

# Teens and Vaping: What's the Latest Trend

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**ABSTRACT:** Vape detectors are installed at many US schools due to the increase in vaping amongst teenagers. The US Centers for Disease Control stated that E-cigarettes are not safe for teens as they may cause severe lung damage. In 2019, there was a national outbreak of e-cigarette product use-associated lung injury (EVALI), which led to the hospitalization of 2807 patients, 15% of which were 18 or younger. One teenage vaper needed dual lung transplants. Roughly 3.6 million middle school and high school students use E-cigarettes - are they unaware of the harmful health, disciplinary, and emotional repercussions from vaping? Do parents feel disappointment if they are notified from schools that their children have been caught vaping? Are vaping companies like Juul, who sells 75% of vaping products, marketing their E-cigarettes by concealing the health risks? JUUL is being sued by many states and school districts for misleading advertising. States have already banned JUUL's sales of vaping products with fruity names. The recent COVID-19 pandemic prompted numerous teenagers to quit vaping as the coronavirus spreads by droplets, including saliva. Due to the higher risk of severe lung damage with the coronavirus and vaping, are more teenagers seeking cessation treatment? Although the Affordable Care Act provides coverage for temporary addiction treatment medication and family counseling, teenagers should be aware that it is not a magic solution for everything. Some teenagers hide vaping pens as medical treatment may cause a significant surcharge on annual insurance premiums.

**KEYWORDS:** vaping, Juul, e-cigarettes, EVALI, pods, Juul marketing to minors, e-cigarettes, marketing vaping to teens, health effects of vaping, medical treatment for vaping, adolescents/teens health problems, Affordable Care Act Coverage of Vaping Health Issues, Obamacare Coverage of Vaping Health Issues, Juul class action lawsuits, Attorneys General of US States suing JUUL, Smoking surcharge on health care premiums

## Introduction: Summarizing the Controversy from 2015-2020

Since 2015, E-cigarette (e-cig) use or vaping amongst US teenagers has been one of the most controversial topics affecting American society. In the educational sector, schools across the US have banned the use of e-cigarettes (Vestal 2019), installed vaping detectors in bathrooms (Asmelash 2019) and almost 100 districts have sued the largest e-cig manufacturer Juul for damages (Sawville and Superville 2020). In the healthcare realm, the US Surgeon General and experts at the US National Institute of Health and at leading American medical schools have unequivocally stated that teenagers should not vape because the practice is harmful to health and may impact long term well-being (CDC.gov 2020). And in business law, multiple State legislatures and Attorneys General from across the US have banned the marketing and advertising of sweet sounding, candy-inspired or fruity names of vaping products (Ducharme 2019). Furthermore, 39 Attorneys General have either sued Juul for deceptive marketing practices or joined in a multistate investigation, alleging that Juul targeted minors in advertising campaigns designed to encourage them to purchase cartridges that hold high levels of nicotine in the product's liquid.

These concerns at the community, state and national levels are framed in the context of a large increase in the number of teens who reported vaping from 2015-2020. Six years ago, less than 10% of teens reported vaping but by 2019, over 27% of US teens used an e-cig product according to the US Government's statistics (Overmohle 2019). however, according to the Teen Smoking 2018 study conducted by the University of Michigan, which surveyed 44,000 teens, 37% responded by saying they had tried vaping (Wein 2019).

In the first few years of e-cig manufacturer Juul's existence, the founders told journalists that they invented the product to help themselves and others quit smoking traditional tobacco cigarettes – and evidence exists that this idea gained traction with adult smokers in the 2016-2018 timeframe

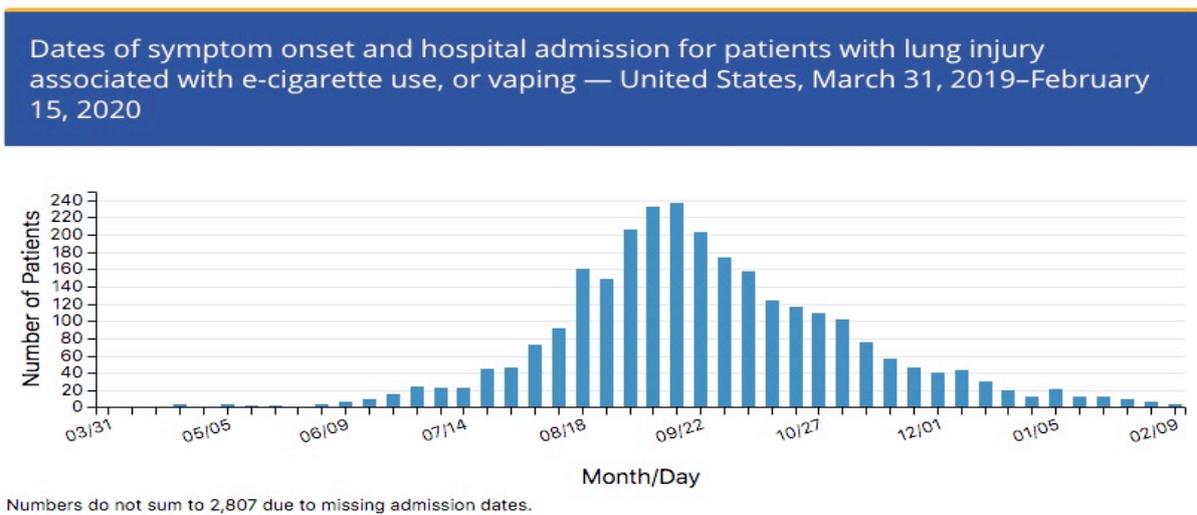
(LaVito 2018). But the US Food and Drug Administration has not approved e-cig’s for smoke cessation programs and the last CDC fact sheet summarizing the 2020 Surgeon General’s report on the topic said research on the question was inconclusive and therefore did not endorse the concept unequivocally (Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, 2020).

A 2019 study found that 37% of smokers tried Juul to quit smoking; however, 81% of participants in the study continued to smoke cigarettes concurrently with Juul. 74% said they didn’t use Juul for more than 5 days in a 30 day period. This usage pattern significantly reduced the success rate of quitting. Therefore, this research examining if Juul helps quit smoking was inconclusive. (Patel 2019) Towards the end of 2019, the vaping narrative took a dramatic turn into crisis, as thousands of vapers - including previously healthy teens - were hospitalized with unusual and dangerous lung conditions. Word quickly spread via the news media, social media and direct communications that the grave lung problems requiring hospitalization were caused by doctored vaping pods and cartridges enhanced by private individuals with THC and other substances (CDC.org 2020).

The dangerous health calamity was labeled EVALI, or e-cigarette vaping associated lung injury (February, 2020). More than 2000 people were hospitalized with the symptoms of EVALI from August-October, 2019, with one teen under 18 requiring a double lung transplant, an event that utterly stunned pulmonary specialists (Ducharme 2020). The rapid organ breakdown was caused by a chemical used as the THC cutting agent, commonly referred to Vitamin E acetate (McDowell 2019).

Law enforcement did an effective job of quickly identifying and arresting sellers of the illegal cartridges, labeled with stickers of an underground brand called Dank Vape (Grady 2019). Thankfully, cases of EVALI dropped very quickly after authorities discovered the source - from an average of 670 per month from August - October 2019 to only 130 cases in the month of December. As the chart on the next page shows, the hospitalizations due to EVALI continued to decline until there were only 10 cases nationally the last week of February, 2020. An update from June, 2020 reports that only 8 people were hospitalized with EVALI since the Covid-19 crisis began, intimating that the urgent public scare has waned (Armatas, Heinzerling, Wilken 2020).

Figure 1.



Source: US Centers for Disease Control 2020

**What is vaping exactly?**

Vaping is the popular expression describing the use of E-cigarettes, electronic devices that heat a liquid in a cartridge that produces an aerosol. (CDC, Office on Smoking and Health, “About E-

Cigarettes” 2020) E-cigarettes come in many shapes and sizes – looking like pens and thumb-drives, small and innocuous, they are popular with minors who want to hide usage from school officials and parents. The Juul products have a battery, a heating element, and a place to hold the liquid that contains flavorings and other chemicals (including nicotine) that help make the aerosol (www.juul.com).

The overall success of Juul’s product design, marketing, advertising and popular culture adoption made it one of the most wildly successful companies in US business history. Juul was created in 2015 and three years later 35% of the company was sold to Altria, the owner of Marlboro and other cigarette brands for \$12.8 Billion – that means the entire company was valued at \$38 Billion after just 3 years. (Tobin 2018) In comparison, Ford Motors, a 117 year old company, is worth approximately \$27 BN (finance.yahoo.com) and national fast food chains in business for 50 years, such as Pizza Hut and Burger King, were worth about \$7 BN at the time (Murphy 2019).

In the years leading up to 2015, there were vaping enthusiasts and industry vendors who claimed that using e-cigs to inhale aerosol was less dangerous than the 150 year-old practice of smoking cigarettes, which was innovated upon the centuries-old habit of smoking tobacco via pipes (Gagliardi 2020) Looking back on the published literature, we surmise that people reasoned that since there is no burning involved in vaping, it had to be safer since the “smoker” is not inhaling smoke. After all, smoke is a more dangerous substance - a collection of airborne particulates and gases emitted when a material undergoes combustion or pyrolysis, together with the quantity of air that is entrained or otherwise mixed into the mass. (Gagliardi 2020).

One of the most notorious historical artifacts from vaping’s “pre-woke era” is a report issued in 2015 by Public Health England, a governmental office of the United Kingdom, which concluded that vape aerosol is 95% less harmful than traditional cigarette smoke (Public Health England 2015). The US did not share this perspective and the sentiment turned cautious after the UK report was issued. In 2016, US Surgeon General Vivek Murthy, MD released "E-Cigarette Use Among Youth and Young Adults: A Report of the Surgeon General." which concluded that young people should not use e-cigarettes due to the health effects on users and on others exposed to secondhand e-cigarette aerosol. Surgeon General Murthy's report concluded that e-cigarettes have the potential to be addictive to some users, and that early nicotine addiction can harm brain development and alter nerve cell functioning of growing teens.

That same year, a different American governmental agency, the US Food and Drug Administration, issued regulations on the sale of e-cigarettes for the first time, making it a requirement to be 18 to purchase e-cig products. (FDA.gov 2016) The 2016 regulations also issued guidelines for manufacturers to report on the ingredients and chemicals contained in all pods and liquid delivery devices and to stop using words like “low-risk” in marketing materials - however the deadlines for compliance for some of these rules were extended to 2018 and 2019 (FDA.gov 2017 and 2018).

Distinct from the regulations of selling and smoking e-cigs as nicotine products, thousands of poison control calls exposed the pods’ risks to very young children and the medically vulnerable. In 2014, poison centers in the US reported 3,783 exposures to e-cigarette devices and nicotine liquid - an increase of over 125% compared to 1,543 exposures in 2013. Some states enacted legislation to require child-resistant packaging for e-cigarettes and liquids, and a bill to do this at the national level was passed by Congress in 2015. On January 28, 2016, President Obama signed the Child Nicotine Poisoning Prevention Act of 2015 (Troutman 2016).

### **Why do teens vape at a greater rate than smoking cigarettes?**

As noted in this paper’s introduction, an estimated 27-37% of American teens reported vaping in two major studies. In contrast, the US Health and Human Services Department reported that smoking by teenagers declined significantly from the previous generation to the present one: in 1976, 29% of all

American high school seniors reported smoking cigarettes but by 2018, only 3.6%. (HHS.gov) So what is happening in popular culture right now that makes cigarettes – well – not popular with teens?

Starting in the decade of the 2000s, funds from tobacco companies (the result of a legal settlement between the tobacco companies and the federal government) supported a number of local, state, and national anti-tobacco campaigns. (HHS 2020) Print campaigns became more severe as time went on in terms of graphic images showing lung damage, blackened skin and damaged/marred parts of the human body. In addition, governmental and private property smoke-free laws and policies became widely implemented. Costly excise taxes were placed on cigarettes year after year, which inhibited demand. A television commercial campaigns called “Tips from Smokers” aired for 5 years showing real people in their final days suffering from illness and depression, telling viewers they might not experience a full life with their children and grandchildren because of smoking (CDC 2016).

### **How do Teens Start Vaping**

Both the Centers for Disease Control and Prevention and the Food and Drug Administration examined self-reported reasons for using e-cigarettes among middle and high school students using data from the 2016 National Youth Tobacco Survey. The report found that, among students who used e-cigarettes in 2016, the most common reasons were:

1. Because a friend or family member used them (39 percent)
2. The availability of flavors, such as mint, candy, fruit or chocolate (31 percent)
3. The belief that e-cigarettes are less harmful than other forms of tobacco, such as cigarettes (17.1 percent).
4. Only a small percentage of students (less than 5%) said that e-cigs helped them to stop smoking traditional cigarettes. (Truth Initiatives 2016)

These reasons are confirmed by another study “Advertising brings the horse to water, flavors is what gets them to drink, and nicotine is what keeps them coming back,” says Brian King, PhD, deputy director for research translation for the Centers for Disease Control and Prevention’s Office on Smoking and Health (Thomas 2020).

Teachers who spend all day with teens report anecdotal reasons why their students vape. Nancy Barile, an experienced teacher of 22 years in the inner-city neighborhoods of Boston, conducted a study of teens in her school. Some kids believed that vaping was a “middle-school thing” because of the fruity flavors. Since the different flavors mask the taste of nicotine, it doesn't "feel nasty, like smoking a cigarette" (Barile 2020).

Barile reported that a student named Dena started vaping when she was in middle school as a way to relax and deal with stress. She also said that her preferred e-cigarette brand was easy to get. Although laws require that teens be 18 years old to buy the Juul device and disposable pods, Dena, who is 15, has never had a problem purchasing them at her local convenience store. She told Barile the only thing that really prohibited her from buying them was the cost: \$30 for the device itself and \$15 for a packet of four pods (Barile 2020).

### **Where do teens get information on Vaping and do they think it’s unhealthy?**

Nearly eight in 10 teens (78%) say vaping is popular among people their age where they live, and one third (33%) say they see classmates vaping in school a few times a week or more often (Wronski 2019)). When thinking about their typical experience using social media, 59% of teens say they’re likely to see a post that mentions or shows vaping. When asked specifically, 11% say they see posts that mention vaping “almost every time” they use social media, 25% say they see them “often,” 30% “occasionally,” 23% “rarely,” and 10% “never” (Wronski 2019). Most of the vaping-related content

that teens are seeing, according to them, is advertisements (61%) rather than content shared by a friend (40%) or shared by celebrities, personalities, or influencers (25%) (Wronsky 2019).

The CDC's usage study referenced earlier in this report found that 17.1% of teens vaped believing that it's less harmful than smoking (Marynak 2017). However, according to a study conducted by the University of Michigan, only 25% of students who vaped realized that they were vaping nicotine, despite the fact that 99% of vaping products sold in the US contain nicotine (Truth Initiative 2017). This means there's a knowledge gap concerning what teens are smoking - 63% of teens who vaped using Juul ("Juuling" in popular teenager parlance) did not realize that all Juul products contain nicotine (Truth Initiative 2017).

These statistics worry the subject-matter experts. Dr. Miech, who led the study at the University of Michigan, said "These results suggest that vaping is leading youth into nicotine use and nicotine addiction, not away from it." And consulting expert Dr. Nora D. Volkow, director of NIH's National Institute on Drug Abuse explains "Teens are clearly attracted to the marketable technology and flavorings seen in vaping devices," which enables numerous teenagers to escape from stress by inhaling nicotine (NIH 2020).

A study released by The American Academy of Pediatrics asked 517 youngsters aged 12 to 21 how often they used tobacco, e-cigarettes and marijuana "The subjects in our study who used vaping devices described much more addictive behavior than the ones who smoked (regular) cigarettes," said Dr. Rachel Boykan, a co-author of the study and a member of the executive committee of the academy's section on tobacco control. "The high concentration of nicotine itself is a concern." Of all the e-cigarette users with high levels of cotinine included in the study, an indicator of tobacco use, a quarter said their vaping device didn't contain nicotine or that they didn't think it contained nicotine. E-Cigarette solution has chemicals (ie, anti-freeze, diethylene glycol, and carcinogens like nitrosamines).

### **The Vaping EVALI Crisis**

Retrospectively, the public health crisis in 2019 that sent people who vaped to the hospital with severe lung problems happened like a wildfire and was extinguished relatively quickly compared to other medical emergencies. To summarize, drug-dealers/illegal entrepreneurs added THC (the active ingredient in marijuana that creates the "high" experience) to vaping pods and sold them to recreational users, some of whom were teens. One of the first arrests happened in Kenosha County, Wisconsin, where authorities were tipped to the existence of the counterfeit THC pods by parents who learned about the situation from their teenage son – arrested for the crime were two young brothers. It was a successful small business as measured by \$59,000 in cash found in their residence - also used as the pod-doctoring base of operations. (Winson 2019). Authorities informed the public that illegal sellers created a brand, including stickers printed with standardized art work, called Dank Vape, which dealers purchased online to paste on the cartridges. "Dank Vapes appears to be the most prominent in a class of largely counterfeit brands, with common packaging that is easily available online and that is used by distributors to market THC-containing cartridges with no obvious centralized production or distribution" (Grady 2019).

### **Health Insurance Coverage and Vaping**

The Affordable HealthCare Act of 2010, popularly called Obamacare, mandated certain medical coverage for all insured parties. How is vaping treated by insurance companies? It's a form of smoking, as the FDA proclaimed in 2016. Obamacare makes the coverage of smoking cessation programs mandatory by insurance companies, as well as family counseling. This means that if teens want to quit vaping - or get caught vaping by the school or parents – the cost of the treatment program and counseling is included in coverage.

Under the ACA, coverage for addiction treatment must be as complete as it is for any other medical procedure. Some of the things you can get with these insurance plans include:

- Addiction evaluation
- Brief intervention
- Addiction treatment medication
- Clinic visits
- Alcohol and drug testing
- Home health visits
- Family counseling
- Anti-craving medication

### ***Does Vaping Increase the Cost of Health Insurance Premiums***

The ACA allows for insurance companies to charge smokers up to 50 percent more than non-smokers through a tobacco surcharge. Although this is allowed, it doesn't mean that all states have decided to implement this charge. Three states charge below 50%, 41 states charge the maximum surcharge of 50% and 6 states plus DC prohibit a charge for Tobacco Rating completely (Healthmarkets 2020).

### **Impact of COVID-19 on Vaping and exhaled air from e-cigarettes?**

Smokers and vapers are at higher risk of serious illness and complications if they get COVID-19. Everyone knows smoking tobacco or cannabis affects the lungs. The damage done by smoke makes it easier to get many lung illnesses. People who smoke and vape – even younger people – are at higher risk of more severe illness and complications from COVID-19 (Turner 2020).

Vaping may create underlying health issues for Juul and other e-cigarette users that make them more likely to suffer severe complications of COVID-19, according to the U.S. Food and Drug Administration. In an email to Bloomberg news, FDA spokesman Michael Felberbaum likened smoking and vaping to other underlying conditions that increase risks from the novel coronavirus, including lung and heart conditions. U.S. Surgeon General Jerome Adams and other public health experts have speculated that vaping may be part of the reason the United States has seen higher percentages of young people diagnosed with COVID-19 than other countries (McDonald 2020).

### ***What We Know About Vaping and COVID-19***

Vaping can cause inflammation and weakness to tissue that makes the lungs open to infection. And COVID-19 is an infection that attacks the lungs, killing lung cells and tissue in its wake, according to the American Lung Association. Research also suggests that the vapor from Juul and other e-cigarettes harms lung cells and decreases their ability to ward off infection, according to the National Institute of Drug Abuse. “Because it attacks the lungs, the coronavirus that causes COVID-19 could be an especially serious threat to those who smoke tobacco or marijuana or who vape,” Dr. Nora Volkow, the institute’s director, wrote in a blog post on the agency’s website.

### ***COVID-19 and the Vaping-Related EVALI Outbreak***

Dr. Alok Patel, a Columbia University pediatrician, told ABC News that people who vape are in the “high-risk bracket” of underlying conditions for COVID-19, citing the most serious vaping-related side effect — EVALI. He pointed out that EVALI is solid evidence of vaping’s ability to cause direct damage to the lungs that can make e-cig users more vulnerable to COVID-19 (AAP.org 2020).

### **Juul Lawsuits**

There are hundreds of different types of lawsuit currently pending in courts across the US. In February, 2020, 331 individual lawsuits were combined into a class action lawsuit to be heard in San Francisco, Juul’s corporate headquarters ([www.drugwatch.com/e-cigarettes/lawsuits/](http://www.drugwatch.com/e-cigarettes/lawsuits/)). At the State level, 39 Attorneys General have either filed a lawsuit against Juul, claiming deceptive marketing and advertising, or have announced they are studying the matter. The probe, led by attorneys general in

Connecticut, Florida, Nevada, Oregon and Texas, will examine whether Juul targeted underage users, and its claims about nicotine content and safety, the offices leading the probe said in separate statements. Several other states, including California and Massachusetts, have already sued the San Francisco-based company saying it did little to prevent sales to underage customers and directly marketed to teenagers (Kirham 2020). And across the US, over 100 school districts have sued Juul, with profiles of the plaintiffs evenly distributed from larger populated regions to small municipalities and also rural less-populated areas.

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