

## **Executive Summary for *Healthy Brookline Volume XVII***

### **Introduction**

*Healthy Brookline Volume XVII*, part of the Brookline Department of Public Health's annual assessment of the health status of the Brookline community, provides updated information on Brookline youth's risk behaviors. Data was gathered from the *Brookline High School Health Survey* given to Brookline students in grades 7-12 during March and April 2015. (Previous editions of *Healthy Brookline* involving youth risk behavior include Volumes IV, VIII, XI, XIV and XV.)

*Brookline High School Health Survey* is based on a national initiative, the *Youth Risk Behavior Survey (YRBS)*, which was developed by the Centers for Disease Control and Prevention in 1990 to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States. These behaviors, often established during childhood and early adolescence, include:

- Alcohol and other drug use;
- Tobacco use;
- Unhealthy dietary habits;
- Inadequate physical activity;
- Sexual practices that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection;
- Actions that contribute to unintentional injuries and violence.

The *YRBS* is administered biannually both state and nationwide, and provides national data representative of high school students in public and private schools in the United States, as well as data representative of the state and local school districts in which it is administered. This range of information allows *Healthy Brookline XVII* to:

- Suggest the prevalence of health risk behaviors;
- Assess whether health risk behaviors appear to increase, decrease, or stay the same over time;
- Examine the co-occurrence of health risk behaviors;
- Provide comparable national, state, and local data;
- Provide comparable data among subpopulations of youth.

The *Brookline High School Health Survey* also includes questions pertaining to risk and protective factors taken from the National Institute of Health's *Monitoring the Future, MTF*, survey.

### **Methodology**

All of the students who were present at Brookline High School (BHS) on the days the *Brookline High School Health Survey* was given in March and April of 2015 participated during their

advisory period: 1,446 students in grades 9 – 12. The middle school health survey from March 2015 included 936 students in grades 7-8 throughout Brookline's eight K - 8 Schools. (Students in the 6<sup>th</sup> grade were not surveyed.) The results for the Brookline sample were compiled in the summer and fall of 2015.

The national and statewide surveys of the *YRBS*, to which the Brookline sample is compared, were administered during the spring of 2013. Both used a multi-stage clustering sampling design to produce randomly selected, representative samples of students. The national *YRBS* included data from 13,633 questionnaires from 148 public and private schools, grades 9 – 12. (There is no national survey for the middle school level.) The Massachusetts *YRBS* included 8,514 students in 121 schools. Students taking the middle school survey represented 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grades. The school and student participation at both levels was voluntary and anonymous. Because of the high student and school response rates, the results of this survey can be generalized to apply to all public high schools across Massachusetts.

## Summary of Results

### *Alcohol Use*

Some measures of alcohol use among 9<sup>th</sup> – 12<sup>th</sup> graders appeared to continue declining, with only binge drinking rates remaining somewhat constant from 2013 to 2015.

- Lifetime use rates were 62% in 2011, 56% in 2013, and 47% in 2015.
- First use of alcohol before age 13 decreased from 12% in 2013 to 6% in 2015.
- Reported use of alcohol during the month prior to the survey was 35% in 2013, as compared to 27% in 2015.
- Among Brookline 9<sup>th</sup> – 12<sup>th</sup> graders, 19% reported binge drinking in the month prior to the survey in 2013, as compared to 18% in 2015. Students who reported recent binge drinking also reported higher rates of depression (64%) compared to the general student population of 20%.
- Rates of reported drinking during the school day were 5% in 2013 and 2% in 2015.
- Twelfth graders reported significantly higher rates of several behaviors than 9<sup>th</sup> graders, including lifetime and recent use, as well as recent binge drinking
- Twelfth graders also reported higher rates of driving in a car with a driver under 21 who had been drinking, 12%, as compared with 2% of 9-11<sup>th</sup> graders.
- Males reported higher rates than females of first use of alcohol under age 13 and recent binge drinking. and similar to females in alcohol use in the past 30 days.
- There was little difference between males and females in reporting alcohol use in the past 30 days.

Among 7<sup>th</sup> and 8<sup>th</sup> graders, most of the measures of alcohol appeared to continue declining significantly from 2011 to 2015.

- Lifetime use rates were 22% in 2011, 15% in 2013 and 11% in 2015.
- Rates of first use of alcohol before age 13 decreased from 15% in 2011 to 11% in 2013 and 6% in 2015.

- Rates of recent use of alcohol in the past 30 days were 8% in 2011, 6% in 2013, and 4% in 2015.

For most comparable alcohol use indicators, Brookline 9<sup>th</sup> – 12<sup>th</sup> graders reported lower rates than state and national levels. Rates were similar for recent binge drinking.

Brookline 7<sup>th</sup> and 8<sup>th</sup> graders reported lower rates of lifetime alcohol use and similar rates of recent alcohol use in comparison to students on the statewide survey. National data are not collected at the middle school level, so there is none to compare.

### *Marijuana Use*

Reported rates among Brookline 9<sup>th</sup> – 12<sup>th</sup> graders from 2011 to 2015 continued to decline over the past four years.

- Rates of having ever used marijuana declined from 41% in 2011 to 34% in 2013, and 27% in 2015.
- The reported rates of first using marijuana before age 13 declined from 5% in 2011 to 2% in 2013 and 1% in 2015. Students who started using marijuana at younger ages reported higher rates of depression.
- Reported use of marijuana during the month before the survey declined from 25% in 2011 to 21% in 2013 and 16% in 2015. Students who reported recent marijuana use also reported higher rates of depression (51%) than the general student population (20%).
- Students who reported using marijuana 100 or more times in their lives declined from 7% in 2011 and 2013 to 4% in 2015.
- Twelfth graders reported significantly higher rates than 9<sup>th</sup> graders in most behaviors,-- 47% of seniors reported having ever used marijuana compared to 7% of freshman, and 32% of seniors reported recent use compared to 4% of freshman.
- Males reported significantly higher rates than females in all categories. with 17% of males reporting recent use compared to 13% of females, and 6% of males reported using over 100 times compared to 2% of females.

Among Brookline 7<sup>th</sup> and 8<sup>th</sup> graders, most of the measures of marijuana use decreased significantly from 2011 to 2015, except for use before the age of 13.

- Lifetime use rates were 6% in 2011, 5% in 2013, and 2% in 2015.
- Rates of marijuana use before age 13 were 2% in 2011 and 2013, and 1% in 2015.
- Reported use of marijuana in the month prior to the survey was 1% in 2015, lower than 4% in 2011 and 2013.

Brookline 9<sup>th</sup> – 12<sup>th</sup> graders' rates of marijuana use on all indicators were lower than state and national levels except marijuana use during the school day (both BHS and MA 5%).

Brookline 7<sup>th</sup> and 8<sup>th</sup> graders' rates were lower than statewide levels.

### *Other Illegal Drug Use*

Among 9<sup>th</sup> – 12<sup>th</sup> graders, most measures of the use of other illegal drugs remained relatively low in Brookline; reported usage was at or below 4% for all the illegal drugs surveyed. Rates of several drugs decreased among high school students, including cocaine, heroin, and hallucinogens.

- Reported rates of cocaine use decreased significantly from 4% in 2013 to 1% in 2015, and the rates of heroin use decreased from 3% to 1% over the same time period.
- The reported use of hallucinogens decreased significantly from 2013 (8%) to 2015 (3%).

- The use of prescription drugs without a prescription also decreased, from 7% to 4% for amphetamines (ie. Adderal, Ritalin, etc.), steroids from 3% to 1%, and depressants (i.e. Valium, Xanax,) from 4% to 2%.
- Similarly, males reported significantly higher rates of use than females in all categories except prescription painkillers and over-the-counter drugs.

For students in grades 7<sup>th</sup> – 8<sup>th</sup> the reported rates of illegal drug use remain relatively low with little change from 2013 to 2015.

- Cocaine, <1%
- Inhalants, 2%
- Use without a prescription: steroids, 2%; amphetamines (Ritalin, Adderall, Concerta) 1%; and painkillers (percocet, oxycodone, or vicodin) 1%.
- Eighth graders reported higher rates of use of cocaine, Ritalin (and the other amphetamines), and prescription painkillers than 7<sup>th</sup> graders.

The rate of cocaine use among Brookline 9<sup>th</sup> – 12<sup>th</sup> graders' was considerably lower than state and national figures. Levels of heroin use were comparable with Brookline and Massachusetts 1%. National rates were at 2%. There was no comparable Massachusetts middle school data.

### *Tobacco*

Tobacco use among Brookline 7<sup>th</sup> – 12<sup>th</sup> graders remains relatively low. For the first time, the survey asked students about their use of electronic cigarettes, and reported rates of use were comparable to tobacco cigarettes.

Grades 9<sup>th</sup> - 12<sup>th</sup> showed significant changes in most indicators from 2013 to 2015.

- The rate of first use of tobacco before age 13 declined from 5% to 2%.
- The rate of lifetime cigarette smoking declined from 26% in 2013 to 15% in 2015.
- Smoking in the past 30 days declined from 10% to 5%.
- The rate of recent use of chewing tobacco, snuff, or dip decreased from 4% in 2013 to 2% in 2015.

At the 7<sup>th</sup> and 8<sup>th</sup> grade level, the reported rate of lifetime use of tobacco and/or electronic cigarettes was 3%.

- The survey question for *recent use* changed in the 2015 survey to include both tobacco cigarettes and electronic cigarettes; the combined reported rate was 1%, as compared to 3% in 2013 for tobacco cigarettes only.
- Use of chewing tobacco was 2% in 2013, and 1% in 2015. The use of other forms of tobacco (ie: flavored products, cigarillos) remained constant at 4%.

At the high school level, Brookline's recent use of tobacco rates (5%) were lower than the state(11%) and national rates(15.7%). Recent use of chewing tobacco, snuff, and dip was lower as well --Brookline 2%, state 5%, national 8.8%.

The Brookline 7<sup>th</sup> – 8<sup>th</sup> grade rate of lifetime use (3%) was lower than the state rate (9%) and reported recent cigarette smoking was lower than reported state use (1% compared to 3%).

### *Violence Related Behavior*

BHS students reported fewer violence-related risk behaviors than their MA and US counterparts in several categories:

- The number of BHS students who reported being bullied at school in the past 12 months

decreased from 17% in 2011 and 16% in 2013 to 9% in 2015.

- High school students reported having been electronically bullied in the past 12 months at a rate of 6%, as compared to 11% in 2013.
- The percentage of BHS students who reported sexual contact against their will remains relatively constant at 7% in 2011 and 2013, and 8% in 2015. Similarly, the percentage of students who report being physically hurt on purpose by a boyfriend or girlfriend remained constant at 5% in 2013 and 2015.
- The prevalence of BHS students that reported hearing derogatory remarks regarding sexual orientation at school remained the same in 2015 as 2013 (68%).
- Students who self-identify as Gay, Lesbian, Bisexual or Questioning (or Not Sure) were more likely to report being bullied at school and/or electronically, and reported missing school at least once in the past month. Among non-heterosexual students, 14% report being bullied in the past year (compared to 9% of heterosexual students).

Among Brookline 7<sup>th</sup> and 8<sup>th</sup> graders:

- 13% of middle school students report having been electronically bullied in the past 12 months as compared to 16% in 2011. (The question was left off the survey in 2013.) This rate is similar to the MA rate of electronic bullying in middle school grades (14%).
- The percentage of 7<sup>th</sup> and 8<sup>th</sup> grade students reporting sexual contact against their will in 2015 was 2%, as compared to 4% in 2011 and 6% in 2013.
- Nineteen percent of students report having been in a physical fight in the past 12 months, as compared to 23% in 2013.
- In grades seven and eight, the rate of students reporting hearing derogatory remarks regarding sexual orientation at school continued to decrease, from 80% in 2011 to 59% in 2013 and 54% in 2015.

### *Sexual Behavior*

The rate of Brookline High School students who reported ever having had sexual intercourse continued to decline.

- In 2015, 21% of BHS students reported ever having had sexual intercourse, compared with 27% in 2011, 23% in 2013. This rate is considerably lower than both the 2013 MA rate of 38% and US rate of 46%.
- In 2015, more BHS males (23%) than females (19%) reported having ever had sexual intercourse.
- Twelfth graders reported significantly higher lifetime rates than ninth graders -- 47% of seniors, 20% of juniors, 15% of sophomores, and 6% of freshman.
- Among sexually active BHS students, condom use during sexual intercourse was down in 2015 -- 62%, compared to 74% in 2011 and 75% in 2013.
- In 2015, 17% of BHS seniors reported engaging in sexual activity after using alcohol that they wouldn't have if they hadn't been drinking, compared with 15% of juniors, 4% of sophomores, and 2% of freshman.
- In 2015, 8% of BHS students reported having had sexual contact against their will, compared to 7% in 2013.

The rate of Brookline 7<sup>th</sup> and 8<sup>th</sup> graders in 2015 who reported ever having sexual intercourse declined.

- Two percent of Brookline 7<sup>th</sup>-8<sup>th</sup> grade students reported having ever had sexual intercourse compared to 6% in 2013 and 2011.
- Among middle school students, 4% reported ever having participated in oral sex.

### *Mental Health*

The rate of BHS students who reported having felt overwhelming stress or anxiety during the past 12 months rose from 75% in 2013 to 82% in 2015. Schoolwork was listed as the number one cause of stress by a majority of BHS students in grades 9-11. In senior year, schoolwork emerged as the primary cause of stress for 38% of seniors, followed by worries about the future (31%). Family issues rank higher as the number one source of stress for more than twice as many gay, lesbian and bisexual students than for straight students.

- Females report markedly more stress (91%) than males (72%).
- Among BHS students, 25% reported symptoms of depression (feeling sad or hopeless for two or more weeks in a row) and 18% reported feeling suicidal in the past 12 months.
- The rates of students who reported they seriously considered suicide and made a suicide plan in the past 12 months has remained constant at 2% since 2013.
- Females also report higher rates of depression, with 32% reporting symptoms of depression, compared to 17% of males.
- BHS students identifying as LGBTQ were more likely to report symptoms of depression than heterosexual students (lesbian and gay --51%, bisexual -- 67%, and questioning -- 41% heterosexual --21%).
- Among females, 27% saw a mental health professional either outside of school, in school, or both, compared to 16% of males.
- Among females, 16% saw only a mental health professional outside of school, 5% only saw a mental health professional at BHS, and 6% saw both. Among males 8% saw only a mental health professional outside of school, 3% only saw a mental health professional at BHS, and 3% saw both.

At the middle school level, the percentage of 7<sup>th</sup>-8<sup>th</sup> grade students who reported experiencing overwhelming stress or anxiety in the past year increased from 69% in 2013 to 79% in 2015.

- More females reported overwhelming stress or anxiety than males (86% and 73%, respectively).
- Among 7<sup>th</sup>-8<sup>th</sup> grade students, 14% report symptoms of depression over the past year. More females (22%) reported this than male (15%). A higher percentage of 8<sup>th</sup> graders reported the symptom of depression (21%) than 7<sup>th</sup> graders (15%).
- Among 7<sup>th</sup>-8<sup>th</sup> grade students, 14% report ever having attempted self-harm (i.e. cutting, burning) compared to 12% in 2013.
- Among Brookline 7<sup>th</sup> and 8<sup>th</sup> grade students, 4% reported having EVER attempted suicide. The prevalence did not vary by grade. More males had ever attempted suicide (4%) than females (3%).

The 2013 Massachusetts state survey showed 1% of state middle school students (6<sup>th</sup>-8<sup>th</sup>) reported attempting suicide in the past 12 months.

### *Body Weight and Dietary Behaviors*

This survey asked students about their perceived body weight. Students were not asked about their actual body weight.

- Similar to prior years, 23% of BHS students in 2015 described themselves as slightly overweight or very overweight. This is compared to 29% and 31% for Massachusetts and nationally, respectively.
- Females (28%) were significantly more likely to describe themselves as slightly or very overweight compared to males (17%).
- Over the past twelve months, 3% report that they vomited or took laxatives and 6% report that they fasted to lose or maintain weight.
- Seniors were significantly more likely to report that they rarely or never ate a balanced diet (13%) as compared to 9% of juniors, 8% of sophomores, and 6% of freshman.

Among 7<sup>th</sup> and 8<sup>th</sup> graders, 23% describe themselves as slightly overweight or very overweight, and 32% reported that they were currently trying to lose weight.

- The rates were similar among 7<sup>th</sup>-8<sup>th</sup> grade females (23%) and males (22%).
- Over the past twelve months, 4% of 7<sup>th</sup>-8<sup>th</sup> graders reported that they vomited or took laxatives, and 5% reported that they fasted to lose or maintain weight.

### *Physical Activity*

The survey asks student about the number of days in the past week they exercised.

- Among 7<sup>th</sup>-8<sup>th</sup> graders, the reported rate for participating in one hour of cardiovascular activity for at least three days in the past week was 85% .
- Among BHS students,48% reported that they participated on at least one BHS sports team in the past 12 months.
- Among BHS students, 40% reported participating in one hour of cardiovascular activity for at least three days in the past week, as compared to 36% in 2013.

At the high school level, Brookline’s rates of participation in one hour or more of cardiovascular activity for at least three days in the past week was lower than the MA rate of 44%, and the national rate of 47%.

### *Use of Technology for Recreational Purposes*

The survey questions pertaining to the use of technology were updated to reflect the increase in technology platforms and viewing options.

- In 2015, 39% of BHS students report using technology for non-school related work for three or more hours a day, as compared to 33% in 2013.
- 16% report watching three or more hours of TV/Netflix/Hulu, etc. on an average school day, up from 13% (TV only) in 2013.
- Students who reported mostly C’s or above were significantly more likely to use technology for non-school related work for three or more hours a day, as compared students who reported mostly A’s and B’s.

Among 7<sup>th</sup>-8<sup>th</sup> graders, 19% report watching three or more hours of TV/Netflix/Hulu, etc. on an average school day, as compared to 14% in 2013.

- 33% of 7<sup>th</sup>-8<sup>th</sup> graders reported spending three or more hours per average school day using a computer for non-school related activities similar to 2013 (34%).

### *Perceptions of Parental Disapproval*

Students’ perceptions of the level of parental disapproval affected their reported rates of use of

alcohol and other drugs.

BHS students who believed their parents disapproved of their use of alcohol used significantly less alcohol on all indicators.

- Students who perceived no parental disapproval or slight parental disapproval were far more likely to have ever tried alcohol than those who perceived strong disapproval (79% and 74% respectively as compared to 22%), and far more likely to have reported recent use (58% and 49% as compared to 10% who perceived strong parental disapproval).
- Of those who perceived no parental disapproval, 40% reported *recent binge drinking*, compared to 26% of those who perceived only slight parental disapproval, 8% of those who perceived parental and 4% of those who perceived strong parental disapproval.

Students who believed their parents disapproved of their use of marijuana also used significantly less.

- Of those who perceived no parental disapproval, 43% had *recently used marijuana*, compared with 34% of those who perceived slight parental disapproval, 18% who perceived parental disapproval, and 7% who perceived strong parental disapproval.
- Of those who perceived no parental disapproval, 16% reported *heavy marijuana use*, compared with 8% of those who perceived slight parental disapproval, 4% who perceived parental disapproval, and 2% who perceived strong parental disapproval.

Brookline 7<sup>th</sup> and 8<sup>th</sup> graders who believed their parents disapproved of their use of alcohol, marijuana or cigarettes used less of those drugs.

- Students who perceived no parental disapproval (34%) or slight parental disapproval (17%) were far more likely to have recently used alcohol than those who perceived disapproval (4%) and strong disapproval (1%).
- Students who believed their parents disapproved of their use of marijuana also used less. Of those who perceived no parental disapproval, 28% had recently used marijuana compared with 13% of those who perceived slight parental disapproval, 3% who perceived parental disapproval and 0.1% of those who perceived strong parental disapproval.

### *Perception of Accessibility*

While for most substances there was little change in the perception of accessibility, the percentage of BHS students who believed it would be “fairly easy” or “very easy” to access cigarettes, was 57% in 2015, down from 70% in 2013.

- Among BHS students, 72% believed it would be “fairly easy” or “very easy” to access alcohol, followed by marijuana (53%), amphetamines (27%) and painkillers without a prescription (23%), hallucinogens (11%), cocaine (9%), and heroin (3%).
- When responding to ease of access to, 9<sup>th</sup> graders had the lowest percentage of fairly or very easy access. The percentage increased among 10<sup>th</sup> and 11<sup>th</sup> graders, with the 12<sup>th</sup> graders having the highest percentage for all substances except painkillers, which ranged from 22% to 25% for all four grades.
- 37% of seniors believed it would be “fairly easy” or “very easy” to access amphetamines, and 18% believed it would be “fairly easy” or “very easy” to access cocaine.

### *Resiliency and Protective Factors*

The survey includes questions pertaining to protective factors including, participation in athletics and other physical activity, extra-curricular activities, academic performance, and having an adult to talk to about problems. This report looks at correlations between health risk behaviors and protective factors.

- The rate of students reporting participation on at least one BHS athletic team was 58%. Participation on a sports team did not appear to be a protective factor. In fact, students who participated on three teams were twice as likely to have engaged in binge drinking in the past 30 days than students who did not participate on any team (24% as compared to 12%)
- The rates of students participating in volunteer work was 49% and extracurricular activities was 77%. Participation in volunteer work and extracurricular activities appeared to have no protective effect.
- The rate of BHS students reporting that they received mostly A's, Bs, and C's was 95%. There appeared to be little correlation between academic performance and reported rates of alcohol use and binge drinking.
- Students who reported heavy marijuana use (more than 10 times in the past month) reported lower grades.
- The rate of students who said they had an adult to talk with about problems was 67%. Students who reported having an adult to talk to at school or at home reported lower rates of binge drinking and marijuana use than those who reported that they did not have an adult to talk to.
- Females reported higher rates of volunteering, and participating in extracurricular activities. Males, on the other hand, reported significantly higher rates of participating on at least one BHS athletic team.

The only question asked on the middle school survey related to protective factors was about the number of school or community sports teams on which students participate. Similar to the high school data, there was little or no protective effect provided for middle school students by participation on athletic teams. In fact, in some cases it was just the opposite.

- Participation on any number of teams was associated with significantly *higher* rates of recent alcohol use.
- Students on two teams reported *higher* rates of lifetime marijuana rates.
- Participation on three or more teams was associated with a *higher* feeling of pressure to use drugs.
- There were no significant effects on either recent cigarette smoking or lifetime use of prescription painkillers.