



National Institute  
on Drug Abuse

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### **Study: Surge of teen vaping levels off, but remains high as of early 2020**

Findings released today from the most recent Monitoring the Future (MTF) survey of substance use behaviors and related attitudes among teens in the United States indicate that levels of nicotine and marijuana vaping did not increase from 2019 to early 2020, although they remain high. The annual MTF survey is conducted by the University of Michigan's Institute for Social Research, Ann Arbor, and is funded by the National Institute on Drug Abuse (NIDA), part of the National Institutes of Health.

In the four years since the survey began including questions on nicotine and marijuana vaping, use of these substances among teens have increased to markedly high levels. From 2017 to 2019, the percentage of teenagers who said they vaped nicotine in the past 12 months roughly doubled for eighth graders from 7.5% to 16.5%, for 10th graders from 15.8% to 30.7%, and for 12th graders from 18.8% to 35.3%. In 2020, the rates held steady at a respective 16.6%, 30.7%, and 34.5%. However, somewhat encouragingly, daily, or near daily (20 occasions in the past 30 days), nicotine vaping declined among 10th and 12th graders from 2019 to 2020, by close to half—from 6.8% to 3.6% in 10th grade and from 11.6% to 5.3% in 12th grade.

“The rapid rise of teen nicotine vaping in recent years has been unprecedented and deeply concerning since we know that nicotine is highly addictive and can be delivered at high doses by vaping devices, which may also contain other toxic chemicals that may be harmful when inhaled,” said NIDA Director Nora D. Volkow, M.D. “It is encouraging to see a leveling off of this trend though the rates still remain very high.”

Past-year vaping of marijuana also remained steady in 2020, with 8.1% of eighth graders, 19.1% of 10th graders, and 22.1% of 12th graders reporting past-year use, following a two-fold increase over the past two years. Additionally, daily marijuana vaping significantly decreased by more than half from 2019, to 1.1% among 10th graders and 1.5% among 12th graders in 2020.

Survey results also showed that reported use of JUUL vaping devices (also known as e-cigarettes), which contain nicotine and were previously the most popular brand among teens, significantly decreased from 2019 to 2020 among the older two grades. In 10th graders, past 12-month use of JUUL vaping devices decreased from 28.7% in 2019 to 20% in 2020 and in 12th graders, it decreased from 28.4% in 2019 to 22.7% in 2020.

The MTF survey is given annually to students in eighth, 10th, and 12th grade who self-report their substance use behaviors over various prevalence periods: daily, past 30 days, past 12 months and lifetime. The survey also documents students' perception of harm, disapproval of use, and perceived availability of drugs. The survey results are released the same year the data are collected.

From February 11 through March 14, 2020, the MTF survey investigators collected 11,821 surveys in 112 schools before data collection stopped prematurely due to the COVID-19 pandemic. While the completed surveys from early 2020 represent about 25% of the sample size of a typical year's data collection, the results were gathered from a broad geographic and representative sample, so the data were statistically weighted to provide national numbers. Estimates from MTF may differ from other government surveys due to differences in study population, questionnaire language and other factors. Study investigators are working with schools to deploy the survey in early 2021 to gather data that will reflect substance use during the COVID-19 pandemic and related periods of social distancing.

MTF researchers also conducted an in-depth analysis of a subset of the 2020 MTF data, combining 10th and 12th graders into a sample of 8,660 high schoolers, which was published today in *JAMA Pediatrics*. The percentage of combined 10th and 12th graders who said they vaped nicotine in the past 30 days, past 12 months, or over the course of their lifetime were similar from 2019 to 2020, at 22%, 32%, and 41% respectively. Similarly, in this group, daily, or near daily, nicotine vaping declined from 9% to 7% from 2019 to 2020. Overall, investigators concluded nicotine vaping for participants in these two grades remained steady despite decreases in use of previously popular brands like JUUL because teens moved to use of other vaping device brands, such as disposable, single use vaping devices. This and other data on trends in vaping brands used, perceived availability of vaping devices, and perceived risk of vaping from this subset of teens were published today in the same study.

### **Other highlights:**

- The use of *marijuana* (in all forms, including smoking and vaping), the most commonly used illicit drug by adolescents, did not significantly change in any of the three grades for lifetime use, past 12-month use, past 30-day use, and daily use from 2019-2020.
- *Alcohol* use has not significantly changed over the past five years. However, across all grades, alcohol use in the past 12 months has leveled off from its historical gradual decline.
- Past year non-medical use of *amphetamines* among eighth graders increased from 3.5% in 2017 to 5.3% in 2020. However, 10th and 12th graders reported recent lows in past year use at 4.3% for both grades and significant 5-year declines.
- Among eighth graders, past 12-month use of *inhalants* has increased from 3.8% in 2016 to 6.1% in 2020, a 64% proportional increase, unlike 12th graders, who reported an all-time low use of inhalants.

- **Cigarette** smoking in the last 30 days did not significantly change from 2019 to 2020. In all three grades, prevalence has dropped at least four-fold since the mid-1990s and is at or near historic lows.
- Past year use of **over-the-counter cough medicine** among eighth graders has gradually increased over the past five years, from 1.6% in 2015 to 4.6% in 2020, its highest rate since 2006.
- The percent of students reporting past year use of other drugs remains relatively low among 12th graders: 3.9% for **LSD**; 2.4% for **synthetic cannabinoids**; 2.9% for **cocaine**; 1.8% for **MDMA (ecstasy)**; 1.4% for **methamphetamine**; and 0.3% for **heroin**.

Detailed tables of the 2020 MTF data can be found online [here](#).

The subset analysis of 10<sup>th</sup> and 12<sup>th</sup> grader nicotine vaping data published today in *JAMA Pediatrics* is titled [Trends in Use and Perceptions of Nicotine Vaping Among U.S. Youth; National Estimates 2017-2020](#).

NIDA has provided grant (DA001411) funding for the MTF survey since its inception in 1975. For additional information on the MTF Survey, including an infographic, NIDA Director's blog, and other related information, go to: [NIDA's Monitoring the Future webpage](#).

Follow Monitoring the Future 2020 news on Twitter at @NIDAnews or join the conversation by using: #MTF2020. Information on all drugs can be found on [NIDA's website](#).

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