Florida High School Asthmatics and ENDS and Hookah Use

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Disclosures

• I have no disclosures and no conflicts of interest.
Outline

Prevalence of asthma
Novel Products and Harm
Asthma and use
Recommendations
25 million Americans have Asthma
6.2 million under 18 years of age
Hookah Smoking
Shisha Packaging
Misleading Packaging Descriptors

- Odorless and smokeless
- Free of chemicals
- Made from 100% natural ingredients
- Clean to use
- Environmentally friendly

Nakkash et al., Tobacco Control 2010
Chemical Analysis and potential health risks of hookah charcoal
(Elsayed, et al., 2016)

- Zinc
- Iron
- Cadmium
- Vanadium
- Aluminum
- Lead
- Chromium
- Manganese
- Cobalt

Similarly, if not higher than found in cigarettes
Coal Analysis cont.

7 carcinogens

39 central nervous system depressants

31 respiratory irritants
Cardiopulmonary Concerns

- **Blood pressure, heart rate, and vascular resistance increases** (Alomari et al. 2014) (Kadhum et al. 2014)

- **Resistance to expiration and decreased pulmonary function** (Boskabady et al, 2012; Meo et al., 2014)

- **Carbon monoxide exposure** (Hakim et al., 2011; Martinasek et al, 2013)
What we do know about hookah smoke?

- One hookah session versus a cigarette
  - 40 times the tar
  - 30 times the carcinogens
  - 2 times the nicotine
  - A lot more carbon monoxide
The chart illustrates the percentage of different tobacco products used over the years 2011 to 2014. The categories include Tobacco*, ≥2 tobacco, E-Cigarettes, Hookahs, Cigarettes, Cigars, Smokeless tobacco, Snus, Tobacco pipes, Bidis, and Dissolvable tobacco. The bars represent the percentage for each year, with 2011 in light grey, 2012 in dark grey, 2013 in blue, and 2014 in light blue. The chart shows a significant decrease in the use of tobacco products over the years.
Florida Data

Youth 11-17 Hookah Use

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent</th>
<th>Ever Hookah</th>
<th>Current Hookah</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>8.8</td>
<td>4.3</td>
<td>4.5</td>
</tr>
<tr>
<td>2010</td>
<td>9.2</td>
<td>4.4</td>
<td>4.1</td>
</tr>
<tr>
<td>2011</td>
<td>10.3</td>
<td>4.1</td>
<td>4.5</td>
</tr>
<tr>
<td>2012</td>
<td>9.4</td>
<td>4.5</td>
<td>7.1</td>
</tr>
<tr>
<td>2013</td>
<td>9.7</td>
<td>6.4</td>
<td>14.1</td>
</tr>
<tr>
<td>2014</td>
<td>14.1</td>
<td>4.8</td>
<td>15.4</td>
</tr>
<tr>
<td>2015</td>
<td>14.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>15.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Florida Youth Tobacco Survey Secondary Data Analysis
9-12 grades

- 2012
  - 36,578 students
  - 1 in 5 reported lifetime asthma
- 2014
  - 32,921 students
  - 1 in 5 reported lifetime asthma
2012 FYTS

- Asthmatic Current Use of Hookah
  - 9.8%
- Non-asthmatic Current Use of Hookah
  - 7.2%
Who are the hookah users in 2012?

- Males
- 12th grade
- Hispanic
Research Article

Hookah Smoking and Harm Perception Among Asthmatic Adolescents: Findings From the Florida Youth Tobacco Survey*

Mary P. Martinasek, PhD, RRT, CPH a Linda Gibson-Young, PhD, ARNP, FNP-BC b Jamie Forrest, MS c
2014 FYTS Study
Secondary Data Analysis

• Asthmatic Current Use of Hookah
  • 14.0%
• Non-asthmatic Current Use of Hookah
  • 10.9%
Electronic Nicotine Delivery Systems (ENDS)
Additives

- Propylene Glycol
- Glycerine
- Flavorings

*Pellegrino et al.* evaluation revealed these proportions:
66% propylene glycol
24% glycerine
<0.1 % flavorings
Chemical Emissions

- **Tobacco-specific nitrosamines** (TSNA’s)
- **Carcinogenic carbonyl compounds** (formaldehyde, acetaldehyde, acrolein)
- **Heavy metals** = tin, silver, iron, nickel, aluminum and silicate in aerosol 0.1 microns (Williams, et al., 2013)
E-liquids are cytotoxic to oropharyngeal tissue, and some liquids can induce relevant DNA damage.


Cytotoxic and Genotoxic Effects of Electronic Cigarette Liquids on Human Mucosal Tissue Cultures of the Oropharynx.
Formaldehyde
While significant concerns remain about e-cigarettes, for some parents who find it challenging to quit or safely leave their children to smoke outside, e-cigarettes may offer potential for reducing the harm to them and their children.

# U.S. Tobacco Companies

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Brand Examples</th>
<th>Market %</th>
<th>Cigarettes Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philip Morris USA</td>
<td>Marlboro, Basic, Virginia Slims</td>
<td>46.1%</td>
<td>135.1 billion</td>
</tr>
<tr>
<td>Reynolds American Inc.</td>
<td>Camel, Doral, Winston, Kool</td>
<td>24.9%</td>
<td>72.9 billion</td>
</tr>
<tr>
<td>Lorillard</td>
<td>Newport, Maverick, Kent</td>
<td>13.7%</td>
<td>40 billion</td>
</tr>
<tr>
<td>All other companies</td>
<td>USA Gold, Sonoma, Montclair</td>
<td>15.3%</td>
<td>45 billion</td>
</tr>
</tbody>
</table>
FIGURE. Percentages of middle and high school students who reported ever using e-cigarettes, by brand of e-cigarette used* — United States, 2014-2015.

1.65 million youth
760,000 youth

Florida Data

Youth 11-17 ENDS Use

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<td>7.8</td>
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<tr>
<td>2014</td>
<td>14.3</td>
</tr>
<tr>
<td>2015</td>
<td>26.2</td>
</tr>
<tr>
<td>2016</td>
<td>24.5</td>
</tr>
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</table>

Legend: Ever (orange) & Current (blue)
2014 Florida YTS

- Asthmatic Current Use
  - 12.4%
- Non-asthmatic Current Use
  - 10.2%
Asthma versus non-asthma

- Increased risk for current use of cigarettes (AOR: 1.24)
- Increased risk for current use of hookah (AOR: 1.32)
- Increased risk for current use of E cigarettes (AOR: 1.34)
Asthma versus non-asthma

- Reported living with individuals who used cigarettes (31.5%)
- Reported Living with individuals who used hookah (12.1%)
- Reported living with individuals who used e-cigs (15.5%)
Prevalence of and beliefs about electronic cigarettes and hookah among high school students with asthma

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6 Recommendations

1. School personnel take Asthma 101 basics free training through ALA

https://lung.training/courses/asthma_basics.html

2. School RNs take free CEU training


3. When collecting Asthma Action plans from students hand them back e-cigarette and hookah information
4. Utilize college student interns to develop and pretest health messages appropriate for your schools

5. Consider implementing an asthma friendly school program – see Florida Asthma Coalition’s program

6. Add hookah and electronic cigarette information to your school nurse annual education. Online free education through Florida Keys AHEC

http://www.aheceducation.com/
Resources

Association for the Treatment of Tobacco Use and Dependence
http://www.attud.org/

Fifty State E-cigarette Regulations

Public Health Law Center
http://publichealthlawcenter.org/topics/tobacco-control/e-cigarettes

FDA
http://www.fda.gov/TobaccoProducts/Labeling/RulesRegulationsGuidance/ucm394909.htm

ALA Report

Health Equity in Tobacco Control and Prevention
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