



VAPOR PRODUCTS AND LUNG INJURY

House Commerce & Gaming Committee
November 21, 2019

Presenter

Dr. Kathy Lofy

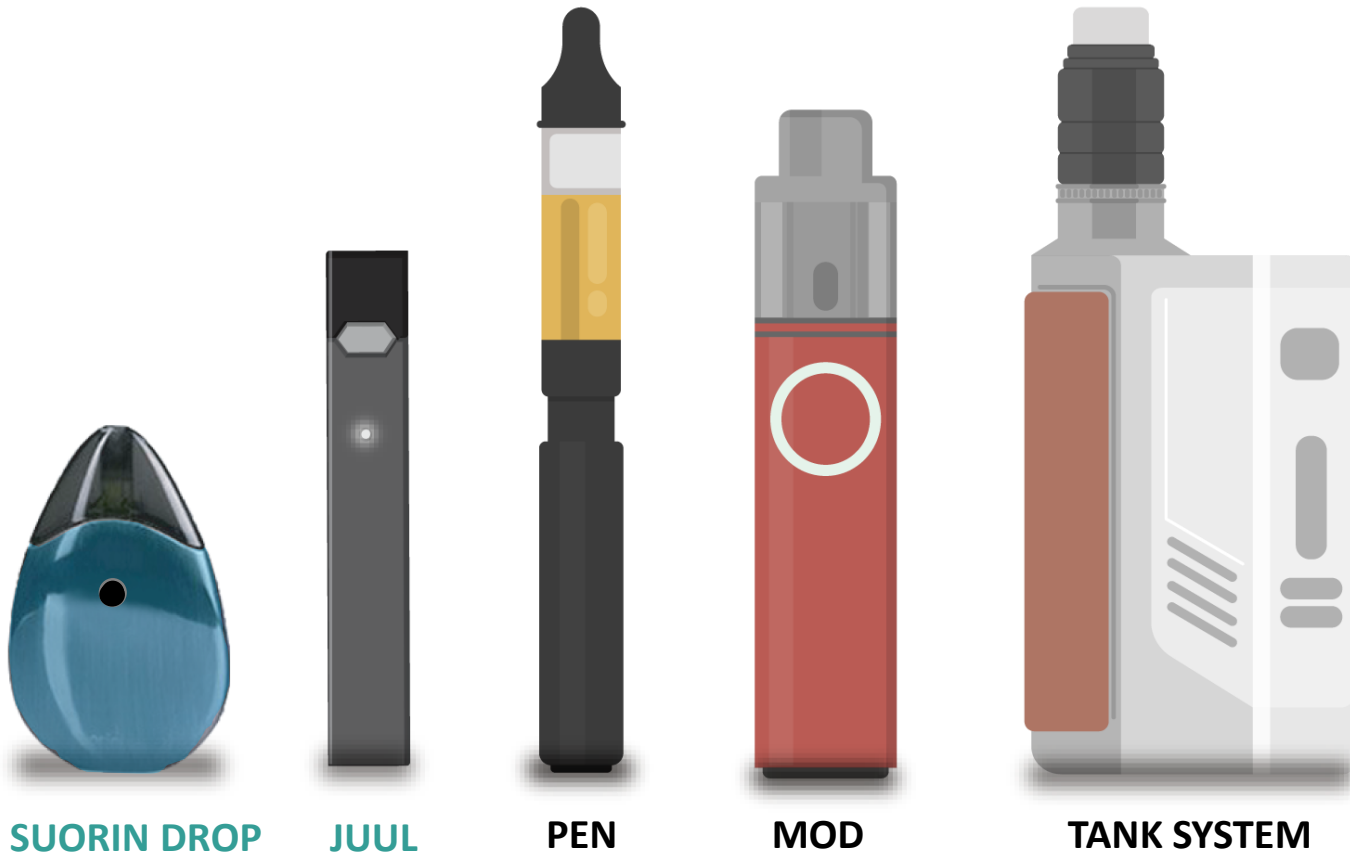
State Health Officer and Chief Science Officer

Washington State Department of Health

Overview

- Vaping-associated lung injury investigation
- Current youth vaping epidemic
- Executive Order
- Proposed legislation

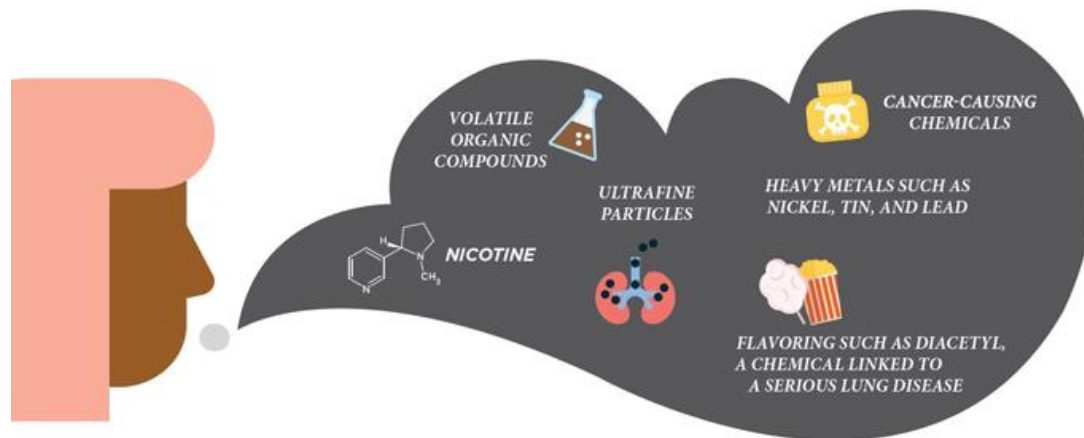
E-Cigarettes and Vapor Products



(Currently two of the most popular products among youth)

Components of Vaping Products

- Nicotine, marijuana, other drugs
- Propylene glycol, glycerol, other agents
- Flavoring chemicals
- Volatile organic compounds, heavy metals (nickel, tin, and lead), formaldehyde, ???



Sources:

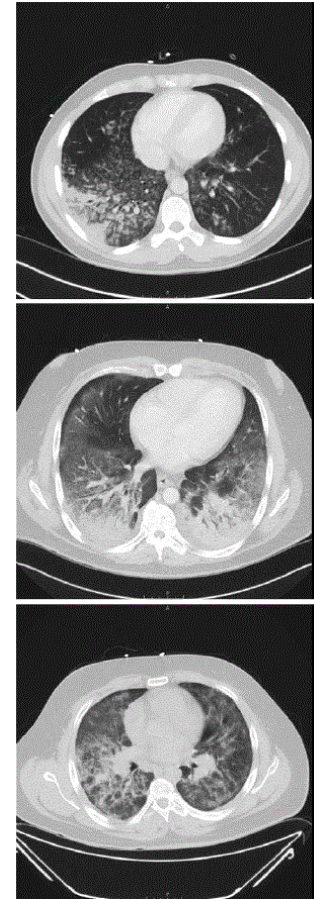
National Academies of Sciences, Engineering and Medicine, *Public Health Consequences of E-Cigarettes*, 2018.

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

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



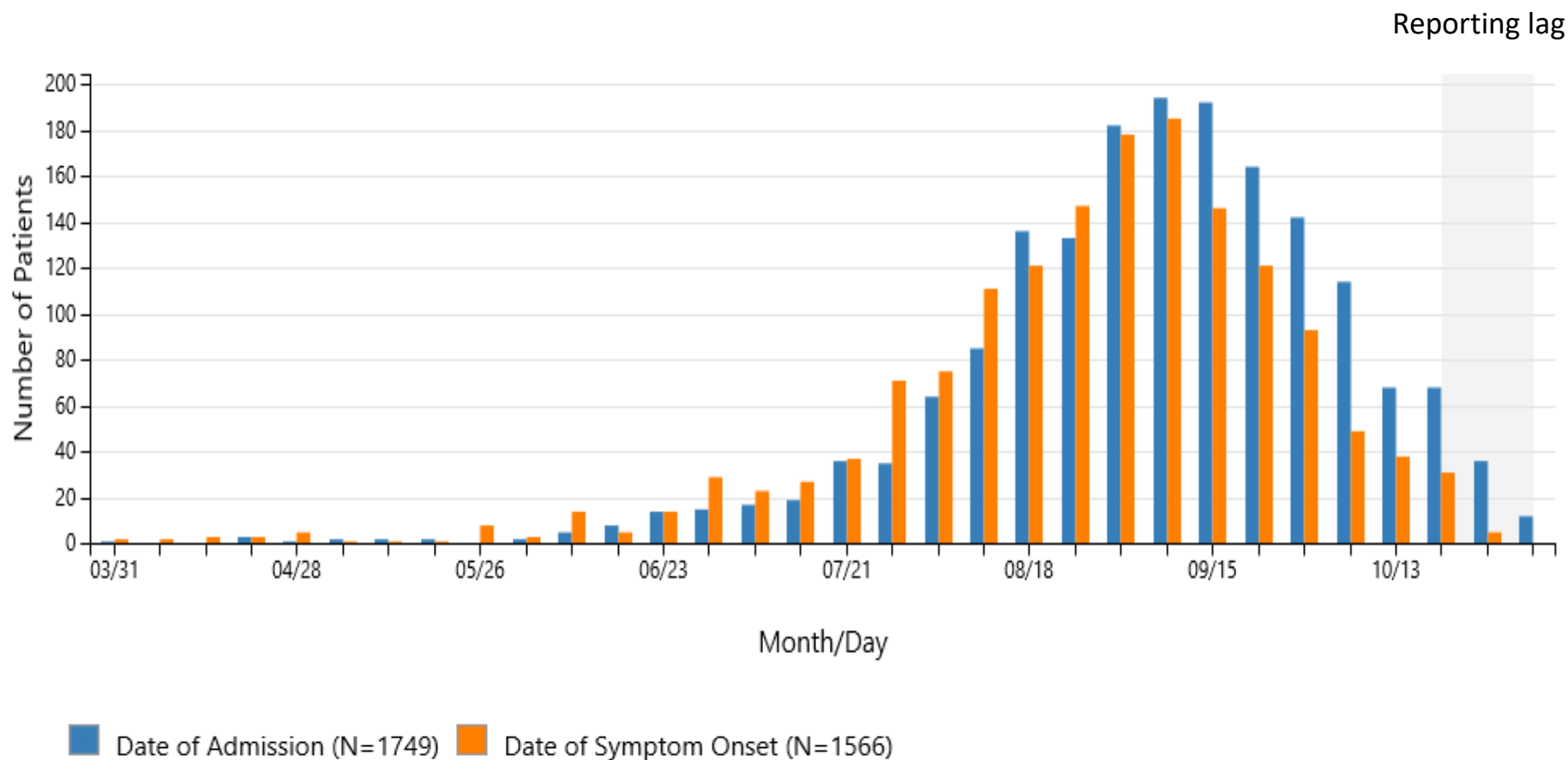
MMWR 2019;68:784–786

Source:

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

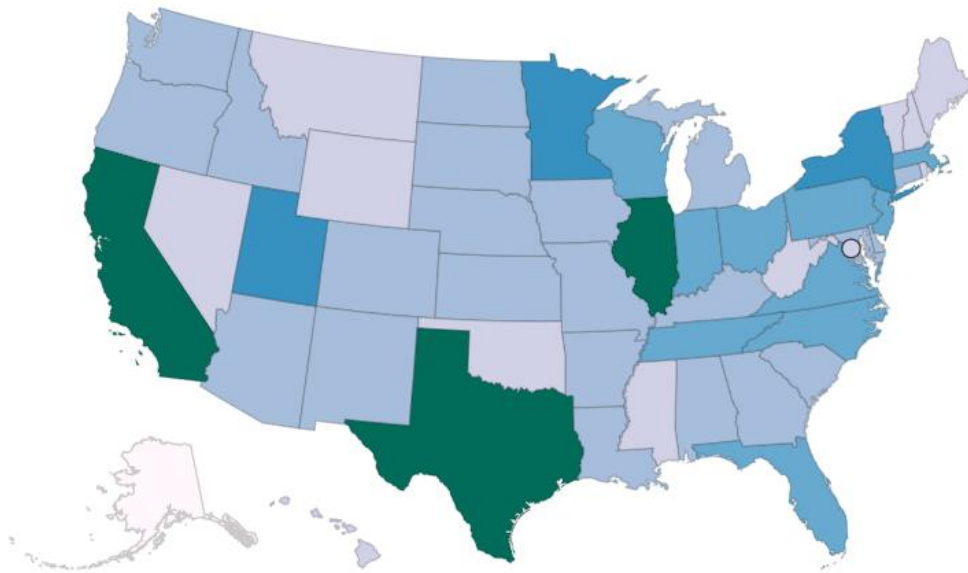
Correspondence: Pathology of Vaping-Associated Lung Injury. *N Engl J Med* October 2, 2019.

2,172 VAlI 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
- THC-containing products playing a major role
- ~11% reported only using nicotine-containing products

Vaping-associated Lung Injury Reported in Washington*



- 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

*Note: Data as of November 15, 2019

Source: Department of Health

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



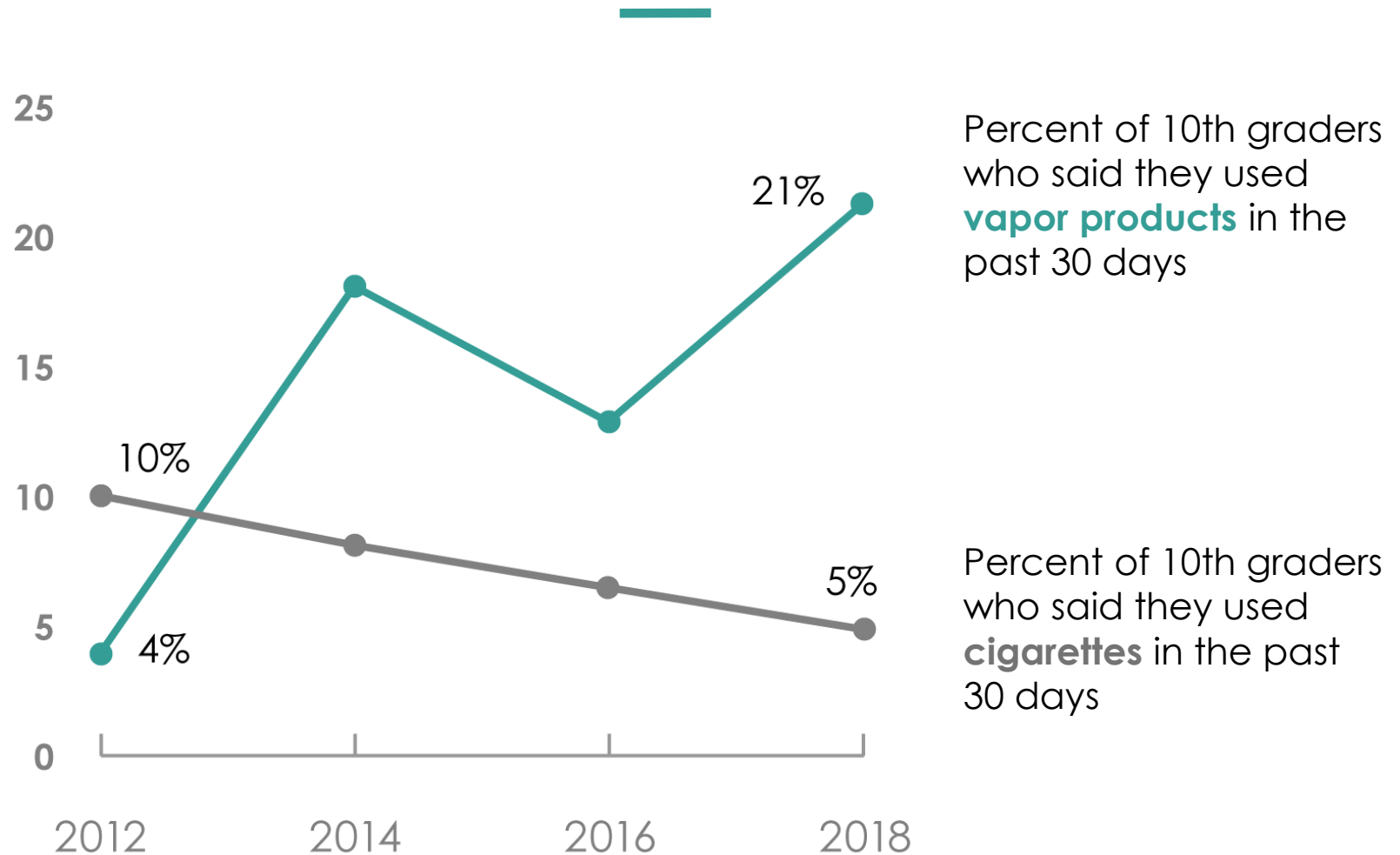
Vitamin E Acetate Associated with Lung Injury

- 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

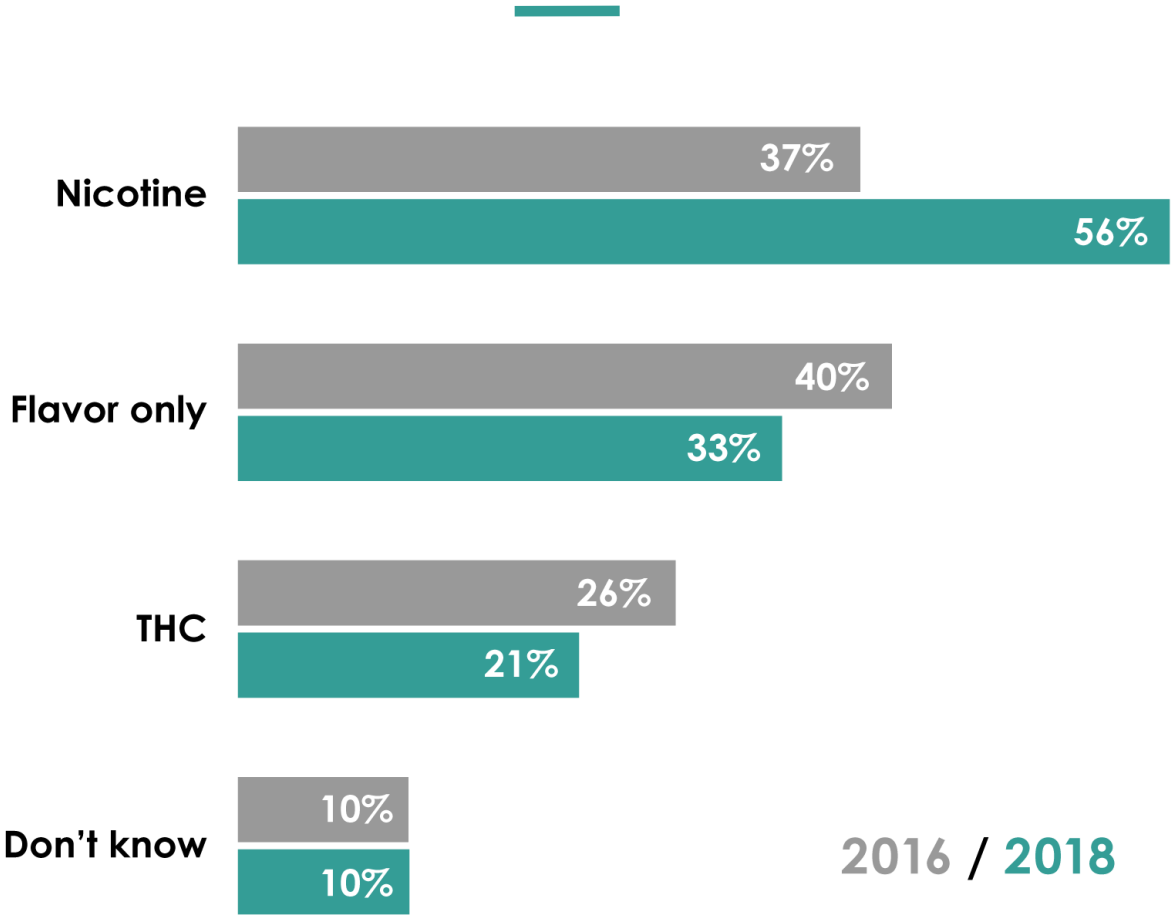
- Cause of lung injury not yet proven
 - No confirmed biological mechanism(s) of action of Vitamin E acetate
 - Comparing Vitamin E acetate results from VALI patient samples to controls is underway
 - Animal studies could provide further evidence
- Vitamin E acetate findings do not rule out that other substances may be contributing to these injuries

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



Source: Washington State Healthy Youth Survey

Substances Reported Used in E-cigarettes by 10th graders, Healthy Youth Survey



Source: Washington State Health Youth Survey
Tobacco Control 2019;28:115-116.

2019 National Youth E-cigarette Use Troubling

- 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

Source: <https://jamanetwork.com/journals/jama/fullarticle/2755265?resultClick=1>

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

Source: https://www.governor.wa.gov/sites/default/files/exe_order/19-03%20-%20Addressing%20the%20Vaping%20Public%20Health%20Crisis%20%28tmp%29.pdf

Proposed Legislation — Non-Cannabis Vapor Products

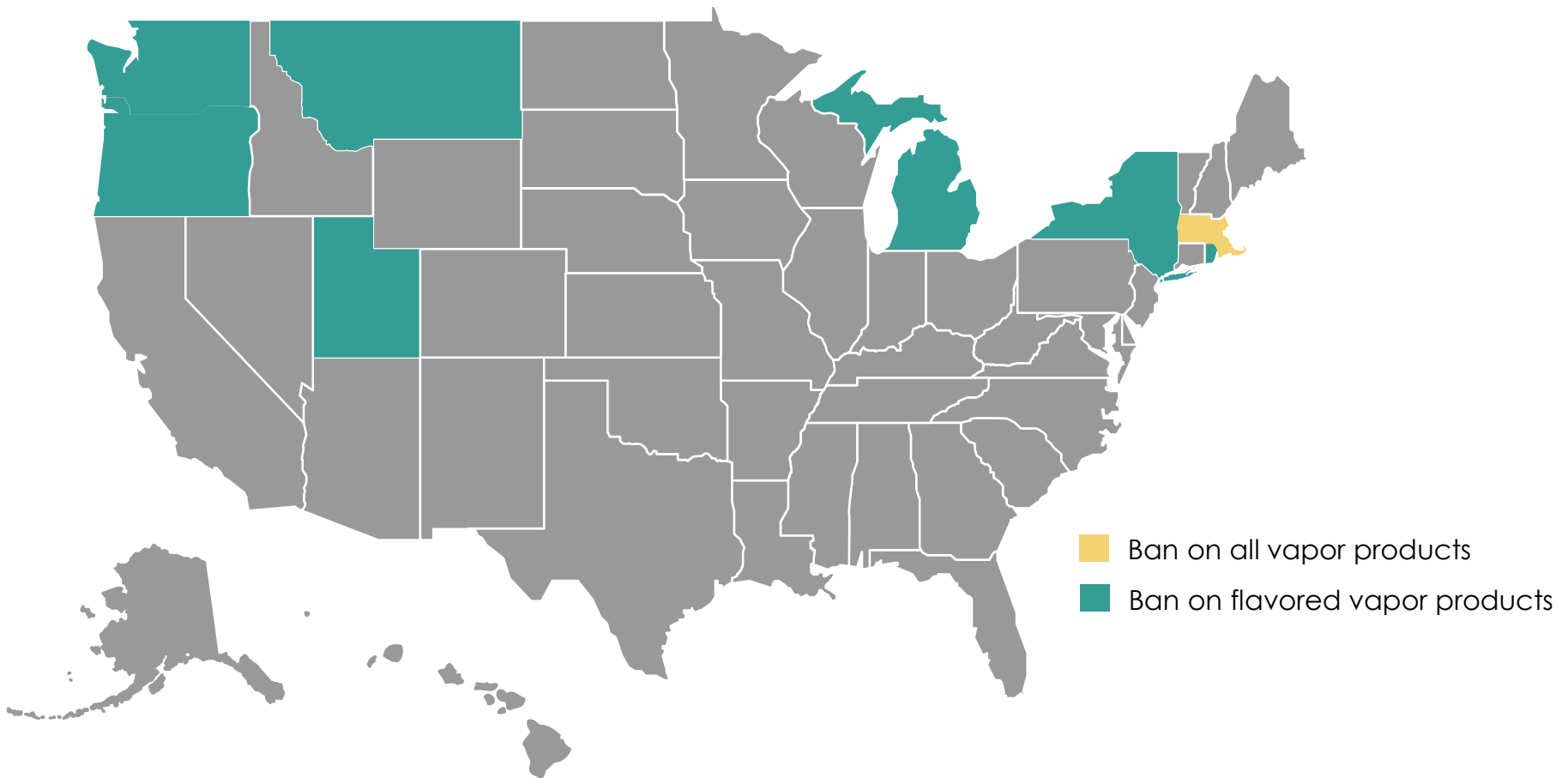
Some items the Governor is considering:

- Flavored vapor product ban
- Nicotine limits for vapor products
- Vapor product container size restrictions
- Ingredient disclosure / lab testing for vapor products
- Removal of preemption of vapor product retail licensing
- Authority to ban product / require warning
- New DOH authority on vapor product labels
- New limits on marketing vapor products to youth



Washington State Department of Health is committed to providing customers with forms and publications in appropriate alternate formats. Requests can be made by calling 800-525-0127 or by email at civil.rights@doh.wa.gov. TTY users dial 711.

Actions taken by other States



Source: <https://www.astho.org/Prevention/Tobacco/Vaping/#lit> and <https://www.publichealthlawcenter.org/resources/states-and-tribes-stepping-protect-communities-dangers-e-cigarettes-actions-and-options> as of November 14, 2019