Clearing the Air: An Update on Youth Vaping

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About This Presentation

I. Health Effects of Vaping

II. Youth Vaping Epidemic

III. Vaping-Associated Lung Injury

IV. Recent Policy Actions: Washington State

V. Proposed Policy Actions: State and Federal

Dr. Kathy Lofy

Lacy Fehrenbach
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

Image courtesy CDC
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, ???

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

Source: Jeffrey E Gotts et al. BMJ 2019;366:bmj.l5275
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.
Tobacco Control 2005;14(S):315–20
Youth Vaping Epidemic
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

Source: Washington State Healthy Youth Survey
### Substances Reported Used in E-cigarettes by 10th Graders:

*Healthy Youth Survey*

<table>
<thead>
<tr>
<th>Substance</th>
<th>2016</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine</td>
<td>37%</td>
<td>56%</td>
</tr>
<tr>
<td>Flavor only</td>
<td>40%</td>
<td>33%</td>
</tr>
<tr>
<td>THC</td>
<td>26%</td>
<td>21%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Source: Washington State Health Youth Survey*

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.

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

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

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

- 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

*Note: Data as of December 5, 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

α-tocopheryl acetate ($\text{C}_{31}\text{H}_{52}\text{O}_3$)
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
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.
Tobacco/Vapor 21 Laws

States with TV21 laws

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.publiehealthlawcenter.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

- 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%20Addressing%20the%20Vaping%20Public%20Health%20Crisis%20%28tmp%29.pdf
- Ban on all flavored vapor products, including THC: **October 10, 2019**
- Ban on all products containing vitamin E acetate: **November 20, 2019**
Ban on all vapor products

Ban on flavored vapor products

Source: https://www.astho.org/Prevention/Tobacco/Vaping/#lit and
as of November 14, 2019
Proposed Policy Actions: State and Federal
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
Proposed Washington State Legislation

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
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

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.