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## Teen smoking continues to decline in 2013

ANN ARBOR—Smoking among teens in grades 8, 10 and 12 continued to decline in 2013—a positive trend since most smokers begin their habit in adolescence—according to the latest survey results from the nationwide Monitoring the Future study.

Based on annual surveys of 40,000 to 50,000 students in about 400 secondary schools, the researchers found that the percentage of students saying that they smoked at all in the prior 30 days fell for the three grades combined, from 10.6 percent to 9.6 percent—a statistically significant drop.

"This year's decline means that the number of youngsters actively smoking has dropped by almost one-tenth over just the past year, and it follows a decline of about the same magnitude last year," said Lloyd Johnston, the principal investigator of the study. "Since the peak year in 1997, the proportion of students currently smoking has dropped by two thirds—an extremely important development for the health and longevity of this generation of Americans."

Such a reduction can translate eventually into preventing thousands of premature deaths as well as tens of thousands of serious diseases, he said. More than 400,000 Americans per year are estimated to die prematurely as a result of smoking cigarettes.

An increase in the federal tax on tobacco products, instituted in 2009, may have contributed to the recent declines in smoking in this age group, according to the investigators.

The Monitoring the Future study, which has been tracking teen smoking in the United States for nearly four decades, found that between 2012 and 2013 the percentage of students reporting any cigarette smoking in the prior 30 days (called 30-day prevalence) has decreased among 8th graders from 4.9 percent to 4.5 percent, among 10th graders from 10.8 percent to 9.1 percent, and among 12th graders from 17.1 percent to 16.3 percent (the decline in 30-day prevalence between 2012 and 2013 is statistically significant for 10th graders and for all three grades combined; longer term declines, like teen smoking, across the past five years are highly statistically significant in all grades.)

"While the improvements in the smoking numbers for just this one year are important, of course, the longer term declines are much more so," Johnston said. "Since teen smoking reached a peak around 1996-1997, the rates of current (past 30-day) smoking have fallen by nearly 80 percent among 8th graders, 70 percent among 10th graders and over 50 percent among 12th graders. Further, the proportional declines in *daily* smoking are even larger."

One important cause of these declines in current smoking is that many fewer young people today have ever started to smoke. In 1996, 49 percent of 8th graders said they had tried cigarettes, but

by 2013 only 15 percent said they had done so—a drop of seven-tenths in smoking initiation over the past 17 years. Further, the initiation of smoking continues to fall significantly among students.

These estimates come from the study's national surveys of students in about 400 secondary schools each year. The study was designed and is directed by a team of research professors at the University of Michigan's Institute for Social Research, and since its inception has been funded through research grants from the National Institute on Drug Abuse—one of the National Institutes of Health.

***Perceived Availability.*** Students in 8th and 10th grades are asked how difficult they think it would be for them to get cigarettes, if they wanted them. This *perceived availability* has shown a substantial decline since 1996, one that has continued into 2013. The 8th graders have shown the sharpest decline—from 77 percent saying they could get cigarettes "fairly easily" or "very easily" in 1996 to 50 percent today. Perceived availability among 10th graders fell from about 90 percent to 70 percent over the same interval.

"Although some real progress has been made in reducing the availability of cigarettes to those who are underage—particularly to the youngest teens—it is clear that the majority of teens still think they can get cigarettes fairly easily," Johnston said.

***Attitudes and Beliefs about Smoking.*** Nearly two thirds of 8th graders and about three quarters of 10th and 12th graders said they see a great risk of harm to the user from pack-a-day smoking. These figures have increased substantially since the mid-1990s, when perceived risk was at its recent lowest levels. The 2012 figures were the highest ever recorded for all three grade levels; however, perceived risk did not continue to rise in 2013. The percentages of teens saying that they personally *disapprove* of smoking were also at the highest levels seen in this study in 2012—89 percent, 86 percent and 84 percent for grades 8, 10 and 12 respectively—but this attitude has shown no further increase in 2013 either.

Other attitudes toward smoking and smokers have changed in important ways, especially during much of the period of decline in cigarette use. These changes include increases in preferring to date nonsmokers (currently around 78 percent of teens report this preference, down very slightly from last year), strongly disliking being around people who are smoking, thinking that becoming a smoker reflects poor judgment, and believing that smoking is a dirty habit. All of these negative attitudes about smoking and smokers rose to high levels by 2007, but they have either leveled or begun to reverse since then (Table 3).

"The halt in the increases in perceived risk and disapproval of smoking are not good signs, nor is the softening in other attitudes related to smoking," Johnston said. "As a result, future progress in lowering teen smoking rates is likely to depend on there being further changes in the external environment—such as raising cigarette taxes, further limiting where smoking is permitted, bringing back broad-based anti-smoking ad campaigns, and making quit-smoking programs more available."

## **Other Tobacco Products**

At the same time that cigarette smoking has been receding among young people, a number of other forms of tobacco consumption are being introduced into the market. Public health professionals worry that, with aggressive marketing and fewer federal controls, these other forms of tobacco consumption will begin to offset the hard-won gains in cigarette smoking.

***Smokeless Tobacco.*** The use of smokeless tobacco (which includes snuff, plug, dipping tobacco, chewing tobacco, and more recently, "snus") also is assessed in the study ("snus" is singular and rhymes with "goose"). From the mid-1990s to the early 2000s, there was a substantial decline in the use of smokeless tobacco among teens—30-day prevalence fell by one third to one half in all grades—but the declines ended and a rebound in use developed from the mid-2000s through 2010.

After 2010, however, there were modest declines in all three grades for a couple of years, although they did not continue into 2013 (none of the changes for smokeless tobacco use in 2013 is statistically significant at any grade level). Thirty-day prevalence rates are now down by nearly two thirds (63 percent) from their peaks in the mid-1990s among 8th graders, and by nearly four-tenths among 10th graders and one third among 12th graders. Thirty-day prevalence rates for smokeless tobacco use in 2013 are 2.8 percent, 6.4 percent and 8.1 percent among 8th, 10th and 12th graders, respectively. The rates in each of the three grades are considerably higher for boys (3.8 percent, 11.1 percent and 14.6 percent) than for girls (1.9 percent, 2.0 percent and 1.4 percent).

Perceived risk, which MTF has shown to be an important determinant of trends for many forms of substance use, including cigarette use, also appears to have played an important role in the decline of smokeless tobacco use. In all three grades, perceived risk for smokeless tobacco rose fairly steadily from 1995 through 2004, as use was falling.

However, there was not a great deal of fall-off in perceived risk subsequently, between 2004 and 2010, suggesting that other factors may have led to the increases in smokeless tobacco use in that time interval. These factors might include increased promotion of these products, a proliferation of types of smokeless tobacco products available and increased restrictions on places where cigarette smoking is permitted.

The leveling in smokeless use since 2010 may be attributable, at least in part, to the 2009 increase in federal taxes on tobacco. However, perceived risk for smokeless tobacco declined significantly in 2012 in the lower grades and has fallen again in 2013—this time in all three grades—which the investigators believe could portend a future rise in use.

***Hookahs and Small Cigars.*** Two of the latest developments to raise public health concern are the smoking of tobacco by using hookah (pronounced "WHO-ka") water pipes, and the smoking of small or little cigars. The concern is that as cigarette smoking continues to decline among adolescents, they will be enticed to smoke tobacco in these other forms, which still carry serious health risks.

Questions about these forms of tobacco use in the prior 12 months (annual prevalence) were included in the survey of 12th graders for the first time in 2010, when 17.1 percent of 12th graders said that they had used a hookah to smoke tobacco in the prior 12 months. This rate has risen to 21.4 percent by 2013, including a significant 3.1 percentage-point increase in 2013. Only about 9 percent of 12th-grade students in 2013 reported smoking with a hookah more than five times during the year, suggesting a considerable amount of light or experimental use. Males had only a slightly higher annual prevalence rate than females—22 percent versus 21 percent.

Smoking small cigars is about as prevalent a behavior as hookah smoking, with 12th graders having an annual prevalence of 20 percent in 2013. This is unchanged from 2011 and 2012 and is lower than the first reading on these products in 2010 (23 percent). Only 12 percent of 12th-grade students in 2012 or 2013 indicate use on more than two occasions during the year, and only 2 percent indicate using them more than 20 times. There is a larger gender difference for this form of tobacco use than for hookah smoking, with an annual prevalence of 27 percent among male 12th graders compared to 15 percent among females.

"We are continuing to monitor these two forms of tobacco consumption to see if they represent a growing problem among youth, and we will be examining their use among young adults, as well," Johnston said.

One important development is that some manufacturers have slightly raised the weight of their small cigars in order to remove them from FDA oversight under current law, he said. A number are flavored, for example, which is likely to make them more attractive to young people. And the slight rise in weight substantially lowers the federal tax.

***Snus and Dissolvable Tobacco.*** In 2011, questions were introduced dealing with two more recent forms of tobacco use—snus and dissolvable tobacco. The question about snus—a moist form of snuff that is placed under the upper lip—asks on how many occasions in the past 12 months the student "...used snus (a small packet of tobacco that is put in the mouth)." Among 12th graders in 2011, 7.9 percent reported having used snus in the last 12 months—a rate that remained essentially unchanged in 2012 (7.9 percent) and 2013 (7.7 percent). The proportion using more than two times is 5.3 percent in both 2012 and 2013.

Clearly, snus has made some inroads among 12th graders, but that seems to be abating, Johnston said. In 2012, the question about use of snus was added to the questionnaires administered to 8th and 10th graders, and in 2013 a significant decline in use is evident among 10th graders (down 1.7 percentage points to 5.2 percent). The pattern of use by subgroups of 12th-grade students follows the pattern for all smokeless products generally, with use much higher among males (14.6 percent versus 1.4 percent among females).

The question about dissolvable tobacco products asks on how many occasions in the past 12 months the student "... used dissolvable tobacco products (Ariva, Stonewall, Orbs)." These products, in the form of pellets, strips or sticks, actually dissolve in the mouth, unlike other forms of chewing tobacco. Among 12th graders in 2011, only 1.5 percent reported having used in the prior 12 months. In 2012 it was 1.6 percent, and in 2013 it was 1.9 percent. Since the question was introduced for the lower grades in 2012, the annual prevalence rates in 2013 show little

change, currently at 1.1 percent for grade 8 and 1.2 percent for grade 10. It appears that these products have not yet made significant inroads among secondary school students.

Tables and figures associated with this release may be accessed at:

<http://www.monitoringthefuture.org/data/data.html>

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The findings summarized here will be published in January in a forthcoming volume: Johnston, L. D., O'Malley, P. M., Miech, R.A., Bachman, J. G., & Schulenberg, J. E. (2014). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2013*. Ann Arbor, Mich.: Institute for Social Research, the University of Michigan. The content presented here is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Drug Abuse, or the National Institutes of Health.

This year's findings on drug use are presented in a separate companion press release to this one:

<http://www.monitoringthefuture.org/press.html>