The Emergence of JUULs and Heated Tobacco Products

2018 TCN Podcast Series

Kristy Marynak, CDC/OSH
Jeff Willett, Truth Initiative
Steven Fiala, Oregon Health Authority
Heated tobacco products: What you need to know

K R I S T Y  M A R Y N A K ,  M P P
LEAD PUBLIC HEALTH ANALYST
CDC OFFICE ON SMOKING AND HEALTH
TOBACCO CONTROL NETWORK EMERGING ISSUES WORKGROUP WEBINAR
MAY 2018
What’s the public health importance of this topic?

The landscape of tobacco products is continually changing.

By being proactive and anticipating new products, we can prepare our surveillance systems to track changes in tobacco use.

Understanding unique properties and health implications of each tobacco product can inform public health planning, policy, and practice.
The Evolving Tobacco Product Landscape

- Smokeless
- Snus
- Bidis
- Kretks
- Cigarettes
- Cigars, Cigarillos, Little Cigars
- Pipes
- Hookah
- Dissolvables
- ENDS
- Heated Tobacco Products
What are “heat-not-burn” tobacco products?

Industry term to describe products that heat tobacco leaf to deliver an inhaled aerosol.

Technology first introduced in the 1980s and 1990s – two primary formats:

1) Carbon-tipped tobacco sticks lit with a lighter
2) Electronic devices that heat tobacco sticks or capsules

Unclear whether combustion actually occurs; thus, use of the term “heated tobacco products” (HTPs)
Analog HTPs

Carbon tip heated with a lighter

User inhales 4-5 times before the tip glows red and product is activated

Packs of 20, similar size and shape of cigarette

Electronic HTPs

Test marketing began in 1998 in Richmond, VA, discontinued in 2006 due to “lack of commercial success”

Battery powered “smoking system.” Heating blades pierce Accord cigarette. Device activated only when puffed.

Ads said Accord “produces a lot less smoke” but did not want to “disparage existing brands” in marketing.
HTPs pending FDA pre-market approval

Umbrella brand for PMI’s multiple “reduced risk product” (RRP) platforms

Compressed tobacco stick inserted into device, discarded after use.

Flavors – Regular, Balanced, Mint, Menthol

14 “drags” per stick, 6 minute heat time before automatic shut-off, 1 stick per charge

“HeatSticks” are sold in packs of 20, priced comparably to cigarettes

5/18/2018
HTPs available outside the U.S. – Part 1

JTJ PloomTECH heats “capsules filled with granulated tobacco leaves”

Regular (“Balanced”) and menthol (“Cool Purple”) flavors

Capsules sold in packs of 5; recharge every 5 capsules

Activated by inhaling “making it possible to enjoy the experience immediately and at anytime”

Capsule can be used several occasions before disposal.
HTPs available outside the U.S. – Part 2

BAT glo heats tobacco ‘NeoStiks,” packs of 20

glo iFuse is a “hybrid” that heats liquid and tobacco

20 sticks per battery charge

Flavors: Bright Tobacco, Fresh Mix (mint), Zest Mix (citrus)

“NeoStiks” are priced 2x higher than cigarettes and have an approx. 45% lower tax rate in Japan because they are lighter and taxes are applied by weight.
HTPs: Highly profitable replacement for declining cigarette business

Health implications: Key questions

- Do they burn?
- Is there smoke?
- What are the contents of the smoke/aerosol?
- What are the differences in constituents and use patterns between various product types?
- Will they appeal to youth/young adults/non-tobacco users?
- Will they be used by smokers as a complete substitute for all combusted tobacco products?
Independent studies will provide critically needed information

Until independent studies prove that no combustion occurs or smoke is produced, products should not be assumed to be noncombustible.

One study found that heating tobacco between 100-200°C releases nicotine and some cigarette smoke compounds. Emissions increased with temperature.¹

Another study compared iQOS to a reference cigarette. VOCs, polycyclic aromatic hydrocarbons, and CO were present in iQOS smoke.²

Surgeon General’s Reports offer a public health framework

“The use of products containing nicotine poses dangers to youth, pregnant women, and fetuses. The use of products containing nicotine in any form among youth, including in e-cigarettes, is unsafe.”
– 2016 SGR Conclusion #4

“E-cigarette aerosol is not harmless. It can contain harmful and potentially harmful constituents, including nicotine. Nicotine exposure during adolescence can cause addiction and can harm the developing adolescent brain.”
– 2016 SGR Conclusion #5

“...All products containing tobacco and nicotine should be assumed to be both harmful and addictive...”
– 2014 SGR, Ch. 14, p. 780

“...When there is inadequate or early knowledge, public health decisions should be made on the basis of precaution to prevent harm, rather than on certain risk. This approach requires proof that a product is not harmful—especially for youth—rather than proof that it is harmful.”
– 2016 SGR, Call to Action
HTPs should not be a distraction from combusted tobacco products

Combusted tobacco is still responsible for overwhelming burden of tobacco-related disease and death in the U.S.\(^1\)

Smoking and SHS exposure kill >480,000 Americans each year\(^1\)

11.2 billion cigarette packs were sold in the U.S. in 2015 – enough for 34 packs for every man, woman, and child in America\(^2\)

Cigarettes account for the vast majority of tobacco company revenues and profits; only \(~2\%\) of PMI’s revenue is from HTPs\(^3\)

---


U.S. Status

- To our knowledge, HTPs are not widely available in the U.S.
- HTPs are subject to FDA regulatory authority and must receive pre-market approval through the SE or PMTA pathway.
- BAT reports plans to submit an SE application for glo in 2018 and MRTP in 2020.
- The TPSAC reviewed PMI’s MRTP application Jan 24-25, 2018. FDA continues to review the MRTP and PMTA applications.
- 80% of U.S. tobacco retailers say they plan to carry the iQOS.
Evolving landscape requires continued focus on

✓ Comprehensive efforts that address all tobacco products, including HTPs and other novel products
✓ Efforts to prevent youth access and use
✓ Protection of clean air standards and tobacco-free norms
✓ Elimination of combusted tobacco use and education about harms of smoking and dual use
✓ Education about the harms of any tobacco product use, especially for vulnerable populations, such as youth and young adults and pregnant women
✓ Research and surveillance to understand new products’ impact on the public’s health
Thank you! Questions?
Kristy Marynak
KMarynak@cdc.gov, 770.488.6196

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
JUUL: Recognition, use and perceptions

JEFFREY WILLETT
VICE PRESIDENT, SCHROEDER INSTITUTE
What is JUUL?

• Not your typical e-cigarette
  • nicotine salts
  • IT product design

• “By accommodating cigarette-like nicotine levels, JUUL provides satisfaction to meet the standards of smokers looking to switch from smoking cigarettes.”

• Pods with nicotine liquid available in a range of flavors.

• Every JUUL flavored pod contains nicotine.
JUUL – Nicotine Delivery

![Graph showing nicotine level over time for cigarette, JUUL, and average e-cigarette. JUUL has the highest nicotine delivery in the initial 10 minutes, followed by the cigarette, and then the average e-cigarette.]
JUUL – Market Growth and Concern

- In April, 2018, JUUL represented 60.1% dollar share and 42.0% unit share of the e-cigarette traditional retail market.

- On April 24th, the FDA requested that JUUL Labs, Inc. submit documents relating to marketing practices and research on marketing, effects of product design, public health impact, and adverse experiences and complaints related to JUUL.

Source: Nielsen Total US xAOC/Convenience Database and Wells Fargo Securities, LLC
Purpose of Truth Initiative

JUUL studies: To learn more about JUUL awareness, use, perceptions and terminology
Recognition, use and perceptions of JUUL among youth and young adults

BACKGROUND
In recent years, use of electronic nicotine delivery systems (ENDS) has drastically increased, exceeding the prevalence of combustible tobacco use among youth in the USA. ENDS products are heavily salts extracted from tobacco leaves, rather than the “freebase formulations” of nicotine used in other ENDS. PAX Labs claims JUUL provides a nicotine concentration comparable with a traditional cigarette and delivers nicotine 1.25–2.7 times faster than competing ENDS. Since its introduction in early 2015, JUUL has experienced tremendous growth in market share. As of 24 February 2018, JUUL represented an astonishing 49.6% dollar share and 31.1% unit share of the ENDS market. With such rapid emergence into the ENDS market, for those who responded affirmatively, asked what people their age call the device and how they describe the use of the device. Respondents who recognised JUUL were also asked about their ever and past 30-day use. Survey items also assessed respondents’ perceptions regarding the nicotine content of JUUL. The following demographic characteristics were also measured: age, gender, race/ethnicity and perceived financial situation (live comfortably, meet needs with a little left over, just meet basic expenses, don’t meet basic

November 2017 JUUL study findings

- 25% of 15-24 year olds recognized JUUL
- 10% had ever used a JUUL; 8% used in past 30 days
- Use significantly higher for males, higher SES and 18-24 year olds
- 25% of those who recognized JUUL referred to use as “JUULing”
- Most were not aware that JUUL pods always contain nicotine.
April 2018 JUUL Study

Included 12-14 year olds and expanded questions related to JUUL use.

Sample

- Source: Qualtrics panel, N=1,025
- Age: 12-17 year olds (50% 12-14, 50% 15-17)
- 50% male, 50% female
- Data collected online, 4/3/18 to 4/9/18.
Awareness

Among entire sample, N=1,025 12-17 year olds

Do you recognize this product?

<table>
<thead>
<tr>
<th>Age Group</th>
<th>YES (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>38%</td>
</tr>
<tr>
<td>12 to 14</td>
<td>34%</td>
</tr>
<tr>
<td>15 to 17</td>
<td>43%</td>
</tr>
</tbody>
</table>

Awareness among 15-17 was 21% in November.

Greater awareness may reflect increased attention at schools and by media.

Seen JUUL used at school?

<table>
<thead>
<tr>
<th>Age Group</th>
<th>YES (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>18%</td>
</tr>
</tbody>
</table>

(Charts showing percentage awareness and JUUL usage by age group)
Ever and Past 30-Day Use of JUUL

Among entire sample, N=1,025 of 12-17 year olds

**Ever Use**
- 12-14 = 5.2%
- 15-17 = 7.8% (was 7.0% in November)

**Past 30-Day Use**
- 12-14 = 4.6%
- 15-17 = 6.5% (was 6.1% in November)
Flavor and Substance Use

Which JUUL flavor pod used most recently?

Among past 30-day users

- Fruit medley: 30%
- Mango: 28%
- Cool mint: 18%
- Crème brulée: 8%
- Classic menthol: 6%
- Cool cucumber: 6%
- Tobacco: 4%

Ever used marijuana with JUUL?

Among ever users

- Yes: 30%
Among those who recognized JUUL (n=394)
Conclusions

- Pod Mod devices represent the newest generation of e-cigarette products.

- JUUL represents 60% of e-cigarette retail market share and 38% of 12-17 year olds recognized a JUUL device. Nearly 1-in-5 youth have seen JUUL used at their school.

- JUUL users largely report use of fruity and sweet flavors. Of youth who have ever used JUUL, one-in-three have used marijuana with the device.

- Youth largely obtained JUUL through physical retail outlets or social sources. Youth reported relative ease obtaining JUUL devices online.

- Nearly half of those who are aware of JUUL believe it is “a lot” or “a little” LESS harmful than cigarettes. One-in-three believe JUUL is “much” or “slightly more” addictive than cigarettes.
Thank you

jwillettt@truthinitiative.org