Vaping and Vaping-Related Lung Injuries

Manda Hall, M.D.
Associate Commissioner
Community Health Improvement

Senate Health and Human Services
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Outline

• Vaping Overview
• Known Health Effects & Data: Tobacco and E-cigarettes/Vaping
• E-cigarette, or Vaping, Product Use Associated Lung Injury (EVALI) Cases: National & Texas Data
• DSHS Efforts
• Cannabis and EVALI Cases
Overview: Vaping

• Vaping is the use of an electronic device to inhale substances
• Most vaping devices have a battery, heating element, liquid chemical, and a place to hold liquid
  • Examples: electronic-cigarette, e-cigarette, vaporizer, vape[s], vape pen, dab pen, or other device
• Substances inhaled include nicotine, cannabinoids (e.g., marijuana, THC, THC concentrates, CBD, CBD oil), flavors, or other substances
  • Other substances: solvents, ultra-fine particles, volatile organic compounds, cancer causing compounds, and heavy metals
Overview: Vaping

Examples of E-Cigarette/Vaping Products

https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html
Known Health Effects

Tobacco Use Generally

Nicotine Exposure:
• Exposure is addictive and toxic to developing fetuses
• Can harm adolescent brain development through mid-20s

Effects of Tobacco Smoke:
• Adults: cancers, cardiovascular disease, chronic obstructive pulmonary disease (COPD)
• During pregnancy: preterm birth, birth defects, low birth weight
• Children: ear infections, asthma, respiratory symptoms/infections, greater risk for sudden infant death syndrome

Tobacco use is the leading cause of preventable disease and death in the US (1 in 5 deaths)
Known Health Effects

E-Cigarettes/Vaping

- generally regarded as less harmful than combustible cigarettes, but that does not make their use safe.
  - Per Center of Disease Control and Prevention (CDC), youth, young adults, and pregnant women should not use e-cigarettes.
- Nicotine in e-cigarettes has the same addictive properties
  - the amount of nicotine can vary between e-cigarette brands.
- EVALI
- Other: Related to e-cigarette aerosols, unintended injuries from battery explosions, and accidental acute nicotine exposure from e-cigarette liquid.
  - Secondhand exposure to aerosols also possible
  - Scientist are still learning about the long-term health effects of e-cigarettes.
Data on Cigarette Use

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults (2017)</td>
<td>14.0%</td>
<td>15.7%</td>
</tr>
<tr>
<td>Youth (2018-2019)</td>
<td></td>
<td>7.8%</td>
</tr>
<tr>
<td>High School</td>
<td>5.8%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Middle School</td>
<td>2.3%</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

- **Adults**: Cigarette smoking has declined among Texas adults (21.5% in 2011 to 15.7% in 2017)

- **Youth**: Cigarette smoking has declined among Texas youth (13.0% in 2012 to 7.8% in 2018)

Texas Adult Cigarette Smoking: Texas Behavioral Risk Factor Surveillance System (BRFSS), 2017
Youth US Cigarette Smoking: National Youth Tobacco Survey, 2019
Youth Texas Cigarette Smoking: Texas Youth Tobacco Survey (2012-2018)
Data on E-Cigarette / Vaping Use

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults (2017)</td>
<td>4.6%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Youth (2018-2019)</td>
<td></td>
<td>13%</td>
</tr>
<tr>
<td>High School</td>
<td>27.5%</td>
<td>18.9%</td>
</tr>
<tr>
<td>Middle School</td>
<td>10.5%</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

- **Adults**: E-cigarette use among Texas adults has been stable since 2015.
  - Some adults may be using e-cigarettes to attempt to quit smoking;
  - Over half (56.5%) of current e-cigarette users also reported currently smoking cigarettes
- **Youth**: E-cigarette use among youth in Texas has risen dramatically from 3.0% in 2012 to 13.0% in 2018

US Adult E-Cigarette Use: CDC National Behavioral Risk Factor Surveillance System (BRFSS) 2017
Texas Adult Cigarette Smoking: Texas Behavioral Risk Factor Surveillance System (BRFSS), 2017
Youth US Cigarette Smoking: National Youth Tobacco Survey, 2019
EVALI Overview

EVALI = E-Cigarette, or Vaping, Product Use-Associated Lung Injury

• Lung disease associated with the use of vaping products that can be severe and life-threatening
• Most patients have been young and otherwise healthy.
• Common symptoms:
  • Cough, chest pain, cough, shortness of breath
  • Abdominal pain, nausea, vomiting, diarrhea
  • Fatigue, fever, weight loss
• According to the CDC, 95% of patients with EVALI have been hospitalized.
• Illness severity has varied, and in some cases, severe lung disease has been reported
EVALI Totals: National Data

EVALI Data
• 2,290 EVALI Cases in 49 states, DC, and 2 territories
• 47 EVALI Deaths in 25 States and DC
• 1 Double Lung Transplant for an EVALI Case

Case Breakdown
• 68% male
• Age range: 13-78, 77% of cases under 35
• Median age: 24
  • EVALI deaths, median age: 53

Case Interviews (subset of 1,184 cases)
• 83% reported some THC-product use
• 35% reported exclusive THC-product use

*as of November 20, 2019
Number of Lung Injury Cases Reported to CDC as of November 19, 2019

Legend

- 0 cases
- 1-9 cases
- 10-49 cases
- 50-99 cases
- 100-149 cases
- 150-199 cases
EVALI totals: Texas Data

EVALI Data
- 273 possible EVALI cases
  - 108 confirmed | 102 probable
  - 62 ruled out or under investigation
- 1 EVALI Death

Case Breakdown
- 73% male
- Age range: 13-75, 22% cases under 18
- Median age: 22

Case Interviews (subset of 273 cases)
- 90% reported some THC product use
- 20% reported exclusive THC product use

*as of December 3, 2019*
EVALI totals: Texas Data

<table>
<thead>
<tr>
<th>Public Health Region</th>
<th>Number of Confirmed/Probable Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Panhandle)</td>
<td>3</td>
</tr>
<tr>
<td>2/3 (North Texas)</td>
<td>109</td>
</tr>
<tr>
<td>4/5N (East Texas)</td>
<td>5</td>
</tr>
<tr>
<td>6/5S (Southeast Texas)</td>
<td>40</td>
</tr>
<tr>
<td>7 (Central Texas)</td>
<td>25</td>
</tr>
<tr>
<td>8 (South Texas)</td>
<td>12</td>
</tr>
<tr>
<td>9/10 (West Texas)</td>
<td>3</td>
</tr>
<tr>
<td>11 (Rio Grande Valley)</td>
<td>13</td>
</tr>
<tr>
<td>Not yet determined</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>210</strong></td>
</tr>
</tbody>
</table>

Severe Pulmonary Illness among People who Report Vaping by Geographic Location in Texas, 17APR2019 through 14NOV2019
DSHS Efforts: Case Investigation

• **Identification of Potential New Cases:** From Clinicians, Texas Poison Center Network (TPCN) and Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE) data

• **Case Interviews/Reviews:** Working with Region/Local Health Departments and patient care teams to better understand cases

• **Conversations with CDC & Other States:** Identifying potential commonalities and/or areas for additional research

• **Discussions with Region/Local LHDs:** For providing cohesive messaging on case classification, patient and product samples, etc.

• **CDC Sample Facilitation:** Providing a single contact for CDC to receive Texas patient-related samples/provide results
DSHS Efforts: Tobacco Prevention & Control Program

Implementation of Senate Bill 21
• Through providing awareness via Prevention and Control Efforts

Overview of Tobacco Prevention and Control Efforts
• Say What! Youth Movement
• Peers Against Tobacco College Movement
• Tobacco Prevention and Control Coalitions (TPCCs)
• Enforcement Programs
• Youth Tobacco Survey
• Texas Tobacco Quitline
DSHS Efforts: Surveillance

Youth-Specific Surveillance

Youth Tobacco Survey

• Biennial administration - measures prevalence of youth tobacco use in Texas.
• Source of some Texas statistics provided today
DSHS Efforts: Prevention

Say What! Youth Movement

• Students, Adults, and Youth - Working Hard Against Tobacco (Say What!)

• Connects youth and adults to reduce tobacco use in Texas through Regional Action Summits, Annual Youth Tobacco Prevention Conferences, and toolkits to be used in schools.

• Teen Ambassadors on the Statewide Youth Advisory Board provide guidance for implementing program

• Reached 1 million youth during 2011-2018

• TxSayWhat.com

• New Prevention Activities:
  • Contract amendment in process to allow more kits to be utilized in additional schools; future conferences to focus on vaping
DSHS Efforts: Prevention

Peers Against Tobacco

- Peer-based prevention program for colleges and universities focused on use reduction of tobacco and alternative tobacco products
- Provides college-specific resources and print media for participating universities
- Established in 2014
- PeersAgainstTobacco.org
- New Prevention Activities:
  - Contract amendment in process to allow more interactive outreach events to focus on vaping

Example poster from current 'Better Bad Habits' media campaign
DSHS Efforts: Enforcement

FDA Tobacco Retail Compliance Check Inspection Program
• FDA enforces federal tobacco regulations by conducting random, unannounced controlled buys using minor decoys.
• 11,357 undercover buy inspections statewide conducted between September 1, 2016 and August 31, 2018.

Texas Enforcement Program
• Local law enforcement conduct unannounced buys to enforce state tobacco laws by contracting with.
• 47,496 controlled buys conducted across the state between September 1, 2011 and August 31, 2016.

Texas Youth Tobacco Awareness Program (TYTAP)
• Education courses for youth found in possession of tobacco.
• 23 certified TYTAP Instructors in the state, course updated for FY20 to include vaping/e-cigarettes and Tobacco 21
Cannabis and EVALI Cases

Potential Role in EVALI Cases:

• THC is present in most of the vaping products/liquids tested by FDA to date
• Most EVALI patients report a history of using THC-containing e-cigarette, or vaping, products
• Vitamin E acetate identified as a chemical of concern with EVALI
  • Vitamin E acetate identified in all fluid samples collected from the lungs of EVALI patients; THC identified in 82% of the samples
  • Vitamin E acetate used as an additive, mostly as a thickening agent with THC-containing vaping products
Cannabis and EVALI Cases

Current CDC Recommendations

• E-cigarette, or vaping, products should never be used by youths, young adults, or women who are pregnant.

• Adults who do not currently use tobacco products should not start using e-cigarette, or vaping, products.

• THC use has been associated with a wide range of health effects, particularly with prolonged frequent use.

• The best way to avoid potentially harmful effects is to not use THC-containing e-cigarette, or vaping, products.
Thank you
dshs.texas.gov/vaping