Youth Tobacco Use in Massachusetts
Survey Results from 1995 to 2015

The Commonwealth of Massachusetts
Department of Public Health
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Executive Summary

Statewide and nationally, tobacco continues to be the leading cause of preventable death and disease, causing approximately 8,000 deaths in Massachusetts each year.\(^1\) Eighty-two percent of adult smokers in Massachusetts smoked their first cigarette before age 19.\(^2\) Research shows that the earlier young people begin to smoke, the more likely they are to become addicted to cigarettes.

In the past 20 years, current cigarette use among Massachusetts youth has declined by seventy-eight percent. Among high school students, current use of any tobacco product (cigarettes, cigars, or smokeless) has decreased from 23.9% in 2009 to 15.8% in 2015. This downward trend has been observed for use of only cigars or smokeless tobacco as well.

![Current Use* of Tobacco Products Among High School Students: Massachusetts, 1995-2015](image)

*Current use is within the past 30 days

Source: MYRBS

However, new challenges have emerged. Electronic Nicotine Delivery Products (E-NDPs) are battery-operated products which deliver aerosolized flavorings and chemicals, namely nicotine, that are inhaled by the user.\(^3\) E-NDPs include e-cigarettes, e-hookah, and vape pens, and are increasing in popularity among youth, commensurate with their wide availability, attractive flavors, and pervasive marketing.\(^4\)
E-NDP use was first asked on the Youth Risk Behavior Survey (YRBS) (See Youth Survey Methods) in 2015. At that time, 44.8% of high school students in Massachusetts reported having ever used E-NDPs, and 23.7% reported currently using E-NDPs. This is over three times the rate of high school students who currently use cigarettes (7.7%). Additionally, current cigar use among high school students (10.4%), while trending downward over time, was higher than the current cigarette use rate.

While tobacco use among youth in Massachusetts is generally trending downward, many young people are still becoming addicted (see Appendix A for current rates of tobacco product use among high school students). 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. Together, we can make smoking history in Massachusetts.
Youth Survey Methods

To monitor youth health and risk behaviors, Massachusetts conducts two coordinated statewide surveys in public schools: 1) the Massachusetts Youth Risk Behavior Survey (MYRBS); and 2) the Massachusetts 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 (DESE) 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 report, *Health and Risk Behaviors of Massachusetts Youth 2013*, presents 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](http://www.doe.mass.edu/cnp/hprograms/yrbs).

Massachusetts Youth Health Survey

The MYHS 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 DESE. The survey contains health status questions in addition to questions about risk behaviors and protective factors. MDPH created reports for the Youth Health Survey for data collected in 2007, 2009, 2011, and 2013.


In this report on youth tobacco use, the MYRBS is used as the primary data source for high school students, because the CDC considers the state YRBS as the standard survey for high school student risk behaviors. For results on middle school students and questions not available on the MYRBS, the MYHS is used as the data source.

To describe tobacco trends, data from 1995 is often used as the baseline comparison year, since this was the year that youth tobacco use in Massachusetts and nationally hit a peak.

To determine whether prevalence estimates are statistically different from each other, two statistical tests are used. If the 95% confidence intervals do not overlap, then the prevalence
estimates are considered statistically significant. However, this only detects large differences in prevalence estimates. To detect smaller differences, a chi-square analysis with a p-value less than 0.05 is used to determine statistical significance. Only differences which are statistically significant are noted in the narrative.
Cigarette Smoking - High School Students

Lifetime Use

The percentage of high school students who have ever tried smoking cigarettes (lifetime use) was 27.8% in 2015 – a significant decrease from 38.5% in 2011. Since reaching a high of 71.5% in 1995, lifetime use of cigarettes has decreased by 56% percent.

First Smoked a Whole Cigarette

The percentage of high school students who smoked a whole cigarette before age 13 was 4.3% in 2015 - a significant decrease from 6.5% in 2011. Since 1995, the percentage of students who have reported smoking a whole cigarette before age 13 has decreased by 77%.
Cigarette Smoking - High School Students

Current Use

Cigarette smoking has declined significantly among high school students in Massachusetts. Since reaching its peak of 35.7% in 1995, cigarette use within the past 30 days (current use) has declined by 70%. In recent years, the downward trend has continued with the percentage of current cigarette smokers decreasing significantly from 14.0% in 2011 to 7.7% in 2015.

Gender

Current cigarette smoking varies by gender. In 2015, the rate of current smoking among male high school students was 8.6%, compared to 6.7% for females in 2015.
Cigarette Smoking - High School Students

Race/Ethnicity

The percentage of high school students who reported current cigarette use was 8.0% for white, non-Hispanics; 8.2% for Hispanic students; and 4.5% for black, non-Hispanic students.

![Current Cigarette Use* by Race/Ethnicity](chart)

* Current use is within the past 30 days

Source: MYRBS

Grade Level

The percentage of current smokers increases as grade level increases. Among twelfth grade students, current cigarette use was 10%.

![Current Cigarette Use* by Grade](chart)

* Current use is within the past 30 days

Source: MYHS (6th-8th) MYRBS (9th-12th)
Cigarette Smoking - High School Students

Frequent Smoking

Frequent cigarette smoking (more than 20 of the last 30 days) among high school students was 2.3% in 2015 - a significant decrease from 5.6% in 2011. Since reaching a high of 18.4% in 1997, the percentage of frequent smokers has decreased by 88%.

Source: MYRBS
Cigarette Smoking - High School Students

Youth More Likely to Smoke Cigarettes

Some subgroups report higher smoking rates compared to the state average (7.7%). Smoking rates are significantly higher for high school students who: considered suicide (19.1%); received academic grades of mostly C’s, D’s or F’s (16.1%); self-identified as gay, lesbian, bisexual, or transgender (LGBT) (15.5%); felt sad or hopeless (13.0%).

The percentage of high school students who lived with a smoker was 29% in 2013 and 27% in 2015. High school students who live with a smoker are significantly more likely to smoke themselves – 14.2% compared to 3.9% of those who do not live with a smoker.
Other Tobacco Products – Smokeless Tobacco
High School Students

Current Use

Current smokeless tobacco use was 5.5% in 2015 among high school students. Smokeless tobacco use is defined as use of chewing tobacco, snuff, or dip (such as Redman, Beechnut, Skoal, or Copenhagen) within the past 30 days.

Gender

In 2015, current smokeless tobacco use was significantly lower among female high school students (1.9%) than males (9.0%).
Other Tobacco Products – Cigars
High School Students

Current Use

Current cigar use (cigars, cigarillos, or little cigars) among high school students was 10.4% in 2015 – a significant decrease from 14.3% in 2011.

Gender

In 2015, current cigar use was significantly lower among female high school students (5.3%) than males (15.4%).
**Other Tobacco Products** – Other Tobacco Products

**High School Students**

**Current Use**

To compare cigarettes to tobacco products other than cigarettes, a measure of other tobacco product (OTP) use was used. Current use of OTPs (cigars or smokeless tobacco) in the past 30 days among high school students was 12.4% in 2015, significantly lower than 16.8% in 2011.

**Gender**

In 2015, current use of OTPs was significantly lower among female high school students (6.0%) than males (18.5%).
Any Tobacco Products – High School Students

Current Use

Current use of any type of tobacco (cigarettes, cigars, or smokeless tobacco) decreased from 1999 to 2015. Current tobacco use among high school students was 15.8% in 2015 – a significant decrease from 21.3% in 2011.

![Current Use* of Any Tobacco Product Among High School Students: Massachusetts, 1999-2015](chart1.png)

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

Gender

In 2015, current use of any tobacco product was significantly lower among female high school students (10.1%) than males (21.2%).

![Current Any Tobacco Product Use* by Gender Among High School Students: Massachusetts, 2015](chart2.png)

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

**Significantly lower than the rate for males
E-NDP Use – High School Students

Lifetime Use

High school students in Massachusetts are increasingly reporting the use of E-NDPs, which include e-cigarettes, e-hookah, and vape pens.

In 2015, there was a significantly higher rate of high school students who ever tried E-NDPs (44.8%) than those who ever tried cigarettes (27.8%).

Gender

In 2015, ever-use of E-NDPs was significantly lower among female high school students (41.2%) than males (48.2%).
E-NDP Use – High School Students

Current Use

Current E-NDP use among high school students (23.7%) was significantly higher than of any other tobacco product.

Gender

In 2015, current use of E-NDPs was significantly lower among female high school students (19.9%) than males (27.3%).
Cigarette Smoking - Middle School Students

Lifetime Use

The percentage of middle school students (6th, 7th, and 8th graders) who ever tried cigarette smoking (lifetime use) was 6.1% in 2015- a significant decrease from 10.0% in 2011. Since 2007, the percentage of lifetime smokers has decreased by 61%.

Race/Ethnicity

The percentage of middle school students who reported lifetime use of cigarettes was 5.1% for white, non-Hispanics; 10.7% for Hispanics; and 6.0% for black, non-Hispanic.
Cigarette Smoking - Middle School Students

Current Use

Current cigarette use (past 30 day use) among middle school students was 1.4% in 2015- a significant decrease from 2.7% in 2013. Since 2007, the percentage of current smokers in middle school has decreased by 71%.

Current Cigarette Smoking*  
Among Middle School Students: Massachusetts, 2007-2015

* Current use is within the past 30 days  
Source: MYHS
Conclusion

Tobacco use among youth in Massachusetts is trending downward; however, use rates for many products remain high. The latest figures from 2015 show that even though cigarette smoking among Massachusetts high school students decreased to the lowest level ever recorded of 7.7% (or about 22,170 youth), rates of current cigar and E-NDP use are higher (10.4% and 23.7%, respectively). The rate of E-NDP use is higher than the rate of any traditional tobacco product use (cigarettes, cigars, or smokeless) (15.8%).

That said, the rate of high school students that have used a tobacco product in the past 30 days (cigarettes, cigars, or smokeless) decreased significantly from 21.3% in 2011 to 15.8% in 2015. Cigar use alone decreased significantly from 14.3% in 2011 to 10.4% in 2015.

Overall, the positive results of decreases in tobacco use should be viewed with caution. While the survey analyses accounted statistically for cluster effects, it is possible that tobacco use can have larger than expected cluster effects. That is, students in a classroom who interact with each other on a daily basis can have more similarities on behaviors such as tobacco use, which could limit the representativeness of these results to all Massachusetts youth. We hope to continue to see decreases in tobacco use rates in the 2017 survey findings.
Tobacco use within past 30 days, 2015 (% of high school students)

<table>
<thead>
<tr>
<th>Tobacco Type</th>
<th>High School</th>
<th>Male</th>
<th>Female</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>9th</th>
<th>10th</th>
<th>11th</th>
<th>12th</th>
<th>Suicide C, D, or F</th>
<th>Physical Disability</th>
<th>Learning Disability</th>
<th>Sad or Hopeless</th>
<th>LGBT</th>
<th>Lives with a smoker*</th>
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</thead>
<tbody>
<tr>
<td>Cigarettes</td>
<td>7.7</td>
<td>9.0</td>
<td>6.7</td>
<td>8</td>
<td>8.2</td>
<td>4.5</td>
<td>4.8</td>
<td>6.1</td>
<td>9.2</td>
<td>10.3</td>
<td>19.1</td>
<td>16.1</td>
<td>11.1</td>
<td>13.1</td>
<td>13.0</td>
<td>15.5</td>
</tr>
<tr>
<td>Cigars</td>
<td>10.4</td>
<td>15.4</td>
<td>5.3</td>
<td>11.6</td>
<td>7.0</td>
<td>8.3</td>
<td>6.6</td>
<td>8.6</td>
<td>11.1</td>
<td>15.4</td>
<td>14.5</td>
<td>16.7</td>
<td>13.0</td>
<td>15.9</td>
<td>12.6</td>
<td>14.1</td>
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<td>Smokeless</td>
<td>5.5</td>
<td>9.0</td>
<td>1.9</td>
<td>6.5</td>
<td>0.8</td>
<td>4.8</td>
<td>3.8</td>
<td>4.5</td>
<td>6.5</td>
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<td>5.2</td>
<td>7.4</td>
<td>5.4</td>
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<td>18.5</td>
<td>6.0</td>
<td>14.1</td>
<td>7.0</td>
<td>9.9</td>
<td>8.1</td>
<td>9.9</td>
<td>13.9</td>
<td>17.7</td>
<td>16.7</td>
<td>19.0</td>
<td>14.8</td>
<td>17.3</td>
<td>14.4</td>
<td>15.8</td>
</tr>
<tr>
<td>Any tobacco</td>
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<td>10.1</td>
<td>17.8</td>
<td>8.9</td>
<td>13.2</td>
<td>9.6</td>
<td>12.9</td>
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<td>20.0</td>
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<td>E-NDFs</td>
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<td>32.2</td>
<td>31.6</td>
<td>31.6</td>
</tr>
</tbody>
</table>

Source: MYRBS

*Data from MYHS (question not asked on MYRBS)
Acknowledgements

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Website: http://www.mass.gov/dph/mtcp.
End Notes


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