

A NICOTINE-FREE VAPE IS NOT A WORRY-FREE VAPE.



Vapes can expose you to toxic chemicals like formaldehyde and acrolein, even if they don't have nicotine.



**U.S. FOOD & DRUG
ADMINISTRATION**

**IF YOU DON'T
THINK VAPING IS
ADDICTIVE, IT MAY
HAVE ALREADY
ALTERED YOUR
BRAIN.**



**The nicotine in vapes can disrupt the development
of the teenage brain and lead to addiction.**



**U.S. FOOD & DRUG
ADMINISTRATION**

Electronic nicotine delivery systems (ENDS)

What physicians should know about ENDS

- Electronic nicotine delivery systems (ENDS), also called electronic cigarettes, e-cigarettes, vaping devices, or vape pens, are battery-powered devices used to smoke or “vape” a flavored solution.
- ENDS solution often contains nicotine, an addictive chemical also found in cigarettes.
- ENDS use is popular—the rate of adults trying an e-cigarette at least once more than doubled from 2010 to 2013,¹ and more youth are current users of e-cigarettes than combustible cigarettes.²
- In 2016, the Food and Drug Administration (FDA) expanded its regulatory authority to include the manufacture, import, packaging, labeling, advertising, promotion, sale, and distribution of all tobacco products, including ENDS. Under this new law, often called the "Deeming Rule," the FDA:
 - Requires health warnings on ENDS and other tobacco products.
 - Prohibits the sales of ENDS to youth under the age of 18.
 - Bans free samples and prohibits the sale of ENDS in vending machines.
 - Requires that ENDS manufacturers receive marketing authorization from the FDA.
 - Requires vape shops that mix e-liquids to comply with legal requirements for tobacco manufacturers.
- Exhaled ENDS vapor is not harmless water vapor—it has been shown to contain chemicals that cause cancer,³ can cause harm to unborn babies,⁴ and is a source of indoor air pollution.⁵ ENDS are promoted as a way to smoke where smoking is prohibited. However, state and local officials are incorporating ENDS use into existing smoke-free air regulations to protect health.
- Some people use ENDS as a way to quit smoking combustible cigarettes, but current evidence is insufficient to recommend ENDS for tobacco cessation in adults,⁶ and some people use both devices due to the addictive nature of nicotine.

ENDS are a health hazard

- ENDS companies can legally promote these products by using techniques that cigarette companies have not been able to use since the 1998 Master Settlement Agreement, including television and radio ads, billboards, outdoor signage, and sponsorships.
- ENDS and ENDS solutions are available in many flavors (bubble gum, chocolate, peppermint, etc.) that appeal to youth. Flavors, design, and marketing renormalize and glamorize smoking.
- In 2016, the Child Nicotine Poisoning Prevention Act was signed into law. This law requires packaging safety standards for ENDS and the containers that hold ENDS solution. Under this law, liquid nicotine must be packaged in child-proof packaging, in accordance with Consumer Product Safety Commission standards. This law is an important step to protect children’s health. Prior to the passage of this act, poison control centers in the United States reported skyrocketing adverse exposures from e-cigarettes and liquid nicotine since 2011.⁷

What physicians should tell patients and families about ENDS

- ENDS emissions are not harmless water vapor. Both the user and those around them are exposed to chemicals, some of which cause cancer.
- There is insufficient evidence to suggest ENDS are less harmful to a fetus than traditional cigarettes. Women who are pregnant or trying to become pregnant should be informed about the risks that ENDS pose for both maternal and neonatal health.
- The U.S. Preventive Services Task Force concludes that the current evidence is insufficient to recommend ENDS for smoking cessation.⁶ Patients may ask about ENDS because they are interested in quitting smoking. Be ready to counsel as appropriate.
- Ask the right questions: “Do you smoke?” is a less effective way to get patients talking. Also ask patients, “Do you vape or use electronic cigarettes?”
- Recommend FDA-approved cessation products and refer patients to the state quitline (1-800-QUIT NOW), a text-based program (text QUIT to 47848), or an in-person cessation program.
- Insurance covers some medications and programs, and grants may be available to offer free cessation help. Do not let cost be a barrier to quitting.
- In 2016, the U.S. Surgeon General released a report,⁸ which concluded that youth use of ENDS products is a public health concern. The report found that:
 - Youth use of e-cigarettes is associated with the use of other tobacco products.
 - Youth use of nicotine in any form, including ENDS, is unsafe.
 - Secondhand exposure to ENDS aerosol contains nicotine and other harmful constituents.

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- 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: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2016.

Last Updated: May 2017



JUULing is a teen phenomenon happening outside the adult radar screen. This craze is something that school principals need to know about, and many of them already do. It's a pervasive trend that happens in school bathrooms and as groups walk down the halls. It's a new way to consume—and get the buzz of—nicotine without the mess and tell-tale signs of smoking a cigarette. But, whether adults realize it or not, this trend can have serious negative effects on the teenagers around us.



E-nicotine is marketed in popular flavors like lemon or bubble gum

These are the top ten things school administrators need to know about JUUL, which they should also pass on to parents.

1. What is a JUUL?

A JUUL, pronounced “jewel,” is an e-cigarette that looks like a computer flash drive and charges in a USB outlet. Once powered you load the JUUL with tiny, refillable pods of liquid nicotine. A JUUL pod is no bigger than a soda can tab. The e-nicotine comes in appealing flavors such as crème brulee, mango and bubble gum.

2. How prevalent is JUULing?

Using the JUUL has its own verb, “JUULing.” CNN called JUULing an [“epidemic.”](#) Within the last year, [19% of 12th graders](#) reported using an e-cigarette, compared to 16% of 10th graders and 8% of 8th graders. According to the National Youth Tobacco Survey, [11.7 percent of high school students](#) and 3.3 percent of middle school students—over 2.1 million youth—were current e-cigarette users in 2017.

3. Why is it so popular?

Three words: Marketing and Peer Pressure. E-juice and the gadgets that go with it are strategically sold with a very young audience in mind. One example is that the JUUL can be customized with a “skin” or decal of which there are hundreds on the market. Do you like TV shows? Get the skin dedicated to “Stranger Things.” Are you a fashionista? Amazon sells a Louis Vuitton skin for \$10.99. There's also the flavoring and the sweet odors which mask the dangers of using a JUUL. Many kids are unaware that JUUL has many of the qualities that make smoking cigarettes dangerous. While JUULing doesn't include the intake of tar, it still involves consuming addictive nicotine and chemicals.



Vaping entrepreneurs have been using marketing techniques to reach a young audience, borrowing techniques from tobacco companies to market JUUL products directly to children. Add-on products, such as skins, phone holders and fun flavors make the product very appealing to teenagers. Once a few older teenagers start using a JUUL, it [spreads like wildfire](#) in a school. Friends and younger siblings are eager to try a new cool activity, and it becomes the next “thing to do.” At its heart, JUULing is a social activity for teenagers, and those who aren't part of a JUULing social circle can feel left out. This underlying social pressure may also contribute in a teen's decision to JUUL.

4. Don't you have to be 21 to buy a JUUL and e-juice?

As of August 2017, JUUL's website has required people to be 21 to purchase items online. They have age verification software that utilizes public records and requires an ID upload if records are unavailable.

Instead of buying directly from JUUL, teenagers often get older friends or siblings to buy JUUL products for them. Teenagers commonly buy refill pods through school networks. In some states people who are 18 can buy JUUL pods from authorized retailers, such as gas stations or convenience stores.

Many other websites sell JUUL-like products, which are not JUUL manufactured, but are compatible with a JUUL. There are reports of the ability to buy e-juice on Facebook, Instagram and other websites. These sites only require a check box indicating that you are 18. Many kids have their own credit card or can gain easy access to their parent's credit card. Kids are so savvy that the age checks can be evaded.

5. How do kids normally use JUUL in school?

Cigarette smoking is hard to hide. There's the flick of a lighter, the smoke and its aroma. A JUUL is stealthier: a single puff of vapor and sweet scent are the only evidence. The most frequent JUULing location is the school bathroom, but there are reports of kids passing around JUULs in hallways, the lunchroom and other places. Student also use JUULs in class, waiting for the teacher to turn around or hiding the vapor in a sweatshirt sleeve. The thrill of concealing a JUUL becomes part of its allure.



6. What are the dangers of the JUUL to teenagers?

There are many dangers associated with nicotine and chemical exposure. One JUUL pod contains the same amount of nicotine as a pack of cigarettes. Nicotine is addictive, and exposure in teenagers has been associated with working memory and attention deficits. A [2015 study](#) found that nicotine has been shown to negatively affect the cardiovascular, respiratory and reproductive systems, and may be a carcinogenic. A [study](#) by the American Academy of Pediatrics conducted in 2017 revealed that teenage e-cigarette use is closely associated with future cigarette use. Other dangers include exposure to poisonous chemicals, which are potentially cancerous and cause bronchitic infections.

These dangers are heightened by a widespread perception that vaping and JUULing is inoffensive, even healthy and a way to wean off cigarettes. A [2018 study](#) survey-based reported that 63 percent of young adult JUUL users did not know the substance contains nicotine.



7. In advising faculty and parents, what are possible signs that a child is using a JUUL?

There are signs that a child is using a JUUL even without ever seeing a device or smelling the sweet scent. Users are subject to dehydration and nosebleeds due to a chemical that retains water molecules in e-nicotine. Also, users can experience a strong aversion to caffeine. Other potential indicators include changing habits, especially in grades or behavior, or disappearing regularly to take a hit.

8. What can government do about it?

Policy makers are becoming aware of the dangers of JUULing. At least five states (CA, NJ, OR, HI, ME) have recently raised the age of buying e-cigarette products to 21—including cigarette delivery devices like the JUUL—even though the federal age is 18. Other states and localities have imposed high taxes on vapor and products, which are driving some vape shops out of business. Two states (NJ and NY) have banned vaping in all public spaces where cigarette use is banned. In Connecticut, Governor Malloy signed a law saying that vaping products must be sold in person-to-person transactions, though it's hard for state laws to effectively impact online purchases. In San Francisco, citizens overwhelmingly voted to support a ban on the sale of flavored e-nicotine in the city. The ban was upheld by a mighty 36 percent margin despite a \$12 million campaign against the ban funded by tobacco company RJ Reynolds.

9. What can schools do about it?

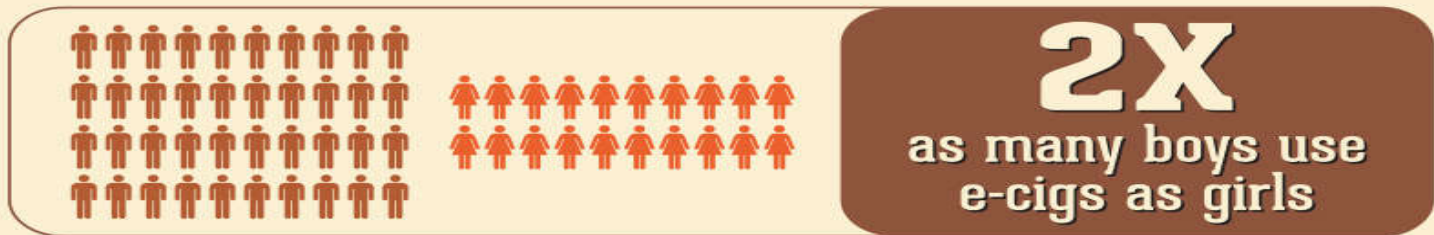
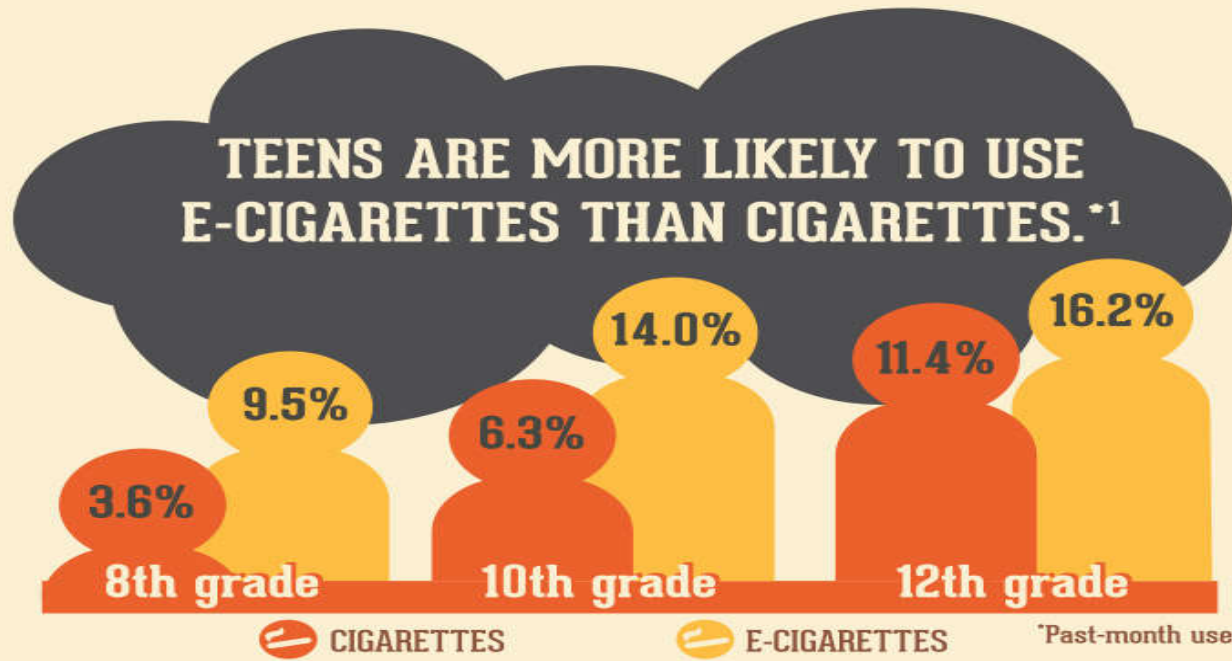
Many schools have implemented school-wide policies aimed at reducing JUULs in school. One school installed sensors to detect vapor in bathrooms to alert administrators. Other schools now employ bathroom monitors and only allow a certain number of students in at a time to regulate e-cigarette use. Many schools have imposed restrictions for JUULing including suspension and even expulsion.

At school, education programs can be initiated to reduce the use of JUUL. One idea to discourage JUULing is an assembly discussing the dangers of nicotine and the chemicals found in a JUUL. High school students may be more receptive to a younger group of presenters, particularly former JUUL users who share their experiences and long-term impacts of using. Anti-drug student clubs can also be helpful to increase student opposition to the practice. Schools can also restrict school computers from purchasing JUUL or JUUL products.

10. What should parents with small kids know about JUUL?

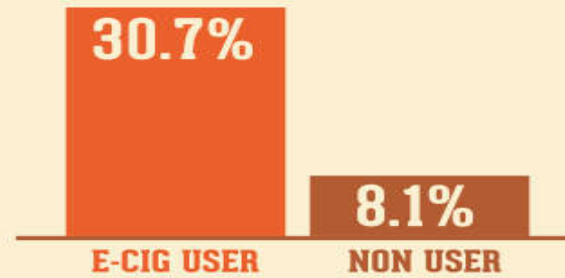
Parents should know that e-nicotine, even in small quantities, is poisonous to small children. Children under 6 are at risk of ingesting e-nicotine, which is especially attractive to small children because of candy-like packaging and flavors. According to the American Association of Poison Control Center ([AAPCC](#)), between 2012 and 2017, over 8,200 American children under age 6 were poisoned from e-nicotine; 84 percent were under age 3. If teenagers are secretly storing their JUUL in the house, parents could be unaware of this lurking danger to small children.

Teens and E-cigarettes



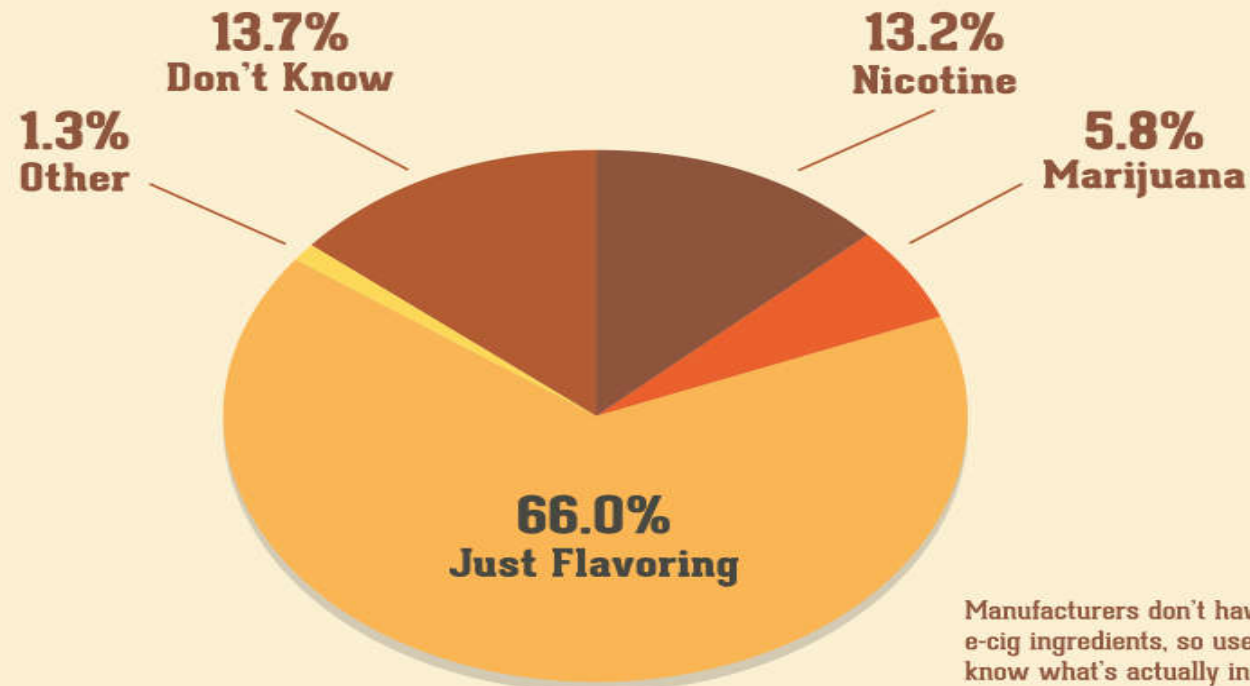
TEEN E-CIG USERS ARE MORE LIKELY TO START SMOKING.*²

Start Smoking Within 6 Months



*Includes combustible tobacco products [cigarettes, cigars, and hookahs]

WHAT DO TEENS SAY IS IN THEIR E-CIG?³



Manufacturers don't have to report e-cig ingredients, so users don't know what's actually in them.

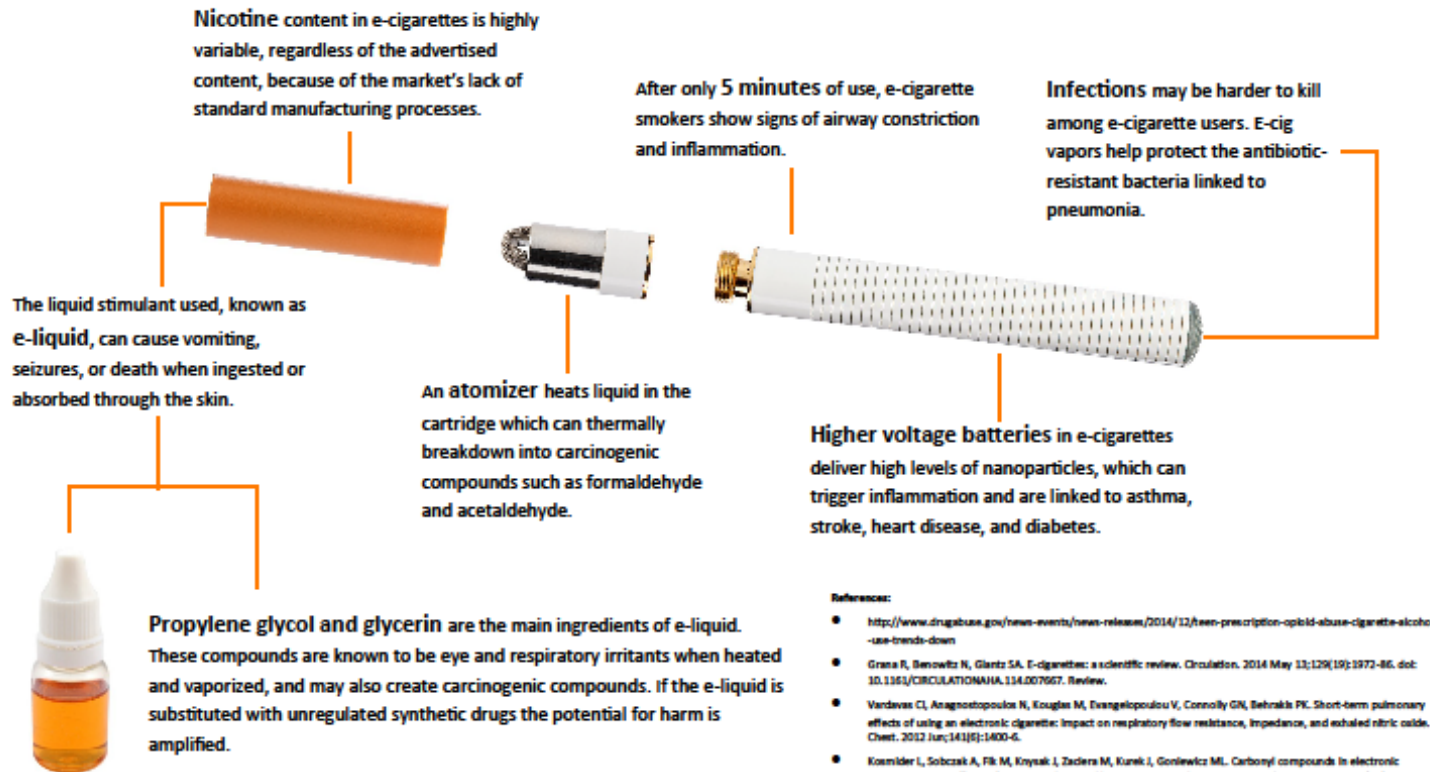
<https://www.drugabuse.gov/related-topics/trends-statistics/infographics/teens-e-cigarettes>

What are ENDS?

Up in Smoke: Deconstructing the Health Claims of E-Cigarettes



Electronic cigarettes, or *e-cigarettes*, have been growing in popularity in recent years. As traditional smoking has declined, use of e-cigarettes has increased among teenagers, surpassing traditional cigarettes. While touted as the “healthier” cousin of the traditional cigarette, e-cigarettes still pose great risk to users. No long-term studies exist on the risks of e-cigarette smoking, nor does the industry currently possess a regulated manufacturing process—addictive nicotine and an unregulated mix of chemicals plague e-cigarettes just as they do traditional cigarettes. The infographic seen below is meant to shed some light on the adverse events and risks e-cigarette users face.



So what's the problem with ENDS?

https://www.michigan.gov/documents/mdch/E-Cigs_Infographics_with_MDCH_Logo_RS_and_NL_479790_7.pdf

What are ENDS?

So what's the problem with ENDS?

- The American Lung association research indicated diacetyl is found in many (29 of 51 tested) flavored vape juice vapors – this toxin is responsible for “popcorn lung” (*bronchiolitis obliterans*) and was removed from microwave popcorn over a decade ago.
- Sometimes... they explode.