

E-CIGARETTES

PATTERNS OF USE

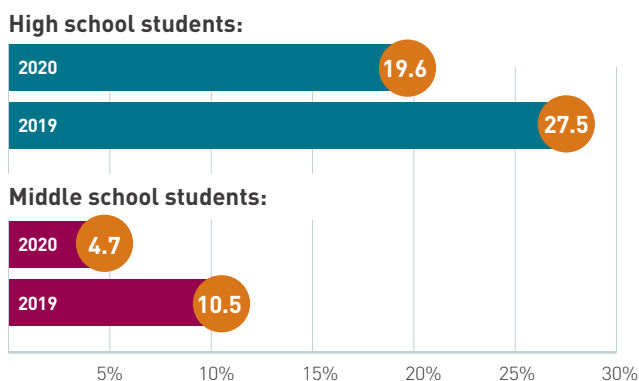
E-cigarette use has increased in recent years, especially among youth and young adults, who use e-cigarettes more than any other age group. **In 2018, the rapid rise of tobacco products led the U.S. surgeon general to issue an advisory about the youth e-cigarette “epidemic.”**¹ In 2019, youth e-cigarette use increased to even higher levels. While the most recent studies show a decrease in youth use in 2020, the rate is still alarmingly high with nearly one in five high school students reporting current e-cigarette use.²

YOUTH

The last five years have seen enormous spikes in youth e-cigarette use rates.³

- > In **2017, 11.7% of high school students** had used an e-cigarette in the past 30 days.⁴ By 2018, that number had risen to 21% and, by **2019, 27.5%** of high school students had used e-cigarettes in the past month.^{3,5} That number dropped to 19.6% in 2020.²
- > The current use rate among middle schoolers rose from 0.6% in 2011 to 10.5% in 2019. The rate dropped to 4.7% in 2020.²

Current e-cigarette use among middle and high school students



Source: 2020 National Youth Tobacco Survey

- > The National Institute on Drug Abuse’s Monitoring the Future Study (MTF), instead of measuring high school and middle school prevalence, measures prevalence in 8th, 10th, and 12th graders.
 - >> In 2020 MTF found that 18% of 8th, 10th, and 12th graders reported vaping nicotine in the past 30 days, flat from 18.1% in 2019.
 - >> The percent of 8th, 10th, and 12th graders using JUUL dropped from 15.8% in 2019 to 10.4% in 2020.⁶ Since roughly doubling from 2017 to 2019, (from 7.5% to 16.5% for 8th graders, 15.8% to 30.7% for 10th graders, and 18.8% to 35.3% for 12th graders), the percentage of teenagers who said they vaped in the past 12 months remained constant in 2020 at 16.6% of 8th graders, 30.7% of 10th graders, and 34.5% of 12th graders.⁷
- > In 2019, reported e-cigarette use among adults over the age of 18 was highest among adults aged 18-24 years old (9.3%). Over half (56%) of these e-cigarette users reported they had never smoked cigarettes.⁸
- > E-cigarettes were the second most commonly used tobacco product, with 4.5% (10.9 million) of U.S. adults reporting use of the product in 2019.⁸
- > Using e-cigarettes increases the likelihood of smoking cigarettes among young people, raising concerns that e-cigarettes act as entry nicotine products that may lead to use of more dangerous nicotine products.^{9,10,11} According to a 2020 study, young people in the U.S. who had ever used e-cigarettes in 2018 had **7X higher odds of ever using cigarettes and 8X higher odds** of currently using cigarettes one year

later, compared with those who had never used an e-cigarette.¹² Another study estimated that e-cigarettes are likely responsible for 22% of new ever cigarette use (trying a cigarette) and 15.3% of current cigarette use for the same group — totaling nearly 200,000 new cigarette initiators.¹³

- > In 2019, 36.9% of current adult e-cigarette users were current cigarette smokers.⁸
- > Many young people aren't aware that e-cigarette products like JUUL contain nicotine.¹⁴ In fact, a 2018 Truth Initiative study showed that nearly two-thirds of JUUL users aged 15-21 were not aware the product always contains nicotine. A recent study found that 99% of all e-cigarette products, (categorized as disposable devices, rechargeable devices, and refillable products like prefilled cartridges and e-liquid bottles), sold at convenience stores, supermarkets and similar outlets contain nicotine.¹⁵
- > As rates of use increase, frequency of use (how many times a user vapes in a day) is also rising, indicating that users are not simply experimenting with e-cigarettes but are instead using them habitually. The 2020 National Youth Tobacco Survey data show that 38.9% of current high school e-cigarette users use e-cigarettes on 20 days or more per month, up from 34.2% in 2019.²

FLAVORED PRODUCTS

- > In 2020, 82.9% of youth e-cigarette users used flavored e-cigarettes, including 84.7% of high school users (2.53 million) and 73.9% of middle school users (400,000).¹
- > Among high school students who currently used any type of flavored e-cigarettes, the most commonly used flavor types were fruit (73.1%); mint (55.8%); menthol (37.0%); and candy, desserts, or other sweets (36.4%). Among middle school students who currently used any type of flavored



Youth e-cigarette users cite flavors as a top reason they began using e-cigarettes, second only to use by a family member or friend.

e-cigarettes, the most commonly used flavor types were fruit (75.6%); candy, desserts, or other sweets (47.2%); mint (46.5%); and menthol (23.5%).¹⁶

- > Youth e-cigarette users cite flavors as a top reason they began using e-cigarettes, second only to use by a family member or friend.¹⁶
 - >> A study that included middle and high school students reported that **43%** of young people who ever used e-cigarettes **tried them because of appealing flavors**.¹⁷
 - >> The FDA has also reported that, among current youth users of e-cigarettes, **97%** used a **flavored e-cigarette** in the past month.¹⁸

- » While the most commonly used e-cigarette device type among youth was pre-filled pods, such as JUUL, disposable e-cigarettes saw huge increases. In fact, disposable e-cigarette use among current high school e-cigarette users increased by approximately 1000% during 2019-2020.²
- ⊗ JUUL continues to hold a majority of the U.S. e-cigarette sales market share, but the rise of disposable e-cigarettes and other brands are starting to erode that lead.
 - » The market share of disposable e-cigarettes nearly doubled in just 10 months from August 2019 to May 2020.¹⁹ Disposable e-cigarettes likely rose in market share after the FDA restricted flavors in non-disposable e-cigarettes, making disposable e-cigarettes with youth appealing flavors such as candy and fruit the only flavored products still available for purchase.
- ⊗ Research suggests that menthol, which remains available for sale, has continued to increase in popularity.
 - » By March 2020, menthol-flavored e-cigarette sales had risen to an all-time high of 57.7% market share.¹⁰
 - » 2020 NYTS data show that 37% of high school e-cigarette users use menthol flavored e-cigarettes.² In fact, following the FDA's guidance around the removal of non-menthol-flavored cartridge-based e-cigarettes in January 2020, menthol e-cigarette sales increased by \$59.5M and its market share shot up from 24% to 49% during the roughly eight-week period following the announcement. The market share of mint e-cigarettes decreased from 26% to 4% and sales declined by \$79.5M during this time, indicating that as other flavors were either voluntarily pulled or removed as a result of policy changes, users simply switched to menthol.²⁰



44.3% of young adult current e-cigarette users were never smokers before trying e-cigarettes.

YOUNG ADULTS

- ⊗ **Like youth, young adults aged 18-24 are also using e-cigarettes at increasing rates.** Young adult use of e-cigarettes every day or some days increased from 2.4% in 2012 and 2013 to 5.2% in 2017, and increased again to **7.6% in 2018** based on a recent analysis.^{21,22,23}
- ⊗ A 2016 report from the Behavioral Risk Factor Surveillance System survey found that **44.3% of young adult current e-cigarette users were never smokers before trying e-cigarettes.**²⁴
- ⊗ Compared with adults aged 25 and older, **young adults are more likely to try e-cigarettes** and report having used e-cigarettes in the past 30 days.²¹
- ⊗ A study in Mississippi suggests that using **JUUL leads to more sustained use than other e-cigarettes.** It concluded that the continued use of JUUL by Mississippi undergraduate students was more likely than the continued use of other e-cigarettes after an initial trial. The study found that 30-day use was **three times higher** among those who had tried JUUL than a different e-cigarette.²⁵
- ⊗ The growth in the popularity of e-cigarettes among young adults has caused concerns that use will lead to the **initiation of cigarettes** and other tobacco products.²⁶⁻³¹

ADULTS

- > E-cigarette use has remained relatively low and stable among adult users since around 2012. Between 2012 and 2013, 2.4% of adults aged 25-44 and 2% of adults aged 45-64 used e-cigarettes. By 2016, the rates had increased to 4.2% and 2.8%, respectively. The most recent data for the year 2018 show current use of e-cigarettes remaining at 4.2% among adults 25-44 and 2.1% among adults aged 45-64.^{22,32}
- > The overall adult rate of e-cigarette use in 2018 was 3.2%, down from 3.7% in 2014.²²
- > Those aged **45 and older** are **significantly less likely** to have ever tried an **e-cigarette** compared to young adults.³³

DUAL USE OF TOBACCO PRODUCTS

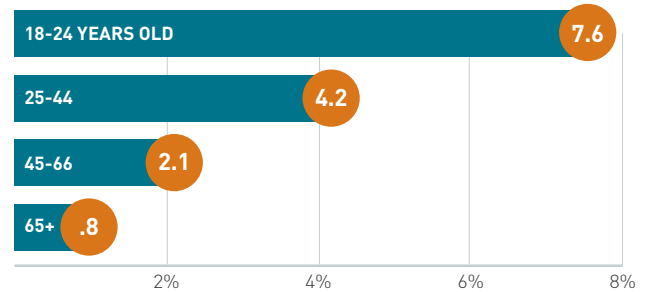
Among all age groups, e-cigarettes are most commonly used by **those who also use other tobacco products**, such as combustible **cigarettes**.^{22,24,34} This pattern is commonly referred to as “dual use” or “poly tobacco use.”

Among **adult** users, this is a **troubling pattern** because it suggests that some **e-cigarette use may be supplementing smoking instead of replacing it**. Because there is no safe level of smoking, there are concerns that this behavior suppresses efforts to completely quit smoking (i.e., people choosing to “cut down” instead of quitting smoking entirely). Some individuals using e-cigarettes to quit may experience a period of dual use as they transition between products, complicating the issue.

Among youth, the data tell a different narrative. A 2018 report from the NASEM concluded that

More recent studies have suggested that young e-cigarette users are four times more likely to begin smoking cigarettes compared to their peers who do not use e-cigarettes.

Adults who currently use e-cigarettes as of 2018



Source: 2018 National Health Interview Survey

there is “**substantial evidence that e-cigarette use increases risk of ever using combustible tobacco cigarettes among youth and young adults,**” suggesting that e-cigarette use itself is a risk factor, not just a correlation with smoking.^{21,42} More recent studies have suggested that **young e-cigarette users are four times more likely to begin smoking cigarettes** compared to their peers who do not use e-cigarettes.^{13,29,37}

DUAL USE PREVALENCE

- > Among **adults** in 2016, **54.6%** of current e-cigarette users **also smoked cigarettes**.³⁹
- > Among adults who used more than one tobacco product in 2017, the most common combination was **cigarettes and e-cigarettes**.³⁸
- > **Dual use** of e-cigarettes and cigarettes is **highly common** among **youth** and **young adults**.^{24,34,35,36}
- > A nationally representative survey in 2016 found that among youth and young adult e-cigarette users aged **13-25**, more than half (**55.9%**) **used another tobacco product in addition to e-cigarettes**.³⁴
- > Among **young adults** aged **18-35**, **e-cigarette** use was associated with **more frequent cigarette smoking** and more intensive cigarette use.⁴⁰
- > Young adults (18-35) who used e-cigarettes the previous year increased their odds of daily cigarette use by 1.67 and increased their odds of being diagnosed with tobacco use disorder by 2.58.⁴⁰



JUUL

Since 2016, the e-cigarette brand JUUL has surged in popularity among young people and, as of October 2019, holds 64.4% of the e-cigarette market share measured by Nielsen.⁴² The traditional tobacco industry took notice of JUUL's rapid ascent. In 2018, Altria, the makers of Marlboro cigarettes, acquired a 35% stake in the company for \$12.8 billion. In September 2019, an Altria executive replaced the former head of JUUL as CEO.^{43,44,45}

A 2017 study by Truth Initiative found 25% of survey respondents, aged 15-24, recognized a JUUL e-cigarette device when shown a photo of the product. And among those who recognized JUUL, 25% reported that use of this product is called "JUULing," indicating that this product is so distinctive, it's perceived as its own category.⁴⁶ However, it's likely that recognition is higher now given that JUUL's sales market share continued to rise throughout 2018 and top out at 75% among U.S. e-cigarette sales in July 2019.^{42,47}

The most recent data from the CDC's 2019 National Youth Tobacco Survey confirms JUUL's grip on America's kids. More than 59% of high school e-cigarette users reported that JUUL was their "usual brand." Among middle school e-cigarette users, the number was more than 54%.⁴⁸ This equates to more than 3 million children reporting regular use of JUUL. Investigative reporting by Reuters shows that even early in its operations, JUUL was aware that its products were attracting unprecedented youth use, yet, in the face of enormous revenue growth, the company failed to take effective action to stem that trends.

Flavors are a top reason why young people begin using e-cigarettes.

A 2018 Truth Initiative survey found that mint was among the top three favorite flavors among young JUUL users aged 12-24, meaning they chose it last time they vaped. New research shows that mint and menthol e-cigarette use among high school users rose from 16% in 2016 to 57.3% in 2019.⁴⁸ Among high school JUUL users, 67.5% reported that their preferred flavor was mint or menthol. Another study, conducted before JUUL pulled its other flavors from the market, found that mint was one of the most popular flavors among high school student JUUL users, but that menthol was less so.⁴⁹ However, study authors themselves caution that leaving both mint and menthol on the market undermines the purpose of removing flavors — which is to prevent kids from using e-cigarettes at all.

Promoted as a "satisfying alternative to cigarettes," **JUUL is putting a new generation of youth at risk of nicotine dependence and future cigarette use.**

- › JUUL has spent more than **\$1 million to market its products on the internet** and has paid for campaigns on Twitter, Instagram and YouTube.⁵⁰ However, recently JUUL announced that it would "suspend all broadcast, print and digital advertising in the U.S." It was not clear from the announcement how long that suspension would last.⁵¹
- › JUUL also **hired social media influencers** for product promotion.⁵² The company had an entire department dedicated to influencer marketing and specifically looked for influencers under 30 and created a "VIP Portal" for celebrities.^{53,54}

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