



# E-CIGARETTE AND VAPING RISKS

Stephanie Lundquist-Arora

**DRUG RISKS**



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**For more information, contact:**

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# A Pervasive Problem

Chance Ammirata vaped for the first time when he was a junior in a Florida high school. He was hooked on e-cigarettes after three hits. In a 2019 interview, he said, “I felt this buzz and it was like all of the anxiety and stress that I had [went away]. . . . From that point on, every single day that I tried going without it felt like too much for me.”<sup>3</sup>

Ammirata had been vaping for about a year and a half when he began to experience serious health problems. The problems began with pain on his side, similar to the sensation of a pulled muscle. The discomfort quickly grew worse. Ammirata recalls, “I remember [my friend] made me laugh and it felt like my chest was collapsing, like I was having a heart attack.”<sup>4</sup> He was hospitalized with a collapsed lung. Surgeons had to insert a tube into his lung to keep it inflated. They subsequently did an emergency surgery to repair the hole that caused the collapse. Doctors also discovered that Ammirata’s lungs were covered in black dots, a sign that his lungs were injured from infection or inflammation. The doctors told Ammirata his lungs could take years to heal. The condition affects his ability to do the things he enjoys such as jogging, scuba diving, and traveling.


## Rising Use

Ammirata’s experience is not unique. Lung injuries across the country have made headlines as the use of e-cigarettes increases over time. Many of vaping’s casualties are young. People under thirty are the largest consumer group of

e-cigarettes. A 2019 Pew Research Center report shows that vaping is most widespread among young adults. The Pew survey showed that 20 percent of Americans ages eighteen to twenty-nine vape compared with 8 percent of Americans ages thirty to sixty-four. The same survey showed that only 1 percent of Americans sixty-five and older vape.

Other surveys have revealed widespread e-cigarette use among teens. The percentage of middle school and high school students who use e-cigarettes is not only high: it is increasing. Truth Initiative, a nonprofit public health organization, reports that the rate of use by middle schoolers rose from 0.6 percent in 2011 to 10.5 percent in 2019. High school students' use also has increased in recent years. In 2017, 11 percent of high school students reported using an e-cigarette in the thirty days before the survey. By 2019, that number had jumped to 27.5 percent. The recent political and media attention to the dangers of vaping is partly due to statistics that show the continuing rise in teen use. In December 2018, the US Surgeon General Vice Admiral Jerome M. Adams warned, "E-cigarette use among youth has skyrocketed in the past year at a rate of epidemic proportions."<sup>5</sup>

Many analysts believe that young people are using because they are enticed by the flavors and because their friends are vaping. In a 2019 National Youth Tobacco Survey—an annual, school-based, self-administered survey of US students in grades six through twelve—30 percent of the respondents said that they use e-cigarettes because friends or family use them. Meanwhile, 35 percent of those surveyed acknowledge that they vape because of the flavors of the pods. There are dessert varieties, like apple pie, cannoli, and cotton candy. Fruit choices such as blueberry, peach, coconut,



**"I felt this buzz and it was like all of the anxiety and stress that I had [went away]. . . . From that point on, every single day that I tried going without it felt like too much for me."<sup>3</sup>**

—Chance Ammirata, former vaper



**"E-cigarette use among youth has skyrocketed in the past year at a rate of epidemic proportions."<sup>5</sup>**

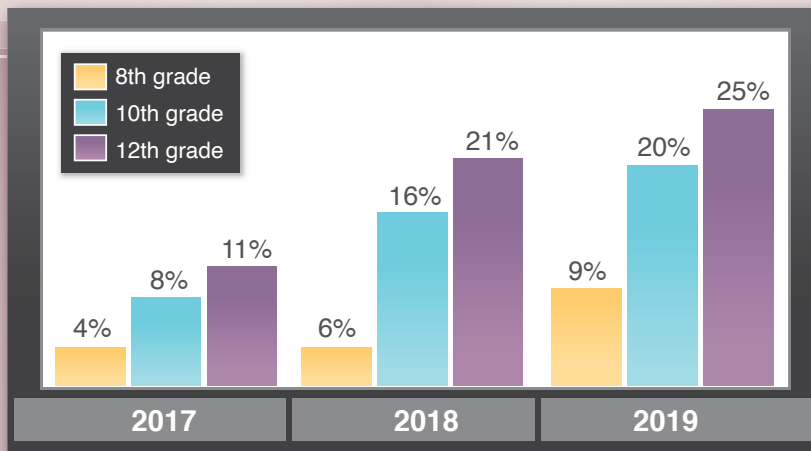
—Vice Admiral Jerome M. Adams,  
US surgeon general



## Teen E-Cigarette Use Increases

E-cigarette use among eighth, tenth, and twelfth grade students increased significantly between 2017 and 2019, according to an annual survey conducted by the University of Michigan. Despite national public health campaigns warning of the dangers, researchers found that teen vaping more than doubled in all three grades during this three-year period.

*Teen Vaping, 2017–2019*



Source: Sheila Kaplan, "Teen Vaping Rises Sharply Again this Year," *New York Times*, September 18, 2019. [www.nytimes.com](http://www.nytimes.com).

and strawberry also fill the shelves of vape shops. Teens surveyed said that they prefer mango and mint in particular.

Analysts also point to e-cigarette companies' advertising campaigns as influencing the rise in teen use. Company executives claim that their product's purpose is to provide a healthier alternative to smoking. E-cigarettes, they say, are meant to be a smoking cessation aid, not an introduction to nicotine. But critics argue that their advertising campaign on social media suggests otherwise. Companies like JUUL, which has the largest share of the e-cigarette market, have hired brand influencers to use their product and post impressions on Instagram. Many concerned parents and policy makers contend that brand influencers on social media appeal to young people rather than to people who are trying to quit smoking cigarettes.

Contrary to the inventor Hon Lik's dream of the e-cigarette becoming a method with which to quit smoking, experts are concerned that vaping is a gateway for teens in particular to use other tobacco products in the future. For young adults, vaping does not seem to be about quitting smoking. Michael Blaha, a professor of medicine at Johns Hopkins, directs clinical research at the Ciccarone Center for the Prevention of Cardiovascular Disease. He explains, "Our own literature suggests that 2 million young adults use electronic cigarettes as their first nicotine-based product. They're not trying to quit smoking—they've never smoked before."<sup>6</sup> Only 10 percent of respondents in the 2019 National Youth Tobacco Survey said that they vape to cut down on other tobacco products.

## Vaping Marijuana

Many people believe that vaping marijuana is safer than smoking it. Recent evidence suggests that might not be the case. A 2018 study revealed that people who vaped marijuana had higher concentrations of THC, the psychoactive chemical in marijuana, in their bloodstream than did those who smoked it. Short-term effects of THC include hallucinations, delusions, psychosis, impaired memory, difficulty problem solving and thinking, altered sense of time, mood swings, impaired body movement, and altered senses. Research is still determining the long-term effects of THC.

In addition to the intensified side effects from THC, vaping exposes the lungs to other chemicals from the pods that smoking marijuana the traditional way or ingesting it does not. By November 2019, 2,290 cases of lung disease linked to vaping were reported across the United States, and at least forty-seven people had died. Most of those people reported using vaping products that contained THC. Some medical experts believe that vitamin E acetate, an oil derived from the vitamin to dilute THC, is causing the problem. As a result of the rise in lung injuries, the CDC has issued a recommendation that people avoid vaping products that contain THC.



## Vaping as a Way to Quit Smoking Cigarettes


The popularity of e-cigarettes has grown, even if only in small part, because some people use it as a way to stop smoking. JUUL peppers its website with several testimonials. The website states, “The community of over one million adult smokers who have switched are at the heart of our mission.”<sup>7</sup> JUUL has convinced many former smokers to trade in their pack of cigarettes for an e-cigarette. Older adults are more likely than younger people to begin vaping to stop using other tobacco products. As it turns out, though, e-cigarettes might not even be the most useful cessation aid. High hopes are often dashed with the return to smoking traditional cigarettes and concerns that e-cigarettes have significant health consequences.

*JUUL has convinced many former smokers to swap cigarettes for e-cigarettes. Older adults are more likely than younger people to begin vaping in order to stop using other tobacco products.*





This was true for Nick English. He was a casual smoker but had issues with coughing and phlegm afterwards. He first considered substituting traditional cigarettes with vaping after he saw a JUUL ad promoting its e-cigarettes as a smoking cessation aid. English bought an e-cigarette and settled on the crème brûlée flavor pod. He never believed e-cigarettes were harmless, just less harmful than traditional cigarettes. He liked that the flavor pods did not make his breath stink and that he could vape inside in more places than he could smoke. Although he only smoked two or three cigarettes a day before vaping, he became much more dependent on the e-cigarette and felt its consequences. In a 2018 magazine article, English writes, “Eventually, I was vaping pretty much all day, every day. My lung capacity was absolutely destroyed. I couldn’t do cardio to save my life; walking up stairs sucked the wind out of me.”<sup>8</sup> Finding that vaping was just too easy, English went back to smoking traditional cigarettes.



**“Eventually, I was vaping pretty much all day, every day. My lung capacity was absolutely destroyed. I couldn’t do cardio to save my life; walking up stairs sucked the wind out of me.”<sup>8</sup>**

—Nick English, user of e-cigarettes for nicotine replacement



## **Research Has Mixed Results**

Some research findings are consistent with English’s story, while others show some benefit to using e-cigarettes for quitting the use of traditional cigarettes. A 2019 study published in *JAMA Internal Medicine* concludes that e-cigarettes are useful in helping people stop smoking initially. But the study also found that their use as a cessation aid was associated with an increased rate of smoking relapse after two years. On the other hand, a study published in a 2019 article of the *New England Journal of Medicine* concludes that “e-cigarettes were more effective for smoking cessation than nicotine-replacement therapy, when both products were accompanied by behavioral support.”<sup>9</sup>

Despite these findings, many medical experts argue that there are less harmful and more effective ways to quit a smoking habit.



*There is general agreement among medical experts that smokers should not go back to smoking traditional cigarettes to stop vaping.*

Based on an interview with Dr. Norman Edelman, Senior Scientific Advisor for the American Lung Association, English writes that “the most effective methods involve some sort of pharmaceutical, either nicotine replacement patches or pills, combined with a program that helps you deal with the problems of quitting smoking.”<sup>10</sup>

There is general agreement among medical experts that a smoker should not go back to smoking traditional cigarettes to stop vaping. There is not agreement, however, that a person who uses traditional cigarettes should use e-cigarettes as a cessation aid. As of mid-2020, the FDA had not yet approved them as such. Dr. Robert Shmerling, faculty editor of Harvard Health Publishing, argues, “Vaping could soon get approval from the FDA as a smoking cessation aid, but even if that happens, it should not be the first choice given how much is still unknown.”<sup>11</sup>

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## Chapter One: A Pervasive Problem

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## **American Lung Association** — [www.lung.org](http://www.lung.org)

The American Lung Association is an organization that works to improve lung health and prevent lung disease. One of its strategic objectives is to create a tobacco-free future. Its website provides informative reports on the dangers of e-cigarettes and vaping, as well as tips for people who hope to quit.

## **Centers for Disease Control and Prevention (CDC)**

[www.cdc.gov](http://www.cdc.gov)

The CDC is the United States' health protection agency. It works to protect Americans from health and safety threats. Its website has basic information on the prevalence and dangers of vaping. There are also in-depth articles and congressional testimony transcripts on topics such as the medical response to lung illnesses caused by e-cigarettes.

## **National Institute on Drug Abuse (NIDA)**

[www.drugabuse.gov](http://www.drugabuse.gov)

The NIDA's mission is to advance science on the causes and consequences of drug use and addiction. It applies its findings to improve individual and public health. The NIDA's website features information on e-cigarettes' effects on the brain, the consequences of children's exposure to nicotine, and fact sheets about vaping and associated paraphernalia.

## **Parents Against Vaping E-Cigarettes (PAVe)**

[www.parentsagainstvaping.org](http://www.parentsagainstvaping.org)

PAVe is a grassroots organization formed by three mothers in New York City as a response to the youth vaping epidemic. Its website contains news stories from around the country about the dangers of vaping, resources for quitting, and details about PAVe's advocacy in the political world.

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