

# Surgeon General's Advisory on E-cigarette Use Among Youth

*I, Surgeon General of the United States Public Health Service, VADM Jerome Adams, am emphasizing the importance of protecting our children from a lifetime of nicotine addiction and associated health risks by immediately addressing the epidemic of youth e-cigarette use. The recent surge in e-cigarette use among youth, which has been fueled by new types of e-cigarettes that have recently entered the market, is a cause for great concern. **We must take action now to protect the health of our nation's young people.***

**KNOW THE RISKS. TAKE ACTION. PROTECT OUR KIDS.**

## The E-cigarette Epidemic Among Youth

Considerable progress has been made in reducing cigarette smoking among our nation's youth.<sup>1</sup> However, the tobacco product landscape continues to evolve to include a variety of tobacco products, including smoked, smokeless, and electronic products, such as e-cigarettes.<sup>2</sup> E-cigarettes are designed to deliver nicotine, flavorings, and other additives to the user via an inhaled aerosol.<sup>2</sup>

E-cigarettes entered the U.S. marketplace around 2007, and since 2014, they have been the most commonly used tobacco product among U.S. youth.<sup>2</sup> E-cigarette use among U.S. middle and high school students increased 900% during 2011-2015, before declining for the first time during 2015-2017.<sup>3</sup> However, current e-cigarette use increased 78% among high school students during the past year, from 11.7% in 2017 to 20.8% in 2018.<sup>4</sup> In 2018, more than 3.6 million U.S. youth, including 1 in 5 high school students and 1 in 20 middle school students, currently use e-cigarettes.<sup>4</sup>

E-cigarette aerosol is not harmless.<sup>2</sup> Most e-cigarettes contain nicotine – the addictive drug in regular cigarettes, cigars, and other tobacco products.<sup>2</sup> Nicotine exposure during adolescence can harm the developing brain – which continues to develop until about age 25.<sup>2</sup> Nicotine exposure during adolescence can impact learning, memory, and attention.<sup>1,2</sup> Using nicotine in adolescence can also increase risk for future addiction to other drugs.<sup>1,2</sup> In addition to nicotine, the aerosol that users inhale and exhale from e-cigarettes can potentially expose both themselves and bystanders to other harmful substances, including heavy metals, volatile organic compounds, and ultrafine particles that can be inhaled deeply into the lungs.<sup>2</sup>

Many e-cigarettes also come in kid-friendly flavors. In addition to making e-cigarettes more appealing to young people,<sup>5</sup> some of the chemicals used to make certain flavors may also have health risks.<sup>2</sup> E-cigarettes can also be used to deliver other drugs, including marijuana.<sup>2</sup> In 2016, one-third of U.S. middle and high school students who ever used e-cigarettes had used marijuana in e-cigarettes.<sup>6</sup>

For adults, e-cigarettes may have the potential to reduce risk for current smokers if they completely transition from cigarettes to e-cigarettes; however, a majority of adults who use e-cigarettes also smoke cigarettes.<sup>7</sup> For youth, the use of multiple tobacco products puts youth at even greater risk for addiction and tobacco-related harms.<sup>1,2</sup> Moreover, a 2018 National Academy of Sciences, Engineering, and Medicine report concluded that there was moderate evidence that e-cigarette use increases the frequency and intensity of cigarette smoking in the future.<sup>7</sup> But any e-cigarette use among young people is unsafe, even if they do not progress to future cigarette smoking.<sup>2</sup>

## E-cigarettes Come in Many Shapes and Sizes

E-cigarettes are a rapidly changing product class, and are known by many different names, including “e-cigs,” “e-hookahs,” “mods,” and “vape pens.”<sup>2</sup> Recently, a new type of e-cigarette has become increasingly popular among our nation's youth due to its minimal exhaled aerosol, reduced odor, and small size, making it easy to conceal.<sup>8</sup> Many of these new e-cigarettes look like a USB flash drive, among other shapes. One of the most commonly sold

USB flash drive shaped e-cigarettes is JUUL, which experienced a 600% surge in sales during 2016-2017, giving it the greatest market share of any e-cigarette in the U.S. by the end of 2017.<sup>9</sup> Other companies are now also starting to sell e-cigarettes that look like USB flash drives.

All JUUL e-cigarettes have a high level of nicotine. A typical JUUL cartridge, or “pod,” contains about as much nicotine as a pack of 20 regular cigarettes.<sup>10</sup> These products also use nicotine salts, which allow particularly high levels of nicotine to be inhaled more easily and with less irritation than the free-base nicotine that has traditionally been used in tobacco products, including e-cigarettes. This is of particular concern for young people, because it could make it easier for them to initiate the use of nicotine through these products and also could make it easier to progress to regular e-cigarette use and nicotine dependence. However, despite these risks, approximately two-thirds of JUUL users aged 15-24 do not know that JUUL always contains nicotine.<sup>11</sup>

## You Can Take Action

We must take aggressive steps to protect our children from these highly potent products that risk exposing a new generation of young people to nicotine.<sup>2,7</sup> The bad news is that e-cigarette use has become an epidemic among our nation’s young people. However, the good news is that we know what works to effectively protect our kids from all forms of tobacco product use, including e-cigarettes.<sup>1,2,12</sup> We must now apply these strategies to e-cigarettes, including USB flash drive shaped products such as JUUL. To achieve success, we must work together, aligning and coordinating efforts across both old and new partners at the national, state, and local levels. Everyone can play an important role in protecting our nation’s young people from the risks of e-cigarettes.

## Information for Parents

- **You have an important role to play in addressing this public health epidemic.**
- Learn about the different shapes and types of e-cigarettes and the risks of all forms of e-cigarette use for young people at <https://e-cigarettes.surgeongeneral.gov/>.
- Set a good example by being tobacco-free. If you use tobacco products, it’s never too late to quit. Talk to a healthcare professional about quitting all forms of tobacco product use. For free help, visit [smokefree.gov](http://smokefree.gov) or call 1-800-QUIT-NOW.
- Adopt tobacco-free rules, including e-cigarettes, in your home and vehicle.
- Talk to your child or teen about why e-cigarettes are harmful for them. It’s never too late.
- Get the Surgeon General’s tip sheet for parents, [Talk With Your Teen About E-cigarettes](https://e-cigarettes.surgeongeneral.gov/), at <https://e-cigarettes.surgeongeneral.gov/>. Start the conversation early with children about why e-cigarettes, including JUUL, are harmful for them.
- Let your child know that you want them to stay away from all tobacco products, including e-cigarettes, because they are not safe for them. Seek help and get involved.
  - Set up an appointment with your child’s health care provider so that they can hear from a medical professional about the health risks of tobacco products, including e-cigarettes.
  - Speak with your child’s teacher and school administrator about enforcement of tobacco-free school policies and tobacco prevention curriculum.
  - Encourage your child to learn the facts and get tips for quitting tobacco products at [Teen.smokefree.gov](http://Teen.smokefree.gov).

## Information for Teachers

- **You have an important role to play in addressing this public health epidemic.**
- Learn about the different shapes and types of e-cigarettes and the risks of all forms of e-cigarette use, including JUUL, for young people at <https://e-cigarettes.surgeongeneral.gov/>.
- Develop, implement, and enforce tobacco-free school policies and prevention programs that are free from tobacco industry influence, and that address all types of tobacco products, including e-cigarettes.

- Engage your students in discussions about the dangers of e-cigarette use. To help you, the Food and Drug Administration (FDA), and Scholastic, developed free resources for teachers. These materials can be found at [www.scholastic.com/youthvapingrisks](http://www.scholastic.com/youthvapingrisks).

## Information for Health Professionals

- **You have an important role to play in addressing this public health epidemic.**
- Learn about the different shapes and types of e-cigarettes and the risks of all forms of e-cigarette use, including JUUL, for young people at <https://e-cigarettes.surgeongeneral.gov/>.
- Ask about e-cigarettes, including small, discreet devices such as JUUL, when screening patients for the use of any tobacco products.
- Educate patients about the risks of all forms of tobacco product use, including e-cigarettes, for young people.
- Encourage patients to quit. For free help, patients can visit [smokefree.gov](http://smokefree.gov) or call [1-800-QUIT-NOW](tel:1-800-QUIT-NOW).

## Information for States, Communities, Tribes, and Territories

- **You have an important role to play in addressing this public health epidemic.**
- Implement evidence-based population-level strategies to reduce e-cigarette use among young people, such as including e-cigarettes in smoke-free indoor air policies, restricting young peoples' access to e-cigarettes in retail settings, licensing retailers, implementing price policies, and developing educational initiatives targeting young people.
- Implement strategies to curb e-cigarette advertising and marketing that are appealing to young people.
- Implement strategies to reduce access to flavored tobacco products by young people.

KNOW THE RISKS. TAKE ACTION. PROTECT OUR KIDS.

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