

2006 National Youth Tobacco Survey and Key Prevalence Indicators

Four of the national health objectives for 2010 are to reduce the prevalence among high school students of current use of any tobacco product, cigarettes, smokeless tobacco, and cigars (<http://www.healthypeople.gov/Document/pdf/Volume2/27Tobacco.pdf>). CDC's National Youth Tobacco Survey (NYTS), which has been conducted in 1999, 2000, 2002, 2004, and 2006, provides estimates of current use of tobacco products among middle school and high school students. This report summarizes data from the 2006 NYTS and describes changes in tobacco use since 2004. From 2004-2006, middle school students reported significant declines overall in current use of any tobacco product, cigarettes, cigars, and bidis, but not in current use of smokeless tobacco, pipes, or kreteks ([Table 1](#)). No significant changes overall in use of tobacco products were observed among high school students during this period ([Table 2](#)). These findings underscore the need to fully implement evidence-based strategies effective in preventing youth tobacco use (e.g., increasing the retail price of tobacco products, implementing sustained anti-tobacco media campaigns, and community interventions to decrease minors' access to tobacco as part of comprehensive tobacco-control programs) (<http://www.thecommunityguide.org/tobacco>).

The sampling frame for the 2006 NYTS consisted of mainstream U.S. public and private schools and was stratified by Census Region, urbanicity, and state; non-Hispanic black, Hispanic and Asian students were oversampled. In the first sampling stage, 91 primary sampling units (PSUs) (e.g., large counties or groups of counties) were selected. In the second sampling stage, 289 schools were selected from these PSUs. Four schools selected in Louisiana became non-operational prior to data collection due to Hurricane Katrina and were subsequently deemed ineligible. Of 285 eligible selected schools, 261 (91.6%) participated in the survey. In the third sampling stage, typically five classes (approximately 125 students) were randomly selected in each school from a required subject area (e.g., English) or a particular class period (e.g., second period classes). Participation was voluntary and anonymous, and school parental permission procedures were followed; students recorded their responses in a self-administered computer-scannable booklet.

Of 30,875 students sampled from the participating schools, 27,038 (87.6%) completed the survey

(12,401 middle school students [grades 6–8], 14,489 high school students [grades 9–12], and 148 students unclassified with respect to grade), yielding an overall response rate (school response rate multiplied by student response rate) of 80.2%. Data were weighted to be nationally representative. Statistical software was used to compute 95% confidence intervals for tobacco use prevalence estimates. Significant differences during 2004–2006 were assessed using two-tailed t–tests at $p < 0.05$ significance level. Only subgroup comparisons that were statistically significant are reported. Current use of any tobacco product was defined as having used cigarettes, cigars, smokeless tobacco, pipes, bidis (leaf–wrapped, flavored cigarettes from India), or kreteks (clove cigarettes) on ≥ 1 of the 30 preceding days. Current use of a specific tobacco product was defined as having used that product on ≥ 1 of the 30 preceding days.

In 2006, 9.5% of middle school students reported current use of any tobacco product (Table 1). Cigarettes (6.3%) were the most commonly used product, followed by cigars (4.0%), smokeless tobacco (2.6%), pipes (2.2%), bidis (1.7%), and kreteks (1.4%). During 2004–2006, current use of any tobacco product declined significantly overall among middle school students from 11.8% to 9.5%, as did current use of cigarettes (from 8.4% to 6.3%), cigars (from 5.3% to 4.0%), and bidis (from 2.4% to 1.7%). Among male students, current use of cigars and bidis declined significantly, from 6.7% to 5.3% and from 3.0% to 1.9%, respectively. Among female students, current use of any tobacco product declined significantly from 10.9% to 8.2%, as did current use of cigarettes (from 8.8% to 6.4%), cigars (from 3.8% to 2.7%), smokeless tobacco (from 1.9% to 1.2%), and pipes (from 1.9% to 1.3%). Among white students, current use of cigars and bidis declined significantly, from 4.4% to 3.1% and from 1.9% to 1.2%, respectively. Among Hispanic students, current use of any tobacco product declined significantly from 15.1% to 10.9%, as did current use of cigarettes (from 9.9% to 6.8%) and cigars (from 8.2% to 6.1%).

In 2006, 25.6% of high school students reported current use of any tobacco product (Table 2). Cigarettes (19.7%) were the most commonly used product, followed by cigars (11.8%), smokeless tobacco (6.1%), pipes (3.7%), bidis (2.9%), and kreteks (2.8%). There were no significant declines overall among high school students in use of any tobacco product or the use of specific tobacco products during 2004–2006. Among female students, current cigarette use declined significantly from 21.8% to 18.4% and bidi use significantly increased from 1.6% to 2.4% during this period. Among Asian students, current

cigarette use declined significantly from 11.3% to 7.3%.

Comment: Cigarette, cigar, and bidi use accounted for two-thirds of current tobacco use among middle school students in 2006. After showing no change from 2000-2002 and from 2002-2004, current use of these three products, and of any tobacco product ([Figure](#)), declined significantly during 2004-2006. Notably, prevalence rates for these indicators decreased by 19.5%-29.2% during this period. However, middle school students again showed no significant changes in current use of smokeless tobacco and kreteks. Among high school students, the stalling of the overall downward trend in current cigarette smoking that began during the late 1990s as observed by the NYTS and other national surveys continues (1, 2). Also continuing is the complete absence of any significant changes in smokeless tobacco and pipe use. Further, when rates are considered from one data reporting period to the next, significant changes in current tobacco use have not been seen among high school students since 2002 ([Figure](#)).

Cigarette smoking among adolescents declined dramatically during 1997-2002 (1, 2, 3), and then abruptly slowed (1, 2, 4). Several factors might be contributing to this pattern. Total statewide comprehensive tobacco prevention and control program (TCP) expenditures increased rapidly after the 1998 Master Tobacco Settlement Agreement (MSA), peaking at \$749.7 million in 2002 (5). However, TCP expenditures then declined by more than one-fourth during 2002-2006, dropping to \$551 million (5). In particular, funding for counter-marketing media campaigns shown to prevent youth smoking initiation declined substantially after 2002 (5). Further, tobacco industry marketing (TIM) expenditures more than doubled during 1998-2003 (from \$6.9 billion to \$15.4 billion, respectively) then slowed (5), leaving TIM expenditures at a level approximately 24 times higher than TCP expenditures (<http://www.ftc.gov/reports/tobacco/2007cigarette2004-2005.pdf>). Moreover, since the MSA, tobacco companies appear to have refocused their marketing resources on young adults (age 18-24 years) through the use of promotional activities and related advertising (6). Tobacco industry documents report this as being a means to also encourage the initiation or the progression of smoking (7) among older teens who hold young adults as their primary role models (8) and share very similar interests with regards to the venues through which the industry most heavily targets young adults: concerts, clubs, festivals, and magazine readership (6). Accordingly, young teens (age 12-14 years) have been found to be significantly

less like than both older teens (age 15-17 years) and young adults to be aware of pro-tobacco print advertising, whereas older teens reported the same awareness level as did young adults (6). Likewise, young teens were found to be significantly less like than both older teens and young adults to attend events and establishments where pro-tobacco advertising and promotion that target young adults may be present (6). While there is not a ready explanation at this time for the recent significant declines in tobacco use seen among middle school students, these younger students' significantly lower level of exposure to pro-tobacco advertising and promotion may, at least in part, explain this decline. Lastly, after the retail price of cigarettes increased by approximately 86% during 1998-2002, it then only increased by 20% during 2002-2006 (9). Moreover, price discounts accounted for approximately three-fourths of TIM expenditures (<http://www.ftc.gov/reports/tobacco/2007cigarette2004-2005.pdf>), weakening the effect of state tobacco excise tax increases proven to reduce tobacco use prevalence among youth (10).

The findings in this report are subject to two limitations. First, these data apply only to youth who attended middle school or high school. Among persons aged 15–17 years in the United States, approximately 5% were not enrolled in a high school program and had not completed high school in 2005 (<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007059>). Second, the questionnaire was offered only in English. Thus, comprehension might have been limited for students with English as a second language.

Preventing initiation and promoting cessation among adolescents is critical to ending the tobacco use epidemic in the United States. The significant decline in youth smoking prevalence seen during 1997-2002 was a public health success, and the large recent declines in current tobacco use among middle school students may be signs of hope for the future. Countering this, however, the continued lack of change in current use of smokeless tobacco among middle school students, the lack of change in current use of any tobacco product, cigarettes, cigars, smokeless tobacco, pipes, bidis, and kreteks among high school students since 2002, the profound gap between CDC recommended and actual TCP funding levels and between TCP and TIM funding levels, and the inherent impracticability of tobacco companies targeting young adults without also reaching a substantial portion of the teenage population ≤ 17 years of age (6) are all cause for concern. Taken together, these patterns suggest that enhanced and sustained comprehensive tobacco control efforts are needed to further reduce tobacco use prevalence. In order to

accelerate progress in ending the tobacco epidemic, the Institute of Medicine has called for policy and programmatic initiatives that include funding of state tobacco prevention and control activities at CDC recommended levels, increasing tobacco excise taxes, governmental regulation over the manufacturing and marketing of tobacco products, and sustained counter-marketing media campaigns (<http://www.iom.edu/Object.File/Master/43/183/Tobacco%20report%20brief%20general.pdf>). Likewise, ongoing and effective surveillance and evaluation of tobacco use among youth are essential for monitoring whether declines noted among middle school students continue as they age into high school.

References

1. CDC. Cigarette use among high school students—United States, 1991-2005. *MMWR* 2006;55(26):724-6.
2. Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE. Monitoring the Future national results on adolescent drug use: Overview of key findings, 2006. (NIH Publication No. 07-6202). Bethesda, MD: National Institute on Drug Abuse; 2007.
3. CDC. Tobacco use among middle and high school students—United States, 2002. *MMWR* 2003;52(45):1096-8.
4. CDC. Tobacco use, access, and exposure to tobacco in media among middle and high school students—United States, 2004. *MMWR* 2005;54(12):297-301.
5. Campaign for Tobacco-Free Kids, American Heart Association, American Cancer Society, American Lung Association. A broken promise to our children: the 1998 state tobacco settlement nine years later. Washington, DC: National Center for Tobacco-Free Kids; 2007. Available at <http://tobaccofreekids.org/reports/settlements/2008/fullreport.pdf>.
6. Niederdeppe J, Lindsey D, Girlando M, Ulasevich A, Farrelly MC. First Look Report 12. Exposure to pro-tobacco messages among teens and young adults: Results from three national surveys. Washington, DC: American Legacy Foundation; 2003. Available at http://www.americanlegacy.org/PDFPublications/fl_12.pdf.
7. Rigotti NA, Moran SE, Wechsler S. US college students' exposure to tobacco promotions: Prevalence and association with tobacco use. *Am J Public Health* 2005;95(1):138-44.
8. Ling, PM, Glantz S A. Why and how the tobacco industry sells cigarettes to young adults: Evidence from industry documents. *Am J Public Health* 2002;92(6):908-16.
9. US Department of Labor. Consumer price index—all urban consumers. U.S. city average, cigarettes. Washington, DC: US Department of Labor, Bureau of Labor Statistics; 2006. Available at <http://data.bls.gov/PDQ/outside.jsp?survey=cu>.
10. Farrelly MC, Davis KC, Haviland L, Messeri P, Heaton CG. Evidence of a dose-response relationship between "truth" antismoking ads and youth smoking prevalence. *Am J Public Health* 2005;95:425-31.