



Clearing the Air: An Update on Youth Vaping



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About This Presentation



**Dr. Kathy
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I. Health Effects of Vaping



II. Youth Vaping Epidemic



III. Vaping-Associated Lung Injury



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IV. Recent Policy Actions: Washington State



V. Proposed Policy Actions: State and Federal

Question for the Viewers



Are there currently any regulations in place on the sale or use of e-cigarettes and other vaping products in your state?

- A. Yes
- B. No
- C. Some are being developed
- D. I'm not sure

Health Effects of Vaping



E-Cigarettes and Vapor Products

Currently two of the most popular products among youth



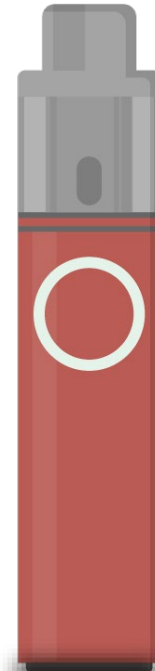
SUORIN DROP



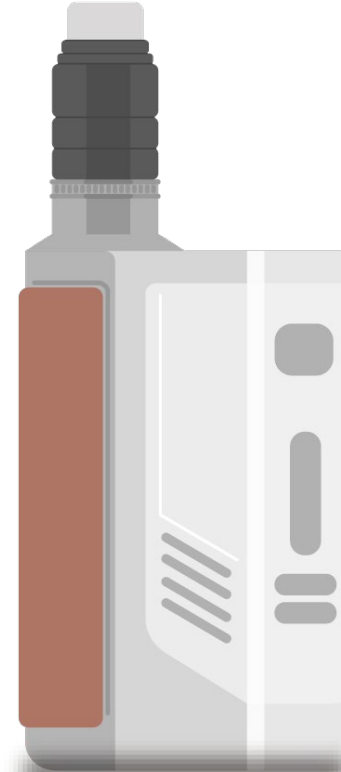
JUUL



PEN



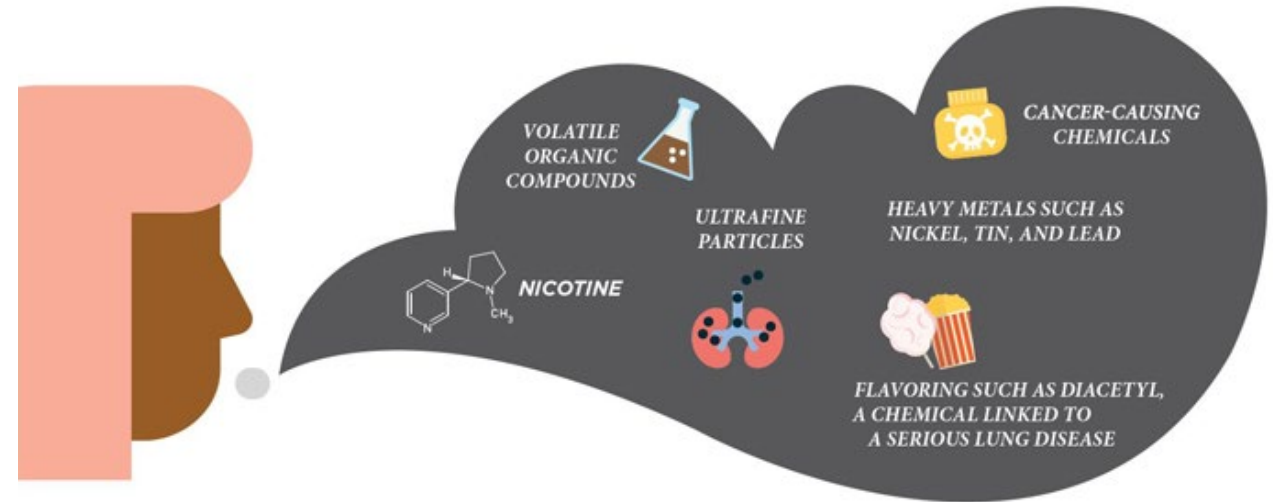
MOD



TANK SYSTEM

Components of Vapor Products

- Nicotine, marijuana, other drugs
- Propylene glycol, glycerol, other carrier agents
- Flavoring chemicals, terpenes
- Others such as particulate matter, volatile organic compounds, heavy metals, formaldehyde, pesticides, ???



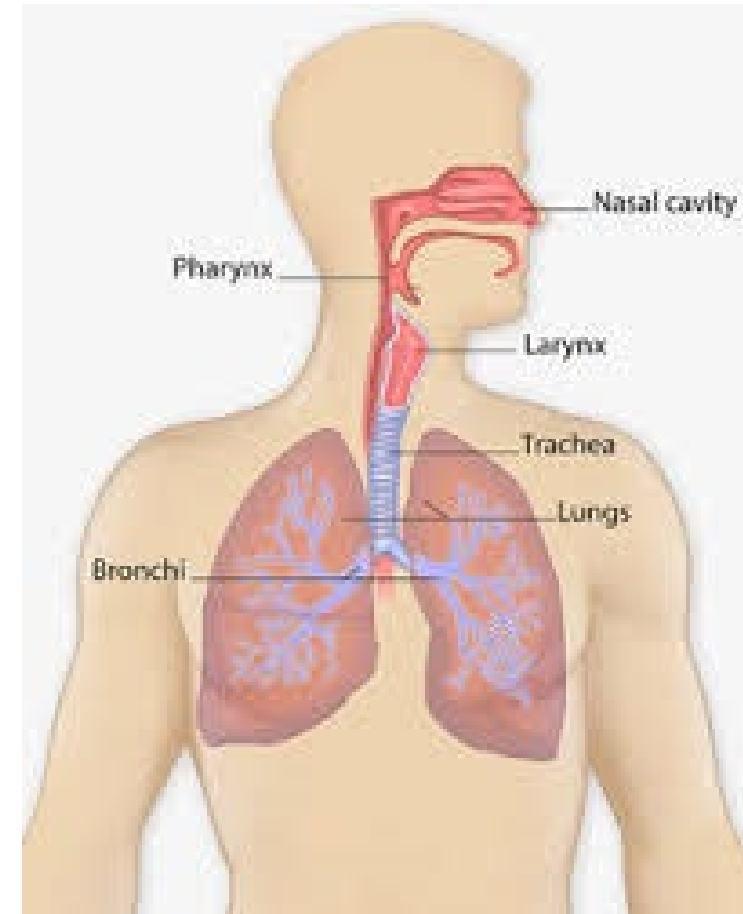
Sources: National Academies of Sciences, Engineering and Medicine, *Public Health Consequences of E-Cigarettes*, 2018.

E-Cigarette Use Among Youth and Young Adults: A Report of the Surgeon General, 2016

CDC, 2018. Accessed: https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html

Effects of Vaping on Pulmonary System

- **Nasal epithelia:** downregulation of immune genes; inhibition of ciliary beating
- **Bronchial epithelia:** altered protein expression; cellular toxicity; increased cytokine secretion; altered gene expression
- **Alveoli:** impaired vasoconstriction, impaired gas exchange
- **Sputum:** altered sputum proteins; impaired macrophage function



Effects of E-Cigarettes on People Who Currently Smoke

- Completely substituting e-cigarettes for combustible cigarettes reduces exposure to many toxicants and carcinogens present in combustible cigarettes
- E-cigarettes expose users to different chemicals; long term health effects unknown
- Dual use of cigarettes and e-cigarettes does not necessarily reduce exposure to toxic substances; even a few cigarettes a day can be dangerous
- Studies on effectiveness of E-cigarettes as smoking cessation aid remain mixed

Sources: National Academies of Sciences, Engineering and Medicine, Public Health Consequences of E-Cigarettes, 2018.

Goniewicz ML et al. JAMA Network Open.2018. (<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2718096>)

Tobacco Control 2005;14(5):315-20

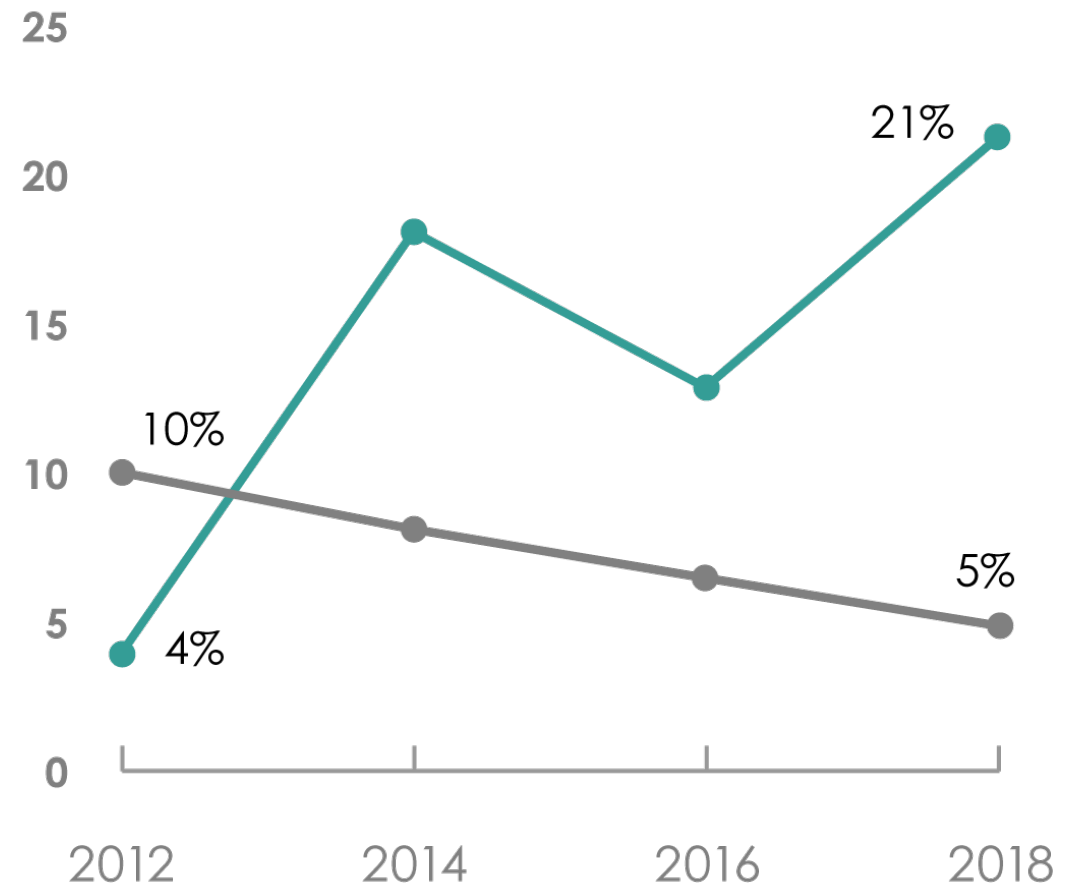
Youth Vaping Epidemic



Increase in Vaping Among Youth

While youth **smoking** in Washington continues to decline, **vaping** among youth has surged:

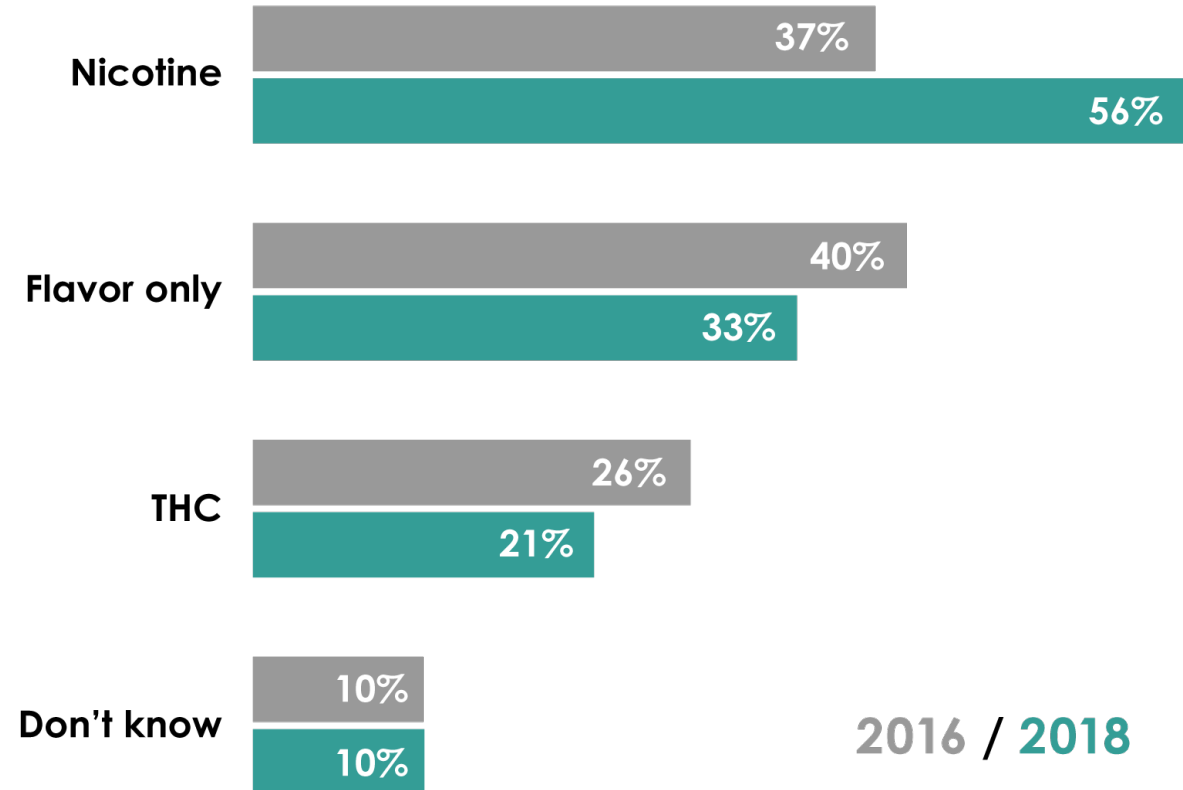
- Percent of 10th graders who said they used **cigarettes** in the past 30 days
- Percent of 10th graders who said they used **vapor products** in the past 30 days



Substance Use in E-Cigarettes

Substances Reported Used in E-cigarettes by 10th graders:

Healthy Youth Survey



2016 / 2018

Source: Washington State Health Youth Survey

Tobacco Control 2019;28:115-116.

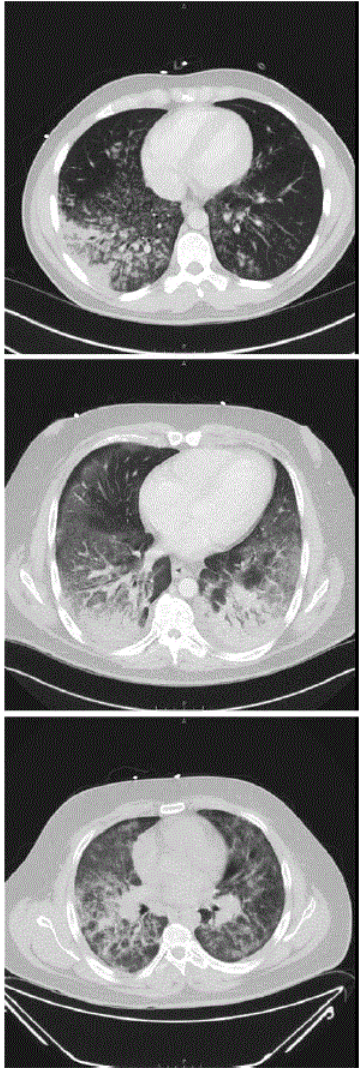
2019 National Youth E-Cigarette Use

- **27%** of high school students reported using e-cigarettes
- **More than 1/3** of high school students who vape report vaping on 20 or more of the past 30 days
- **64%** of high school students who vape report only using e-cigarettes
- **59%** of high school students who vape report JUUL as usual brand
- **72%** of high school students who only use e-cigarettes report using flavored e-cigarettes.
- Current use of menthol or mint flavored e-cigarettes increased **from 16% in 2016** to **57% in 2019** of high school students who only use e-cigarettes

Vaping-Associated 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

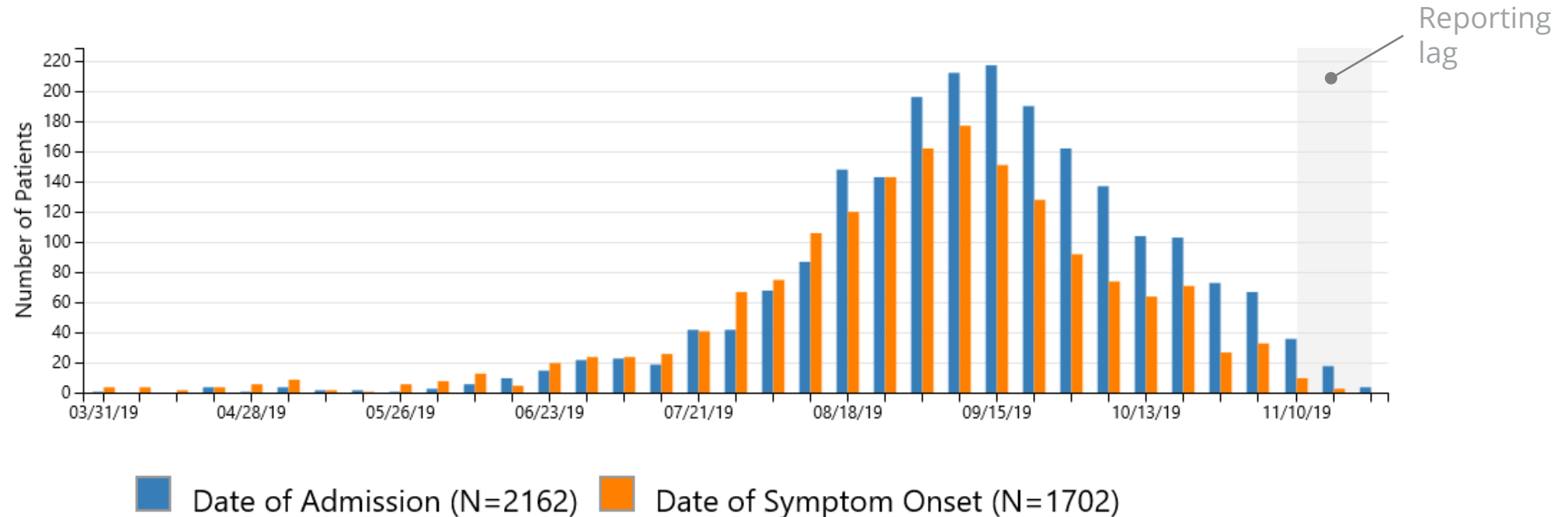
MMWR 2019;68:784–786

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.

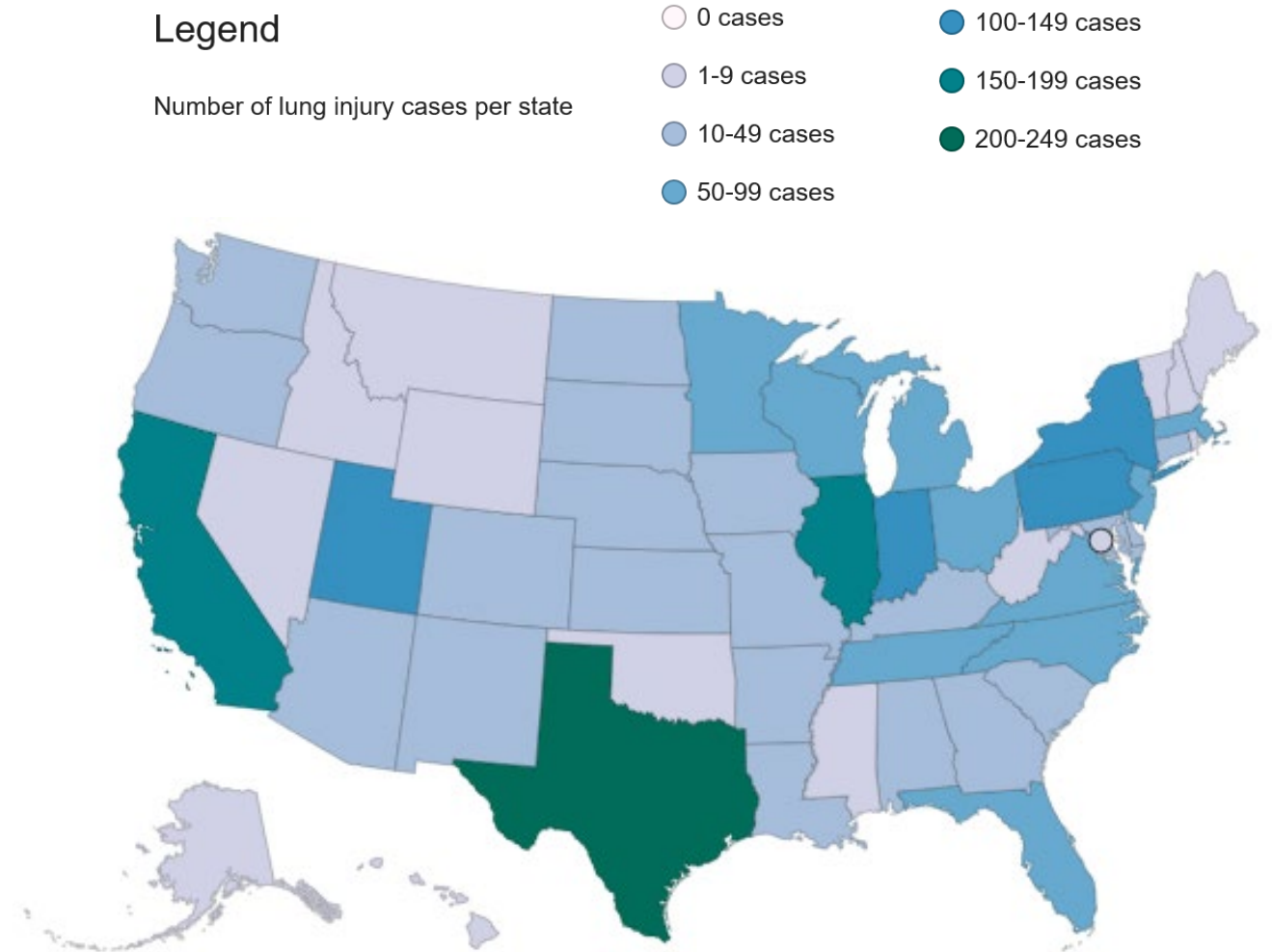
Vaping-Associated Lung Injury (VALI)

2,291 VALI cases reported nationally, including 48 deaths as of December 4, 2019:



Vaping-Associated Lung Injury Reported to CDC*

- 68% are male
- 77% of patients are under 35 years old
- ~83% reported using THC-containing products
- ~61% reported using nicotine-containing products
- THC-containing products playing a major role
- ~13% reported only using nicotine-containing products

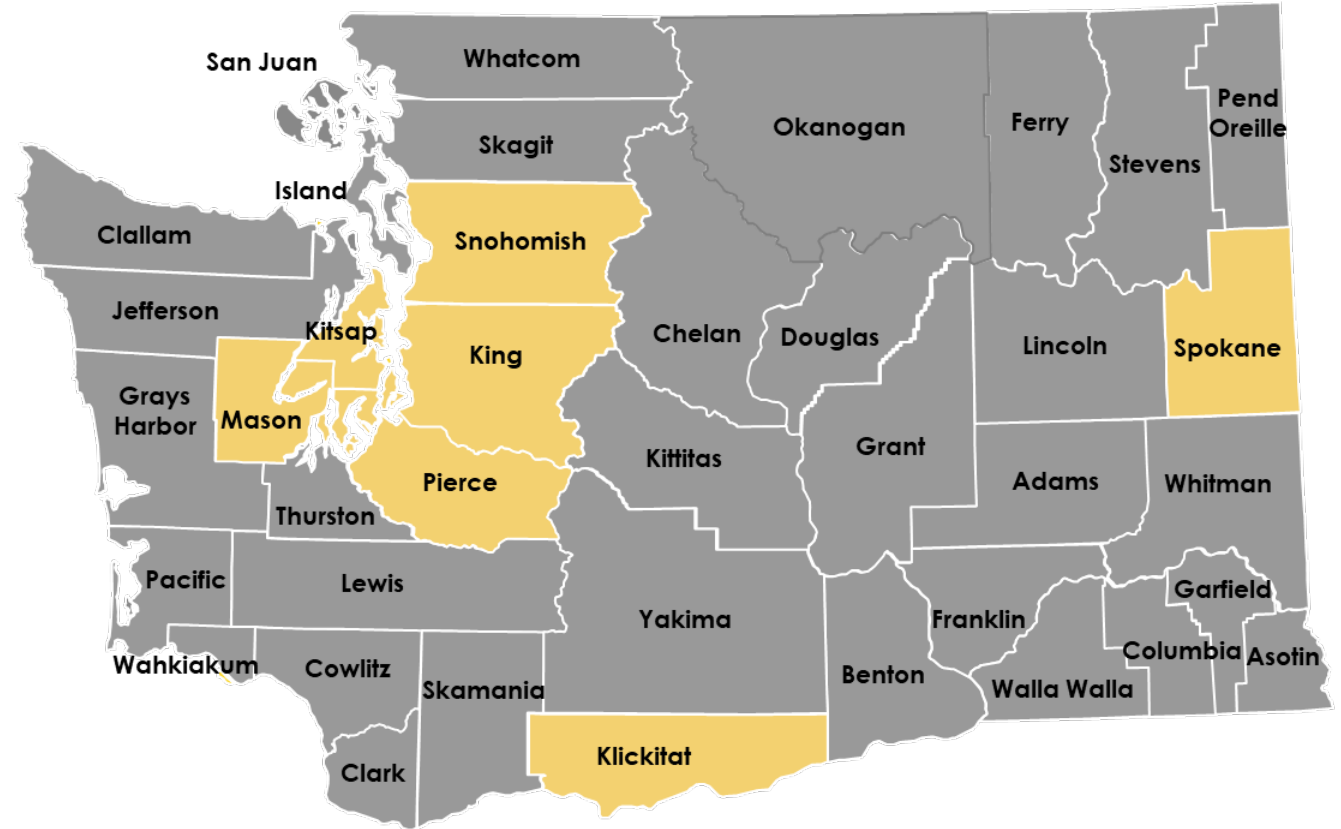


*Note: Case counts as of Dec 4, 2019;
characteristics as of Nov 5, 2019

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

Vaping-Associated Lung Injury Reported in Washington*

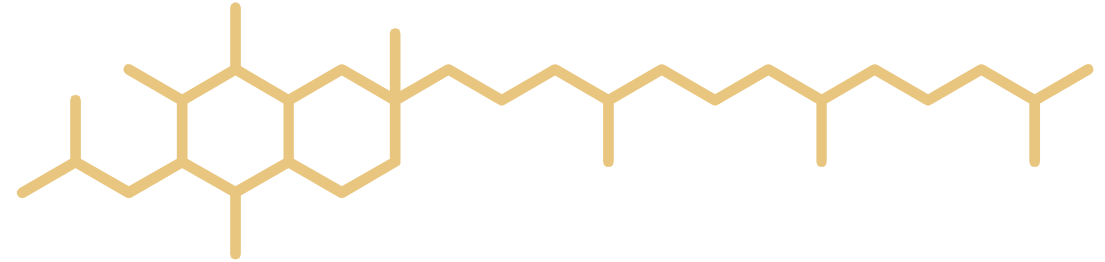
- 19 cases reported
 - 58% male
 - 47% < 30 years old
- Of 18 cases with data:
 - 44% reported using THC- containing products
 - 61% reported using nicotine-containing products
 - 33% reported *only* using nicotine-containing products
 - 6% used other product
 - 17% unknown



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

α -tocopheryl acetate ($C_{31}H_{52}O_3$)



Vitamin E Acetate Associated With Lung Injury

According to recent CDC and FDA evidence:

- 49% 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: 77%
- 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

What We Don't Know: Vitamin E Acetate and Lung Injury

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

Recent Policy Actions: Washington State



Question for the Viewers



How would you rate your state's response to the vaping epidemic?

- A. Exceptional
- B. Sufficient
- C. Insufficient
- D. I'm not sure

21 **IT'S THE LAW**



Effective January 1, 2020, it will be illegal to sell tobacco and vapor products to anyone under 21.

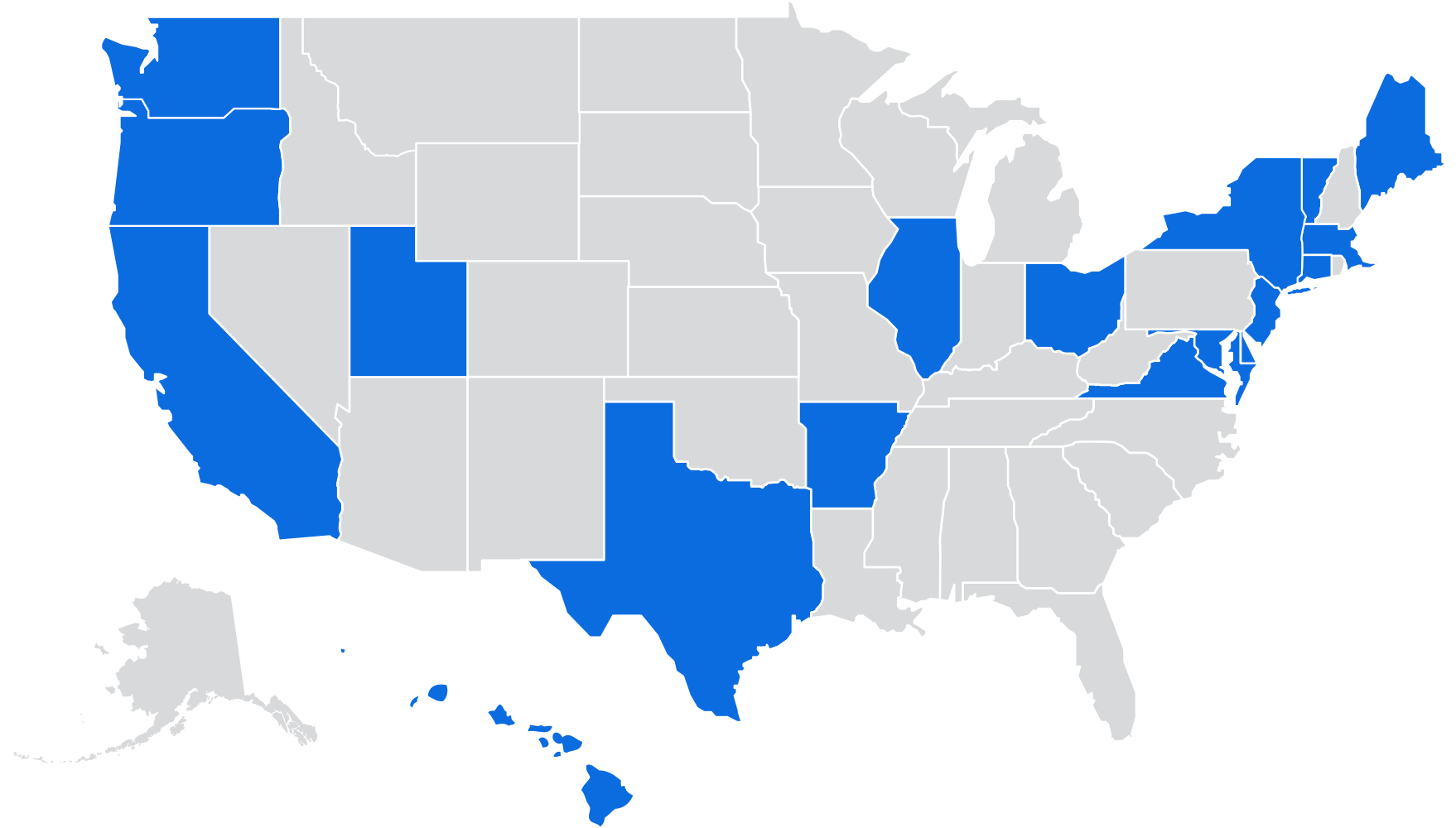


Washington State
Liquor and Cannabis Board



Tobacco/Vapor 21 Laws

■ States with
TV21 laws



Source: <https://www.tobaccofreekids.org/what-we-do/us/sale-age-21> and <https://www.publichealthlawcenter.org/sites/default/files/States-with-Laws-Restricting-Youth-Access-to-ECigarettes-September152019.pdf> as of September 15, 2019

Washington ESSHB 1873: Vapor Product Tax

Tax

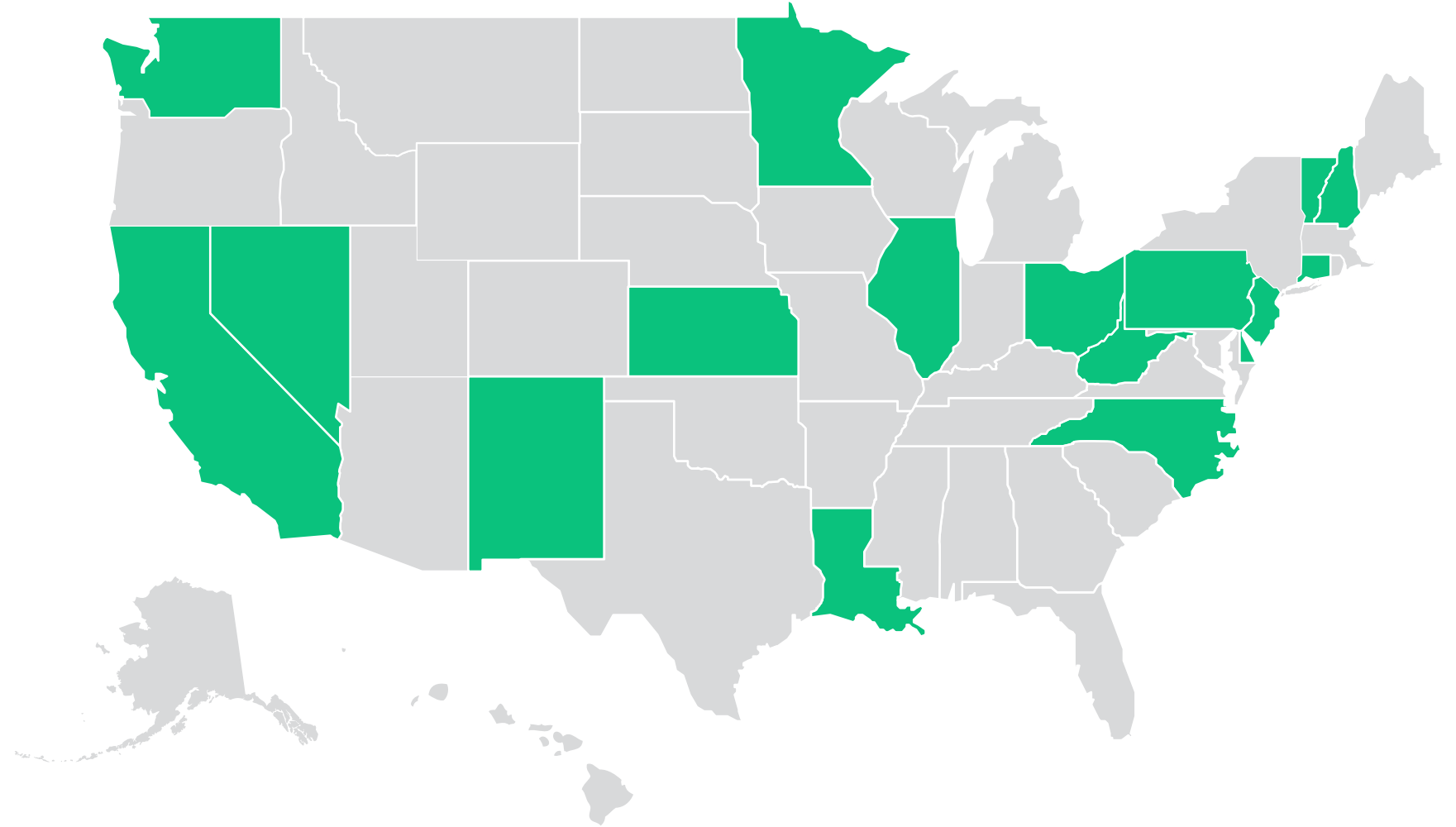
- Accessible containers >5mL = \$0.09/mL
- All other products = \$0.27/mL

Revenue

- Cancer research
- Public Health services

e-Cigarette Taxes

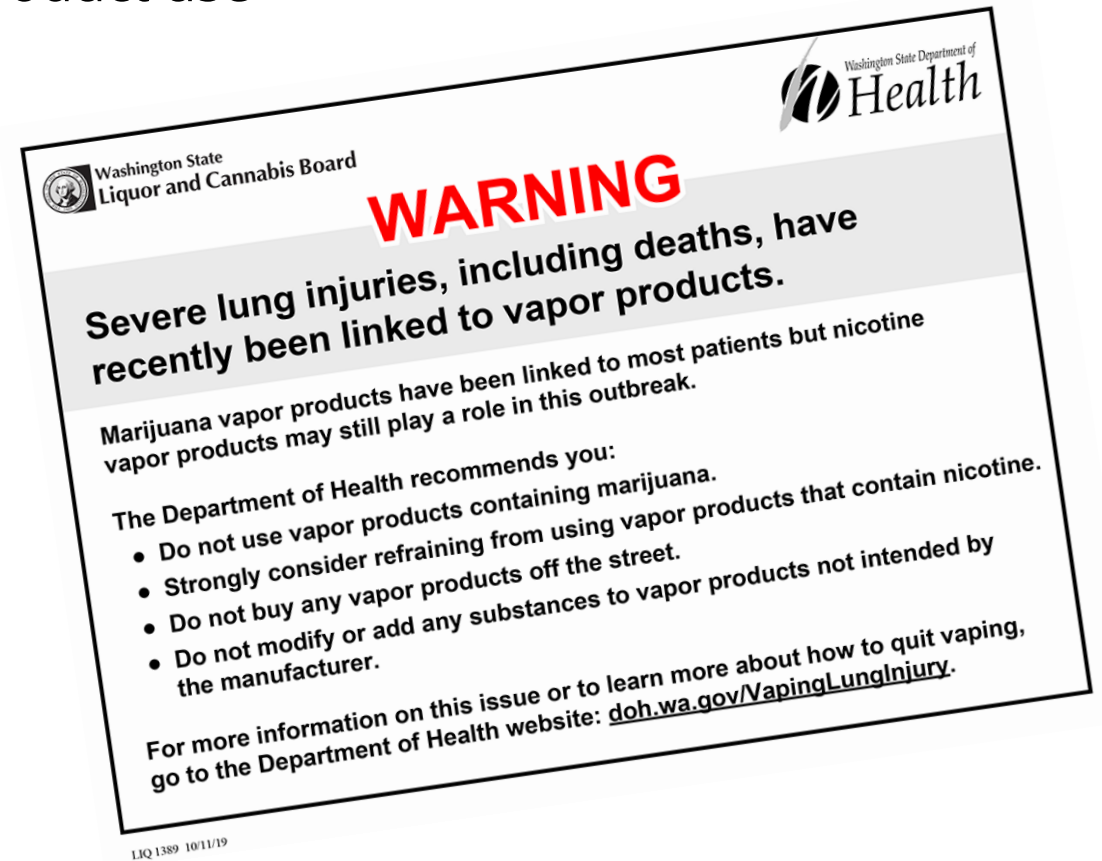
■ States that tax e-cigarettes



Source: <https://www.publichealthlawcenter.org/sites/default/files/States-with-Laws-Taxing-ECigarettes-September152019.pdf> as of September 15, 2019

Public Health Response: Washington State

- Investigating and reporting cases
 - Reviewing medical records & talking with providers
 - Interviewing patients about their vapor product use
- Partnering with FDA and CDC to test vapor products from cases
- Communicating risks to public
 - Sending alerts to healthcare providers asking them to report suspected cases and sharing clinical guidance with them
 - Collaborating with Liquor and Cannabis Board to distribute warning materials and keep cannabis licensees and vapor retailers informed of the outbreak findings



Governor's Executive Order 19-03




Photo: Office of the Governor

Governor's Executive Order 19-03

- State Board of Health
 - Emergency rule to ban flavored products
- Department of Health
 - Ban cause of outbreak (in collaboration with LCB)
 - Consumer warnings
 - Ingredient disclosure
 - Provider reporting
 - Education campaign
- Legislation
 - Two bills; one for nicotine and one for marijuana

Board of Health

 **RULE-MAKING ORDER**
EMERGENCY RULE ONLY

CR-103E (December 2017)
(Implements RCW 34.05.350
and 34.05.360)

CODE REVISER USE ONLY

OFFICE OF THE CODE REVISER
STATE OF WASHINGTON
FILED

DATE: November 20, 2019
TIME: 3:03 PM
WSR 19-24-001

Agency: State Board of Health

Effective date of rule:
Emergency Rules
 Immediately upon filing.
 Later (specify)

Any other findings required by other provisions of law as precondition to adoption or effectiveness of rule?
 Yes No If Yes, explain:

Purpose: Chapter 246-80 WAC - Vapor products and flavors. The Washington State Board of Health has adopted an emergency rule to create WAC 246-80-021 that bans the sale of vapor products containing vitamin E acetate. This applies to the sale, offer for sale, or possession with intent to sell or offer for sale vapor products containing vitamin E acetate at any location or by any means including by telephone or other method of voice transmission, the mail or any other delivery service, or the internet or other online service.

Citation of rules affected by this order:
New: WAC 246-80-021
Repealed: None
Amended: None
Suspended: None

Statutory authority for adoption: RCW 43.20.050(2)(f)

Other authority:

EMERGENCY RULE
Under RCW 34.05.350 the agency for good cause finds:
 That immediate adoption, amendment, or repeal of a rule is necessary for the preservation of the public health, safety, or general welfare, and that observing the time requirements of notice and opportunity to comment upon adoption of a permanent rule would be contrary to the public interest.
 That state or federal law or federal rule or a federal deadline for state receipt of federal funds requires immediate adoption of a rule.

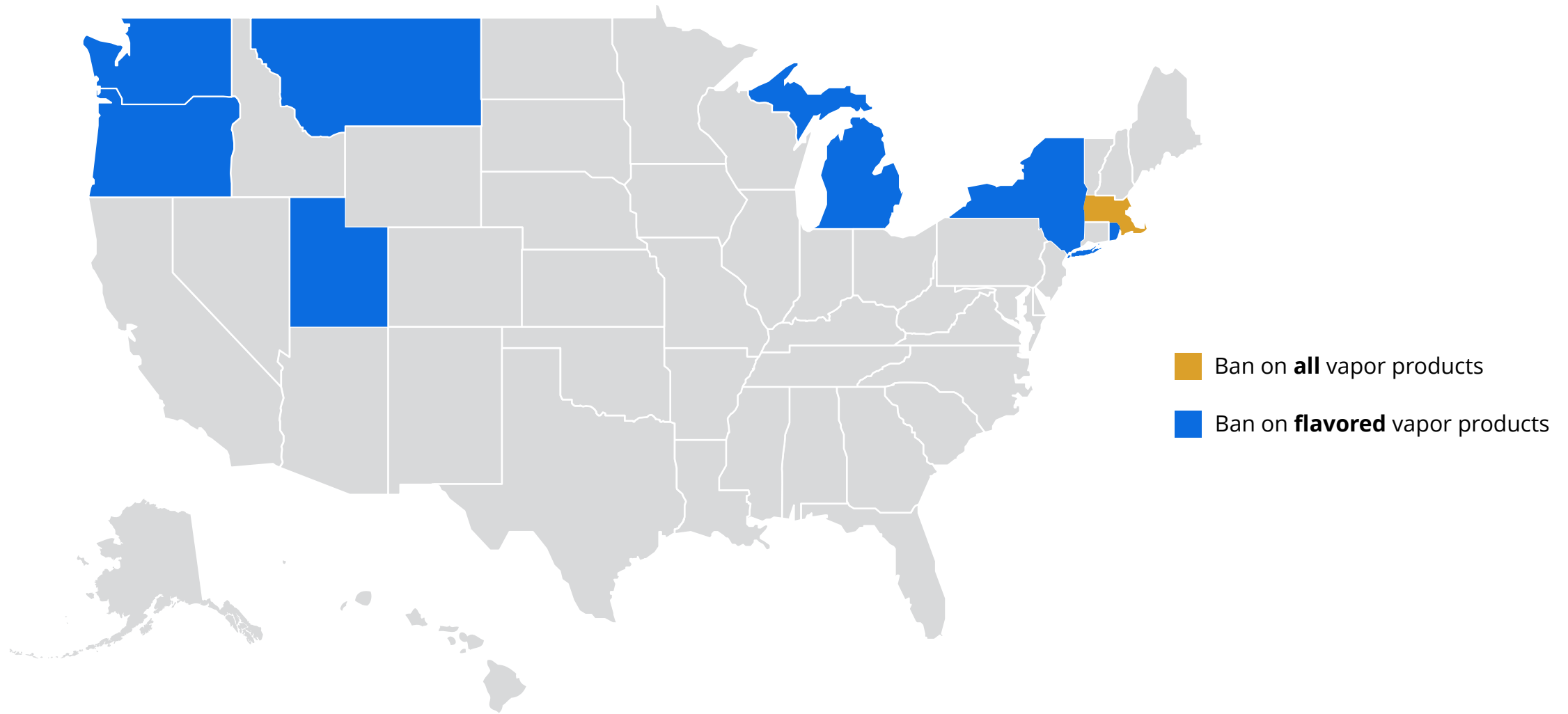
Reasons for this finding: The outbreak of lung disease continues to grow; therefore, the adoption of a rule prohibiting the sale of vapor products containing vitamin E acetate is necessary for the preservation of the public health, safety, and general welfare.

In July 2019, the U.S. Centers for Disease Control and Prevention (CDC), U.S. Food and Drug Administration (FDA), state and local health departments, and other clinical and public health partners began investigating outbreaks of lung injury associated with e-cigarette product use, or vaping. In September 2019, the CDC activated its Emergency Operations Center to aid in the investigation of the multi-state outbreak. As of November 13, 2019 there have been 2,172 confirmed cases reported across 49 states, the District of Columbia, Puerto Rico and the US Virgin Islands, including 42 deaths confirmed in 24 states. Fourteen cases of lung injury have been reported in Washington State.

As part of the investigation into the multistate outbreak of lung disease associated with the use of vapor products, the CDC conducted laboratory tests of 29 samples of fluid collected from the lungs of patients with vaping-associated lung disease from 10 states. An article released on November 8, 2019 showed that all of the samples contained vitamin E acetate, providing direct evidence of vitamin E acetate at the primary site of injury in the lungs. Vitamin E acetate is a chemical that is used as an additive or thickening ingredient in vapor products. The CDC has not determined that vitamin E acetate is present in only THC vapor products or only non-THC vapor products. THC was identified in 82 percent of the samples, and nicotine was identified in 62 percent of the samples. None of a range of other potential chemicals, substances, or product sources to the disease. The CDC has identified vitamin E acetate as a chemical of concern and stated that, until the relationship of vitamin E acetate and lung health is better characterized, it is important that vitamin E acetate not be added to vapor products.

- Ban on all flavored vapor products, including THC: **October 10, 2019**
- Ban on all products containing vitamin E acetate: **November 20, 2019**

Emergency Actions in Other States



Proposed Policy Actions: **State and Federal**



Non-Cannabis Vapor Products

Some items policy makers are considering:

- Flavored vapor product ban
- Nicotine limits for vapor products
- Vapor product container size restrictions
- Ingredient disclosure
- Authority to ban product/require warning
- New DOH authority on vapor product labels
- New limits on marketing vapor products to youth
- Cessation support

Cannabis Vapor Products

Some items policy makers are considering:

- Flavored vapor product ban
- Ingredient disclosure/lab testing of vapor products
- Authority to ban product/require warning

Federal Considerations



- Tobacco/Vape 21
- Flavor ban
- Preventing Online Sales of E-Cigarettes to Children

Taking Action

What **you** can do:

- Support those who are trying to quit tobacco or vapor products
- Learn what is happening locally to address youth vaping and VALI
- Engage with your local, tribal, state or federal policymakers

Quitting Resources

State Tobacco Quitline

WASHINGTON STATE TOBACCO QUITLINE

1-800-QUIT-NOW

1-800-784-8669 | quitline.com

2Morrow App

doh.wa.gov/quit



Resources

- Lewis N, McCaffrey K, Sage K, et al. E-cigarette Use, or Vaping, Practices and Characteristics Among Persons with Associated Lung Injury — Utah, April–October 2019. MMWR Morb Mortal Wkly Rep 2019; 68:953–956. DOI: <http://dx.doi.org/10.15585/mmwr.mm6842e1>
- CDC Website https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html
- Public Health Law Center <https://www.publichealthlawcenter.org/topics/commercial-tobacco-control>
- National Campaign for Tobacco Free Kids <https://www.tobaccofreekids.org/us-resources>
- Truth Initiative <https://truthinitiative.org/>
- YouthNow <https://www.youthnow.me/>

QUESTIONS?

To ask a question, please click the  icon in the Zoom toolbar to open your Q&A Pod.