INTRODUCTION

Tobacco use is the leading preventable cause of death in the United States, yet in 2004 an estimated 70 million Americans age 12 and older reported current use of tobacco, including cigarettes, cigars, smokeless tobacco, and pipe tobacco (2a). Tobacco use is responsible for one in every five deaths in the United States (2b). Tobacco-related health problems such as heart disease, cancer, stroke, and chronic respiratory illness are the leading causes of death each year. Additionally, smokeless tobacco use (chewing tobacco or snuff) causes oral cancer and other health problems (2c).

Tobacco use among young people poses especially serious risks. Research indicates that the earlier young people begin to smoke the greater their permanent lung damage and the more likely they are to become heavily addicted (2d). Since 1997, tobacco use among adolescents has gradually declined, but may have begun to level off (2e). Still, more than one-quarter of U.S. high school students use some form of tobacco (2f). Adolescent tobacco use not only threatens health, but it is also associated with drinking and illegal drug use, and with poor school performance.

From 1993 to 2002, the Massachusetts Department of Education allocated Health Protection Fund monies, derived from a state tax on tobacco products, to school districts across the Commonwealth to support comprehensive school health education, with a focus on tobacco use prevention. In that time, Massachusetts middle and high schools significantly increased attention to tobacco prevention education and other health education topics (2g). However, that attention may have declined in recent years since the elimination of the Health Protection Fund.

The Massachusetts Education Reform Law of 1993 made it illegal for students, school staff, and visitors to smoke or use tobacco products on school property at any time. Since then, the proportion of adolescent smokers reporting that they had smoked on school property has dropped significantly, though it is still higher than the national average.

The 2005 MYRBS asked students to report their history and current use of cigarettes and smokeless tobacco both on and off school property. The survey also asked questions about recent cigar smoking, and about students’ attempts to quit smoking.
KEY FINDINGS FROM THE 2005 MASSACHUSETTS YRBS

- Lifetime and current cigarette smoking have decreased significantly over the past decade, with only half (51%) of all students reporting lifetime smoking and one-fifth (21%) reporting current smoking in 2005 as compared to 72% and 36%, respectively, in 1995.
- The rate of daily smoking has dropped by more than half in the past ten years.
- Among current smokers, 43% had smoked cigarettes on school property within the past month.
- Smokeless tobacco use dropped significantly in the mid to late 1990’s, but has remained relatively stable since. In 2005, 4% of adolescents reported using smokeless tobacco in the past month.
- Male and female students were equally as likely to report any cigarette smoking, but males were significantly more likely to report smokeless tobacco use and cigar smoking.
- Current smokers were significantly more likely to report other substance related risk behaviors, and less likely to be receiving good grades.

RESULTS

CIGARETTE SMOKING

**Lifetime Cigarette Smoking and Early Initiation of Smoking**

About half (51%) of all students reported having ever tried smoking cigarettes. This represents a significant decrease from 62% in 2001. Lifetime cigarette smoking has been decreasing among Massachusetts adolescents since 1995, when 72% reported having ever smoked cigarettes. (Figure 2a)

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**Figure 2a. Tobacco Use among Massachusetts High School Students, 1995 - 2005**

<table>
<thead>
<tr>
<th>Year</th>
<th>Lifetime smoking (%)</th>
<th>Early initiation of smoking (%)</th>
<th>Current smoking (%)</th>
<th>Daily smoking (%)</th>
<th>Smokeless tobacco use (%)</th>
<th>Cigar smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>71.5</td>
<td>23.9</td>
<td>35.7</td>
<td>14.6</td>
<td>8.4</td>
<td>13.1</td>
</tr>
<tr>
<td>1997</td>
<td>69.1</td>
<td>22.3</td>
<td>34.3</td>
<td>15.1</td>
<td>4.9</td>
<td>15.6</td>
</tr>
<tr>
<td>1999</td>
<td>67.4</td>
<td>21.3</td>
<td>30.3</td>
<td>14.6</td>
<td>0.4</td>
<td>13.5</td>
</tr>
<tr>
<td>2001</td>
<td>61.9</td>
<td>19.3</td>
<td>23.4</td>
<td>10.4</td>
<td>0.4</td>
<td>14.8</td>
</tr>
<tr>
<td>2003</td>
<td>60.7</td>
<td>18.6</td>
<td>20.5</td>
<td>9.4</td>
<td>4.4</td>
<td>14.4</td>
</tr>
<tr>
<td>2005</td>
<td>53.2</td>
<td>15.3</td>
<td>19.3</td>
<td>7.3</td>
<td>4.4</td>
<td>13.5</td>
</tr>
</tbody>
</table>

(*) Statistically significant decrease from 1995 to 2005, p < .05
Thirteen percent (13%) of all students smoked their first cigarette before age 13. Early initiation of tobacco use has declined over the past decade.

Youth of Other/Multiple Ethnicity and Hispanic youth were somewhat more likely than other youth to have tried smoking ever and to have begun smoking before age 13, but no ethnic differences in tobacco use were statistically significant.

(*Statistically significant increase from 9th to 12th grade, p < .05)
Students who reported having smoked a whole cigarette for the first time before age 13 were significantly more likely than their peers who started smoking later to report:

- Current (having smoked once in the past 30 days) smoking (58% vs. 15%)
- Daily smoking (30% vs. 3%)
- Using smokeless tobacco (13% vs. 3%)
- Cigar Smoking (30% vs. 10%)

**Current smoking**

One-fifth (21%) of all students smoked a cigarette in the 30 days before the survey (i.e., current smoking). Current smoking was similar among male and female adolescents. (Figure 2d)

![Figure 2d. Tobacco Use among Massachusetts High School Students by Gender, 2005](image)

(*) Statistically significant difference between male and female students, p< .05

Among current smokers, 38% smoked cigarettes on five or fewer of the past 30 days and 31% smoked every day. Six percent (6%) of all students were daily smokers.

Among current smokers, the number of cigarettes smoked per day varied. Seventeen percent (17%) of current smokers smoked less than one cigarette on the days that they smoked. The single largest group of current smokers (43%) smoked two to five cigarettes per day. Nine percent (9%) of current smokers smoked more than half a pack (11 or more cigarettes) per day.

Among daily smokers, 97% smoked more than one cigarette per day. Twenty-seven percent (27%) of daily smokers smoked at least half a pack of cigarettes (11 or more cigarettes) per day.
Smoking Cessation

Whether or not they were still daily smokers, 14% of all students had ever smoked daily for any period of 30 days during their lifetimes. These students are called “ever-regular” smokers. Ever-regular smoking is used to measure smoking cessation.

Sixty-three percent (63%) of all ever-regular smokers had tried to quit smoking at least once.

Among those ever-regular smokers who did try to quit at least once, 81% were still smoking at the time of the survey (i.e., current smoking), and nearly half (45%) were daily smokers at the time of the survey.

Nearly one-fifth of ever-regular smokers (19%) had tried to quit three or more times in their lives. Eighty-three percent (83%) of these students were still smoking (i.e. current smokers) at the time of the survey, and 45% were daily smokers.

Among current smokers in 2005, 44% had tried to quit smoking at least once, and one third (34%) had tried to quit smoking tried to quit three or more times.

OTHER TOBACCO USE: SMOKELESS TOBACCO AND CIGARS

Four percent (4%) of all students used smokeless tobacco (i.e., chewing tobacco, snuff, or dip) in the 30 days before the survey.

As in previous years, male students were significantly more likely than female students to report smokeless tobacco use (8% vs. 1%, respectively). (see Figure 2d)

Twelve percent (14%) of students reported smoking a cigar in the 30 days before the survey. Rates were higher for males (20%) than females (7%).

There were no significant racial/ethnic differences in the rate of cigar smoking or use of smokeless tobacco.

Most adolescents who had used smokeless tobacco (61%) or smoked cigars (61%) in the past month were also current cigarette smokers.

TOBACCO USE ON SCHOOL PROPERTY

Nine percent (9%) of all students smoked cigarettes on school property in the 30 days before the survey.

Among current smokers, 43% reported smoking on school property in the past month, significantly lower than the 54% of current smokers who reported smoking at school in 1995.

Just 2% of all students used smokeless tobacco on school property in the 30 days before the survey. Among students who reported any smokeless tobacco use, however, more than half (54%) used smokeless tobacco on school property, a proportion that has not changed significantly over the past decade.

TOBACCO USE AND OTHER SUBSTANCE USE

Compared to students who had never tried cigarette smoking, those who had tried smoking in their lifetimes were significantly more likely to have ever had a drink of alcohol (94% vs. 58% respectively), and to have used marijuana (73% vs. 18%) or another illegal drug (30% vs. 3%) in their lifetimes.
Current smokers were more likely than those who had never smoked or not smoked recently (i.e., non-smokers) to report drinking, binge drinking, marijuana use, and other illegal drug use in the 30 days before the survey. (see Figure 2e)

TOBACCO USE AND ACADEMIC ACHIEVEMENT

Compared to peers who did not use tobacco, students who used tobacco were significantly less likely to have received mostly A’s, B’s, or C’s in the 12 months before the survey (see Table 2). For example, only 74% of current smokers received mostly A’s, B’s, or C’s in the past year, compared to 88% of non-smokers.

PROTECTIVE FACTORS FOR TOBACCO USE

Students who were involved in volunteer work or community service were significantly less likely than their peers who were not involved in these activities to be current smokers (16% vs. 24% respectively).

Similarly, current smoking was significantly less common among students who participated in extra-curricular activities compared to students who did not participate in extra-curricular activities (14% vs. 27% respectively).

Students who reported having a supportive adult in their life were significantly less likely to report current smoking. This was seen among students who reported they had a parent or adult family member they could talk to about things that were important to them (18% vs. 31%) and students who believed they had a teacher or other school staff member they could talk to if they had a problem (18% vs. 29%).

Figure 2e. Other Substance-Related Risk Behaviors of Massachusetts High School Cigarette Smokers and Non-Smokers, 2005

(*) Statistically significant difference between smokers and non-smokers, p< .05
### Table 2. Significant Associations between Tobacco Use Behaviors and Academic Achievement among Massachusetts High School Students, 2005

<table>
<thead>
<tr>
<th>Tobacco Use Behavior</th>
<th>Mostly A's, B's, or C's</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever tried cigarette smoking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>78.6</td>
<td>.000**</td>
</tr>
<tr>
<td>no</td>
<td>90.3</td>
<td></td>
</tr>
<tr>
<td>Smoked before age 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>70.9</td>
<td>.000**</td>
</tr>
<tr>
<td>no</td>
<td>86.5</td>
<td></td>
</tr>
<tr>
<td>Current smoking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>74.1</td>
<td>.000**</td>
</tr>
<tr>
<td>no</td>
<td>87.5</td>
<td></td>
</tr>
<tr>
<td>Daily smoking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>68.2</td>
<td>.000**</td>
</tr>
<tr>
<td>no</td>
<td>85.9</td>
<td></td>
</tr>
<tr>
<td>Smokeless tobacco use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>73.9</td>
<td>.000**</td>
</tr>
<tr>
<td>no</td>
<td>85.0</td>
<td></td>
</tr>
<tr>
<td>Cigar use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>78.1</td>
<td>.000**</td>
</tr>
<tr>
<td>no</td>
<td>85.5</td>
<td></td>
</tr>
</tbody>
</table>

(* *) Statistically significant difference between groups, p<.01

### ADDITIONAL FINDINGS

Certain groups of students were significantly more likely than their peers to report current tobacco use:

- Students in rural school districts were more likely than students in urban or suburban districts to be daily smokers (9% vs. 6% for both suburban and urban).
- Sexual minority youth (i.e., students who either identified as gay, lesbian, or bisexual or had any same-sex sexual contact) were more likely than other students to be current smokers (50% vs. 19%) and daily smokers (20% vs. 6%) and to report using smokeless tobacco (9% vs. 4%).
- Homeless students (i.e. students not at home with their parents) were more likely than their peers to report current smoking (53% vs. 19%) and daily smoking (24% vs. 6%) and to report using smokeless tobacco (12% vs. 4%).
CONCLUSIONS AND RECOMMENDATIONS

The 2005 MYRBS results highlight substantial progress in reducing tobacco use among Massachusetts youth since the mid-1990’s. Additionally, Massachusetts’ rate of current smoking among adolescents is significantly below the national average for high school students (2h). The significant decreases in lifetime, current, and daily cigarette smoking, smokeless tobacco use, cigar smoking, and smoking on school property are very encouraging. However, the absence of continued change in these measures in the past two years suggests that we may have reached a plateau in our efforts to eliminate tobacco use among youth in the Commonwealth.

Half of all Massachusetts adolescents have tried cigarettes and one in five is a current smoker. Changing widespread patterns of tobacco use among adolescents is a difficult and complex task. Research evidence suggests that providing information about the harmful effects of tobacco use is rarely enough, by itself, to curb adolescent smoking. Rather, effective tobacco prevention education programs are those that focus on helping students recognize peer and media pressure and on helping them develop the skills to resist such pressure (2d, 2h). Additionally, because tobacco use is associated with other risk behaviors, tobacco prevention education should be integrated into comprehensive school health programs. The Massachusetts Comprehensive Health Curriculum Framework (2i) and the CDC’s Guidelines for School Health Programs to Prevent Tobacco Use and Addiction (2j) are useful starting places to help districts develop school health education programs that encourage young people to make healthy choices. The vast majority of students who do smoke have tried to quit at least once. Unfortunately, most of these attempts have not been successful, especially among those who have developed a regular smoking habit. School- and/or community-based cessation programs aimed at adolescents would offer these students more support and guidance. Many school districts currently offer cessation programs and adolescent tobacco users should be encouraged to take advantage of these opportunities. The findings reported here emphasize the importance of early and repeated tobacco prevention education, beginning well before high school and reinforced at every grade level. Until recently, tobacco tax revenues approved by Massachusetts voters in 1992 supported stronger youth tobacco prevention and comprehensive school health programs across the state. With the elimination of these funds in 2002, many districts have had to scale back their health education programming by reducing staff and/or the number of health classes offered. The leveling off of declines in tobacco use over the past two years may be influenced, at least in part, by reductions in anti-tobacco programs in schools.

Finally, we are disturbed by the facts that four in ten current smokers report smoking on school property and over half of smokeless tobacco users report engaging in that behavior on school property. Strong and consistent enforcement of school anti-tobacco policies is essential in providing a tobacco-free environment for students and staff.
CHAPTER 2: REFERENCES


