



**HEALTH ALERT**  
**SEPTEMBER 5<sup>TH</sup>, 2019**

**VAPING-ASSOCIATED PULMONARY INJURY (VAPI)**

**SUMMARY:**

Physicians in California and at least 24 other states have documented over 200 cases of acute pulmonary disease associated with vaping over the past three months, and the number of cases continues to rise. Physicians are asked to report suspected cases of vaping-associated pulmonary injury (VAPI) to local public health departments so that state and federal health officials can investigate the cause(s) of VAPI.

**CURRENT SITUATION:**

- Since June, 36 cases of vaping-associated pulmonary injury requiring hospitalization have been reported to the California Department of Public Health (CDPH). Most patients report vaping the cannabis compounds THC and/or cannabidiol (CBD), and some patients also report vaping nicotine products, although the exact cause of illness is not yet known.
- Patients typically present to the hospital with cough, difficulty breathing, fever, and sometimes vomiting and diarrhea. In many cases, the initial diagnosis was presumed to be infectious, but no evidence of infection or other process to explain the pulmonary disease was found.
- All cases in California have been hospitalized, with most requiring respiratory support with supplemental oxygen, high-flow oxygen, or bi-level positive airway pressure (BiPAP). At least ten patients had respiratory failure requiring mechanical ventilation. No deaths have been reported to date in California.
- Local health departments are collecting information on vaping habits and products used from patients who are suspected of having VAPI.

**Actions Requested of Healthcare Professionals:** Please report patients with *all of the following characteristics of VAPI* to the Contra Costa Communicable Disease Programs at 925-313-6740:

- Respiratory illness requiring hospital admission **AND**
- History of vaping or dabbing within 90 days of symptom onset **AND**
- Pulmonary infiltrates or opacities on chest radiograph or chest CT **AND**
- Clinical presentation is not explained by infectious or other alternate etiology

Please secure any vaping devices or products the patient may have with them for health department analysis.



**BACKGROUND:**

Vaping refers to the increasingly popular practice of inhaling vapor from an e-cigarette device, which works by heating a liquid that can contain nicotine, marijuana, or other drugs. The long-term health impacts of vaping are unknown. Some individuals also use a different type of device to heat and extract cannabinoids for inhalation in a process called “dabbing.” Both vaping and dabbing have been associated with VAPI.

**CLINICAL PRESENTATION:**

Patients typically present for care within a few days to weeks of symptom onset. At the time of hospital presentation, patients are often hypoxic and meet systemic inflammatory response syndrome (SIRS) criteria, including high fever. In some cases, patients had progressive respiratory failure following admission, leading to intubation. Time to recovery for hospital discharge has been from days to weeks.

Commonly reported symptoms include: Shortness of breath, cough, fatigue, body aches, fever, vomiting and diarrhea.

**LABORATORY FINDINGS:**

- Non-specific laboratory abnormalities have been reported, including elevation in white blood cell count, transaminases, procalcitonin, and inflammatory markers.
- Negative infectious disease testing (influenza, respiratory viral panel, cultures, etc.).

**IMAGING:**

Imaging abnormalities are typically bilateral and may be described as:

- Chest x-ray: pulmonary infiltrates or opacities
- Chest CT: ground-glass opacities

**TREATMENT:**

Guidelines for treatment of VAPI are not yet available. Most patients require supplemental oxygen via nasal cannula, high-flow oxygen, bi-level positive airway pressure (BiPAP), or mechanical ventilation. Anecdotally, treating physicians have trialed the use of steroids with some possible benefit. Information on dosing and duration of steroids is not available.

**MORE RESOURCES:**

CDPH FAQ Risks of Vaping Unlicensed or Unregulated Cannabis or CBD Products:

<https://www.cdph.ca.gov/Programs/CCDPHP/Pages/RisksofVaping.aspx>

CDC Electronic Cigarettes: [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/index.htm](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/index.htm)

Natl. Environmental Health Association’s Cannabis 101 Glossary of Related Terms:

<https://www.neha.org/sites/default/files/eh-topics/food-safety/Cannabis-101-Glossary-Related-Terms.pdf>

