**Is Vaping with E-Cigarettes Safe?**

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| **Friday, Feb. 15, 2019 | Author:**[**ProCon.org**](https://www.procon.org/headline.php?headlineID=005430)**|**[**MORE HEADLINES**](https://www.procon.org/headlines.php) |  |
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| Nearly 11 million American adults use e-cigarettes, more than half of whom are under age 35. [[1](https://www.procon.org/headline.php?headlineID=005430#1)] One in five high school students use e-cigarettes to vape nicotine. [[2](https://www.procon.org/headline.php?headlineID=005430#2)] E-cigarettes are battery-powered devices that heat a liquid into an aerosol vapor for inhalation. [[3](https://www.procon.org/headline.php?headlineID=005430#3)] The liquids often contain nicotine (which is derived from tobacco) and flavorings such as mint, mango, or tobacco. [[4](https://www.procon.org/headline.php?headlineID=005430#4)] Vaping is the act of using e-cigarettes, which were first introduced in the United States around 2006. [[5](https://www.procon.org/headline.php?headlineID=005430#5)]The US Food and Drug Administration (FDA) has regulated e-cigarettes as a tobacco product since 2016. [[6](https://www.procon.org/headline.php?headlineID=005430#6)] On Sep. 11, 2019, the Trump administration announced plans to have the FDA end sales of non-tobacco e-cigarette flavors such as mint or menthol in response to concerns over teen vaping. [[46](https://www.procon.org/headline.php?headlineID=005430#46)]The JUUL brand of e-cigarettes, a vaporizer shaped like a USB drive, launched in 2015 and has since captured nearly 75 percent of the market, becoming so popular that vaping is often referred to as "juuling." [[7](https://www.procon.org/headline.php?headlineID=005430#7)][[8](https://www.procon.org/headline.php?headlineID=005430#8)][[9](https://www.procon.org/headline.php?headlineID=005430#9)] Sales of e-cigarettes are projected to reach $9 billion in 2019. [[7](https://www.procon.org/headline.php?headlineID=005430#7)]Is vaping the solution to a major public health problem caused by traditional cigarettes and a safe way to encourage adults to quit smoking? Or are e-cigarettes potentially explosive devices that addict kids to nicotine and cause serious health problems? The pros and cons of the vaping debate are detailed below. |

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| **Is Vaping with E-Cigarettes Safe?** |
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| Pro 1**E-cigarettes help adults quit smoking and decrease deaths and disease caused by traditional cigarettes.** A July 2019 study found that cigarettes smokers who picked up vaping were 67% more likely to quit smoking. [[48](https://www.procon.org/headline.php?headlineID=005430#48)] A *New England Journal of Medicine* study found that e-cigarettes are twice as effective at getting people to quit smoking as traditional nicotine replacements such as the patch and gum. [[14](https://www.procon.org/headline.php?headlineID=005430#14)] E-cigarettes caused a 50% increase in the rate of people using a product designed to help people quit smoking. [[15](https://www.procon.org/headline.php?headlineID=005430#15)]Traditional cigarettes are known to cause health problems such as lung cancer, heart disease, and stroke. [[10](https://www.procon.org/headline.php?headlineID=005430#10)] Worldwide, smoking is the top cause of preventable death, responsible for over seven million deaths each year. [[10](https://www.procon.org/headline.php?headlineID=005430#10)] The National Academies of Science, Engineering, and Medicine found conclusive evidence that switching to e-cigarettes reduces exposure to toxicants and carcinogens. [[11](https://www.procon.org/headline.php?headlineID=005430#11)] Burning a traditional cigarette releases noxious gases such as carbon monoxide. Cigarette smoke contains tar, which accounts for most of the carcinogens associated with smoking. E-cigarettes don't have those gases or tar. [[12](https://www.procon.org/headline.php?headlineID=005430#12)] Peter Hajek, professor at Queen Mary University London, said, "smokers who switch to vaping remove almost all the risks smoking poses to their health." [[13](https://www.procon.org/headline.php?headlineID=005430#13)] |  | Con 1**Vaping among kids is skyrocketing, getting new generations addicted to nicotine and introducing them to smoking.** US Surgeon General Jerome Adams has declared youth e-cigarette use an "epidemic," noting a 900% increase in vaping by middle and high school students between 2011 and 2015. [[2](https://www.procon.org/headline.php?headlineID=005430#2)] As of 2018, one in five high school students used e-cigarettes, a 78% increase over 2017. [[2](https://www.procon.org/headline.php?headlineID=005430#2)] Teens who use e-cigarettes are four times more likely to try regular cigarettes than their peers who never used tobacco, and 21.8% of youth cigarette use may be attributable to initiation through vaping. [[26](https://www.procon.org/headline.php?headlineID=005430#26)]Kids might not realize that all JUULpods include nicotine, a harmful and addictive substance. [[27](https://www.procon.org/headline.php?headlineID=005430#27)][[28](https://www.procon.org/headline.php?headlineID=005430#28)] One JUULpod contains as much nicotine as a pack of cigarettes, both of which last for about 200 puffs. [[29](https://www.procon.org/headline.php?headlineID=005430#29)] Nicotine use by young people may increase the risk of addiction to other drugs and impair prefrontal brain development, which can lead to ADD and disrupt impulse control. [[12](https://www.procon.org/headline.php?headlineID=005430#12)] Nancy Brown, CEO of the American Heart Association, stated, "The tobacco industry is well aware that flavored tobacco products [such as e-cigarettes] appeal to youth and has taken advantage of this by marketing them in a wide range of fruit and candy flavors." [[30](https://www.procon.org/headline.php?headlineID=005430#30)] |
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| Pro 2**Vaping is a safer way to ingest a tobacco product.** A UK government report stated that "best estimates show e-cigarettes are 95% less harmful to your health than normal cigarettes." [[16](https://www.procon.org/headline.php?headlineID=005430#16)] Matthew Carpenter, Co-director of the Tobacco Research Program at the Hollings Cancer Center, said, "Combustible cigarettes are the most harmful form of nicotine delivery." [[17](https://www.procon.org/headline.php?headlineID=005430#17)]E-cigarettes are safer for indoor use. Researchers found that the level of nicotine on surfaces in the homes of e-cigarette users was nearly 200 times lower than in the homes of traditional cigarette smokers. [[1](https://www.procon.org/headline.php?headlineID=005430#18)] Nicotine left behind on surfaces can turn into carcinogens; the amount of nicotine found where vapers live was similar to the trace amounts in the homes of nonsmokers. [[18](https://www.procon.org/headline.php?headlineID=005430#18)]Vaping has likely contributed to record low levels of youth smoking, which hit a record-low of just 7.6 percent of high school students in 2017, down from 19.8 percent in 2006 (the year e-cigarettes were introduced in the United States). [[19](https://www.procon.org/headline.php?headlineID=005430#19)][[20](https://www.procon.org/headline.php?headlineID=005430#20)] A report from Public Health England found no evidence that vaping is an entry into smoking for young people. [[21](https://www.procon.org/headline.php?headlineID=005430#21)] |  | Con 2**Vaping causes serious health risks.** The CDC confirmed six vaping-related deaths and over 450 possible cases of lung illness associated with e-cigarettes as of Sep. 6, 2019. [[47](https://www.procon.org/headline.php?headlineID=005430#47)] People who use e-cigarettes have a 71 percent increased risk of stroke and 40 percent higher risk of heart disease, as compared to nonusers. [[31](https://www.procon.org/headline.php?headlineID=005430#31)][[32](https://www.procon.org/headline.php?headlineID=005430#32)] Studies have shown that e-cigarettes can cause arterial stiffness and cardiovascular harm, and may increase the odds of a heart attack by 42 percent. [[33](https://www.procon.org/headline.php?headlineID=005430#33)]Researchers who found increased risk of blood clots from e-cigarettes wrote, "these devices do emit considerable levels of toxicants, some of which are shared/overlap with tobacco smoking; and thus their harm should not be underestimated." [[33](https://www.procon.org/headline.php?headlineID=005430#33)] Scientists at Johns Hopkins Bloomberg School of Public Health found that e-cigarettes leak toxic metals, possibly from the heating coils, that are associated with health problems such as kidney disease, respiratory irritation, shortness of breath, and more. [[34](https://www.procon.org/headline.php?headlineID=005430#34)] Some ingredients in the liquids used in e-cigarettes change composition when they are heated, leading to inhalation of harmful compounds such as formaldehyde, which is carcinogenic. [[35](https://www.procon.org/headline.php?headlineID=005430#35)] |
| Pro 3**E-cigarettes reduce health care costs, create jobs, and help the economy.** Sally Satel, a psychiatrist specializing in addiction and resident scholar at the American Enterprise Institute, wrote that "promoting electronic cigarettes to smokers should be a public health priority. Given that the direct medical costs of smoking are estimated to be more than $130 billion per year, along with $150 billion annually in productivity losses from premature deaths, getting more smokers to switch would result in significant cost savings — as well as almost half a million lives saved each year." [[22](https://www.procon.org/headline.php?headlineID=005430#22)]Grover Norquist and Paul Blair of the group Americans for Tax Reform wrote in the *National Review* that "e-cigarettes and vapor products are the Uber of the product industry. They're a disruptive and innovative technology... Thousands of good-paying jobs are being created by an industry that is probably going to save hundreds of thousands of lives." [[23](https://www.procon.org/headline.php?headlineID=005430#23)] Tax policy economist J. Scott Moody calculated that the harm reduction from smokers switching to vaping could save $48 billion in annual Medicaid spending. [[24](https://www.procon.org/headline.php?headlineID=005430#24)]Juul created more than 1,200 jobs just in 2018. [[7](https://www.procon.org/headline.php?headlineID=005430#7)] A letter signed by a coalition of anti-regulation groups warned that efforts to limit the e-cigarette industry would destroy tens of thousands of jobs for manufacturers of the devices and the stores that sell them. [[25](https://www.procon.org/headline.php?headlineID=005430#25)] |  | Con 3**E-cigarettes can catch fire or even explode.** E-cigarette explosions have led to the loss of body parts (such as an eye, tongue, or tooth), third degree burns, holes in the roof of the mouth, and death. [[36](https://www.procon.org/headline.php?headlineID=005430#36)] Researchers at George Mason University found that 2,035 people sought emergency room treatment for burn or explosion injuries from e-cigarettes between 2015 and 2017, and believe there were more injuries that went untreated. [[36](https://www.procon.org/headline.php?headlineID=005430#36)] They also found more than 40 times the number of injuries reported by the FDA between 2009 and 2015. Matthew Rossheim, one of the study's authors, said, "This study identifies that e-cigarette burn and explosion injuries are not rare, as was recently thought... users and bystanders risk serious bodily injury from unregulated e-cigarette batteries exploding." [[37](https://www.procon.org/headline.php?headlineID=005430#37)]Airlines prohibit e-cigarettes in checked baggage due to the possibility of their lithium batteries catching fire. In Jan. 2019, a passenger's e-cigarette overheated and caught fire in the airplane cabin. [[38](https://www.procon.org/headline.php?headlineID=005430#38)] That same month, a Texas man died when debris from an e-cigarette explosion tore his carotid artery. [[39](https://www.procon.org/headline.php?headlineID=005430#39)] In 2018, a man in Florida was killed by shrapnel from his e-cigarette exploding. [[40](https://www.procon.org/headline.php?headlineID=005430#40)] The US Fire Administration (USFA) found 195 reports of e-cigarette explosions and fires including 133 acute injuries, of which 29% were severe. [[41](https://www.procon.org/headline.php?headlineID=005430#41)] The USFA stated, "No other consumer product that is typically used so close to the human body contains the lithium-ion battery that is the root cause of the incidents." [[41](https://www.procon.org/headline.php?headlineID=005430#41)] |

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| **Did You Know?** |
| 1. E-cigarettes are the fourth most popular tobacco products with 4 percent of retail sales, behind traditional cigarettes (83%), chewing/smokeless tobacco (8%), and cigars (5%). [[8](https://www.procon.org/headline.php?headlineID=005430#8)]
2. E-cigarettes are also known as "e-cigs," "e-hookahs," "mods," "vape pens," "vapes," "vaporizers," "e-pipes," and "electronic nicotine delivery systems (ENDS)." [[42](https://www.procon.org/headline.php?headlineID=005430#42)]
3. Some e-cigarettes are made to resemble regular cigarettes, cigars, or pipes, while others look like pens or USB flash drives. [[43](https://www.procon.org/headline.php?headlineID=005430#43)][[7](https://www.procon.org/headline.php?headlineID=005430#7)]
4. According to the CDC, 58.8% of people who vape were also current regular cigarette smokers, 29.8% were former cigarette smokers, and 11.4% were never cigarette smokers. [[42](https://www.procon.org/headline.php?headlineID=005430#42)]
5. The liquid used in e-cigarettes is also known as e-liquid or vape juice. The main components are generally flavoring, nicotine, and water, along with vegetable glycerin and propylene glycol, which distribute the flavor and nicotine in the liquid and create the vapor. [[44](https://www.procon.org/headline.php?headlineID=005430#44)][[45](https://www.procon.org/headline.php?headlineID=005430#45)]
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| Footnotes:1. Lisa Rapaport, "Almost One in 20 U.S. Adults Now Use E-Cigarettes," reuters.com, Aug. 27, 2018
2. Jerome Adams, "Surgeon General's Advisory on E-cigarette Use Among Youth," e-cigarettes.surgeongeneral.gov, Jan. 10, 2019
3. National Institute on Drug Abuse, "Electronic Cigarettes (E-cigarettes)," drugabuse.gov, June 2018
4. Lori Higgins, "Your Kids Think It's Cool to Vape at School. It's a Big Problem.," freep.com, Sep. 25, 2018
5. NBC News, "Vaping 101: How Do E-Cigarettes Work?," nbcnews.com, Apr. 24, 2014
6. FDA, "The Facts on the FDA's New Tobacco Rule," fda.gov, Nov. 9, 2017
7. Richard Craver, "FDA Scrutiny of Juul Not Affecting Dominant Market Share," journalnow.com, Jan. 23, 2019
8. Richard Craver, "Juul Market Share Slips following Removal of Fruity-flavored E-cigs," journalnow.com, Feb. 5, 2019
9. Angelica LaVito, "Fda Chief Accuses Juul, Altria of Reneging on Promise to Combat 'Epidemic' Teen Vaping Use," usatoday.com, Feb. 8, 2019
10. CDC, "Smoking & Tobacco Use," cdc.gov, Feb. 6, 2019
11. National Academies of Science, Engineering, and Medicine, "Public Health Consequences of E-Cigarettes," nap.edu, 2018
12. John Ross, "E-Cigarettes: Good News, Bad News," health.harvard.edu, July 25, 2016
13. James Meikle, "Vaping: E-Cigarettes Safer Than Smoking, Says Public Health England," theguardian.com, Aug. 19, 2015
14. Peter Hajek, Anna Phillips-Waller, Dunja Przulj, et al., "A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy," *New England Journal of Medicine*, Jan. 30, 2019
15. Yue-Lin Zhuang, Sharon E. Cummins, Jessica Y. Sun, and Shu-Hong Zhu, "Long-Term E-Cigarette Use and Smoking Cessation: A Longitudinal Study with US Population," *Tobacco Control*, 2016
16. Public Health England, "E-Cigarettes Around 95% Less Harmful Than Tobacco Estimates Landmark Review," gov.uk, Aug. 19, 2015
17. Medical University of South Carolina, " "Can E-Cigarettes Help Smokers Quit? Study Finds Smokers Who Are Willing to Use E-Cigarettes Tend to Smoke Less and Increase Their Quit Attempts," sciencedaily.com, Dec. 29, 2017
18. D. Bush and M.L. Goniewicz, "A Pilot Study on Nicotine Residues in Houses of Electronic Cigarette Users, Tobacco Smokers, and Non-Users of Nicotine-Containing Products," *International Journal of Drug Policy*, June 2015
19. Matthew L. Myers, "New U.S. Survey Shows Youth Cigarette Smoking Is at Record Lows, but E-Cigarettes and Cigars Threaten Progress," tobaccofreekids.org, June 7, 2018
20. David Nutt, "Vaping Saves Lives. It'd Be Madness to Ban It," theguardian.com, Oct. 14, 2016
21. Martin Dockrell, "Clearing up Some Myths Around E-Cigarettes," publichealthmatters.blog.gov.uk, Feb. 20, 2018
22. Sally Satel, "How E-Cigarettes Could Save Lives," washingtonpost.com, Feb. 14, 2014
23. Grover Norquist and Paul Blair, "Vaping for Tax Freedom," nationalreview.com, Oct. 15, 2014
24. J. Scott Moody, "E-Cigarettes Poised to Save Medicaid Billions," tobacco.ucsf.edu, Mar. 31, 2015
25. Grover Norquist, Lisa Nelson, Norm Singleton, et al., "Coalition Urges President Trump to Halt Regulatory Assault on Innovative Electronic Cigarette Industry," atr.org, Feb. 4, 2019
26. Kaitlyn M. Berry, Jessica L. Fetterman, Emelia J. Benjamin, et al., "Association of Electronic Cigarette Use with Subsequent Initiation of Tobacco Cigarettes in US Youths," *JAMA Network Open*, Feb. 1, 2019
27. American Lung Association, "E-cigarettes, 'Vapes' and JUULs: What Parents Should Know," lung.org, Jan. 24, 2019
28. JUUL, "FAQS: JUULpod Basics," support.juul.com (accessed Feb. 15, 2019)
29. JUUL, "JUUL Savings Calculator," juul.com (accessed Feb. 15, 2019)
30. Maggie Fox, "Vaping, Juuling Are the New Smoking for High School Kids," nbcnews.com, June 7, 2018
31. Dennis Thompson, "Vaping Tied to Rise in Stroke, Heart Attack Risk," consumer.healthday.com, Jan. 30, 2019
32. Paul M. Ndunda and Tabitha M. Muutu, "9 - Electronic Cigarette Use Is Associated with a Higher Risk of Stroke," abstractsonline.com, Feb. 6, 2019
33. Hanan Qasim Zubair, et al., "Short-Term E-Cigarette Exposure Increases the Risk of Thrombogenesis and Enhances Platelet Function in Mice," *Journal of the American Heart Association*, Aug. 2018
34. Pablo Olmedo, et al., "Metal Concentrations in e-Cigarette Liquid and Aerosol Samples: The Contribution of Metallic Coils," *Environmental Health Perspectives*, Feb. 21, 2018
35. Otmar Geiss, Ivana Bianchi, Josefa Barrero-Moreno, "Correlation of Volatile Carbonyl Yields Emitted by E-Cigarettes with the Temperature of the Heating Coil and the Perceived Sensorial Quality of the Generated Vapours," *International Journal of Hygiene and Environmental Health*, May 2016
36. Matthew Rossheim, Melvin D. Livingston, Eric K. Soule, Helen A. Zeraye, and Dennis L. Thombs, "Electronic Cigarette Explosion and Burn Injuries, US Emergency Departments 2015–2017," *Tobacco Control*, Sep. 2018
37. Mary Lee Clark, "Mason Report Finds E-Cigarette Explosions, Injuries Are More Common Than Previously Thought," gmu.edu, Sep. 28, 2018
38. Rasha Ali, "E-Cigarette Battery Ignites Fire on American Airlines Flight from Las Vegas to Chicago," usatoday.com, Jan. 6, 2019
39. David Williams, "A Man Dies After His E-Cigarette Explodes in His Face," cnn.com, Feb. 5, 2019
40. Eli Rosenberg, "Exploding Vape Pen Caused Florida Man's Death, Autopsy Says," washingtonpost.com, May 17, 2018
41. Lawrence A. McKenna, Jr., "Electronic Cigarette Fires and Explosions in the United States 2009 - 2016," usfa.fema.gov, July 2017
42. CDC, "About Electronic Cigarettes (E-Cigarettes)," cdc.gov, Nov. 29, 2018
43. FDA, "Vaporizers, E-Cigarettes, and Other Electronic Nicotine Delivery Systems (Ends)," fda.gov, Feb. 5, 2019
44. Blanca Myers, "What's Inside Vape Juice?," wired.co.uk, Apr. 25, 2017
45. Veppo, "What Is E-Juice or Vape Juice?," veppocig.com (accessed Feb. 15, 2019)
46. Richard Harris and Carmel Wroth, "FDA to Banish Flavored E-Cigarettes to Combat Youth Vaping," npr.org, Sep. 11, 2019
47. CDC, "Outbreak of Lung Illness Associated with Using E-cigarette Products," cdc.gov, Sep. 11, 2019
48. Lisa Rapaport, "Vaping May Aid Smoking Cessation but Also Boost Relapse Risk," physiciansweekly.com, July 15, 2019
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