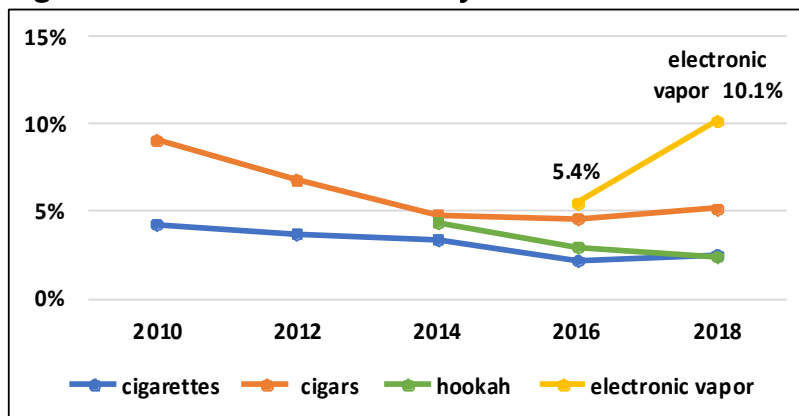


The Surgeon General reports that electronic vapor products as “e-cigarettes entered the U.S. marketplace around 2007, and since 2014, they have been the most commonly used tobacco product among U.S. youth”¹. Local surveillance of middle (MS) and high school (HS) students in recent years through the Youth Risk Behavior Survey found this is also true for youth in Cuyahoga County.

Both electronic vapor products and cigars are available in many flavors that appeal to youth (sweet, fruit, mint, etc). Cigar use continues to be a concern among Cuyahoga County students with more than 1 in 10 students in high school and 1 in 20 students in middle school using in the past month. More students are using electronic vapor products than cigars and this use has nearly doubled among middle school students in only 2 years (5.4% of MS students in 2016, 10.1% of MS students in 2018). (see Fig. 1)

Figure 1. Middle School Past 30 Day Use of Tobacco Products



NOT Harmless Vapor

Electronic vapor products deliver nicotine and flavorings through an inhaled aerosol. Nicotine is a highly addictive substance which can harm adolescent brain development and impair memory and attention necessary for learning. Ultrafine particles, heavy metals, and volatile organic compounds with known adverse health effects are also inhaled along with nicotine.¹

According to the most recent survey results (2017/2018), nearly 1 in 4 high school students (23.6%) and 12.5% of middle school students are currently using at least one tobacco product such as cigarettes, cigars, hookah, or electronic vapor products). (see Table 1).

Half of middle school tobacco users and a third of high school tobacco users are ONLY using electronic vapor products. These products continue to be used by more students overall than any other product (15.7% of HS students in 2017 and 10.1% of MS students in 2018).



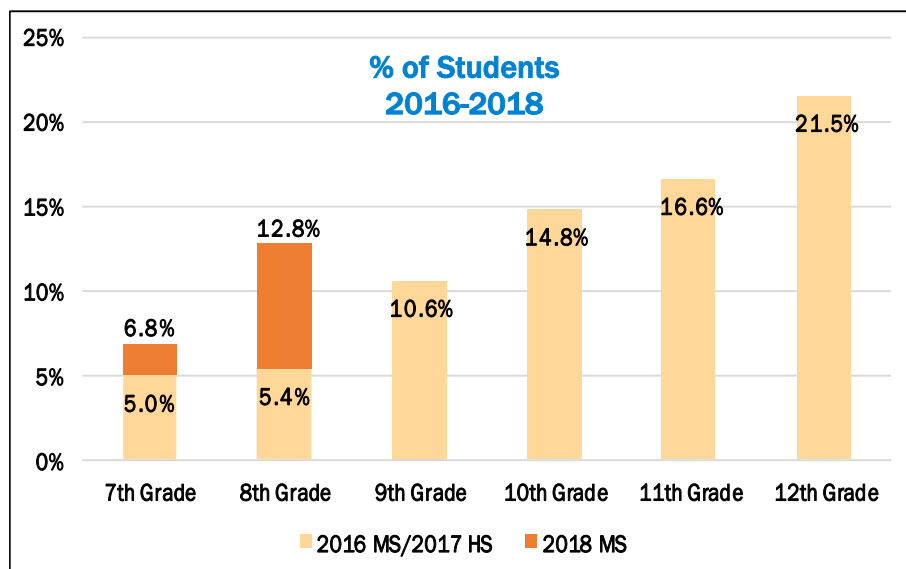
When comparing by race, the use in middle school of any tobacco product and specifically electronic vapor products is highest among Hispanic students (any tobacco 21.5%, vapor 18.8%). Among high school youth, electronic vapor product use is most common among students of White, Hispanic, or Other/Multiple race/ethnicity. However, among Black HS students, the most commonly used tobacco product is cigars. (16.5% of Black students use cigars vs. only 9.9% use vapor products).

Table 1. Tobacco Product Use Past 30 Days by Gender and Race/Ethnicity

Past 30 day use	% of Students (95% Confidence Interval)						Total
	Gender		Race/Ethnicity				
2018 Middle School	Female	Male	White	Black	Hispanic	Other/Multiple	
any tobacco product	12.7 (11.7-13.9)	12.7 (11.5-14.1)	11.7 (10.5-13.0)	12.8 (11.6-14.1)	21.5 (18.5-24.9)	16.1 (13.5-19.1)	12.5 (11.6-13.4)
electronic vapor	9.5 (8.6-10.5)	10.4 (9.3-11.7)	10.9 (9.7-12.2)	7.1 (6.2-8.1)	18.8 (15.9-22.0)	12.6 (10.3-15.3)	10.1 (9.3-10.9)
cigars	5.4 (4.8-6.1)	4.7 (4.1-5.4)	2.8 (2.3-3.3)	7.7 (6.9-8.6)	11.5 (8.8-14.8)	8.2 (6.2-10.7)	5.1 (4.7-5.6)
cigarettes	2.4 (2.0-2.9)	2.5 (2.0-3.0)	2.2 (1.8-2.7)	2.0 (1.6-2.4)	7.3 (5.0-10.7)	4.4 (2.9-6.6)	2.5 (2.2-2.9)
hookah	2.5 (2.1-3.1)	2.2 (1.8-2.6)	1.2 (0.9-1.5)	2.8 (2.3-3.4)	9.4 (7.0-12.7)	5.9 (4.1-8.3)	2.4 (2.1-2.8)
2017 High School							
any tobacco product	23.1 (21.7-24.7)	24.0 (22.6-25.5)	24.9 (23.2-26.6)	21.2 (19.7-22.8)	28.3 (25.6-31.2)	28.2 (23.9-32.8)	23.6 (22.5-24.7)
electronic vapor	15.0 (13.9-16.3)	16.3 (15.1-17.6)	19.6 (18.0-21.3)	9.9 (8.9-10.9)	19.4 (17.4-21.6)	22.4 (18.4-27.0)	15.7 (14.8-16.7)
cigars	12.3 (11.1-13.7)	13.7 (12.6-14.9)	10.3 (9.3-11.4)	16.5 (15.1-18.1)	14.7 (12.8-16.8)	13.0 (10.4-16)	13.1 (12.2-14.0)
cigarettes	5.7 (4.9-6.5)	6.7 (5.9-7.6)	8.7 (7.8-9.7)	2.8 (2.1-3.8)	7.4 (6.1-9.1)	7.6 (5.1-11.2)	6.2 (5.7-6.8)
hookah	6.9 (6.1-7.9)	7.7 (6.8-8.7)	6.1 (5.4-6.9)	8.0 (6.9-9.2)	12.1 (10.2-14.3)	10.6 (7.7-14.4)	7.4 (6.7-8.0)

¹Office of the Surgeon General. *E-cigarette Use among Youth and Young Adults: A Report of the Surgeon General*. Washington, DC: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. https://www.cdc.gov/tobacco/data_statistics/sgr/e-cigarettes/pdfs/2016_sgr_entire_report_508.pdf.

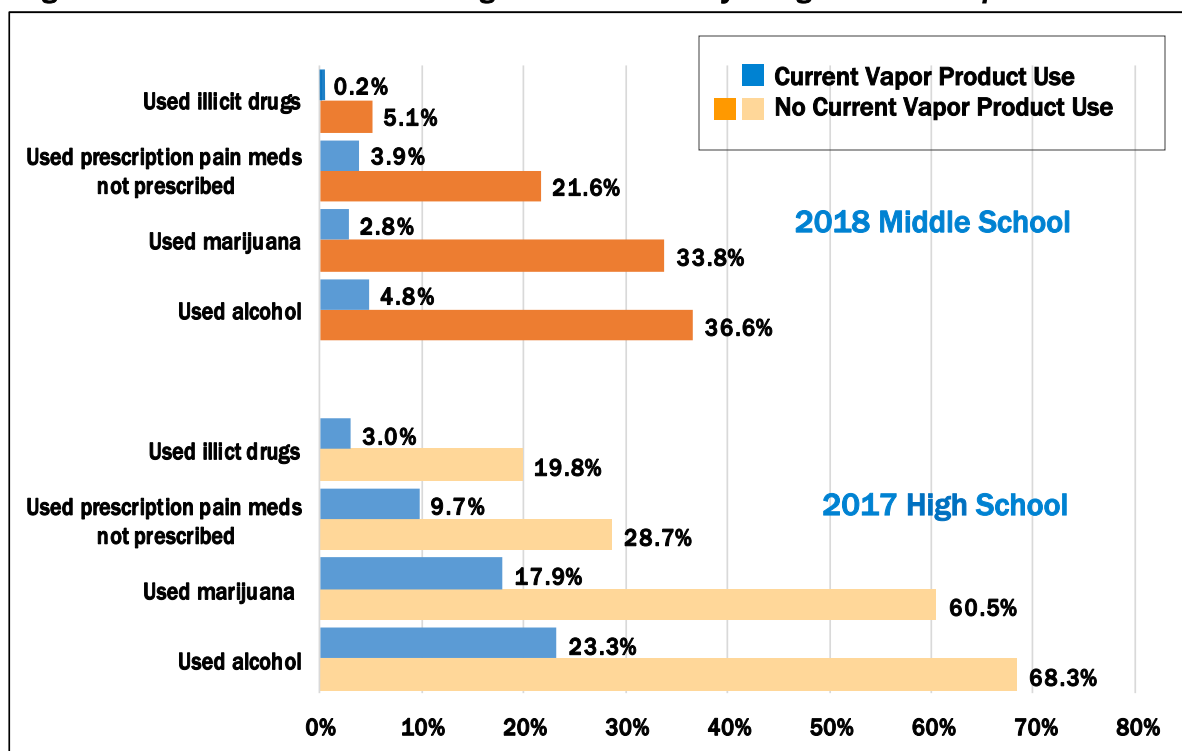
Figure 2. Electronic Vapor Use by Grade Level 7th to 12th



A higher percentage of students were currently using electronic vapor products in high school (9th to 12th grade) in 2017 than in middle school (7th & 8th grade) in 2016. More students were using in higher grade levels than lower grade levels among high school students.

From 2016 to 2018, use among students in both 7th and 8th grade has risen significantly to rates that were only previously seen in the high school years (from 5.0% to 6.8% of 7th graders, from 5.4% to 12.8% of 8th graders). If use in high school continues to rise at similar rates at each grade level and follows national trends, it would be expected that rates of use could exceed a quarter of students in 12th grade in 2019.

Figure 3. Other Substance Use Among Students Currently Using Electronic Vapor Products



The rates of use of substances such as alcohol, marijuana, prescription pain medications, and illicit drugs are significantly higher among middle and high school students who are currently vaping than those who had not used an electronic vapor product in the past 30 days (see Fig. 3).

For example, high school students are more than 3 times more likely to be current marijuana users if they are current electronic vapor users. In middle school, students are 10 times more likely to be current marijuana users if they are current electronic vapor users.

Usage of vapor products, alcohol, or marijuana are within the past 30 days
Usage of illicit drugs or prescription pain medication for MS are within past 12 months, for HS ever usage

Methods: The Prevention Research Center for Healthy Neighborhoods (PRCHN) regularly uses a two-stage cluster sample design that mimics the sampling method of the Centers for Disease Control and Prevention (CDC) and its national Youth Risk Behavior Survey (YRBS). In 2017, 45 of 58 high schools (77.6%) and 18,098 students (76.8%) participated in the survey. In 2018, 94 of 103 middle schools (91.3%) and 12,936 of 14,560 students (81.1%) participated in the survey. These response rates allowed the data to be weighted to the entire population of 7th-12th grade students in Cuyahoga County. Analyses were conducted using SPSS statistical software survey procedures to account for the sampling design.

Contributors: The information in this report was obtained from the 2017 and 2018 Youth Risk Behavior Survey. This survey was modeled after the CDC state-based system of health surveys administered every other year by each state department of health. This data brief was prepared by the PRCHN and authored by Jean Frank, MPH; Audrey Kinsella, MPH; Catherine Osborn, MA; and Erika Trapl, PhD. For more information contact Jean Frank (jean.frank@case.edu).

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