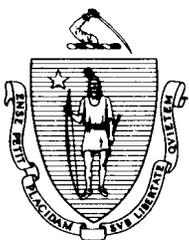


Youth Tobacco Use in Massachusetts

Survey Results from 1993 to 2011



The Commonwealth of Massachusetts
Department of Public Health
Department of Elementary and Secondary Education

January 2013

Make smoking history.



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Executive Summary

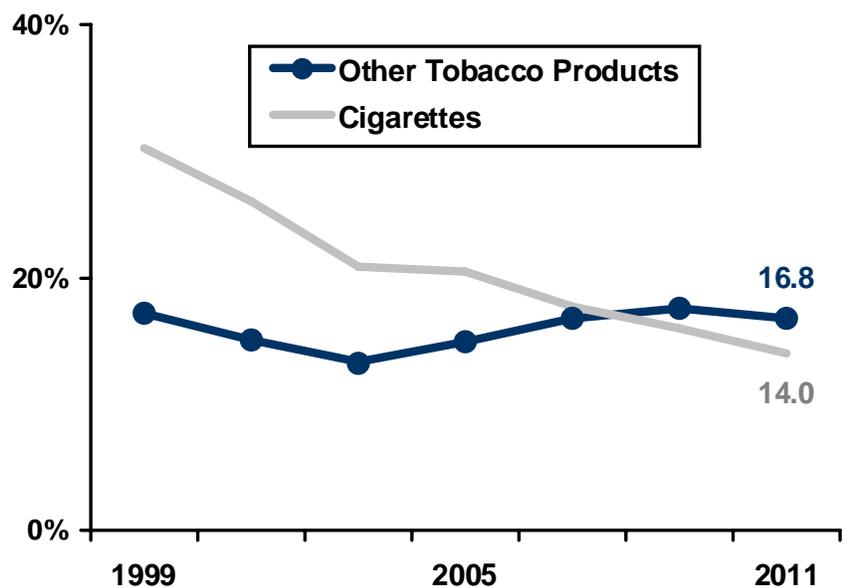
Tobacco use causes 8,000 deaths in Massachusetts each yearⁱ. Eighty-two percent of current adult smokers in Massachusetts smoked their first cigarette before age 19ⁱⁱ. For every smoker who dies from cigarettes, two people under age 26 begin smoking.

Research shows that the earlier young people begin to smoke, the more likely they are to become addicted to cigarettesⁱⁱⁱ. Recent studies sponsored by the National Institute on Drug Abuse (NIDA) on brain functioning suggest not only that smoking may be more addictive when initiated during adolescence, but that it may heighten response to other addictive drugs.^{iv}

In the past 20 years, cigarette use among Massachusetts youth has declined by more than sixty percent. The latest figures from 2011 show that cigarette smoking among Massachusetts high school students has decreased to the lowest level ever recorded of 14%, well below the *Healthy People 2020* national goal of 16%.

Although these are successes to celebrate, new challenges are emerging. Other tobacco products such as cigars and smokeless are gaining popularity with young people. The rate of tobacco product use other than cigarettes was 16.8% among high school students in 2011. That is higher than the rate of cigarette use (see Figure 1).

Figure 1. Current Use of Other Tobacco Products* Among High School Students, MA



* Current OTP use is within the past 30 days Source: MYRBS

***For the first time,
the rate of cigar
use in the past 30
days was higher
than the rate of
cigarette use.***

Little cigars, such as those sold individually in flavors like grape, cherry, and vanilla for less than \$1 apiece, target the youth market. In 2011, for the first time, the rate of high school students' cigar use in the past 30 days (14.3%) was higher than the rate of cigarette use (14.0%), although this difference is not statistically significant. Among male students in 12th grade, 27% reported cigar use within the past 30 days.

Massachusetts is fortunate to have a strong group of committed youth, professionals, volunteers, businesses, and organizations who are working diligently to achieve an environment where all people can live tobacco-free. Thank you for helping with this important work. Together, let's make smoking history in Massachusetts.



Lauren A. Smith, MD, MPH
Interim Commissioner
Department of Public Health



Mitchell D. Chester, Ed.D.
Commissioner
Department of Elementary and Secondary Education

Youth Surveys in Massachusetts

To monitor youth health and risk behaviors, Massachusetts conducts two coordinated statewide surveys: 1) the Massachusetts Department of Elementary and Secondary Education's Youth Risk Behavior Survey (MYRBS); and 2) the Massachusetts Department of Public Health's Youth Health Survey (MYHS).

Massachusetts Youth Risk Behavior Survey

The MYRBS is a high school survey conducted every two years since 1993 by the Massachusetts Department of Elementary and Secondary Education with funding from the Centers for Disease Control and Prevention (CDC). The survey monitors adolescent risk behaviors related to the leading causes of morbidity and mortality among youth and adults. These behaviors include tobacco, alcohol, and other drug use; behaviors related to intentional and unintentional injuries; high-risk sexual behaviors; poor dietary patterns; and lack of physical activity.

The recently released report, *2011 Health and Risk Behaviors of Massachusetts Youth* presents basic trend data for high school students, drawn primarily from the MYRBS, and for middle school students, drawn from the MYHS. An electronic version can be found at <http://www.doe.mass.edu/cnp/hprograms/yrbs/>. More detailed information on the YRBS can be obtained from the Department of Elementary and Secondary Education.

Massachusetts Youth Health Survey

The Massachusetts Youth Health Survey (YHS) is the Massachusetts Department of Public Health's (MDPH) surveillance system to monitor the health of public school students in grades 6 through 12. It is conducted by MDPH in collaboration with the Massachusetts Department of Elementary and Secondary Education. The survey contains health status questions in addition to questions about risk behaviors and protective factors. The Youth Health Survey was administered in 2002, 2004, 2007, 2009, and 2011.

Combined YHS/YRBS file

There were 28 questions that were identical on the high school MYHS and MYRBS. A combined file of these 28 questions was created and utilized for analyses where possible throughout this report. The advantage of the combined sample includes the doubled sample size and increased power of analysis, allowing for analyses that may not have been possible with a smaller sample.

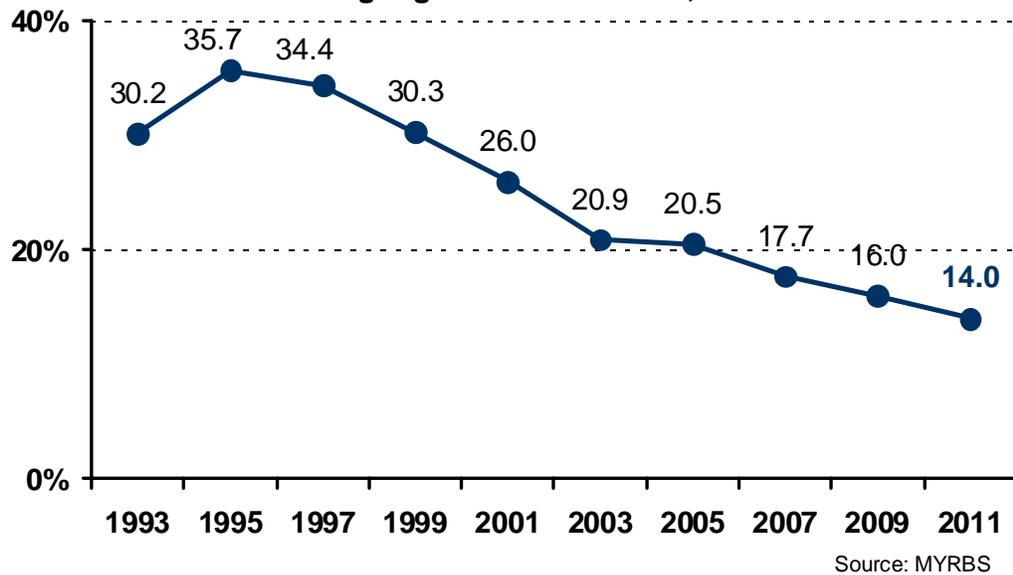
The report, *A Profile of Health Among Massachusetts Middle and High School Students, 2011: Results from the Massachusetts Youth Health Survey (MYHS)*, presents descriptive statistics on the MYHS and is accessible in electronic form at <http://www.mass.gov/eohhs/consumer/community-health/ma-youth-health-survey.html>. A description of the sampling method and participation, as well as the steps taken to combine and re-weight the data are described in Appendix 1 of the full MYHS report.

Cigarette Smoking

High School Students

Cigarette smoking has declined significantly among high school students in Massachusetts. Since reaching 35.7% in 1995, cigarette smoking within the past 30 days (current use) has declined by more than sixty percent (see Figure 2). The percentage of current cigarette smokers was 14.0% in 2011.

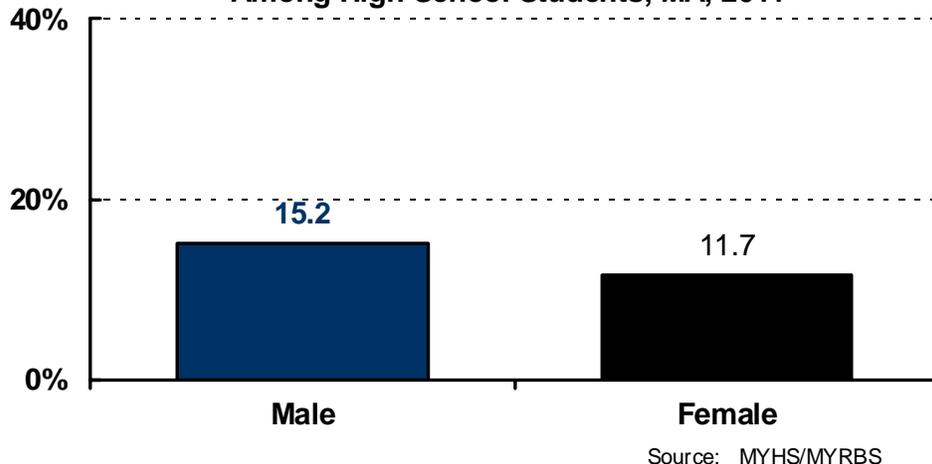
Figure 2. Current Use of Cigarettes Among High School Students, MA



Gender

Current cigarette smoking among male high school students was 15.2% compared to 11.7% for females in 2011 (See Figure 3).

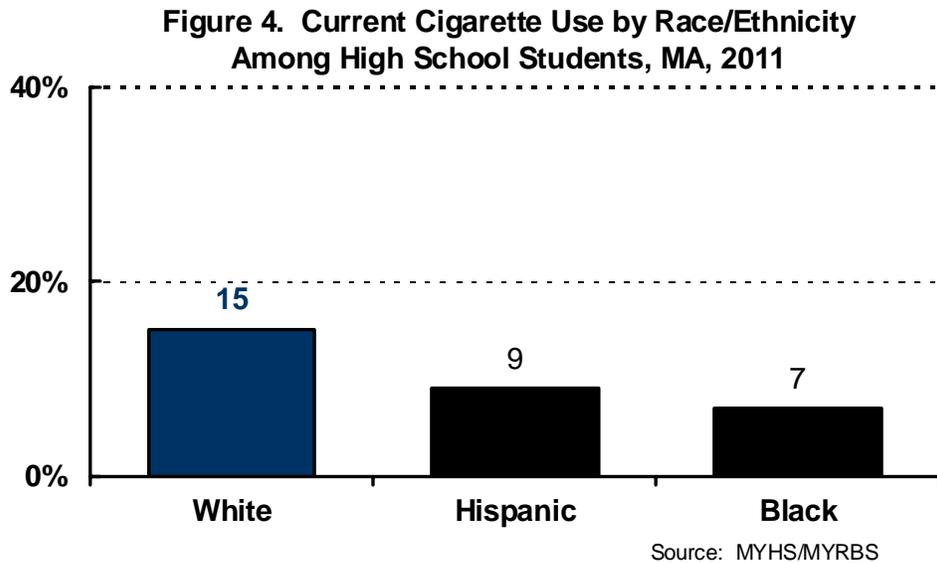
Figure 3. Current Cigarette Use by Sex Among High School Students, MA, 2011



Cigarette Smoking

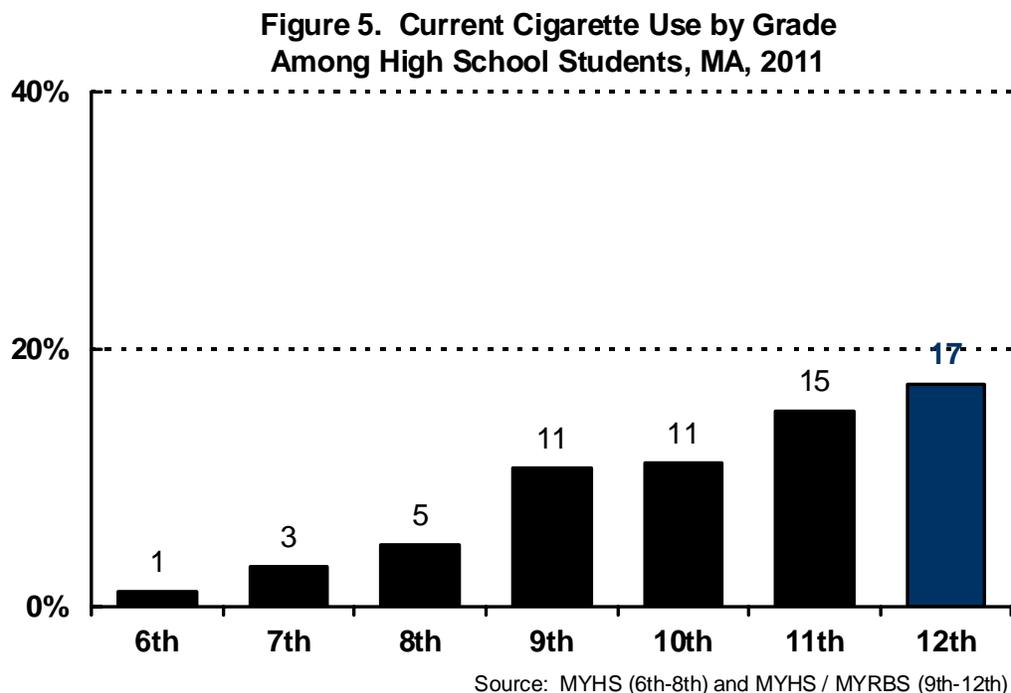
Race/Ethnicity

Fifteen percent of white high school students reported current cigarette use compared to 9% of Hispanic students, and 7% of black students (see Figure 4).



Grade Level

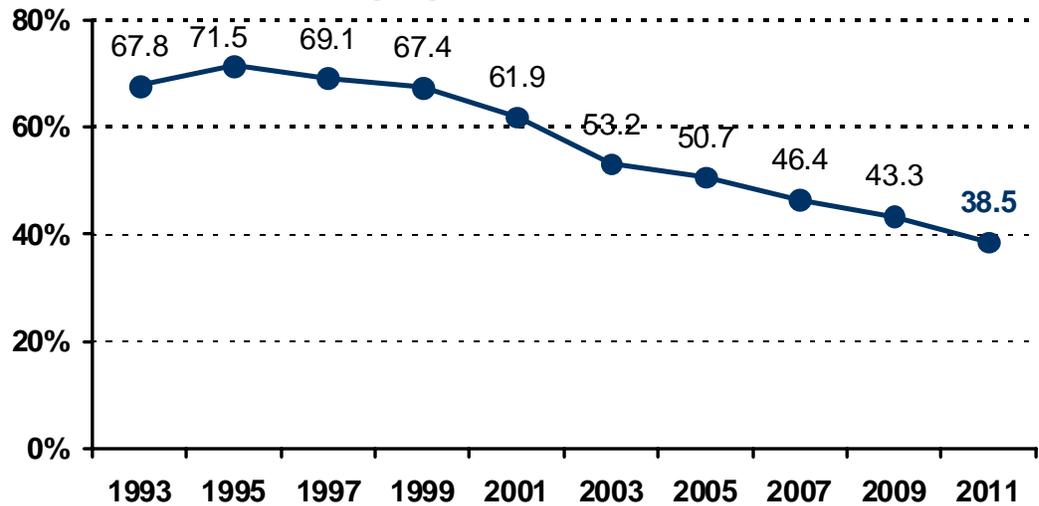
The percentage of current smokers increases as grade level increases. Among twelfth grade students, current cigarette use was 17% in 2011 (see Figure 5).



Cigarette Smoking

The percentage of high school students who have tried smoking cigarettes (lifetime use) was 38.5% in 2011. Since 1995, lifetime use of cigarettes has decreased by forty-six percent (see Figure 6).

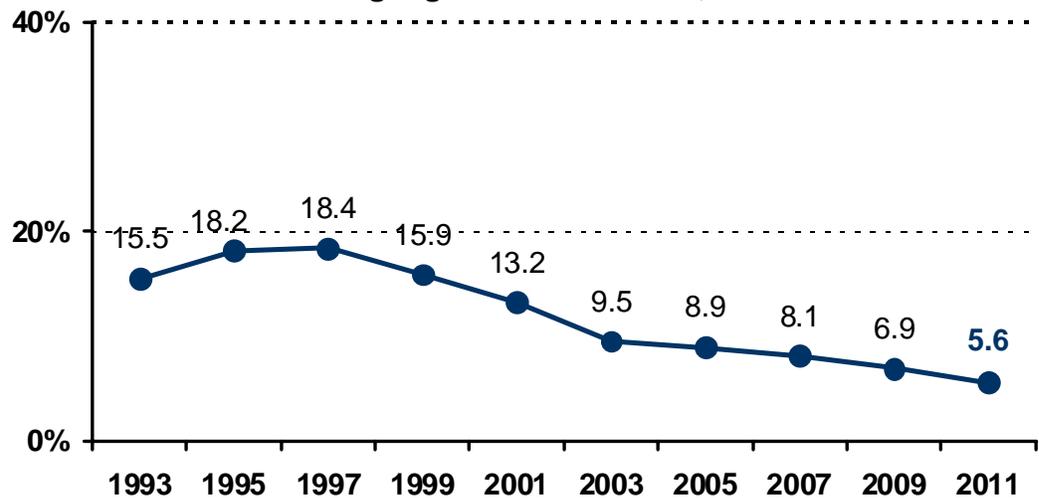
Figure 6. Lifetime Use of Cigarettes Among High School Students, MA



Source: MYRBS

Frequent cigarette smoking (more than 20 of the last 30 days) among high school students decreased to 5.6% in 2011. Since 1995, the percentage of frequent smokers has decreased by sixty-nine percent (see Figure 7).

Figure 7. Frequent Use of Cigarettes Among High School Students, MA



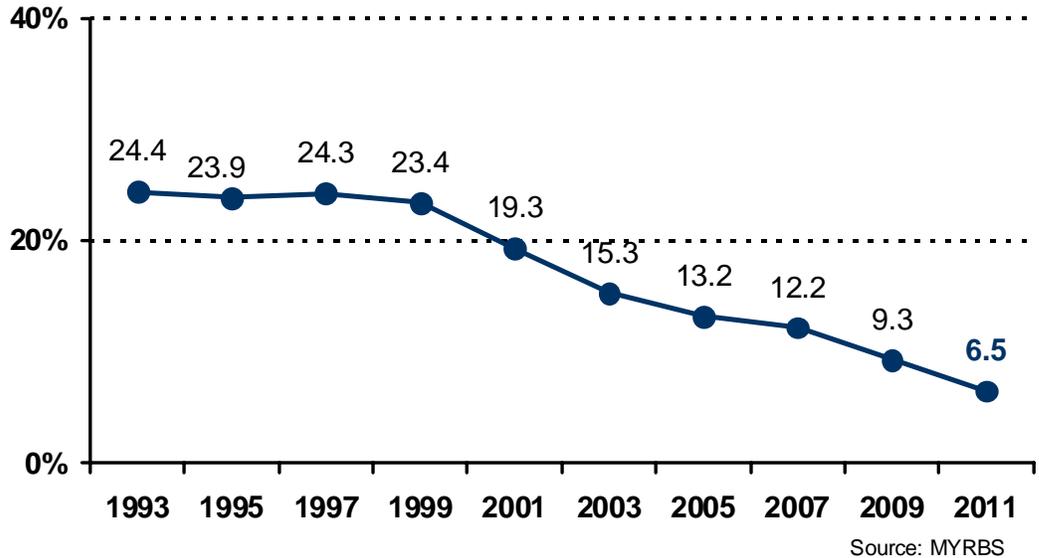
Source: MYRBS

Cigarette Smoking

First Smoked a Whole Cigarette

The percentage of high school students who smoked a whole cigarette before age 13 was 6.5% in 2011. Since 1995, the percentage of students who have reported smoking a whole cigarette before age 13 has decreased by seventy-three percent (see Figure 8).

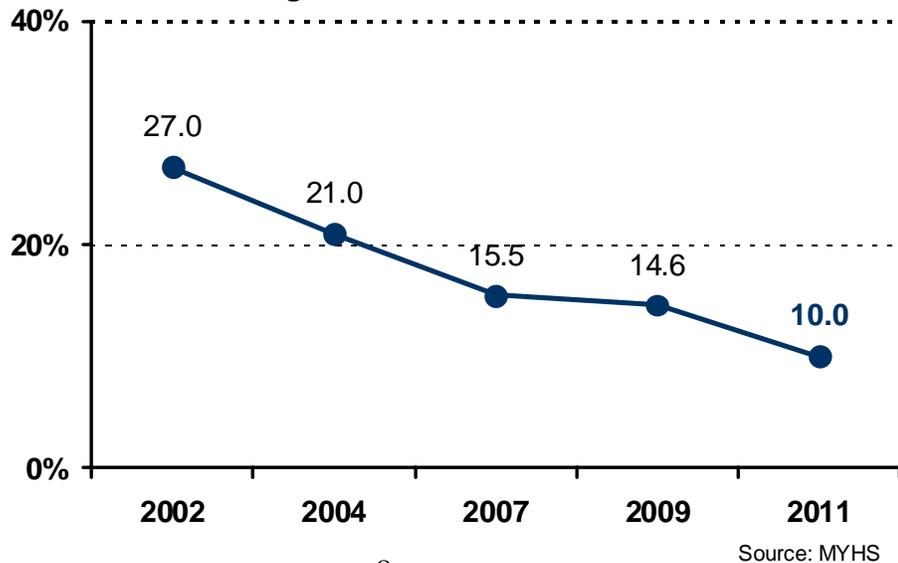
Figure 8. Smoked a Whole Cigarette Before Age 13 Among High School Students, MA



Middle School Students

Cigarette smoking has decreased among middle school students (6th, 7th, and 8th graders) in Massachusetts. The percentage who have tried cigarette smoking (lifetime use) was 10% in 2011. Since 2002, the percentage of lifetime smokers has decreased by sixty-three percent (see Figure 9).

Figure 9. Lifetime Cigarette Smoking Among Middle School Students, MA

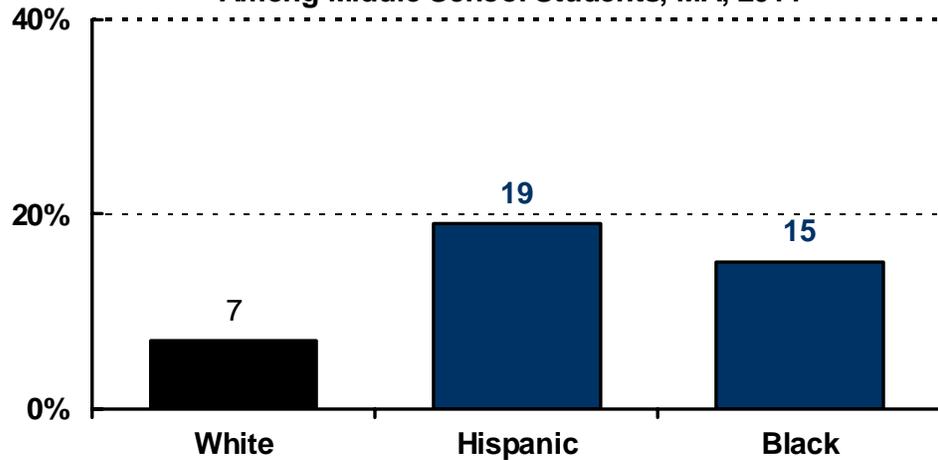


Cigarette Smoking

Race/Ethnicity

The percentage of middle school students who reported lifetime use of cigarettes was 7% for white, non-Hispanic, 19% for Hispanics, and 15% for black, non-Hispanic (see Figure 10).

Figure 10. Lifetime Cigarette Use by Race/Ethnicity Among Middle School Students, MA, 2011

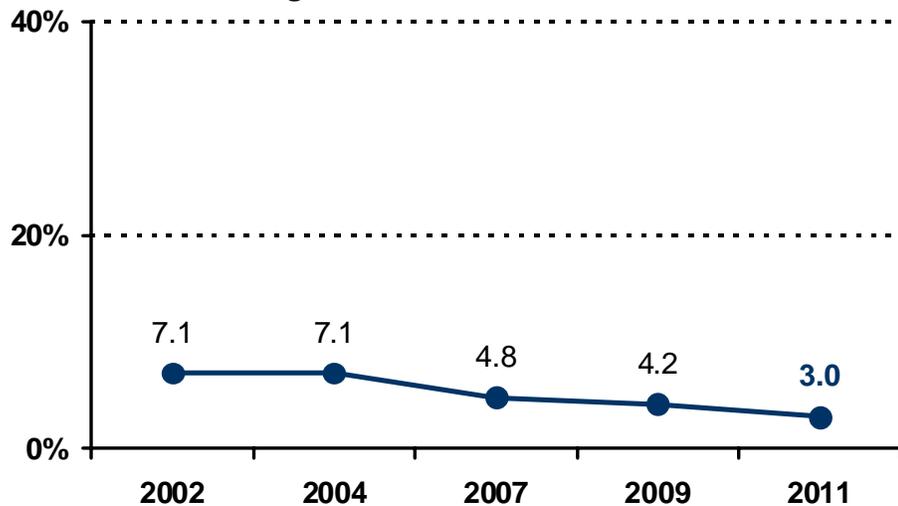


Source: MYHS

Current use of cigarettes

Current cigarette use (past 30 day use) among 6th to 8th grade students was 3.0% in 2011. Since 2002, the percentage of current smokers in middle school has decreased by fifty-eight percent (see Figure 11).

Figure 11. Current Cigarette Smoking Among Middle School Students, MA



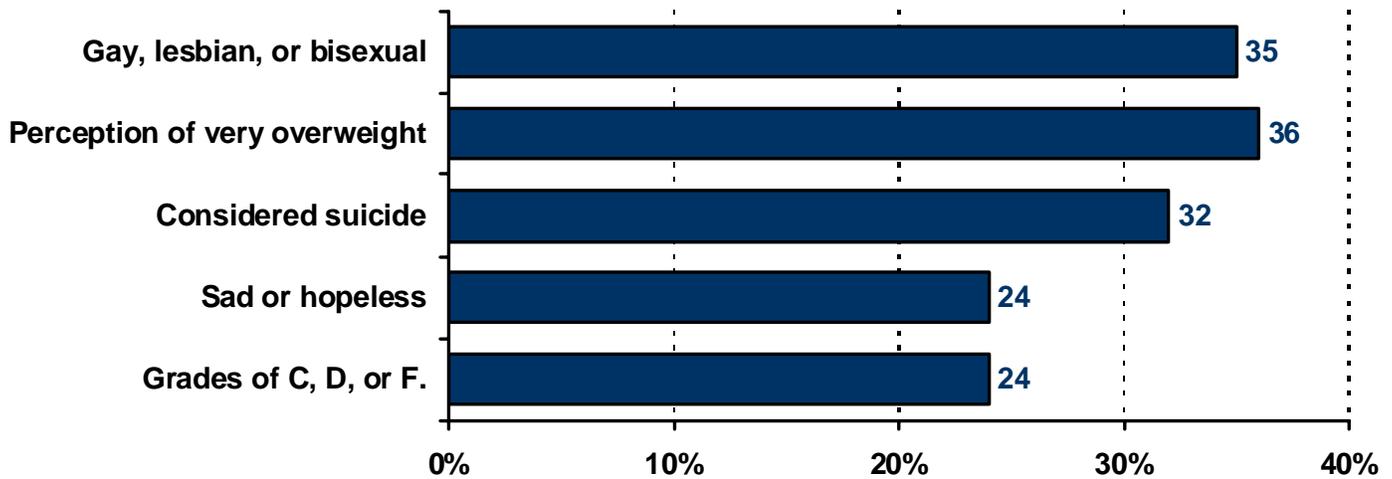
Source: MYHS

Cigarette Smoking

Youth More Likely to Smoke Cigarettes

Certain high school students are more likely to be current cigarette smokers^v. High school students who self-identify as gay, lesbian, or bisexual have a current smoking rate of 35%. Students more likely to be current cigarette smokers are those who perceive themselves as very overweight (36%), considered suicide (32%), felt sad or hopeless (24%), or received academic grades of mostly C's, D's or F's (24%). See Figure 12.

Figure 12. Percentage of Current Cigarette Smokers Among High School Students, MA, 2011

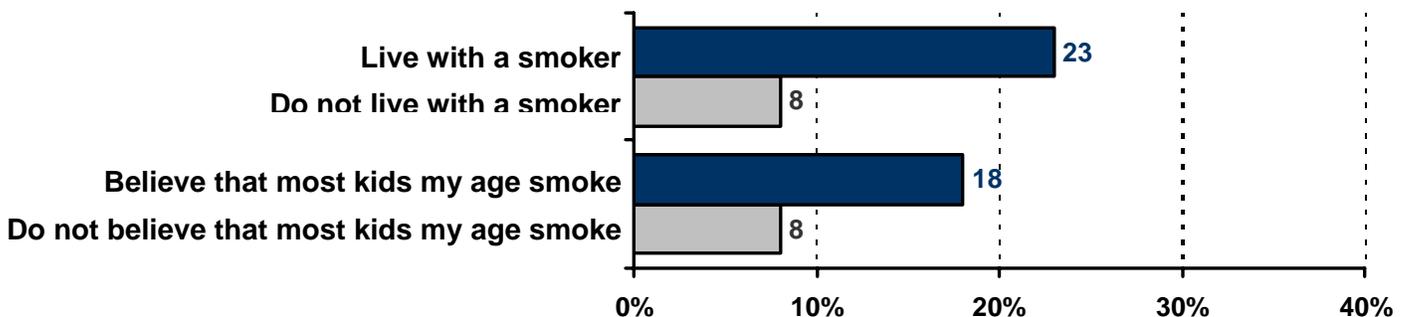


Source: MYHS

Among high school students who live with a smoker, the rate of current smoking is 23% (see Figure 13). The percentage of high school students who live with a smoker has moderately decreased from 37% in 2007 to 34% in 2011.

Students who believe that most people their age smoke cigarettes are more likely to be cigarette smokers themselves (18% are current smokers – see Figure 13). The percentage of high school students who believe that most people their age smoke cigarettes has decreased from 62% in 2007 to 54% in 2011.

Figure 13. Percentage of Current Cigarette Smokers Among High School Students, MA, 2011



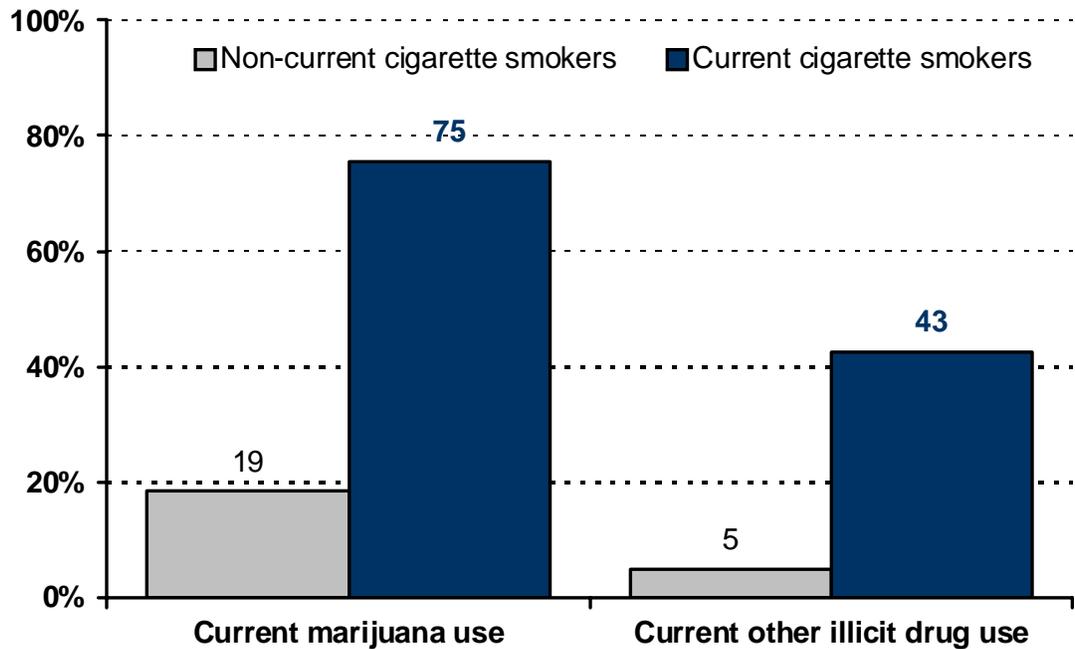
Source: MYHS

Illicit Drug Use

High school students who smoke are more likely to engage in other risky behaviors such as substance abuse (see Figure 14). Compared to high school students who did not smoke cigarettes, current cigarette smokers were:

- about 4 times more likely to report current marijuana use, and
- 8 times more likely to report current other illicit drug use*.

Figure 14. Cigarette Smoking Status and Drug Use Among High School Students, MA, 2011



Source: MYHS

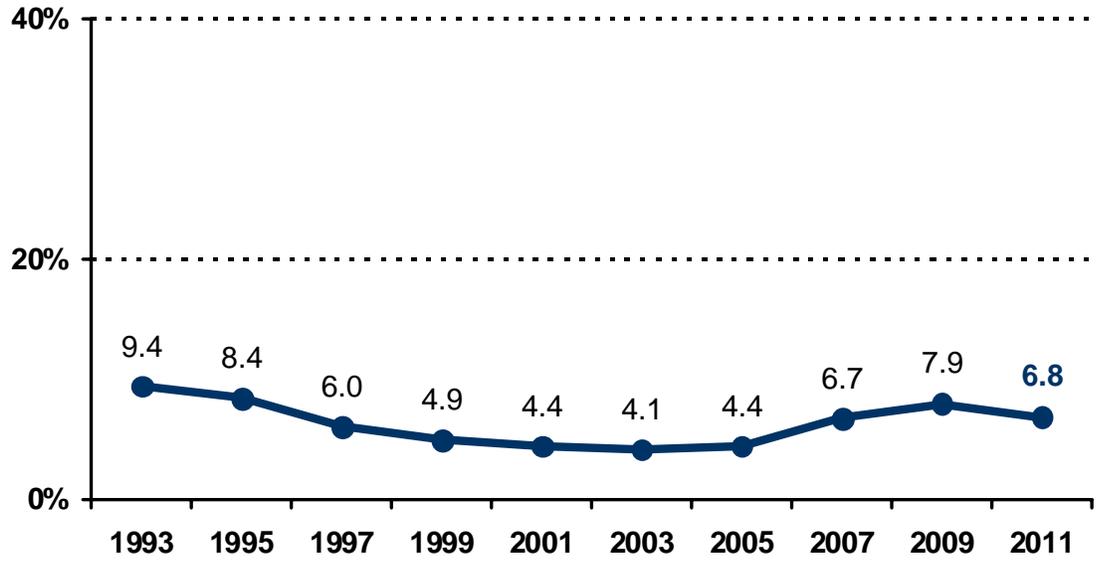
* Other illicit drugs include cocaine, crack, ecstasy, methamphetamines, heroin, inhalants, steroids, or prescription drugs used non-medically such as Ritalin, Oxycontin, methadone, opium, morphine, or codeine.

Other Tobacco Products

Smokeless Tobacco

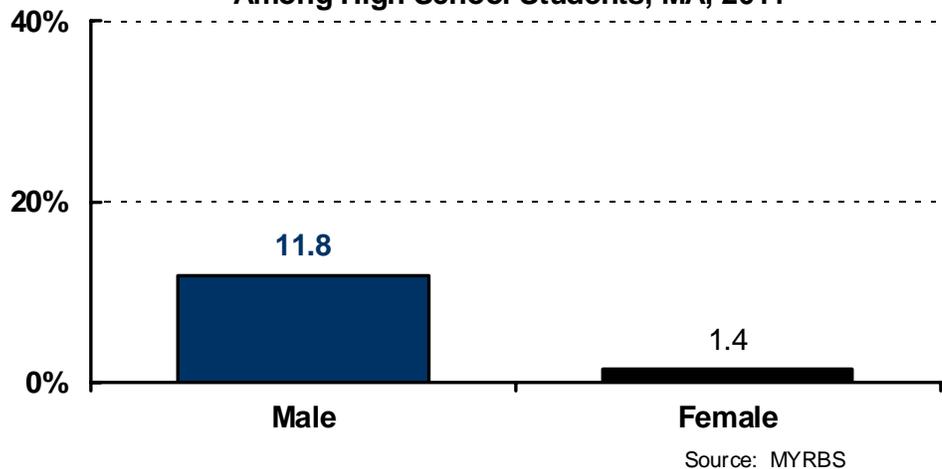
Current smokeless tobacco use - defined as use of chewing tobacco, snuff, dip, or snus within the past 30 days - was 6.8% in 2011 among high school students (see Figure 15). Current smokeless tobacco use declined from 1993 to 2001, but increased from 2003 to 2009 by an average of 14% per year.^{vi} Although not statistically significant, current smokeless tobacco use decreased from 7.9% in 2009 to 6.8% in 2011.

Figure 15. Current Smokeless Tobacco Use* Among High School Students, MA



Among male high school students, current smokeless tobacco use was 11.8% in 2011 compared to 1.4% among females (see Figure 16).

Figure 16. Current Smokeless Tobacco Use by Sex Among High School Students, MA, 2011

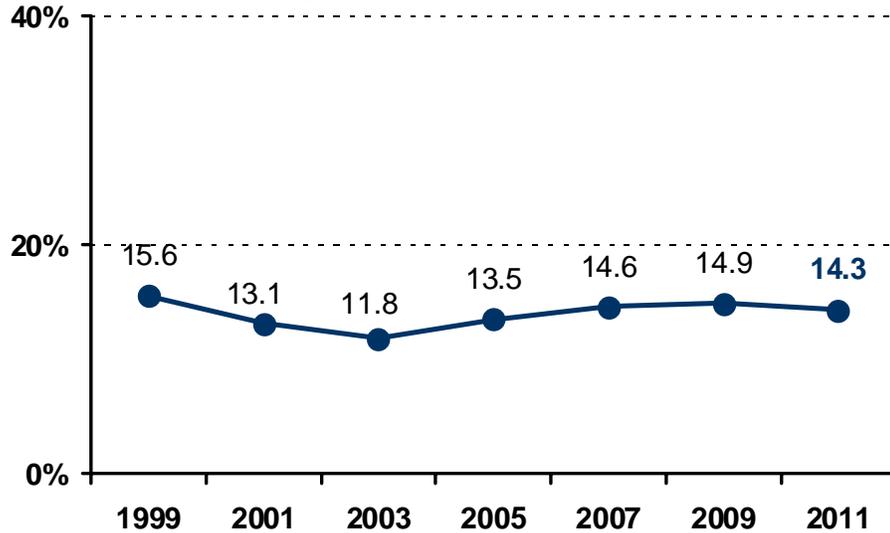


Other Tobacco Products

Cigars

Current cigar use (cigars, cigarillos, or little cigars) among high school students was 14.3% in 2011 (see Figure 17). Current cigar use did not significantly change from 1999 to 2011.

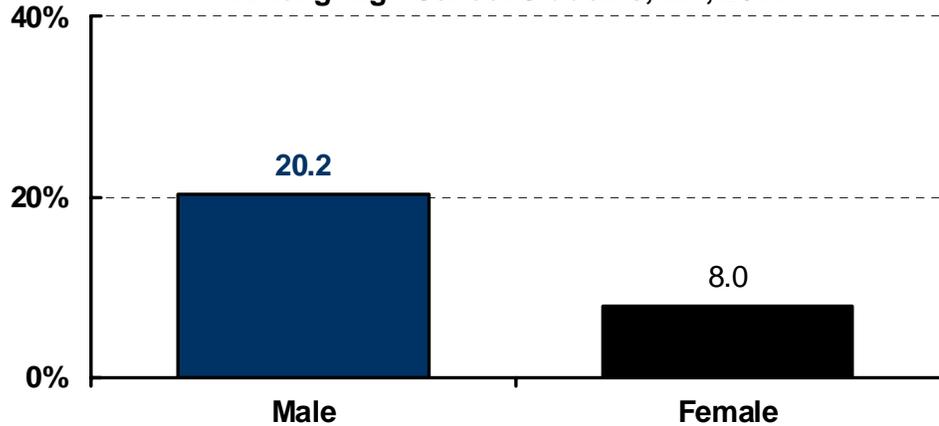
Figure 17. Current Cigar Use Among High School Students, MA



Source: MYRBS

Among male high school students, current cigar use was 20.2% in 2011 compared to 8.0% among females (see Figure 18).

Figure 18. Current Cigar Use by Sex Among High School Students, MA, 2011



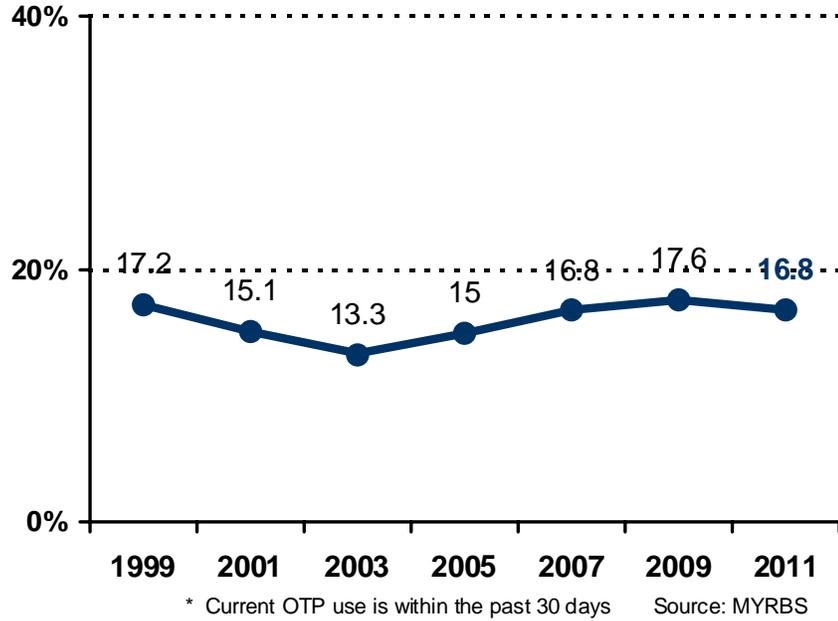
Source: MYRBS

Other Tobacco Products

Other Tobacco Product Use

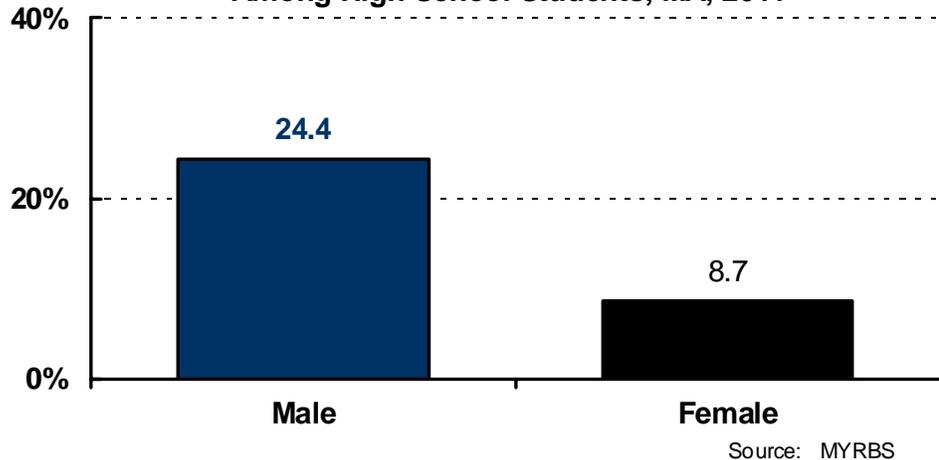
To compare cigarettes to tobacco products other than cigarettes, we use a measure of other tobacco product (OTP) use. Current use of other tobacco products - cigars or smokeless tobacco - in the past 30 days among high school students was 16.8% in 2011 (see Figure 19).

Figure 19. Current Use of Other Tobacco Products* Among High School Students, MA



Among male high school students, current use of other tobacco products was 24.4% compared to 8.7% among females (Figure 20).

Figure 20. Current OTP Use by Sex Among High School Students, MA, 2011

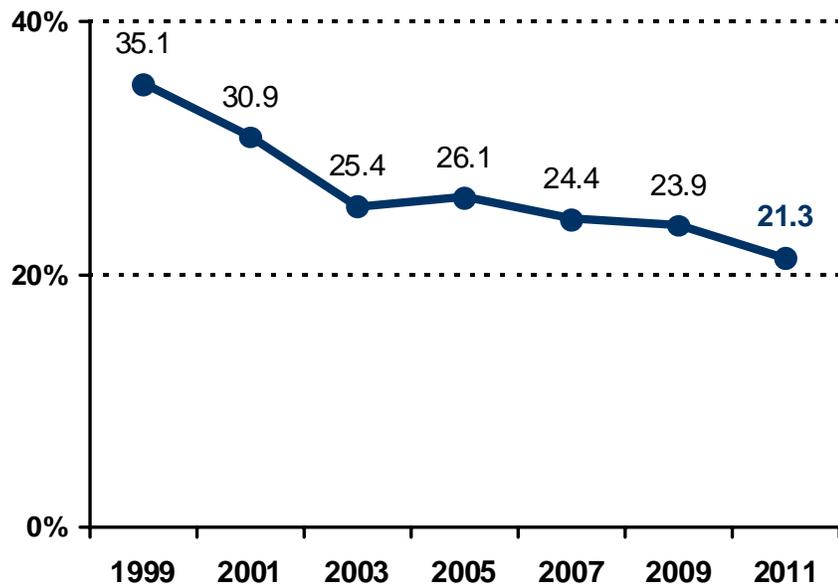


Other Tobacco Products

Any Tobacco Use

Current use of any type of tobacco (cigarettes, cigars, or smokeless tobacco) declined from 1999 to 2003. From 2003 to 2011, the use of tobacco did not change significantly because declines in cigarette use were largely offset by increases in smokeless tobacco use and cigar smoking. Current tobacco use among high school students was 21.3% in 2011 (see Figure 21).

Figure 21. Current Use of Any Tobacco Product* Among High School Students, MA



* Current use of any tobacco is use within the past 30 days Source: MYRBS

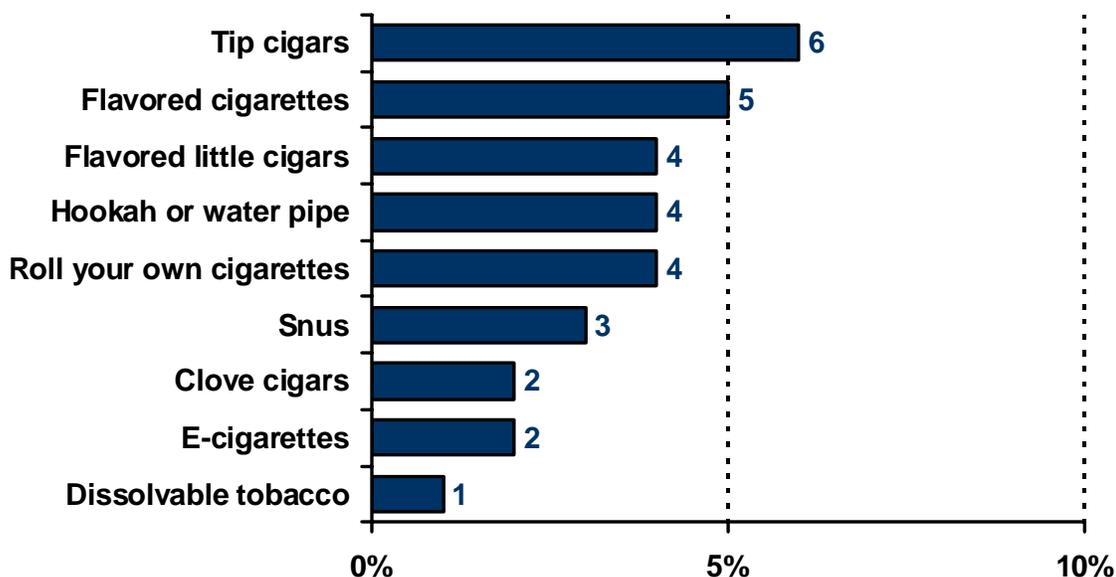
Other Tobacco Products

New Tobacco Product Questions

To get a more accurate assessment of emerging tobacco products, new questions were added to the 2011 Youth Health high school survey on the use of specific tobacco products, such as little cigars, roll your own cigarettes, hookahs, dissolvable tobacco, and electronic cigarettes.

Tobacco products that high school students reported using within the past 30 days include: tip cigars (6%), flavored cigarettes (5%), flavored little cigars (4%), hookah or water pipe (4%), roll your own cigarettes (4%), snus (3%), clove cigars (2%), electronic cigarettes (2%), dissolvable tobacco (1%), and other tobacco products not listed (2%). See Figure 22.

Figure 22. Current Use of Specific Tobacco Products Among High School Students, MA, 2011



Source: MYHS

Underreporting of some tobacco products

Seventeen percent of high school students who reported current use of tip cigars, flavored little cigars, or clove cigars did not report cigar use on the standard wording of the question.^{vii} The standard question slightly underreports cigar use. If survey responses on specific cigar products are included in the definition of current cigar use, the rate increases to 16.5%. Please note that this rate should not be compared to historical rates, since the definition of current cigar use is different.

Students who reported current use of Snus tobacco did not typically report it under the standard smokeless tobacco question. Only 71% of those who reported Snus also reported smokeless tobacco use. Some

tobacco product questions – hookah or water pipe and dissolvable tobacco – were not captured in other questions.

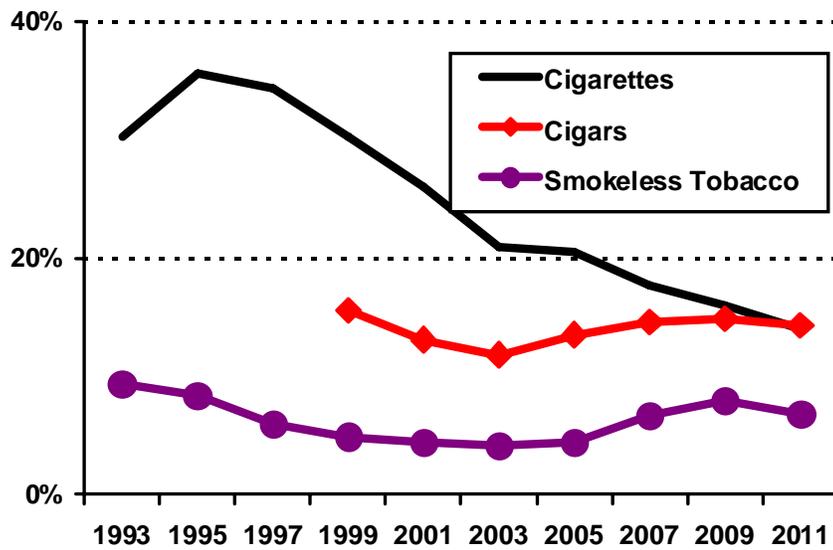
Most students who reported use of a specific type of cigarette product –flavored, roll your own cigarettes, or e-cigarettes - also reported it under the standard question on cigarette use (92%).

For more information about these emerging tobacco products and prevention efforts in Massachusetts, visit www.makesmokinghistory.org.

Conclusion

While the use of cigarettes among youth is decreasing, the trends in other tobacco product use - cigars and smokeless – are level or increasing (Figure 22). New tobacco products are being introduced that appeal to youth and young adults. Young people who begin using tobacco products risk addiction to nicotine and are likely to suffer from diseases caused by tobacco use.

**Figure 22. Trends in Current Use of Tobacco*
Among High School Students, MA**



Make smoking history.

Acknowledgements

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End Notes

ⁱ Massachusetts Department of Public Health, Tobacco Cessation and Prevention Program. Smoking-Attributable Mortality, Morbidity, and Economic Costs: Massachusetts 2006. Accessed 2/9/2012 at <http://www.mass.gov/eohhs/docs/dph/tobacco-control/economic-costs-of-smoking.pdf>.

ⁱⁱ Massachusetts Department of Public Health, 2007 Massachusetts Behavioral Risk Factor Surveillance System (BRFSS).

ⁱⁱⁱ Public Health Service. (1994). *Preventing tobacco use among young people: A report of the Surgeon General*. (DHHS Publication No. 0455-B-02). Washington, DC: U.S. Government Printing Office.

^{iv} Interview of Nora Volkow, M.D., Director of the National Institute of Drugs. Accessed 2/9/12 at http://www.thechallenge.org/14_3_interview.html.

^v Massachusetts Department of Public Health, 2011 Youth Health Survey. For each of the current cigarette smoking estimates among subgroups, the rate is statistically significant at the 95% level.

^{vi} Using the joinpoint statistical software developed by the National Cancer Institute to analyze trends, the analysis shows that the trend changed from a statistically significant ($p < 0.05$) downward trend from 1995 to 2001 to a statistically significant ($p < 0.05$) increasing trend from 2001 to 2011 with an estimated annual increase of 6.8% per year.

^{vii} The standard wording of the cigar question is “During the past 30 days, on how many days did you smoke cigars, cigarillos, or little cigars?”

