Vaping: The Knowns Knowns, the Known Unknowns, and the Unknown Unknowns

Robert McMillen
18 October 2019
A First Generation E-Cigarette

Electronic Cigarette

- LED indicates when vaporizer is in use
- Microprocessor controls atomizer and LED
- Sensor detects use and activates microprocessor
- Atomizer heats liquid
- Cartridge holds liquid
- Battery
- Mouthpiece collects and delivers vapor
The Knowns

- Not a harmless water vapor
- No meaningful federal or Mississippi regulation
- All e-cigarettes are technically illicit
- These are evolving products
- A risk factor for cigarette smoking
- Use is increasing in teens and college students
- Can cause very different health effects than cigarettes
- Counterfeit e-cigarettes confuse the market
Not a Harmless Water Vapor - It’s an aerosol
No meaningful federal or Mississippi regulation
Getting Cigg-E With It

December 21, 2018 · 1 min read

Image source: Steve Heap, Oleg Golovnev · Shutterstock
A risk factor for cigarette smoking

- There is **substantial evidence** that e-cigarette use increases risk of ever using combustible tobacco cigarettes among youth and young adults.
  - Soneji et al, 2017
  - National Academies of Science, 2018
    - Barrington-Trimis, 2016
    - Best, 2017
    - Conner, 2017
    - Doran, 2017
    - Hornick, 2016
    - Leventhal, 2015
E-Cigarette Use and Future Cigarette Initiation Among Never Smokers and Relapse Among Former Smokers in the PATH Study

Robert McMillen, PhD\textsuperscript{1,2}; Jonathan D. Klein, MD, MPH\textsuperscript{1,3}; Karen Wilson, MD, MP\textsuperscript{1,4}; Jonathan P. Winickoff, MD, MP\textsuperscript{1,5}; and Susanne Tanski, MD, MP\textsuperscript{1,6}
Use among Teens and College Students is increasing
Past 30-Day E-Cigarette Use, U.S. High School Students, NYTS

- 2011: 1.4%
- 2012: 2.7%
- 2013: 4.5%
- 2014: 13.4%
- 2015: 16.0%
- 2016: 11.3%
- 2017: 11.7%
- 2018: 20.8%
- 2019: 27.5%
Past 30-Day E-Cigarette Use, MS High School Students, 2018 YTS

- 2010: 1.2%
- 2011: 2.3%
- 2012: 2.7%
- 2013: 2.9%
- 2014: 10.1%
- 2015: 12.0%
- 2016: 10.3%
- 2017: 11.5%
- 2018: 21.6%
UM Students Who Report Past 30-Day Use of an E-Cigarette

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<th>Year</th>
<th>Percentage</th>
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<tr>
<td>2014</td>
<td>12.3%</td>
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<tr>
<td>2015</td>
<td>12.3%</td>
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<td>2016</td>
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<td>2017</td>
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<td>2018</td>
<td>37.3%</td>
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<td>2019</td>
<td>41.8%</td>
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MSU Students Who Report Past 30-Day Use of an E-Cigarette

- 2014: 9.6%
- 2015: 11.1%
- 2016: 9.1%
- 2017: 8.7%
- 2018: 29.8%
- 2019: 33.0%
USM Students Who Report Past 30-Day Use of an E-Cigarette

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Mysterious vaping illness outbreak grows to nearly 1,300 cases and 26 deaths

Health officials in US are urging people not to vape as exact cause of illness remains a mystery.
As of October 15, 2019, 1,479* lung injury cases associated with the use of e-cigarette, or vaping, products have been reported to CDC from 49 states (all except Alaska), the District of Columbia, and 1 U.S. territory.

Thirty-three deaths have been confirmed in 24 states.
Counterfeit Weed Vape Cartridges Are Everywhere — and They’re Making People Sick

“E-cigarettes cause their own problems. But this is a totally new issue”

Fake Juul pods line store shelves, worrying users and posing another threat to the embattled company
The Known Unknowns

- Cessation research is inconclusive
- Addiction trajectories
- How to treat e-cigarette addiction
- Short- and long-term health impacts
- Marketshare
- Terminology
- Punishment or treatment for teens
Health Implications of E-Cigarettes

- Promote cessation? or
- Catalyst to nicotine use and smoking?
Pathways to Addiction?
Addiction Treatment for Adolescents?
Short- and Long-Term Health Effects?

- Short-term
  - Infectious disease?
  - Lung failure?
- Long-term
  - Cardiovascular?
  - Lungs?
  - Cancers?
Marketshare?

Source: Nielsen Total US xAOC/Convenience Database & Wells Fargo Securities, LLC
Take It In: 'Vape' Is The Oxford Dictionaries Word Of The Year

November 17, 2014 · 7:12 PM ET
Heard on Morning Edition

BILL CHAPPELL

Vape was chosen as the word of the year for 2014 in part because it provides a window "onto how we define ourselves," says Casper Grathwohl of the Oxford University Press. Here, women exhale vapor clouds during a competition at the Henley Vaporium in Manhattan.

Elizabeth Shefter/Reuters/Landov
The Unknowns Unknowns

- What’s the next surprise?
  - In late 2017, JUUL became a game changer
  - Until a month ago, most of us thought that the biggest acute risk of use was an exploding battery
Employment at tobacconists, which include vape shops

August 2016, FDA regulations instated

Source: Labor Department’s Quarterly Census of Employment and Wages  THE WASHINGTON POST
Business and job growth in retail, 2009 to 2019

Source: Labor Department’s Quarterly Census of Employment and Wages

THE WASHINGTON POST
THANKS

Any questions?
You can find us at
- mstobaccodata.org