondhand smoke were essentially unchanged between 2008 and 2011 but still registered strong progress over the long run since 2000. (Table 17)

Table 17. Change in percent of students who were exposed to secondhand smoke in a room or a car during the past seven days, 2000-2011.

	Middle School					Percent Change 2000-11	Percent Change 2008-11
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)		
Any exposure*	58.0	55.9	48.7	39.6	37.7	-35%§	-5%
Repeated exposure**	34.4	33.1	28.1	21.7	21.7	-37%§	0%
Everyday exposure***	20.1	19.2	15.4	11.2	12.0	-40%§	+7%
	High School					Percent Change 2000-11	Percent Change 2008-11
	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)		
Any exposure*	75.8	71.8	64.8	55.4	52.5	-31%§	-5%
Repeated exposure**	49.3	45.7	38.0	33.4	32.6	-34%§	-2%
Everyday exposure***	26.5	24.1	19.5	18.0	17.7	-33%§	-2%

*Exposed in room or car on at least one day during the past 7 days

**Exposed in room on at least 3 days or in car on at least 3 days during the past 7 days

***Exposed in room on all 7 days or in car on all 7 days during the past 7 days

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Trends in Exposure to Secondhand Smoke, by Smoking Status

By and large it is non-smokers who have most experienced the benefits of long-term decreases in secondhand smoke exposure. Between 2000 and 2011, the percentage of high school non-smokers exposed to any secondhand smoke in the past seven days declined from 65.5 percent to 44.4 percent, a statistically significant drop of 21.1 percentage points. Repeated exposure and everyday exposure by non-smokers also showed strong and statistically significant declines since 2000. (Table 18)

For the most part, there has been no real change in reported exposure by current smokers. The one exception is the drop in repeated exposure from 81.1 percent in 2000 to 72.9 percent in 2011. (Table 18) Because they often live with, hang out with, and ride in cars with other smokers, current smokers almost always have some exposure to secondhand smoke during the course of a week.

Table 18. Change in percent of students who were exposed to secondhand smoke in a room or a car during the past seven days, by smoking status, 2000-2011 (high school only).

	High School					Percent	Percent
	2000	2002	2005	2008	2011	Change	Change
	(percent)	(percent)	(percent)	(percent)	(percent)	2000-11	2008-11
Any exposure*							
Current smoker	96.7	95.2	94.6	94.3	93.5	-3%	-1%
Not current smoker	65.5	61.9	56.3	46.1	43.4	-34%§	-6%
Repeated exposure**							
Current smoker	81.1	80.7	76.3	76.7	72.9	-10%§	-5%
Not current smoker	33.6	30.9	26.9	23.2	23.7	-29%§	+2%
Everyday exposure***							
Current smoker	49.6	48.3	45.2	48.8	46.8	-6%	-4%
Not current smoker	15.3	14.0	12.3	10.9	11.4	-25%§	+5%

*Exposed in room or car on at least one day during the past 7 days.

**Exposed in room on at least 3 days or in car on at least 3 days during the past 7 days

***Exposed in room on all 7 days or in car on all 7 days during the past 7 days

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

SECTION 11

PERCEPTIONS, RULES AND OPINIONS ABOUT SECONDHAND SMOKE

Perceptions of Secondhand Smoke

About 90 percent of middle school and high school students agree that secondhand smoke is definitely or probably harmful, with nearly three-fourths saying that it is “definitely” harmful. Current smokers are less likely than non-smokers to agree that secondhand smoke is harmful. Even so, nearly half of current high school smokers (49.5%) think that secondhand smoke is “definitely” harmful. (Table 19)

Table 19. Beliefs about the harmfulness of secondhand smoke, by current smoking status, 2011.

	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
Do you think the smoke from other people’s cigarettes is harmful to you?						
Definitely yes	38.6%	75.7%	74.3%	49.5%	76.2%	71.1%
Probably yes	25.9%	16.2%	16.6%	30.2%	16.9%	19.0%
Probably not	22.0%	3.8%	4.5%	10.3%	3.3%	4.8%
Definitely not	13.5%	4.2%	4.7%	9.9%	3.6%	5.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Smoke-free Rules

Having smoke-free rules in homes and vehicles and at workplaces protects people from secondhand smoke and also conveys the message that smoking is not a desirable or acceptable activity. About 80 percent of students (81.0% middle school; 79.7% high school) report that smoking is never allowed inside their home. Current smokers, especially those in middle school, are far less likely to live in homes where smoking is prohibited. (Table 20) This may be related to the fact that young smokers are more likely to live with parents or other relatives who smoke. Smoking inside the home is less likely to be frowned upon in these households.

Three-fourths of middle school students (74.6%) and two-thirds of high school students (64.0%) report that smoking is never allowed in the vehicle they drive or ride in the

most. Non-smokers are three times more likely than current smokers to report smoke-free rules in their vehicles. (Table 20)

The great majority of middle school students and more than half of high school students did not work in the past seven days, so smoke-free rules at work do not have much relevance for most students. Among high school students who do work, 55.9 percent report that smoking is never allowed where they work. (Table 20) Note that the survey question does not distinguish between rules for inside and outside locations.

Table 20. Smoking restrictions at home, in vehicles and at work, by current smoking status, 2011.

	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
Which of these best describes the rules about smoking inside the house where you live? Smoking is...						
...Never allowed inside my home	46.4%	82.4%	81.0%	64.5%	83.3%	79.7%
...Allowed only at some times or in some places	18.9%	12.7%	12.9%	18.1%	9.9%	11.5%
...Always allowed inside my home	34.6%	4.9%	6.0%	17.5%	6.8%	8.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Which of the following best describes the rules about smoking in the vehicle you drive or ride in the most? Smoking is...						
...Never allowed inside the vehicle	22.4%	76.7%	74.6%	19.8%	73.7%	64.0%
...Sometimes allowed inside the vehicle	32.9%	14.7%	15.6%	35.7%	17.9%	21.0%
...Always allowed inside the vehicle	44.8%	8.6%	9.9%	44.6%	8.4%	15.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
(Among those who have jobs) Which of these best describes smoking where you work? Smoking is...						
...Never allowed where I work	--	--	64.1%	38.7%	61.2%	55.9%
...Allowed, but only at some times or in some places	--	--	26.1%	40.1%	33.9%	35.1%
...Always allowed where I work	--	--	9.8%	21.1%	4.9%	9.0%
Total	--	--	100.0%	100.0%	100.0%	100.0%

* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

-- The number of smokers and non-smokers who have jobs is too small for analysis.

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Opinions about Smoke-free Rules

Young people strongly endorse smoke-free rules. Over 80 percent of high school students believe that smoking should never be allowed in their own home (83.7%), indoor workplaces (84.4%), and indoor public places (84.3%). About 70 percent believe smoking should never be allowed in their vehicles. Support is even stronger among middle school students. Close to 90 percent of middle school students support smoke-free rules in each of the above locations. (Table 21)

Current smokers are far less likely than non-smokers to support smoke-free rules. Nevertheless, well over half of high school smokers believe smoking should never be allowed in indoor public places (58.6%), indoor workplaces (59.6%), and inside their own home (58.8%). In contrast, only one-fourth of current smokers support no-smoking rules for the family vehicles. It appears that the vehicle is an important refuge for many smokers. (Table 21)

Table 21. Percent of students who believe that people should never allow smoking in various locations, by current smoking status, 2011.

Percent who agree that people should never allow smoking...	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
...inside their home	49.7%	90.6%	89.0%	58.8%	89.5%	83.7%
...in their vehicles	26.7%	88.5%	86.1%	25.5%	80.7%	70.9%
...in the indoor areas of places where people work	51.3%	92.8%	91.1%	59.6%	90.2%	84.4%
...in indoor public places, such as malls, movie theaters, clubs or restaurants	53.4%	91.3%	89.8%	58.6%	90.2%	84.3%

* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

SECTION 12 TOBACCO PROMOTIONAL PRODUCTS

Receiving or Using Promotional Merchandise

The tobacco industry spent an estimated \$157 million to advertise and promote cigarette sales in Minnesota in 2008, the latest year for which figures are available.¹⁰ One of the industry's strategies is to build interest and loyalty by giving away or selling merchandise with the company name or brand on it. These items can include lighters, t-shirts, hats, and many other items.

Overall, 5.4 percent of middle school students and 10.9 percent of high school students report buying or receiving promotional merchandise in the past 12 months. Slightly larger proportions (9.0% middle school; 22.0% high school) say they would probably or definitely use such items. Smokers are more receptive to these kinds of promotions. About one-third of current smokers have received tobacco promotional merchandise, and over half (52.7% middle school; 59.3% high school) would wear or use such merchandise. (Table 22)

Table 22. Receipt of and attitudes toward tobacco promotional products, by current smoking status, 2011.

	Middle School			High School		
	Current smoker	Not current smoker*	Total	Current smoker	Not current smoker*	Total
During the past 12 months, did you buy or receive anything that has a tobacco company name or picture on it?						
Yes	38.9%	4.1%	5.4%	31.2%	6.4%	10.9%
No	61.1%	95.9%	94.6%	68.8%	93.6%	89.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Would you ever use or wear something that has a tobacco company name or picture on it, such as a lighter, t-shirt, hat or sunglasses?						
Definitely yes	26.0%	1.1%	2.1%	22.2%	2.8%	6.3%
Probably yes	26.7%	6.1%	6.9%	37.1%	11.1%	15.7%
Probably not	27.8%	23.5%	23.8%	22.3%	35.9%	33.3%
Definitely not	19.5%	69.4%	67.2%	18.4%	50.1%	44.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* Have not smoked any cigarettes in past 30 days (including those who have never smoked in their lifetime)

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Table 23. Change in receipt of and attitudes toward tobacco promotional products, 2000-2011.

Middle School							
Percent who...	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Bought or received promotional merchandise	22.3	17.1	15.3	8.4	5.4	-76%§	-36%§
Would use or wear promotional merchandise	20.1	17.6	16.2	12.9	9.0	-55%§	-30%§
High School							
Percent who...	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Bought or received promotional merchandise	27.6	22.7	21.8	17.5	10.9	-61%§	-38%§
Would use or wear promotional merchandise	39.5	35.0	32.0	27.8	22.0	-44%§	-21%§

§ Differences between the stated years are statistically significant at $p < .05$.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Trends in Tobacco Promotional Merchandise

Between 2008 and 2011, the percentage of middle school students who bought or received promotional merchandise declined from 8.4 percent to 5.4 percent. The percentage for high school students declined sharply from 17.5 percent to 10.9 percent. Similarly, the percentage of students who would wear or use promotional items also decreased in recent years among both middle school and high school students. All changes in these indicators between 2008 and 2011 are statistically significant and continue strong long-term trends that have been in place since 2000. (Table 23)

The continuation of these trends is another indicator that social norms are changing – fewer young people apparently feel that tobacco industry merchandise is cool or desirable to have and wear.

SECTION 13

SCHOOL CURRICULUM AND COMMUNITY ACTIVITIES

As a general surveillance survey, the Minnesota Youth Tobacco and Asthma Survey includes a small number of questions about school health curriculum and community anti-smoking activities. Although the survey cannot provide much-needed details about these topics, it can point to areas that might need further investigation.

School Health Curriculum

More than half of middle school students (58.7%) but only 40.5 percent of high school students report that they were taught about the dangers of tobacco use during the current school year. Similarly, 35.8 percent of middle school students and only 18.7 percent of high school students report practicing ways to resist pressures or temptations to use tobacco. (Table 24) Attention to these topics appears to be more widespread during the middle school years. High school students usually take just one or two health classes in their four years. It is likely that many high school students taking the survey would not have taken a health class during the current school year.

Table 24. School curriculum and community activities against tobacco, 2011.

	Middle School	High School
During this school year, were you taught in any of your classes about the dangers of tobacco use?		
Yes	58.7%	40.5%
No	22.9%	44.9%
Not sure	18.4%	14.6%
Total	100.0%	100.0%
During this school year, did you practice ways to say NO to tobacco in any of your classes (for example, by role playing)?		
Yes	35.8%	18.7%
No	43.8%	70.3%
Not sure	20.4%	10.9%
Total	100.0%	100.0%
During the past 12 months, have you participated in any community activities to discourage people your age from using cigarettes, chewing tobacco, snuff, dip, or cigars?		
Yes	8.1%	8.0%
No	53.6%	68.3%
No, did not know of any activities	38.2%	23.6%
Total	100.0%	100.0%

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Community Activities

Only 8 percent of students (8.1% in middle school; 8.0% in high school students) report taking part in some kind of community activity aimed at discouraging young people from using tobacco. (Table 24)

Trends in School Curriculum and Community Activities

For middle school students, there were modest decreases in exposure to tobacco prevention training at school between 2008 and 2011, while for high school students there were slight increases in exposure to prevention training. For example, 58.7 percent of middle school students report being taught about the dangers of tobacco use in 2011, down from 65.1 percent in 2008. In 2011, 18.7 percent of high school students report practicing ways to resist pressures to use tobacco, up slightly from 16.9 percent in 2008. (Table 25) None of these changes are statistically significant.

Participation in community anti-tobacco activities dropped to its lowest level since this survey began. Among high school students, the percentage reporting participation in community anti-tobacco activities fell from 12.1 percent in 2008 to 8.0 percent in 2011, a statistically significant decrease. (Table 25)

Table 25. Change in school curriculum and participation in community anti-tobacco activities, 2000-2011.

Middle School							
Percent of students who...	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Were taught in school about dangers of tobacco	N/A	72.6	71.0	65.1	58.7	N/A	-10%
Practiced ways in school to say NO to tobacco use	44.1	51.5	46.0	43.4	35.8	-19%	-18%
Participated in community anti-tobacco activities	15.2	15.2	11.7	10.1	8.1	-47%§	-20%
High School							
Percent of students who...	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Were taught in school about dangers of tobacco	N/A	55.6	60.3	37.4	40.5	N/A	+8%
Practiced ways in school to say NO to tobacco use	16.1	22.3	24.5	16.9	18.7	+16%	+11%
Participated in community anti-tobacco activities	12.5	12.7	11.8	12.1	8.0	-36%§	-34%§

§ Differences between the stated years are statistically significant at $p < .05$.

N/A: This question was not asked in 2000.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

SECTION 14 MEDIA EXPOSURE

The tobacco industry has been using newer media such as the internet and social networking sites as vehicles for getting young people interested in using its products. Despite restrictions on targeting tobacco promotional activities to people under 18, many young people have no difficulty finding tobacco advertising and promotion on the internet or through sites like You Tube and Facebook. In this section we will look first at exposure to messages against tobacco use, and then at exposure to pro-tobacco messages on traditional and newer media.

Media about the Dangers of Smoking

More than half of students report that they have seen or heard commercials about the dangers of smoking on radio, TV or the internet at least once in the past 30 days (59.5% in middle school; 68.9% in high school). Weekly exposure to these messages is much lower. Only about one-third of students (31.8% in middle school; 36.0% in high school) report seeing messages about the dangers of smoking one or more times per week. (Table 26)

Table 26. Exposure to media messages about the dangers of smoking, 2011.

	Middle School	High School
During the past 30 days, have you seen or heard commercials on TV, the Internet, or on the radio about the dangers of smoking?		
Not in the past 30 days	40.5%	31.1%
1-3 times in past 30 days	27.7%	32.8%
1-3 times per week	16.0%	19.5%
Daily or almost daily	10.5%	11.9%
More than once a day	5.2%	4.6%
Total	100.0%	100.0%
Percent who saw or heard commercials about dangers of smoking one or more times per week	31.8%	36.0%

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Exposure to anti-smoking media messages has fallen sharply since 2000 and has continued to fall in recent years. The percentage of middle school students reporting exposure to anti-smoking media messages one or more times per week fell from 41.2 percent in 2008 to 31.8 percent in 2011, and the percentage of high school students seeing these messages at least weekly fell from 48.4 percent to 36.0 percent. Weekly

exposure to anti-smoking messages has been cut nearly in half since 2000. Both long-term and short-term reductions for this indicator are statistically significant. (Table 27)

Table 27. Change in exposure to radio, TV or internet commercials about the dangers of smoking, 2000-2011.

	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
Percent who saw or heard commercials about the dangers of smoking one or more times per week							
Middle School	62.4	63.2	53.8	41.2	31.8	-49%§	-23%§
High School	61.6	69.1	58.1	48.4	36.0	-42%§	-26%§

§ Differences between the stated years are statistically significant at p<.05.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

Promotion of Tobacco Use in Traditional and New Media

For decades, the movies and TV have frequently depicted smoking, often in ways that glamorize it and make it seem attractive to children and teens. Teens who report greater exposure to depictions of smoking in movies are more likely to take up smoking than teens who report less exposure.¹¹ About two-thirds of middle school students (69.9%) and three-fourths of high school students (78.3%) report that they see actors using tobacco “most of the time” or “some of the time” when they watch television or movies. (Table 28)

Industries of all kinds have been trying to find ways to exploit the internet in general and video-sharing and social networking sites in particular to attract new buyers. The tobacco industry has been no exception. About one-third of students (33.8% in middle school; 35.3% in high school) report that they see tobacco ads most of the time or some of the time when they are on the internet. Video-sharing sites are not far behind. One in six middle school students (17.1%) and one in four high school students (26.3%) see videos or clips showing smoking most of the time or some of the time when they go on You Tube or similar sites. (Table 28)

Tobacco companies cannot advertise their products directly on Facebook, but individuals, including tobacco company employees and contractors, can create pages that promote products. About one in six middle school students (17.4%) and one in five high school students (20.2%) report that they have seen Facebook pages or groups for tobacco products. (Table 28)

Table 28. Pro-tobacco media exposure in movies and TV, on the internet, and on video-sharing and social networking sites, 2011.

	Middle School	High School
When you watch TV or go to the movies, how often do you see actors using tobacco?		
Don't watch TV or go to the movies	2.3%	3.6%
Most of the time	18.8%	22.6%
Some of the time	51.1%	55.7%
Hardly ever	23.3%	15.2%
Never	4.5%	2.9%
Total	100.0%	100.0%
Percent who see actors using tobacco most of the time or some of the time when they watch TV or go to the movies	69.9%	78.3%
When you are using the Internet, how often do you see ads for tobacco products?		
Don't use the internet	4.2%	2.9%
Most of the time	8.2%	5.6%
Some of the time	25.6%	29.7%
Hardly ever	40.8%	44.9%
Never	21.2%	16.9%
Total	100.0%	100.0%
Percent who see ads for tobacco products most of the time or some of the time when they are using the internet	33.8%	35.3%
When you are on "You Tube" or other video-sharing web sites, how often do you see videos or clips showing smoking?		
Don't use You Tube or other video-sharing sites	8.4%	5.2%
Most of the time	3.7%	4.7%
Some of the time	13.4%	21.6%
Hardly ever	36.6%	44.0%
Never	38.0%	24.5%
Total	100.0%	100.0%
Percent who see videos or clips showing smoking most of the time or some of the time when they are on video-sharing web sites such as You Tube	17.1%	26.3%
When you are on Facebook, have you seen Facebook "pages" or "groups" for tobacco products?		
Don't use Facebook	28.6%	11.0%
Yes	17.4%	20.2%
No	54.0%	68.8%
Total	100.0%	100.0%

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Trends in Media Exposure to Tobacco Promotion

Since 2000, exposure to actors using tobacco in the movies and on TV has declined by 11 percentage points among middle school students and by eight percentage points among high school students, but still remains very high in both groups. (Table 29) A longitudinal study based in Minnesota also found that self-reported exposure to tobacco use in movies decreased between 2000 and 2006, especially among youth aged 14-16 when the study began.¹²

Exposure to tobacco ads on the internet, however, has increased significantly since 2000, rising from 25.0 percent to 33.8 percent among middle school students and from 23.4 percent to 35.3 percent among high school students. (Table 29) These increases over the long run are statistically significant.

Table 29. Change in exposure to tobacco advertising in movies, on TV, and on the internet, 2000-2011.

Middle School							
Percent of students who...	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
See actors using tobacco most or some of the time when watching movies or TV	81.3	80.2	76.2	N/A	69.9	-14%§	N/A
See tobacco ads most or some of the time when using the internet	25.0	30.2	31.3	N/A	33.8	+35%§	N/A
High School							
Percent of students who...	2000 (percent)	2002 (percent)	2005 (percent)	2008 (percent)	2011 (percent)	Percent Change 2000-11	Percent Change 2008-11
See actors using tobacco most or some of the time when watching movies or TV	86.2	83.4	83.1	N/A	78.3	-9%§	N/A
See tobacco ads most or some of the time when using the internet	23.4	27.1	33.4	N/A	35.3	+51%§	N/A

§ Differences between the stated years are statistically significant at $p < .05$.

N/A: This question was not asked in 2008.

Source: Minnesota Youth Tobacco Surveys, 2000 through 2011

SECTION 15

TOBACCO USE, SECONDHAND SMOKE, AND ASTHMA

Asthma is a chronic disease of the lungs and respiratory system characterized by episodes of wheezing, coughing and difficulty in breathing. These effects occur when the muscles around the airways in the lungs tighten and the bronchial tubes swell and become inflamed. Asthma affects children and adults, and can range from mild to severe. The impacts of asthma can include missing school or work, disrupted sleep, emergency room visits, and limits on physical activity.¹³ Asthma attacks can be fatal in some cases, with most deaths occurring among adults aged 65 and older.

Tobacco smoke contributes to the long-term development of asthma and triggers asthma attacks. The Surgeon General has concluded that secondhand smoke causes the onset of wheeze illness in early childhood and is a causal factor in the development of asthma among school-age children. Secondhand smoke exposure also increases the severity of asthma symptoms in those who have the illness.¹⁴ Furthermore, the Surgeon General has also concluded that smoking by a child or adolescent causes asthma-related symptoms such as wheezing, and that smoking worsens the prognosis for asthma in children.¹⁵

Because of this documented relationship between tobacco use and asthma, the Department of Health added several questions on asthma to the 2008 youth tobacco survey, which was renamed the Minnesota Youth Tobacco and Asthma Survey. Much of this data will appear in Department of Health publications about asthma. In this section, we will examine the association between tobacco use, secondhand smoke, and asthma.

Current Asthma

In the tables that follow, a student is defined as having current asthma if he or she has ever been diagnosed with asthma *and* has had asthma-like symptoms in the past 12 months. About one in eight students (11.8% in middle school; 12.9% in high school) meet the criteria for current asthma. Rates for current asthma are the same for males and females in middle school, while females have higher rates than males in high school. (Table 30)

Table 30. Percent of students with current asthma, by gender, 2011.

	Middle School			High School		
	Female	Male	Total	Female	Male	Total
Percent with current asthma – has been diagnosed in lifetime and reports symptoms in past 12 months*	11.9%	11.6%	11.8%	14.3%	11.5%	12.9%

* The survey questions are: “Has a doctor or nurse ever told you or your parents that you have asthma?” (Yes/No), and “During the past 12 months, have you had wheezing, tightness in your chest, or other symptoms of asthma? (Not counting times when you had a cold or the flu)” (Yes/No).

Source: 2011 Minnesota Youth Tobacco and Asthma Survey

Tobacco Use and Current Asthma

Table 31 appears to show that there is a modest relationship between tobacco use by teens and their asthma status, with tobacco use being higher among students who have current asthma. At the high school level, one-fourth of students with current asthma (25.0%) smoked cigarettes in the past 30 days, compared to 16.7 percent of students who do not have current asthma. However, none of the differences between students who have and do not have asthma are statistically significant. (Table 31)

Table 31. Tobacco use and current asthma status, 2011.

	Middle School		High School	
	Does student meet criteria for current asthma?		Does student meet criteria for current asthma?	
	Yes	No	Yes	No
Percent who have smoked cigarettes in the past 30 days	6.9%	3.4%	25.0%	16.7%
Percent who have smoked cigars or little cigars in the past 30 days	3.4%	2.4%	17.4%	12.3%
Percent who have used smokeless tobacco in the past 30 days	3.5%	2.7%	11.9%	7.6%
Percent who have used any tobacco product in the past 30 days	7.4%	5.5%	32.6%	24.1%

§ Differences between students with asthma and those who do not have asthma are statistically significant at $p < .05$.
Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Table 32. Living with a smoker, secondhand smoke exposure, and current asthma status, 2011.

	Middle School		High School	
	Does student meet criteria for current asthma?		Does student meet criteria for current asthma?	
	Yes	No	Yes	No
Percent who lives with someone who smokes cigarettes	34.6%	33.5%	38.2%	35.8%
Any exposure to second-hand smoke in past 7 days*	40.1%	36.7%	61.3%	51.0%
Repeated exposure to secondhand smoke in past 7 days**	27.1%	20.5%	36.4%	31.9%

* Exposed in a room or a car or at work on at least one day in the past 7 days

**Exposed in room on at least 3 days or in car on at least 3 days or at work on at least 4 days in past 7 days

Source: Minnesota Youth Tobacco and Asthma Survey, 2011

Home Environment, Secondhand Smoke, and Current Asthma

The survey found no real difference between students with asthma and students without asthma in the percent who live with someone who smokes cigarettes. Table 32 suggests that students with asthma are slightly more likely to be exposed to secondhand smoke than those who do not have asthma, but none of the differences are statistically significant.

Summary

Tobacco use and exposure to secondhand smoke appear to be associated with current asthma in the study, but none of these relationships are statistically significant. One would hope, however, that teens with asthma would be much less likely to smoke or to face exposure to secondhand smoke. Doctors commonly recommend that tobacco smoke and other asthma triggers be removed from the environment of children who have been diagnosed with asthma and are experiencing asthma symptoms. Yet, students with asthma still appear to be frequently exposed to tobacco smoke. Further education for parents, students and the entire community is needed to re-emphasize the importance of banishing tobacco smoke from the air that young people with asthma breathe.

SECTION 16

DISCUSSION AND IMPLICATIONS

The results of the most recent youth tobacco survey reveal some very positive developments during the period from 2008 to 2011. The percentage of students who have ever tried tobacco use in their lifetime fell significantly between 2008 and 2011, indicating less interest in experimentation and continuing a long-term trend that has been in place since 2000. Large majorities of teens live in homes where smoking is not allowed and ride in family vehicles where smoking is not allowed. Young people also voice overwhelming support for smoke-free rules in public places and in their own homes and vehicles, providing further evidence that social norms are changing and smoking is becoming less attractive and acceptable. Interest in receiving or using tobacco promotional merchandise continues to fall.

These strong developments are overshadowed, however, by more sobering findings. The downward trend in youth tobacco use and cigarette smoking continued between 2008 and 2011, but at a much slower rate than earlier in the decade. Progress in reducing secondhand smoke exposure also slowed during the same period. As measured by the Minnesota Youth Tobacco and Asthma Survey, overall tobacco use, cigarette smoking, and secondhand smoke exposure declined, but only slightly, between 2008 and 2011, and none of these decreases are statistically significant.

Between 2000 and 2008, the rapid progress in reducing tobacco use and secondhand smoke exposure was boosted by several large-scale public policy developments. The Health Impact Fee was passed by the legislature in 2005, raising combined taxes and fees on cigarettes by 75 cents per pack. Beginning with Moose Lake in 2000, many communities – including Hennepin, Ramsey, Olmsted and McLeod counties, and the cities of Moose Lake, Duluth, Minneapolis, St. Paul and Mankato – passed ordinances banning smoking in indoor public places, including restaurants and, in many cases, bars. Finally, the Freedom to Breathe law went into effect in 2007 banning smoking statewide in restaurants, bars, bowling alleys, clubs and public places in general.

In the period from 2008 to 2011, the only large-scale public policy change with immediate impact was the 62 cents per pack increase in the federal tax on cigarettes, which went into effect in 2009. Minnesota passed the Tobacco Modernization and Compliance Act of 2010, which ensures that new smokeless and dissolvable tobacco products coming on the market do not escape regulation and taxation that currently applies to smokeless products. Much energy has been devoted to local efforts to make park and recreation areas for children smoke-free during this period. One new federal law that holds promise for the future is the 2009 law giving the Food and Drug

Administration the authority to regulate certain aspects of the tobacco industry. So far, the most significant step to come from that act is the ban on flavored cigarettes, but several other potential actions are working their way through the system.

Specific Concerns

In addition to the apparent slowdown in the reduction of overall tobacco use, cigarette smoking and secondhand smoke exposure, the 2011 MYTAS identifies several areas of concern that tobacco prevention programs and public officials should monitor and address.

First, while the prevalence of cigarette smoking is much lower now than it was in 2000, there has been little or no progress in reducing the use of cigars and smokeless tobacco. Furthermore, among male high school students, the percentage smoking cigars or using smokeless tobacco in the past 30 days is not much lower than the percentage smoking cigarettes. Total national sales of little cigars, which are made to look and smoke like cigarettes,¹⁶ increased by 240 percent between 1997 and 2007, and sales of cigarillos increased by almost 150 percent.¹⁷

It is not hard to understand why cigars, especially little cigars and cigarillos, are popular among teens. Cigar products are taxed at lower rates than cigarettes and do not face the same regulations as cigarettes. For example, the FDA's recent ban on flavored cigarettes does not apply to cigar products, so it is easy to find cigars with chocolate, cherry, peach rum and other sweet flavors attractive to young people. The tobacco industry has exploited these tax and regulation loopholes to produce cheap little cigars that often cost one-third or one-half the retail price of cigarettes. Closing these loopholes would be the first step in treating these products for what they are – a cheap and dangerous way for the industry to keep the nicotine flowing and move young smokers farther down the path to addiction.

Second, use of menthol cigarettes has increased sharply; nearly half of teen smokers now usually smoke menthols. Derived from peppermint or other mint oils, menthol has been added to cigarettes for decades. Menthol cigarettes are considered “starter” products. The tobacco industry has known for many years that menthol serves to mask the harshness and irritation that new or younger smokers may feel when they inhale cigarette smoke, thus making it easier to start and continue smoking.¹⁸ Teen smokers are much more likely to smoke menthols than are older adult smokers.¹⁹ Once they have successfully started by using menthols, many smokers then move on to non-menthol varieties. The tobacco industry has also devoted much research to finding the right amount of menthol that is attractive to young smokers and other segments of their

market.²⁰ Moreover, there is evidence that it may be more difficult to quit if you smoke menthols.²¹ As stated by the Second Conference on Menthol Cigarettes (2009), menthol in cigarettes “helps the poison go down easier”.²²

For these and other reasons, the Tobacco Products Scientific Advisory Committee of the Food and Drug Administration (FDA), after an exhaustive review of the scientific literature and public comments, concluded in 2011 that menthol cigarettes represent a distinct harm to public health. The Committee concluded that: “Removal of menthol cigarettes from the marketplace would benefit public health in the United States.” It is now up to the FDA to decide whether and how to ban menthol in cigarettes.

Third, the tobacco industry has been rolling out new smokeless products, and public health must stay on top of the marketing tactics used to promote these products and the extent to which young people are trying them. Snus has been on the market in Minnesota since 2008, and dissolvable tobacco (strips, orbs, etc.) have been test marketed elsewhere but are not yet sold in Minnesota. The 2011 MYTAS shows that 14 percent of high school students have tried snus and five percent have used it in the last 30 days. A study of young adult smokers in other states found that those with no immediate plans to quit smoking were twice as likely to try snus as those intending to quit in the next 30 days, suggesting that snus was seen as a substitute for cigarettes where smoking is not allowed rather than as an aide in quitting cigarettes altogether.²³

Fourth, about one-third or less of students report that they were asked by a doctor, dentist or nurse if they smoke (18% MS; 38% HS) or were advised not to smoke (26% MS; 28% HS) in the past 12 months. The proportion of Minnesota youth who report being asked if they smoked is slightly higher than the national figures.²⁴ An unknown number of teens did not see a doctor, dentist, nurse or other health professional in the last 12 months and therefore could not answer in the affirmative to these questions. Difficulty remembering what was said to them during clinic visits in the last 12 months may also have affected the results. Quite a few youth responded that they couldn’t remember.

Clinical guidelines for treating tobacco use state: “Clinicians should ask pediatric and adolescent patients about tobacco use and provide a strong message regarding the importance of totally abstaining from tobacco use.”²⁵ Progress has been made in implementing these practices for adults, with large majorities of Minnesota adults reporting that they were asked by a health professional if they smoked and were advised not to smoke.²⁶ Despite the uncertainties about the youth data, these figures can at least serve as a reminder to health professionals to fully adopt the Ask and Advise guidelines in their patient visits.

Fifth, tobacco products are advertised on the internet and are being unofficially promoted on video-sharing and social networking sites. Public health professionals need to be alert to how tobacco products are being portrayed and promoted through new media and also how public health messages could use those same media. Since 2000, the percentage of youth who report seeing tobacco ads on the internet has increased. Sizable numbers of youth report seeing videos portraying smoking on YouTube or “pages” or “groups” devoted to smoking on Facebook. Tobacco companies are also using the internet to provide coupons and other promotional deals to smokers 18 and older.

APPENDIX A

DESCRIPTION OF SURVEY METHODS

Survey Questions

The Minnesota youth tobacco surveys are built around a set of questions and procedures developed by the Centers for Disease Control and Prevention (CDC) for use in state surveys on adolescent tobacco use. States must use the CDC core questions and can decide to add some of the CDC optional questions or to create their own questions. Since the late 1990's, over 40 states have used CDC's questions and procedures for their own youth tobacco surveys.

Of the 72 questions on the 2011 Minnesota survey, six are demographic or background questions, 59 are tobacco questions, and seven are asthma questions. Fifty of the 72 questions have been on the survey since 2000 or 2002, providing continuity for trend analysis.

Sample

Students are selected for the survey in two stages. First, 48 public middle schools (grades 6-8) and 52 public high schools (grades 9-12) were randomly selected, with probability of selection based on size of enrollment. Alternative schools and charter schools were included. Next, three or four classrooms within each participating school were randomly selected, and all students in these classrooms were invited to participate. The number of schools and classrooms selected was reduced substantially in 2008 in order to reduce the burden on schools.

Notification and Confidentiality

Parents are informed by letter about the survey and can notify the school if they do not want their student to participate. Students are also informed that the survey is voluntary on their part and that they can decide not to participate or not to answer specific questions. Students are assured that their answers are anonymous and confidential and are reminded not to write their name, ID number or any other identifying information on the answer sheet.

Timing

As in previous survey years, the 2011 survey was administered in January, February and March. The exact survey date was set by each school.

Analysis

Once completed surveys were received by the Department of Health, they were reviewed and prepared for scanning. CDC scanned the surveys and created the initial weighted dataset. The Department of Health analyzed the data using SPSS and SPSS Complex Samples software.

Participation Rates

In 2011, 56 percent of the sampled middle schools and 52 percent of the sampled high schools agreed to participate. Among the schools that did participate, 83 percent of middle school students and 83 percent of high school students enrolled in selected classrooms provided usable surveys. (Table A-1) The main reasons why students do not participate are that they are absent from class on the survey date (due to illness, truancy, make-up tests, field trips, or other activities) or they decide not to take the survey.

While school participation was relatively low in 2011, the schools participating appear to be representative of the state. This was determined by examining 2010 Minnesota Student Survey (MSS) data. The MSS is organized like a census rather than a sample survey. Roughly 90 percent of school districts participate in the MSS, and all students in 6th, 9th and 12th grades are invited to take the survey. Within the MSS dataset, we looked at the subset of schools that also participated in the 2011 MYTAS. Of the 27 high schools that participated in the 2011 MYTAS, 23 contributed data to the 2010 MSS. These 23 MYTAS high schools produced combined 9th and 12th grade cigarette smoking rates very similar to the rates produced by the entire MSS census, indicating that these MYTAS schools are representative of all public high schools in the state.

Table A-1. Survey participation statistics for youth tobacco surveys

Year	Number of schools selected	Number of schools participating	School participation rate	Student participation rate*	Total surveys
2000					
Middle school	58	46	79.3%	87.9%	4,751
High school	77	57	74.0%	84.6%	7,625
2002					
Middle school	58	51	87.9%	85.6%	4,751
High school	77	50	64.9%	83.2%	6,806
2005					
Middle school	57	39	68.4%	88.3%	4,119
High school	77	60	77.9%	81.4%	6,562
2008					
Middle school	48	36	75.0%	90.0%	2,322
High school	51	32	62.7%	74.3%	2,267
2011					
Middle school	48	27	56.3%	83.3%	1,474
High school	52	27	51.9%	83.4%	1,972

* Percentage of enrolled students in selected classrooms who took the survey.

Limitations

The Minnesota Youth Tobacco and Asthma Survey is a survey of public school students and thus does not represent all young people. Private schools, juvenile correctional facilities, and treatment centers are not included in the study. Moreover, teens who have dropped out of school are not represented, and students who frequently miss school due to truancy, illness or other reasons are under-represented. Another limitation is the content of the survey. The MYTAS focuses on tobacco use and does not provide information on social, cultural and behavioral factors that have been linked to tobacco use. Finally, the survey is a fixed-choice self-report survey and provides no opportunity for youth to write more detailed responses in their own words.

APPENDIX B

TOBACCO USE AMONG RACIAL/ETHNIC GROUPS

The Minnesota Youth Tobacco and Asthma Survey offers great detail on tobacco use and tobacco prevention, but cannot provide reliable estimates of tobacco use among Minnesota's racial/ethnic groups. The Minnesota Student Survey (MSS), on the other hand, is large enough to provide estimates for racial/ethnic groups and other demographic groups for a small number of key tobacco use indicators.

The Minnesota Student Survey (MSS) has been conducted every three years since 1989 among Minnesota's 6th, 9th and 12th grade public school students. Nearly 90 percent of public school districts participate. In 2010, 79 percent of all 6th graders, 75 percent of all 9th graders, and 59 percent of all 12th graders in regular public schools took the survey. Over 130,000 students were surveyed in 2010, including several thousand from each non-white racial/ethnic group. Tables and reports based on the MSS can be found at <http://www.health.state.mn.us/divs/chs/mss>.

Current Tobacco Use by Racial/Ethnic Groups

The most recent results from the MSS show that overall tobacco use is highest among American Indian students and lowest among Asian students at all three grade levels. At the 12th grade level, for example, 40.1 percent of American Indian students and only 17.6 percent of Asian students reported using some form of tobacco in the last 30 days. By 12th grade, overall tobacco use has also reached high levels among Hispanic and White students. (Table B-1)

American Indian students have the highest rates for smoking cigarettes at all three grade levels, and among the highest rates for smoking cigars and using smokeless tobacco. By 12th grade, Hispanic and White students also have high rates for using cigarettes, cigar products, and smokeless tobacco. In fact, White 12th grade students are the most likely to report using smokeless tobacco of any group. Asian students consistently are the least likely to use each form of tobacco. (Table B-1)

Table B-1. Percent using various tobacco products in the last 30 days by racial/ethnic group: Minnesota, 2010 (highest rate in bold).

	African American	American Indian	Asian	Hispanic	White
Percent who used any form of tobacco in the last 30 days:					
Grade 6	4.4%	7.1%	1.8%	5.5%	2.0%
Grade 9	15.0%	25.4%	9.6%	19.5%	12.4%
Grade 12	23.3%	40.1%	17.6%	30.0%	32.8%
Percent who smoked cigarettes in the last 30 days:					
Grade 6	3.2%	5.8%	1.5%	4.3%	1.4%
Grade 9	11.0%	21.5%	8.0%	16.5%	9.6%
Grade 12	16.7%	30.9%	14.6%	23.7%	22.3%
Percent who smoked cigars, cigarillos or little cigars in the last 30 days:					
Grade 6	2.4%	2.8%	.7%	2.9%	.7%
Grade 9	9.3%	10.9%	4.2%	10.7%	4.9%
Grade 12	16.3%	21.3%	8.9%	17.3%	18.2%
Percent who used smokeless tobacco in the last 30 days:					
Grade 6	1.4%	2.4%	.6%	2.0%	.8%
Grade 9	4.2%	8.1%	2.6%	4.9%	4.9%
Grade 12	7.9%	12.2%	4.3%	9.0%	13.0%

Source: Minnesota Student Survey, 2010

Trends in Tobacco Use by Racial/Ethnic Group

The prevalence of cigarette smoking has declined dramatically in all racial/ethnic groups over the past 10 years. Between 2001 and 2010, the percentage of 9th grade American Indian students who smoked cigarettes in the last 30 days fell from 36.5 to 21.5 percent, and the percentage of 9th grade Hispanic students fell from 29.1 to 16.5 percent. (Table B-2) These results mirror the large-scale decline in smoking rates found by the Minnesota Youth Tobacco and Asthma Survey between 2000 and 2011. (See Table 2 of this report.) It is not possible to produce similar tables of long-term trends for cigar and smokeless tobacco use, since these questions were just added to the MSS in 2007.

Table B-2. Percent of 9th graders who smoked cigarettes in the last 30 days, by racial/ethnic group, 2001-2010.

	2001 (percent)	2004 (percent)	2007 (percent)	2010 (percent)	Percent Change 2001-2010	Percent Change 2007-2010
Grade 9						
African American	18.1	15.4	12.7	11.0	-39%	-13%
American Indian	36.5	30.1	24.7	21.5	-41%	-13%
Asian	15.7	13.8	10.3	8.0	-49%	-22%
Hispanic	29.1	23.5	18.4	16.5	-43%	-10%
White	19.4	14.8	11.4	9.6	-51%	-16%
Grade 12						
African American	21.8	16.1	19.7	16.7	-23%	-15%
American Indian	47.9	40.5	37.2	30.9	-35%	-17%
Asian	24.7	22.0	19.5	14.6	-41%	-25%
Hispanic	38.8	28.8	25.4	23.7	-39%	-7%
White	37.4	29.7	26.1	22.3	-40%	-15%

Source: Minnesota Student Surveys, 2001-2010

NOTES

¹ Blue Cross and Blue Shield of Minnesota. *Health care costs and smoking in Minnesota: The bottom line*. St. Paul, MN: November 2010. See also Fellows JL, Waiwaiola LA. *Smoking-attributable Mortality and Economic Costs in Minnesota, 2007, Final Report*. Kaiser Foundation Hospitals, Center for Health Research. Portland OR: 2010.

² *Ibid.*

³ Clearway Minnesota and Minnesota Department of Health; *Tobacco Use in Minnesota: 2010 Update*, pages 2-25 to 2-27. Minneapolis, MN: February 2011. Available at <http://www.mnadulttobaccosurvey.org>.

⁴ American Legacy Foundation. *Cigars, Cigarillos and Little Cigars Fact Sheet*. June, 2009.

⁵ Kreslake JM, Wayne GF, Alpert HR, Koh HK, and Connolly GN. Tobacco Industry Control of Menthol in Cigarettes and Targeting of Adolescents and Young Adults. *American Journal of Public Health*. September 2008; 98(9): 1685-1692.

⁶ The Minnesota Department of Human Services (DHS) conducts annual random compliance checks of several hundred retail establishments licensed to sell tobacco. These are called SYNAR compliance checks, after the Congressman who initiated this reporting requirement. The more recent annual reports are available on the DHS web site. Go to <http://www.dhs.state.mn.us> and type SYNAR in the search window.

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¹⁰ Campaign for Tobacco-Free Kids. *State Specific Tobacco Marketing Expenditures, 1998 to 2008*. On web at <http://www.tobaccofreekids.org/research/factsheets/pdf/0271.pdf>.

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