

Vaping Devices, Electronic Cigarettes (E-cigarettes): Pod-Based Devices



What Are Vaping Devices (e-cigarettes)?

- Vapes, or vaping devices (also called electronic cigarettes, e-cigarettes, and/or electronic vaporizers), are battery-operated devices that deliver vapor (sometimes called aerosol) made up of nicotine, flavorings, and other chemicals.
- First introduced in the United States (U.S.) in 2007, sales of vaping devices skyrocketed starting in 2013, with marketing and advertisements aimed at youth.¹
- The shapes and sizes of vaping devices have changed quickly over the last ten years. While early vaping devices were the shape and size of regular cigarettes, vaping devices sold today range from colorful vape pens to modified tank systems to the new high tech pod-based devices.

Pods: The Next Generation of Devices

- Similar to older types of e-cigarettes or vaping devices, pod devices come in a variety of flavors like mint, fruit, candy, and dessert that do not taste or smell like regular cigarettes.
- Some devices have removable cartridges called "pods" of pre-filled e-liquid (sometimes called "e-juice" or "pod juice") that users connect to their devices. Others allow users to refill cartridges with e-liquid.
- Pod devices do not look anything like traditional cigarettes or other e-cigarettes. They are high-tech looking, and often look like USB flash drives, cell phones, credit card holders, and highlighters. They are easy to hide in schools and at home. Some popular brands among California youth include Juul, Suorin, Smok, and Phix.²
- Pod-based devices are considered the next generation of vaping devices.

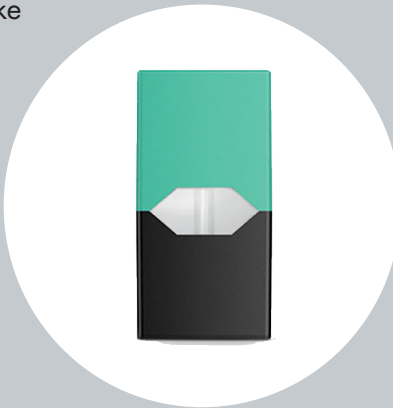




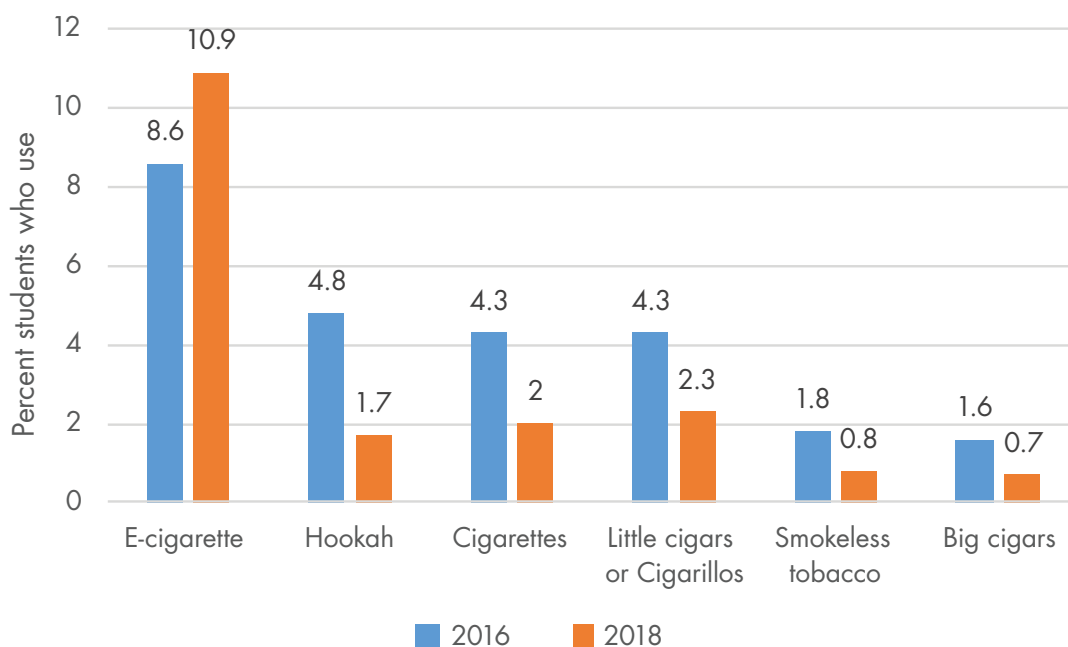
Image caption: Pod-based vaping devices do not look like other e-cigarettes. Many resemble flash drives or credit card holders, and are easier to hide than older models.

Why are Pod Devices Harmful to Teens?

- Most pod devices use a kind of nicotine called nicotine salt. This is very different from older vaping devices. Nicotine salt feels less harsh on the throat and lungs, allowing users to take deeper “hits” by inhaling more deeply. Each puff may contain more nicotine compared to puffs from older types of e-cigarettes or cigarettes.^{3,4}
- Just one small “pod” can have more nicotine than an entire pack of cigarettes.^{5,6}
- Health experts are deeply concerned about pod devices. There is increasing evidence that the large amount of nicotine salts in these devices may be responsible for increasing nicotine addiction among youth.⁷ With cigarettes and older types of vaping devices, the smoke and high nicotine levels can taste and feel bad for users, resulting in coughing, dizziness, and even nausea. For many teens, these bad effects are enough to keep them from becoming regular users. But nicotine salts don’t have these side effects which means youth who try pod devices are more likely to continue using them regularly and become addicted.⁷
- Nicotine is a highly addictive poison. Nicotine addiction and withdrawal can cause problems with reasoning, attention-span, and mood and can harm brain development in young people.⁸
- Most pods, even flavored ones, contain nicotine. Popular products like Juul always contain nicotine.

How big is the problem?

- The U.S. Surgeon General has stated that youth vaping is an epidemic.⁹
- Under California law, all vaping products, including pods, are considered tobacco products whether or not they have nicotine in them.¹⁰
- Although it is illegal to sell tobacco products, including vaping products, to people under 21 years old in California, vaping is popular among youth and young adults.¹¹
- Vaping products, especially pod devices, are by far the most popular tobacco product among teens.¹²
- In California, 10.9% of high school students report vaping in the past month in 2018. This is an increase of over 27% from 2016, when 8.6% of high school students reported vaping. Use of all other types of tobacco products decreased among youth during this time.²



Graph caption: Vaping has increased significantly among California high school students over the last two years, especially when compared with other types of tobacco.

- Across the U.S., vaping increased by 48% among middle school students from 2017 to 2018. This means that vaping is a serious problem among younger kids. Public health experts agree that this increase in vaping is due to pod devices.¹³
- Unfortunately, many youth may not even know that they are using nicotine in their vaping device until they become addicted. Among high school students in California who use Juul over 10% report that they do not use nicotine, despite the fact that Juul only makes pods containing nicotine. Over 25% of high school Juul users did not know how much nicotine they were using.²



What you can do to prevent youth vaping?

1. **Learn more about vaping. You can find educational materials and resources on the following websites:**

- TobaccoFreeCA - <https://tobaccofreeca.com/topics/e-cigarettes/>
- Flavors Hook Kids Campaign - www.flavorhookkids.org
- Stanford Tobacco Use Prevention Toolkit - <https://med.stanford.edu/tobaccopreventiontoolkit.html>
- Centers for Disease Control and Prevention, Office on Smoking and Health https://www.cdc.gov/tobacco/basic_information/e-cigarettes/youth-guide-to-e-cigarettes-presentation.html

2. **Talk to the kids in your life about the harmful effects of vaping. Some important points to discuss include:**

- Pod-based devices contain high levels of addictive nicotine.
- Even occasional use of nicotine containing products may result in nicotine addiction, which can be extremely difficult to quit.¹⁴



For Parents:

What you can do if your child is already vaping

- If you think your child is vaping, make a plan to help them quit. Remember that your child may not have been aware that they were using products containing nicotine.
- Talk to your child about nicotine withdrawal symptoms. These are: cravings for nicotine, anxiety and moodiness, and depression or sadness.¹⁴
- Make an appointment with a doctor. A doctor can help you and your child make a plan to quit vaping. Visit <https://www.mayoclinic.org/healthy-lifestyle/tween-and-teen-health/in-depth/teen-smoking/art-20046474> for more information. Keep in mind that nicotine addiction is hard to break and may be a challenge for teens.
- You and your child can visit www.thisisquitting.com for information and resources on nicotine addiction and for teen-focused support for quitting nicotine. This app-based program includes real-time support through text messaging and social media.
- The California Smoker's Helpline offers phone and text-based support for quitting tobacco for all Californians aged 13 and older. The Helpline also provides advice and information for family and friends who are supporting loved ones to quit tobacco. www.novapes.org



For Educators and Administrators: What you can do to help students who are already vaping?

- Educators should be aware that in California it is illegal to sell any vaping product, including pods, to youth under the age of 21, regardless of whether the device contains nicotine.¹⁰
- Although there is no longer a fine for youth who use or purchase vaping devices, schools are prohibited under the California Education Code from allowing any vaping or vaping devices on school grounds or at school-sponsored activities. Schools must adopt and enforce this policy.^{16, 17}
- For more information on how to prevent vaping and promote cessation among your students, contact your local Tobacco-Use Prevention and Education (TUPE) Coordinator. A list of TUPE coordinators may be found on the California Department of Education's website at: www.cde.ca.gov/ls/he/at/countycoordinators.asp.
- Consider using the Stanford Tobacco Use Prevention Toolkit on e-cigarettes, vapes, and pods to educate your students and staff. The Toolkit is a free, online education resource for tobacco prevention developed by the Stanford School of Medicine. The Toolkit trainings and materials can be adapted by individual schools and educators and do not require prior permission to use. <https://med.stanford.edu/tobaccopreventiontoolkit/E-Cigs.html>
- CATCH My Breath™ is a new evidence-based tobacco use prevention curriculum that addresses vaping among middle and high school students. CATCH My Breath™ meets national and state educational standards. <https://catchinfo.org/modules/e-cigarettes/>
- The Tobacco Education Clearinghouse of California provides educational materials on all forms of tobacco, which are free to download. www.tecc.org

- Youth need support and guidance when quitting nicotine. If you encounter a student who is vaping, refer them to the cessation services listed in this fact sheet and/or community-based cessation services in your area. Share the information in this fact sheet with parents/guardians and guide them towards the prevention and cessation programs listed above.



Safe handling and disposal of vaping products and e-juice

- Visit the California Tobacco Control Program website for a downloadable infographic on how to dispose of vaping devices and e-juice.
<https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CTCB/Pages/EducationMaterials.aspx>
- Confiscated vaping devices should be handled with caution.
 - Always handle devices using nitrile gloves and store devices in a leak-proof container.
 - Devices themselves contain lithium ion batteries and must be disposed of as e-waste.
 - Cartridges or containers with e-liquid should not be thrown in the garbage or rinsed down the sink.
 - Contact your local waste management or sanitary district for detailed information about how to properly dispose of pods, cartridges, and e-liquids.
 - For disposal of devices and batteries, visit: <https://www2.calrecycle.ca.gov/electronics/eRecycle/> to find your nearest e-waste recycling location.

REFERENCES

1. California Department of Public Health, California Tobacco Control Program, *State Health Officer's Report on E-Cigarettes: A Community Health Threat*. Sacramento, CA: California Department of Public Health; 2015.
2. California Department of Public Health, California Tobacco Control Program. California Student Tobacco Survey, 2017-2018. Sacramento, CA: California Department of Public Health; 2018.
3. Bowen, A., & Xing, C. (2016). United States Patent No. US20160044967A1. Google Patents.
4. Goniewicz, M. L., Boykan, R., Messina, C. R., Eliscu, A., & Tolentino, J. (2018). High Exposure to Nicotine Among Adolescents Who Use Juul and Other Vape pod Systems ('pods'). *Tobacco Control*, tobaccocontrol-2018-054565.
5. Juul (2019). Frequently Asked Questions: JUULPod Basics. <https://support.juul.com/home/learn/faqs/juulpod-basics>. Accessed on April 18, 2019.
6. Benowitz, N. L., & Jacob, P. (1984). Daily intake of nicotine during cigarette smoking. *Clinical Pharmacology and Therapeutics*, 35(4), 499-504.
7. Barrington-Trimis, J. L., & Leventhal, A. M. (2018). Adolescents' Use of "Pod Mod" E-Cigarettes — Urgent Concerns. *New England Journal of Medicine*, 379(12), 1099-1102.
8. U.S. Department of Health and Human Services. E-Cigarette Use Among Youth and Young Adults: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2016.
9. *Surgeon General's Advisory on e-Cigarette Use Among Youth*; U.S. Centers for Disease Control and Prevention: Atlanta, GA, USA, 2018.
10. Cal. Bus. & Prof. Code §§ 22958(a); 22963(a) (2018); Cal. Penal Code § 308(a)(1)(A) (2018)
11. Hammond, D., Wackowski, O. A., Reid, J. L., O'Connor, R. J., & International Tobacco Control Policy Evaluation Project, (2018). Use of JUUL E-cigarettes Among Youth in the United States. *Nicotine & Tobacco Research*.
12. Cullen KA, Ambrose BK, Gentzke AS, Apelberg BJ, Jamal A, King BA. (2018) *Notes from the Field: Use of Electronic Cigarettes and Any Tobacco Product Among Middle and High School Students — United States, 2011–2018*. *MMWR Morbidity and Mortality Weekly Report*. 2018 (67), 1276–1277.
13. Centers for Disease Control and Prevention. Tobacco Use by Youth Is Rising: E-cigarettes Are The Main Reason. (2019). <https://www.cdc.gov/vitalsigns/youth-tobacco-use/index.html>. Accessed April 4, 2019.
14. DiFranza, J. R., Savageau, J. A., Fletcher, K., O'Loughlin, J., Pbert, L., Ockene, J. K., ... Wellman, R. J. (2007). Symptoms of Tobacco Dependence After Brief Intermittent Use: The Development and Assessment of Nicotine Dependence in Youth–2 Study. *Archives of Pediatrics & Adolescent Medicine*, 161(7), 704-710.
15. National Cancer Institute. (2018). Nicotine and Addiction. <https://teen.smokefree.gov/the-risks-of-tobacco/nicotine-addiction>. Accessed on January 31, 2019.
16. Cal. Educ. Code § 48901(a) (2018)
17. Cal. Health & Safety Code §104420(n)(2) (2018)