

HOOKED ON NICO-TEEN:
THE YOUTH VAPING EPIDEMIC

by

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TABLE OF CONTENTS

	Page
LIST OF FIGURES	iv
ABSTRACT	v
PREFACE.....	vi
CHAPTER	
I. BACKGROUND	
ENDS Change the Game	1
II. MARKET ANALYSIS	
Youth E-Cigarette Graphic	2
III. CONTENT ANALYSIS	
Vaporized Campaign	3
Switch Campaign.....	7
IV. PRODUCT DESIGN	
Look.....	8
Flavors	10
Nicotine Concentration.....	11
V. THE POST-JUUL MARKET	
Brand Preference Shift	12
Generation Juul.....	14

LIST OF FIGURES

Figure	Page
1. Timeline of Youth E-Cigarette Use.....	2
2. Vaporized Ad A.....	3
3. Vaporized Ad B.....	4
4. Vaporized Ad C.....	5
5. Switch Ad A	7
6. Switch Ad B	7
7. MarkTen	8
8. JUUL Charging	9

PREFACE

As a high school graduate in the class of 2018, I witnessed the development of the youth vaping epidemic first-hand. My first day of freshman year was August 23, 2013. That same year, Altria (the maker of Marlboro cigarettes and current owner of Juul Labs) debuted the MarkTen, the company's first electronic nicotine delivery system (ENDS) product. Over the next four years, the value of the global e-cigarette market would more than double, from approximately \$6.8B to over \$15.6B USD.¹ With the eruption of this new market, there became a growing trend of underage consumers obtaining and consuming highly concentrated nicotine products.

At the age of fourteen, I watched helplessly as my classmates, my generation— Gen Z, the generation that was largely predicted to beat Big Tobacco — became addicted to the newest nicotine product. The hallways of my school reflected the market growth of the industry, and by the time I obtained my driver's license, many of my classmates had become daily ENDS users. It is my intention to unravel the methods that people with my degree in marketing utilized to addict a new generation to nicotine.

¹Jackler RK, Chau C, Getachew BD, Whitcomb MM, Lee-Heidenreich J, Bhatt AM et al. JUUL advertising over its first three years on the market. Stanford Research into the Impact of Tobacco Advertising White Paper 2019. http://tobacco.stanford.edu/tobacco_main/publications/JUUL_Marketing_Stanford.pdf (accessed May 5, 2021).

ABSTRACT

Brianna Belle Matherly: Hooked on Nico-teen: The Youth Vaping Epidemic
(Under the Direction of Dr. Karen Smith)

Between 2014 and 2018, the nicotine consumption market was irreversibly transformed with the boom of electronic cigarettes. Although these devices initially hit the market as a safe alternative to cigarettes that would help current smokers to quit, the product quickly spread to middle and high school students. Rather than helping current users quit, this product hooked children on nicotine, creating a fresh supply of addicts. This thesis will analyze the development of the e-cigarette market to pinpoint the exact cause for the boom in popularity among youth smokers by studying advertising campaigns from leading vape distributors. This research will help readers to better understand the role that JUUL marketers played in this market growth, as well as dissect the meta messages proposed in the vape advertisements around the period of growth.

Keywords: Marketing, Vaping, Teenagers – Tobacco use, Tobacco industry – United States

I. BACKGROUND

ENDS Change the Game

Prior to the surge in electronic nicotine delivery systems (ENDS) consumption in 2014, Generation Z (born between 1995 and 2015) was predicted by many to overcome generational nicotine addiction. According to the CDC's National Youth Tobacco Survey, in 2011, cigarette usage remained the most popular form of tobacco consumption, and instances of middle and high school students trying cigarettes had been following a downward trend to since 1997.² However, the nicotine consumption market was on the cusp of an irreversible transformation.

As ENDS penetrated the market, the specialization of products allowed for new features for customization regarding flavor, nicotine concentration, vapor production, temperature, and aesthetics. These changes enabled the user to custom-fit their vape experience and for youth consumers, this changed the game. In 2014, electronic cigarettes passed cigarettes to become the top form of nicotine consumption among youth.³ The National Youth Tobacco Survey reported that the number of middle and high school students trying electronic cigarettes increased from approximately 3% in 2011 to 19.4% in 2014.⁴ The next year, that number would increase once more to 26.6%, marking a growth of 786.67% over a 4-year interval.⁵

² Jamal A, Gentzke A, Hu SS, et al. Tobacco Use Among Middle and High School Students — United States, 2011–2016. MMWR Morb Mortal Wkly Rep 2017;66:597–603. DOI: <http://dx.doi.org/10.15585/mmwr.mm6623a1>

³ National Youth Tobacco Survey (NYTS),” Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, December 21, 2020), https://www.cdc.gov/tobacco/data_statistics/surveys/nyts/index.htm.

⁴ “National Youth Tobacco Survey (NYTS),” CDC (December 21, 2020)

⁵ Ibid.

II. MARKET ANALYSIS

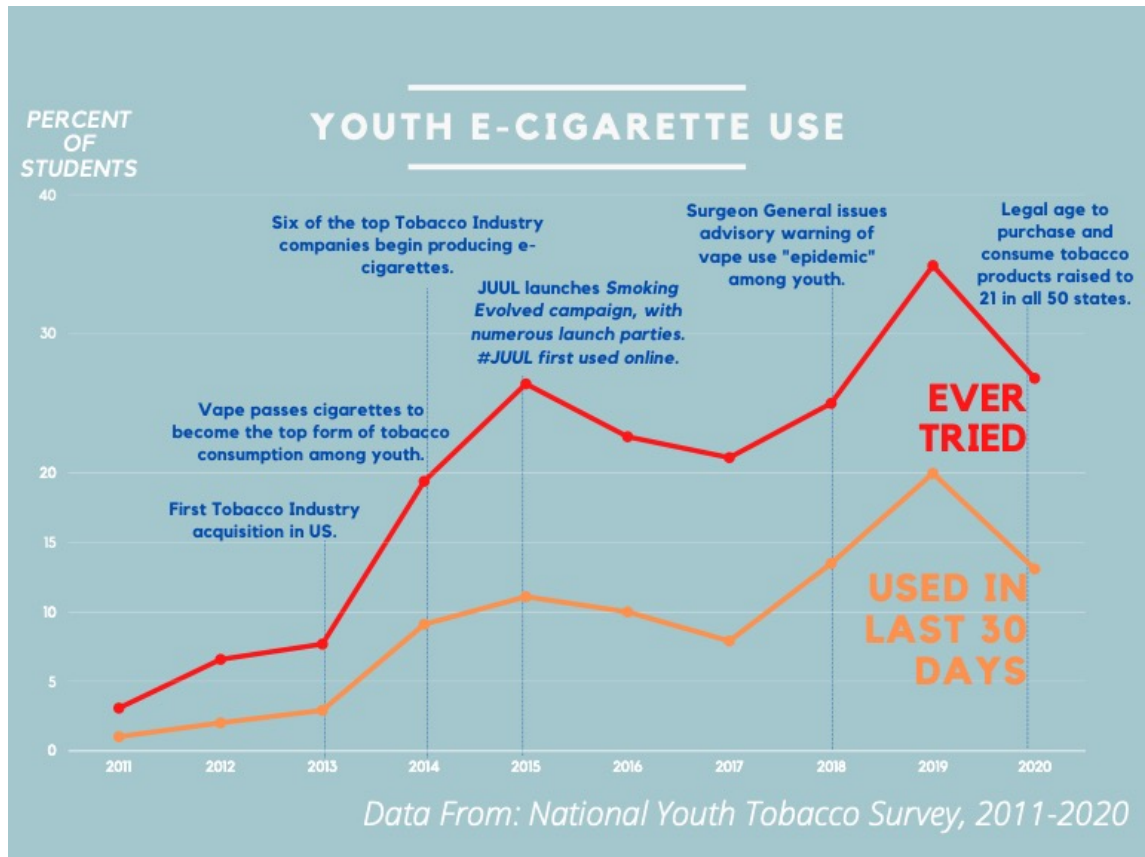


Figure 1. Timeline of Youth E-Cigarette Use using Data From the National Youth Tobacco Survey 2011-2020.

The tobacco market faced dramatic changes with the eruption of underage consumers. *Figure 1* depicts the growth of youth e-cigarette use from the last decade. From 2011 to 2013, it is apparent that these electronic cigarettes had circulated the market and yet cigarettes remained the dominant form of ingestion among youth until 2014. As the timeline indicates, 2014 was the same year that six of the world's leading tobacco industry giants began production and distribution of electronic cigarettes. Consequently, that year also saw e-cigarettes surpass combustible cigarettes as the most used nicotine product among youth. As evidenced in the graph, e-cigarette use among youth peaked in 2019 with 25% of students reporting usage.

III. CONTENT ANALYSIS

Vaporized Campaign

Content analysis of vape advertisements from this time indicate the campaign's target demographic at its launch. In 2015, JUUL launched its *Vaporized* campaign. Advertisements of this time followed a notably youth-focused theme that utilized bright colors, and pictures of 20-somethings laughing, smiling, and using JUULs.



Figure 2. *Vaporized Campaign*. Photograph published by JUUL Labs. Image sourced from the Vaporized Collection, Stanford Research into the Impact of Tobacco Advertising, Stanford University, https://tobacco-img.stanford.edu/wp-content/uploads/pods/juul/vaporized/vaporized_5.jpg

Figure 2 from the *Vaporized* campaign shows a twenty-something model in casual, trendy streetwear acting silly, friendly, and appearing younger than her age. The central text reads, “Smoking Evolved,” insinuating progress and improvement.



Figure 3. *Vaporized Campaign*. Photograph published by JUUL Labs. Image sourced from the Vaporized Collection, Stanford Research into the Impact of Tobacco Advertising, Stanford University, https://tobacco-img.stanford.edu/wp-content/uploads/pods/juul/vaporized/vaporized_20.jpg

In another *Vaporized* campaign ad, a young model holds a Juul product while making “duckface” and sitting on the floor in a notably childlike pose (see fig. 3). The clothing chosen for this model follows trends that were largely popular among tweens and young adults, including a horizontal striped crop top, distressed jeans, and white Converse. Makeup is minimal and natural with soft pink lip gloss and feathered brows.

Youthful imagery is not a new trend within the tobacco industry. As the cofounder of Stanford Research into the Impact of Tobacco Advertising, Dr. Robert Jackler, has stated, “Advertising agencies, especially tobacco advertising agencies, have long known that the images and motifs they use — brightly colored, flashy, youth-oriented activities — are exactly how you target the teenage audience.”⁶ Juul’s *Vaporized* campaign revolved around these motifs in print media and online advertising.

⁶ Jackler RK, Chau C, Getachew BD, Whitcomb MM, Lee-Heidenreich J, Bhatt AM et al. JUUL advertising over its first three years on the market. Stanford Research into the Impact of Tobacco Advertising White Paper 2019.



Figure 4. *Vaporized Campaign*. Photograph (left) published by JUUL Labs. Image sourced from the Vaporized Collection, Stanford Research into the Impact of Tobacco Advertising, Stanford University, https://tobacco-img.stanford.edu/wp-content/uploads/pods/juul/vaporized/vaporized_50.jpg

Although Figure 4 from the *Vaporized* campaign follows the trends of bright colors and young models, the noteworthy element in this image is the hairstyle that the model wears: A high ponytail, iconic of the singer Ariana Grande during 2015. The iconography of Grande was notably relevant within the youth zeitgeist, especially with teens who idolize the performer regularly adopting the “Ariana pony.” The model hits her JUUL while striking a pose reminiscent of Grande on the red carpet (fig. 4, right).

The *Vaporized* campaign caught the attention of youth audiences by utilizing a variety of social media marketing tactics including several launch parties for social media influencers to spread JUUL’s brand awareness to followers. In 2015, Juul Labs began hosting launch parties across the nation where the company invited popular social media influencers to test the newest products and flavors for free and post pictures from the event with the hashtag #JUUL. As Stanford researcher Robert K. Jackler describes, “The

http://tobacco.stanford.edu/tobacco_main/publications/JUUL_Marketing_Stanford.pdf (accessed May 5, 2021).

principal focus of these activities was to get a group of youthful influencers to accept gifts of JUUL products, to try out their various flavors, and then to popularize their products among their peers.”⁷ These free events jump-started the word-of-mouth that differentiated JUUL’s marketing tactics from those of other leaders within the industry.

JUUL’s social media marketing drove the brand’s rise to popularity and saturated platforms that were largely populated by minors. One study in JAMA Pediatrics found that 8 out of 10 of JUUL’s Twitter followers in April 2018 were between the ages of 13 to 20.⁸ The influx of posts containing the hashtag #JUUL resulted in a wave of vape-related content across social media platforms like Instagram and Twitter. According to Stanford researchers studying JUUL’s social media account posts during 2015-2018, the nicotine device company utilized vaping-related hashtags to form a “social identity among e-cigarette users.”⁹ In November of 2018, JUUL ceased all Instagram promotions as a part of the company’s commitment to youth prevention. However, circulation of JUUL media continued to grow exponentially as youth consumers adopted the hashtag #JUUL to promote peer-to-peer memes on every major social media platform.¹⁰ Although the company was no longer active on Instagram, JUUL had gone viral.

⁷ Jackler RK, Chau C, Getachew BD, Whitcomb MM, Lee-Heidenreich J, Bhatt AM et al. JUUL advertising over its first three years on the market. Stanford Research into the Impact of Tobacco Advertising. White Paper, 2019. http://tobacco.stanford.edu/tobacco_main/publications/JUUL_Marketing_Stanford.pdf (accessed May 5, 2021).

⁸ Kim, A, et al., “Estimated Ages of JUUL Twitter Followers,” JAMA Pediatrics, published online May 20, 2019.

⁹ Jackler RK, Ramamurthi D, Louis-Ferdinand N. Rapid Growth of JUUL Hashtags After the Company Ceased Social Media Promotion. Stanford Research into the Impact of Tobacco Advertising. White Paper, 2019. <https://tobacco.stanford.edu/hashtagjuulgrowth> (accessed April 19, 2021).

¹⁰ Robert Jackler, “The Role of the Company in the JUUL Teen Epidemic” (Testimony for House Subcommittee on Economic and Consumer Policy, Government Documents)

Switch Campaign



Figures 5 & 6. *Switch Campaign*. Photographs published by Juul Labs. Images sourced from the Switch Collection, Stanford Research into the Impact of Tobacco Advertising, Stanford University, <https://tobacco.stanford.edu/pods/juul/switch/>

Comparatively, Juul's 2018 *Switch* campaign focuses on a markedly different target segment than the company's *Vaporized* campaign. In Figures 5 and 6, the models are older, and the colors used cool and neutral tones. The clothing used denotes a mature atmosphere. Words like "smart... alternative" and "amazing invention" indicate user satisfaction and send the meta message that consumers of JUUL products place themselves among other intellectual adults who have switched.

IV. PRODUCT DESIGN

The Look

The initial ENDS devices often appealed to tobacco smokers by taking on a recognizable cigarette appearance. In August 2014, Altria Group launched the MarkTen, the tobacco company's initial ENDS product investment which adopted a familiar design shaped after an average cigarette.¹¹ For a product designed to lure in current cigarette smokers, a classic cigarette shape makes good marketing sense.



Figure 7. Photograph published by Altria Group. Image sourced from VapeHabitat, 2016, <https://vapehabitat.com/markten-xl-review/>

The MarkTen's strategy would not last, however, as the brand's products became discontinued on December 19, 2018. In a public statement on the MarkTen website, the company cited the decision to be based upon, "...the current and expected financial performance of these products, with regulatory restrictions that burden [MarkTen's]

¹¹ Ali FRM, Diaz MC, Vallone D, et al. E-cigarette Unit Sales, by Product and Flavor Type — United States, 2014–2020. MMWR Morb Mortal Wkly Rep 2020;69:1313–1318. DOI: <http://dx.doi.org/10.15585/mmwr.mm6937e2>

ability to quickly improve these products.”¹²

Comparatively, JUUL’s sleek design allowed the company to penetrate the youth market, beginning with the shape of the product. A JUUL vape device appears quite similar to a USB memory stick, and it can be charged in the USB port of a computer (see fig. 7). It is composed of two mechanisms: the battery system and the prefilled nicotine pod which doubles as the mouthpiece. As parents soon learned, the newer device would not look out of place in a school backpack, especially given that many students must carry a USB flash drive for class assignments. Additionally, students could covertly charge their JUUL devices in the classroom.



Figure 8. Photograph published by Healthline Media. Image sourced from Healthline, 2021, <https://www.healthline.com/health-news/90-percent-of-smokers-couldnt-quit-after-vaping-one-year>

¹² “MarkTen® e-Vapor.” MarkTen® Discontinuation Announcement. MarkTen e-vapor, December 19, 2018. <https://www.markten.com/>.

The Flavors

After monitoring unprecedented growth within the youth demographic, CDC researchers adapted the National Youth Tobacco Survey to include new questions regarding consumption of ENDS devices. In 2014, researchers began documenting youth usage of flavored tobacco products, and a pattern became apparent: among current youth tobacco consumers, 70% (approximately 1.58 million students) reported use of at least one flavored product.¹³ This information further confirmed what many researchers had hypothesized, that flavored ENDS products pose a targeted risk to America's youth.

JUUL's original starter pack included four flavors: Virginia tobacco, cool mint, crème brulee, and mango. This distinct choice differentiated Altria's newest product from the company's former ENDS product, the MarkTen, which sold only classic tobacco and menthol flavors. JUUL's addition of mango and crème brulee sparked controversy as researchers found fruit and dessert flavors to be the most popular flavor choices among children and adolescents.¹⁴ Advertisements from the Save Room campaign of early 2016 promoted JUUL's sweet dessert flavors with the slogan, "Save room for JUUL." The meta messages for this campaign were later analyzed by Stanford researcher Dr. Robert Jackler, who claimed, "The universally recognized phrase 'Save room for' sends the message to the consumer that JUUL is a tasty treat and a reward."¹⁵

¹³ Centers for Disease Control and Prevention. Flavored Tobacco Product Use Among Middle and High School Students—United States, 2014. *Morbidity and Mortality Weekly Report*, 2015;64(38):1066–70 [accessed 2021 April 19].

¹⁴ Hoffman AC, Salgado RV, Dresler C, et al. Flavour preferences in youth versus adults: a review. *Tobacco Control* 2016; 25:ii32-ii39.

¹⁵ Robert Jackler, "The Role of the Company in the JUUL Teen Epidemic" (Testimony for House Subcommittee on Economic and Consumer Policy, Government Documents)

In November of 2018, as part of an effort to restrict youth access to JUUL, Juul Labs announced it would be temporarily halting retail distribution of most flavored products in the US. Under this new policy, the flavors mango, fruit, cucumber, and crème could only be purchased through Juul Labs official website with a valid ID proving the customer to be at least 21 years of age. A year later in October of 2019, the company would once again announce halting of flavored sales, this time permanently restricting sales of all flavors except tobacco, mint, and menthol both online and at retail locations. The following month, Juul Labs announced the discontinuation of mint pods.

The Concentration

According to one Reuters article, former employees of Juul Labs stated that the company attributed market rejection of earlier devices to the failure of these devices ability to deliver enough nicotine with a smooth taste.¹⁶ The company's solution was novel: cultivate a nicotine product that could increase nicotine concentration without harshening the taste. Thus, Juul Labs began development of salt nicotine.

Before JUUL entered the ENDS market, the nicotine concentration in the most popular single-use e-cigarettes ranged between 1 and 2.4 percent.¹⁷ As the first single-use nicotine product to utilize nicotine salts, JUUL boasted a concentration level of 5%. In other words, a single draw off a 5% JUUL delivers as much nicotine as an entire cigarette, and one pod contains the equivalent of approximately a pack of cigarettes.¹⁸

¹⁶ Chris Kirkham, "Special Report: Juul Disregarded Early Evidence it was Hooking Teens," Reuters, November 5, 2019. [accessed 2021 August 25]. <https://www.reuters.com/article/us-juul-ecigarettes-special-report-idUSKBN1XF1JG>

¹⁷ "How Much Nicotine Is in Juul," Truth Initiative (Truth Initiative, February 26, 2019), <https://truthinitiative.org/research-resources/emerging-tobacco-products/how-much-nicotine-juul>.

¹⁸ *ibid.*

Soon JUUL's competitor's followed suit. In a 2019 testimony before the House Subcommittee of Economic and Consumer Policy, Dr. Robert Jackler stated, "JUUL introduced salt nicotine, a chemical formulation that reduces the bitterness of nicotine, enabling an average of 3x higher concentration than its predecessors," and that, "JUUL trigger[ed] a nicotine arms race among its copycats, with all utilizing highly concentrated salt nicotine ($\geq 5\%$)."¹⁹ The introduction of salt nicotine effectively established a new market norm in the tobacco industry as consumers sought out high-potency products.

V. THE POST JUUL MARKET

Brand Preference Shift

In 2020, a number of sweeping tobacco industry reform regulations took effect, including raising the national legal age to purchase tobacco products to 21 and restricting all tobacco-derived nicotine pod flavors to tobacco and menthol. The abrupt regulation of Juul Labs by the federal Food and Drug Administration during 2018 to 2020 had rippled effects across the tobacco industry as well among youth nicotine consumers.

Researchers with the CDC recorded the 2020 National Youth Tobacco Survey yielding remarkable results: Overall youth consumption of ENDS devices appeared to decline from the previous year. Also noteworthy, the popularity of pod-based devices dropped from previous years, while use of disposable e-cigarettes showed growth.²⁰ Disposable e-cigarette devices appeared to be on the rise in popularity among youths. In 2021, the Survey revealed an even larger change: pod-based devices were no longer the

¹⁹ Dr. Robert Jackler, M.D., Stanford University School of Medicine. The Role of the Company in the JUUL Teen Epidemic, Testimony for the House Subcommittee on Economic and Consumer Policy, at p. 17 (July 24, 2019).

²⁰ "National Youth Tobacco Survey (NYTS)," Centers for Disease Control and Prevention (Centers for Disease Control and Prevention, December 21, 2020), https://www.cdc.gov/tobacco/data_statistics/surveys/nyts/index.htm.

most popular type, disposables had taken over.²¹ The 2021 National Youth Tobacco Survey revealed that where JUUL had previously dominated the youth demographic, a disposable brand had taken its place.²² According to the Survey, 26.8% of current youth ENDS consumers reported using Puff Bar as their usual brand.²³

Federal regulations of ENDS devices include a problematic loophole that has enabled disposable devices to overtake pod-based devices like JUUL. In January of 2020, the Trump administration announced that only pod-based devices would be subject to flavor limitations, leaving “open system” devices (disposables and refillable cartridges) to continue using flavors like Puff Bar’s OMG and Flavor West’s unicorn vomit.²⁴ The growth of Puff Bar can be traced as a consequence to the legal loophole; since JUUL can only be purchased in tobacco and menthol flavors, the youth consumers’ (of whom 85% use flavored devices) brand preference adapted. Puff Bars were now taking the lead.

Another complication regulators must address is the growing prevalence of synthetic nicotine in ENDS devices. The problem with synthetic nicotine arises due to a 2009 law titled the Family Smoking Prevention and Tobacco Control Act, which stipulates a tobacco product as, “any product made or derived from tobacco that is intended for human consumption.”²⁵ Under this definition, synthetic nicotine nestled into a legal gray area. As synthetic nicotine is lab-made without the free-form tobacco, it is

²¹ “National Youth Tobacco Survey (NYTS),” CDC, 2021.

²² Ibid.

²³ Park-Lee E, Ren C, Sawdey MD, et al. Notes from the Field: E-Cigarette Use Among Middle and High School Students — National Youth Tobacco Survey, United States, 2021. *MMWR Morb Mortal Wkly Rep* 2021;70:1387–1389. DOI: <http://dx.doi.org/10.15585/mmwr.mm7039a4external icon>

²⁴ Robin Koval, “New Federal e-Cigarette Policy Puts Politics Ahead of Protecting Youth,” Truth Initiative (Truth Initiative), accessed October 18, 2021, <https://truthinitiative.org/press/press-release/trump-administrations-new-e-cigarette-policy-sadly-deficient>.

²⁵ *Family Smoking Prevention and Tobacco Control Act of 2009*, Public Law 111-31, *US Statutes at Large* 123 (2009): 1776-1858.

not technically controlled by the FDA. Thus, it is not legally bound to FDA regulations.

Generation JUUL

In less than a decade, the prevalence of nicotine consumption among youth shifted from the lowest rates ever documented, to what has since been labeled an epidemic of youth vaping.²⁶ Generation Z has been irreversibly impacted by the predatory marketing of e-cigarette companies like Juul Labs, leading critics to adopt a new label, Generation JUUL, for today's youth. The generation marked by unmitigated access to the internet, social media, and customization changed from anti-cigarette advocates to vape pros. With new regulations on the horizon, it is now up to the Biden administration and future policymakers to continue to implement new and effective efforts to curb this teen vaping epidemic as soon as possible. For each passing day that this problem persists, the number of new minors taking their first hit of vape and following the legacy of lifelong nicotine addicts grows.

²⁶ Jerome Adams, "Surgeon General's Warning on the Youth Vaping Epidemic" (Government Documents, Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, United States, 2018).