



Smoking & Tobacco Use

Outbreak of Lung Injury Associated with E-Cigarette Use, or Vaping



CDC, the U.S. Food and Drug Administration (FDA), state and local health departments, and other clinical and public health partners are investigating a multistate outbreak of lung injury associated with use of e-cigarette, or vaping, products.

If you have questions about CDC's investigation into the lung injuries associated with use of electronic cigarette, or vaping, products, contact [CDC-INFO](#) or call 1-800-232-4636.



For the Public



For Healthcare Providers



For Health Departments

Updated October 17, 2019 at 3:00 PM ET

What We Know

- As of October 15, 2019, 1,479* lung injury cases associated with the use of e-cigarette, or vaping, products have been reported to CDC from 49 states (all except Alaska), the District of Columbia, and 1 U.S. territory.
- Thirty-three deaths have been confirmed in 24 states.
- All patients have reported a history of using e-cigarette, or vaping, products.
- We do know that THC is present in most of the samples tested by FDA to date, and most patients report a history of using THC-containing products.
- The latest national and state findings suggest products containing THC, particularly those obtained off the street or from other informal sources (e.g. friends, family members, illicit dealers), are linked to most of the cases and play a major role in the outbreak.
- As such, we recommend that you should not use e-cigarette, or vaping, products that contain THC.
- Since the specific causes or causes of lung injury are not yet known, 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
- The use of e-cigarettes, or vaping, products is unsafe for all ages, including [youth and young adults](#). Nicotine is highly addictive and can harm adolescent brain development, which continues into the early to mid-20s.



Resources



Digital Press Kit

What We Don't Know

- At this time, FDA and CDC have not identified the cause or causes of the lung injuries in these cases, and the only commonality among all cases is that patients report the use of 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

What CDC Recommends

- CDC recommends that people should not:
 - Use e-cigarette, or vaping, products that contain THC.
 - Buy any type of e-cigarette, or vaping, products, particularly those containing THC, off the street.
 - Modify or add any substances to e-cigarette, or vaping, products that are not intended by the manufacturer, including products purchased through retail establishments.
- Since the specific cause or causes of lung injury are not yet known, the only way to assure that people are not at risk while the investigation continues is to consider refraining from use of **all** e-cigarette and-vaping products. There is no safe tobacco product. All tobacco products, including e-cigarettes, carry a risk.
- If you are an adult using e-cigarettes, or vaping, products, to quit smoking, do not return to smoking cigarettes. Adults addicted to nicotine using e-cigarettes should weigh all risks and benefits, and consider utilizing FDA-approved nicotine replacement therapies.
- If people continue to use an e-cigarette, or vaping, product, carefully monitor yourself for symptoms and see a healthcare provider immediately if you develop [symptoms](#) like those reported in this outbreak.
- Irrespective of the ongoing investigation:
 - E-cigarette, or vaping, products should never be used by youths, young adults, or women who are pregnant.
 - Adults who do not currently use tobacco products should not start using e-cigarette, or vaping, products.
 - THC use has been associated with a wide range of health effects, particularly with prolonged heavy use. The best way to avoid potentially harmful effects is to not use THC, including through e-cigarette, or vaping, products. Persons with marijuana use disorder should seek evidence-based treatment by a health care provider.
 - There is no safe tobacco product. All tobacco products, including e-cigarettes, carry a risk.
 - CDC will continue to update guidance, as appropriate, as new data emerges from this complex outbreak.

Key Facts about E-Cigarette Use, or Vaping

- Electronic cigarettes — or e-cigarettes — are also called vapes, e-hookahs, vape pens, tank systems, mods, and electronic nicotine delivery systems (ENDS).
- Using an e-cigarette product is commonly called vaping.
- E-cigarettes work by heating a liquid to produce an aerosol that users inhale into their lungs.
- The liquid can contain: nicotine, tetrahydrocannabinol (THC) and cannabinoid (CBD) oils, and other substances and additives. THC is the psychoactive mind-altering compound of marijuana that produces the “high”.

Latest Outbreak Information

Updated every Thursday

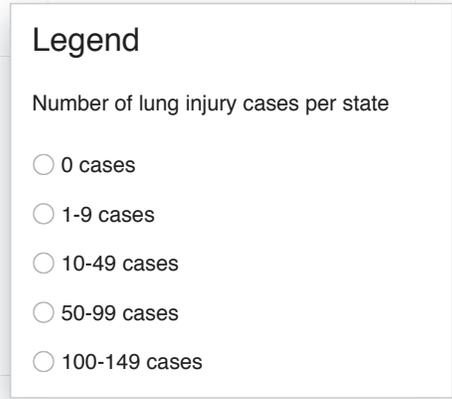
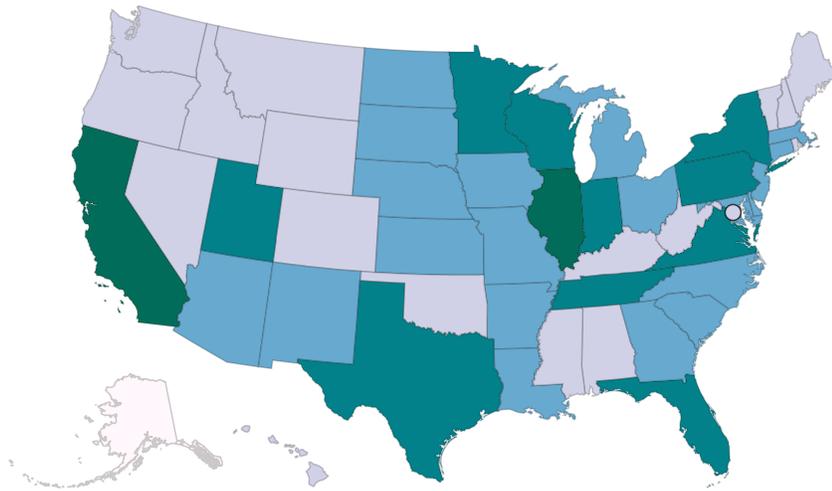
- As of October 15, 2019, 1,479* lung injury cases associated with e-cigarette use, or vaping, have been reported to CDC from the District of Columbia, 1 U.S. territory (USVI), and 49 states (all except Alaska).
- Thirty-three deaths have been confirmed in 24 states: Alabama, California (3), Connecticut, Delaware, Florida, Georgia (2), Illinois, Indiana (3), Kansas (2), Massachusetts, Michigan, Minnesota (3), Mississippi, Missouri, Montana, Nebraska, New Jersey, New York, Oregon (2), Pennsylvania, Tennessee, Texas, Utah, and Virginia. More deaths are under investigation.
 - The median age of deceased patients was 44 years and ranged from 17 to 75 years.
- Among 1,358 patients with data on age and sex:
 - 70% of patients are male.
 - The median age of patients is 23 years and ages range from 13 to 75 years.
 - 79% of patients are under 35 years old.
 - By age group category:
 - 15% of patients are under 18 years old;
 - 21% of patients are 18 to 20 years old;
 - 18% of patients are 21 to 24 years old;
 - 25% of patients are 25 to 34 years old; and
 - 21% of patients are 35 years or older.
- To date, national and state data suggest that products containing THC, particularly those obtained off the street or from other informal sources (e.g., friends, family members, or illicit dealers), are linked to most of the cases and play a major role in the outbreak.
- All patients have a reported history of e-cigarette product use, or vaping, and no consistent evidence of an infectious cause has been discovered. Therefore, the suspected cause is exposure to a chemical or chemicals.
- The specific chemical exposure(s) causing lung injuries associated with e-cigarette use, or vaping, remains unknown at this time.
- Among 849 patients with information on substances used in e-cigarette, or vaping, products in the 3 months prior to symptom onset**:
 - About 78% reported using THC-containing products; 31% reported exclusive use of THC-containing products.
 - About 58% reported using nicotine-containing products; 10% reported exclusive use of nicotine-containing products.
- This complex investigation spans almost all states, involves over a thousand patients, and involves a wide variety of brands and substances and e-cigarette, or vaping, products. Case counts continue to increase and new cases are being reported, which makes it more difficult to determine the cause or causes of this outbreak.

What CDC is Doing

- CDC is working 24/7 to identify the cause or causes of this outbreak through partnerships with states and other federal agencies.
- CDC has activated the Emergency Operations Center (EOC) to coordinate activities and provide assistance to states, public health partners and clinicians around the nation.
- CDC's Lung Injury response efforts are committed to:
 - Identify and define the risk factors and the source for lung disease associated with e-cigarette product use, or vaping.
 - Detect and track confirmed and probable cases in the US.
 - Communicate actionable recommendations to state, local, and clinical audiences.
 - Establish lab procedures that can assist with the public health investigation and patient care.
- CDC continues to work closely with FDA, states, public health partners, and clinicians on this investigation by providing consultation and technical assistance to states on communication, health alerts, public outreach, and surveillance.
- CDC is maintaining an outbreak webpage with key messages and weekly updates on case counts, deaths, and resources.
- CDC is holding congressional briefings, media telebriefings, and regular calls with health departments, clinicians to provide timely updates.
- CDC worked with states to create [primary and out-of-hospital case definitions](#) to classify confirmed and probable cases in a consistent way. States are in the process of classifying patients. We expect that states and clinicians may look back for past lung injury cases based on CDC's case definition CDC will report numbers of confirmed and probable lung injury cases once states have finalized their classification of cases.
- By invitation, CDC has deployed Epidemic Intelligence Service (EIS) officers and other CDC staff to support states.
- CDC is offering additional laboratory testing.
 - CDC is currently validating targeted methods to test chemicals in bronchoalveolar lavage (BAL) fluid, blood, or urine and has received initial samples.
 - CDC is testing pathologic specimens, including lung biopsy or autopsy specimens, associated with patients.
 - CDC is also validating methods for aerosol emission testing of case-associated product samples from e-cigarette, or vaping, products and e-liquids. Initial data from product sample testing has guided the need for these additional assays.
 - Results may provide insight into the nature of the chemical exposure(s) contributing to this outbreak.
- CDC developed guidance documents for were created to assist public health laboratories, healthcare providers, and pathologists, and others, with specimen collection, storage, and submission.
- For more information and resources visit [For the Public](#), [For Healthcare Providers](#) and [For State and Local Health Departments](#) as well as our [Publications and Resources](#) page.

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

** Based on complete reports received.



Territories **AS** **GU** **MH** **FM** **PW** **PR** **VI**



Data Table

Dates of symptom onset and hospital admission for patients with lung injury associated with e-cigarette use, or vaping — United States, March 31–October 12, 2019

