

# Youth Vaping Education and Resources Toolkit

**Information included in this toolkit compiled by:**

**Margaret A. Coleman, MPH**

Population Health Coordinator

Community and Population Health

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# Contents

<b>Background .....</b>	<b>3</b>
<b>Overview .....</b>	<b>3</b>
Data trends .....	3
Health outcomes.....	4
Appealing to youth .....	4
<b>Who Should Use This Toolkit and Why? .....</b>	<b>5</b>
<b>Resources for Educators and Other Health Professionals .....</b>	<b>6</b>
<b>Prevention Curriculum .....</b>	<b>6</b>
Middle School .....	6
High School.....	6
<b>Alternative to Suspension (ATS) Curriculum .....</b>	<b>7</b>
<b>Additional Resources and Toolkits .....</b>	<b>8</b>
School educator resources .....	8
Facilitated cessation resource.....	8
Toolkits and guides .....	9
<b>Resources for Caregivers and Students .....</b>	<b>10</b>
<b>Vaping 101 .....</b>	<b>10</b>
What are e-cigarettes? .....	10
What do they look like? .....	11
Nicotine and the brain.....	13
Fact sheets.....	14
Videos and webinars .....	14
<b>Self-Guided Cessation Resources .....</b>	<b>15</b>
<b>Citations and Further Readings.....</b>	<b>16</b>

## Background

### Overview

Electronic cigarettes or “vapes” are electronic devices that heat liquid (usually containing nicotine, flavoring, and chemicals) that produces an aerosol inhaled into the lungs. Often falsely marketed as a “safe” alternative to cigarettes, vapes and e-cigarettes are unsafe for kids, teens, and young adults. Youth vape use poses several serious health threats, including harms to brain development and increased likelihood to smoke cigarettes in the future.<sup>1</sup>

The growing availability and variety of vaping devices, the tobacco industry’s manipulative marketing targeting youth, and the prevalence of kid-friendly vape flavors make youth vaping a growing concern in our community and nationwide: in December 2018, the United States Surgeon General released an advisory that declared e-cigarette use among youth an epidemic.<sup>2</sup>

### Data trends

According to a 2022 Centers for Disease Control and Prevention (CDC) data brief<sup>3</sup> on national trends in e-cigarette sales:

- From February 23, 2020 to July 10, 2022, total e-cigarette unit sales increased by 57.3% (16.2 million units to 25.5 million units). During this period, sales of non-tobacco flavored e-cigarettes (mint, menthol, and other flavors) increased by 75.6% (11.4 million to 20.0 million).
- From February 23, 2020 to July 10, 2022, disposable e-cigarette sales increased by 161.0% (4.9 million units to 12.7 million units); disposable e-cigarette unit share increased from 29.9% to 49.6% of total e-cigarette sales. As of July 10, 2022, 80.3% of disposable sales were of flavors other than tobacco, mint, and menthol.
- Among youth who used e-cigarettes in 2022, 55.3% used disposable e-cigarettes. The most commonly used flavors of disposable e-cigarettes were fruit (69.1%) and candy/desserts/other sweets (38.3%).

Recent research on youth vaping behaviors raise further concern. The CDC and the Food and Drug Administration’s analysis of the 2022 National Youth Tobacco Survey<sup>4</sup> found the following:

- 14.1% (2.14 million) of high school students and 3.3% (380,000) of middle school students currently use e-cigarettes. Overall, 84.9% use flavored e-cigarettes.
- More than a quarter (27.6%) of middle and high school students use an e-cigarette product every day.
- More than 4 in 10 youth e-cigarette users report using e-cigarettes at least 20 of the last 30 days.
- The most commonly used device among current users was disposables (55.3%), followed by prefilled/refillable pods or cartridges (25.2%).

## Health outcomes

Studies of vape products report that they contain an average of 6.2 flavoring chemicals, with over 20% of commercial vapes containing flavorings with potential inhalation toxicity risk.<sup>5</sup> Additional studies suggest vape usage may negatively influence cardiovascular health, present risk of obstructive lung diseases, adversely affect brain development, and increase risk of chronic bronchitis and asthma in adolescents.<sup>5</sup> E-cigs contain components that present potential risks for lung, stomach, bladder, and esophageal cancer.<sup>5</sup> Additionally, studies shows a consistent link between current vaping and respiratory issues during adolescence.<sup>6</sup> Ongoing research of Electronic cigarette or Vaping product use-Associated Lung Injury (EVALI) shows symptoms include shortness of breath, chest pain, cough, and airway obstruction.<sup>6</sup> The initial case series of 98 EVALI patients in Wisconsin and Illinois had a median age of 21, with 26% of patients younger than 18.<sup>6</sup> Health outcomes associated with youth exposure to nicotine in vapes are described in the [Nicotine and the brain](#) section of “Vaping 101.”

## Appealing to youth

Marketing of e-cigarettes as a “safer” alternative to cigarettes leads to misperceptions about the health risks they pose. Pediatric researchers describe how vapes have become a “gateway to initiate youths to first tobacco use, due to the misperception of the threat among adolescents and caregivers.”<sup>7</sup> Galderisi et al. further discuss youth-targeted marketing of e-cigarettes (translated from Italian):

“The misperception of vaping among adolescents, as the new trendy harmless commercial distraction, originates from an aggressive marketing strategy relied [sic] on media and social networks, whose primary audience is embodied by the adolescents. Despite claims that e-cigs are for adults only, evidence showed that manufacturers actively targeted young people, youth are initiating at younger and younger ages, [and the majority] transition to smoking combustible cigarettes.”<sup>7</sup>

Additionally, research suggests the availability of enticing vape flavors plays a role in youth vaping uptake, continued use, and perceived addiction. According to a 2019 study<sup>8</sup> of 1,492 current e-cigarette users:

- Flavor was a reason some users initially tried and continued to use e-cigarettes.
- Most e-cigarette users typically used flavors other than tobacco flavor.
- Typical flavors included fruit, mint/menthol, sweets, candy, coffee, and others.
- Satisfaction was greater among users of flavored versus non-flavored e-cigarettes.
- Perceived addiction was also greater among users of flavored e-cigarettes.

This information is particularly troubling considering the thousands of currently available vape flavors, including options such as “bubble gum,” “milk and cereal,” “grape soda,” and flavors that mimic existing sweets brands (e.g. “Watermelon Sour Patch,” “Snickers,” and “Oreo”).

## Who Should Use This Toolkit and Why?

This toolkit is intended for anyone interested in evidence-based youth vaping prevention, education, and cessation supports. For ease of navigation, the resources compiled within this toolkit are organized into two main “stakeholder” sections: one for educators and other health professionals (e.g. school administrators, teachers, social workers, LADCs/SAPs, community health professionals), and one for caregivers (e.g. parents, guardians, families) and students.

## Resources for Educators and Other Health Professionals

### Prevention Curriculum

Below are recommendations for evidence-based and evidence-informed vaping and tobacco prevention curriculum for middle school and high school educators.

#### Middle School

Stanford Medicine's [You and Me, Together Vape Free](#) middle school curriculum is a free six-lesson theory-based and evidence-informed curriculum that any educator can facilitate. Lessons are comprised of interactive Canva presentations and Kahoot quizzes. In-class sessions are reinforced with follow-up discussion guides. Each lesson in the curriculum includes a lesson plan overview, defined learning objectives and key takeaways, worksheets, additional optional activities, and downloadable tools for offline implementation (i.e. PowerPoint downloads and PDFs of Kahoot quizzes). The course website also includes implementation resources such as Canva demos, "Crash Courses" for instructors, and a [sample letter](#) to send home to parents of students. This curriculum can also be paired with Stanford Medicine's Alternative to Suspension (ATS) curriculum, "Healthy Futures," which is described in more detail [below](#).

[CATCH My Breath](#) is a peer-reviewed and evidence-based vaping prevention program developed by Coordinated Approach to Child Health and delivered in partnership with CVS Health, UTHealth, and the Michael and Susan Dell Center for Healthy Living. The program is SAMHSA-recognized and is available to middle school educators in three versions (5<sup>th</sup> grade, 6<sup>th</sup> grade, and 7<sup>th</sup>/8<sup>th</sup> grade). The curriculum is comprised of four 30- to 40-minute lessons. Supplemental videos and virtual field trips are also available. The curriculum is free to schools in the U.S. and requires facilitators to complete a free pre-recorded training; a paid live/interactive training is also available at an additional cost.

#### High School

Stanford Medicine's [You and Me, Together Vape Free](#) curriculum is also packaged in a high school version and includes the resources described for the middle school version above.

[CATCH My Breath](#) is also packaged into a high school version for 9<sup>th</sup>-12<sup>th</sup> grade educators and includes the resources described for the middle school version above.

## Alternative to Suspension (ATS) Curriculum

Schools with Tobacco-Free policies can benefit from alternative solutions to punitive measures for students caught vaping on campus. Alternative to Suspension (ATS) curriculum may be more effective than suspension and expulsion when it comes to addressing student tobacco use and nicotine addiction.<sup>9</sup> The “stress, isolation, and separation that occurs when a student is expelled or suspended can increase commercial tobacco and other drug use,” and research shows that an ATS approach that provides a supportive and fulfilling environment can serve to reduce addiction.<sup>9</sup> The Public Health Law Center’s [Student Commercial Tobacco Use in Schools: Alternative Measures](#) guide provides additional context for ATS as well as sample language and ideas for evidence-based solutions for schools.

As a complement to its You and Me, Together Vape Free curriculum, Stanford Medicine offers a free ATS curriculum. [Healthy Futures](#) uses principles of motivational interviewing and focuses on the health effects of vaping, addiction, messaging, and the cost. The Healthy Futures ATS curriculum is available in two formats:

- [OUR Healthy Futures](#) is taught by an educator, counselor, advisor, or other adult in small group settings. The OUR Healthy Futures ATS curriculum includes 2- and 4-hour format options.
- [MY Healthy Futures](#) is a self-paced online course that students complete on their own. MY Healthy Futures takes 40-60 minutes total to complete, and students receive a certificate of completion when done.

The Healthy Futures ATS curriculum includes guidance for facilitators, downloadable materials, and a sample letter to inform parents/guardians about students’ participation in the course.

The American Lung Association and Prevention Research Center of WVU have also created an ATS curriculum: Intervention for Nicotine Dependence: Education, Prevention, Tobacco, and Health ([INDEPTH](#)). INDEPTH is not specific to vaping and includes all types of tobacco. As shown in the INDEPTH [Program Outline](#), students learn about nicotine dependence, establishing healthy alternatives, and overcoming addiction. INDEPTH is delivered by a trained adult in four weekly 50-minute sessions, either one-on-one or in a group setting. Any adult can complete the free one-hour [facilitator training](#) online; upon successful completion, facilitators receive 3-year certification and access to the INDEPTH Facilitator Guide and resources to plan and implement the program.

## Additional Resources and Toolkits

### School educator resources

If time pressure is a hurdle to incorporating vaping curriculum into class time, Truth Initiative offers [Vaping: Know the Truth](#). Developed in partnership with Kaiser Permanente and the American Heart Association, this free digital learning experience is delivered in four 5- to 10-minute lessons. The Vaping: Know the Truth course overview is available [here](#).

The [My Life, My Quit](#) vaping cessation program described in [Self-Guided Cessation Resources](#) offers [free promotional materials](#), including classroom posters, rack cards, and teen/parent info cards (available in English and Spanish).

While intended for medical providers working with young patients, [this 20-minute video](#) from Quit Works NH offers practical tips for talking to youth about vaping, real-life visuals of vapes and how they work, information about how vapes are marketed to youth, and more.

For educators looking to complement existing health curriculum, [SmokeSCREEN](#) is a web-based smoking and vaping prevention video game for middle school students (ages 11-14). The game was developed by the Yale Center for Health and Learning Games in collaboration with the Center for Technology and Behavioral Health at Dartmouth, NIDA, the Food and Drug Administration (FDA), and the CVS Health Foundation. SmokeSCREEN focuses on decision-making about smoking and vaping and takes roughly 2-3 hours to complete on a computer or mobile device. The game includes a [Teacher's Manual](#) to help educators integrate SmokeSCREEN into their curriculum. [Efficacy studies](#) suggest the game “has a significant impact on participants’ beliefs and knowledge about tobacco product use, including electronic cigarettes and vaping, and is well accepted by adolescents.”<sup>10</sup>

The FDA Tobacco Education Resource Library offers [Vaping Prevention and Education: Resources for Talking With Students](#), a collection of science-based, standards-mapped classroom resources for middle and high school settings. Educators can register to access the resources for free.

### Facilitated cessation resource

The American Lung Association’s [Not on Tobacco \(N-O-T\)](#) program is an evidence-based, voluntary vaping education and smoking cessation program. N-O-T is intended for small group implementation and emphasizes teamwork. Facilitators are required to attend a seven-hour training. N-O-T can be taught by any trained adult in ten 50-minute sessions.

For recommended self-guided cessation programs, please see [Self-Guided Cessation Resources](#) within Resources for Caregivers and Students.



## Toolkits and guides

As described on its website, the [Stanford Medicine Tobacco Prevention Toolkit](#) includes “theory-based and evidence-informed curriculums and resources created by educators, parents, youth, and researchers aimed at preventing middle and high school students’ use of tobacco and nicotine.” In addition to the prevention and ATS curricula described in previous sections, the toolkit also includes downloadable [fact sheets](#) specific to e-cigarettes and vape pens.

SAMHSA created an evidence-based, downloadable resource guide ([Reducing Vaping Among Youth and Young Adults](#)) for supporting health care providers, systems, and communities seeking to prevent vaping. The guide “describes relevant research findings, examines emerging and best practices, identifies knowledge gaps and implementation challenges, and offers useful resources.”

The CDC’s Electronic Cigarettes webpage includes “[Quick Facts on the Risks of E-cigarettes for Kids, Teens, and Young Adults](#).” The “Where Can I Learn More” section also includes “[E-cigarettes and Youth: Toolkit for Partners](#)” as a downloadable PDF. The toolkit includes factsheets, free media and communications materials, and links to evidence-based websites, resources, and reports.

The New England Prevention Technology Transfer Center (PTTC) has a webpage dedicated to [Resources for Vaping Prevention](#). The page compiles health advisories from the CDC and Surgeon General as well as toolkits and other resources from Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island. The New England PTTC also created a [Microlearning Toolkit](#) that covers topics such as the effects of nicotine on the adolescent brain and why vaping appeals to youth.

## Resources for Caregivers and Students

### Vaping 101


#### What are e-cigarettes?

E-cigarettes, often referred to as “vapes” or “e-cigs,” are electronic devices that heat liquid and produce an aerosol that is inhaled into the lungs. Most have a battery, a heating element, and a place to hold a liquid.<sup>1</sup> The liquid or “e-juice” in vapes often contains nicotine, chemicals that help produce the aerosol, and artificial flavorings that youth may find especially appealing (e.g. “gummy bear,” “strawberry watermelon,” “chocolate milk,” and “Skittles”). People who use vapes breathe and exhale the aerosol produced when the vape heats this liquid.

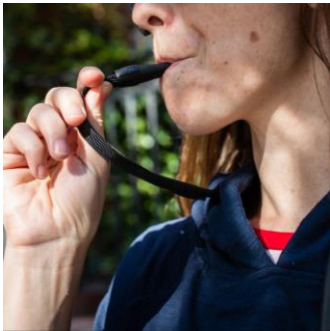





Marketing for electronic cigarettes often falsely suggests that the aerosol produced by vapes is “harmless water vapor.” This is NOT the case. In addition to addictive nicotine, this aerosol can contain harmful substances such as cancer-causing chemicals, volatile organic compounds, ultrafine particles that can be inhaled deep into the lungs, heavy metals (e.g. nickel, tin, and lead), and flavoring such as diacetyl (a chemical linked to serious lung disease).<sup>1</sup> Vapes can also be used to deliver cannabis and other drugs.

What do they look like?

Vapes come in many shapes and sizes and can be either disposable or rechargeable. The 2022 National Youth Tobacco Survey<sup>4</sup> found that current users of e-cigarettes reported their usual brands as Puff Bar (14.5%), Vuse (12.5%), Hyde (5.5%), and SMOK (4%). Photographic examples of these and other brands are shown in the table below:

<p>Puff Bar:</p>  <p><a href="#">source</a></p>	<p>Vuse:</p>  <p><a href="#">source</a></p>	<p>Hyde:</p>  <p><a href="#">source</a></p>
<p>SMOK:</p>  <p><a href="#">source</a></p>	<p>ELFBAR:</p>  <p><a href="#">source</a></p>	<p>iStick:</p>  <p><a href="#">source</a></p>

It is easy to conceal these devices and their use. Vapes are small, easily tucked away, and both subtle and quick to use. The aerosol they produce disappears rapidly after being exhaled into the air. Vaping devices can also be modified to look like everyday objects, making them easy to disguise. The below table demonstrates some vape designs that can hide in plain sight:

<p>Hoodie drawstring:</p>  <p><a href="#">source</a></p>	<p>Smart watch:</p>  <p><a href="#">source</a></p>	<p>School supplies:</p>  <p><a href="#">source</a></p>
<p>Flash drive lookalikes:</p>  <p><a href="#">source</a></p>	<p>Key fob:</p>  <p><a href="#">source</a></p>	<p>Cosmetics:</p>  <p><a href="#">source</a></p>

## Nicotine and the brain

As explained on the Surgeon General's [e-cigarette information website](#), critical brain development occurs during adolescence and young adulthood. Nicotine exposure in youth can harm that development and lead to addiction:

- “The part of the brain that's responsible for decision making and impulse control is not yet fully developed during adolescence. Young people are more likely to take risks with their health and safety, including use of nicotine and other drugs.
- Youth and young adults are also uniquely at risk for long-term, long-lasting effects of exposing their developing brains to nicotine. These risks include nicotine addiction, mood disorders, and permanent lowering of impulse control.
- Nicotine also changes the way synapses are formed, which can harm the parts of the brain that control attention and learning. Until about age 25, the brain is still growing. Each time a new memory is created or a new skill is learned, stronger connections – or synapses – are built between brain cells. Young people's brains build synapses faster than adult brains. Because addiction is a form of learning, adolescents can get addicted more easily than adults.
- The nicotine in e-cigarettes and other tobacco products can also prime the adolescent brain for addiction to other drugs.”<sup>11</sup>

The CDC's [Quick Facts on the Risks of E-cigarettes for Kids, Teens, and Young Adults](#) further outlines how nicotine addiction adversely affects youth mental health:

- “When a person is dependent on (or addicted to) nicotine and stops using it, their body and brain have to get used to not having nicotine. This can result in temporary symptoms of nicotine withdrawal.
- Nicotine withdrawal symptoms include irritability, restlessness, feeling anxious or depressed, trouble sleeping, problems concentrating, and craving nicotine. People may keep using tobacco products to help relieve these symptoms.
- Youth may turn to vaping to try to deal with stress or anxiety, creating a cycle of nicotine dependence. But nicotine addiction can be a source of stress.
- What may start as social experimentation can become an addiction. The most common reason U.S. middle and high school students give for trying an e-cigarette is ‘a friend used them.’
- The most common reason youth give for continuing to use e-cigarettes is ‘I am feeling anxious, stressed, or depressed.’
- Youth e-cigarette and cigarette use have been associated with mental health symptoms such as depression.”<sup>1</sup>

Regardless of how it's delivered, *any* form of nicotine is unhealthy for kids, teens, and young adults.

## Fact sheets

For students interested in additional basic information on e-cigarettes and vapes, SAMHSA developed a [Tips for Teens](#) fact sheet.

Parents may find this [fact sheet](#) from the American Academy of Pediatrics useful. The Surgeon General also created a [Tip Sheet for Parents](#) for talking with teens about e-cigarettes.

## Videos and webinars

While intended for medical providers working with young patients, parents may also be interested in [this 20-minute video](#) from Quit Works NH. The video offers practical tips for talking to youth about vaping, real-life visuals of vapes and how they work, information about how vapes are marketed to youth, and more.

Parents Against Vaping e-Cigs ([PAVe](#)) is a national advocacy and education organization that offers access to archived webinar events on its website. The PAVe website also includes "[Vapes are Trash](#)," a campaign that exposes the human and environmental harms of e-cigarettes and the tobacco industry.

In addition to printable factsheets and quit resources for youth and teens, Breathe New Hampshire's [Vaping Unveiled Resource Page](#) offers links to resources for parents and adults, including the FDA's "[The Real Cost of Vapes](#)" video series.

## Self-Guided Cessation Resources

Created by National Jewish Health, [My Life, My Quit](#) is a free and confidential program for teens who want help quitting all forms of tobacco (including vaping). My Life, My Quit offers five one-on-one telephone coaching sessions as well as additional real-time text, phone, and online support for youth interested in quitting tobacco use. As described on the program's website, My Life, My Quit tobacco treatment specialists "have completed extensive training on adolescent cognitive and psychosocial development from a psychologist and professor at Stanford University who specializes in adolescent tobacco prevention."

[This is Quitting](#) (from Truth Initiative) is a free and anonymous evidence-based text messaging program designed to help young people quit vaping. This is Quitting is tailored based on user age (from 13 to 24 years old) and product usage. Users receive one age-appropriate message per day, tailored to their enrollment date or target quit date.

In addition to the evidence-based [Not on Tobacco \(N-O-T\)](#) small group program (which requires a trained facilitator), the American Lung Association also offers [N-O-T for Me: My Path to Quit](#), an online, self-guided version of the tobacco cessation program.

## Citations and Further Readings

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