

South Dakota Youth Tobacco Survey 2009



GRADES 6 - 8



REPORT PREPARED FOR THE
South Dakota Department of Health
Tobacco Control Program
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The South Dakota Department of Health would like to thank the school districts, principals, school staff and students that graciously gave their time and energy to implement the survey in their classrooms.

EXECUTIVE SUMMARY

INTRODUCTION

Tobacco use remains the greatest cause of preventable death in South Dakota and the United States. Nearly one in every five deaths in the United States is tobacco related (CDC, 2008). Among South Dakotans, in 2008 there were 1,275 deaths, or 18.1 percent of total deaths, in which tobacco was a contributing factor (South Dakota Vital Statistics Report, 2008). In addition, direct medical costs, lost productivity due to tobacco related diseases, and serious respiratory problems for those exposed to other's secondhand tobacco smoke are consequences of tobacco use. Most adult tobacco users (80 percent) began using as a teenager (USDHHS, 1994). Since smoking initiation rarely starts at later ages, the critical time for prevention occurs in adolescence (CDC, 1986). Because of the addictive nature of nicotine, preventing tobacco use among youth, and extinguishing the habit where possible is an especially important goal (USDHHS, 2004).

In 2009, the South Dakota Tobacco Control Program conducted a youth tobacco survey among middle school students in the state. This survey has been conducted in odd numbered years since 1999 and can track changes in tobacco related behavior, priorities and policy over time. The South Dakota Youth Tobacco Survey (SDYTS) is a comprehensive survey of tobacco use, access to tobacco, cessation, knowledge and attitudes about tobacco, and exposure to secondhand tobacco smoke among South Dakota youth. The SDYTS provides useful information to guide youth tobacco prevention, cessation, and control efforts in the state. It also provides valuable data that can be used to track trends in South Dakota over time.

The goals of the South Dakota Tobacco Control Program are to 1) prevent the initiation of tobacco use among people, 2) promote tobacco cessation among adults and youth, and 3) eliminate nonsmokers' exposure to secondhand smoke. (South Dakota Department of Health, 2009). The results of the SDYTS provide information that can be used to measure progress toward these goals, prioritize work necessary to sustain gains and improve services to meet these goals. This report is based on the responses from students in middle schools (sixth, seventh and eighth grade).

METHODOLOGY

The SDYTS consists of 65 questions developed by the Centers for Disease Control and Prevention (CDC) and the South Dakota Tobacco Control Program. Seven new questions were added in 2009. Numerous states use the CDC's core questions and survey administration procedures, allowing findings from the SDYTS to be compared with findings from other states and the National Youth Tobacco Survey. In South Dakota, the survey was successfully administered to 3,362 students from 56 middle schools in November, 2009.

Race and ethnicity data have been made available by the CDC for the South Dakota Youth Tobacco Survey since 2003. American Indians make up approximately 16 percent of South Dakota middle school students. Only data from 2003 to 2009 are presented in this report.

As with any survey, the findings may vary depending on the sample size selected, the population size, and the size of the finding. General trends across questions from different surveys need to be considered as well as percentage changes at different times. Percentages given in this report have been rounded to the nearest whole number, so some totals may not always equal 100 percent.

EXECUTIVE SUMMARY

FINDINGS

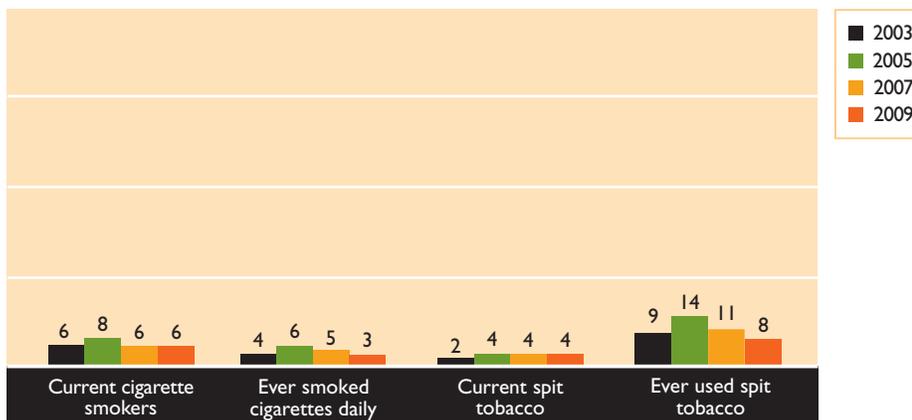
Results from the SDYTS provide valuable information on the student population about the prevalence of tobacco use, cessation support, attitudes about tobacco, future intentions about tobacco use, exposure to secondhand tobacco smoke, and desire of current smokers to stop smoking. Findings are organized in a way that will allow policy makers, health educators, parents, and others concerned about the health of youth to find answers to key questions. Trends over time are presented for questions asked at different times, while baseline data are provided for the new questions.

How many young people in South Dakota are currently using tobacco and how many have smoked daily or have ever used smokeless tobacco?

Most South Dakota middle school youth do not use tobacco. Tobacco use patterns show greater use among older students, males, and American Indians. Many of the changes from previous years of SDYTS results and the 2009 findings, such as the decline in daily cigarette use or lifetime use of spit tobacco, are in the desired direction but may not be statistically significant from survey to survey.

Chart 1 shows only 6 percent of middle school students are defined as current smokers, meaning that they have smoked a cigarette on one or more days during the past 30 days. Rates of current smoking at the middle school level have remained at 6 percent since 2007.

Chart 1. Percent of middle school students smoking and using spit tobacco



Among middle school students, only 3 percent report ever smoking at least one cigarette daily for 30 days compared to 5 percent in 2007. Daily smoking varies by grade level; from 2 percent of sixth graders; 3 percent of seventh graders; and 4 percent of eighth graders. The percentage of eighth graders who smoked daily dropped from 8 percent in 2007 to 4 percent in 2009.

Fewer students report using spit tobacco than cigarettes. The current use of spit tobacco products (chew, snuff, or dip) has stayed the same at 4 percent among middle school students from previous years. The percentage of students who have ever used spit tobacco has decreased from 11 percent in 2007 to 8 percent in 2009. More American Indian students than white students report using both cigarettes and spit tobacco.

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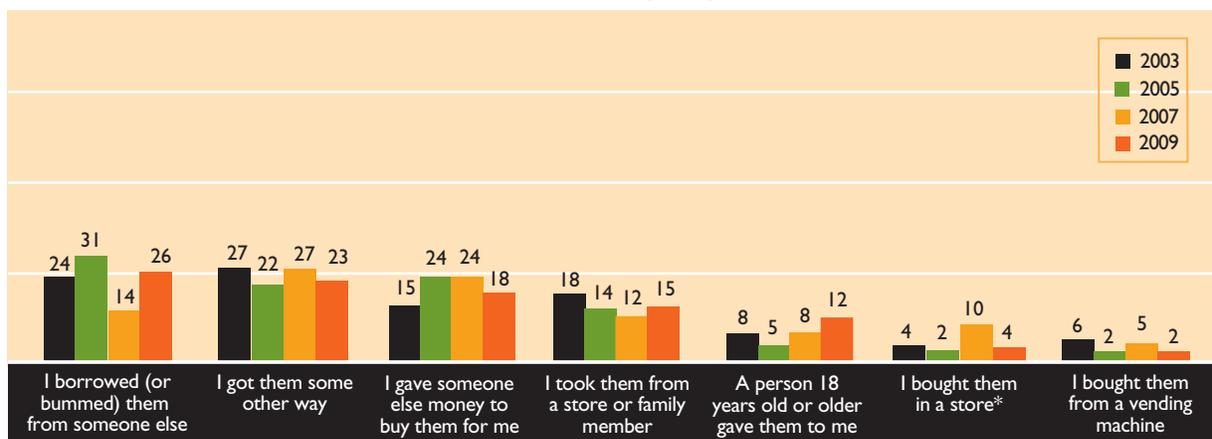
How do young people in South Dakota get tobacco products?

Most middle school students in South Dakota do not use tobacco products. Therefore, statistics on how users obtained tobacco are based on fewer survey respondents. For example, of the 3,362 students surveyed in 2009, only 205 students reported they smoked a cigarette and 129 reported they used spit tobacco in the 30 days before completing the survey. Although tobacco use rates from all middle school respondents by gender, race or grade are based on larger numbers and have higher confidence, the margin of error in surveys increases with smaller numbers of respondents. Readers need to keep this in mind when looking at variations among trends over time from a shrinking percentage of tobacco users.

As shown in Chart 2, young people most frequently indicated that “I borrowed (or bummed) them from someone else” from a list of possible cigarette sources. The next most frequent way to get cigarettes was “got them some other way” and by “giving money to someone else to buy.”

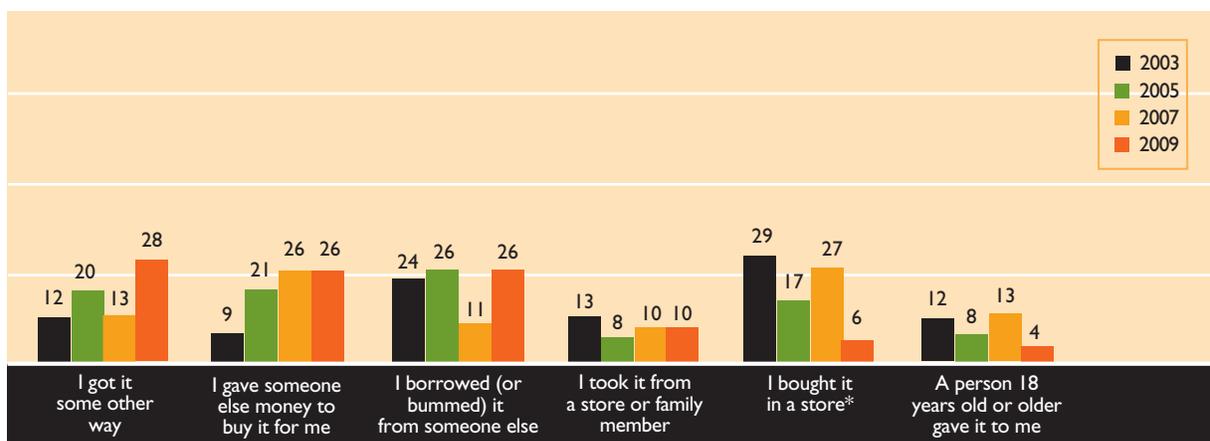
Chart 3 shows responses about possible spit tobacco sources. Young people most frequently indicated “I got it some other way.” The next most frequent way to get spit tobacco was by “giving money to someone else to buy” or “borrowing it from friends.”

Chart 2. Percent of middle school students' usual way to get cigarettes



*such as a convenience store, supermarket, discount store, or gas station

Chart 3. Percent of middle school students' usual way to get spit tobacco

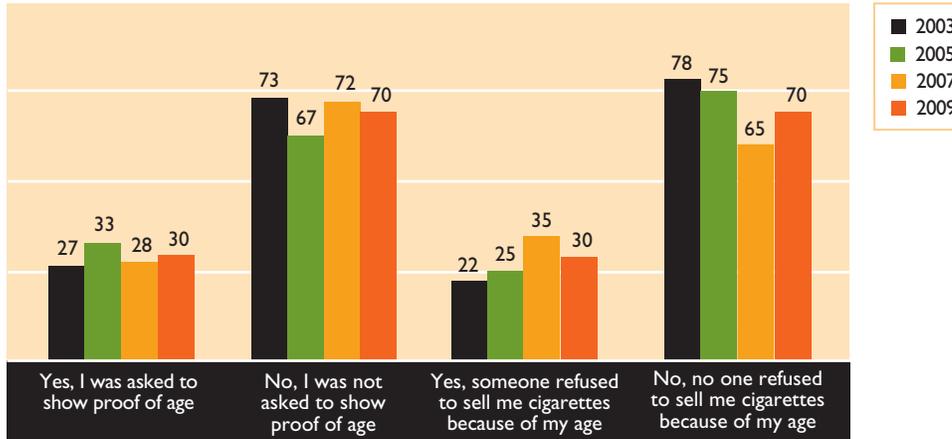


*such as a convenience store, supermarket, discount store, or gas station

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The percentage of students trying to purchase cigarettes and reporting being asked to show proof of age, or being refused has remained stable over the last four surveys. In 2009, less than one-third report being asked to provide proof of age. Chart 4 shows the percentage of students who reported being refused decreased from 35 percent in 2007 to 30 percent in 2009.

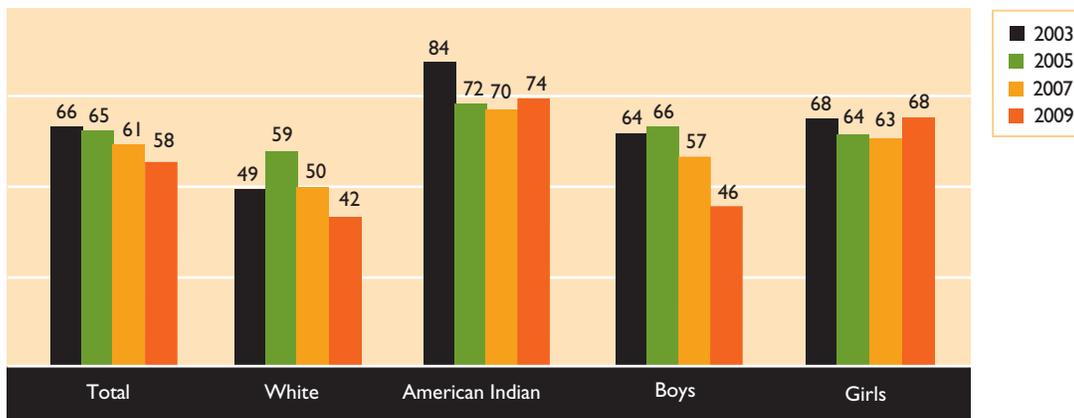
Chart 4. Percent of middle school students attempting to buy cigarettes in past 30 days required to show proof of age and/or refused to sell



How many current smokers in South Dakota schools would like to stop smoking?

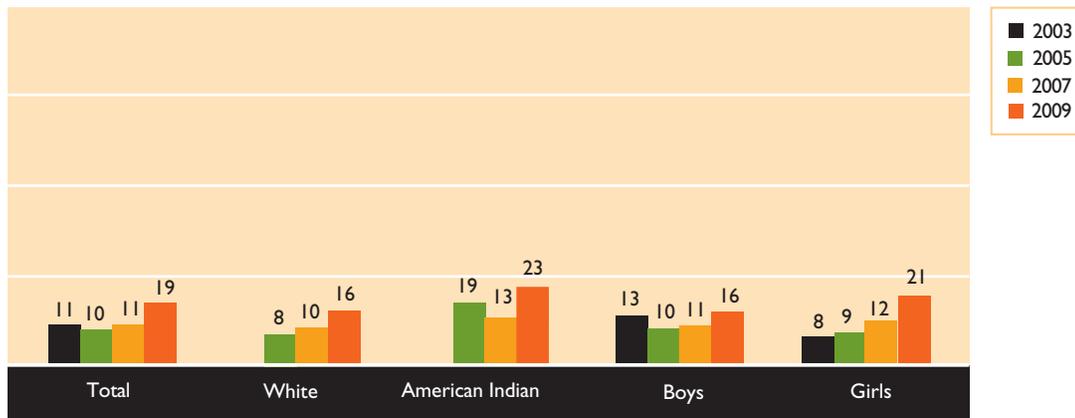
Chart 5 shows the majority of current smokers at the middle school level would like to stop smoking. More American Indian students than white students want to stop smoking now. Although the majority of current smokers would like to stop, Chart 6 shows only 19 percent of all students who have ever used tobacco have participated in a program to help them quit.

Chart 5. Percent of current middle school student smokers who want to stop smoking



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Chart 6. Percent of middle school students who have ever tried tobacco who have participated in a program to help them quit



How are smoking status and exposure to secondhand smoke related?

Students who are current smokers are more likely to live in a home with someone who smokes.

Chart 7. Percent of current smokers living with someone who smokes by race

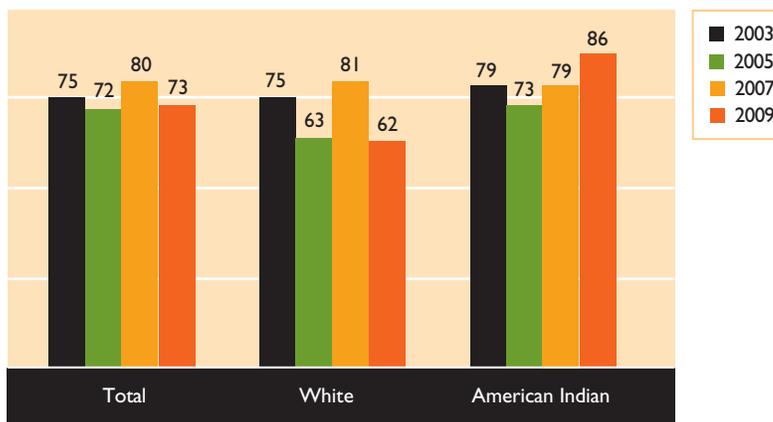
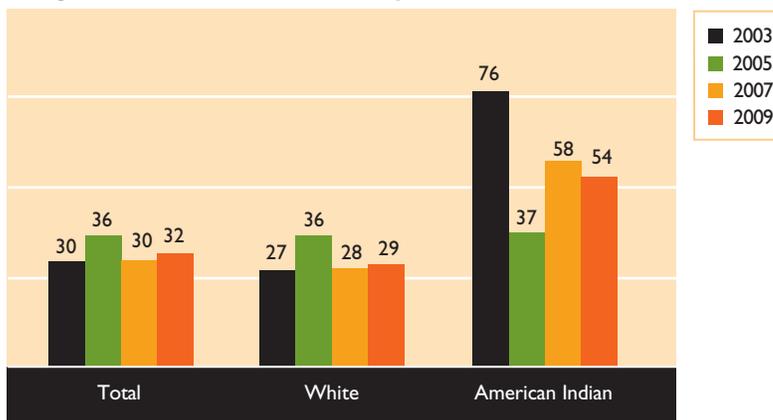


Chart 8. Percent of students who have never smoked living with someone who smokes by race



REPORT ON KEY FINDINGS

INTRODUCTION

Tobacco use remains the greatest cause of preventable death in South Dakota and the United States. Nearly one in every five deaths in the United States is tobacco related (CDC, 2008). Among South Dakotans, in 2008 there were 1,275 deaths, or 18.1 percent of total deaths, in which tobacco was a contributing factor (South Dakota Vital Statistics Report, 2008). In addition, direct medical costs, lost productivity due to tobacco related diseases, and serious respiratory problems for those exposed to other's secondhand tobacco smoke are consequences of tobacco use. Most adult tobacco users (80 percent) began using as a teenager (USDHHS, 1994). Since smoking initiation rarely starts at later ages, the critical time for prevention occurs in adolescence (CDC, 1986). Because of the addictive nature of nicotine, preventing tobacco use is an especially important goal (USDHHS, 2004).

Since 1999 the South Dakota Tobacco Control Program has conducted a youth tobacco survey among students in the state. The South Dakota Youth Tobacco Survey (SDYTS) is a comprehensive survey of tobacco use, access to tobacco, cessation, knowledge and attitudes about tobacco, and exposure to secondhand tobacco smoke among South Dakota youth. The SDYTS provides useful information to guide youth tobacco prevention, cessation, and control efforts in the state. It also provides valuable data that are used to track trends among South Dakota youth over time.

The goals of the South Dakota Tobacco Control Program are to 1) prevent the initiation of tobacco use among young people, 2) promote tobacco cessation among adults and youth, and 3) eliminate nonsmokers' exposure to secondhand smoke. (South Dakota Department of Health, 2009). These goals are consistent with the Centers for Disease Control and Prevention (CDC) comprehensive tobacco control goals for the United States. The results of the SDYTS provide information that can be used to measure progress toward these goals, prioritize work necessary to sustain gains and improve services to meet these goals.

METHODOLOGY

The 2009 SDYTS consists of 65 questions developed by the CDC and the South Dakota Tobacco Control Program. Numerous states use the CDC's core questions and survey administration procedures, allowing findings from the SDYTS to be compared with findings from other states and the National Youth Tobacco Survey.

The SDYTS was administered to 3,362 students from 56 middle schools in November, 2009. Data on racial and ethnic background has been made available by CDC since 2003. Seventy-eight percent of the 2009 middle school sample identified themselves as white, 16 percent as American Indian and approximately 6 percent as other. The sample of students selected to complete the survey was drawn using a two-stage cluster sampling design. This method of selecting students increases the likelihood that survey results are representative of all students in South Dakota. The results of this survey can be used to make important inferences about tobacco use risk behaviors of all public, private and Indian Education school students in grades 6–8 throughout South Dakota.

A copy of the questions asked in the survey, the unweighted or total number of respondents to the survey, and the frequencies weighted to represent all South Dakota middle school students is at the end of this report. Students were assured that the procedures used to conduct the survey were designed to protect anonymity. For a more detailed description of the survey methodology including the sampling design, weighting of data, and response rates, see Appendix A. The core questionnaire was administered, along with 7 new questions. Trends data are presented for questions asked at different times, while baseline data are provided for the new questions.

REPORT ON KEY QUESTIONS

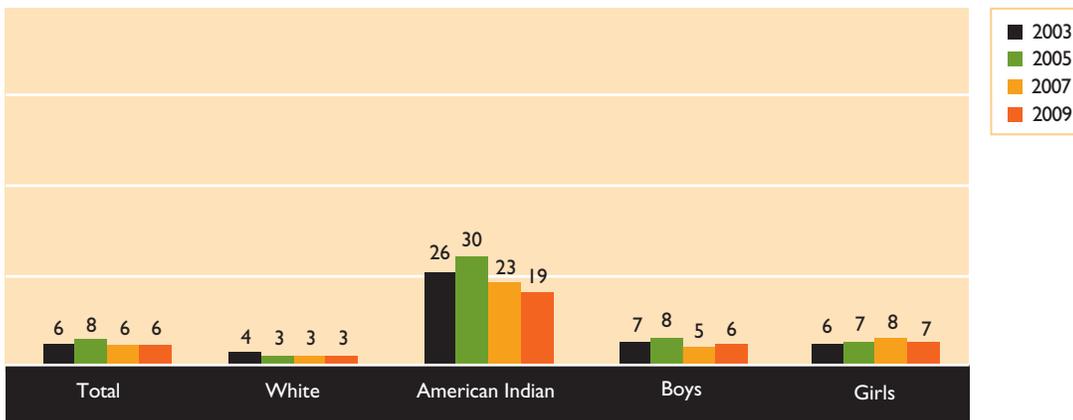
FINDINGS

Results from the SDYTS provide valuable information related to the prevalence of tobacco use, attitudes about tobacco, future intentions about tobacco use, exposure to secondhand tobacco smoke, and desire of current smokers to stop smoking among the middle school population. Smoking experimentation principally starts during adolescence (CDC, 1986). This report summarizes highlights of the survey that have implications for focusing prevention efforts toward students. The results from the SDYTS are organized in a way that allows policy makers, health educators, parents, and others concerned about youth health to answer a series of key questions.

How many young people in South Dakota are using tobacco and how many use it everyday?

Most South Dakota youth do not use tobacco. Only 6 percent of middle school students are defined as current smokers, meaning that they have smoked a cigarette on one or more days during the past 30 days. The rates of use increase consistently with grade level, which suggests that there are continuing opportunities for prevention efforts throughout the middle school years. Rates of current smoking show a significant decline since 12 percent of middle school students in 1999 and 2001 were current smokers compared to 6 percent in 2007 and 2009.

Chart 9. Percent of middle school students who are current smokers (smoked on one or more days in the past 30 days)



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Daily smoking also varies by grade level. Among 6th graders, only 2 percent report ever smoking at least one cigarette daily compared to 4 percent of 8th graders. In Chart 10, middle school students report slightly lower rates of daily cigarette use since the 2003 SDYTS.

Middle school students currently report half the rate of daily cigarette use since the start of the SDYTS in 1999. The percentage who reported daily smoking in 1999 and 2001 was 6 percent compared to 3 percent in 2009.

Chart 10. Percent of middle school students who have ever smoked cigarettes daily (at least one cigarette every day for 30 days)

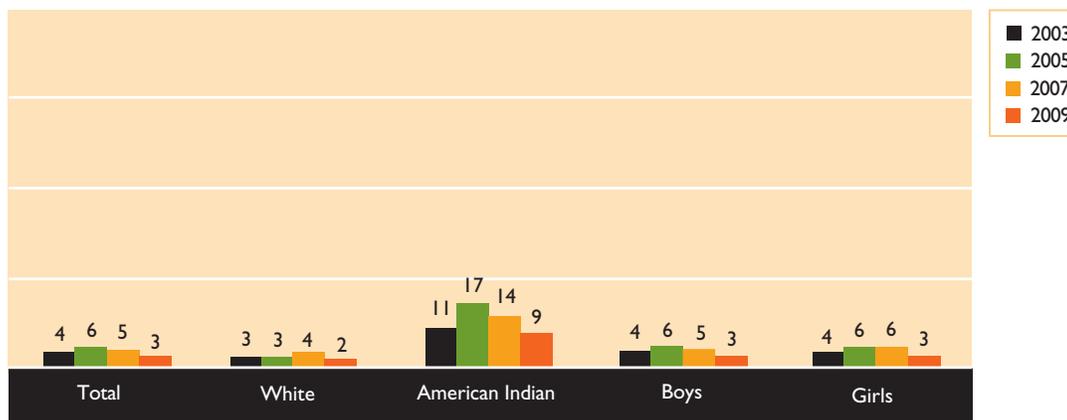
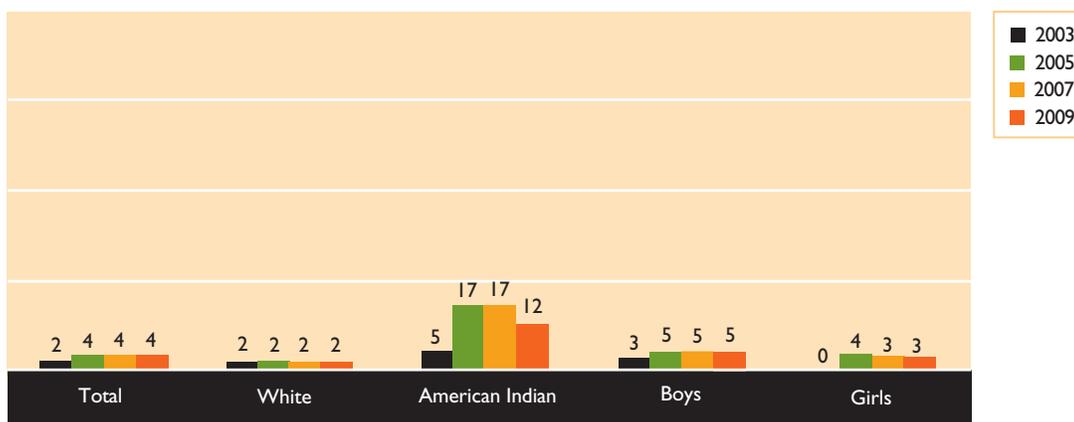
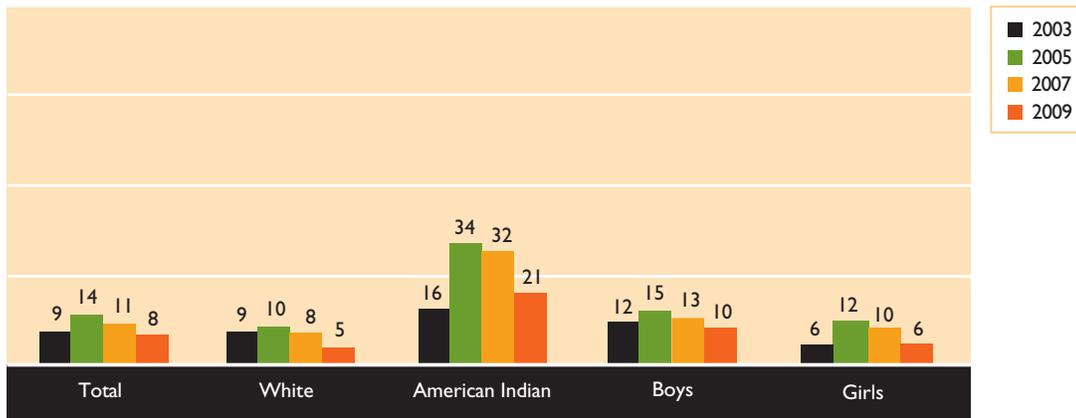


Chart 11. Percent of middle school students who currently use spit tobacco (one or more days in past 30 days)



Fewer students report using spit tobacco than cigarettes and the use of spit tobacco products (chew, snuff, or dip) has decreased among middle school students since the first survey in 1999. The percentage who reported ever using spit tobacco was 17 percent in 1999 and 20 percent in 2001 compared to 8 percent in 2009. Chart 12 shows the percentage that reported ever using spit tobacco decreased noticeably from 2005 to 2009 which may indicate a reduction in experimentation or initiation of use. Males are more likely to report use of spit tobacco than females, as are American Indian students compared to white.

Chart 12. Percent of middle school students who have ever used spit tobacco



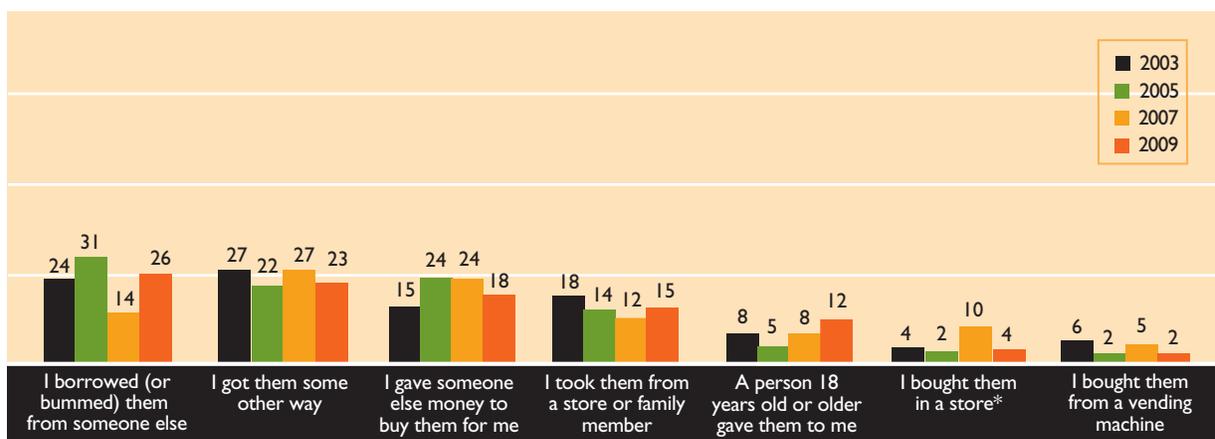
How do young people in South Dakota obtain tobacco products?

Most of the middle school students that are current smokers indicate obtaining cigarettes by borrowing them from someone else followed by “some other way” as opposed to buying them on their own, or they have someone else buy for them. The following Charts, 13 to 15, are based on current smokers who attempted to purchase tobacco products in stores.

The location for the last pack of cigarettes purchased?

A new question was added in the 2007 SDYTS, and replicated in 2009, to provide information on types of location where students buy cigarettes. Ninety-five percent of middle school respondents reported they did not buy a pack of cigarettes in the 30 days before taking the 2009 SDYTS survey. The results are shown in Chart 13. Among the students who reported they both smoked a cigarette and bought a pack during that time, the most frequent response at 60 percent was “I got them in some other way.” This may indicate that they bought them from another person rather than a specific location. The next most frequent locations were a gas station at 26 percent, a convenience store at 5 percent and 3 percent each for three other options listed. The percentage of current smokers who reported their last pack was purchased over the internet was zero for both 2007 and 2009.

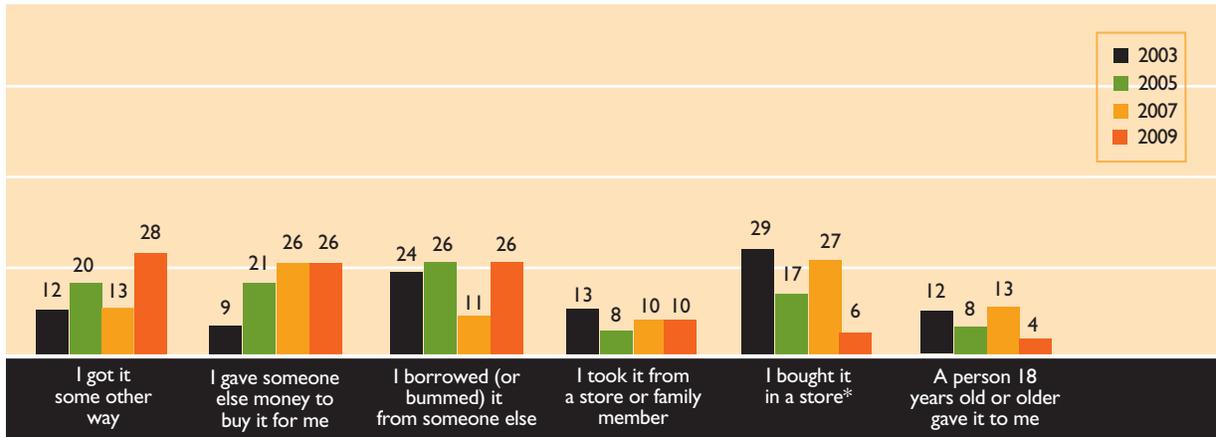
Chart 13. Percent of middle school students’ usual way to get cigarettes



*such as a convenience store, supermarket, discount store, or gas station

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Chart 14. Percent of middle school students' usual way to get spit tobacco

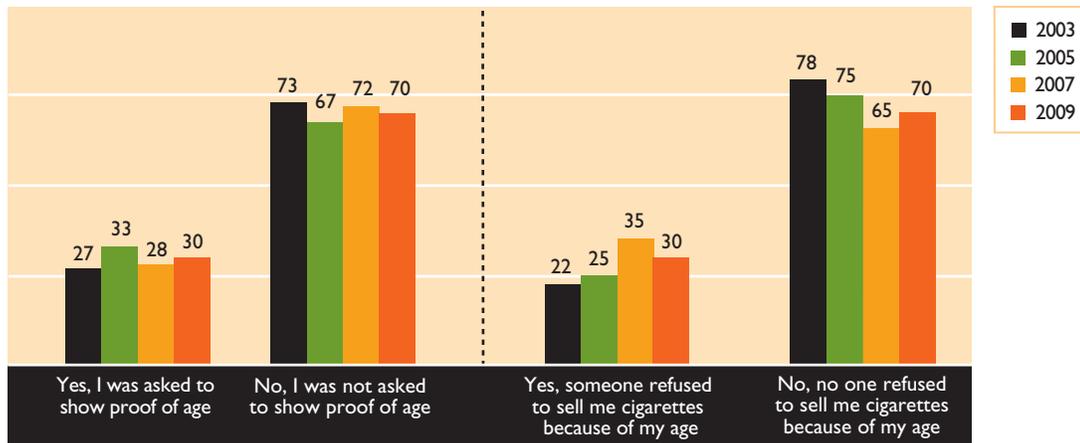


*such as a convenience store, supermarket, discount store, or gas station

Were you asked for ID or refused, and what brand do you smoke?

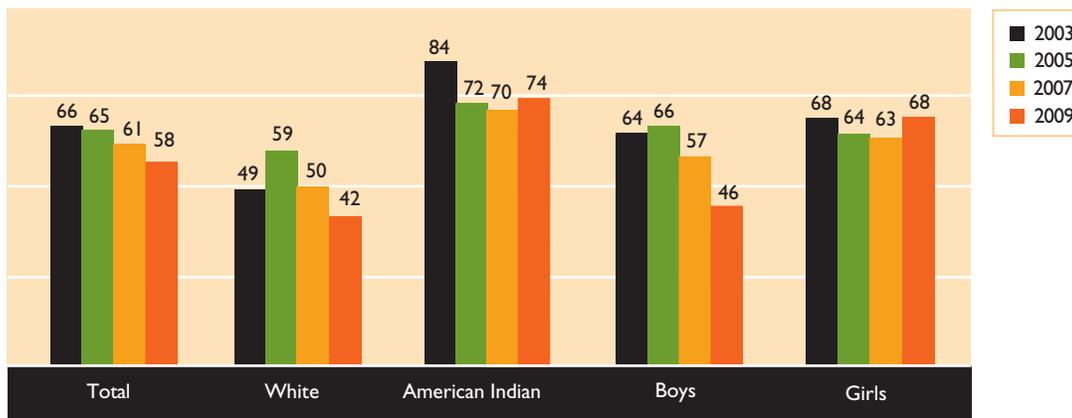
Chart 15 shows that for the subgroup who tried to buy cigarettes in a store during the 30 days before taking the survey, 70 percent were not asked to show proof of age. Among the current smokers, Marlboro was the usual brand at 55 percent, followed by Camel at 15 percent and “do not have a usual brand” at 15 percent.

Chart 15. Percent of middle school students attempting to buy cigarettes in past 30 days required to show proof of age and/or refused to sell



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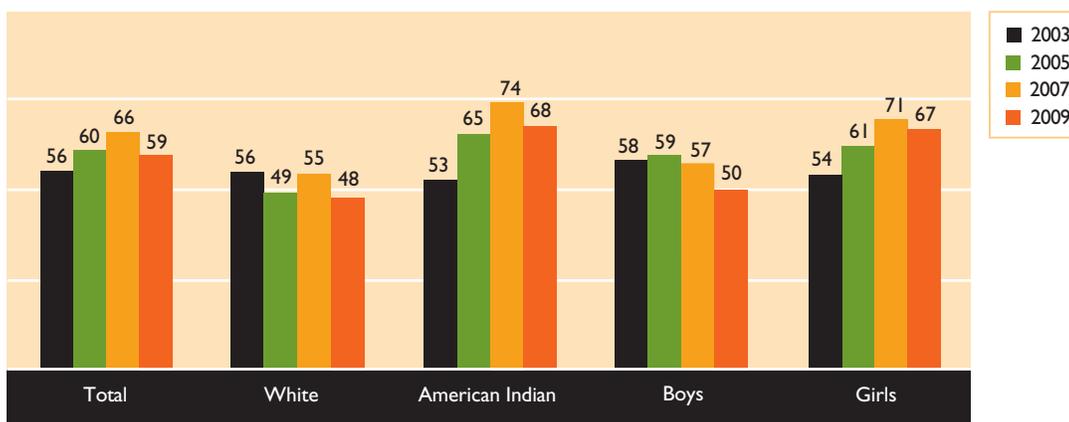
Chart 16. Percent of current middle school student smokers who want to stop smoking



How many current smokers in South Dakota schools would like to stop smoking?

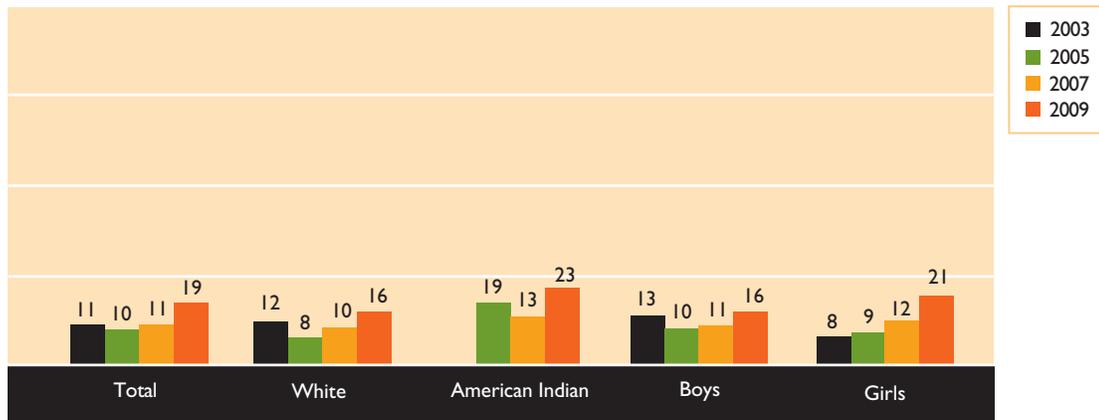
The majority, 58 percent, of current smokers at the middle school level would like to stop smoking. As shown in Chart 17, most current smokers, 59 percent, have also tried to quit smoking at least once during the past 12 months. Most students who want to quit or who have tried to quit have not participated in a program to help quit using tobacco. Chart 18 shows that 19 percent of middle school students report attending a program designed to help them quit.

Chart 17. Percent of current middle school student smokers who have ever tried to quit smoking during the past 12 months



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Chart 18. Percent of current middle school students who have ever participated in a program to help them quit using tobacco



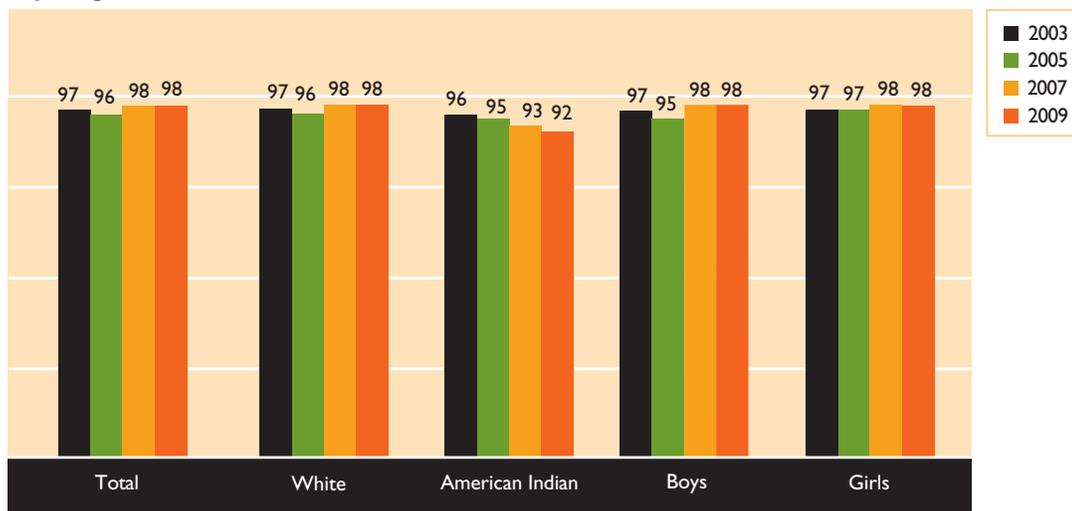
How long can you go without smoking before you feel like you need a cigarette?

For students that reported they currently smoke, 55 percent indicated they could go a week or more without the need for a cigarette, compared to 20 percent who could go for less than a day. The remaining 25 percent indicated they could go a day or more.

How many young people in South Dakota think that they will smoke in the future?

The future intent to smoke is one indicator of risk for current non-smokers to begin smoking or for experimental smokers to become regular tobacco users (USDHHS, 1994). Ninety-eight percent of middle school students who have never smoked indicated they will not try a cigarette soon as shown in Chart 19.

Chart 19. Percent of middle school students who have never smoked who will not try a cigarette soon



In contrast to students who had never smoked, among the 6 percent of students who had smoked a cigarette in the past 30 days before the survey, 61 percent indicated they will definitely or probably be smoking cigarettes 5 years from now. Twelve percent of current smokers indicated they definitely would be smoking

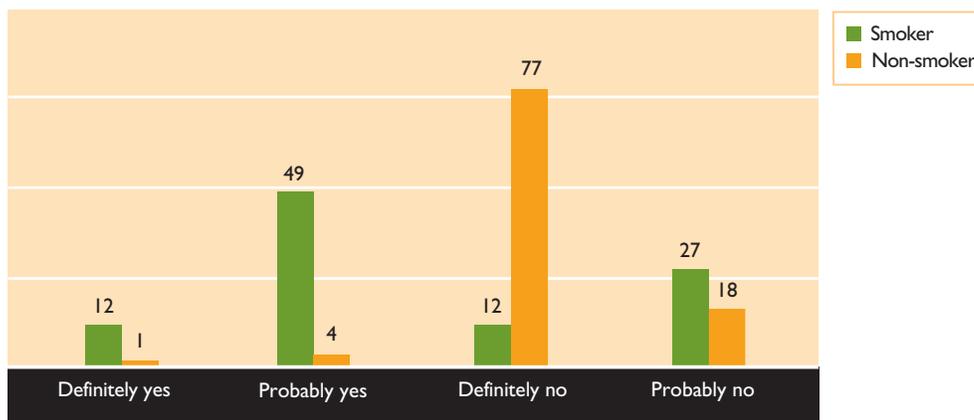
REPORT ON KEY QUESTIONS

in 5 years while 49 percent indicated they probably would be smoking. This question was not included in the 2007 survey.

How many young people in South Dakota are regularly exposed to secondhand smoke?

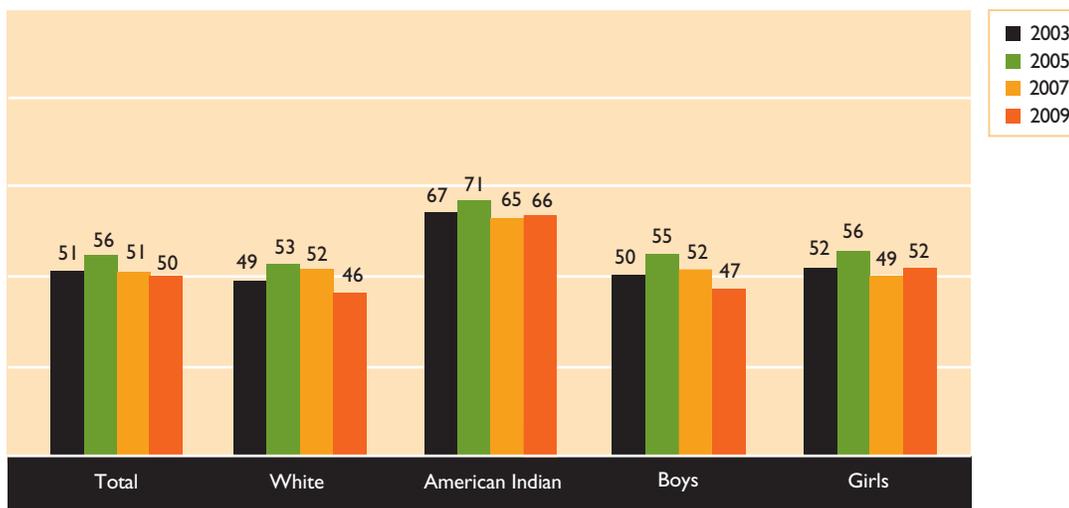
The 2006 Surgeon General's report (USDHHS, 2006) clearly documented health risks caused by exposure to secondhand tobacco smoke. Chart 20 shows that half of middle school students are exposed to secondhand tobacco smoke each week. However, the decrease in students exposed to smoke in their homes or vehicles from 56 percent in 2005 to 50 percent in 2009 is a positive change in the desired direction.

Chart 20. Percent of middle school students expecting to be smoking cigarettes 5 years from now



Rules for smoking in vehicles or in the home showed wide differences depending on whether the respondent was a current smoker or not. This question, first asked in the 2007 survey, trends in the desired direction as shown in Chart 21. Among current smokers, more have rules about smoking inside the house or in the car than the first survey, but still have wide differences with non-smoking students.

Chart 21. Percent of middle school students who were in the same room with someone who was smoking cigarettes or rode in a car with someone who was smoking a cigarette (one or more days during the past 7 days)



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Chart 22. Percent of current smokers living with someone who smokes

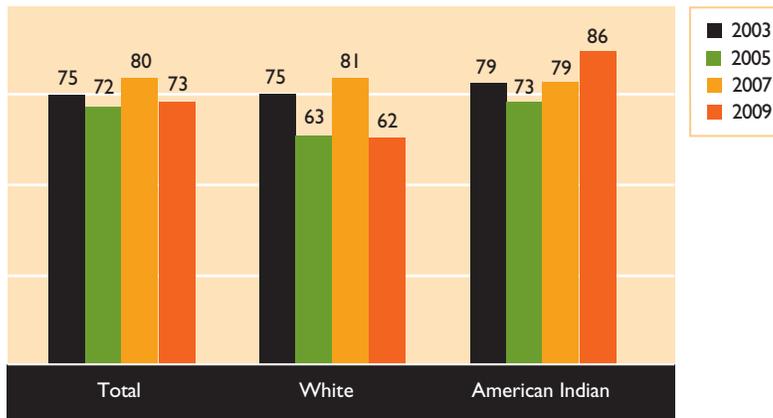


Chart 23. Percent of students who have never smoked living with someone who smokes

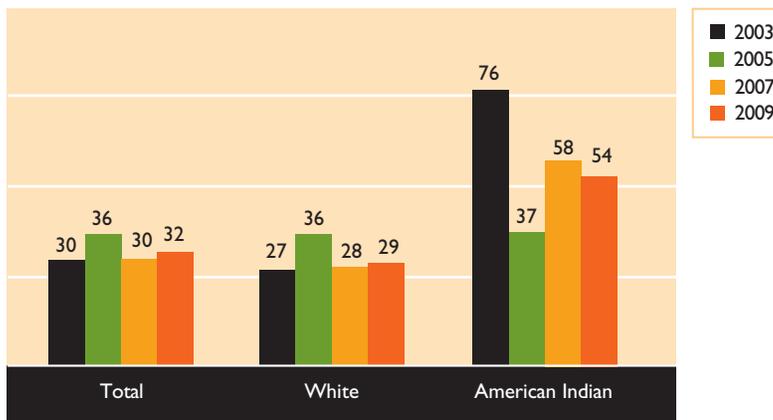
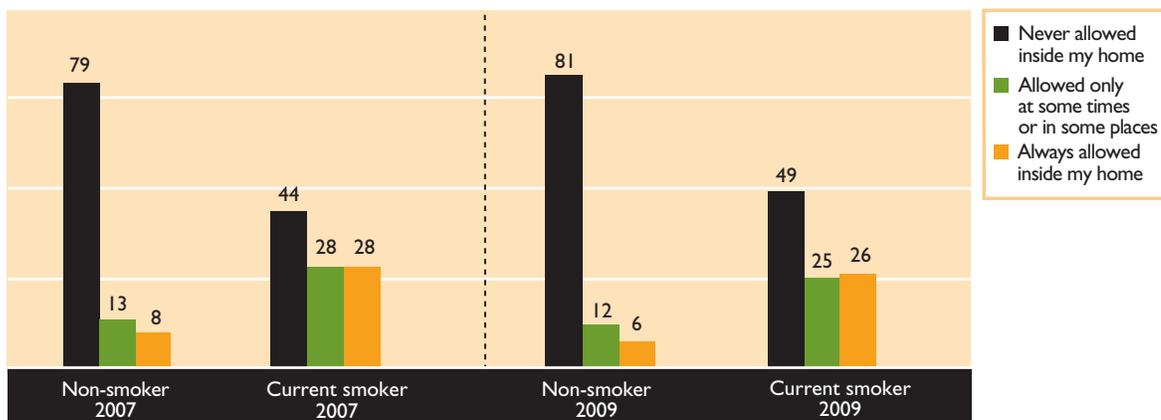
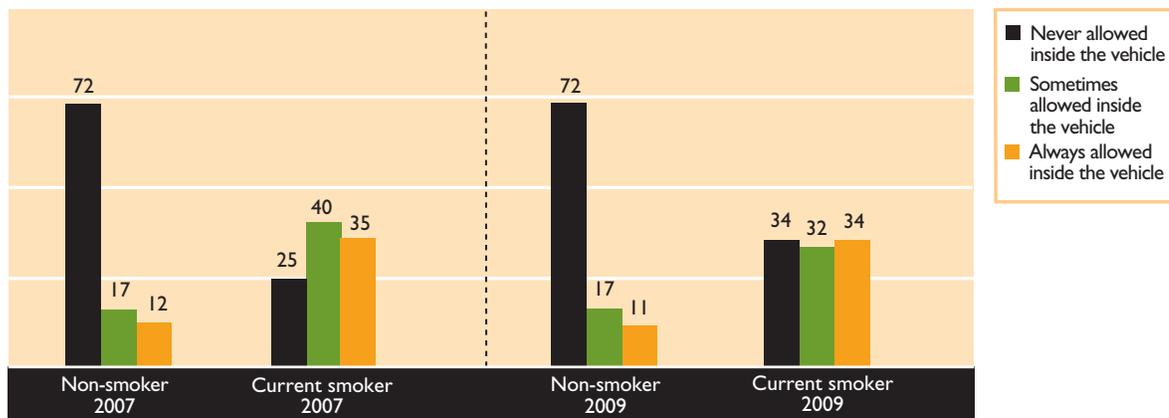


Chart 24. Percent of students with smoking rules in home by smoking status in 2007 compared to 2009



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Chart 25. Percent of students with smoking rules in vehicle by smoking status in 2007 compared to 2009



How many students have been taught about the dangers of tobacco use in school?

The number of students who are being taught about the dangers of tobacco has remained stable from 2007 to 2009 as shown on Chart 26. Data by race is not available for 2003 for this question. However the last two surveys show a higher percentage of students being taught than the two preceding ones. Teaching refusal skills is one prevention strategy included in many tobacco use prevention curricula.

Chart 26. Percent of middle school students who were taught about the dangers of tobacco in any class this year

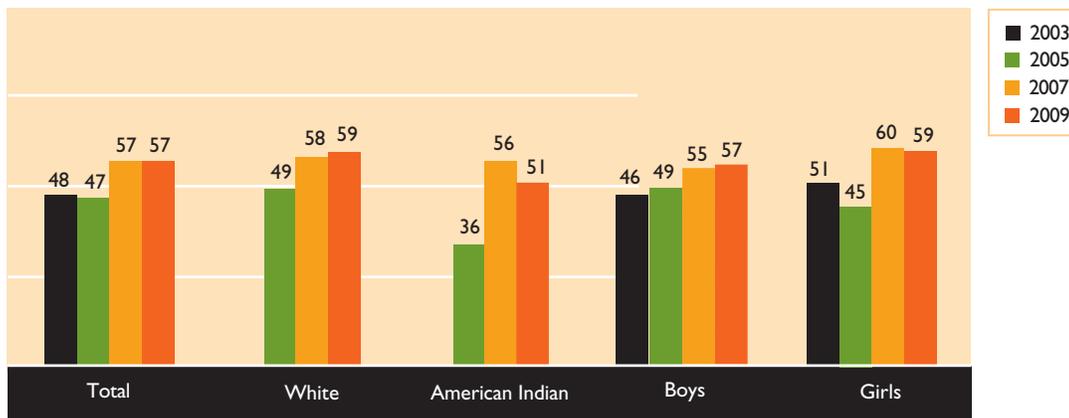
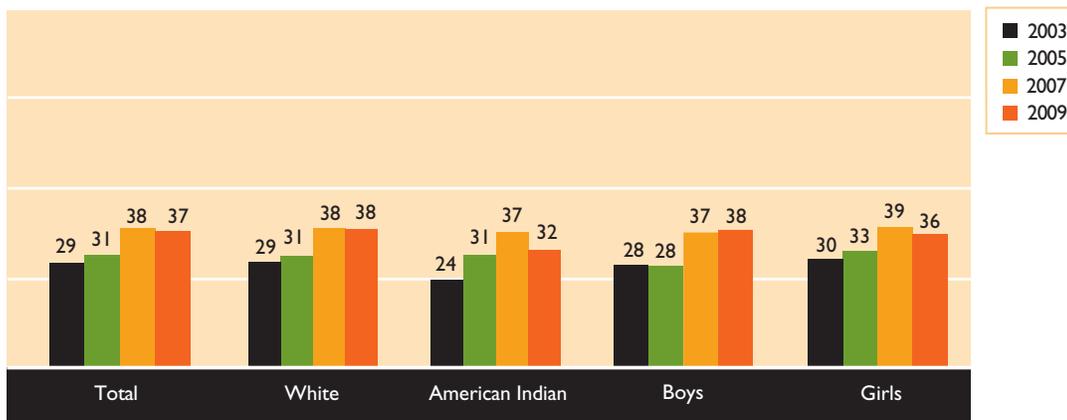


Chart 27 indicates that over a third of middle school students report practicing saying “NO” to tobacco in class. There was a slight decrease from the 2007 survey respondents to 2009 in the majority of demographic categories. In addition, only 12 percent had been involved in a community activity within the previous year to discourage people from using tobacco. Surprisingly, current smokers were nearly twice as likely to have been involved as non-smokers; 20 percent compared to 11 percent respectively. Current middle school smokers were about half as likely, 20 percent compared to 43 percent of non-smokers to indicate that they were not aware of community activities to discourage tobacco use.

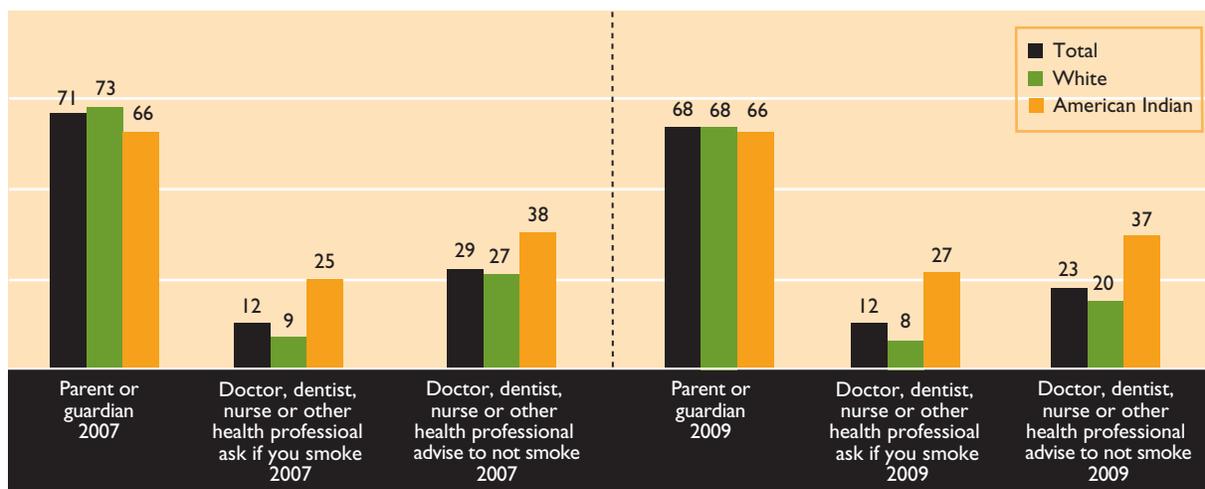
Chart 27. Percent of middle school students who practiced saying “no” in any class this year



How many students hear messages about the risks of tobacco use from their parents, health care providers, commercials on TV, radio, or the Internet?

Counter-marketing campaigns, parental influence, and efforts to change social norms about tobacco use are components of effective comprehensive tobacco prevention efforts. Chart 28 shows that two-thirds of middle school students report that a parent or guardian has discussed the dangers of tobacco use with them during the past 12 months.

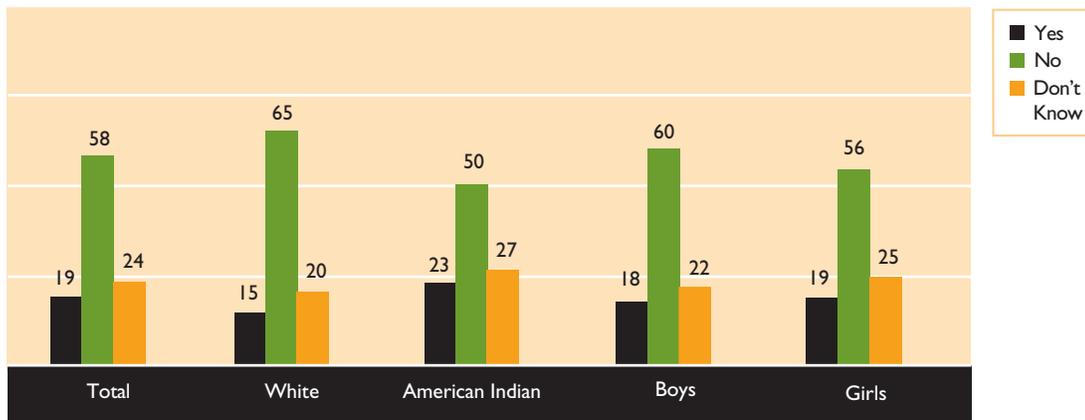
Chart 28. Percent of students who remember having heard a message about the dangers of tobacco use from their parents or guardians or health care providers during the past 12 months in 2007 compared to 2009



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Do the students' parents know that their children smoke cigarettes? Among the students that indicated they smoked cigarettes for this question, Chart 29 indicated that 19 percent indicated their parents know, 58 percent indicated their parents didn't know, while 24 percent were not certain whether or not their parents knew they smoked.

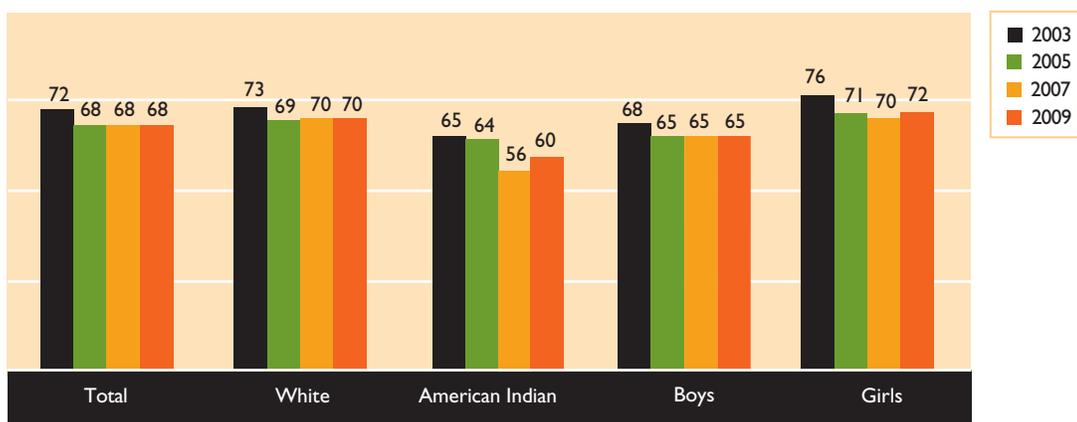
Chart 29. Percent of middle school student smokers that smoke, whose parents know they smoke in 2009



Most students do not recall having their doctor, dentist, nurse or other health professional asking about smoking or advising them not to smoke. The wording for questions about health care providers asking or advising about tobacco use were different before the 2007 surveys, so no trends are available.

Chart 30 shows that the majority (68%) of middle school students in the SDYTS survey recall having seen or heard at least one anti-tobacco commercial during the past 30 days.

Chart 30. Percent of middle school students who have seen or heard anti-smoking commercials during the past 30 days



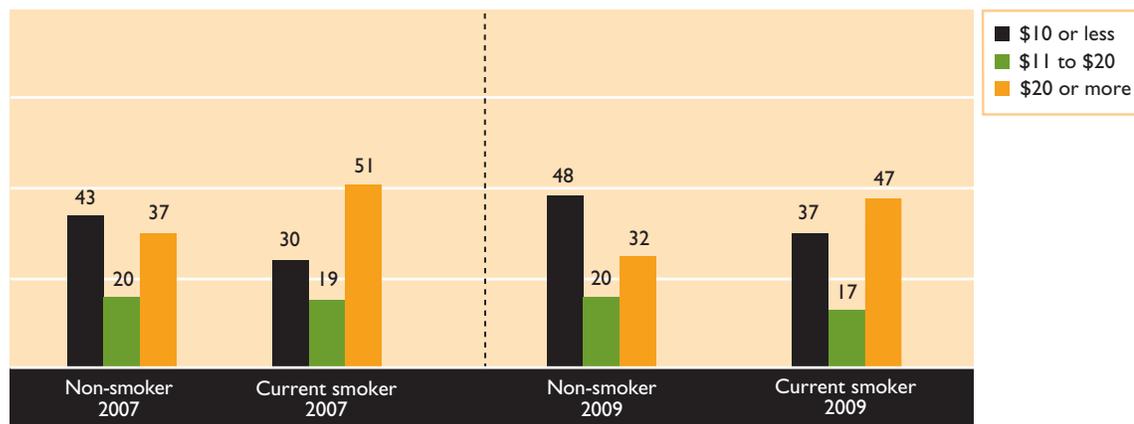
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Newer questions not included before 2007 report.

Several new questions were asked for the first time in the 2007 survey and replicated for 2009. They included questions about exposure to secondhand smoke at work, rules for smoking in the home or car, and smoking bidis, or tobacco in a pipe, and discretionary spending money. Additional questions that were not included in the previous report include perceptions of tobacco use and tobacco marketing.

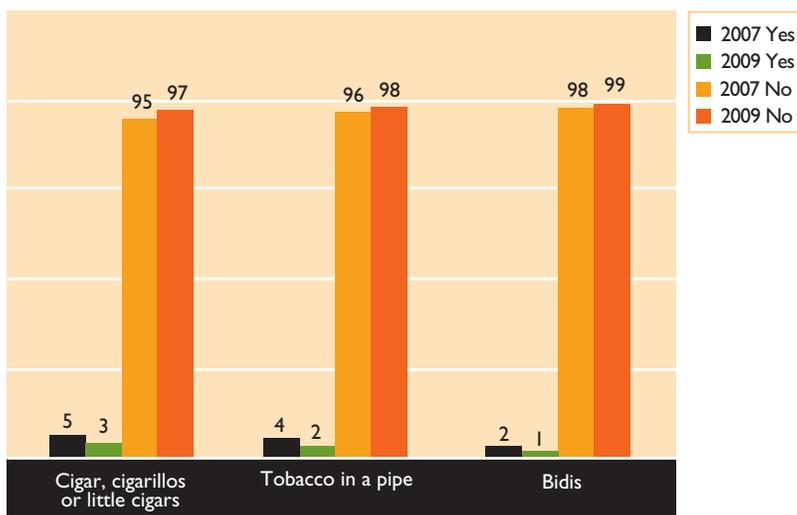
Chart 31 shows that students who were current smokers were more likely to have more than \$20 a week or more that they could spend in any way they want to.

Chart 31. Percent of middle school students with weekly discretionary spending by smoking status for 2007 and 2009



While cigarettes and spit tobacco are the most commonly used forms of tobacco, Chart 32 shows that three percent of middle school students reported smoking cigars, cigarillos or little cigars in the 30 days prior to the survey, two percent smoked tobacco in a pipe during that time, and one percent reported smoking bidis (cigarettes containing clove extract) in 2009.

Chart 32. Percent of middle school students who have smoked other tobacco products in past 30 days



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As shown in Chart 33, over 90 percent of middle school students believed that other people's cigarette smoke is harmful to them in both 2007 and 2009. Among current smokers the percentage drops to 78 and then to 72 percent.

Chart 33. Percent of middle school students who believe other people's cigarette smoke is harmful to them

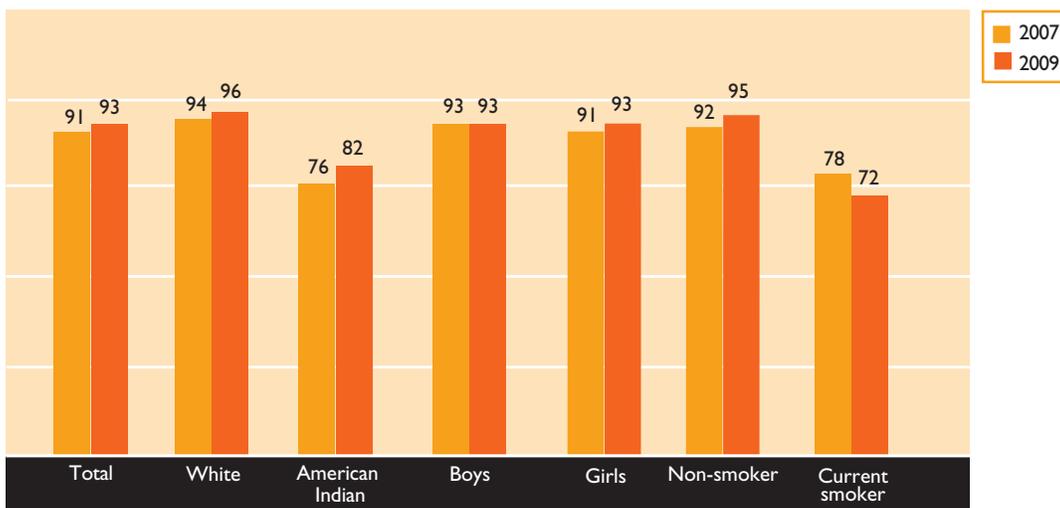


Chart 34. Best description of indoor smoking expectations in 2007

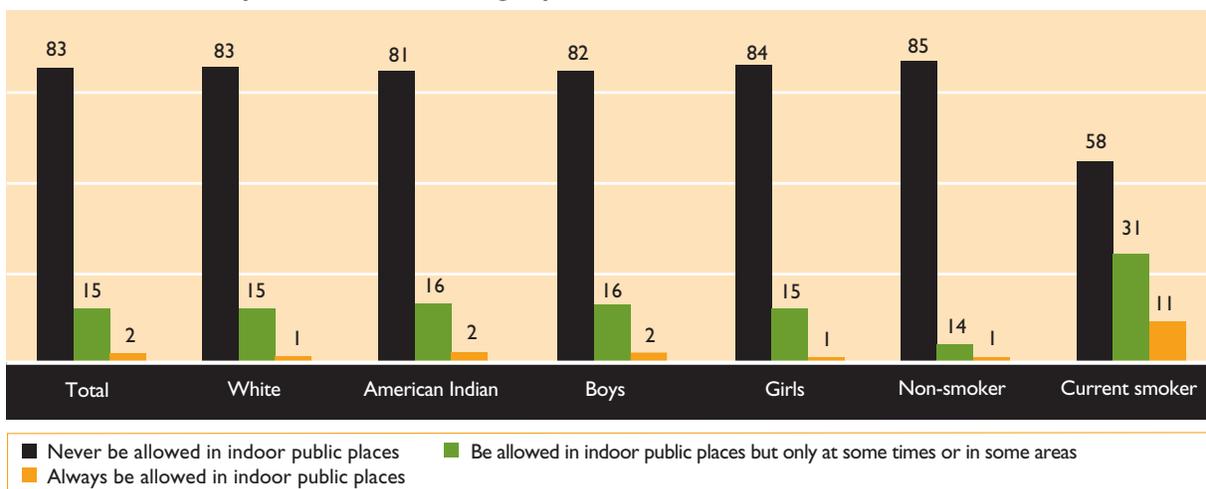


Chart 35 indicates that over 80 percent of students in 2009 believed that indoor smoking should never be allowed, although among current smokers the percentage drops to 53 percent.

Eighty-six percent of students believe employers should never allow smoking in places where people work. Among those students who indicated they had a job, 36 percent reported smoking was sometimes or always allowed where they work. Of this subgroup who had a job, and who had worked within the seven days before the survey, 49 percent had been exposed to second hand smoke.

REPORT ON KEY QUESTIONS

Chart 35. Best description of indoor smoking expectations in 2009

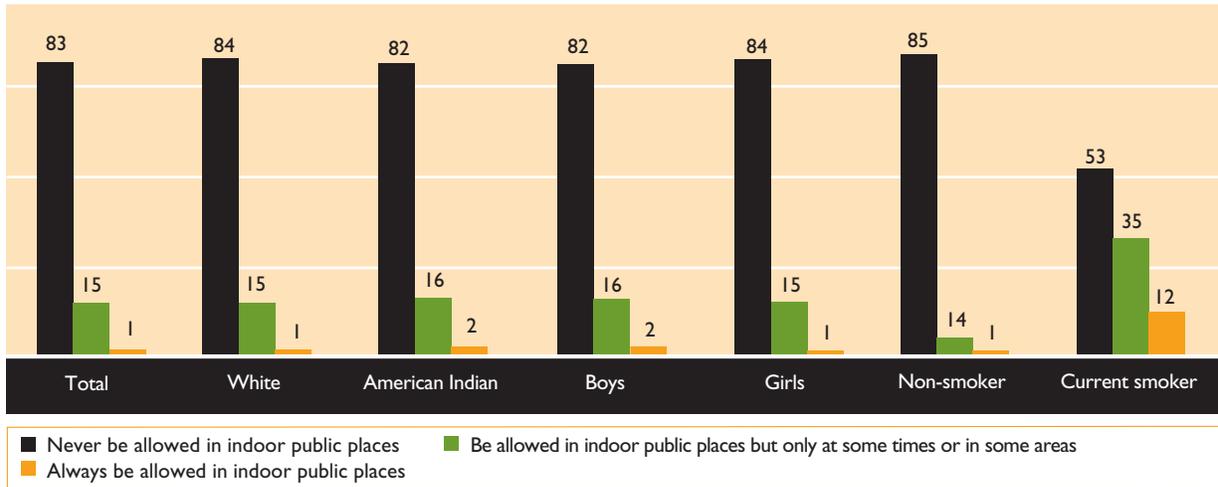


Chart 36. Student opinion on what employers should do about indoor smoking in 2007

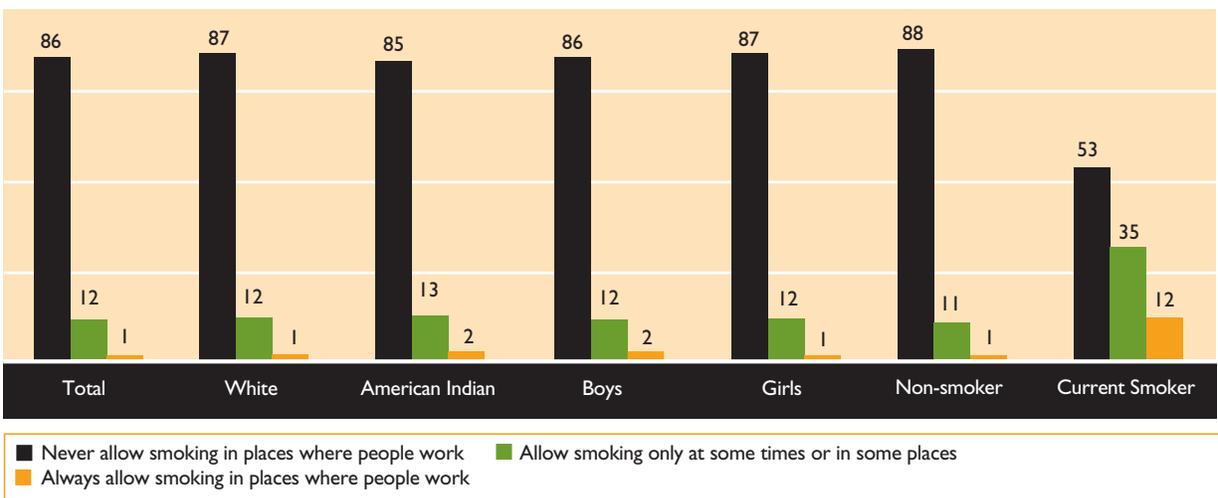
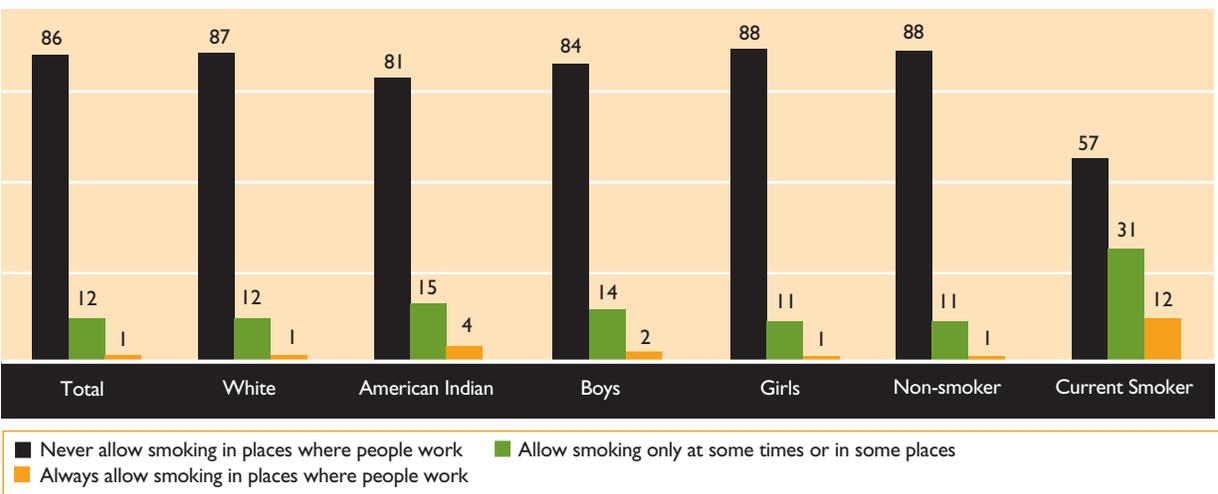


Chart 37. Student opinion on what employers should do about indoor smoking in 2009



REPORT ON KEY QUESTIONS

When you are using the Internet, how often do you see ads for tobacco products?

Of the 93 percent of the students who use the Internet, 43 percent indicated they see ads some of the time or most of the time, while 57 percent indicated they hardly ever or never see tobacco product ads. Among smokers, however, 55 percent reported they see ads some or most of the time they use the Internet.

Tobacco Perceptions

Over 80 percent of middle school students thought tobacco companies tried to mislead young people to buy their products more than other companies; while over two thirds of current smokers also agreed with misleading marketing. This question was not asked in the 2007 survey.

Chart 38. Percent of students who thought tobacco companies tried to mislead young people to buy their products more than other companies

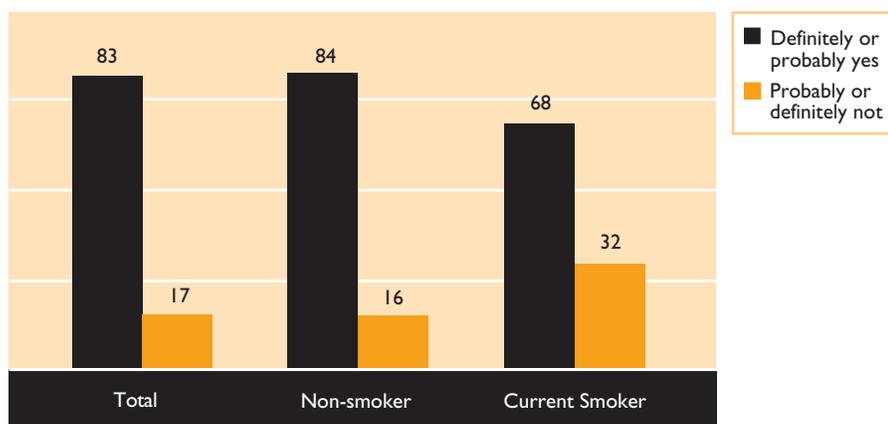
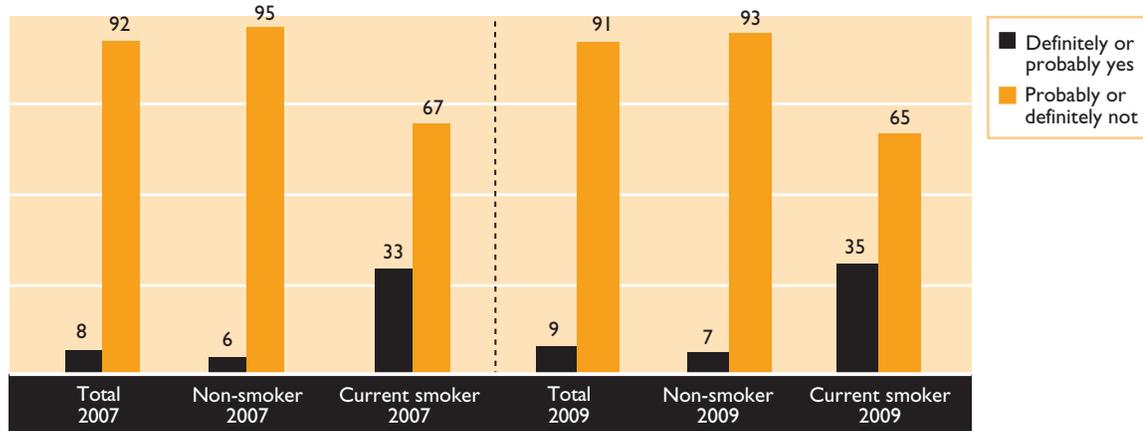


Chart 39. Percent of students believing smoking cigarettes makes young people look cool or fit in from 2007 and 2009



REPORT ON KEY QUESTIONS

Chart 40. Percent believing smokers have more friends in 2007 compared to 2009

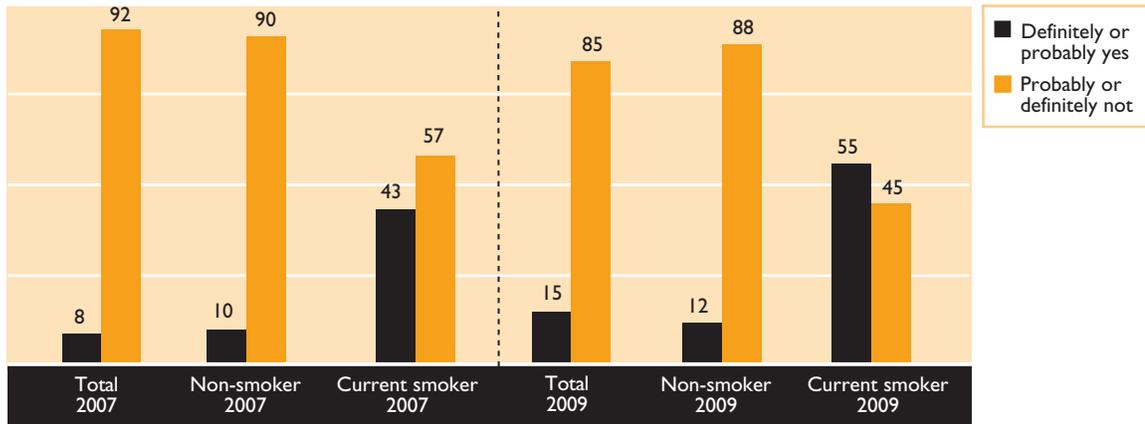


Chart 41. Percent of students who would use or wear something that has a tobacco company name or picture in 2007 compared to 2009

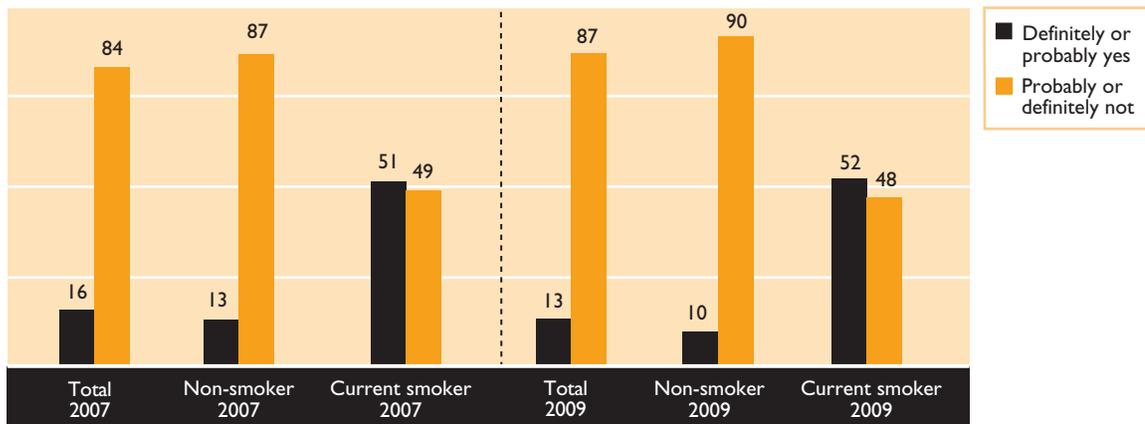
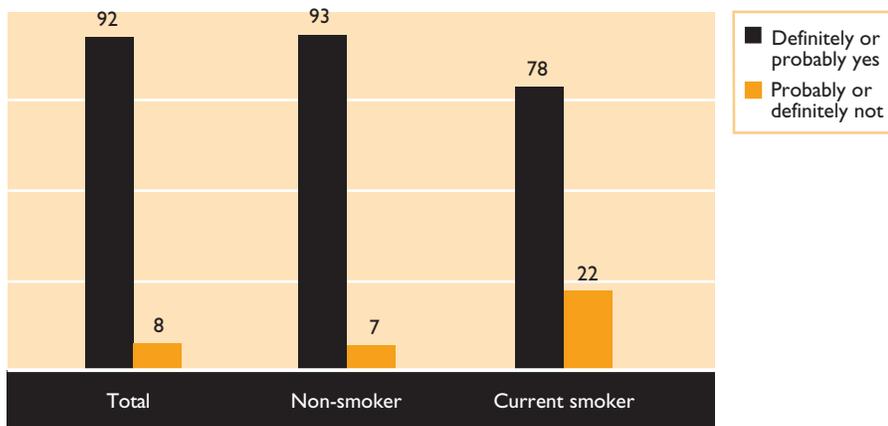


Chart 42. Percent of middle school students who believe people can get addicted to using tobacco just like they can get addicted to cocaine or heroin



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METHODOLOGY

The SDYTS is primarily a surveillance instrument that has some utility for evaluation purposes. Surveillance is the continuous monitoring or routine collection of data on various factors over regular intervals of time. Evaluation is the systematic collection of information about the activities, characteristics, and outcomes of programs to make judgments about the program, improve program effectiveness and/or inform decisions about future program development. The SDYTS findings should be used with care for program evaluation purposes because they constitute only one element of an evaluation of statewide and local efforts to prevent and control tobacco use.

SAMPLING DESIGN

A two-stage cluster sample design was used to produce a representative sample of students in South Dakota. For the middle school sample, the first-stage sampling frame consisted of all public schools containing any of grades 6-8. Fifty-six schools were selected with probability proportional to school enrollment size. The second-stage sampling consisted of systematic equal probability sampling of classes from each school that participated in the survey. All second period classes in the selected schools were included in the sampling frame. All students in the selected classes were eligible to participate in the survey. Passive parental consent was used and all students were provided information about the purpose of the survey and given the option to choose not to participate. All of the sample schools (100 percent) participated and 3,362 of 3,741 sampled students (89.9 percent) completed usable questionnaires. The overall response rate was 89.9 percent (100 percent x 89.9 percent).

The CDC assigned a weight associated with each questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of response. The weighting procedure is a method that helps ensure, based on a set of assumptions, that the sample of students completing the SDYTS actually matches the population of students in South Dakota. The weight used for estimation is determined by the equation:

$$W=W1*W2*f1*f2*f3*f4$$

W1=the inverse probability of selecting the school

W2=the inverse probability of selecting the classroom within the school

f1=a school-level nonresponse adjustment factor calculated by school size category (small, medium, large)

f2=a class adjustment factor calculated by school

f3=a student-level nonresponse adjustment factor calculated by class

f4=a post stratification adjustment factor calculated by gender and grade

The CDC believe that the weighted results used to prepare this report can be used with confidence as a surveillance instrument to make important inferences concerning tobacco use risk behaviors of all regular public school students.

SAMPLING ERRORS

Sampling errors occur when estimates are derived from a sample rather than a census of the population. The sample used for a particular survey is only one of a large number of possible samples of the same size and design that could have been selected. Even if the same questionnaire and instructions were used, the estimates from each sample would differ from the others. This difference, termed sampling error, occurs by chance, and its variability is measured by the standard error associated with a particular survey.

The CDC has calculated confidence intervals for responses to each item. These confidence intervals are generated by a process that captures the true population percentage 95 percent of the time.

The data presented in this report take the sampling error and confidence interval into account whenever differences are present between males and females, grade levels or over time. In many cases, the differences that are present may be due to a sampling error. The authors have been careful to note this possibility when differences occur.

APPENDIX B

Appendix B is CDC results with unweighted responses and weighted percentages.



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