



What School Professionals Need to Know to Help Protect Children, Teens and Young Adults

Introduction

Vaping has become one of the most popular forms of substance use among young people, despite growing evidence of its health risks and harms. Vaping is the act of inhaling and exhaling the aerosol produced when using an electronic vapor device. Typically, the ingredients include nicotine, flavorings and other chemicals, many of which are toxic. Some vaping products contain marijuana or other drugs.

According to the U.S. Centers for Disease Control and Prevention (CDC), 27.5% of high school students and 10.5% of middle school students in 2019 reported using a vaping product (also known as an electronic or e-cigarette) in the past 30 days. These numbers represent a 32% increase among high school students and a staggering 114% increase among middle schools students since just the year before, despite growing awareness about the dangers of vaping.

As school professionals, we want to do all that we can to reduce the negative effects of vaping on our students' developing brains, affecting their learning and future opportunities. Whether a child has not yet tried vaping, has already begun to vape or vapes regularly, this guide can help you. We break down what vaping is, why it appeals to youth, what the health risks are and what you can do to protect young people from its harms.

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More than 1 in 4 high school students reported vaping in the past month.

CDC's National Youth Tobacco Survey, 2019

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Teen using a JUUL

What is Vaping?

Vaping is the act of inhaling and exhaling the aerosol that is produced by an electronic vapor device when it heats up its liquid ingredients. Because of the rise in popularity of JUUL, currently the most popular brand of vaping device, many teens and young adults use the term “JUUL” (pronounced Jewel) or “JUULING” (pronounced Jewelring), instead of vaping, when referring to the use of these products. More formally, these products are sometimes referred to as electronic cigarettes, or e-cigarettes. Less formally, some simply call them “vapes.” The contents of most vaping liquids (e-liquids) include nicotine, flavoring chemicals and other chemicals. Some vaping products contain (or are modified to contain) marijuana or THC, the psychoactive ingredient in marijuana.

What do vaping devices look like?

Vaping products, or vapes, come in many shapes and designs. Original devices intentionally looked like cigarettes, cigars or pipes so that they would feel familiar and appealing to smokers. Larger devices, known as tank systems or “mods,” do not look like cigarettes or other tobacco products but can be customized or modified by the consumer to have different flavors, nicotine doses or temperature limits. Today, vapes are small and discreet and resemble modern technology products, such as USB sticks/flash drives or cell phones, and other everyday objects like a pen, eraser or lipstick. Some are disposable while others can be reused by charging the device in the USB port of a computer or outlet charger and by replacing the e-liquid, either by filling the chamber or by using a replacement pre-filled pod or cartridge.

What is being vaped?

Although many substances can be vaped, teens and young adults most commonly vape flavored e-liquids with nicotine or marijuana (THC).

Thousands of flavoring chemicals. Vapes come in thousands of tasty, unmistakably child-friendly flavors, many with fun and enticing names. The flavors mask the harsh taste of nicotine and other chemicals contained in the e-liquid, making it easier to inhale the aerosol. Sweet, fun flavors like gummy bear and cotton candy often remind teens of happy childhood experiences, making them feel harmless. Recent crackdowns on flavors by federal, state and local governments have begun to shift the landscape of preferred vaping products among youth. Now that flavors, aside from menthol and tobacco, are

Vaping is illegal for anyone under the age of 21, according to federal law and many state and local laws.

The 21-age limit applies to all tobacco-nicotine products and to all marijuana products in states where marijuana is legal.



Some vaping devices look like regular cigarettes, cigars or pipes, while others resemble USB sticks, guitar picks, small cellphones, lipstick, watches or other everyday items and tech devices.

generally banned in pod-based or closed-system devices like JUUL, [loopholes in the regulations](#) are driving kids to flavored disposable vapes that have even higher nicotine content and come in countless of enticing flavors.

High levels of nicotine. Nicotine doses can range from 2mg/ml to more than 59mg/ml, and some companies are engaging in “a nicotine arms race,” trying to raise the dose to levels that exceed those found in regular cigarettes or competing vapes. Currently, one of the most popular vapes, JUUL, contains 59mg/ml of nicotine in each pod in the United States – an amount equal to about 1-2 packs of cigarettes.

Other chemicals, metals and ultrafine particles. The aerosol, which many teens believe is harmless water vapor, actually consists of many chemicals, heavy metals and fine particles – many of which are toxic and dangerous – and seep deep into the lungs and bloodstream when vaping.

Marijuana or other drugs. Increasingly, marijuana ingredients are found in vapes, including THC (the psychoactive compound in marijuana that creates a sense of being high), the leaf form of marijuana or CBD. Vapes also are sometimes used to inhale other drugs as well.

What is vaping’s appeal?

Most vapes are discreet, easy to hide and generally seen as cool and relatively harmless. They come in thousands of tasty flavors that help cover the harsh taste of the chemicals and override the sense that these products might be harmful. They also produce a brief positive sensation or ‘head rush’ that some people like.

Most also have very high doses of nicotine, which can rapidly make those who vape develop an addiction or become dependent on the product. Some young people are also drawn to the “vape tricks” and “cloud competitions,” where they form cloud-like shapes or patterns when exhaling the vape’s aerosol. These tricks are usually performed with modifiable devices, or ‘mod’ style vapes. People will breathe aerosol deep into their lungs and then exhale it through their ears, eyes or nose.

Teens say they vape for many reasons. Curiosity is one, and peer pressure is another. They see friends or family members vaping and they are drawn to the appealing flavors. For others, it’s to do vape tricks. Some also say they do it because they feel it is less harmful than other tobacco products and it’s also discreet.



Vaping tricks, such as “The Dragon,” shown above, are another major attraction of vaping.

What are the Health Effects of Vaping?

It is now [widely recognized](#) that vaping is unhealthy and dangerous, even if it might not be quite as unhealthy and dangerous as smoking traditional, combustible cigarettes.

The more immediate health effects include coughing and wheezing, behavioral and mood changes, headaches, seizures, vomiting and potential severe lung injury. Vaping also negatively affects teens' attention, learning, and impulse control in a way that can affect them in school, sports and social situations.

Nearly all vapes contain nicotine, one of the most addictive substances, and in many cases as much as or more than in traditional cigarettes. Nicotine negatively affects the cardiovascular system (increasing heart rate and blood pressure and the risk of heart attack and stroke), respiratory/lung functioning (including inflammation, asthma and wheezing) and reproductive organs. People who vape can quickly become addicted and are at increased risk of starting to smoke cigarettes or use other addictive products. Taking in high doses of nicotine can lead to nicotine toxicity, which in severe cases can give rise to seizures as well as nausea, vomiting, diarrhea, excessive salivation, dizziness, respiratory failure, coma and paralysis.

The other ingredients in vapes, including the flavorings, are harmful as well. Most contain cancer-causing and other toxic chemicals, heavy metals and tiny particles that go deep into the lungs and cause lung damage, cell damage and reduced ability to fight off infections.

Exposure to Nicotine

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

Vaping exposes young people to nicotine at a time when the human brain is most at risk for addiction. Because the brain continues to develop until early adulthood, roughly age 25-30, use of any addictive substance prior to these years is especially risky. Young people who vape are affected more intensely than are adults by nicotine.

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⚠️ Exposure to toxic chemicals and other harmful ingredients

Vapes contain a number of chemicals, metals and ultrafine particles that are poisonous when they are heated to form an aerosol and then inhaled. Because of their chemical makeup, certain popular flavors – such as cinnamon, vanilla, butter, and mint – are especially harmful. Although some of the flavoring chemicals have been deemed safe when eating or drinking, once they are heated to produce an aerosol, they form additional harmful compounds that have been found to cause lung damage. There also is evidence that some metals and other components of vape can seep into the e-liquid and enter the lungs during the heating and inhalation process, causing lung damage ranging from mild to severe.

⚠️ Addiction

Nicotine is a highly addictive substance. People who vape can quickly become addicted to the nicotine that is in nearly all vapes, and are at increased risk of starting to smoke cigarettes or use other addictive substances. When a person stops vaping, even for a short period, they can experience withdrawal including strong cravings, irritability, fatigue, headache, sleeplessness and difficulty concentrating. These symptoms can be quite intense, driving them right back to the nicotine product, even when they want to quit. In fact, many people who are able to stop smoking cigarettes by switching to vaping find it extremely difficult to quit vaping due to the very high doses of nicotine and the ease of consuming it through vapes.

⚠️ Cigarette smoking

Teens and young adults who vape are significantly more likely than those who do not vape – [about four times as likely](#) – to end up smoking traditional cigarettes. This is true of young people who never smoked cigarettes and had no intention of, likelihood to or interest in doing so. Strong and consistent research also shows that vaping is not a safe or reliable way to quit smoking. For many people, vaping can actually [make it more difficult to quit smoking](#).

⚠️ Multiple tobacco product use

Young people who vape [have five times the likelihood](#) of those who do not vape to use tobacco products such as cigarettes, hookah, cigars or pipes. The

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majority of people who vape to help them quit smoking end up becoming ‘dual users,’ smoking in places and situations where they can and vaping in places and situations where smoking is impossible. Dual users, therefore, actually take in more nicotine and other potentially toxic chemicals than people who only vape or only use other tobacco products.

Injuries and poisonings

Vaping devices, especially those with poor quality batteries that have been stored improperly or have been modified by the user, can malfunction or explode. This results in burns and other injuries. Young people exposed to e-liquids through the mouth, eye or skin contact can experience nicotine poisoning, resulting in vomiting, seizures, brain injury or death.

Cardiovascular, respiratory, reproductive and immunity effects

More and more, nicotine and other chemicals in vapes are being tied to increasing heart rate and blood pressure and the risk of heart attack and stroke, as well as inflammation, asthma and wheezing. They also can cause inflammatory processes and depress immune function in lungs, and are associated with chronic bronchitis and reduced ability to fight off bacterial and viral infections.

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Marijuana and Vaping

The practice of using vaping devices to consume marijuana or cannabis products is becoming increasingly widespread. Recent data show that many youth who vape, especially older teens, are not just vaping nicotine. Many are vaping THC, the psychoactive ingredient in marijuana that produces a high. [National data from 2019](#) show that 21% of 12th graders, 19% of 10th graders and 7% of 8th graders reported vaping marijuana in the past year, each a significant increase over the previous year. [Other national data](#) show that 15% of middle and high school students, and 43% of those who ever used vapes, have vaped marijuana.

Different from most plant-based marijuana, the level of THC in marijuana vapes can be far higher. Therefore, vaped marijuana tends to be much more potent than smoked marijuana.

Some marijuana vapes look like nicotine vaping devices (e.g., PAX brand, which resembles JUUL products); come in loose leaf, concentrate, or extract forms; are available in youth-friendly flavors and names; and are virtually odorless. The THC inhaled when vaping enters the bloodstream quickly and can lead to overuse, addiction and other negative health consequences. Vaping marijuana can cause bloodshot eyes, dry mouth, increased appetite, mood swings and can increase the risk of depression, psychosis and suicidality. Marijuana vaping has also been implicated in the [recent spate of vaping-related lung injuries and deaths](#) known as EVALI (E-cigarette, or Vaping, product use Associated Lung Injury).

Marijuana use, regardless of how it is ingested, can have long-lasting effects on the developing teen brain. **Negative effects include:**

- ▶ Impaired attention, learning, problem-solving skills, memory and other cognitive functions
- ▶ Impaired reaction time and coordination, especially related to driving
- ▶ Academic or job difficulties, school dropout
- ▶ Increased risk of mental health issues including depression, anxiety and, in some cases, psychosis and suicidal thoughts
- ▶ Marijuana use disorder (addiction) and other substance use and addiction

The likelihood of developing a marijuana use disorder, or addiction to marijuana, is about [twice as high](#) among teens than among adults who use marijuana.

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What School Professionals Should Know and Do

The following are some indicators that a student may be vaping nicotine or marijuana:

- ▶ Frequent trips to the bathroom
- ▶ Mood changes before and after leaving the classroom (may be irritable before leaving and seem less stressed upon return)
- ▶ Hanging out in bathroom stalls with other students
- ▶ Returning to class smelling of minty or sweet scents
- ▶ Putting what appear to be thick markers or pens in the mouth
- ▶ Using colorful USB-like devices
- ▶ Using lanyards or hoodies to hide vaping devices
- ▶ Unexplained shifts in mood, behavior, academics

Help, Don't Punish, Students Who Are Vaping

- ▶ Recognize that vaping is a health issue, not just a behavioral problem
- ▶ Focus on health and safety, not punishment
- ▶ Ensure that students have accurate facts: offer a research-based anti-vaping curriculum to students
- ▶ Incorporate vaping-related facts and content into the general academic curriculum (e.g., biology, chemistry, psychology courses)
- ▶ Challenge students' perceived norms (it's not true that 'everyone' vapes)
- ▶ Appeal to students' desire for independence by demonstrating industry marketing tactics that target youth and make students dependent on their products
- ▶ Sponsor student-led anti-vaping campaigns
- ▶ Offer alternative, safer means of having fun, reducing stress and taking risks

- ▶ Be vigilant about places on campus where students vape (e.g., check pop-up ceilings in bathrooms where vaping devices may be hidden; school parking lots) so that it becomes difficult for students to vape on campus
- ▶ Educate staff, parents/caregivers on the harms of vaping and on how to respond effectively
- ▶ Share community and professional resources that can provide assistance

Get Help for Students with Addiction

- ▶ Get students' perspectives on why they vape, acknowledge the appeal, but help them weigh risks against benefits
- ▶ Recognize that addiction is serious and usually too hard for a teen to overcome alone
- ▶ Encourage professional help to cut back and quit
- ▶ Interventions should address mental health problems, social concerns
- ▶ Connect students with self-help online and text messaging programs that can support students trying to quit (e.g., truthinitiative.org/thisisquitting)
- ▶ There is no simple treatment for teen vaping; some tobacco cessation methods can work but counseling is often needed to address cravings and triggers

Collect Data

Collecting data on the types of addictive substances students are using can help inform education and intervention efforts and decisions about school policies. Tracking trends in reported use of vaping products can help schools address emerging trends and adjust policies and practices to meet student needs.

Materials and resources for schools

- ▶ [Juuling, Dripping, Dabbing and More: What School Professionals Need to Know About Vaping](#). A companion PowerPoint presentation to this guide by Partnership to End Addiction tailored to school professionals to help to reduce the negative effects of vaping on students' developing brains. To receive this presentation, please [email](#) your request.
- ▶ [CATCH My Breath](#) – CATCH (Coordinated Approach to Child Health). A youth e-cigarette prevention program targeting ages 11-18. The program is divided into four sessions lasting 35-40 minutes each and uses a variety of educational strategies. These include cooperative learning groups, group discussions, goal setting, interviews and analysis of mass media.
- ▶ [The Tobacco Prevention Toolkit](#) – Stanford University School of Medicine. A toolkit for teachers with in-classroom units and lesson plans on e-cigarettes, tobacco and nicotine. The toolkit includes PowerPoints, discussion guides, worksheets and activities.
- ▶ [ASPIRE](#) – MD Anderson Center. ASPIRE is a free, bilingual and online tool that helps middle and high school teens learn about being tobacco free.
- ▶ [The Real Cost of Vaping: Understanding the Dangers of Teen E-cigarette Use](#) – For grades 9-12, information and a single lesson plan from a collaboration between the U.S. Food and Drug Administration and Scholastic.
- ▶ [Know the Risks: A Youth Guide to E-cigarettes](#) – A presentation from the Centers for Disease Control and Prevention's Office on Smoking and Health to educate youth on e-cigarettes. This resource is intended for adults who educate or serve youth ages 11-18 and includes a document with talking points.