

MONITORING THE FUTURE



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Findings summarized here on vaping and nicotine use appear in the *New England Journal of Medicine* at the [NEJM Media Center](#). Additional tables that summarize project findings are now available [here](#). All findings will be published by the end of January in a forthcoming volume that will appear on the project [website](#).

National Adolescent Drug Trends in 2018

Vaping Surges

Largest Year-to-Year Increase in Substance Use Ever Recorded in the U.S. for 10th and 12th Grade Students

ANN ARBOR— Increases in adolescent vaping from 2017 to 2018 were the largest ever recorded in the past 43 years for any adolescent substance use outcome in the U.S. The percentage of 12th grade students who reported **vaping nicotine** in the past 30 days nearly doubled, rising from 11% to 21%. This ten percentage point increase is twice as large as the previous record for largest-ever increase among past 30-day outcomes in 12th grade. As a result of the increase, one in five 12th grade students vaped nicotine in the last 30 days in 2018.

For secondary students in grades 9 through 12 the increases in nicotine vaping translate into at least 1.3 million additional nicotine vapers in 2018 as compared to 2017.

These results come from the annual Monitoring the Future survey, which has tracked national substance use among U.S. adolescents every year since 1975 for 12th grade students and since 1991 for 8th and 10th grade students. The survey is conducted by a team of research professors at the University of Michigan's Institute for Social Research and is funded under a series of competitive research grants from the National Institute on Drug Abuse, which is part of the National Institutes of Health.

To put the nicotine vaping increase in context, it is the largest out of more than one thousand reported year-to-year changes since 1975 for use of substances within the 30 days prior to the survey among 12th grade students.

Among 10th grade students nicotine vaping also increased at a record rate as it doubled and rose eight percentage points, from 8% to 16%. This is the largest percentage point increase ever recorded by the survey for any past 30-day substance use outcome in this grade.

Among 8th grade students nicotine vaping in the past 30 days increased 2.6 percentage points from 3.5% to 6.1%. This is the second largest increase ever recorded for this grade.

To “vape” is to use a device such as an e-cigarette to inhale an aerosol that the device creates by heating a liquid that typically contains nicotine. A “JUUL” is a vaping device that has come on the market in recent years and has rapidly spread in use among adolescents.

“The policies and procedures in place to prevent youth vaping clearly haven’t worked,” said Richard Miech, the lead author of the study. “We need new policies and strategies, such as the FDA’s actions announced last month to curb the sales of the JUUL-branded vaping devices. Because the vaping industry is quickly evolving, new, additional, vaping-specific strategies may well be needed in the years ahead in order to keep vaping devices out of the hands of youth.”

These results for vaping during the past 30 days will appear December 17 in the *New England Journal of Medicine*. Additional, results for use in the past 12 months and ever use are available on the project [website](#).

More Students Use Nicotine in 2018 than 2017 in 12th Grade

Increase Results from Vaping

The percent of 12th grade students who reported use of nicotine in the past 30 days significantly increased to 28.5% in 2018 from 23.7% in 2017. Nicotine use is indicated by any use of cigarettes, large cigars, flavored or regular small cigars, hookah, smokeless tobacco, or a vaping device with nicotine.

This increase was driven entirely by vaping. Use of each of the other tobacco products was slightly down in 2018, although none of these decreases were statistically significant.

“Vaping is reversing hard-fought declines in the number of adolescents who use nicotine,” said Richard Miech, the lead author and principal investigator of the study. “These results suggest that vaping is leading youth into nicotine use and nicotine addiction, not away from it.”

Measures of overall nicotine use were not included in the 8th and 10th grade surveys.

The findings for overall nicotine prevalence appear in the *New England Journal of Medicine*, with additional results provided on the project [website](#).

Marijuana Vaping Also Increases

Marijuana vaping also increased in 2018. To date, this mode of using marijuana has been rare but it is becoming more common. In each grade the percent vaping marijuana in the past 30 days rose by more than half from 2017 to 2018.

Specifically, in 12th grade the percentage of youth who vaped marijuana within 30 days of the survey significantly increased to 7.5% from 4.9% the previous year. Similarly, in 10th grade marijuana vaping significantly increased to 7.0% from 4.3% the previous year. In 8th grade marijuana vaping also significantly increased and in 2018 it was 2.6% as compared to 1.6% the year before.

“Vaping is making substantial inroads among adolescents, no matter the substance vaped,” said Miech. “In 2018 we saw substantial increases in vaping across all substances, including nicotine, marijuana, and

adolescents who reported vaping ‘just flavoring.’ Factors that make vaping so attractive to youth include its novelty and the easy concealability of the latest vaping devices, which better allows youth to vape without adults knowing about it. If we want to prevent youth from using drugs, including nicotine, vaping will warrant special attention in terms of policy, education campaigns, and prevention programs in the coming years.”

These results are available on the project [website](#).

Use of Most Other Substances Remains Steady With Some Notable Declines

Prevalence did not significantly change in 2018 for adolescent use of *inhalants, heroin, hallucinogens, MDMA (ecstasy, Molly), cocaine, amphetamines, methamphetamine, marijuana* (overall use by any method), *smokeless tobacco, snus, dissolvable tobacco, hookah, small cigars, large cigars, alcohol use, extreme binge drinking* (having 10 or 15 more drinks in a row on one or more occasions in the prior two weeks), or *flavored alcoholic beverages*.

Cigarette smoking by teens has been declining for two decades, a decline that showed some interruption in 2018. No significant decline occurred for 8th and 10th grade students in 2018. A decline did take place for 12th grade students, consistent with a cohort effect still working its way up the age spectrum.

Use of *prescription opioids* and *tranquilizers* declined in 2018. The percentage of 12th grade students who misused a prescription opioid in the last 12 months declined to 3.4% in 2018, which is almost two-thirds lower than the peak of 9.5% recorded in 2004. Similarly, the percentage of 12th grade students who misused tranquilizers in the last 12 months declined to 3.9%, which is almost half of the peak of 7.7% recorded in 2002. These results, combined with no change in the low prevalence of heroin use, indicate that the U.S. opioid epidemic of recent years is concentrated among adults while opioid use among adolescents has been receding.

Binge drinking significantly declined in 2018 among 12th grade students. It is defined as having had five or more drinks in a row at least once in the prior two weeks, and among 12th grade students it declined by 2.8 percentage points to 14%. This behavior is now down by six-tenths since its peak in 1997.

These results are available on the project [website](#).