



# Tobacco Prevention **RESOURCES** FOR PARENTS AND OTHER CONCERNED ADULTS

Presented by:



In Partnership With:



JOHNSTON COUNTY  
PUBLIC HEALTH  
DEPARTMENT



# WHAT CAN YOU DO?

## COMBATING YOUTH TOBACCO USE -

### ACTION STEPS FOR PARENTS, GUARDIANS AND YOUTH SERVING ADULTS

- Model a healthy lifestyle free of tobacco products.
- Adopt a tobacco-free policy for your home and vehicle.
- Continue to educate yourself and commit to talking with your young person as they grow about tobacco and other drugs.
- Continue learning about this issue by exploring your Tobacco-Free Forum Resources, sign up for email alerts, and follow prevention organizations online.
- Support education opportunities in your school and community. Schedule an education session with your PTSA meetings, civic organizations, faith communities, events, etc. Contact one of the following organizations to schedule a presentation for your organization.

Region 7 Tobacco Control Manager  
Catherine.Mulvihill@WakeGov.com

Poe Center for Health Education  
J.Fowler@PoeHealth.org

- Share information found in this resource packet with friends and family through social media.
- Learn about and participate in national tobacco use prevention campaigns such as the Great American Smokeout in November and Kick Butts Day in March. [www.TobaccoFreeKids.org](http://www.TobaccoFreeKids.org)
- Educate yourself on current tobacco policies impacting your community. Stay informed at [NCAllianceForHealth.org/TobaccoUsePrevention](http://NCAllianceForHealth.org/TobaccoUsePrevention)

# RESOURCE SECTION

North Carolina Youth Tobacco Survey Middle & High School Fact Sheet

E-cigarettes Shaped Like USB Flash Drives

[www.cdc.gov/tobacco/infographics/youth/pdfs/e-cigarettes-usb-flash-508.pdf](http://www.cdc.gov/tobacco/infographics/youth/pdfs/e-cigarettes-usb-flash-508.pdf)

E-cigarettes, “Vapes” and Juuls – What Parents Should Know

[www.lung.org/assets/documents/stop-smoking/e-cigarettes-parents.pdf](http://www.lung.org/assets/documents/stop-smoking/e-cigarettes-parents.pdf)

E-cigarettes 101

[www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettesVapingProducts-083018-WEB.pdf](http://www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettesVapingProducts-083018-WEB.pdf)

E-cigarettes Expose Youth to Nicotine

[www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettes-Youth-041218-WEB.pdf](http://www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettes-Youth-041218-WEB.pdf)

Nicotine in E-cigarettes

[www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettesInfographic-083018-WEB.pdf](http://www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettesInfographic-083018-WEB.pdf)

E-cigarette Health Advisory

[www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettes-HealthAdvisory\\_web.pdf](http://www.tobaccopreventionandcontrol.ncdhhs.gov/youth/Documents/E-cigarettes-HealthAdvisory_web.pdf)

Common Myths

Know the Risks, Talk with Your Teen about e-Cigarettes: A Tip Sheet for Parents

[e-cigarettes.surgeongeneral.gov/documents/SGR\\_ECig\\_ParentTipSheet\\_508.pdf](http://e-cigarettes.surgeongeneral.gov/documents/SGR_ECig_ParentTipSheet_508.pdf)

What You Need to Know and How to Talk with Your Kids About Vaping

Tobacco Prevention and Treatment Resources

NC Quitline

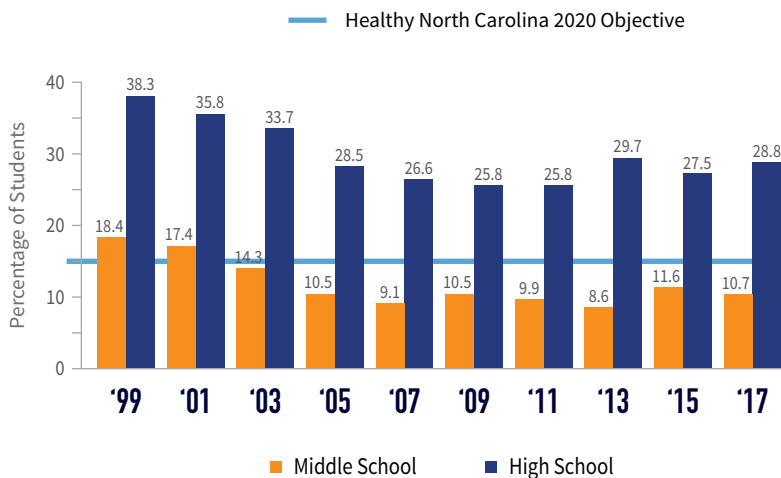


# NORTH CAROLINA YOUTH TOBACCO SURVEY (NC YTS) MIDDLE & HIGH SCHOOL FACT SHEET

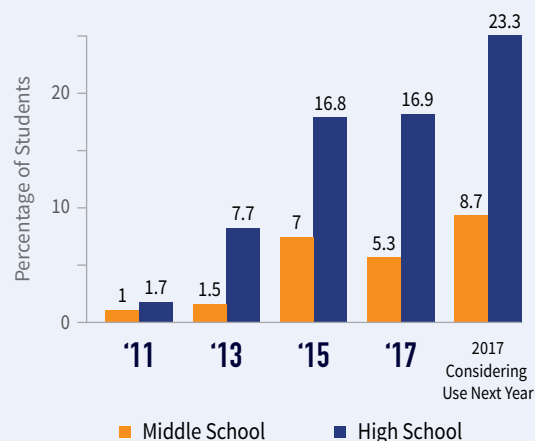


The North Carolina Youth Tobacco Survey (NC YTS) is a public school-based survey of students in grades 6-12 that measures youth tobacco use behaviors every two years since 1999. The Healthy North Carolina 2020 objective is to decrease the percentage of high school students reporting current use of any tobacco product to 15%.

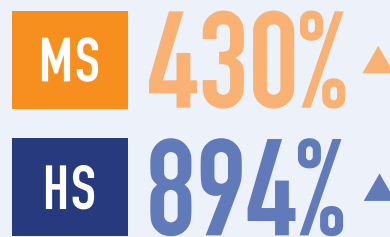
## NC MIDDLE & HIGH SCHOOL CURRENT USERS OF ANY TOBACCO PRODUCT, NC YTS, 1999-2017



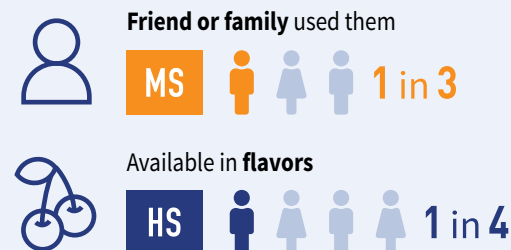
## CURRENT E-CIGARETTE USE



## CURRENT E-CIGARETTE USE INCREASE 2011-2017

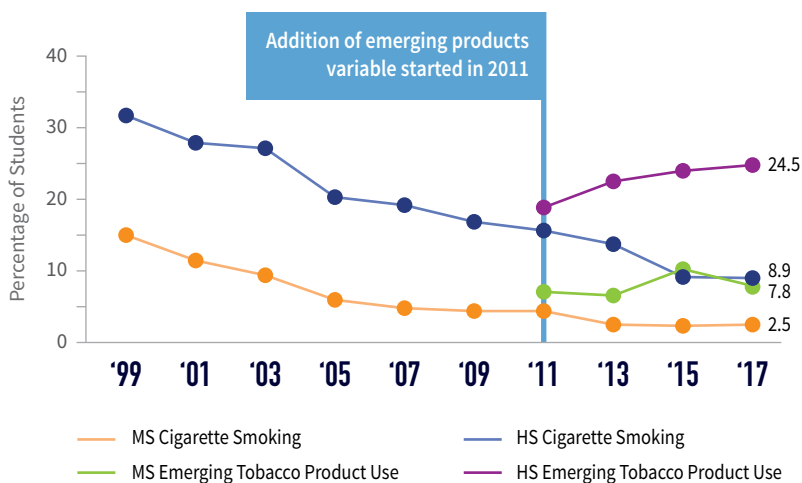


## REASONS FOR E-CIGARETTE USE 2017\*



\*Among students who have used

## NC MS & HS CURRENT USE OF CIGARETTES & EMERGING TOBACCO PRODUCTS, NC YTS, 1999-2017



\*Current use is defined as using tobacco products on one or more of the past 30 days

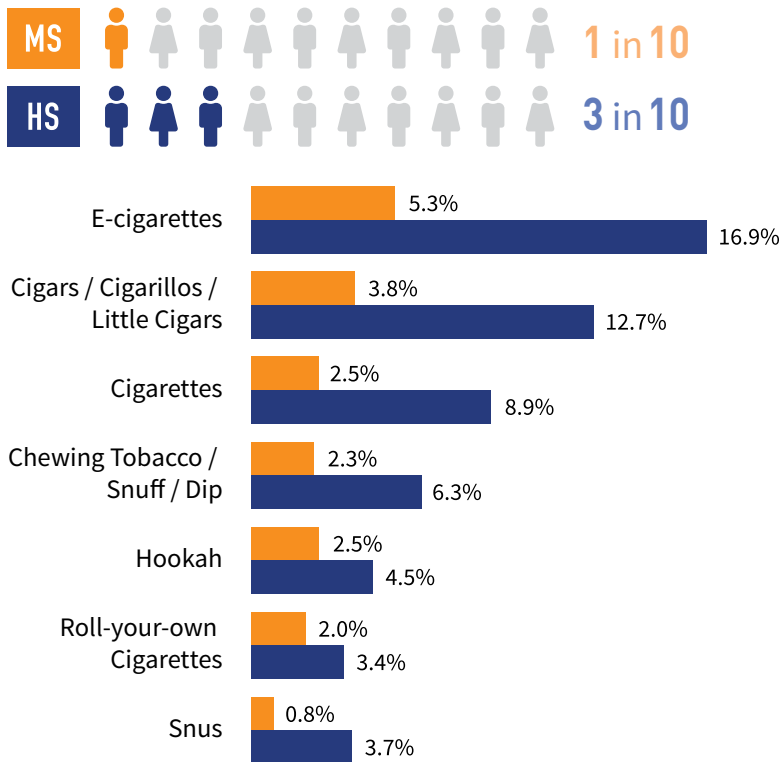
Beginning in 2011, NC YTS included a survey item to assess the use of emerging tobacco products. No data is available prior to 2011 on emerging tobacco products.

Emerging tobacco products can include: electronic cigarettes, clove cigars, dissolvable tobacco products, flavored cigarettes, little cigars or cigarillos, hookah or water pipes, roll-your-own cigarettes, and snus.

Any tobacco product includes all emerging products plus cigarettes, cigars, chewing tobacco/snuff/dip, pipe tobacco, and bidis.

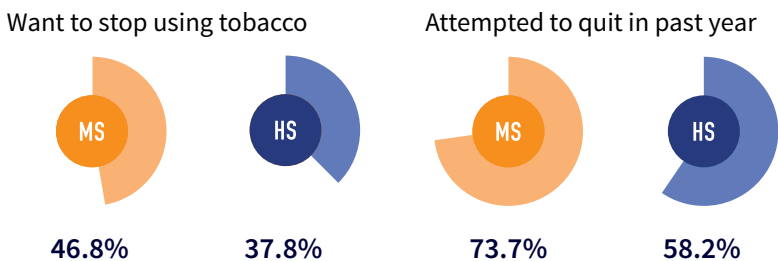
For 2017 NC YTS, 6,333 students responded to the survey (3,200 middle school and 3,133 high school students). The statewide overall response rate was 65.4% for middle schools and 64.5% for high schools.

## CURRENT USERS OF TOBACCO PRODUCTS

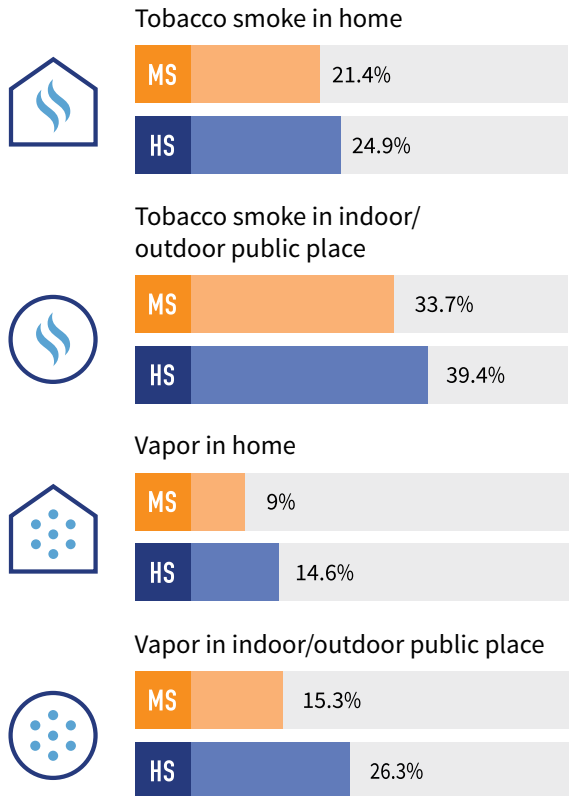


**USES TWO OR MORE TOBACCO PRODUCTS**  
**MS 47.1%** **HS 50.6%**

## CESSATION BEHAVIOR AMONG USERS

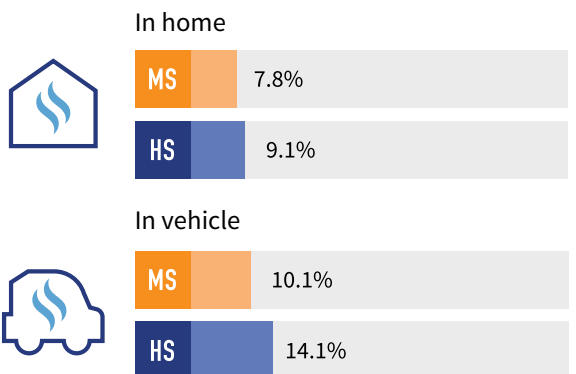


## EXPOSURE TO SECONDHAND SMOKE OR VAPOR\*



\*Past 7 days

## SMOKING ALWAYS ALLOWED:



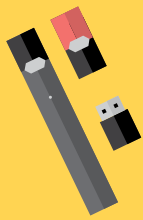
North Carolina 2017 enrollment figures were used to generalize NC YTS findings to all middle and high school students in the state.



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Division of Public Health

For more information, please contact the North Carolina Tobacco Prevention and Control Branch at (919) 707-5400. [www.tobaccopreventionandcontrol.ncdhhs.gov](http://www.tobaccopreventionandcontrol.ncdhhs.gov)

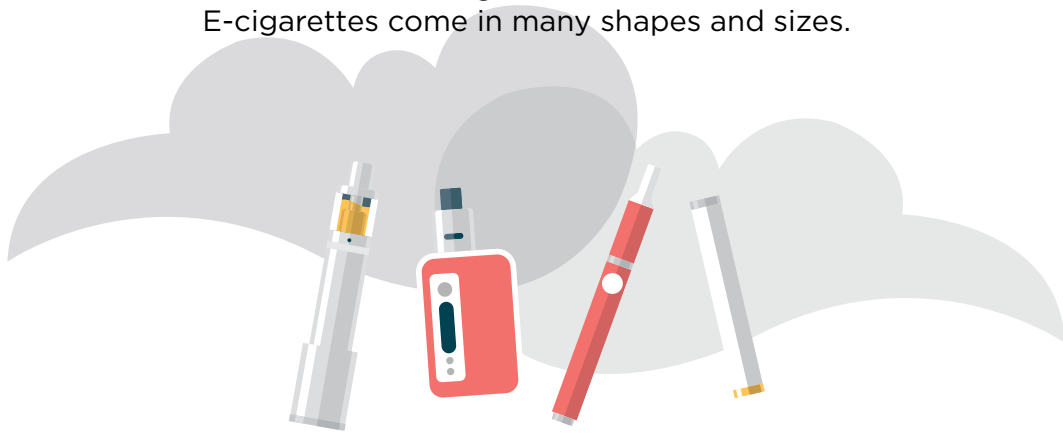
State of North Carolina • Department of Health and Human Services • Division of Public Health • [www.ncdhhs.gov](http://www.ncdhhs.gov) • [www.publichealth.nc.gov](http://www.publichealth.nc.gov)



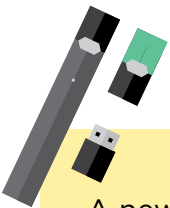
# E-CIGARETTES SHAPED LIKE USB FLASH DRIVES: INFORMATION FOR PARENTS, EDUCATORS, AND HEALTH CARE PROVIDERS



Electronic cigarettes (e-cigarettes) are battery-powered devices that can deliver nicotine and flavorings to the user in the form of an aerosol. E-cigarettes come in many shapes and sizes.



## WHAT'S THE BOTTOM LINE?



A new e-cigarette shaped like a **USB** flash drive is being used by students in schools.



Nicotine is highly addictive and can **harm brain development**, which continues until about age 25.



The use of any tobacco product — including e-cigarettes—is **unsafe** for young people.



**Parents, educators, & health care providers** can help prevent and reduce the use of all tobacco products, including e-cigarettes, by young people.


>> **Learn HOW** in this fact sheet.

CS292347-A




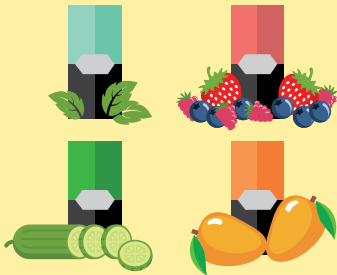
U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention

# AN INCREASINGLY POPULAR E-CIGARETTE DEVICE, CALLED JUUL, IS SHAPED LIKE A USB FLASH DRIVE.



Use of JUUL is sometimes called “JUULing.”

JUUL’s nicotine liquid refills are called “pods.” JUUL is available in several flavors such as Cool Cucumber, Fruit Medley, Mango, and Mint.



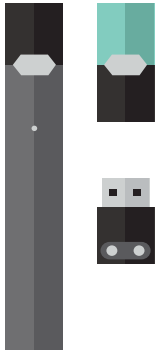
All JUUL e-cigarettes have a high level of nicotine. According to the manufacturer, a single JUUL pod contains as much nicotine as a pack of 20 regular cigarettes.



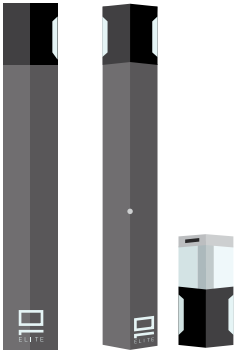
JUUL became available for sale in the United States in 2015. As of December 2017, JUUL is the top-selling e-cigarette brand in the United States.

News outlets and social media sites report widespread use of JUUL by students in schools, including in classrooms and bathrooms.

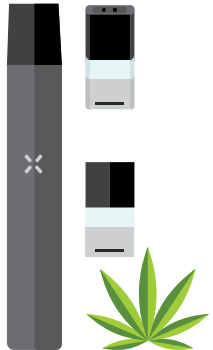
Other devices are becoming available that look like USB flash drives. Examples include the MarkTen Elite, a nicotine delivery device, and the PAX Era, a marijuana delivery device that looks like JUUL.



JUUL



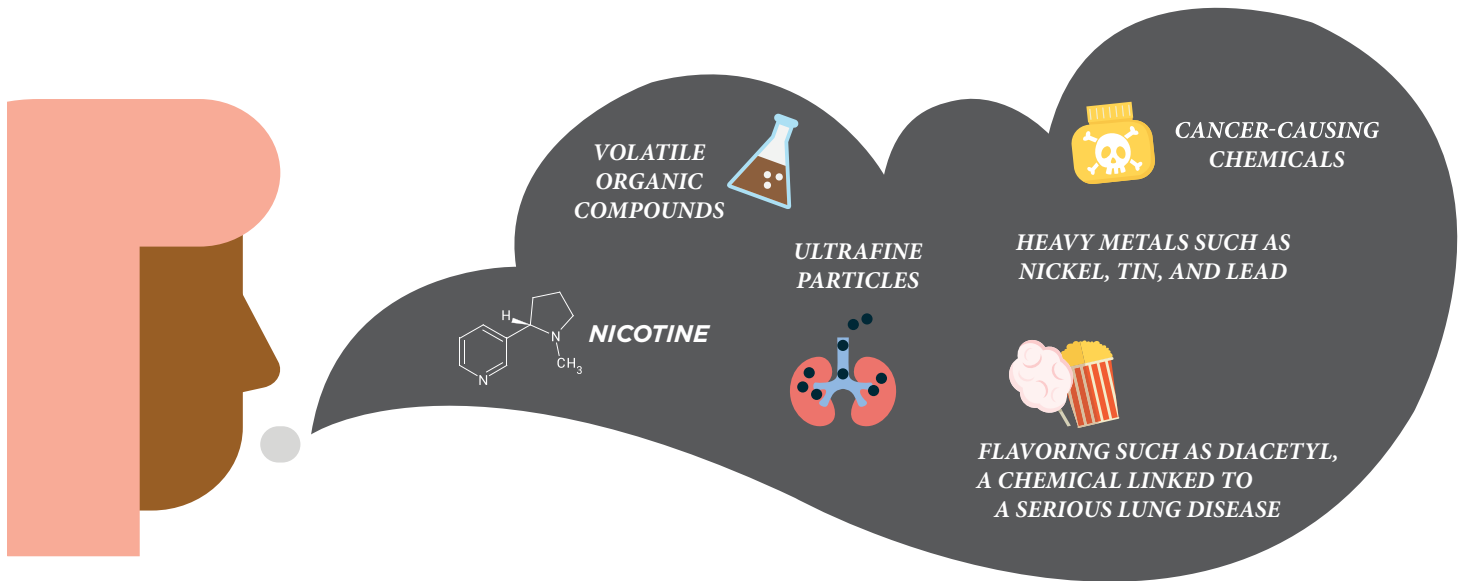
MarkTen Elite



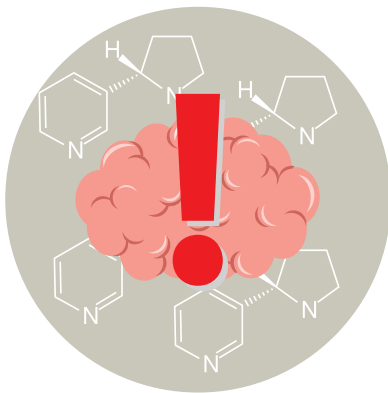
PAX Era

# E-CIGARETTE USE IS NOT SAFE FOR YOUNG PEOPLE.

E-cigarette aerosol is not harmless. It can contain harmful ingredients. However, e-cigarette aerosol generally contains fewer harmful chemicals than smoke from burned tobacco products, like regular cigarettes.



Most e-cigarettes contain *nicotine*, which is highly addictive and can *harm brain development*, which continues until about *age 25*.



**YOUNG PEOPLE WHO USE E-CIGARETTES MAY BE MORE LIKELY TO GO ON TO USE REGULAR CIGARETTES.**



## PARENTS, EDUCATORS, AND HEALTH CARE PROVIDERS CAN HELP PREVENT AND REDUCE THE USE OF E-CIGARETTES BY YOUNG PEOPLE.



### PARENTS CAN:

- » Learn about the different shapes and types of e-cigarettes and the risks of all forms of e-cigarette use for young people.
- » Talk to their children about the risks of e-cigarette use among young people. Express firm expectations that their children remain tobacco-free.
- » Set a positive example by being tobacco-free.



### EDUCATORS CAN:

- » Learn about the different shapes and types of e-cigarettes and the risks of all forms of e-cigarette use for young people.
- » Develop, implement, and enforce tobacco-free school policies.
- » Reject youth tobacco prevention programs sponsored by the tobacco industry. These programs have been found to be ineffective for preventing youth tobacco use.



### PEDIATRIC HEALTH CARE PROVIDERS CAN:

- » Ask about e-cigarettes, including devices shaped like USB flash drives, when screening patients for the use of any tobacco products.
- » Warn patients about the risks of all forms of tobacco product use, including e-cigarettes, for young people.

*PARENTS,  
EDUCATORS, AND  
HEALTH CARE  
PROVIDERS  
CAN HELP*



## E-cigarettes, Vapes, and JUULs What Parents Should Know



### Are e-cigarettes less harmful than cigarettes?

*There is no FDA oversight of the manufacturing of these products – which means there is no oversight regarding potentially harmful ingredients.*

- E-cigarettes almost always contain harmful ingredients including nicotine.
- Acrolein, a known ingredient of many e-cigarettes, causes irreversible lung damage. Nicotine exposure during adolescence and can harm the developing brain.
- The most popular e-cigarette among teens is JUUL
  - All JUUL pods contain some nicotine – something many youth don't realize.
  - According to the manufacturer, one JUUL pod may contain as much nicotine as a pack of cigarettes.
- No e-cigarette has been found to be safe and effective by FDA in helping smokers quit.

### Is there a difference between e-cigarettes and JUULing?

- No. JUULs may look different, but they're actually a type of e-cigarette.
- E-cigarettes are battery powered and deliver nicotine through a liquid which turns into an aerosol.
- The e-liquids come in fruit flavors that appeal to youth.

*JUUL is more discrete and looks like a USB drive. Other e-cigarettes may look like phones.*

- Cartridge-based e-cigarettes like JUUL contain nicotine salts that do not produce vapor or visible emissions when the device is used and may make the product even more addictive.
- JUUL claims that some of its pods have roughly as much nicotine as an entire pack of cigarettes.

### How bad is the e-cigarette epidemic?

Most common reasons youth use e-cigarettes<sup>1</sup>



**39%**

Use by "friend or family member"



**31%**

Availability of "flavors such as mint, candy, fruit, or chocolate"



**17%**

Belief that "they are less harmful than other forms of tobacco such as cigarettes"

<sup>1</sup>Wang TW, Gentzke A, Sharapova S, Cullen KA, Ambrose BK, Jamal A. Tobacco Product Use Among Middle and High School Students – United States, 2011–2017. MMWR Morb Mortal Wkly Rep 2018;67:629–633. DOI: <http://dx.doi.org/10.15585/mmwr.mm6722a3>



## Does the American Lung Association agree with the Food and Drug Administration that youth use of e-cigarettes has reached an epidemic?

- Yes, the American Lung Association agrees that e-cigarette use among youth has reached epidemic levels.
- American Lung Association has been asking the FDA to take action on e-cigarettes for a decade.
- E-cigarettes are the most commonly used tobacco products among youth and have been for several years now.
- Many youth don't realize how they are harming their lungs and their brains by using e-cigarettes.

*Several years ago, one study estimated there were about 7,700 flavors of e-cigarettes on the market at that time.*




## How is the American Lung Association helping your children?

- The American Lung Association urges the Food and Drug Administration to take meaningful action to crack down against products that target youth.
- The Lung Association and our partners filed a lawsuit against FDA for its delay of reviewing products currently for sale.
- The American Lung Association is working to implement proven effective policies that will reduce youth from e-cigarettes, including raising the minimum age of sale to 21 and increasing the price of products.
- Education programs available
  - Not on Tobacco (N-O-T) is the American Lung Association's teen smoking cessation program and helps teens who want to quit, providing the tools, information and support to quit for good.
  - Alternative to Suspension program is offered as an option to students who face suspension for violation of school tobacco-use policy and is administered by an adult facilitator in either a one-on-one or group format in a school or community-based setting.

## Contact

Lung Helpline and Tobacco Quitline is a telephone support line available in over 200 languages, and is a free service allowing callers access to expert staff, including registered nurses, respiratory therapists, pharmacists and certified tobacco cessation specialists.

 **1-800-LUNG-USA (1-800-586-4872) or [www.Lung.org/helpline](http://www.Lung.org/helpline).**

 Learn more about these and other programs at [www.Lung.org](http://www.Lung.org).

Contact your local American Lung Association office for information on youth leadership groups and other youth tobacco initiatives. **1-800-LUNGUSA**



# E-cigarettes 101: A Fact Sheet

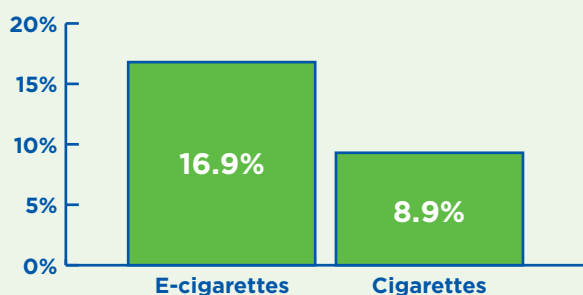
E-cigarettes are battery-powered devices that allow users to inhale aerosolized liquid (e-juice). E-cigarettes, vapes, vape or hookah pens, e-pipes and other vaping products recently surpassed conventional cigarettes as the most commonly used tobacco product among young people,<sup>[1]</sup> so it is critical that public health officials and citizens understand the potential risks of using them.



## ■ Youth e-cigarette use is an emerging public health threat.

Among North Carolina's high school students, e-cigarette use in the last 30 days is now almost double conventional cigarette use.<sup>[2]</sup> In addition, over 4.4 percent of adults currently use e-cigarettes in North Carolina.<sup>[3]</sup>

**Percent of high school students using various forms of tobacco, 2017**



## ■ E-cigarettes are not safe for young people.

Nearly all e-cigarettes contain nicotine.<sup>[4]</sup> Nicotine is highly addictive and can harm the developing adolescent brain.<sup>[1, 5, 6]</sup> No amount of nicotine is safe

for youth. Because the brain is still developing until age 25, youth and young adult exposure to nicotine can lead to addiction and disrupt attention and learning.<sup>[1]</sup>

Nearly one in seven of North Carolina high school students who has tried e-cigarettes has never smoked a cigarette.<sup>[2]</sup> A growing body of evidence from multiple countries shows that young people who have never smoked cigarettes — but currently use e-cigarettes — are more likely to smoke cigarettes in the future than are young people who do not use e-cigarettes.<sup>[8-15]</sup>

## ■ E-cigarettes attract kids despite the dangers.

- E-cigarettes are available in fruit and candy flavors; flavored tobacco products appeal to youth.<sup>[13]</sup>
- E-cigarettes are sometimes advertised using celebrity endorsements. More than 18 million, or seven in 10, U.S. middle and high school youth were exposed to e-cigarette ads in 2014.<sup>[7]</sup>
- E-cigarettes are available for purchase online, making it easier for youth to obtain.<sup>[12, 13]</sup>



## ■ E-cigarettes are not proven to help people quit smoking.

E-cigarettes are not FDA-approved smoking quitting aids, and they are not proven to help people quit. Free quit coaching is available to all North Carolinians by visiting QuitlineNC at [www.quitlinenc.com](http://www.quitlinenc.com) or by calling 1-800-QUIT-NOW (1-800-784-8669). Some residents may qualify for free nicotine replacement therapy.

For more information or to find quit smoking resources visit [www.quitlinenc.com](http://www.quitlinenc.com).



## ■ North Carolina communities are taking action to protect young people.

All North Carolina public schools,<sup>[16]</sup> some universities, and government and health care facilities prohibit e-cigarette use. State law requires e-cigarette liquid to be taxed and retailers in North Carolina cannot sell e-cigarettes or e-liquid to minors.<sup>[17]</sup>

Cities and counties around the state have passed smoke-free and tobacco-free regulations that also protect the public from e-cigarette aerosol. Some have added e-cigarette use to existing regulations, such as the smoke-free restaurants and bars law.

Learn more at [www.tobaccopreventionandcontrol.ncdhhs.gov/ecigs](http://www.tobaccopreventionandcontrol.ncdhhs.gov/ecigs).



*Did you know...*

**Nearly all e-cigarettes contain nicotine. Therefore, both cigarettes and e-cigarettes are harmful. NO AMOUNT IS SAFE FOR YOUTH.**

## REFERENCES

1. U.S. Department of Health and Human Services, *E-Cigarette Use Among Youth and Young Adults. A Report of the Surgeon General*. 2016, 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: Atlanta, GA.
2. North Carolina Department of Health and Human Services, *North Carolina Youth Tobacco Survey*. 2017.
3. North Carolina Behavioral Risk Factor Surveillance System. 2016.
4. Marynak, K.L., et al., *Sales of Nicotine-Containing Electronic Cigarette Products: United States, 2015*. *Am J Public Health*, 2017. 107(5): p. 702-705.
5. England, L.J., et al., *Developmental toxicity of nicotine: A transdisciplinary synthesis and implications for emerging tobacco products*. *Neurosci Biobehav Rev*, 2017. 72: p. 176-189. Centers for Disease Control and Prevention. *Vital Signs: Exposure to Electronic Cigarette Advertising Among Middle School and High School Students — United States, 2014*. *MMWR* 2016; 64(52):1403-8.
6. Leventhal, A.M., et al., *Association of Electronic Cigarette Use With Initiation of Combustible Tobacco Product Smoking in Early Adolescence*. *JAMA*, 2015. 314(7): p. 700-7.
7. Barrington-Trimis, J.L., et al., *E-Cigarettes and Future Cigarette Use*. *Pediatrics*, 2016. 138(1).
8. Wills, T.A., et al., *Longitudinal study of e-cigarette use and onset of cigarette smoking among high school students in Hawaii*. *Tob Control*, 2017. 26(1): p. 34-39.
9. Primack, B.A., et al., *Progression to Traditional Cigarette Smoking After Electronic Cigarette Use Among US Adolescents and Young Adults*. *JAMA Pediatr*, 2015. 169(11): p. 1018-23.
10. Unger, J.B., D.W. Soto, and A. Leventhal, *E-cigarette use and subsequent cigarette and marijuana use among Hispanic young adults*. *Drug Alcohol Depend*, 2016. 163: p. 261-4.
11. Miech, R., et al., *E-cigarette use as a predictor of cigarette smoking: results from a 1-year follow-up of a national sample of 12th grade students*. *Tob Control*, 2017.
12. U.S. Department of Health and Human Services, *Preventing Tobacco Use Among Youth and Young Adults. A Report of the Surgeon General*. 2012.
13. U.S. Food and Drug Administration. *FDA and Public Health Experts Warn About Electronic Cigarettes*. 2012; Available from: <http://www.fda.gov/NewsEvents/Newsroom/Pressannouncements/ucm173222.htm>
14. Conner, M et al., *Do electronic cigarettes increase cigarette smoking in UK adolescents? Evidence from a 12-month prospective study*, *BMJ*, 2017; 0: p. 1-9
15. Hammond, D et al., *Electronic cigarette use and smoking initiation among youth: a longitudinal cohort study*, *CMAJ*, 2017; 189: p. E1328-36
16. Atkinson, J. *Prohibiting Electronic Cigarettes on School Campuses*, 2014. Available from: <http://www.tobaccopreventionandcontrol.ncdhhs.gov/ecigs/ProhibitingElectronicCigarettesonSchoolCampuses.pdf>
17. N.C. Tobacco Prevention and Control Branch *Significant Accomplishments*. Available from: <http://www.tobaccopreventionandcontrol.ncdhhs.gov/about/accomplishments.htm>

# E-Cigarettes Expose NC Youth to the Health Risks of Nicotine

## Did you know...

Nicotine is more harmful than you think. **NO AMOUNT IS SAFE FOR YOUTH.**



Among high school students, e-cigarette use is now almost double conventional cigarette use. Nearly all e-cigarettes contain nicotine. [11]

Nicotine is a chemical commonly found in cigarettes, e-cigarettes and other tobacco products. **Nearly one in**

**seven of North Carolina high school students who has tried e-cigarettes has never smoked a cigarette. [2] A growing body of evidence from multiple countries shows that young people who have never smoked cigarettes — but currently use e-cigarettes — are more likely to smoke cigarettes in the future than are young people who do not use e-cigarettes. [12-19]** Nicotine is highly addicted and can be toxic.

### ■ No amount of nicotine is safe for young people.

Nicotine can harm the brain as it continues to develop through young adulthood until age 25.

Animal research has found that even in small doses, nicotine exposure causes long-lasting changes in brain development. The kind of changes that can happen affect learning, memory and addiction to nicotine. [1-5]

### ■ Nicotine is harmful to the health of unborn children.

Evidence shows that fetal exposure to nicotine can have negative long-term effects, including sudden infant death syndrome (SIDS), impaired fetal brain and lung development, hearing problems, effects on behaviors and obesity, and deficits in attention and cognition. [6]

Studies also indicate that fetal nicotine exposure is associated with nicotine dependence in adolescence. [6-8]

### ■ Nicotine can be toxic, even deadly.

Eating, drinking or absorbing nicotine can lead to nicotine poisoning; children are especially vulnerable. [6] Symptoms of nicotine poisoning include nausea, vomiting, seizures and respiratory depression. [9-10] Nicotine poisoning can be deadly.

For poison emergencies or questions, call the Carolinas Poison Center at 1-800-222-1222.

Learn more about e-cigarettes at [www.tobaccopreventionandcontrol.ncdhhs.gov/ecigs](http://www.tobaccopreventionandcontrol.ncdhhs.gov/ecigs).



State of North Carolina • Department of Health and Human Services  
Division of Public Health • Tobacco Prevention & Control Branch

www.ncdhhs.gov • NCDHHS is an equal opportunity employer and provider. 04/2018  
15,500 copies of this document were printed at a cost of \$1,151.51 or \$0.074291 per copy.

## REFERENCES

1. Counotte et al., "Long-Lasting Cognitive Deficits Resulting from Adolescent Nicotine Exposure in Rats."
2. Abreu-Villaca et al., "Short-Term Adolescent Nicotine Exposure Has Immediate and Persistent Effects on Cholinergic Systems: Critical Periods, Patterns of Exposure, Dose Thresholds."
3. Slikker et al., "Mode of Action: Disruption of Brain Cell Replication, Second Messenger, and Neurotransmitter Systems during Development Leading to Cognitive Dysfunction — Developmental Neurotoxicity of Nicotine."
4. Slotkin, "Nicotine and the Adolescent Brain: Insights from an Animal Model."
5. Gould and Leach, "Cellular, Molecular, and Genetic Substrates Underlying the Impact of Nicotine on Learning."
6. U.S. Department of Health and Human Services, "The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General."
7. England, L.J., et al., Nicotine and the Developing Human: A Neglected Element in the Electronic Cigarette Debate. *Am J Prev Med*, 2015.
8. De Genna, N.M., et al., Prenatal tobacco exposure, maternal postnatal nicotine dependence and adolescent risk for nicotine dependence: Birth cohort study. *Neurotoxicol Teratol*, 2017.
9. Benowitz et al., "Prolonged Absorption with Development of Tolerance to Toxic Effects after Cutaneous Exposure to Nicotine."
10. Okamoto et al., "Tolerance to the Convulsions Induced by Daily Nicotine Treatment in Rats."
11. Marynak KL, Gammon DG, Rogers T, Coats EM, Singh T, King BA, "Sales of Nicotine-Containing Electronic Cigarette Products: United States, 2015", *American Journal of Public Health* 107, no. 5 (May 1, 2017): pp. 702-705. DOI: 10.2105/AJPH.2017.303660
12. Chen, J. and W.J. Millar, *Age of smoking initiation: implications for quitting*. *Health Rep*, 1998. 9(4): p. 39-46(Eng); 39-48(Fre).
13. Adelman, W.P., *Tobacco use cessation for adolescents*. *Adolesc Med Clin*, 2006. 17(3): p. 697- 717; abstract xii.
14. DiFranza, J.R. and R.J. Wellman, *A sensitization-homeostasis model of nicotine craving, withdrawal, and tolerance: integrating the clinical and basic science literature*. *Nicotine Tob Res*, 2005. 7(1): p. 9-26.
15. DiFranza, J.R. and R.J. Wellman, *Sensitization to nicotine: how the animal literature might inform future human research*. *Nicotine Tob Res*, 2007. 9(1): p. 9-20.
16. Ginzel, K.H., et al., *Critical review: nicotine for the fetus, the infant and the adolescent?* *J Health Psychol*, 2007. 12(2): p. 215-24.
17. Nelson, D.E., et al., *Long-term trends in adolescent and young adult smoking in the United States: metapatterns and implications*. *Am J Public Health*, 2008. 98(5): p. 905-15.
18. Conner, M et al., *Do electronic cigarettes increase cigarette smoking in UK adolescents? Evidence from a 12-month prospective study*. *BMJ*, 2017; 0: p. 1-9
19. Hammond, D et al., *Electronic cigarette use and smoking initiation among youth: a longitudinal cohort study*. *CMAJ*, 2017; 189: p. E1328-36

# Nicotine in E-cigarettes

## NO AMOUNT IS SAFE FOR YOUNG PEOPLE

- ✓ *Nicotine exposure can harm brain development.*
- ✓ *Nicotine is highly addictive.*
- ✓ *Nicotine is harmful to the health of unborn children.*
- ✓ *Nicotine causes harmful physical effects and can be toxic.*

### NC YOUTH AT RISK

Nearly one in seven of North Carolina high school students who has ever tried e-cigarettes has never smoked a cigarette. A growing body of evidence shows that these students are more likely to smoke cigarettes in the future.



#### ■ Nicotine in e-cigarettes harms young people.

- Nicotine can harm the brain as it continues to develop through young adulthood until age 25.
- What harms can nicotine cause to a young person's brain?
  - Nicotine addiction and possible increased risk of becoming a cigarette smoker
  - Learning problems
  - Memory and attention problems
  - Behavioral problems
  - Increased chance of future addiction



#### ■ E-cigarettes attract young people.

- Available in fruit and candy flavors
- Advertised using celebrity endorsements
- Available for purchase online



#### ■ The nicotine in e-cigarettes is poison.

Nicotine is toxic. The liquid inside e-cigarettes and refill bottles is a poison hazard for toddlers. Poison control calls in North Carolina related to e-cigarettes increased from just eight in 2011 to 121 in 2016. Many cases involved children and toddlers who swallowed e-cigarette liquids left unattended.



#### ■ Nicotine use during pregnancy can harm the baby.

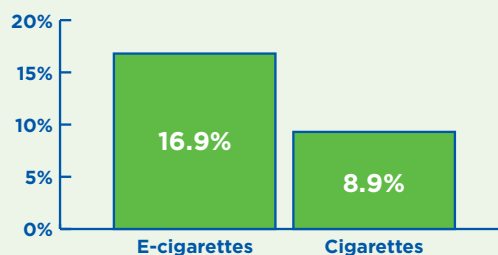
- Sudden infant death syndrome
- Impaired brain and lung development
- Auditory processing problems
- Effects on behaviors
- Increased risk of obesity
- Deficits in attention and cognition
- Nicotine dependence in adolescence



What are the symptoms of nicotine poisoning?

- Nausea
- Seizures
- Vomiting
- Death (in high doses)
- Respiratory depression

Percent of high school students using various forms of tobacco, 2017



Learn more at [www.tobaccopreventionandcontrol.ncdhhs.gov/ecigs](http://www.tobaccopreventionandcontrol.ncdhhs.gov/ecigs).



State of North Carolina • Department of Health and Human Services  
Division of Public Health • Tobacco Prevention & Control Branch

[www.ncdhhs.gov](http://www.ncdhhs.gov) • NCDHHS is an equal opportunity employer and provider. 08/2018

# E-Cigarette Health Advisory

## Nicotine risks for children, teens, young adults and pregnant women

This advisory seeks to inform health care professionals and parents of the health risks of nicotine exposure to children, teens and pregnant women related to the use of e-cigarettes (vaping devices).

With increased use and expanding availability of nicotine products such as e-cigarettes, especially among young people, it is important to understand the facts about nicotine and its health effects. Studies have shown that nearly all e-cigarettes sold contain nicotine. Nicotine is addictive and can be toxic at high doses. Evidence also has shown nicotine can harm brain development during adolescence and young adulthood. Nicotine exposure, whether through traditional or new and emerging products, is unsafe for young people.



## Nicotine products pose a serious health risk for youth.

The use of e-cigarettes and other e-cigarette or vaping products (such as vape pens, hookah pens, e-cigars and e-pipes) recently surpassed the use of conventional cigarettes to become the most commonly used tobacco product among U.S. youth.<sup>[1]</sup> Given the use of e-cigarettes among teens increased dramatically during 2011-2015,<sup>[1]</sup> it is critical that public health officials and citizens understand the potential risks of using nicotine products for young people.

**A growing body of evidence from multiple countries shows that young people who have never smoked cigarettes — but currently use e-cigarettes — are more likely to smoke cigarettes in the future than are young people who do not use e-cigarettes.**<sup>[8-13, 83-84]</sup>

Human clinical studies report similar findings — adolescent nicotine exposure leads to higher rates of smoking behavior in adulthood.<sup>[8-13]</sup> Accordingly, young people should avoid use of all nicotine-containing products, including e-cigarettes.

### ■ Nicotine exposure can harm brain development.

Adolescence — the transitional period between childhood and adulthood, typically ranging from ages 12 to 18 — is a critical window for brain growth and development, when it is still “under construction.”<sup>[14, 15]</sup> However, the brain continues to undergo structural and functional development into young adulthood, to age 25.<sup>[1, 78, 79]</sup> Consequently, young people are especially at risk of harm caused by nicotine exposure.

The brain undergoes significant neurobiological development during adolescence and young adulthood, which are critical periods of sensitivity to neurobiological insults, including nicotine.<sup>[79-82]</sup>

Evidence indicates that exposure to nicotine during adolescence can have long-term effects on brain development,<sup>[1, 16-18]</sup> and may increase the risk of addiction to other substances by causing changes





within the brain.<sup>[17, 19-32]</sup> Animal research has found that even in small doses, nicotine exposure in adolescence causes long-lasting changes in brain development. This could have negative implications for learning, memory, attention, behavioral problems and future addiction in young people.<sup>[18, 30, 33-37]</sup>

## ■ Nicotine causes harmful physical effects and can be toxic.

Nicotine affects the cardiovascular and central nervous systems, causing blood vessels to constrict, raising the pulse and blood pressure.<sup>[38, 68]</sup> Eating, drinking or absorbing nicotine can lead to nicotine poisoning; children are especially vulnerable.<sup>[20]</sup> Symptoms of nicotine poisoning include nausea, vomiting, seizures and respiratory depression.<sup>[69, 70]</sup> Nicotine poisoning can be fatal.<sup>[71]</sup>

There has been a significant rise in the number of calls to poison control centers for exposures to liquids used in e-cigarettes.<sup>[72]</sup> Nationally, the number of calls rose from one per month in September 2010 to 215 per month in February 2014, with nearly 52 percent occurring among children under age 5.<sup>[73]</sup>

Similarly, calls increased in North Carolina with poisonings related to e-cigarettes increasing from just eight in 2011 to 121 in 2016. Many of these cases were about ingestion of e-cigarette liquids that were left out in reach of toddlers and children.

The amount of nicotine in products may vary widely. Nicotine levels in e-cigarettes have been found to range from 0 to 34 mg/mL,<sup>[75]</sup> and studies have found discrepancies between the labeled and

measured nicotine content in some e-cigarette products.<sup>[76]</sup> Because of the lack of quality and manufacturing standards for e-cigarettes and other electronic nicotine delivery systems (ENDS), it is difficult for the consumer to know how much nicotine is contained in these products, increasing the risk of a toxic exposure. The U.S. Food and Drug Administration now has the authority to address the varying nicotine levels in tobacco products, including e-cigarettes, but has not yet done so.

## ■ Nicotine is highly addictive.

Nicotine is the drug in tobacco that causes addiction.<sup>[38-42]</sup> Nicotine stimulates reward pathways in the brain, and can be as addictive as heroin or cocaine.<sup>[22, 39, 43-49]</sup> Because their brains are still developing, adolescents and young adults are especially vulnerable to nicotine addiction.<sup>[14, 17, 50-53]</sup>

While experimental studies testing the effects of nicotine addiction on the human adolescent brain do not exist due to ethical restrictions, researchers agree that results from animal studies do translate to humans.<sup>[1]</sup> Existing animal studies show that adolescents are more sensitive to the rewarding effects of nicotine at lower doses than adults, and experience fewer negative side effects of higher-dose exposure.<sup>[54, 55]</sup>

Further, young people are less sensitive to the negative effects of withdrawal than adults, making them more susceptible to nicotine addiction. Human clinical reports confirm this pattern, showing adolescents are more likely to experience nicotine dependence at lower doses than adults.<sup>[8-13]</sup>

## Nicotine is harmful to the health of unborn children.

The U.S. Surgeon General has concluded that use of products containing nicotine poses danger to pregnant women and unborn children.<sup>[1, 20]</sup>

Fetal exposure to nicotine can have a variety of negative long-term consequences, including sudden infant death syndrome, impaired brain and lung development, auditory processing problems, effects on behaviors and obesity, and deficits in attention

and cognition.<sup>[15-17, 20, 26-28, 56, 57]</sup> Studies also indicate that fetal nicotine exposure is associated with nicotine dependence in adolescence.<sup>[15, 20, 58-67]</sup>

Pregnant women and women who intend to become pregnant should avoid e-cigarettes to minimize unnecessary exposure to nicotine.<sup>[1, 20]</sup>

## Recommendations for Health Care Professionals

### ■ Educate and advise

- Advise that nicotine exposure is unsafe for children, teens and pregnant women.
  - The nicotine contained in products such as e-cigarettes is highly addictive.
  - Accidental exposure to liquids contained in e-cigarettes and similar products can result in nicotine poisoning if it's in high enough doses, especially in children.
- Advise that exposure to nicotine can harm the developing adolescent brain.
- Advise pregnant women to avoid using nicotine products.
- People of all ages interested in quitting tobacco can receive free coaching, and may qualify for free nicotine replacement medication from QuitlineNC at [www.quitlinenc.com](http://www.quitlinenc.com) or by calling 1-800-QUIT-NOW (1-800-784-8669).



### ■ Protect children from nicotine poisoning

Inform parents and nicotine users that nicotine-containing cartridges and bottles are a potential source of poisoning through ingestion, skin or eye contact. Store these materials out of the reach of children, and call the Carolinas Poison Center at 1-800-222-1222 for expert help in case of accidental exposure.



## Recommendations for Parents of Young Children

### ■ Keep nicotine-containing products out of reach

- Nicotine-containing cartridges and bottles are a potential source of poisoning through ingestion, skin or eye contact. Store these materials out of the reach of young children.
- Makes sure that products kept in the home are kept in child-resistant packaging, which is required for all liquid nicotine sold in North Carolina and nationwide.<sup>[77]</sup>
- Call 1-800-222-1222 for poison emergencies.



# Many teens have dangerous misperceptions that lead them to believe that vaping is harmless.

## Common myths believed about vaping, along with the facts.

“It’s just flavoring.”

Vapes get their flavors from chemicals. While these flavorings are safe to eat in food, they’re not safe to inhale. Inhaling flavor chemicals can harm your lungs.<sup>11</sup>

Want an example?

Some buttery-flavored vapes like caramel contain diacetyl and acetoin. Inhaling diacetyl has been linked to popcorn lung, a lung disease that doesn’t have a cure.<sup>11</sup>

“It’s just water vapor.”

But it’s not.

Vaping can expose the user’s lungs to harmful chemicals like formaldehyde, diacetyl and acrolein, as well as toxic metal particles like nickel, tin and lead.<sup>4,8-10,11-13</sup>

“I don’t have an addictive personality—I won’t get hooked on vapes.”

Some vapes that claim they are nicotine-free are not.<sup>8,17-22</sup>

“My vape says it’s nicotine-free. There’s no way I’ll become addicted.”

Vaping delivers nicotine to the brain in as little as 10 seconds.<sup>14,15</sup>

A teen’s brain is still developing, making it more vulnerable to nicotine addiction.<sup>16</sup>

“Nicotine isn’t that bad for me.”

Nicotine exposure during the teen years can disrupt normal brain development. It can have long-lasting effects, like increased impulsivity and mood disorders.<sup>23-25</sup>

“Just because I vape doesn’t mean I’m going to smoke cigarettes.”

Research shows teens who vape are more likely to try smoking cigarettes.<sup>26</sup>

## FDA’s Efforts to Curb Youth E-Cigarette Use

FDA is committed to protecting youth from the dangers of e-cigarettes. In addition to our national peer-to-peer public education campaign called “The Real Cost,” we’re joining forces with Scholastic to provide teachers and school administrators with the resources they need to educate their students about e-cigarettes.

Together, we’ve created a **free lesson plan and research activity** for teachers to educate their students on the health risks of e-cigarette use. Please visit the [Scholastic youth-vaping-risks site](#) to access these resources.

## Share This Information



Please share this infographic with other teachers and school administrators. In addition, if you’d like to learn more about e-cigarettes, check out these resources:

- » [Surgeon General Fact Sheet](#) – E-cigarette use among youth and young adults
- » [Parent Tip Sheet](#) – How parents can talk with their teen about vaping
- » [CDC Infographic](#) – E-cigarette ads and youth infographics
- » [Smokefree Teen](#) – If you know a teen who is addicted to any tobacco product, including cigarettes and e-cigarettes, there are resources to help them quit



# Talk with Your Teen About E-cigarettes: A Tip Sheet for Parents



## BEFORE THE TALK

*Know the facts.*

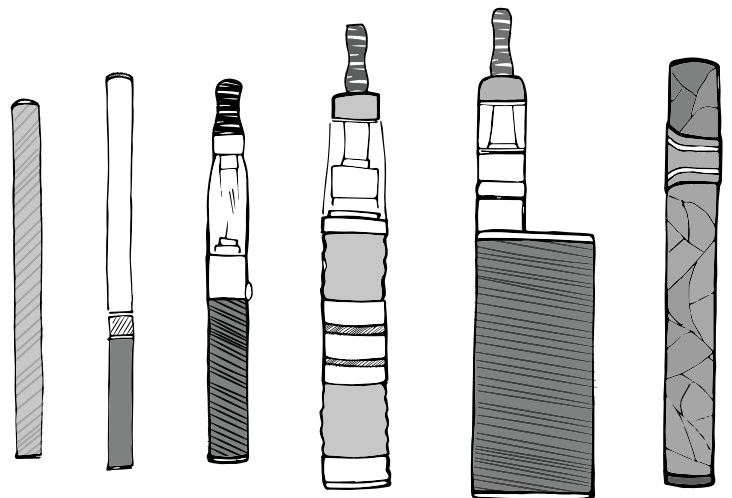
- Get credible information about e-cigarettes and young people at [E-cigarettes.SurgeonGeneral.gov](http://E-cigarettes.SurgeonGeneral.gov).

*Be patient and ready to listen.*

- Avoid criticism and encourage an open dialogue.
- Remember, your goal is to have a conversation, not to deliver a lecture.
- It's OK for your conversation to take place over time, in bits and pieces.

*Set a positive example by being tobacco-free.*

- If you use tobacco, it's never too late to quit. For free help, visit [smokefree.gov](http://smokefree.gov) or call **1-800-QUIT-NOW**.



---

## START THE CONVERSATION

*Find the right moment.*

- A more natural discussion will increase the likelihood that your teen will listen. Rather than saying “we need to talk,” you might ask your teen what he or she thinks about a situation you witness together, such as:
  - » Seeing someone use an e-cigarette in person or in a video.
  - » Passing an e-cigarette shop when you are walking or driving.
  - » Seeing an e-cigarette advertisement in a store or magazine or on the internet.



*Ask for support.*

- Not sure where to begin? Ask your health care provider to talk to your teen about the risks of e-cigarettes.
- You might also suggest that your teen talk with other trusted adults, such as relatives, teachers, faith leaders, coaches, or counselors whom you know are aware of the risks of e-cigarettes.
- These supportive adults can help reinforce your message as a parent.

---

## ANSWER THEIR QUESTIONS

Here are some questions and comments you might get from your teen about e-cigarettes and some ideas about how you can answer them.

*Why don't you want me to use e-cigarettes?*

- Science shows that e-cigarettes contain ingredients that are addictive and could harm different parts of your body.
- Right now, your brain is still developing, which means you are more vulnerable to addiction. Many e-cigarettes contain nicotine, and using nicotine can change your brain to make you crave more nicotine. It can also affect your memory and concentration. I don't want that for you!
- E-cigarettes contain chemicals that are harmful. When people use e-cigarettes, they breathe in tiny particles that can harm their lungs.

- The cloud that people exhale from e-cigarettes can expose you to chemicals that are not safe to breathe.

*What's the big deal about nicotine?*

- Your brain is still developing until about age 25. The Surgeon General reported that nicotine is addictive and can harm your brain development.
- Using nicotine at your age may make it harder for you to concentrate, learn, or control your impulses.
- Nicotine can even train your brain to be more easily addicted to other drugs like meth and cocaine.

- I don't say this to scare you, but I want you to have the facts because nothing is more important to me than your health and safety.

### *Aren't e-cigarettes safer than conventional cigarettes?*

- Because your brain is still developing, scientific studies show that it isn't safe for you to use any tobacco product that contains nicotine, including e-cigarettes.
- Whether you get nicotine from an e-cigarette or a cigarette, it's still risky.
- Some e-cigarette batteries have even exploded and hurt people.

### *I thought e-cigarettes didn't have nicotine—just water and flavoring?*

- I used to think that too. But many e-cigarettes have nicotine. There are also other chemicals in them that can be harmful.
- Let's look at the Surgeon General's website on e-cigarettes ([E-cigarettes.SurgeonGeneral.gov](http://E-cigarettes.SurgeonGeneral.gov)) together so you can see for yourself.

### *I (or my friends) have tried e-cigarettes and it was no big deal.*

- I appreciate your honesty. In the future, I hope you (or your friends) will stay away from e-cigarettes and other tobacco products, including cigarettes. Science shows that e-cigarettes contain ingredients that are addictive and could harm different parts of your body.
- Next time we go to the doctor, let's ask about the risks of nicotine, e-cigarettes, and other tobacco products.

### *You used tobacco, so why shouldn't I?*

- If I could live my life over again, I never would have started smoking. I learned that people who smoke cigarettes are much more likely to develop, and die from, certain diseases than people who don't smoke. This was really scary, so I quit smoking.
- Quitting was really hard, and I don't want you to go through that. The best thing is to not start at all.



## KEEP THE CONVERSATION GOING

Many parents find that texting is a great way to reach their teens. Here are some suggestions for text messages that might catch your teen's attention. And, you can easily share pages of the website ([E-cigarettes.SurgeonGeneral.gov](http://E-cigarettes.SurgeonGeneral.gov)) with your teen.



Look for this symbol, click it, type in the message you want or use the message provided, and share with your teen via Facebook, Twitter, or email.

### *Connect and encourage.*

- You always liked science. Check out the science about e-cigarettes and young people: **[E-cigarettes.SurgeonGeneral.gov](http://E-cigarettes.SurgeonGeneral.gov)**
- Getting off nicotine is hard but I'm so happy I quit. Don't make that mistake and get addicted. Smoking and tobacco use, including using e-cigarettes, are unsafe for young people.

### *Remind and repeat.*

- Most teenagers don't use e-cigarettes. E-cigarettes with nicotine can mess with your brain, and your brain is still developing until you are at least 25.
- You might be tempted by e-cigarette flavors, but inhaling certain flavorings that have been found in some e-cigarettes can be harmful.

### *Share facts and resources.*

- Just learned that many e-cigarettes have nicotine in them. That's the drug that makes cigarettes so addictive. Nicotine can also mess with your brain development.
- Just saw a report from the Surgeon General that e-cigarettes can mess with how your brain develops and might even affect your mood and focus. Please don't use any products that contain nicotine.
- Hope none of your friends use e-cigarettes around you. Even breathing the cloud they exhale can expose you to nicotine and chemicals that can be dangerous to your health.



Centers for Disease  
Control and Prevention  
Office on Smoking  
and Health





# What You Need to Know And How to Talk With Your Kids About Vaping



# Introduction

Although it has been around for over a decade, vaping’s popularity exploded in 2017, taking many families, schools and healthcare providers by surprise. Vaping, or Juuling as it is often referred to by teens and young adults (named after a popular vape device called JUUL), is the inhaling and exhaling of an aerosol produced by using a vape device.

According to the University of Michigan’s 2017 Monitoring the Future study, nearly 1 in 3 high school seniors tried vaping in the past year. With advertising geared toward teens and young adults, brightly colored vape pens and thousands of flavors to choose from, the expectation is that growth will continue. Some estimate that the market will be worth over \$60 billion by 2025.

For every story or article touting the benefits of vaping, there are an equal number raising concerns about the risks of vaping, especially for teens and young adults. **This guide is intended to help you understand what vaping is, its appeal to youth and what research has to say about both the risks and unknowns, due to the lack of long-term vaping studies.** We’ve identified some signs to look for and what to do if you are concerned that your child may try or actually is vaping. Lastly, we offer some advice on what to say when talking with your child about vaping.

## What Is in This Guide?

What is Vaping? .....	3
How Does Vaping Work? .....	3
What Do Vape Devices Look Like? .....	3
What Is Being Vaped? .....	3
What Is Vaping’s Appeal? .....	4
Is Vaping Safe? .....	5
Marijuana and Vaping.....	7
How Is Vaping Regulated? .....	8
What Should Parents Know .....	8
What Are the Signs of Vaping?.....	8
What Can Parents Do to Safeguard Against Vaping? .....	9
What to Say When Your Teen Asks:.....	10
Resources.....	12

.....



Teen using a JUUL

**Nearly 1 in 3**  
high school  
seniors tried  
vaping in the  
past year.

Monitoring the Future, 2017

.....

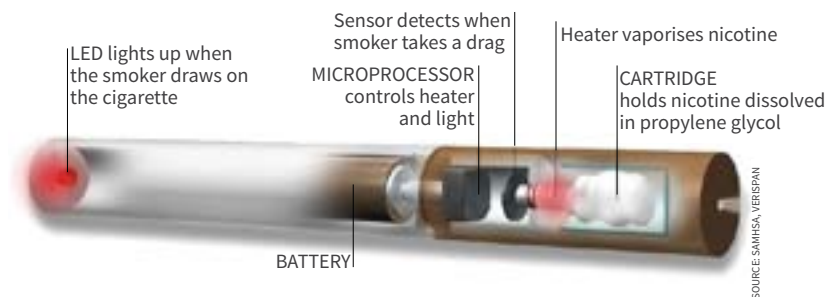
© Partnership for Drug-Free Kids, Fall 2018

## What is Vaping?

Vaping is the act of inhaling and exhaling aerosol or vapor produced by a vape device. Because of the rise in popularity of JUUL, a specific type of vape device, many teens and young adults use the term “JUULING” (pronounced Jewelring), instead of vaping.

## How Does Vaping Work?

Vape devices, known as *e-cigs*, *e-hookahs*, *mods*, *vape pens*, *vapes*, *tank systems* and *Juuls*, contain 4 basic components: a cartridge or a tank to hold e-liquid (or e-juice/vape sauce), a heating element known as an atomizer, a battery and a mouthpiece to inhale.



A sensor detects when a person is trying to inhale. This triggers the battery to supply electricity to the coil of wire or the atomizer. The heat given off by the coil is transferred to the e-liquid, which can only take so much energy before it’s vaporized, and this is what users inhale. While the output of the devices may look like smoke, it is actually vapor.

## What Do Vape Devices Look Like?

Some vape devices look like regular cigarettes, cigars or pipes while others resemble USB sticks and other everyday objects like a guitar pick. Larger devices such as tank systems, or “mods,” do not look like other tobacco products. Instead, they look more like a small cellphone. Some devices can be thrown away, while others can be reused by charging the device on the USB port of a computer or elsewhere and replacing the e-liquid, either by filling the chamber or using a self-contained pod.

## What Is Being Vaped?

Although many substances can be vaped, three are most common: flavored e-liquids, flavored e-liquids with nicotine, and marijuana. The e-liquids come

Vape devices can look like regular cigarettes, cigars or pipes, while others resemble USB sticks, guitar picks and a small cellphone.



Vape pens generally are available for \$20 and up. Current pricing for the JUUL starter kit is \$49.99, which includes the device, a charger, and 4 flavored pods.

## VAPING / What Is Vaping?

in small bottles or in pre-filled pods or cartridges. Pods are the component that contain the e-liquid.

1. **Flavored e-liquids** come in thousands of flavors, including bubble gum, cotton candy and grape, but also hot dog, banana bread and King Crab legs.
2. **Flavored e-liquids may also contain different levels of nicotine**, ranging from 2mg/ml to 59mg/ml. One of the more popular vape devices, Juul, contains 59mg/ml of nicotine in each pod. Each Juul pod is equal to one pack of cigarettes.
3. **Marijuana** can be vaped in both the leaf form or using THC and/or CBD oil. THC is the psychoactive compound in marijuana that creates a sense of being high.

### What Is Vaping's Appeal?

Although vaping was intended to be a less harmful option for adult smokers, teens and young adults have embraced it for several reasons. First and foremost is a sense of curiosity, followed by the many kid-oriented flavors offered.

It's not uncommon for kids to try out each other's vapes at parties to check out flavors like German Chocolate Cake or Banana Split and then post vaping videos on social media.

Teens are increasingly becoming interested in "cloud competitions," in which adults compete to perform the best vaping tricks. In addition to being featured on social media, cloud competitions are becoming a regular feature at local vape shops with some offering thousands of dollars in prize money.



Vaping tricks are another major attraction of vaping.

Boredom is another reason cited by many teens. It can be habit-forming, much in the same way teens check their phones in free moments. It's easy to take a quick puff.



Flavors are one of the biggest attractions for vaping.

.....  
**Each Juul pod contains 59 mg/ml of nicotine, equivalent to one pack of cigarettes.**  
.....

.....  
**Cloud competitions are becoming a regular feature at local vape shops with some offering thousands of dollars in prize money.**  
.....



# Is Vaping Safe?

The short answer is that vaping isn't considered safe for teens and young adults, especially since their brains are still developing. Vaping is a relatively new phenomenon. As a result, long-term studies that examine its impact on teen and young adult health and behavior have yet to be concluded.

The most comprehensive research to date is a [report](#) commissioned by Congress from the National Academies of Sciences, Engineering and Medicine. Released in January 2018, the report looked at exposure to nicotine and other toxic substances, dependence, harm reduction, smoking risks, cancer and more. Below is a summary of their findings, based on "conclusive" or "substantial" evidence.

## ⚠️ Exposure to Nicotine

Nicotine is a stimulant that activates the nervous system to prepare the body for physical and mental activity. It causes one's breathing to become more rapid and shallow, as well as increases heart rate and blood pressure. The committee reported that nicotine exposure from e-cigarettes varies considerably depending upon the contents of the e-liquid, the type of device that's used and how it is operated.

Nicotine exposure in teens and young adults is worrisome because nicotine can be highly addictive. Due to the fact that the brain is undergoing massive changes during adolescence through the mid- to late 20's, nicotine use may rewire the brain, making it easier to get hooked on other substances and contribute to problems with concentration, learning and impulse control.



Vapor can contain numerous substances including some known to be harmful to health.

## ⚠️ Exposure to Toxic Substances

The report highlights that most e-cigarettes contain and release a number of potentially toxic substances, although exposure to these substances is considerably lower than those found in regular cigarettes.



□ Is vaping safe? Watch this short video from the CDC.

.....  
**Vaping isn't considered safe for teens and young adults, especially since their brains are still developing.**  
.....

## Dependence

---

Dependence develops when the body adapts to repeated exposure to vaping. When a person stops vaping, he or she can experience withdrawal symptoms, although likely not as intense as those associated with conventional cigarette smoking. The Congressional study reported that e-cigarettes may result in dependence and showed “moderate evidence” that differences in e-cigarette products – including nicotine concentration, flavorings, device type and brand – play a key role in determining the risk and severity of dependence.

## Harm Reduction

---

Replacing e-cigarettes for conventional cigarettes reduces users’ exposure to the many harmful substances in combustible cigarettes. Recently, however, concerns have surfaced that rather than decreasing cigarette use, some smokers are using both. They are vaping when they can’t smoke.

## Smoking Risks

---

There is worry that teens and young adults who use e-cigarettes will increase their risk of smoking. Teens and young adults who vape are almost 4 times as likely as their non-vaping peers to begin smoking traditional cigarettes, according to [a review published online in JAMA Pediatrics](#).

## Injuries and Poisonings

---

Vape devices, especially those with poor quality batteries, or that have been stored improperly or modified by the user, can explode resulting in burns and other injuries. Exposure to e-liquids from drinking, either on purpose or by accident, eye or skin contact, or injection can result in seizures, brain injury due to lack of oxygen, vomiting, problems related to lactic acid buildup in the body or death.

## Cancer and Respiratory Effects

---

No data was cited as to whether or not vaping causes cancer or respiratory diseases. Long-term studies are needed as these diseases take years to develop. There is some concern though that vaping can increase coughing and wheezing in teens and may exacerbate asthma.

.....  
**Concerns have surfaced that rather than decreasing cigarette use, some smokers are using both—vaping when they can’t smoke.**  
.....

## Marijuana and Vaping

Although the committee’s report did not cover marijuana vaping, it is also of concern for adolescents and young adults. Selling equipment to vape marijuana in dab (concentrated wax-like substance) or oil or leaf form is a booming business with many new players.

For example, Pax Labs, formerly Ploom, was founded in 2007 and is a relatively well-known brand for vaping dry leaf marijuana. The company has introduced the Pax 3, which they describe as the “Apple iPhone” of vaporizers as it allows you to vape both dry leaf and wax concentrates. It includes a free Android or iOS app to control temperature, play free games, manage firmware and lock the device.

In California, a company called EAZE sells disposable all-in-one marijuana vape pens and cartridges. Flavors include Blueberry Kush, Lemon OG and Mango Passion Fruit. They market these as wellness products with advertising that reads, “Hello Marijuana, Goodbye Insomnia” or “Hello Marijuana, Goodbye Hangover.”

Juul can also be used to vape marijuana; however, it should be noted that as of now, Juul does not offer marijuana products. The device has to be hacked in order to use it with THC oils. There are also [companies making pods that fit a Juul](#), so a THC oil pod may be in the future.

According to the [CDC](#), marijuana use may have long-lasting or permanent effects on the developing adolescent brain. **Negative effects include:**

- Difficulty with critical thinking skills like attention, problem-solving and memory
- Impaired reaction time and coordination, especially as it relates to driving
- Decline in school performance
- Increased risk of mental health issues including depression or anxiety, and in some cases, psychosis where there is a family history

Research also shows that about 1 in 6 teens who repeatedly use marijuana can become addicted, as compared to 1 in 9 adults. Further, kids who vape are more likely to use combustible cigarettes and try marijuana than their non-vaping peers.



Dab, a concentrated form of marijuana with dab tool



Vape Pen used with THC oil

## How Is Vaping Regulated?

Vaping is illegal for anyone under the age of 18, although in some states the age restriction is 21. Up until 2016, there was little if any regulation of the vaping industry. At that time, the Food and Drug Administration (FDA) introduced the “Deeming Rule,” which placed oversight of vaping products with the organization. In addition to the requirement to check ID, merchants are prohibited from giving away free samples, using vending machines (unless in establishments that don’t allow minors) and claiming that products are safer alternatives to other tobacco products. As of 2018, nicotine warning labels must be on vaping products and they must list all ingredients.

.....  
**Vaping is illegal for anyone under the age of 18, and in some states under 21.**  
 .....

## What Should Parents Know

### What Are the Signs of Vaping?

Although sometimes more subtle, there are clues to look for to see if your child is vaping:

Equipment	You may find devices that look like flash drives, e-juice bottles, pods (that contain e-juice) or product packaging. Aside from leaf marijuana, gel jars that contain dabs, small tools to scoop dabs and cartridges that contain THC oil are signs of vaping marijuana.
Online purchases / packages in the mail / store purchases	Be on the lookout for purchases made online and charged to your credit card or unusual packages that arrive in the mail. Kids also buy them at big box stores, gas stations or from other friends.
Scent	While the smell from vaping is faint, you may catch a whiff of a flavoring where there appears to be no other source. For example, if you smell bubble gum or chocolate cake, take note.
Increased thirst / nose bleeds	Some of the chemicals used in e-juices have the effect of drying out the mouth and nasal passages. As a result, some kids drink more liquids or seem more prone to nose bleeds.
Decreased caffeine use	Some teens and young adults develop a sensitivity to caffeine. If your child drank caffeinated energy drinks and quits, it may be as a result of vaping.
Vaping lingo	You may see vape lingo in text messages such as “atty” for an atomizer, “VG” for vegetable glycerin found in e-juice or “sauce” referring to e-juice. Kids often brag about their vaping exploits on social media. Look for pictures on Instagram or YouTube or check their Twitter accounts.
Appearance and behavior changes	Just like smoking, vaping marijuana can result in bloodshot eyes, dry mouth and thirst, increased appetite and shifts in behavior and mood. Sometimes, there is a noticeable change in friends and a decrease in activities that were once enjoyed.

## What Can Parents Do to Safeguard Against Vaping?

*Be equipped with the facts* Reading through this resource, perhaps more than once, will help you understand the vaping landscape. It's important to be familiar with vape devices (especially JUUL due to its popularity), what's being vaped (i.e. flavorings, nicotine and/or marijuana) and the associated risks.

---

*Have conversations* Look for opportunities to discuss vaping with your child. Opportunities may present themselves in numerous ways: letters from the school about vaping policies, advertisements, seeing someone vaping on TV, walking by someone who creates a huge cloud on the street or passing a vape shop. Be ready to listen rather than give a lecture. Try using open-ended questions to get the conversation going such as, "What do you think about vaping?"

---

*Try to understand why* Most kids start vaping due to curiosity, the flavors, cloud tricks, wanting to fit in, etc. Over time, vaping can become habitual as it is used to address other needs such as relief from boredom and anxiety. Some kids also become addicted to nicotine and continue vaping to avoid withdrawal symptoms. It helps to understand why your child is vaping by asking questions like: "What do you enjoy about vaping?" or "How does vaping make you feel?" Answers to these questions highlight your child's needs that can be addressed in a healthier way.

---

*Convey your expectations* Set clear expectations. Express your understanding of the risks, but also why a person might want to vape. Share why you don't want your child vaping (i.e. concern about toxins, nicotine, marijuana, unknown health risks, injuries due to batteries, gateway to cigarette smoking). If you choose to set consequences, be sure to follow through, while reinforcing healthier choices.

---

*Role play refusal skills* If you have a younger teen, it may help to teach your child refusal skills. After all, if your child is in middle school or older, they are likely to be in social situations where they are offered an opportunity to try a flavor. You might ask, "What would you say if someone offered you their vape?" See how your child would handle the situation. Practicing something along the lines of "No thanks, I'm not interested," said with direct eye contact and assertive body language can help your child be prepared.

---

*Be a good role model* Set a positive example by being vape and tobacco-free. If you do vape, keep your equipment and supplies secured.

---

## What to Say When Your Teen Asks:

### **Q:** *Isn't vaping safer than smoking cigarettes?*

*Your child is exposed to less toxic substances when vaping (as compared to smoking), but there are still significant concerns. Their lungs are exposed to fine particles, metals, other toxins and nicotine which can harm them. You may use the example that, "Driving 90 miles an hour with a seat belt on is safer than without one, but neither is safe. The same goes for vaping. It may be a safer alternative than smoking cigarettes, but neither one is without harm."*

### **Q:** *They are just flavorings, so what's the big deal?*

*Flavorings are common and considered safe when added to food and eaten, but relatively little is known about the long-term effects on your lungs. For example, there is a chemical called diacetyl that is used as a butter flavoring for candy, yogurt and popcorn, among other foods, and has been found in several e-juices. How these additives interact with the stomach is different than how it may affect your lungs. Diacetyl has been linked to "popcorn lung" which results in scarred lung tissue in workers who have inhaled diacetyl in popcorn factories. While there are no known cases of popcorn lung in people who vape, it typically takes years to develop.*

*Also, e-liquids contain more than just flavorings. Whether it contains nicotine or not, teens also may be taking in fine particles, metals and other toxins. In some cases, teens have vaped e-liquids thinking it didn't contain nicotine, when in fact it did. Deliberate or accidental exposure to e-liquids, whether from drinking, eye or skin contact or injecting it, can be severe, causing seizures or even death.*

### **Q:** *Everyone is doing it, so why do you care?*

*You can say, "I know you may say this because of what you see in school or even on social media, but the real fact of the matter is that the majority of seniors (and more in lower grades) aren't vaping. While it may be a popular activity for some kids, it doesn't mean that it's safe."*

### **Q:** *I don't know what to say when other kids offer their vape to me to try.*

*You can say, "Let's figure out what you may be comfortable saying. It's best to be direct and use assertive body language (i.e., direct eye contact with strong posture) and to say something like, 'No thanks, I'm not interested,' or 'You guys can, but I don't want to.'"*

*Another strategy for younger teens is to use an "X" policy. Whenever your child is in an uncomfortable situation and wants an easy out, they can text an "X." You can respond by texting back to say that something has come up and they must head home immediately, or you will pick them up.*

### **Q: You smoke, so why shouldn't I?**

*If you've tried to quit, respond by saying "You're right, smoking is unhealthy and I've tried to quit and I wish I had never started. I don't want you to start an unhealthy habit and struggle the way I have to stop."*

### **Q: It's legal, so why worry?**

*Vaping is not legal for anyone under 18 (and at 21 in some states). Many things are legal, but that doesn't mean they are safe or harmless.*

*Alcohol is an example of a legal substance, but can result in DUIs, car accidents and major health problems, including liver disease. Similarly, cigarettes are legal, but are highly addictive and proven to cause birth defects and cancer.*

### **Q: I'm just doing it once in a while and nothing bad has happened.**

*Respond by asking what your child's experience has been with vaping and pose a question like, "What keeps you from vaping more often?" This isn't to suggest you condone or approve of vaping, but rather to get a sense of what the barriers are to your child's use that you may be able to reinforce.*

These open-ended questions can help you understand what your child sees as the pros, and potentially the cons, of vaping. Again, being clear about your expectations is helpful, in addition to reinforcing healthy behaviors that compete with vaping.



## Resources

### *Where can I find more information on vaping?*

- ▶ Check out the [U.S. Surgeon General’s Report](#) on E-Cigarette Use Among Youth and Young Adults.
- ▶ Help for your child: If your child vapes or smokes, visit [teen.smokefree.gov](http://teen.smokefree.gov) for resources to help them quit including the quitSTART app and a text messaging program (Text “Quit” to 47848).



- ▶ You can also talk to an expert by calling 800-QUIT-NOW (800-784-8669). **Your child may respond to your concerns about vaping if they hear it from another trusted adult or medical professional.**

### *Connect with a Parent Helpline Specialist*

Call 1-855-DRUGFREE

Visit [drugfree.org/helpline](http://drugfree.org/helpline)

Text a question to **55753**

## Donate to support

Resources like this Vaping Guide are available free of charge because of generous donors. Please consider making a donation at [drugfree.org](http://drugfree.org).

**We appreciate your support.**



## GET INVOLVED

### ARE YOU A MIDDLE OR HIGH SCHOOL STUDENT IN JOHNSTON COUNTY? ARE YOU INTERESTED IN MAKING A DIFFERENCE IN YOUR COMMUNITY?

#### JOIN THE JOHNSTON COUNTY YOUTH EMPOWERMENT TEAM!

What do youth empowered team members do?

- Develop leadership and communication skills
- Learn how to be a public speaker
- Become an advocate in their communities
- Be a voice for other youth

The Johnston County Youth Empowerment team will begin January 2021 and meet twice a month. The first meetings will begin in a virtual format. Join us on January 14th to learn more.

**WHAT: JOCo YOUTH EMPOWERMENT TEAM**

**WHO: 8TH - 12TH GRADERS**

**DATE: JANUARY 14TH**








**TIME: 4:30 PM**








**LOCATION: ZOOM (RECEIVE LINK UPON SIGN-UP)**

**LEARN MORE: [J.MCLEAN@POEHEALTH.ORG](mailto:J.MCLEAN@POEHEALTH.ORG)**

**Don't wait to be the leaders of tomorrow,  
be the leaders of today!**

# TOBACCO PREVENTION & TREATMENT RESOURCES

PROGRAM/RESOURCE TITLE	DESCRIPTION	WEBSITE/Phone Number
 <p><b>Kick Butts Day</b></p>	<p>Kick Butts Day is a national day of activism that empowers youth to stand out, speak up and seize control against tobacco. Campaign for Tobacco-Free Kids has tobacco prevention information and resources</p>	<p><a href="http://www.tobaccofreekids.org">www.tobaccofreekids.org</a></p>
	<p>The Mission of the Poe Center for Health Education is to educate and empower NC children, youth and their families to make choices that increase positive health behaviors. The Poe Center provides a number of tobacco education programs for youth and adults. Young people who are interested in health communities and prevention efforts can join Poe’s Youth Empowerment teams.</p>	<p><a href="http://www.poehealth.org">www.poehealth.org</a> 919-231-4006</p>
 <p><b>The Risks: E-cigarettes and Young People</b></p>	<p>A Message from the Office of the US Surgeon General, facts on e-cigarettes</p>	<p><a href="http://www.E-cigarettes.SurgeonGeneral.gov">www.E-cigarettes.SurgeonGeneral.gov</a></p>
 <p><b>Scholastic: Get Smart About Tobacco</b></p>	<p>Developed and supported by CVS Foundation. Curriculum for grades 3-5 and 6-7 online with lessons and printable materials</p>	<p><a href="http://www.scholastic.com/get_smart_about_tobacco/">www.scholastic.com/get_smart_about_tobacco/</a></p>
 <p><b>Taking Down Tobacco</b></p>	<p><b>What:</b> One-hour tobacco 101 training on the toll of tobacco <b>Who:</b> Youth new to tobacco prevention <b>Why:</b> To educate and engage youth to #BeTheFirst tobacco-free generation <b>Where:</b> Meeting or class room with audiovisual equipment capabilities</p>	<p><a href="http://www.takingdowntobacco.org">www.takingdowntobacco.org</a></p> <p>Go online and register to unlock training options</p>
	<p>The Food and Drug Administration’s “The Real Cost” peer-to-peer campaigns are designed to educate at-risk youth aged 12-17 about the harms of tobacco use.</p> <p>See several campaigns with different target audiences – middle school youth; rural youth using smokeless tobacco; electronic cigarettes; LGBT youth (This Free Life - see below)</p> <p>See videos on <a href="https://www.youtube.com/user/KnowTheRealCost/videos?disable_polymer=1">You Tube</a>: <a href="https://www.youtube.com/user/KnowTheRealCost/videos?disable_polymer=1">https://www.youtube.com/user/KnowTheRealCost/videos?disable_polymer=1</a></p>	<p><a href="https://www.fda.gov/TobaccoProducts/PublicHealthEducation/PublicEducationCampaigns/TheRealCostCampaign/default.htm">https://www.fda.gov/TobaccoProducts/PublicHealthEducation/PublicEducationCampaigns/TheRealCostCampaign/default.htm</a></p> <p><a href="https://therealcost.betobaccofree.hhs.gov/?g=t">https://therealcost.betobaccofree.hhs.gov/?g=t</a> – interactive youth site</p>
 <p><b>Fresh Empire</b></p>	<p><b>Fresh Empire</b> promotes a tobacco-free life by educating youth through Hip Hop-inspired events, videos and contests. The public education campaign is designed to prevent and reduce tobacco use among at-risk multicultural youth ages 12-17.</p>	<p><a href="https://freshempire.betobaccofree.hhs.gov">https://freshempire.betobaccofree.hhs.gov</a></p>

	<p>Dedicated to defending teens from tobacco companies lies and deceptions. "truth" produces television and digital content to encourage teens to reject tobacco and to unite against the tobacco industry. Requires flash plugin.</p>	<p><a href="https://www.thetruth.com/about-truth">https://www.thetruth.com/about-truth</a></p>
	<p>National Institute on Drug Abuse for Teens – click on drug facts and then “tobacco, nicotine &amp; e-cigarettes”; see infographic on teens and e-cigarettes  <a href="https://teens.drugabuse.gov/drug-facts/tobacco-nicotine-e-cigarettes">https://teens.drugabuse.gov/drug-facts/tobacco-nicotine-e-cigarettes</a></p>	<p><a href="https://teens.drugabuse.gov/">https://teens.drugabuse.gov/</a></p>
<p><b>smokefreeTeen</b>  </p>	<p>See a variety of tools and tips ranging from smokefree texting to <b>quitSTART</b> App designed to help teens who are trying to quit. Sponsored by National Cancer Institute – part of the <a href="http://Smokefree.gov">Smokefree.gov</a> series</p>	<p><a href="https://teen.smokefree.gov/">https://teen.smokefree.gov/</a></p>
<p><b>UCSF Library</b>  <b>TRUTH Tobacco Industry Documents</b></p>	<p><b>Truth Tobacco Industry Documents</b> -Provides permanent access to tobacco industry internal corporate documents produced during litigation between US States and the seven major tobacco industry organizations and other sources. These internal documents give a view into the workings of the Tobacco Industry</p>	<p><a href="https://www.industrydocumentslibrary.ucsf.edu/tobacco/">https://www.industrydocumentslibrary.ucsf.edu/tobacco/</a></p>
	<p><b>Youth Empowered Solutions (YES!)</b> is a nonprofit organization that empowers youth, in partnership with adults, to create community change. We equip high school youth and their adult allies with the tools necessary to take a stand in their communities and create change that will positively impact adolescent health.</p>	<p><a href="http://www.youthempoweredolutions.org/">http://www.youthempoweredolutions.org/</a>  <b>Offices in Raleigh, Charlotte &amp; Asheville</b></p>
	<p>NC laws provide limited immunity from prosecution if a person seeks medical assistance for individual experiencing an alcohol or drug related emergency by contacting 911, law enforcement or emergency medical personnel.</p>	<p><a href="http://www.safetocall.org/NC">www.safetocall.org/NC</a></p>
	<p><b>CRISIS LINE</b>  If you are in crisis or would like to speak to someone immediately, please call or text:  <b>919-231-4525 or 877-235-4525</b></p>	<p><b>919-231-4525 or 877-235-4525</b></p>
	<p>FDA is aware of explosion events and is collecting data to help address this problem. Please report a vape explosion, or any other unexpected health or safety issue with a vape, to the FDA through the Safety Reporting Portal. When you fill out the form, please be sure to include:   Other information about e-cigarettes and tobacco  <a href="http://www.fda.org">www.fda.org</a></p>	<p><a href="http://www.safetyreporting.hhs.gov">www.safetyreporting.hhs.gov</a>   <a href="http://www.fda.org">www.fda.org</a></p>

# DON'T LET OUR KIDS FUTURE GO UP IN SMOKE

Help teenagers understand the real dangers of tobacco.  
Give them the tools they need to make smart choices.

VISIT ASIPIRE ONLINE

<https://aspire.mdanderson.org/aspireselect/>

**ASPIRE**<sup>™</sup>



facebook.com/aspireheroes/

THE UNIVERSITY OF TEXAS  
**MD Anderson**  
**Cancer Center**

Making Cancer History<sup>®</sup>

# WHAT CAN YOUTH DO?

## HELP THEIR FRIENDS DITCH JUULING!

**STEP 1:** Visit [www.thetruth.com/articles/hot-topic/quit-vaping](http://www.thetruth.com/articles/hot-topic/quit-vaping) and download the image(s).

**STEP 2:** Share the message with your friend. You can text it, tweet it, or even print the image out and give it to them in person — feel free to customize the message so your friend feels extra special.

**STEP 3:** Show us how you encouraged your friend to quit. Upload a screenshot of your text, tweet or a photo of you, your friend & the inspirational image at [www.thetruth.com/myactions](http://www.thetruth.com/myactions)



**LEARN MORE**

[www.thetruth.com/articles/hot-topic/quit-vaping](http://www.thetruth.com/articles/hot-topic/quit-vaping)





Are **you** ready to  
quit using tobacco?



**N.C. Tobacco Use Quitline**  
Talk with an expert Quit Coach  
**1-800-784-8669**

24 hours a day, 7 days a week  
Quit Coaching available in many languages.  
All calls are free and confidential.  
TTY 1-877-777-6534



Call us. **You can quit.**  
**We can help.**

**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**





224 Sunnybrook Road  
Raleigh, NC 27610  
919.231.4006  
[www.poehealth.org](http://www.poehealth.org)

**Follow us on social media!**

