



VAPOR PRODUCTS AND LUNG INJURY

Washington State Board of Health
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Presenter

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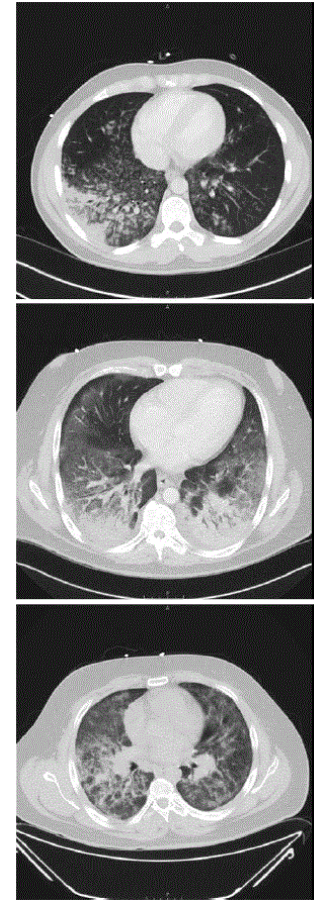
Washington State Department of Health

Overview

- Vaping-associated lung injury investigation
- Vitamin E acetate associated with lung injury

Vaping-associated Lung Injury (VALI)

- Common symptoms include cough, shortness of breath, chest pain, nausea, vomiting and/or fever
 - Progress over days or weeks
- Can lead to respiratory failure
- Abnormal findings on chest x-ray or CT scan
- Suspected cause is a chemical exposure



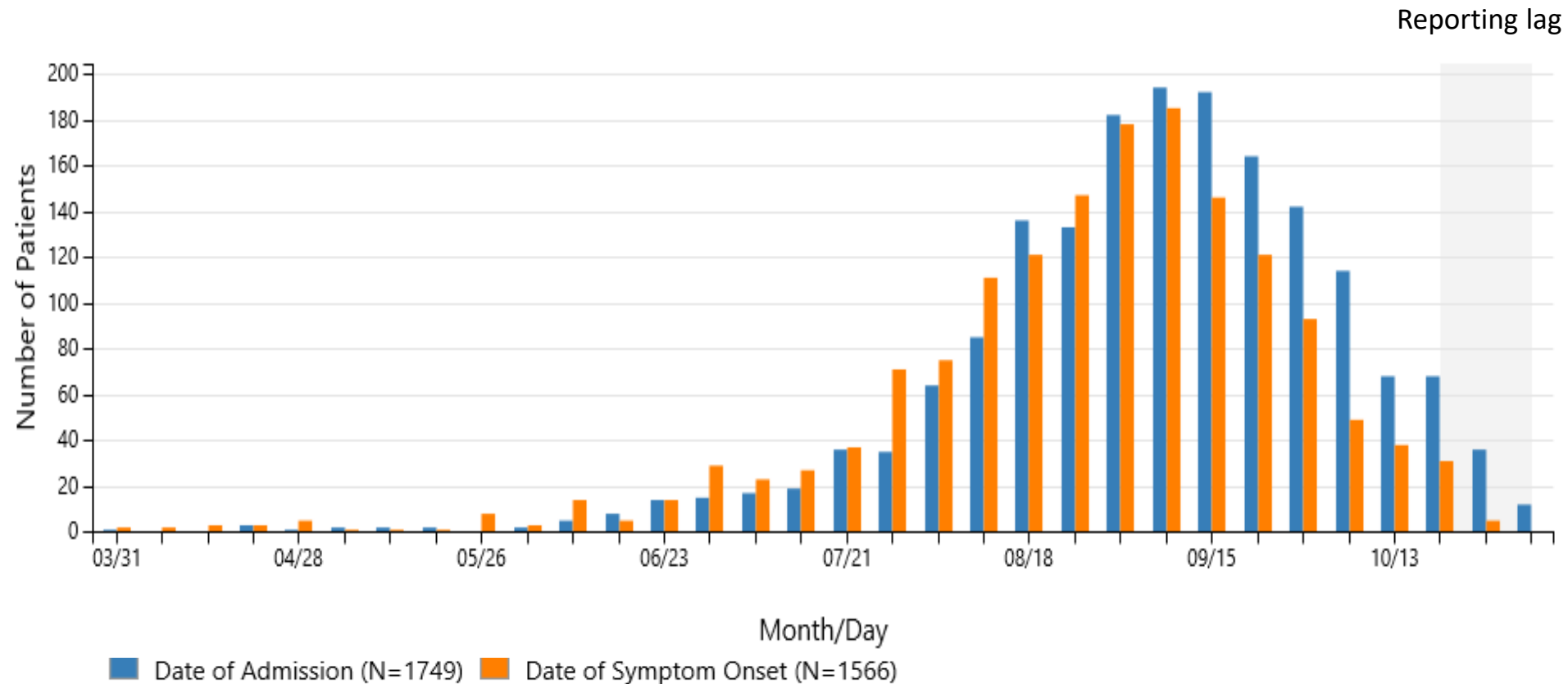
Source:

Centers for Disease Control (https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html)

Correspondence: Pathology of Vaping-Associated Lung Injury. *N Engl J Med* October 2, 2019.

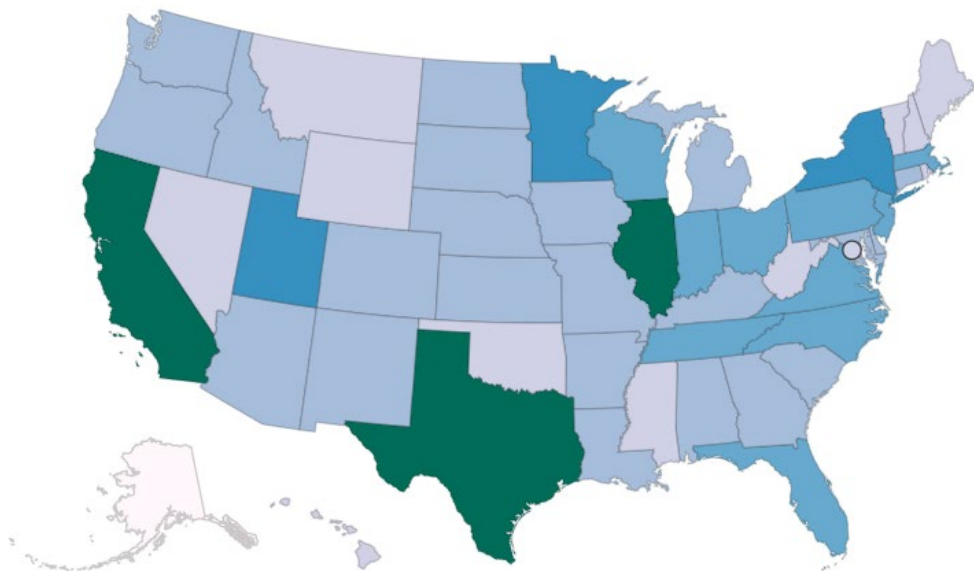
MMWR 2019;68:784–786

2,172 VAI cases reported nationally, including 42 deaths as of November 13, 2019



Source: Centers for Disease Control (https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html)

Vaping-associated Lung Injury Reported to CDC*



Territories AS GU MH FM PW PR VI



Legend

Number of lung injury cases per state

- 0 cases
- 1-9 cases
- 10-49 cases
- 50-99 cases
- 100-149 cases
- 150-199 cases

*Note: Case counts as of November 13, 2019; characteristics as of October 15, 2019

Source: Centers for Disease Control (https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html)

- 70% are male
- 79% of patients are under 35 years old
- ~86% reported using THC-containing products
- ~64% reported using nicotine-containing products
- ~11% reported only using nicotine-containing products
- THC-containing products playing a major role

Vaping-associated Lung Injury Reported in Washington*



*Note: Data as of November 15, 2019
Source: Department of Health

- 15 cases
- 67% male
- 53% < 30 years old
- 40% reported using THC-containing products
- 60% reported using nicotine-containing products
- 33% reported only using nicotine-containing products
- 7% used other product
- 20% unknown

Vitamin E Acetate

- Form of Vitamin E
- Used in variety of consumer products including skin care and dietary supplements
- Usually does not cause harm when ingested or applied to skin
- When inhaled, previous research shows it may interfere with normal lung functioning
- Has been used as additive in THC-containing e-liquids



Vitamin E Acetate Associated with Lung Injury

- 86% of lung injury patients reported vaping THC products
- 48% of THC products sampled show Vitamin E acetate
- Concentration of Vitamin E acetate in subset of THC-containing products was significant – 23% - 88%
- When vapor products with THC were linked to cases, the proportion of THC-containing products with Vitamin E acetate was higher – 76%
- Direct evidence of Vitamin E acetate at the primary site of injury was found in 29 of 29 lung samples from patients in 10 states
- Results of testing lung samples for other compounds of interest were all below the level of detection

What we don't know

- Cause of lung injury not yet proven
 - No known biological mechanism(s) of action of Vitamin E acetate
 - Comparing Vitamin E acetate results from VALL patient samples to controls is underway
 - Animal studies could provide further evidence
- Vitamin E acetate findings do not rule out that other compounds or ingredients may be contributing to these injuries
- The diversity of patients, patterns of product use and products used may indicate multiple causes of these injuries



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