

# 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 the risk behaviors of Brookline youth. Data was gathered from the *Brookline High School Health Survey* given to Brookline students in grades 7-12 during March and April 2017. (Previous editions of *Healthy Brookline* involving youth risk behavior include Volumes IV, VIII, XI, XIV XV and XVII.)

The *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 XVIII* 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 in school on the days the *Brookline Student Health Survey* was given in March and April of 2017 participated in the survey. At Brookline High School the survey was given during students' advisory period: 1,542 students in grades 9 – 12. The middle school health survey was given in Health classes, and included 1067 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 2017.

The national and statewide surveys of the *YRBS*, to which the Brookline sample is compared, were administered during the spring of 2015. Both used a multi-stage clustering sampling design to produce randomly selected representative samples of students. The national *YRBS* included data from

questionnaires from 148 public and private schools, grades 9-12. (There is no national survey for the middle school level.) The Massachusetts *YRBS* included students in 121 schools. Students taking the state's middle school survey represented grades 6-8. 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 for the 2017 *Brookline Student Health Survey*:**

#### ***Alcohol Use among 9<sup>th</sup>-12<sup>th</sup> graders***

Some reported measures of alcohol use among 9<sup>th</sup>-12<sup>th</sup> graders continued to decline while others increased.

- Lifetime use rates were 36% in 2017 -- down from 56% in 2013 and 47% in 2015.
- First use of alcohol before age 13 decreased from 6% in 2015 to 5% in 2017.
- Reported use of alcohol during the month prior to the survey was 30% in 2017, up from 27% in 2015.
- In the month prior to both the 2015 and 2017, 18% reported binge drinking
- Students who reported symptoms of depression reported higher rates of substance use -- 42% reported binge drinking (compared to general student population of 18%) and 41% reported recent marijuana use (compared to 17% of the general student population).
- Reported rates of drinking during the school day were 15% in 2017, a notable increase from 2% in 2015.
- Twelfth graders reported significantly higher rates for several behaviors than the other classes: 52% had at least one drink of alcohol, 32% had one drink of alcohol during school day, and 35% engaged in binge-drinking during the past year.
- Males and females were not markedly different for some measures of alcohol use. At the senior level, 54% of males and females ever had alcohol. Among juniors, 43% of males and 53% of females ever had alcohol. At the sophomore level, 38% of males and 36% of females ever had alcohol, and 17% of freshmen males and 18% of freshmen females ever had alcohol.
- However, males were more likely to binge drink for certain grades. 39% of senior males reported binge drinking compared to 31% of senior females. In contrast, 24% of junior males reported binge drinking compared to 28% of junior females. The measures were similar for sophomore and freshman males and females.
- Finally, more females than males reported that they had engaged in sexual activity after using alcohol that they wouldn't have if they hadn't been drinking -- 15% of senior females, 11% junior females, 6% of sophomore females, and 3% of freshmen females compared to 10% of senior males, 15% of junior males, 4% of sophomore males and 1% of freshmen males.

#### ***Alcohol Use among 7<sup>th</sup> and 8<sup>th</sup> graders***

- Lifetime use rates were 15% in 2013, 11% in 2015, and 12% in 2017.
- Rates of first use of alcohol before age 13 decreased from 11% in 2013 to 6% in 2015, but increased to 9% in 2017.

For most comparable alcohol indicators, Brookline 9<sup>th</sup>-12<sup>th</sup> graders reported lower rates than state and national levels. Rates were the same (18%) for recent binge drinking at Brookline High School as well as state and nationwide.

In comparison to students on the statewide survey, Brookline 7<sup>th</sup> and 8<sup>th</sup> graders reported lower rates of lifetime alcohol use (2% versus 6%) and the same rate (2%) of recent alcohol use. National data are not collected at the middle school level, so there is none to compare.

#### ***Marijuana Use 9<sup>th</sup>-12<sup>th</sup> graders***

Reported rates among Brookline 9<sup>th</sup>-12<sup>th</sup> graders from 2013 to 2017 continued to decline or remained consistent over the past six years.

- Rates of having ever used marijuana declined to 26% in 2017, from 34% in 2013 to 27% in 2015.

- Rates of first use before age 13 declined from 2% in 2013 to 1% in 2015, remaining consistent at 1% in 2017.
- Marijuana use during the month before the survey declined to 17% in 2017, down from 21% in 2013 and 16% in 2015
- Twelfth graders reported significantly higher rates than 9<sup>th</sup> graders in most behaviors -- 32% reported use in the last 30 days compared to 7% of freshman, with sophomore rates at 16% and juniors rates at 21%.
- 13% of seniors reported having used marijuana during the school day in the last year compared to 2% of freshman, with sophomores at 8% and juniors at 7%.
- The lifetime use of marijuana varied by grade as well as gender -- among seniors, 44% of males and 43% of females; 30% of junior males and 36% of junior females; 30% of sophomore males and 25% of sophomore females; and 12% of freshman males and 7% of freshman females.
- Among students who drive, males reported that over the past 30 days, they were more than twice as likely as females to drive a car after using marijuana (26% versus 11%).
- Each student was asked about their perception of the risks associated with marijuana, whether there was a no or slight risk, moderate risk or great risk of harming oneself under the influence of marijuana. Results varied by grade:
  - Freshman - 43% no or slight risk, 35% moderate, 22% great
  - Sophomore - 65% no or slight risk, 23% moderate, 13% great
  - Junior - 68% no or slight risk, 23% moderate, 9% great
  - Senior - 77% no or slight risk, 20% moderate, 4% great

#### ***Marijuana use among 7th and 8th graders***

Among Brookline 7th and 8th graders, most measures of marijuana use decreased or remained about the same from 2013 to 2017.

- Lifetime marijuana use rates were 5% in 2013, 2% in 2015 and 2% in 2017.
- Rates of marijuana use before age 13 were 2% in 2013, 1% in 2015 and 1% in 2017.
- Reported use of marijuana in the month prior to the survey was 2% in 2017, lower than the 4% in 2013 and higher than 1% in 2015.
- 3% of 8th graders had ever used marijuana products including edibles and dabs whereas 1% of 7th graders had ever used marijuana products including edibles and dabs.

Rates of marijuana use on all indicators among Brookline 9<sup>th</sup>-12<sup>th</sup> graders were lower than state and national levels. Lifetime marijuana use was 26% for Brookline High School students, compared to 41% for state and 39% for US levels. Marijuana use in the past 30 days was 17% for Brookline High School students, compared to 25% for state and 22% for US levels.

Among 7th and 8th graders, lifetime marijuana use was 2%, lower than the 6% rate statewide. Marijuana use in the last 30 days was 2% for Brookline middle school students and statewide statistics.

#### ***Other Illegal Drug Use 9<sup>th</sup>-12<sup>th</sup> graders***

Among 9<sup>th</sup>-12<sup>th</sup> graders, most measures of the use of other illegal drugs remained relatively low, with reported usage at 1-2% for all the illegal drugs surveyed. Rates of several drugs decreased from 2015 to 2017 among high school students, including cocaine, heroin, and hallucinogens.

- Reported rates of cocaine use remained the same from 2015 to 2017 at 1%, and the rates of heroin use decreased from 1% to <1% over the same time period.
- The reported use of hallucinogens decreased from 2015 (3%) to 2017(1%).
- The use of prescription drugs without a prescription also decreased -- from 4% to 2% for amphetamines (i.e., Adderall, Ritalin, etc.), from 1% to <1% for steroids, and from 2% to 1% for depressants (i.e., Valium, Xanax) .

#### ***Other Illegal Drug among 7th and 8th graders***

For students in grades 7-8, the reported rates of illegal drug use remain relatively low with little change from 2015 to 2017.

- Cocaine, less than 1%.

- Inhalants, less than 1%.
- Lifetime use of prescription painkillers to get high, less than 1%.
- Use without a prescription: steroids less than 1%; amphetamines (Ritalin, Adderall, Concerta) 1%; and painkillers (Percocet, Oxycodone, or Vicodin) 1%.

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 lower for Brookline (1%) than for Massachusetts and nationwide (5% for both). There was no comparable Massachusetts middle school data by drug type category; the State reports lifetime other drug use among students in 7<sup>th</sup> and 8<sup>th</sup> grade as 10%.

### ***Tobacco among Brookline 9<sup>th</sup>-12<sup>th</sup> graders***

Tobacco use among Brookline 9<sup>th</sup>-12<sup>th</sup> graders remains relatively low, with a decrease in most indicators from 2015 to 2017. The 2017 survey does not differentiate between smoking tobacco and electronic cigarettes, but rather combines the two.

- The rates of first use of tobacco before age 13 remained the same from 2015 to 2017 at 2%.
- The rate of lifetime tobacco use increased from 15% in 2015 to 17% in 2017.
- Use in the past 30 days remained the same from 2015 to 2017 at 5%.
- The rate of recent use of chewing tobacco, snuff, or dip increased slightly, from 2% in 2015 to 3% in 2017.

### ***Tobacco among 7<sup>th</sup> and 8<sup>th</sup> graders***

In the 2017, the survey question “ever used ” changed from two separate questions to include both tobacco cigarettes and electronic cigarettes.

- The reported rate of lifetime use of tobacco and or electronic cigarettes was 3%. Use of chewing tobacco was 1% in 2015 and less than 1% in 2017.
- The use of other forms of tobacco (i.e., flavored products, cigarillos) decreased to 1% in 2017 from 4% in 2015.

At the high school level, the rate at which Brookline teens had ever used tobacco (17%) was lower than the state (29%) and national (31%) rates. Recent use of chewing tobacco, snuff and dip was lower as well -- Brookline 5%, state 8%, and national 11%.

Similarly, the Brookline 7<sup>th</sup>-8<sup>th</sup> grade rate of lifetime use (3%) was lower than the state rate ( 6%). Other tobacco measures were not collected at the state level for middle school students.

### ***Violence-Related Behavior among 9<sup>th</sup> -12<sup>th</sup> graders***

BHS 9<sup>th</sup> -12<sup>th</sup> graders reported fewer violence-related risk behaviors than their MA and US counterparts in several categories.

- The number of students who reported being bullied at school in the past 12 months was 13% in 2017, 9% in 2015, and 16% in 2013.
- Students reported having been electronically bullied in the past 12 months at a rate of 7%, as compared to 6% in 2015.
- Similar number of students in different grades reported being bullied at school --11% of seniors, 11% of juniors, 13% of sophomores, and 14% of freshmen. Likewise, similar number of students in different grades reported being electronically bullied at school -- 9% of seniors, 5% of juniors, 8% of sophomores, and 8% of freshmen.
- The percentages of reported sexual contact against their will were 6% in 2017, down from 7% in 2013 and 8% in 2015.

- The percentage of students who reported being physically hurt on purpose by a boyfriend or girlfriend decreased from 5 % in 2015 to 1% in 2017.
- The prevalence of students that reported hearing derogatory remarks regarding sexual orientation at school decreased from 68% in 2015 to 56% in 2017.
- The prevalence of BHS students that reported hearing derogatory remarks regarding racial, ethnic, immigrant, and /or religious groups was 70% in 2017. (This question was added for the for the first time in 2017.)
- Females in all grade levels were much more likely to have experienced sexual harassment at school -- 19% of twelfth graders, 20% of eleventh graders, 20% of tenth graders and 18% of ninth graders. Male rates were 3% of twelfth graders, 4% of eleventh graders, 6% of tenth graders and 3% of ninth graders.
- This trend was also true for sexual contact against a person's will, especially for females in their senior year -- 21% of twelfth graders, 9% of eleventh graders, 11% of tenth graders and 8% of ninth graders. Male rates were only 8% of twelfth graders, 3% of eleventh graders, 4% of tenth graders and 1% of ninth graders.
- 19% of gay or lesbian students and 20% of bisexual students reported being bullied on school property compared to 12% heterosexual students. Similarly, 27% of gay or lesbian students and 11% of bisexual students reported being bullied on school property compared to 6% of heterosexual students.

#### ***Violence-Related Behavior among Brookline 7th and 8th graders:***

- The reported rate of electronic bullying in the past 12 months was 8%, down from 13% in 2015 and lower than the state rate (15%).
- The rate of sexual contact against one's will was 1% in 2017, down from 6% in 2013 and 2% in 2015.
- 4% of students reported having been in a physical fight in the past 12 months that required treatment, as compared to 7% in 2015.
- The rate of students reporting hearing derogatory remarks regarding sexual orientation at school continued to decrease, from 59% in 2013, to 54% in 2015, and 47% in 2017.

#### ***Sexual Behavior***

The rate of Brookline 9<sup>th</sup> -12<sup>th</sup> graders who reported ever having had sexual intercourse continued to decline.

- In 2017, 18% of BHS students reported ever having had sexual intercourse, compared to 23% in 2013 and 21% in 2015. This rate is considerably lower than both the 2015 MA rate of 36% and US rate of 41%.
- Among sexually active BHS students, condom use during sexual intercourse slightly increased from 62% in 2015 to 66% in 2017. However, this is still a decrease from 75% usage in 2013.
- In 2017, 26% of BHS seniors reported engaging in sexual activity after using alcohol that they wouldn't have if they hadn't been drinking, compared with 17% of juniors, 10% of sophomores, and 4% of freshmen.

The rate of Brookline 7th and 8th graders in 2015 who reported ever having sexual intercourse also declined.

- Two percent reported having ever had sexual intercourse, compared to 6% in 2013 and similar to 2% in 2015.
- Among middle school students, 3% reported ever having participated in oral sex.

#### ***Mental Health***

The rate of BHS 9<sup>th</sup> -12<sup>th</sup> graders who reported having felt overwhelming stress or anxiety during the past 12 months rose from 82% in 2015 to 84% in 2017.

- All grade levels experienced similar levels of overwhelming stress or anxiety in the last year -- 82% of seniors, 85% of juniors, 86% of sophomores and 83% of freshmen.
- Across all grade levels, more females than males reported stress and anxiety -- 96% of twelfth graders, 95% of eleventh graders, 93% of tenth graders, and 91% of ninth graders. Rates among males students were 65% in twelfth grades, 75% in eleventh grades, 78% in tenth grade and 77% in ninth grade.

- In 2017, 29% of students reported symptoms of depression (feeling sad or hopeless for two or more weeks in a row), and 24% reported feeling suicidal in the past 12 months. These rates are an increase from 2015 -- 25% reported symptoms of depression and 18% reported feeling suicidal.
- Females were more likely to report depression and to stop doing some usual activities -- 48% of seniors, 41% of juniors, 35% of sophomores, and 35% of freshmen. Male rates of reported depression were considerably lower -- 12% of seniors, 24% of juniors, 16% of sophomores, and 20% of freshmen.
- Females were also more likely to report feeling suicidal -- 7% of seniors, 5% of juniors, 7% of sophomores, and 8% of freshmen. compare to 2% of senior boys, 2% of junior boys, 4% of sophomore boys, and 3% of freshmen boys.
- The rates of students who reported they seriously considered suicide and made a suicide plan in the past 12 months has increased, from 2% in 2013 and 2015 to 4% in 2017.
- BHS students identifying as LGBTQ were more likely to report symptoms of depression than heterosexual students -- lesbian and gay 56%, bisexual 63%, and questioning 31%, as compared to heterosexual 25%. In addition, 27% of gays or lesbians and 12% of bisexuals listed non-acceptance, intolerance, bullying or harassment as their primary cause of stress, compared to only 4% of heterosexuals.

At the middle school level, the percentage of 7th and 8th grade students who reported experiencing overwhelming stress or anxiety in the past year increased from 70% in 2015 to 79% in 2017.

- 11% reported ever having attempted self-harm (i.e., cutting, burning) compared to 14% in 2015.
- 1% reported having EVER attempted suicide.

The 2015 Massachusetts state survey showed 4% of state middle school students (6th-8th) reported attempted suicide in the past 12 months.

### ***Body Weight and Dietary Behaviors***

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

- Similar to prior years, 24% in 2017 described themselves as slightly overweight or very overweight. This is compared to 32% for both Massachusetts and the nation.
- Over the past 12 months, 4% reported they vomited or took laxatives, and 2% reported that they fasted to lose or maintain weight.
- Females were more likely than males in all grade levels to vomit or throw up on purpose after eating -- 10% of seniors, 5% of juniors, 9% of sophomores, and 4% of freshmen. No senior males or junior males reported these behaviors. Only 2% of freshman and sophomore males reported vomiting or throwing up on purpose.

Among 7th and 8th graders, 20% describe themselves as slightly overweight or very overweight.

For 7th graders, 2% of females and less than 1% of males reported vomiting or throwing up on purpose after eating during the past 12 months. For 8th graders, rates increased to 22% of females and 1% of males.

- Over the past twelve months, of 7th and 8th graders reported that they vomited or took laxatives and and 1% reported that they fasted to lose or maintain weight.

### ***Physical Activity***

The survey asked BHS students about the number of days in the past week they exercised.

- 45% reported participating in 60 minutes of cardiovascular activity for at least 5 of the 7 days.
- 59% reported participating in at least one BHS sports team in the past 12 months.
- 45% reported participating in one hour of cardiovascular activity for at least three days in the past week, up from 40% in 2015.

***At the high school level, Brookline's rate of participation in one hour or more of cardiovascular activity for at least five days in the past week was the same as the MA rate of 45%, though it was lower than the national rate of 49%.***

### ***Use of Technology for Recreational Purposes***

The survey questions pertaining to use of technology were updated to reflect the increase in platforms and viewing options. Due to changes in technology and viewing habits, the 2017 survey combined TV use with all other technology use.

- In 2017, 51 % of BHS students reported using technology for non-school related work for three or more hours a day with handheld devices. Prior years asked this question in two components -- TV or computer for non school related work (i.e video games, Facebook, surfing the web). In 2015, 16% watched TV for three or more hours on an average school day, and 39% used computer for recreational purposes on an average school day.

### ***Perceptions of Parental Disapproval***

Students' perceptions of the level of parental disapproval appeared to affect 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 (66% and 59% respectively as compared to 24%), and far more likely to have reported recent use (66% and 59% as compared to 24 % who perceived strong parental disapproval).
- Of those who perceived no parental disapproval, 52% reported recent binge drinking, compared to 41% who perceived slight parental disapproval, and 13% who perceived strong parental disapproval.

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

- Of those who perceived strong parental disapproval, 18% reported recent marijuana use, compared with 47% of those who perceived slight parental disapproval and 69% of those who perceived no parental disapproval.
- Of those who perceived strong parental disapproval, 5% reported heavy marijuana use, compared with 18% of those who perceived slight parental disapproval and 39% of those who perceived no parental disapproval.

### ***Perception of Accessibility***

While there was little change in the perception of accessibility of most substances, the percentage of BHS students who believed it would be "fairly easy" or "very easy" to access cigarettes was 40% (electronic vapor products) and 64% (other vapor products) in 2017, up from 57% in 2015.

### ***Resiliency and Protective Factors***

The survey includes questions pertaining to protective factors, including participation in athletics and other physical activity, extracurricular activities, academic performance, and having an adult to talk with 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 59%.
- The rate of students participating in volunteer work was 47% and extracurricular activities was 66%.
- The rate of students who said they had an adult to talk with about problems was 62%.