

CDC updates vaping-related lung injury guidance, link to vitamin E acetate

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Federal health officials say most vaping-related lung injuries in recent months are linked to tetrahydrocannabinol (THC)-containing products diluted with vitamin E acetate.

“This big increase is largely explained by the vitamin E acetate phenomenon, but that does not mean that vaping products with THC or other substances are safe and it doesn’t mean e-cigarettes that are nicotine-only are safe,” said Anne Schuchat, M.D., principal deputy director of the Centers for Disease Control and Prevention (CDC).

The findings are detailed in one of four new reports the CDC released Friday that also analyze risk factors for rehospitalization and death after hospital discharge and provide new guidance for clinicians on preventing these two outcomes.

In recent months, 2,506 people have been hospitalized and 54 have died of vaping-related lung injuries. [A new analysis](#) of emergency department (ED) visits related to e-cigarettes going back to the beginning of 2017 determined there was a spike in vaping-related lung injuries in June 2019 followed by a peak in September. Cases have been declining since that time but still are higher than before the June spike.

“It is clear that the outbreak represented a new phenomenon and not recognition of a common syndrome that had evaded our attention,” Dr. Schuchat said.

Vitamin E acetate

Since the summer, federal health officials have been racing to find the cause of the sudden spike in vaping-related lung injuries. In a [study published in the *New England Journal of Medicine*](#) Friday, the CDC presented data from 51 patients with confirmed or probable vaping-related lung injuries from 16 states.

Roughly 94% of the patients had used THC-containing products, and the same percentage had vitamin E acetate in their bronchoalveolar lavage (BAL) fluid samples. The diluent was not found in the BAL of 99 healthy subjects who were tested for comparison. Coconut oil and limonene each were found in one patient, but researchers could not determine their impact.

The findings support previous CDC findings of vitamin E acetate in all 29 BAL samples it tested. Dr. Schuchat said vitamin E acetate may disrupt surfactant and interfere with lung expansion. Another possibility is that when a byproduct is heated, it causes a chemical injury.

Vitamin E acetate became a popular diluent in THC-vaping products this year, as the two liquids have similar viscosity. The Food and Drug Administration and Drug Enforcement Agency have been investigating the supply chain for vaping products and announced Friday they had seized 44 websites that were illegally advertising THC vaping cartridges. However, none of the websites have confirmed links to the patients who have experienced lung injuries.

Rehospitalization and death after discharge

Prior to November, just under 3% of patients with vaping-related lung injuries were rehospitalized within a median of four days. Another seven patients died after leaving the hospital, after a median of three days, according to a new *Morbidity and Mortality Weekly Report*.

About 71% of those who were rehospitalized and 83% of those who died after hospital discharge had a chronic condition, most commonly heart disease, respiratory conditions or diabetes. These patients also were likely to be older than the average patient.

The CDC **released new guidance** to help keep patients healthy after being discharged. Prior to discharge, patients should be stable for 24-48 hours, screened for mental health and substance use disorders, linked to appropriate services and counseled on adherence to medication for their lung injuries. Patients should follow up with a physician within 48 hours of discharge and meet with a pulmonologist within two to four weeks.

The CDC continues to recommend that everyone avoid vaping products, especially those with THC and those obtained from informal sources.

“This is a serious clinical condition affecting young people across the country,” Dr. Schuchat said. “It is completely preventable.”

Resources

- [CDC e-cigarette website for health care providers](#)
- [AAP Julius B. Richmond Center of Excellence e-cigarette website](#)
- [AAP policy "E-Cigarettes and Similar Devices"](#)
- [FDA information for health care providers and state health departments](#)
- [FDA's The Real Cost youth e-cigarette prevention campaign](#)
- [Information for parents from HealthyChildren.org about e-cigarettes](#)
- [AAP News coverage of vaping injuries](#)
- [Pediatrics e-cigarette article collection](#)
- [Surgeon general's interactive website about e-cigarettes geared toward parents and others who work with youths](#)