NH DIVISION OF Public Health Services
Department of Health and Human Services

Understanding Adolescent Tobacco Use in New Hampshire

Background

The Surgeon General Report, *E-Cigarette Use Among Youth and Young Adults*, emphasizes the importance of protecting our children from a lifetime of nicotine addiction and associated health risks by immediately addressing youth e-cigarette use. In recent years, e-cigarette (also known as vaping or juuling) use by youth and young adults has increased at an alarming rate. E-cigarettes are now the most commonly-used tobacco products among youth in the United States[1].

In 2016, after much public input, the U.S. Department of Health and Human Services, Food and Drug Administration (FDA) extended its regulatory authority to all tobacco products that did not previously fall under the FDA's authority[2]. Below is a list of all the tobacco products that currently fall under FDA's Center for Tobacco Products.

- Cigarettes
- Cigars
- Dissolvables
- Heat–Not-Burn
- Hookah Tobacco
- Nicotine Gels
- Pipe Tobacco
- Roll-Your-Own Tobacco
- Smokeless Tobacco Products, including Dip, Snuff, Snus, and Chewing Tobacco
- Vapes, E-Cigs, Hookah Pens, and other Electronic Nicotine Delivery Systems (ENDS)[3]

The Centers for Disease Control and Prevention (CDC) began collecting data about the use of e-cigarettes by adolescents in 2015 via the Youth Tobacco and Youth Risk Behavior Surveys (YRBS). Nationwide, 32.7% of high school-aged youth reported using an electronic vapor product (including e-cigarettes, e-cigars, e-pipes, vape pipes, vaping pens, e-hookahs, and hookah pens) on at least one day during the 30 days before according to the 2019 YRBS[4]. Adolescent use of electronic cigarettes exceeds the use of cigarettes, cigars and pipes according to the 2015 - 2019 New Hampshire YRBS. Figure 1 (on page 1) shows adolescent use of cigarettes and e-cigarettes across a 14-year span in New Hampshire.

- During the year 2005, 21% of students reported using cigarettes.
- During the year 2007, 19% of students reported using cigarettes.
- During the year 2009, 21% of students reported using cigarettes.
- During the year 2011, 20% of students reported using cigarettes.
- During the year 2013, 14% of students reported using cigarettes.

- During the year 2015, 9% of students reported using cigarettes and 25% reported using an electronic vapor product.
- During the year 2017, 8% of students reported using cigarettes and 24% of students reported using an electronic vapor product.
- During the year 2019, 6% of students reported using cigarettes and 34% of students reported using an electronic vapor product.

The figure shows a decline in youth cigarette use in years 2013-2019 and an increase in electronic vapor products in 2019.

New Hampshire Youth Risk Behavior Surveys and High School-Aged Youth Use of E-Cigarettes

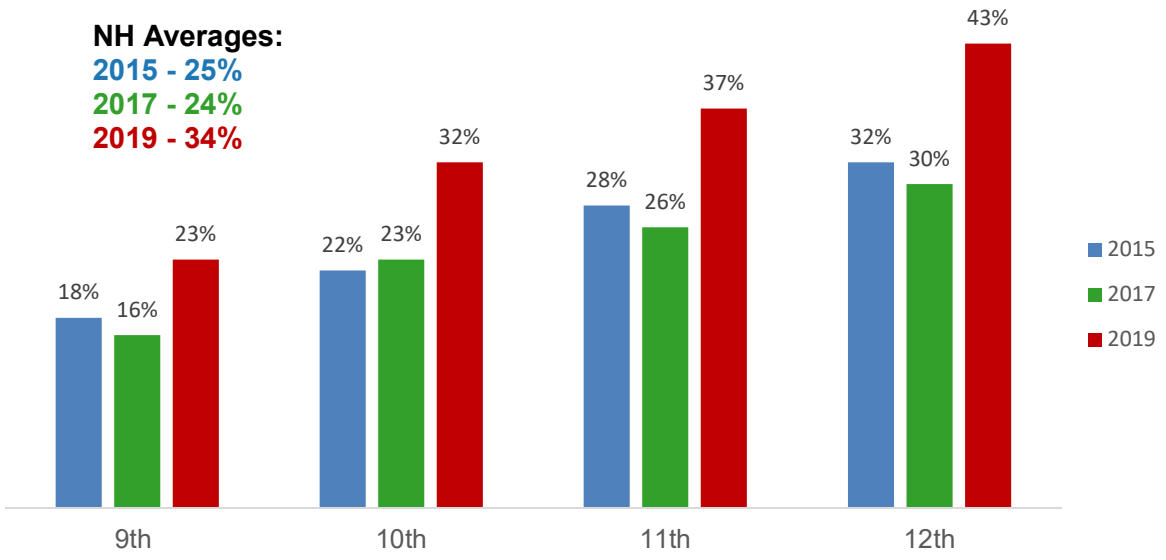
High school-aged youth take the New Hampshire YRBS every two years. Data collected by this survey is a rich source of information and a cornerstone in understanding youth use for the NH Department of Health and Human Services.

This issue brief includes data from the 2015, 2017, and 2019 YRBS about the prevalence of high school-aged youth who reported using an electronic vaping product. Below is data by grade, race/ethnicity, sexual identity, and by Public Health Region. These categories showed an increase e-cigarette use by grade, race/ethnicity, and Public Health Regions.

Grade Level

Figure 2 (page 3) shows the reported current use of electronic vapor products for high school-aged youth by grade level for 2015, 2017, and 2019. All years show that initiation of use increases with grade level attainment.

Figure 2: Percentage of High School-Aged Youth Who Reported Current Use of an Electronic Vapor Product by Grade Level, 2015, 2017, and 2019



Source: New Hampshire Youth Risk Behavior Survey (YRBS)

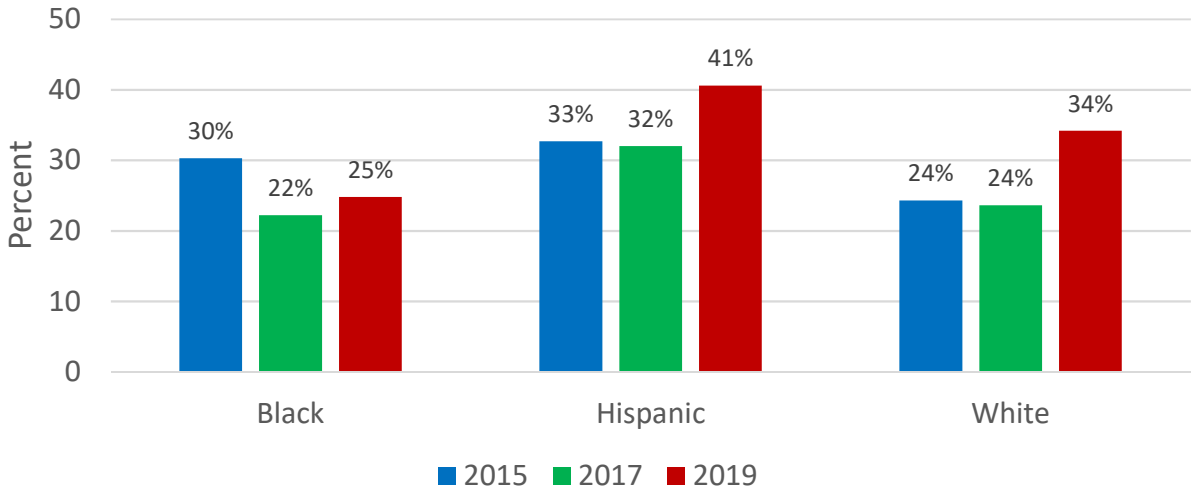
- 9th graders were using an electronic vapor product: 18% in 2015, 16% in 2017, and 23% in 2019
- 10th graders were using an electronic vapor product: 22% in 2015, 23% in 2017, and 32% in 2019
- 11th graders were using an electronic vapor product: 28% in 2015, 26% in 2017, and 37% in 2019
- 12th graders were using an electronic vapor product: 32% in 2015, 30% in 2017, and 43% in 2019

The New Hampshire average for 2015 was 25%, in 2017 24%, and in 2019 34%. The data from 2019 increased significantly from the 2015 and 2017 data.

Race/Ethnicity

Race/Ethnicity can play a role in tobacco use. Data from 2015-2019 (see Figure 3 on page 4) suggests that Hispanic high school-aged youth are using e-cigarettes more than their peers.

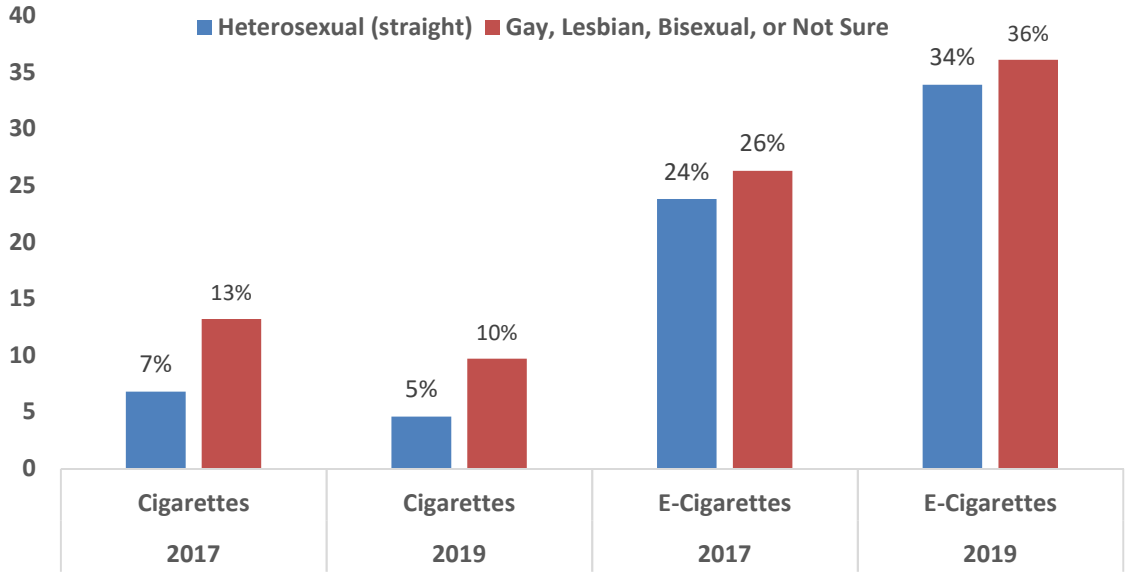
Figure 3: Percentage of High-School Aged Youth Who Reported Current Use of an Electronic Vapor Product by Race/Ethnicity, YRBS 2015 - 2019



Sexual Identity

The 2017 and 2019 percentages of youth who reported using a cigarette or an electronic vapor device were compared by sexual identity (see Figure 4 below).

Figure 4: Percentage of High School-Aged Youth Who Currently Use Cigarettes and Vapor Products by Sexual Identity, 2017 and 2019



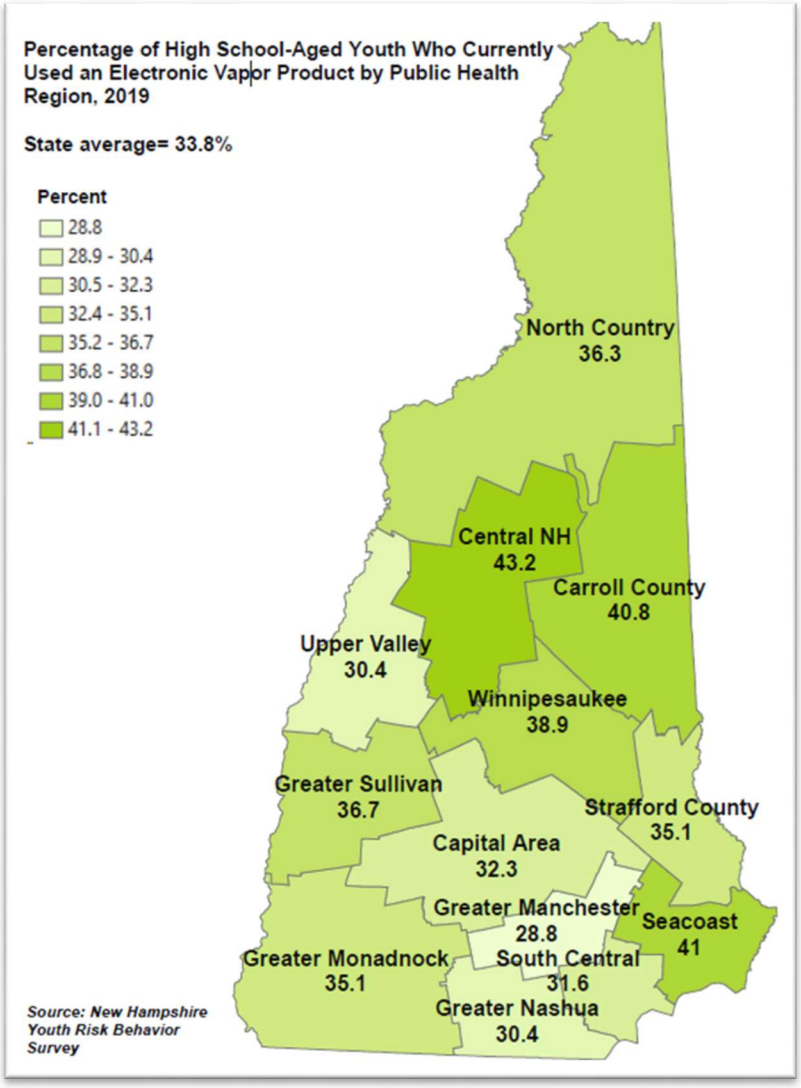
Source: New Hampshire Youth Risk Behavior Survey (YRBS)

- Cigarette use was 7% and 5% for students that identified as heterosexual and 13% and 10% for those who identified as gay, lesbian, bisexual, or not sure. Both percentages dropped in 2019.
- E-Cigarette use was 24% and 34% for students that identified as heterosexual and 26% and 36% for those who identified as gay, lesbian, bisexual, or not sure. Both percentages went up in 2019.

The data highlighted that high school-aged youth that identified as Gay, Lesbian, Bisexual, or Not Sure were almost 1.5 times more likely to use cigarettes than those that identified as Heterosexual.

Public Health Regions:

Among 13 Public Health Regions in NH, 8 of them have high e-cigarette use rates above the State rate level of 33.8%. Central NH (43.2%), Seacoast (41.0%), Carroll County (40.8%), Winnipesaukee (38.9%) Greater Sullivan (36.7%), Strafford County (35.1%), and Greater Monadnock (35.1%) have the highest rates in e-cigarette use.



What Attracts Youth to Electronic Vaping Products/E-Cigarettes/ Vapes?

According to the U.S. Surgeon General Report, *E-Cigarette Use among Youth and Young Adults,* flavors are one of the main reasons youth are attracted to these devices. Flavors and the use of celebrity images increases. Many flavors of liquid nicotine are similar to other products, such as a children's cereal name. Unique flavors of liquid nicotine can play a significant role in youth initiation and continued use.

Since 2007, sales of e-cigarettes in the United States have risen rapidly. Widespread advertising via television commercials and through print advertisements for popular brands, often featuring celebrities, has contributed to a large increase in e-cigarette use by both adults and youth since 2010.

Finally, early data suggests adolescents co-occurring use of e-cigarettes, tobacco cigarette and cannabis are common.[5, 6]

Nicotine and Adolescent Brain Development

Nicotine is a highly-addictive chemical found in all tobacco products, including e-cigarettes and liquid nicotine. Nicotine use during adolescence impacts brain development, specifically the area called the prefrontal cortex. The prefrontal cortex is the area of the brain that affects impulsivity and decision-making and is one of the areas that matures last. When an adolescent's prefrontal cortex is exposed repeatedly to nicotine, their brain chemistry will change and this can lead to an addiction.

The brain continues to develop through the mid-twenties. Using tobacco during adolescence increases the risk of developing psychiatric disorders and cognitive impairment later in life. In addition, adolescent smokers may suffer from attention deficits, which worsen with the years of smoking[7].

Recommendations

- Recognize tobacco company marketing efforts target adolescents by using social influencers and product labeling that imitate images with brand recognition (see image on the right);

Image Courtesy of the FDA

- Educate youth, parents, and caregivers on the health effects of repeated exposure to nicotine in an adolescent brain which will result in chemical changes to the brain;
- Continue to educate audiences about new electronic vaping products;
- Create more tobacco-free environments, including e-cigarettes; and
- Encourage parents to talk with their child or children about the health effects of tobacco products, including e-cigarettes.

Conclusions

1. Nationally and in New Hampshire, adolescents think vaping or juuling is harmless.
2. According to the 2016 Surgeon General's Report, *E-Cigarette Use among Youth and Young Adults,* adolescents who use vaping products commonly will also use cigarettes.
3. Adolescents often mimic adult behavior, especially when they see people they think are "cool" such as celebrities.
4. The number and type of unique names and flavors of liquid nicotine plays a significant role in youth initiation and continued use.
5. The adolescent brain (prefrontal cortex) is affected when nicotine products are used.

For more information or technical assistance

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