# Understanding Underage E-vapor Use: Findings From a Qualitative Study and PATH Waves 1-3



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### Abstract

**Significance:** In recent years, underage use of e-vapor products has increased while use of cigarettes has decreased. We report the findings of two studies that provide converging lines of evidence regarding factors related to e-vapor trial/use and means of e-vapor access: a qualitative study and cross-sectional and longitudinal analyses of Population Assessment of Tobacco and Health (PATH) data (Waves 1-3). We provide insights about potential avenues to curtail youth e-vapor access and use.

**Methods:** We conducted six focus groups with a purposive sample of 45 young adults ages 18-20. We segmented participants into groups based on their e-vapor product use: current users (tried e-vapor prior to legal age and currently use e-vapor), previous users (tried e-vapor prior to legal age > 1 time but do not currently use any tobacco products) and never users (never tried any tobacco products). There were two focus groups for each user group. Legal age was 18. Study objectives included identifying factors associated with underage use and understanding how youth access e-vapor products. Our PATH analyses assessed a range of variables associated with onset of and established e-vapor use and youth e-vapor access.

**Results:** Focus group results indicate that peer affiliation was an important factor for underage e-vapor trial/use. Social acceptability, ease of access and lack of underage e-vapor use prevention messaging were also relevant factors. Peers of legal age were significant sources for access, followed by relatives (i.e., older siblings, parents). These findings align with our PATH Waves 1 and 2 analyses, which showed diverse factors associated with e-vapor onset and established use (use of >10 e-cigarettes/cartridges), with peer use having the strongest association. Our PATH analyses also indicated that social exchange is a primary source of youth e-vapor access. Among Wave 3 past 30-day e-vapor users ages 15-17, 41% usually obtained e-vapor by asking for/being offered and 27% gave someone money to buy.

**Conclusions:** Our findings suggest that reducing the ease of underage access to e-vapor products via social sources might be accomplished by increasing the legal age of purchase. Additionally, there is a need to develop underage e-vapor use prevention messaging that discourages social sourcing from peers/family members and counters social acceptability of underage use.

## Introduction

- The underage tobacco use landscape has changed in recent years. These changes have largely been driven by the emergence of e-vapor products.<sup>1</sup>
- According to the National Youth Tobacco Survey, past 30-day use of e-vapor increased from 0.6% to 4.9% among middle school students and from 1.5% to 20.8% among high school students between 2011 and 2018.<sup>2</sup>
- Since 2014, e-vapor products have become the most commonly used tobacco product among middle and high school students.<sup>1,2</sup>
- This heightened prevalence of e-vapor use is likely due to a mosaic of personal, social, and environmental risk factors, including
  perceptions of e-vapor products, peer influences, access, and product features.<sup>3,4</sup>

# QUALITATIVE STUDY: Methods

- We commissioned an external research firm to conduct six focus groups with a purposive sample of 45 young adults ages 18-20.
- Three focus groups were conducted in Bethesda, MD, and three focus groups were conducted in Nashville, TN. All focus groups were conducted in September 2018.
- For each location, we segmented participants into groups based on their e-vapor product use:
- Current users (tried e-vapor prior to legal age and currently use e-vapor),
- Previous users (tried e-vapor prior to legal age at least once but do not currently use any tobacco products), and
- Never users (never tried any tobacco products).
- Legal age to purchase tobacco was 18 at both locations.
- Each focus group lasted for approximately two hours. The moderator's guide included discussion prompts designed to identify: (1) factors that surround first trial and continued use of e-vapor products; (2) protective factors that discourage trial and/or progression of use; and (3) how social sourcing of e-vapor products occurs, attitudes that surround it, and factors that facilitate/disrupt it.
- The research firm analyzed data using a multistep process that included identifying and coding focus group transcripts by comparing and contrasting themes and anomalies, and employing inductive logic to analyze the coded findings and generate an in-depth description of themes and generate insights.

<b>TABLE 1.</b> Focus Group Composition by Cit
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	Nashville, TN	Bethesda, MD	Total
Current Users	7 (3 females, 4 males)	7 (3 females, 4 males)	14 (6 females, 8 males)
Previous Users	7 (5 females, 2 males)	9 (5 females, 4 males)	16 (10 females, 6 males)
Never Users	8 (4 females, 4 males)	7 (3 females, 4 males)	15 (7 females, 8 males)

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## **QUALITATIVE STUDY: Results**

#### • Core friend groups played a significant role in determining the likelihood of e-vapor usage.

 When asked why they think teens try e-vapor products, participants most frequently cited teens' desires to fit in due to implicit peer pressure and/or peer influence (e.g., they want to be accepted, they want to feel popular, or they don't want to be left out). Attitudes about why teens continue to use e-vapor echoed the reasons for trying it, with peer influence being commonly mentioned.

 When asked about why teens avoid e-vapor use, there were comments about core friend groups – if someone's friend group either didn't use e-vapor or that friend group viewed e-vapor negatively, teens would be more inclined to avoid e-vapor rather than try it.

> In response to the question, "Did most of your core friends use them or not?"

*"We all would. We were athletes, so we all tried them at parties."* ~Bethesda Current User

#### • Attitudes and social acceptability of e-vapor products varied between markets.

- In the Nashville groups, there was a perceived social acceptability of e-vapor products across all user groups. While some Never Users reported that they found it "annoying" when people use e-vapor, they also expressed that it is extremely common and not viewed in the negative manner that using cigarettes is viewed.
- The Bethesda groups seemed less enthusiastic about e-vapor products in general. In fact, Current Users expressed some of the stronger negative e-vapor comments, including an overarching concern for younger people using it and about its widespread growth.
- Flavors and associated smells were strongly aligned with recollections of the social settings surrounding first exposure to and trial experience with e-vapor. Several participants reported that flavors and smells/scents made them more keen to try e-vapor products. This was reported somewhat stronger by the Nashville groups compared to the Bethesda groups.
- The trial experience of e-vapor products occurred in a social setting with the product being offered to them, with no participants mentioning that they purchased the product themselves for their trial usage.
- Participants reported that most e-vapor trial experiences occurred in a social setting, among friends, where the product was typically shared by someone else who had it and offered it. In fact, most Current and Previous Users noted that evapor products were offered to them during their trial experience.
- No participants mentioned going to purchase an e-vapor product in order to try it. Typical situational settings of trial experiences were social in nature and took place at a friend's house, in a car with friends, before or after sporting events, at a party, etc.

In response to the request, "Tell me about your usage after you tried it."

"Access made it so desirable and easy. My friends always had them; then I got my own after a while." ~Nashville Previous User

- There were low barriers to accessing e-vapor products. Participants reported that access was wide open, with social sourcing being the most prevalent access point.
- Typically, prior to legal age, participants accessed e-vapor products through peer groups with social sourcing being commonplace.
- Third-party access with friends offering or buying was the prevailing access point. Older friends were the most common thirdparty access point, with high school students of legal age being one of the most reported methods.
- Access was not exclusively limited to friends, as a few participants discussed siblings, parents, and, in one case, grandparents, supplying them with e-vapor products.

In response to the question, "Is there a barrier for teens

getting access?"

"No, it's easy." [All participants agreed with this statement.] "The only barrier is money." ~Nashville Previous User

- E-vapor prevention messaging was scarce. Most participants reported that their teachers, schools, and parents
  provided little to no messaging that e-vapor is harmful or carries risks.
- Prevention messaging from teachers/schools based on health factors was non-existent, and the messaging that occurred simply had a "don't do it here" tone.

Most participants reported that their parents were unaware of e-vapor products. For the participants who did have conversations with their parents, those conversations were casual and limited in scope.
The primary parenting messaging they received was focused on anti-tobacco, anti-drugs, and anti-alcohol. A few participants mentioned that parents deemed those issues as more important than e-vapor usage.

In response to the request, "Tell me about conversations you had with your parents about e-vapor. "On the pecking order of substance use, [e-vapor] it's pretty low. ...you could have so many worse things in your life." ~Bethesda Current User

# **QUANTITATIVE STUDY: Methods**

- We conducted cross-sectional and longitudinal analyses of data from Waves 1-3 of the Population Assessment of Tobacco and Health youth surveys.<sup>5</sup>
- We assessed a range of variables potentially associated with onset of and established e-vapor use, including, for example, sociodemographic factors, peer influence, school performance, and harm perception. These variables were selected based on predictors reported in existing literature and variables available in the PATH dataset.<sup>6,7</sup> Established e-vapor use was defined as at least 10 e-cigarettes/cartridges in lifetime. Multivariate logistic regression was used to estimate the association between these variables and e-vapor use.
- We also assessed methods of access to e-vapor products among youth. Youth access to e-vapor products was assessed through responses to the item: "In the past 30 days, how did you usually get your own [insert e-vapor device type]?"
  Categorical responses included a variety of social sources (e.g., asking someone to give me one) and personal sources (e.g., buying them myself).

- Responses from 15-17 year old, past 30-day e-vapor users were recorded for PATH Wave 2 (2014-2015) and Wave 3 (2015-2016).

• Data were weighted to be nationally representative according to PATH standards.

# **QUANTITATIVE STUDY: Results**

**FIGURE 1.** Behavioral & Social Predictors of First Use of E-cigarettes Among Adolescents Aged 12-17. Data from PATH Wave 1 (2013-2014) and Wave 2 (2014-2015).



 Our analyses of PATH Waves 1 and 2 showed diverse behavioral and social factors were associated with first use of e-vapor, with best friend's use being a robust predictor.



variable	Greater Risk	UR (95% CI)
Best friend use e-cig	•	2.0 (1.0, 4.0)
Marijuana use		1.5 (0.8, 2.8)
Rx drug use	<b>+</b>	1.3 (0.6, 2.7)
Alcohol		1.2 (0.7, 2.1)
Other tobacco use	<b>+</b>	1.2 (0.6, 2.5)
E-cig less harmful	<b>_</b>	1.2 (0.7, 1.8)
Income >50K	<b>_</b>	1.0 (0.5, 1.7)
Fight	<b>_</b>	0.9 (0.5, 1.7)
Female	<b>+</b>	0.9 (0.5, 1.5)
Older adolescents (15–17)	<b>+</b>	0.9 (0.5, 1.4)
Parental education = some college		0.7 (0.4, 1.2)
Parental education >= Bachelor's		0.4 (0.2, 0.9)
Non–Hispanic Black		0.3 (0.1, 1.8)
Hispanic	<b>_</b>	0.6 (0.3, 1.3)
Others race/ethnicit		0.6 (0.2, 1.7)
Cigarette use	<b>_</b>	0.6 (0.3, 1.2)
Grade A's and B's		0.6 (0.4, 1.0)
Other drug use	<b>→</b>	0.6 (0.1, 4.7)
.03	$\sim$ Lower Risk	

 Fewer behavioral and social variables were associated with the progression from first use to more established use (use of >10 e-cigarettes/cartridges).

 School performance (marginally) and parent's education were associated with lower risk of more established use. Best friend's use of e-vapor was marginally associated with more established use.

#### This poster may be accessed at www.altria.com/ALCS-Science

#### Discussion

- We observed convergence between our qualitative and quantitative findings with regards to influence of peers on underage e-vapor use and access. High school peers of legal age to purchase tobacco were a common source of access to those underage.
  Focus group participants noted that there was a lack of prevention messaging, indicating that this is an area to be addressed and sustained.
- Our PATH analyses showed a different predictor profile for the onset and the progression of e-vapor use, suggesting these two
  processes may have different underlying mechanisms. Understanding factors associated with onset of more established use
  presents an opportunity for future research.

### **Strengths & Limitations**

#### Strengths

- The use of focus group discussions allows for the collection and examination of rich, in-depth data that provides an understanding of e-vapor from the perspective of young adults who were exposed to e-vapor products when they were underage.
- PATH data are nationally representative. Thus, our PATH analyses results are generalizable to the general US adolescent population.

#### Limitations

- Our focus group findings are retrospective, and PATH data are not current. Underage e-vapor use and awareness has changed rapidly since the time frame represented by the data.
- •Our focus group findings are not generalizable to the broader population.
- All findings presented here are based on self-reported data.

### Conclusions

- Our findings suggest that reducing the ease of underage access to e-vapor products via social sources might be accomplished by increasing the legal age of purchase.
- Additionally, there is a need to develop underage e-vapor use prevention messaging that discourages social sourcing from peers/family members and counters social acceptability of underage use.

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- Our PATH analyses also indicate that social exchange is a primary source of youth e-vapor access. Among Wave 3 past 30day e-vapor users ages 15-17, 41% usually obtained e-vapor by asking for/being offered and 27% gave someone money to buy.

FIGURE 3. Usual Source of Access to e-Vapor Products Among Past 30-day Tobacco Users Age 15-17. Data from PATH Wave 2 (2014-2015) and Wave 3 (2015-2016), percentages shown.

