

# E-Cigarettes and Vaping

Epidemiology Data Brief  
November 2019

## What We Know

As of October 22, 2019, 1,604\* lung injury cases associated with the use of e-cigarette, or vaping, products have been reported to Centers of Disease Control and Prevention (CDC) from 49 states (all except Alaska), the District of Columbia, and 1 U.S. territory.

Thirty-four deaths have been confirmed in 24 states (as of October 22, 2019).

All patients have reported a history of using e-cigarette or vaping products.

Tetrahydrocannabinol (THC) is present in most samples tested by Federal Drug Administration (FDA) to date, and most patients report a history of using THC-containing products.

CDC recommends not using e-cigarettes or vaping with products that contain THC.

At this time, the FDA and CDC have not identified the specific cause or causes of lung injury. The only commonality among all cases is that patients report the use of e-cigarette or vaping products.

The only way to assure that you are not at risk while the investigation continues is to consider refraining from use of all e-cigarette or vaping products.

No one compound or ingredient has emerged as the cause of these illnesses to date; and it may be that there is more than one cause of this outbreak.

Many different substances and product sources are still under investigation.

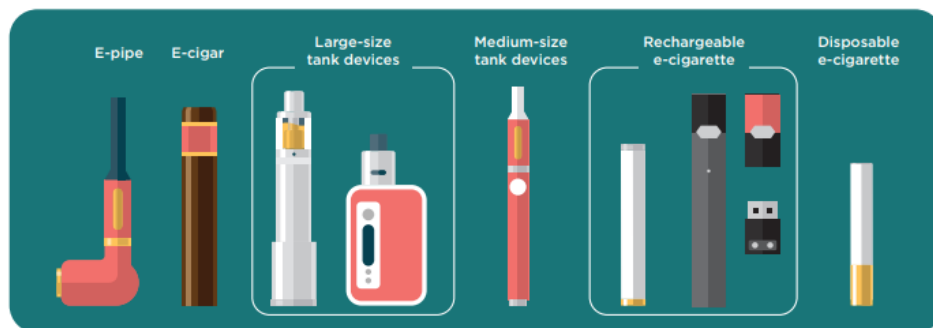
The specific chemical exposure(s) causing lung injuries associated with e-cigarette product use, or vaping, remains unknown at this time.

*\*The increase in lung injury cases from the last published date represents both new patients and recent reporting of previously-identified patients to CDC.*

## What are E-cigarettes?

Electronic cigarettes or “e-cigarettes” produce an aerosol by heating a liquid that usually contains nicotine - the same addictive drug in regular cigarettes, cigars, and other tobacco products, flavorings, and other chemicals that help to make the aerosol. Using an e-cigarette is sometimes called “vaping.” E-cigarette users inhale this aerosol into their lungs. Bystanders can also breathe in this aerosol when the user exhales into the air.

E-cigarettes are known by many different names. They are sometimes called “e-cigs,” “e-hookahs,” “mods,” “vape pens,” “vapes,” “tank systems,” and “electronic nicotine delivery systems (ENDS).” Some e-cigarettes are made to look like regular cigarettes, cigars, or pipes. Some resemble pens, USB sticks, and other everyday items. Larger devices such as tank systems, or “mods,” do not resemble other tobacco products.



E-cigarettes come in many shapes and sizes. Most have a battery, a heating element and a place to hold a liquid. E-cigarettes can be used to deliver marijuana and other drugs.

## What is JUUL?

JUUL is a brand of e-cigarette that is shaped like a USB flash drive. Like other e-cigarettes, JUUL is a battery-powered device that heats a nicotine-containing liquid to produce an aerosol that is inhaled.

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.<sup>1</sup>

News outlets and social media sites report widespread use of JUUL by students in schools, including classrooms and bathrooms. Approximately two-thirds of JUUL users aged 15 – 24 do not know that JUUL always contains nicotine.<sup>2</sup>

Parents who have children using e-cigarettes and/or other tobacco products can go to the City of Cincinnati Primary Care Health Center website below for further information:  
<https://www.cincinnati-oh.gov/health/city-of-cincinnati-primary-care/>  
For more information on Tobacco Cessation, please call 513-357-7420.

JUUL is one of a few e-cigarettes that 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.

Although JUUL is currently the top-selling e-cigarette brand in the United States, other companies sell e-cigarettes 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.

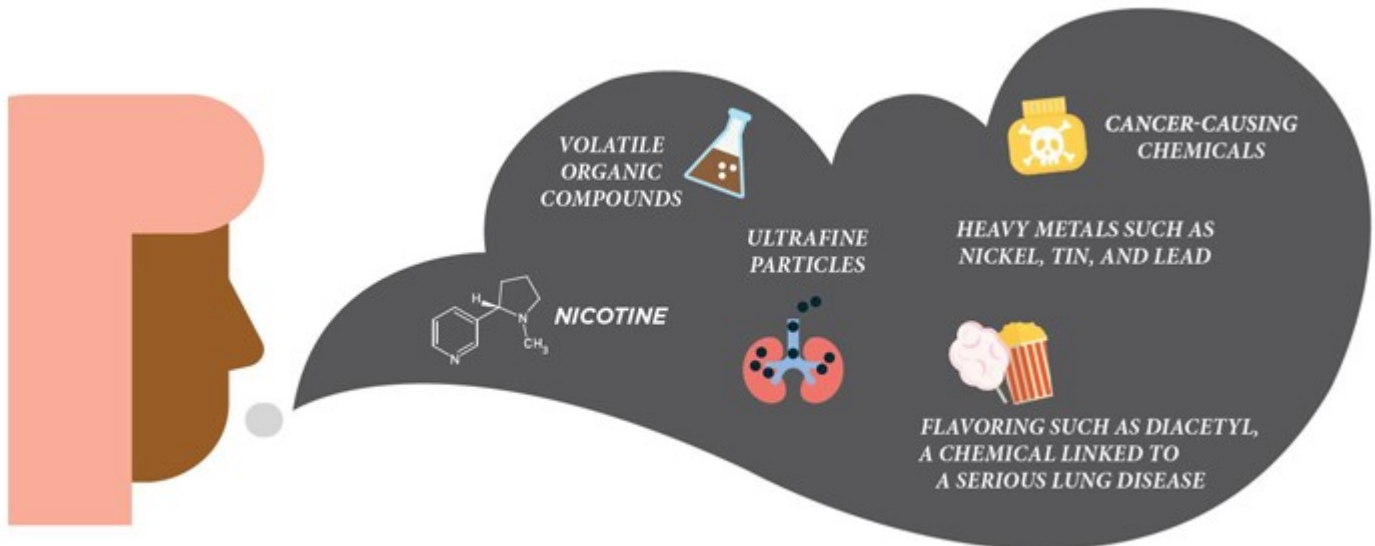


## What is in e-cigarette aerosol?

The e-cigarette aerosol that users breathe from the device and exhale can contain harmful and potentially harmful substances, including:

- Nicotine
- Ultrafine particles that can be inhaled deep into the lungs
- Flavoring such as diacetyl, a chemical linked to a serious lung disease
- Volatile organic compounds
- Cancer-causing chemicals
- Heavy metals such as nickel, tin, and lead<sup>3</sup>

It is difficult for consumers to know what e-cigarette products contain. For example, some e-cigarettes marketed as containing zero percent nicotine have been found to contain nicotine.<sup>4</sup>



## Flavors and Marketing make E-cigarettes appealing to Youth

- Many e-cigarettes come in fruit, candy, and other kid-friendly flavors, such as mango and crème.
- A majority of youth e-cigarette users report using flavored varieties, most youth e-cigarette users first start using e-cigarettes with a flavored variety, and flavors are the primary reason youth report using e-cigarettes.
- E-cigarettes are also advertised using the same themes and tactics that have been shown to increase youth initiation of other tobacco products, including cigarettes. In 2016, about 8 in 10 middle school and high school students — more than 20 million youth said they had seen e-cigarette advertising.
- Widespread advertising for these products, including via media for which advertising for conventional tobacco products is prohibited (e.g., TV), and the lower costs of some of these products relative to conventional cigarettes has contributed to the increase in e-cigarette use among youth.
- Many youth also report using e-cigarettes because they are curious about these new products, and because they believe these products to be less harmful than conventional cigarettes.
- In 2018, more than 3.6 million U.S. middle and high school students used e-cigarettes in the past 30 days, including 4.9% of middle school students and 20.8% of high school students.<sup>5</sup>

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



## What are the health effects of using e-cigarettes?

E-cigarettes are still fairly new, and scientists are still learning about their long-term health effects. Here is what we know now.

Most e-cigarettes contain nicotine, which has known health effects.<sup>3</sup>

- Nicotine is highly addictive.
- Nicotine is toxic to developing fetuses.
- Nicotine can harm adolescent brain development, which continues into the early to mid-20s.
- Nicotine is a health danger for pregnant women and their developing babies.

Besides nicotine, e-cigarette aerosol can contain substances that harm the body.<sup>3</sup>

- This includes cancer-causing chemicals and tiny particles that reach deep into lungs. However, e-cigarette aerosol generally contains fewer harmful chemicals than smoke from burned tobacco products.

E-cigarettes can cause unintended injuries.<sup>3</sup>

- Defective e-cigarette batteries have caused fires and explosions, some of which have resulted in serious injuries. Most explosions happened when the e-cigarette batteries were being charged.
- The Food and Drug Administration (FDA) collects data to help address this issue. You can report an e-cigarette explosion, or any other unexpected health or safety issue with an e-cigarette, at <https://www.safetyreporting.hhs.gov>.
- In addition, acute nicotine exposure can be toxic. Children and adults have been poisoned by swallowing, breathing, or absorbing e-cigarette liquid through their skin or eyes.



## What are the risks of e-cigarettes for youth, young adults, and pregnant women?

Most e-cigarettes contain nicotine, which is addictive and toxic to developing fetuses. Nicotine exposure can also harm adolescent brain development, which continues into the early to mid-20s.<sup>3</sup> E-cigarette aerosol can contain chemicals that are harmful to the lungs. Youth e-cigarette use is associated with the use of other tobacco products, including cigarettes. Some e-cigarette labels do not disclose that they contain nicotine, and some e-cigarettes marketed as containing 0% nicotine have been found to contain nicotine. Using nicotine in adolescence can harm the parts of the brain that control attention, learning, mood and impulse control.<sup>3</sup>

## What's the bottom line?

- E-cigarettes can contain other harmful substances besides nicotine.
- If you've never smoked or used other tobacco products or e-cigarettes, don't start.
- Young people who use e-cigarettes may be more likely to smoke cigarettes in the future.
- E-cigarettes are not safe for youth, young adults, pregnant women, or adults.

## What can I do to quit?

- If you use tobacco and/or e-cigarettes, it's never too late to quit. For free help, [visit smokefree.gov](http://www.smokefree.gov) or call 1-800-QUIT-NOW.
- My Life, My Quit - Text "**Start My Quit**" to **855.891.9989** or call to talk with a coach who is ready to listen or visit <https://www.mylifemyquit.com/>. It is always free and confidential.
- This is Quitting from Truth Initiative — a free mobile program designed to help young people quit vaping with evidence-based tips and strategies. Text **DITCHJUUL** to **88709** or visit <https://truthinitiative.org/thisisquitting>.

## What can I do to prevent my child from using E-cigarettes or to help them stop?

- Talk to your child or teen about why e-cigarettes are harmful for them. It's never too late.
- Set a good example by being tobacco-free and ensure that your kid is not exposed to the secondhand emissions from any tobacco products, including e-cigarettes.
- 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 grounds policies and tobacco prevention curriculum.

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