

RESOURCES FOR PROFESSIONALS ABOUT  
**VAPING & E-CIGARETTES**

A TOOLKIT FOR WORKING WITH YOUTH



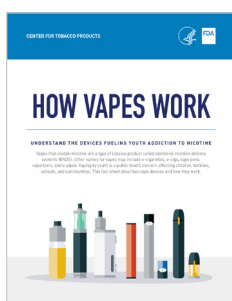
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## VAPING: FACTS ABOUT E-CIGARETTES

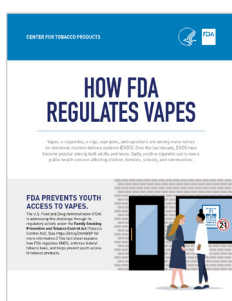
This fact sheet provides basic information about this important public health concern.



FACT SHEET

## HOW VAPES WORK

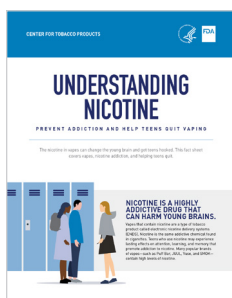
This fact sheet explains the devices fueling youth addiction to nicotine.



FACT SHEET

## HOW FDA REGULATES VAPES

This fact sheet explains how FDA regulates e-cigarettes, enforces federal tobacco laws, and helps prevent youth access to tobacco products.



FACT SHEET

## UNDERSTANDING NICOTINE

This fact sheet discusses youth addiction to nicotine and how to help teens quit vaping.

# VAPING

## FACTS ABOUT E-CIGARETTES

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Vapes that contain nicotine are the most used tobacco products among youth. Vaping can harm youth, yet millions of them vape regularly. This is why it is important to help youth understand that vaping puts them at risk for addiction and other health consequences.

This fact sheet provides basic information about this public health concern.



### VAPES ARE TOBACCO PRODUCTS.

Vapes that contain nicotine are a type of tobacco product called electronic nicotine delivery systems (ENDS). Other names for vapes may include e-cigarettes, e-cigs, vape pens, vaporizers, and e-pipes. These vapes can contain high levels of nicotine, a highly addictive drug. Under federal law, consumers must be age 21 or older to buy vape products.

Vapes come in many shapes and sizes. Some look like cigarettes, cigars, or pipes. Others look like everyday objects, such as flash drives or asthma inhalers, which can make them easy for youth to hide from parents and teachers.

# VAPES CONTAIN BATTERIES AND “E-LIQUID.”

Vapes use a substance called e-liquid that may contain nicotine, the same highly addictive chemical found in tobacco. E-liquid also may contain flavorings, propylene glycol, vegetable glycerin, and other ingredients. Other names for e-liquid include “e-juice” and “vape juice.”

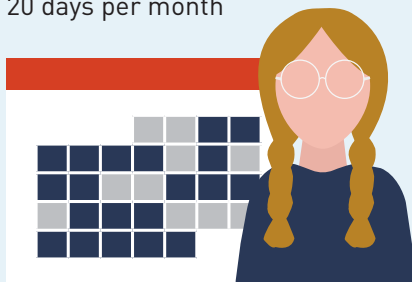
Vapes have different shapes and designs but generally work in similar ways. They contain batteries and heat e-liquid to create an aerosol that the user inhales. When exhaled, the aerosol may appear as a thick cloud, or it may be hard to see. Some vapes are rechargeable for long-term use; others are disposable after short-term use.



## VAPING AMONG YOUTH IS A PUBLIC HEALTH CONCERN.

In 2023, the annual National Youth Tobacco Survey found that more than 2.1 million youth use e-cigarettes. Many teens vape on a regular basis, and most choose flavored vapes. For example, 40 percent of ENDS users in high school are vaping on 20 or more days a month, and **30 percent use e-cigarettes every day**. More than 11 percent of middle school students who vape use e-cigarettes every day. These high rates of youth vaping suggest a strong dependence on nicotine.

**40%** of ENDS users in high school vape at least 20 days per month



## YOU CAN HELP PREVENT YOUTH VAPING.

Talking with teens about the risks and harmful effects of vaping may help them avoid use and addiction. Parents and teachers can focus on the facts and help youth stay safe.

- 1 Share the facts.** Clear up teens’ misperceptions about vaping. Share facts about the health effects of vaping.
- 2 Model healthy habits.** Create a tobacco-free home. If you need help quitting, [visit smokefree.gov](https://www.smokefree.gov).
- 3 Help keep vapes away from youth.** Remind adults not to buy vapes for youth.
- 4 Understand the dangers.** Know the symptoms of nicotine addiction, such as an inability to stop vaping or feeling anxious or irritable due to cravings when not vaping. These may signal a teen needs help.

### Key Results From the 2023 National Youth Tobacco Survey



**1.56 MILLION**  
HIGH SCHOOL  
students currently  
vape

**30%**  
vape daily

**90%**  
use flavored vapes



**550,000**  
MIDDLE SCHOOL  
students currently  
vape

**11.4%**  
vape daily

**87%**  
use flavored vapes



## VAPING CAN BE HARMFUL TO YOUTH.

Vaping is not harmless. It carries real health and safety risks, including addiction and other negative health effects. Teens who vape may experience coughing, wheezing, nausea, vomiting, headaches, and dizziness.



### Nicotine exposure and addiction are harmful for youth.

- Nicotine can rewire a teen's brain to crave more nicotine and can create addiction.
- Brain changes related to nicotine exposure may have effects on attention, learning, and memory that promote addiction to the drug.
- Teens who vape may become addicted to nicotine faster than teens who smoke cigarettes.
- Teens who vape are more likely to start smoking. Cigarette smoke includes a mix of chemicals that cause serious disease and death.



### ENDS can cause environmental harm.

- Vape batteries and e-liquid can hurt the environment. When people throw away vapes in their household trash or a public trash can, nicotine solution in e-liquid can seep into the ground or water and become dangerous for people and animals.



### Vaping may be harmful to lungs.

- Vaping can expose users to toxic chemicals and metal particles—such as lead, chromium, and nickel—that can harm the lungs.
- Some chemicals found in cigarette smoke—such as formaldehyde, acrolein, and acetaldehyde—also are found in some e-cigarette aerosols. Inhaling these chemicals can cause irreversible lung damage.



### E-liquid is dangerous, and ENDS can explode.

- E-liquid that contains nicotine may be toxic if swallowed. Accidental exposure to e-liquids in children can lead to nicotine poisoning and even death.
- ENDS can explode and cause serious injuries. The cause of explosions is not always clear, but the problem may be related to the batteries in these devices.

## MORE INFORMATION ABOUT VAPING

Check out the U.S. Food and Drug Administration's (FDA) Center for Tobacco Products (CTP) website for a wide range of information about vaping. Find tips on how people can keep themselves, their families, and the environment safe and healthy. The site also features facts and statistics, research, and legal and regulatory information about ENDS. **Visit [www.fda.gov/tobacco](http://www.fda.gov/tobacco)**

## ADDITIONAL RESOURCES

### FDA Resources

Order and download FREE materials at FDA's CTP Tobacco Education Resource Library. The website contains many items for public health professionals and the public about tobacco products, e-cigarettes, and related information. Posters, fact sheets, flyers, and syndicated web content are available. **Visit [digitalmedia.hhs.gov/tobacco](http://digitalmedia.hhs.gov/tobacco)**

### Resources for Teachers

Start an honest conversation about vaping. FDA has developed a series of resources for educators to discuss and learn about vaping. **Visit [digitalmedia.hhs.gov/tobacco/exhibit\\_booths/educators](http://digitalmedia.hhs.gov/tobacco/exhibit_booths/educators)**

### Resources for Youth

Get the most accurate, up-to-date information about the harmful effects of tobacco use so you know the real cost of smoking, vaping, and other tobacco use. "The Real Cost" website includes facts on all types of tobacco products, as well as links to numerous videos about the harms of tobacco use. **Visit [therealcost.betobaccofree.hhs.gov](http://therealcost.betobaccofree.hhs.gov)**

### Help With Quitting

Help youth quit with Smokefree Teen. The website features a Quit Vaping section with resources to help teens quit and stay vape-free. **Visit [teen.smokefree.gov/quit-vaping](http://teen.smokefree.gov/quit-vaping)**

### Request a CTP Speaker

Want to hear more about vapes from a CTP expert? Find out how to request a CTP speaker for your next event. **Visit <https://bit.ly/3jk1x45>**

### Report a Safety Issue

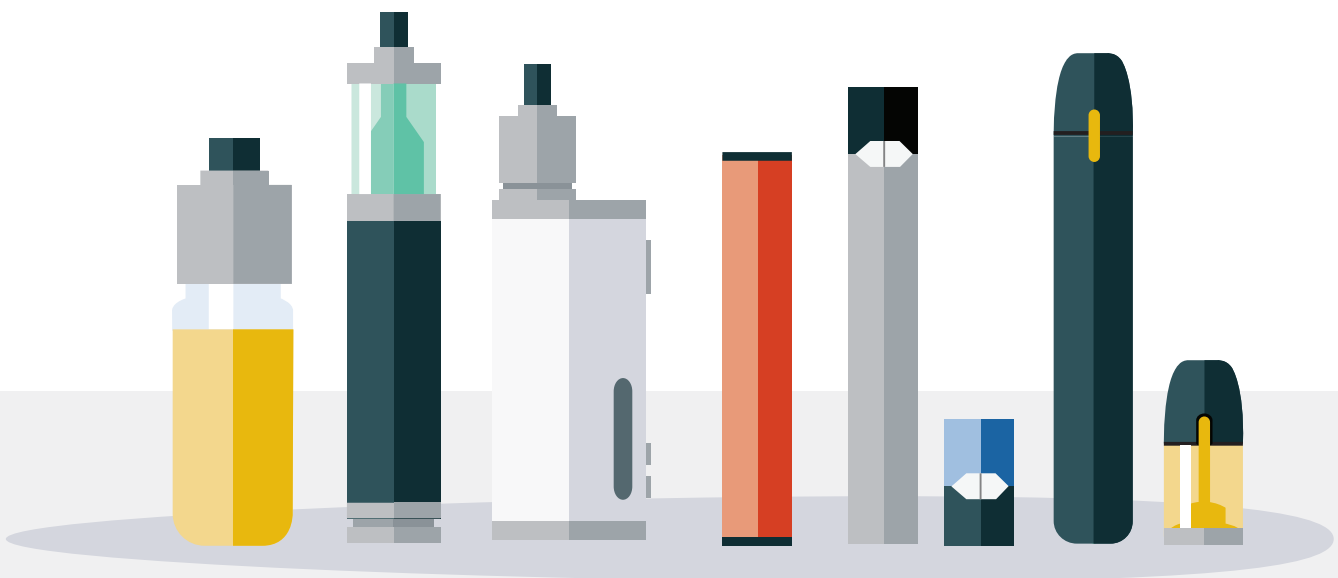
Report problems with a tobacco product, such as undesired health or quality problems, at the FDA Safety Reporting Portal. **Visit <https://bit.ly/3De7XJN>**

# HOW VAPES WORK

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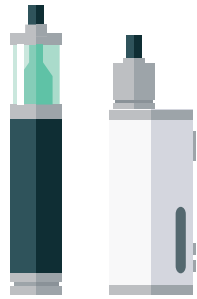
## UNDERSTAND THE DEVICES FUELING YOUTH ADDICTION TO NICOTINE

Vapes that contain nicotine are a type of tobacco product called electronic nicotine delivery systems (ENDS). Other names for vapes may include e-cigarettes, e-cigs, vape pens, vaporizers, and e-pipes. Vaping by youth is a public health concern affecting children, families, schools, and communities. This fact sheet describes vape devices and how they work.

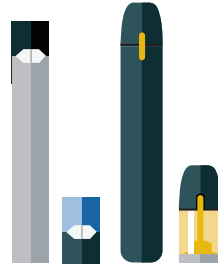


# VAPES COME IN MANY SHAPES AND SIZES.

Vapes can look like cigarettes, cigars, or pipes. Others are designed to look like everyday objects, such as a flash drive, smartwatch, or asthma inhaler. Some vapes are rechargeable for long-term use; other vapes are disposable or refillable after short-term use.



Tank Systems and Mods



Rechargeable



Disposable

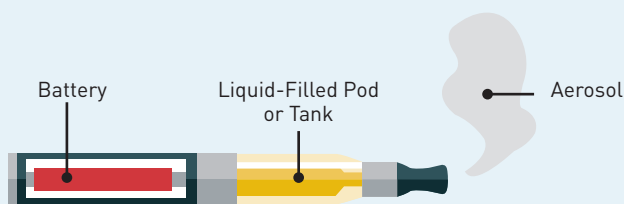
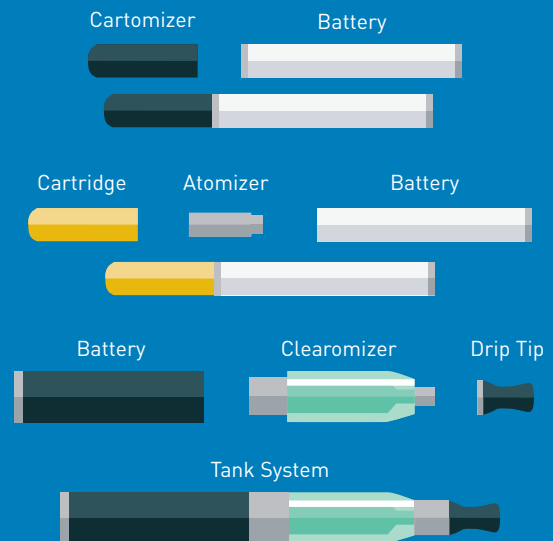


Stealth

## VAPES CONTAIN BATTERIES AND “E-LIQUID.”

ENDS contain a battery and a substance called “e-liquid.” Other names for the liquid are “e-juice” or “vape juice.” E-liquid may contain nicotine, flavorings, propylene glycol, vegetable glycerin, and other ingredients.

Vape devices also may include other parts. Depending on the device, these may include vials or cartridges that contain the e-liquid, atomizers, batteries, cartomizers, digital displays for setting adjustment, tank systems, drip tips, and programmable software.



## HOW VAPES WORK.

Vapes may look different but work in similar ways. They contain a battery and heat the e-liquid to create an aerosol that the user inhales. When exhaled, the aerosol may look like a thick cloud of vapor or it may be hard to see.



# VAPING CAN BE HARMFUL TO YOUTH.

Vapes may contain nicotine—the same highly addictive chemical in cigarettes. Using nicotine as a teen may have a lasting effect on attention, learning, and memory that promote addiction to nicotine. Vaping can put toxic metals such as nickel, lead, and chromium into the lungs. Some of the chemicals found in cigarette smoke, such as formaldehyde, acrolein, and acetaldehyde, are also found in some e-cigarette aerosols. Inhaling these chemicals can cause irreversible lung damage.

## MORE INFORMATION ABOUT VAPES AND VAPE DEVICES

### Vaping Facts, Statistics, Health Risks, Safety Information, and Federal Regulations

Check out the U.S. Food and Drug Administration's (FDA) Center for Tobacco Products (CTP) website for a wide range of information about vaping. The site includes facts, research, legal and regulatory information about ENDS, and information about devices and components. Find tips on how people can keep themselves, their families, and the environment safe and healthy. **Visit CTP's ENDS webpage at <https://bit.ly/3zejJ4A>**

### FDA Resources

Order and download FREE materials at FDA's CTP Tobacco Education Resource Library. The website contains many items for public health professionals and the public about tobacco products, e-cigarettes, and related information. Posters, fact sheets, flyers, and syndicated web content are available. **Visit [digitalmedia.hhs.gov/tobacco](https://digitalmedia.hhs.gov/tobacco)**

### Request a CTP Speaker

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### Vaping Products Visual Dictionary

Learn more about types of vapes. The Centers for Disease Control and Prevention offers a comprehensive visual guide to vaping products—E-Cigarette, or Vaping, Products Visual Dictionary. **Visit <https://bit.ly/3hEgqup>**

### Help With Quitting

Help youth quit with Smokefree Teen. The website features a Quit Vaping section with resources to help teens quit and stay vape-free. **Visit [teen.smokefree.gov/quit-vaping](https://teen.smokefree.gov/quit-vaping)**



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CENTER FOR TOBACCO PRODUCTS



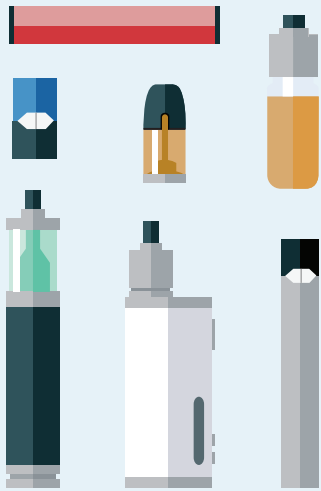
# HOW FDA REGULATES VAPES

Vapes, e-cigarettes, e-cigs, vape pens, and vaporizers are among many names for electronic nicotine delivery systems (ENDS). Over the last decade, ENDS have become popular among both adults and teens. Sadly, youth e-cigarette use is now a public health concern affecting children, families, schools, and communities.

## FDA PREVENTS YOUTH ACCESS TO VAPES.

The U.S. Food and Drug Administration (FDA) is addressing this challenge through its regulatory activity under the **Family Smoking Prevention and Tobacco Control Act** (Tobacco Control Act). (See <https://bit.ly/3mAQ0iP> for more information.) This fact sheet explains how FDA regulates ENDS, enforces federal tobacco laws, and helps prevent youth access to tobacco products.





## FDA REGULATES ENDS AND ALL OTHER TOBACCO PRODUCTS.

FDA began regulating ENDS in August 2016, when the “**Deeming Rule**” went into effect. (See <https://bit.ly/3G1pcEw> for more information.) This rule gives FDA regulatory authority over all ENDS and other tobacco products in ways the agency already was regulating cigarettes, smokeless tobacco, and roll-your-own tobacco. For example, it became illegal to distribute free samples of e-cigarettes.

FDA regulates the manufacture, import, packaging, labeling, advertising, promotion, sale, and distribution of ENDS and their components. This includes e-liquids, vials that contain e-liquid, cartridges, flavors, certain batteries, and even software. FDA does not regulate ENDS accessories, such as lanyards or decorative cases for vapes.

## CONSUMERS MUST BE 21 OR OLDER TO BUY TOBACCO PRODUCTS.

Under federal law, the minimum age to purchase tobacco products is 21. This law took effect on December 20, 2019. It is now illegal for retailers to sell any tobacco product—including ENDS and cigarettes—to anyone under age 21. The law applies to all retailers and stores, with no exceptions.



## VAPE MANUFACTURERS CANNOT MARKET PRODUCTS WITHOUT FDA AUTHORIZATION.

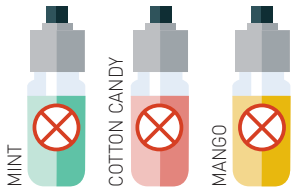
ENDS products have been on the market for a while, but FDA did not have the authority to regulate them until August 8, 2016. A court decision later required ENDS manufacturers to submit product applications to FDA for agency review by September 9, 2020. FDA received applications for more than 6.7 million tobacco products, the majority of which were for ENDS products submitted near the deadline’s end. Since then, FDA has made tremendous progress in reviewing these applications: The agency has taken action on more than 99 percent of these products, including denying the marketing of more than 1 million flavored ENDS products. FDA also has authorized some ENDS products after determining that they meet the public health standards in the law, which includes an assessment of the risk of their use by youth.

The premarket review of these products is a major milestone for ensuring that new tobacco products, including popular ENDS products, undergo robust scientific evaluation by FDA—an important way in which the agency protects public health. For a list of authorized tobacco products and information about products that have been denied, visit **FDA’s Tobacco Product Marketing Orders webpage**. (See <https://bit.ly/3G6fM5u> for more information.)

# FDA PRIORITIZES ENFORCEMENT AGAINST CERTAIN ILLEGALLY MARKETED ENDS.

FDA's scientific review of vaping products ensures they are appropriate for the protection of public health. The agency continues to monitor the marketplace to protect youth from certain illegally marketed ENDS products.

In January 2020, FDA issued a guidance (revised in April 2020) describing some of the agency's enforcement priorities when it comes to illegally marketed ENDS. Consistent with that guidance, FDA continues to make enforcement decisions on a case-by-case basis, recognizing that the agency is unable—as a practical matter—to take enforcement action against every illegally marketed tobacco product, and that it needs to make the best use of its resources.



As described in FDA's enforcement guidance, the agency has identified flavored products that appeal to youth as enforcement priorities.



Products for which no application is pending—for example, those with a Marketing Denial Order and those for which no application was submitted—are also among FDA's highest enforcement priorities.

If such products are not removed from the market, FDA will generally issue a warning letter and allow the recipient an opportunity to respond before initiating enforcement action (such as civil money penalties, seizure, or injunction). FDA is committed to working quickly to transition the current marketplace to one in which all tobacco products have undergone a careful, science-based review by the agency and have met the statutory standard.

## A Note About Cannabis in Vapes

FDA supports sound, scientifically based research into the medicinal uses of drug products containing cannabis or cannabis-derived compounds and will continue to work with companies interested in bringing safe, effective, and quality products to market. More information about products containing cannabis or cannabis-derived compounds, including cannabidiol (CBD), can be found at <https://bit.ly/3DcMqRD>.

# FDA REGULATIONS HELP PREVENT USE OF TOBACCO PRODUCTS BY YOUTH.

FDA works hard to prevent youth from using and becoming addicted to tobacco products. The agency's aggressive and ongoing enforcement of ENDS products that are appealing to youth is an important part of this work. FDA will continue working to ensure e-cigarettes are not marketed to, sold to, or used by youth.



# MORE INFORMATION ABOUT VAPING AND REGULATION OF TOBACCO PRODUCTS

## Vaping Facts, Statistics, Health Risks, Safety Information, and Federal Regulation

Check out FDA's Center for Tobacco Products (CTP) website for a wide range of information about ENDS, including facts, research, and legal and regulatory information. Find tips on how people can keep themselves, their families, and the environment safe and healthy. **Visit CTP's ENDS webpage at <https://bit.ly/3zejJ4A>**

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## FDA Tobacco Product Marketing Orders

See a list of authorized tobacco products and information that can be disclosed about those that have been denied. **Visit FDA's Tobacco Product Marketing Orders webpage at <https://bit.ly/3G6fM5u>**

## Tobacco Retailer Warning Letters

Learn more about FDA warning letters to retailers. **Visit <https://bit.ly/3KsA1vT>**

# UNDERSTANDING NICOTINE

PREVENT ADDICTION AND HELP TEENS QUIT VAPING

The nicotine in vapes can change the young brain and get teens hooked. This fact sheet covers vapes, nicotine addiction, and helping teens quit.



## NICOTINE IS A HIGHLY ADDICTIVE DRUG THAT CAN HARM YOUNG BRAINS.

Vapes that contain nicotine are a type of tobacco product called electronic nicotine delivery systems (ENDS). Nicotine is the same addictive chemical found in cigarettes. Teens who use nicotine may experience lasting effects on attention, learning, and memory that promote addiction to nicotine. Many popular brands of vapes contain high levels of nicotine.

# MANY TEENS DO NOT KNOW IT IS EASY TO BECOME ADDICTED.

Young people are the most at risk for nicotine addiction because their brains are still developing, making it easier to get hooked. In fact, the younger people are when they start using tobacco, the more likely they are to become addicted. And once addicted, a person will keep using harmful tobacco products, even if they want to quit.

Teens who vape may end up addicted to nicotine faster than teens who smoke cigarettes. This is because vapes may expose users to more nicotine and may be used more frequently. Plus, e-cigarettes may come in flavors that appeal to youth. Appealing flavors may cause teens to vape longer and more often, putting them at risk for nicotine addiction.

## KNOW THE SIGNS OF VAPING AND ADDICTION.

Sometimes it is hard to tell if a teen is using e-cigarettes. Vaping is easier to hide than smoking cigarettes. Vapes do not smell like cigarette smoke or cause fingernails to change color. Also, vapes can look like everyday objects, such as a smartwatch, asthma inhaler, or flash drive. Knowing the signs and symptoms of vaping and addiction can help you see when a teen needs help.



### Signs of vaping:

- New behaviors, such as secrecy or anger
- Change in school performance
- Dry cough or increased wheezing



### Symptoms of nicotine addiction:

- Needing to vape after waking up in the morning
- Feeling anxious or irritable due to cravings
- Vaping without thinking about it
- Having trouble concentrating or sleeping
- Thinking about vaping throughout the day
- Vaping after learning the health risks

## HELP TEENS QUIT VAPING.

Teens who vape need help from patient and understanding adults. Remind teens that although quitting is hard, it can be done. Try these ideas from pediatricians with experience working with teens who vape:

- Encourage teens to be honest about vaping.
- Try to be nonjudgmental, which can help teens talk openly.
- Share the facts about vaping. Teens need to know the true health risks.
- Make an appointment with a health care provider, such as a pediatrician, who can give youth a safe space to talk.
- Learn more about vaping so you will be prepared to talk about it with teens.

Visit <https://teen.smokefree.gov/quit-vaping>



## WATCH EXPERT PEDIATRICIANS DISCUSS TEEN VAPING.

Check out the links below to see pediatricians talk about teen vaping and give advice to parents and caregivers. The videos were produced by the U.S. Food and Drug Administration (FDA) in partnership with the American Academy of Pediatrics.

→ **Pediatricians' Overview of E-Cigarette Use, or Vaping**

[www.youtube.com/watch?v=nSy3jQdTpcc](https://www.youtube.com/watch?v=nSy3jQdTpcc)

→ **How to Identify Signs of Youth Vaping and Nicotine Addiction**

[www.youtube.com/watch?v=DdHOyhNJtkU](https://www.youtube.com/watch?v=DdHOyhNJtkU)

→ **Resources Available to Address E-Cigarette Use in Youth**

[www.youtube.com/watch?v=jZML6b1t4Mw](https://www.youtube.com/watch?v=jZML6b1t4Mw)

## Online Quitting Resources for Teens

Help youth quit at Smokefree Teen. The website features **Quit Vaping** pages that help teens understand nicotine addiction, build a custom quit plan, and prepare for their quit day.

Quit Vaping also helps teens deal with cravings after quitting, find support from friends and family, and learn how vaping is related to mental health. Teens can connect with a trained counselor by visiting [teen.smokefree.gov/quit-vaping](https://teen.smokefree.gov/quit-vaping).

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