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Putting Paper to Pen: Generation Juul's Case for Harm Reduction

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Putting Paper to Pen: Generation Juul’s Case for Harm Reduction

LIZ EMANUEL*

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INTRODUCTION

Robert Murray, an administrator at Hargrave High School in Huffman, Texas, receives an automated text message alerting him that a vaping sensor has been triggered in the nearby restroom.¹ After cross-referencing the timestamp on the alert with the hallway surveillance video, he identifies his suspect and confiscates the student’s vape—adding the flash drive look-alike to a pile of dozens of other vaping devices he has taken from students this year.² Meanwhile, in Wilson High School in North Alabama, stall doors are being removed from boys’ bathrooms after a student was found passed out in a stall after vaping.³ The year is 2019, and the public health concern menacing the nation’s schools has nothing to do with a virus.

* J.D. Candidate, Indiana University Maurer School of Law, 2021; B.A. in Economics and Politics and International Affairs, Wake Forest University, 2015. In dedication to the life and legacy of Latta Baucom—teacher, mentor, friend, and father.

1. See Ted Oberg & Sarah Rafique, *Vaping Crisis Has Now Reached Texas Elementary Schools*, ABC13 EYEWITNESS NEWS (Nov. 5, 2019), <https://abc13.com/education/vaping-crisis-has-now-reached-texas-elementary-schools/5671312/> [<https://perma.cc/6GA2-6D6V>].

2. See *id.*

3. Levi Harvey, *North Alabama School Removes Bathroom Stall Doors to Combat Vaping*, WAFF 48 (Sept. 6, 2019), <https://www.waff.com/2019/09/07/north-alabama-school-removes-bathroom-stall-doors-combat-vaping/> [<https://perma.cc/KWA8-5EFF>].

In the months before the COVID-19 pandemic forced school closures throughout the United States,⁴ many administrators were focused on containing the spread of vaping among their students.⁵ While the swelling popularity of e-cigarettes among youth⁶ stoked widespread anxiety among educators,⁷ the concern did not stop at schools' gates. Beginning in 2019, public health officials scrambled to make sense of the wave of mysterious and severe lung illnesses befalling otherwise healthy vapers.⁸ When the first individual died of a vaping-related illness in August of 2019, officials were already investigating nearly 200 cases of the sickness nationwide.⁹ Media outlets across the country rang the alarm bells with headlines like "Seattle Man Dies Suddenly After Vaping E-Cigarettes,"¹⁰ "Terrifying Vape Disease Has Now Killed Five People,"¹¹ and "How to Convince, Scare or Bribe Your Kids Not to Vape."¹² One public health expert called vaping "an epidemic that begs for an urgent response"¹³ and another expressed his desire for "federal officials and law

4. *The Coronavirus Spring: The Historic Closing of U.S. Schools*, EDUC. WEEK (July 1, 2020), <https://www.edweek.org/ew/section/multimedia/the-coronavirus-spring-the-historic-closing-of.html> [<https://perma.cc/28PG-DULG>].

5. See, e.g., Harvey, *supra* note 3; Oberg & Rafique, *supra* note 1.

6. RICHARD A. MEICH, LLOYD D. JOHNSTON, PATRICK M. O'MALLEY, JERALD G. BACHMAN, JOHN E. SCHULENBERG & MEGAN E. PATRICK, MONITORING THE FUTURE NATIONAL SURVEY RESULTS ON DRUG USE, 1975-2018: VOLUME 1, SECONDARY SCHOOL STUDENTS 14 (2019), http://www.monitoringthefuture.org/pubs/monographs/mtf-vol1_2018.pdf [<https://perma.cc/TMY3-UA9G>] ("Nicotine vaping in the last 12 months increased by 3.4, 8.9, and 10.9 percentage points in 8th, 10th, and 12th grades, respectively.")

7. In November 2018, 88% of high school teachers and administrators and 77% of middle school educators reported being somewhat or very concerned about e-cigarette use by students at school. *How Are Schools Responding to Juul and the Youth E-cigarette Epidemic?*, TRUTH INITIATIVE (Jan. 18, 2019), <https://truthinitiative.org/research-resources/emerging-tobacco-products/how-are-schools-responding-juul-and-youth-e-cigarette> [<https://perma.cc/76J7-LP9R>].

8. See, e.g., Jennifer E. Layden et al., *Pulmonary Illness Related to E-Cigarette Use in Illinois and Wisconsin—Final Report*, 382 NEW ENG. J. MED. 903, 904 (2020).

9. Lena H. Sun, *First Death Reported from Lung Illness Linked to Vaping, Officials Say*, WASH. POST (Aug. 23, 2019, 4:13 PM), <https://www.washingtonpost.com/health/2019/08/23/first-death-reported-vaping-related-lung-illness-officials-say/> [<https://perma.cc/E5LW-RTY6>].

10. Lester Black, *Seattle Man Dies Suddenly After Vaping E-Cigarettes*, THE STRANGER: SLOG (Nov. 4, 2019, 2:45 PM), <https://www.thestranger.com/slog/2019/11/04/41891549/seattle-man-dies-suddenly-after-vaping-e-cigarettes> [<https://perma.cc/PDJ4-B86S>].

11. Dan Robitzski, *Terrifying Vape Disease Has Now Killed Five People*, FUTURISM (Sept. 9, 2019), <https://futurism.com/neoscope/terrifying-vape-disease-killed-five-people> [<https://perma.cc/B3FH-XD4A>].

12. David G. Allan, *How to Convince, Scare or Bribe Your Kids Not to Vape*, CNN (Oct. 10, 2019, 3:25 PM), <https://www.cnn.com/2019/10/10/health/vaping-kids-parenting-wellness-go-ask-your-dad/index.html> [<https://perma.cc/X2GB-LSA5>].

13. David C. Christiani, Editorial, *Vaping-Induced Lung Injury*, 382 NEW ENG. J. MED. 960 (2020).

enforcement [to] . . . pull these things off the shelves.”¹⁴ Calls for a vaping ban rang out from politicians across the country,¹⁵ while several retailers such as Walmart and Costco autonomously decided to stop selling the devices to avoid public scrutiny and potential liability.¹⁶ Furthermore, the perception that young people are drawn into the practice of vaping by the fruity flavors and friendly packaging of e-cigarettes has led many to suggest that a ban on flavored e-juices¹⁷ or stricter regulations on marketing and advertising¹⁸ could curtail the “epidemic.”

But science reveals that there is more to the story, and history warns that knee-jerk reactions to new social phenomena are often foolish or futile.¹⁹ The backlash against vaping bears many of the characteristics of a moral panic.²⁰ The e-cigarette, invented to help longtime tobacco users quit smoking, is now broadly perceived as the tool of juvenile deviants; vaping is seen as an “unacceptable” behavior that “presumably causes or is responsible for serious harmful consequences,” and “serious steps must be taken to control the behavior.”²¹ Despite the glaring lack of knowledge about vape consumption and its effects, the enthusiastic media coverage created a demand for a hasty political response.²² In response, lawmakers should remember the lessons that echo from Prohibition and other U.S. moral panics.²³

14. Jonathan Shorman, *First Kansas Death from Vaping-Related Lung Disease Reported Amid National Outbreak*, KAN. CITY STAR (Sept. 10, 2019, 4:23 PM), <https://www.kansascity.com/news/politics-government/article234922287.html> [<https://perma.cc/M494-DNFP>].

15. See, e.g., Jamie Ducharme, *As the Number of Vaping-Related Deaths Climbs, These States Have Implemented E-Cigarette Bans*, TIME (Oct. 15, 2019, 4:28 PM), <https://time.com/5685936/state-vaping-bans/> [<https://perma.cc/N6LN-VG8K>].

16. David Yaffe-Bellany, Michael Corkery & Sheila Kaplan, *Walmart to End Sales of E-Cigarettes as Vaping Concerns Mount*, N.Y. TIMES (Sept. 20, 2019), <https://www.nytimes.com/2019/09/20/business/walmart-vaping-e-cigarette-sales.html> [<https://perma.cc/4BXK-DSHH>].

17. See, e.g., William Feuer, *Massachusetts Lawmakers Approve Bill Banning Flavored Tobacco and Levying 75% Excise Tax on E-Cigarettes*, CNBC (Nov. 21, 2019, 9:08 AM), <https://www.cnn.com/2019/11/21/massachusetts-lawmakers-vote-to-ban-flavored-tobacco-and-tax-e-cigs.html> [<https://perma.cc/GE5K-GG6Q>].

18. See, e.g., Michelle Andrews, *Cigarettes Can't Be Advertised on TV. Should Juul Ads Be Permitted?*, NPR (Aug. 20, 2019, 5:00 AM), <https://www.npr.org/sections/health-shots/2019/08/20/752553108/cigarettes-cant-be-advertised-on-tv-should-juul-ads-be-permitted> [<https://perma.cc/EK87-S8F5>].

19. For a survey of disproportionate political responses to social change, see MARK STEIN, *AMERICAN PANIC: A HISTORY OF WHO SCARES US AND WHY* (2014).

20. The concept of moral panic was first coined by sociologist Stanley Cohen in 1972 while presenting his study of the U.K. popular media and social reaction to the mods and rockers phenomenon. STANLEY COHEN, *FOLK DEVILS AND MORAL PANICS* (1972).

21. ERICH GOODE & NACHMAN BEN-YEHUDA, *MORAL PANICS: THE SOCIAL CONSTRUCTION OF DEVIANCE* 35 (2d ed. 2009).

22. See *id.*

23. While the effectiveness of national alcohol prohibition policy in the United States from 1920 to 1933 remains somewhat contested, historians cite the rise of organized crime, widespread bootlegging, and a substitution of hard liquors for beer as unintended yet enduring consequences of the Eighteenth Amendment and the Volstead Act. See, e.g., Jack S. Blocker, Jr., *Did Prohibition Really Work? Alcohol Prohibition as a Public Health Innovation*, 96 AM. J. PUB. HEALTH 233 (2006); Harry G. Levine & Craig Reinerman, *From Prohibition to*

Part I of this Note soberly explores and delineates the perceived and real threats of vaping for America's youth, concluding with an analysis of the socioeconomic and developmental health effects of nicotine addiction. Part II delves into the federal government's response to e-cigarettes as well as the powers and limitations of federal regulation under the Food and Drug Administration's (FDA) "Deeming Rule" and the potential effectiveness of an increase in the national tobacco purchase age or a federal ban on flavored vaping products. Part III discusses the realistic benefits of taking a harm reduction approach to youth vaping in the United States, drawing on lessons from the effectiveness of alcohol and tobacco policies at home and in other Western countries. Ultimately, Part III suggests that the FDA should focus on reducing nicotine levels in e-cigarettes and traditional cigarettes and ensuring the safety of ingredients, thereby equipping state governments to take action by folding vaping into their existing tobacco laws and tying excise taxes on tobacco products to nicotine levels.

I. DEMYSTIFYING THE THREAT VAPING POSES TO AMERICA'S YOUTH

A. Sudden Illnesses and Deaths

As of February 18, 2020, the Centers for Disease Control and Prevention (CDC) had observed 2807 cases of e-cigarette or vaping product use-associated lung injuries (termed EVALI) nationwide in every state, the District of Columbia, and the territories of Puerto Rico and the U.S. Virgin Islands.²⁴ What begins with symptoms resembling the flu or pneumonia rapidly worsens, eventually landing most patients in the hospital with life-threatening lung damage.²⁵ From August of 2019 to February of 2020 when the CDC stopped tracking deaths, sixty-eight Americans died from the sudden illness.²⁶ Roughly one in six of those diagnosed with EVALI have been adolescents under eighteen, another two in six were between the ages of eighteen and twenty-four, and the youngest reported victim was just thirteen years old.²⁷

Early anecdotal evidence suggested that many of those affected by the acute illness were very heavy vapers who believed the habit was less damaging to lungs than smoking marijuana or tobacco.²⁸ But millions of people worldwide had been

Regulation: Lessons from Alcohol Policy for Drug Policy, 69 MILBANK Q. 461 (1991).

24. *Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products*, CDC, https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html#latest-outbreak-information [<https://perma.cc/JJF6-SRLV>] (last updated Feb. 25, 2020). Due to the emergence of the COVID-19 pandemic, the CDC stopped collecting and publishing national data on EVALI cases in late February of 2020. *The EVALI Outbreak and Vaping in the COVID-19 Era*, 8 LANCET RESPIRATORY MED. 831, 831 (2020).

25. See, e.g., Jacqueline Howard & Michael Nedelman, *After Vaping-Related Illness, Teen Now Has Lungs Like 'a 70-Year-Old's'*, CNN (Sept. 13, 2019, 5:06 PM), <https://www.cnn.com/2019/09/11/health/vaping-lung-illness-illinois-teen-profile/index.html> [<https://perma.cc/2R8E-X725>].

26. See *Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products*, *supra* note 24.

27. *Id.*

28. See, e.g., Howard & Nedelman, *supra* note 25.

vaping regularly for years and not falling ill²⁹—so what exactly was triggering the “outbreak,” and why was it so prevalent among children and young adults? One key piece of evidence was the fact that the overwhelming majority of EVALI patients reported vaping products containing tetrahydrocannabinol (or THC, the psychoactive ingredient in cannabis) purchased from friends or illicit dealers.³⁰ And after state and federal public health agencies spent months investigating and testing the lungs of patients, the CDC finally named its primary suspect—vitamin E acetate, a thickening agent used to dilute THC oil.³¹ The additive was being used to cut the black market THC vape fluids that were often disguised as legal, dispensary-sourced products.³² Although vitamin E acetate is commonly used in skin lotions or vitamin supplements, it had never previously been tested on lungs or approved for inhalation.³³

While vitamin E acetate is the only compound directly linked to EVALI, the CDC did not rule out the possibility that other chemicals or toxins found in unregulated vaping liquids could damage the lungs.³⁴ The investigation into the outbreak “revealed the existence of a vast, unregulated, shadowy marketplace of illegal or bootleg vaping products that are essentially a stew of unknown chemicals concocted, packed[,] and sold by unknown manufacturers and sellers.”³⁵ Youths’ ability to access this black market is not as difficult as it may seem; in Michigan, for example, a Google search for marijuana delivery services returns dozens of websites that illegally sell unapproved vape cartridges.³⁶

Clarifying what is *not* hospitalizing or killing adolescents and identifying the source of the epidemic are both equally important when assessing the threat of vaping to youth. Vitamin E acetate has never been used in the market-favorite Juul pods,³⁷

29. Market research group Euromonitor International estimated that there were seven million adult vapers in 2011 and forty-one million in 2018. Lora Jones, *Vaping: How Popular Are E-Cigarettes?*, BBC (Sept. 15, 2019), <https://www.bbc.com/news/business-44295336> [<https://perma.cc/5B2X-5AEY>].

30. *Vaping Illness Update: FDA Warns Public to Stop Using Tetrahydrocannabinol (THC)-Containing Vaping Products and Any Vaping Products Obtained Off the Street*, U.S. FOOD & DRUG ADMIN., <https://www.fda.gov/consumers/consumer-updates/vaping-illness-update-fda-warns-public-stop-using-tetrahydrocannabinol-thc-containing-vaping> [<https://perma.cc/XZ9L-A2BT>] (last updated Oct. 4, 2019).

31. *Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products*, *supra* note 24 (finding Vitamin E acetate at the site of lung injury in all twenty-nine patients tested by the CDC).

32. Denise Grady, *Vaping Illnesses Are Linked to Vitamin E Acetate*, *C.D.C. Says*, N.Y. TIMES (Nov. 8, 2019), <https://www.nytimes.com/2019/11/08/health/vaping-illness-cdc.html> [<https://perma.cc/P88B-V3ZY>].

33. *Id.*

34. *Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products*, *supra* note 24.

35. Grady, *supra* note 32.

36. Steve Neavling, *Michigan Finally Bans Vitamin E Acetate from Cannabis Vaping Products*, METRO TIMES (Nov. 22, 2019), <https://www.metrotimes.com/detroit/Michigan-finally-bans-vitamin-e-acetate-from-cannabis-vaping-products/Content?oid=23183888> [<https://perma.cc/BP7Y-K3C4>].

37. Brianna Abbott & Jennifer Maloney, *Investigators Find Clue to Mysterious Vaping Injuries*, WALL ST. J. (Nov. 8, 2019, 7:17 PM), <https://www.wsj.com/articles/investigators>

and a study of THC-based cartridges in California—the country’s largest legal THC market—found that none of the state-licensed producers were adding the harmful compound to their regulated cartridges, while 60% of the illicit market samples had high concentrations of vitamin E acetate.³⁸ Regulated, approved products were not the source of the outbreak; rather, it was the limitations of existing regulatory authority that allowed space for tainted products to enter local markets and lungs across the country.³⁹ Conflating the EVALI outbreak simply with the rise of “juuling” would be a side effect of the moral panic and a foolish move for any serious policymaker.

B. The “Gateway Effect” & Relation to Smoking

Even before the outbreak of vaping-related illnesses took over the headlines, public health officials expressed great concern that the rise of vaping would undo the decades of progress toward reducing cigarette smoking among the country’s youth.⁴⁰ Since the turn of the century, the percentage of adolescents who report either

-find-clue-to-mysterious-vaping-injuries-11573236635?ns=prod/accounts-wsj [https://perma.cc/2UBP-4SLG].

38. Zachary Eisenberg, Derek Moy, Vu Lam, Cathy Cheng, Josh Richard & Benjamin Burack, *Contaminant Analysis of Illicit Vs Regulated Market Extracts*, ANRESO LAB.’S (Oct. 26, 2019), <https://cannabis.anresco.com/analysis-of-illicit-vs-regulated-market-extracts/> [https://perma.cc/Y28P-BRF2] (finding no signs of adulteration in the more than 200 samples from various licensed operators but finding vitamin E acetate in 9 of 15 samples from unregulated operators). See generally Matthew J. Lozier et al., *Update: Demographic, Product, and Substance-Use Characteristics of Hospitalized Patients in a Nationwide Outbreak of E-cigarette, or Vaping, Product Use–Associated Lung Injuries—United States, December 2019*, 68 CDC: MORBIDITY AND MORTALITY WEEKLY REPORT 1142 (2019) (finding that most EVALI patients reported “use of counterfeit branded products such as Dank Vapes” but cautioning against use of any vaping products pending further investigation).

39. States that have legalized the sale of marijuana (either for medical or recreational use) and regulate products sold in dispensaries have already banned products containing vitamin E acetate. See, e.g., Jackie Borchardt, *Ohio Bans Vitamin E Acetate from Medical Marijuana Vapes After CDC Links It to Lung Illnesses*, CIN. ENQUIRER (Nov. 8, 2019, 9:01 PM), <https://www.cincinnati.com/story/news/2019/11/08/ohio-bans-vitamin-e-acetate-medical-marijuana-vapes-after-cdc-links-additive-to-lung-injury/2535189001/> [https://perma.cc/3YDY-33R3]; Asia Fields, *Washington State Bans Vape Products Containing Vitamin E Acetate, Thought to Be Linked to Illness*, SEATTLE TIMES (Nov. 18, 2019, 6:34 PM), <https://www.seattletimes.com/seattle-news/washington-state-bans-vape-products-containing-vitamin-e-acetate-thought-to-be-linked-to-illness/> [https://perma.cc/846B-85YC]; Meerah Powell, *Oregon Bans Potentially Harmful Ingredient from Cannabis Products*, OPB.ORG (Nov. 23, 2019, 2:57 PM), <https://www.opb.org/news/article/vitamin-e-acetate-cannabis-vaping-ban-oregon/> [https://perma.cc/E2LQ-NUDH]. States that have no legal cannabis market lack the power to test and approve the THC oils changing hands within their borders. They must rely solely on their ex post facto law enforcement powers to prosecute illicit manufacturers or dealers.

40. *Surgeon General’s Advisory on E-Cigarette Use Among Youth*, U.S. DEP’T HEALTH & HUM. SERVS. (2018), <https://e-cigarettes.surgeongeneral.gov/documents/surgeon-generals-advisory-on-e-cigarette-use-among-youth-2018.pdf> [https://perma.cc/8WNS-KFAV].

smoking daily or having had a cigarette in the past month has steadily plummeted.⁴¹ While the percentage of adolescents who reported having a cigarette in the past thirty days peaked at 28% in 1996-1997, that figure dropped to just 5% by the end of 2018.⁴² But the rise in youth vaping has mirrored—and even outpaced—this decline.⁴³ One resulting fear is that adolescents who are introduced to nicotine through vaping may turn to cigarettes later in life.⁴⁴

According to gateway or catalyst hypothesis theorists, the story goes like this: a mostly risk-averse teenager who would normally be deterred from smoking cigarettes tries vaping, possibly because it is seen as healthier, more socially acceptable, or easier to hide from authority figures.⁴⁵ Despite doing so, she genuinely believes she will never take up smoking.⁴⁶ But after a while, she gives in. Perhaps she did so because the enjoyment she gets from the sensations of vaping (nicotine's "buzz" or the taste) led her to expect the same enjoyment from smoking.⁴⁷ Or perhaps vaping built up her courage to take other risks.⁴⁸ Or, instead, she may have met friends through vaping who also smoke and offer her cigarettes. Whatever the reasons were along the way, vaping opened the door for smoking.⁴⁹

This concern is not novel; the gateway drug effect has been studied for decades and used to justify tougher regulations and prevention measures for substances with addictive qualities.⁵⁰ But the rise of e-cigarettes presents a new question of whether

41. LLOYD D. JOHNSTON, RICHARD A. MIECH, PATRICK M. O'MALLEY, JERALD G. BACHMAN, JOHN E. SCHULENBERG & MEGAN E. PATRICK, MONITORING THE FUTURE NATIONAL SURVEY RESULTS ON DRUG USE 1975-2018: 2018 OVERVIEW, KEY FINDINGS ON ADOLESCENT DRUG USE 83 tbl.7, 88 tbl.8 (2019). The share of high school seniors who reported smoking daily dropped from 20.6% in 2000 to 3.6% in 2018. A similar drop was seen among eighth graders (7.4% to 0.8%) and tenth graders (14% to 1.8%) over the same time frame. *Id.* at 88 tbl.8.

42. Off. of Adolescent Health, *Adolescents and Tobacco: Trends*, U.S. DEP'T HEALTH & HUMAN SERVS. (citing JOHNSTON ET AL., *supra* note 41), <https://www.hhs.gov/ash/oah/adolescent-development/substance-use/drugs/tobacco/trends/index.html> [<https://perma.cc/CW78-U3QM>] (last reviewed May 1, 2019).

43. See Andrea S. Gentzke, MeLisa Creamer, Karen A. Cullen, Bridget K. Ambrose, Gordon Willis, Ahmed Jamal & Brian A. King, *Vital Signs: Tobacco Product Use Among Middle and High School Students—United States, 2011–2018*, 68 CDC: MORBIDITY & MORALITY WKLY. REP. 157, 160 (2019).

44. See, e.g., NAT'L ACADS. OF SCIS., ENG'G & MED., PUBLIC HEALTH CONSEQUENCES OF E-CIGARETTES 493–94 (Kathleen Stratton, Leslie Y. Kwan & David L. Eaton eds., 2018).

45. *Id.* at 496–97.

46. See *id.* at 497.

47. See *id.*

48. *Id.*

49. *Id.*

50. See STAGES AND PATHWAYS OF DRUG INVOLVEMENT 3–4 (Denise B. Kandel ed., 2002). The best way to stop teens from using hard drugs, if we accept the hypothesis, is to prevent them from ever taking a sip of alcohol or a puff of a cigarette. This idea underpinned the mission of D.A.R.E., a school-based substance abuse prevention program that taught children to "just say no" but has proven largely ineffective. E.g., Scott O. Lilienfeld & Hal Arkowitz, *Why "Just Say No" Doesn't Work*, SCI. AM. (Jan. 1, 2014), <https://www.scientificamerican.com/article/why-just-say-no-doesnt-work/> [<https://perma.cc/4LC8-365G>].

a more novel, accessible method of intaking nicotine (vaping) will turn youth onto the more harmful, traditional method of nicotine use (smoking).⁵¹ And the majority of recent research shows that there is indeed some evidence of a positive link between vaping and smoking initiation among youth.⁵² A review of existing studies found that among adolescents and young adults who had never smoked, those who had vaped were 3.5 times more likely than nonvapers to eventually try a cigarette.⁵³ And many of the young people who made the transition were the type of “low-risk” teens who normally would not smoke.⁵⁴

The fact that one in four young people who are introduced to nicotine through vaping eventually move on to try cigarettes⁵⁵ illustrates the close connection between the two practices, but it does not tell the whole story. The rise in vaping has not yet led to a bump in youth smoking rates at the national level.⁵⁶ The more considerable finding from a public health standpoint is that, for the first time in over a decade, the *overall consumption* of tobacco among adolescents has spiked, meaning that e-cigarette use has significantly outpaced the gradual decline in youth smoking.⁵⁷

Exacerbating the issue of the rise in the use of tobacco products overall is the fact that vaping may lead to higher levels of nicotine intake than conventional smoking.⁵⁸ Because of the “smoothness” of the hit produced by the nicotine salts used in vaping liquids, as opposed to the freebase nicotine used in cigarettes, it is easier for companies to sell e-juice with high concentrations of nicotine and easier

51. See NAT'L ACADS. OF SCIS., ENG'G & MED., *supra* note 44, at 589–92.

52. See *id.* at 516–19. From a baseline of young people who had never smoked, ten of ten qualified longitudinal studies showed that those who were e-cigarette users were more likely to have tried a cigarette after a period of six to eighteen months than those who were not e-cigarette users. *Id.* at 502 tbl.16-1, 517 tbl.16-4.

53. See *id.* at 517 tbl.16-4. On the other hand, some have used the common liability hypothesis to suggest that any association between the use of e-cigarettes and smoking initiation is due to shared risk factors. See, e.g., Jean-François Etter, *Gateway Effects and Electronic Cigarettes*, 113 ADDICTION 1776 (2017); Lynn T. Kozlowski & Kenneth E. Warner, *Adolescents and E-Cigarettes: Objects of Concern May Appear Larger Than They Are*, 174 DRUG & ALCOHOL DEPENDENCE 209 (2017). A radically simplified explanation of this theory is that teenagers who start vaping and end up smoking are the same teenagers who would smoke cigarettes anyway, perhaps because they have an impulsive personality or because someone else in their friend group or family smokes. A recent study, for example, concluded that “the apparent relationship between e-cigarette use and *current* conventional smoking is fully explained by shared risk factors, thus failing to support claims that e-cigarettes have a causal effect on concurrent conventional smoking among youth.” Sooyong Kim & Arielle S. Selya, *The Relationship Between Electronic Cigarette Use and Conventional Cigarette Smoking Is Largely Attributable to Shared Risk Factors*, 22 NICOTINE & TOBACCO RSCH. 1123 (2020) (emphasis in original).

54. See NAT'L ACADS. OF SCIS., ENG'G & MED., *supra* note 44, at 527.

55. See *id.* at 517 tbl.16-4.

56. Gentzke et al., *supra* note 43, at 161 fig.3.

57. *Id.* at 160–62.

58. Katherine Ellen Foley, *There's a Simple Way to Curb Youth Vaping, and It Isn't a Flavor Ban*, QUARTZ (Oct. 11, 2019), <https://qz.com/1723861/changing-the-nicotine-in-e-juice-could-curb-teen-vaping/> [<https://perma.cc/86Y4-JURS>].

for youth to vape more nicotine over a shorter period of time.⁵⁹ For example, Juul previously claimed that one of its pods contains the same amount of nicotine as a pack of cigarettes.⁶⁰ And early research has shown that many young people underestimate their level of nicotine consumption—implying that vaping may lead to higher levels of nicotine dependence among adolescents.⁶¹ This suggests that the macrolevel threat of the e-cigarette for adolescents is not its link to the traditional cigarette or its sleek method of delivery, but what it is delivering: high levels of nicotine.

C. Nicotine Dependence & Development

The characteristics of the adolescent brain make young people particularly vulnerable to nicotine and its health effects.⁶² Principally, the development of the structures of the brain that control emotional processing outpace the development of the structures controlling cognitive decision-making and self-control—meaning adolescents are more prone to take risks and be influenced by peers.⁶³ Once adolescents take the initial risk of consuming nicotine, their brain chemistry makes them much more susceptible to nicotine’s psychoactive and addictive qualities; dependence creeps in at low levels of cigarette or e-cigarette consumption.⁶⁴ And after young people are hooked, nicotine can do significant damage to a still-developing brain.⁶⁵

In the short term, research shows that nicotine use can affect memory, focus, and impulse control—areas of cognitive processing that already pose challenges for adolescents.⁶⁶ While these effects can be reversed in an adult brain after nicotine cessation, the same is not true for adolescents.⁶⁷ Nicotine exposure during adolescence increases the potential for the development of psychiatric disorders and cognitive impairment later in life.⁶⁸ Additionally, those who smoke (or vape) at

59. *Id.*

60. *How Much Nicotine Is in JUUL?*, TRUTH INITIATIVE (Feb. 26, 2019), <https://truthinitiative.org/research-resources/emerging-tobacco-products/how-much-nicotine-juul> [<https://perma.cc/DB63-6VHB>]. That claim has since been removed from Juul’s website. *Id.*

61. Rachel Boykan, Catherine R. Messina, Gabriela Chateau, Allison Eliscu, Jonathan Tolentino & Maciej L. Goniewicz, *Self-Reported Use of Tobacco, E-Cigarettes, and Marijuana Versus Urinary Biomarkers*, 143 PEDIATRICS 1 (2019).

62. See Natalia A. Goriounova & Huibert D. Mansvelder, *Short- and Long-Term Consequences of Nicotine Exposure During Adolescence for Prefrontal Cortex Neuronal Network Function*, 2 COLD SPRINGS HARBOR PERSPS. MED. 1 (2012).

63. *Id.* at 2.

64. *Id.*

65. *See id.*

66. Jon Hamilton, *How Vaping Nicotine Can Affect a Teenage Brain*, NPR (Oct. 10, 2019, 5:07 AM), <https://www.npr.org/sections/health-shots/2019/10/10/768588170/how-vaping-nicotine-can-affect-a-teenage-brain> [<https://perma.cc/NZN7-XLS5>].

67. Goriounova & Mansvelder, *supra* note 62, at 7.

68. *Id.* at 9.

young ages tend to suffer from lasting attention deficits—a problem which worsens with nicotine levels and exposure over time.⁶⁹

Naturally, the harmful consequences of nicotine consumption can have a disparate impact on different socioeconomic and racial groups. For example, studies show that while black Americans smoke at a similar rate compared to white Americans, they are significantly more likely to die from a tobacco-related disease, often due to existing disparities in access to healthcare.⁷⁰ Similarly, individuals living below the poverty line smoke for nearly twice as many years and suffer from more diseases caused by smoking than do smokers with higher incomes—suggesting that the harmful consequences of vaping, likewise, may disproportionately impact today’s minorities or economically disadvantaged youth.⁷¹

Ultimately, the e-cigarette simply represents a new tool for younger generations to access an ancient toxic chemical⁷² that can have serious, permanent, and possibly discriminatory effects on its users. Thus, the most salient danger of youth vaping is the *power of nicotine*, and any solutions to the threat should be rooted in this awareness. But, as the next few sections will outline, policymakers have been distracted by the novelty of vaping and the surrounding media hysteria in fashioning their responses.

II. FEDERAL RESPONSES TO YOUTH VAPING

A. FDA’s Deeming Rule & Trump’s Flavor Ban

The FDA’s power to regulate tobacco products comes from the Family Smoking Prevention and Tobacco Control Act, passed by Congress in 2009.⁷³ The Act originally applied only to cigarettes, cigarette tobacco, smokeless tobacco, and roll-your-own tobacco, but an accompanying provision allowed for the agency to assert its jurisdiction over anything fitting the statutory definition of “tobacco products”⁷⁴ (“any product made or derived from tobacco that is intended for human consumption”).⁷⁵ Despite the fact that e-cigarettes had been a staple in the U.S. market for a number of years, the FDA did not assert its regulatory authority over the devices until 2016, when the Deeming Rule took effect to bring e-cigarettes under

69. *Id.*

70. *African Americans and Tobacco Use*, CDC, <https://www.cdc.gov/tobacco/disparities/african-americans/index.htm> [https://perma.cc/J2ZY-8NMT] (last updated Nov. 18, 2019).

71. *See Cigarette Smoking and Tobacco Use Among People of Low Socioeconomic Status*, CDC, <https://www.cdc.gov/tobacco/disparities/low-ses/index.htm> [https://perma.cc/3UAR-RSXX] (last updated Nov. 25, 2019).

72. Arthur William Musk & Nicholas Hubert De Klerk, *History of Tobacco and Health*, 8 RESPIROLOGY 286, 286 (2003).

73. Family Smoking Prevention and Tobacco Control Act, Pub. L. No. 111-31, 123 Stat. 1776 (2009) (codified at 21 U.S.C. § 387).

74. *Id.* § 901(b), 123 Stat. at 1786 (codified at 21 U.S.C. § 387a(b)).

75. *Id.* § 101(a)(1), 123 Stat. at 1783.

the agency's umbrella.⁷⁶ Under the Food, Drug, and Cosmetic Act (FD&C Act),⁷⁷ all vape products on the market at that time were required to obtain FDA authorization before being legally marketed. The FDA chose to defer enforcement of the premarket authorization requirements, originally setting August 2018 as the deadline for applications.⁷⁸

That timeline changed when, in 2017, the FDA announced that it was pushing back the marketing application deadline to 2022, because former agency commissioner Scott Gottlieb thought e-cigarettes could play a role in helping wean adults off of cigarettes.⁷⁹ Gottlieb announced in March 2019 that the FDA would move up the application deadline for flavored tobacco vaping products one year due to "evidence show[ing] that youth are especially attracted to flavored e-cigarette products."⁸⁰ After a consortium of public health and medical groups sued the FDA over the original deadline extension, a Maryland court ordered that the deadline had to be moved back up to May 12, 2020.⁸¹ Just a few weeks before that deadline, the FDA secured a court order granting a 120-day extension to allow tobacco companies more time to complete their applications in light of disruptions caused by the COVID-19 pandemic.⁸² Manufacturers who failed to meet the September 9, 2020 deadline risk being forced off the market,⁸³ while others preemptively closed ahead of the deadline, citing a lack of resources needed to comply with the premarket authorization process.⁸⁴

76. Deeming Tobacco Products To Be Subject to the Federal Food, Drug, and Cosmetic Act, as Amended by the Family Smoking Prevention and Tobacco Control Act; Restrictions on the Sale and Distribution of Tobacco Products and Required Warning Statements for Tobacco Products, 81 Fed. Reg. 28,974 (May 10, 2016) (to be codified at 21 C.F.R. pt. 1100, 1140, 1143) [*hereinafter* Deeming Rule].

77. Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 301–399.

78. Megan Thielking, *FDA 'Should Have Acted Sooner' on E-Cigarettes, Agency Head Tells Congress*, STAT (Sept. 25, 2019), <https://www.statnews.com/2019/09/25/fda-e-cigarettes-congress/> [<https://perma.cc/EY9H-4KVR>].

79. *Id.*

80. Press Release, U.S. Food & Drug Admin., Statement from FDA Commissioner Scott Gottlieb, M.D., on Advancing New Policies Aimed at Preventing Youth Access to, and Appeal of, Flavored Tobacco Products, Including E-Cigarettes and Cigars (Mar. 13, 2019), <https://www.fda.gov/news-events/press-announcements/statement-fda-commissioner-scott-gottlieb-md-advancing-new-policies-aimed-preventing-youth-access> [<https://perma.cc/9NYT-E4CB>].

81. *Am. Acad. of Pediatrics v. FDA*, 399 F. Supp. 3d 479 (D. Md. 2019).

82. *Am. Acad. of Pediatrics v. FDA*, No. 8:18-cv-883-PWG (D. Md. Apr. 22, 2020) (order granting defendants' motion for a 120-day extension of the premarket application deadline); Press Release, Food & Drug Admin., Coronavirus (COVID-19) Update: Court Grants FDA's Request for Extension of Premarket Review Submission Deadline for Certain Tobacco Products Because of Impacts of COVID-19 (Apr. 23, 2020), <https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-court-grants-fdas-request-extension-premarket-review-submission-deadline> [<https://perma.cc/Q9QM-Q9M3>].

83. *Next Steps on the Sept. 9 Premarket Submissions*, FDA (Sep. 21, 2020), <https://www.fda.gov/tobacco-products/ctp-newsroom/next-steps-sept-9-premarket-submissions> [<https://perma.cc/W2RN-Q2DD>].

84. Dan Vergano & Stephanie M. Lee, *An FDA Deadline For Vape Shops Is Today. No One Knows What Comes Next.*, BUZZFEED NEWS (Sep. 9, 2020, 1:55 P.M.), <https://www>

These vacillating deadlines reflected the broader inconstancy of politics and priorities within Trump's FDA. After Commissioner Gottlieb appeared to shift the agency's focus away from regulation of vaping in 2017, the FDA changed course in 2018 when the popularity of vaping among youth skyrocketed. Weaponizing the FDA's enforcement discretion under the FD&C Act, the agency threatened to take all flavored e-cigarettes off the market in an effort to reduce youth vaping but backed down after Juul voluntarily agreed to stop selling all of its flavors except for mint and menthol in retail stores and to stop advertising on social media platforms.⁸⁵ But when the hysteria over vaping-related illnesses took hold and new data showed a continued rise in youth vaping despite the limited accessibility to fruity flavors, the FDA—at the urging of President Trump—announced its intention to effectively ban all e-cigarette flavors except tobacco (including menthol and mint).⁸⁶ The agency developed guidelines which would have “order[ed] most flavored vape products off the market and allow[ed] them back only if manufacturers got agency authorization.”⁸⁷ In the interim, Juul pulled fruity flavors from its website⁸⁸ and immediately halted the sale of its mint pod after two studies showed mint was the most popular flavor among high school students.⁸⁹ Meanwhile, new federal data suggested that menthol was not a popular flavor among youth vapers, so the FDA decided to exempt menthol from the proposed ban.⁹⁰

Ultimately, the proposed guidelines were stalled by Trump, who allegedly backed off the plan amid concern that it would hurt small businesses (such as vape shops) and their employees.⁹¹ In early November 2019, the Trump administration urged that the White House, not the FDA, would be proposing new rules for vaping.⁹² Just two

.buzzfeednews.com/article/danvergano/vaping-shops-close-fda-deadline [https://perma.cc/TXS4-ZEXW]; *The Clean Vape Will Be Closing September 9, 2020*, CLEAN VAPE (Jul. 30, 2020), <https://www.thecleanvape.com/blog/the-clean-vape-will-be-closing-september-9-2020/> [https://perma.cc/H6MW-4935].

85. See Sheila Kaplan & Jan Hoffman, *Juul Suspends Selling Most E-Cigarette Flavors in Stores*, N.Y. TIMES (Nov. 13, 2018), <https://www.nytimes.com/2018/11/13/health/juul-cigarettes-vaping-teenagers.html> [https://perma.cc/5RBH-ERZC].

86. Matthew Perrone, *Government Plans to Ban Flavors Used in E-Cigarettes*, ASSOCIATED PRESS (Sept. 12, 2019), <https://apnews.com/9d65a6995e544ee7bdf7fd2c157c69a2> [https://perma.cc/U8BJ-KCRB].

87. Josh Dawsey & Laurie McGinley, *Trump Backs Off Flavored Vape Ban He Once Touted*, WASH. POST (Nov. 17, 2019), https://www.washingtonpost.com/national/health-science/trump-pulls-back-from-flavored-vaping-ban/2019/11/17/30853ece-07ae-11ea-924a-28d87132c7ec_story.html [https://perma.cc/F2WH-6YUS].

88. Erika Edwards, *Juul Has Stopped Selling All Fruity Flavors*, NBC NEWS (Oct. 17, 2019, 1:14 PM), <https://www.nbcnews.com/health/vaping/juul-has-stopped-selling-all-fruity-flavors-n1068211> [https://perma.cc/V5PP-L24A].

89. Angelica LaVito, *Juul Halts Sales of Its Popular Mint Flavor*, CNBC (Nov. 7, 2019, 2:24 PM), <https://www.cnbc.com/2019/11/07/juul-halts-sales-of-its-popular-mint-flavor.html> [https://perma.cc/7YDK-E4EB].

90. Dawsey & McGinley, *supra* note 87.

91. *Id.*

92. See Shira Stein, Gerald Porter Jr. & Josh Wingrove, *With Vape Curbs Pending, White House Questions FDA Tobacco Rule*, BLOOMBERG (Nov. 8, 2019, 10:24 AM), <https://www.bloomberg.com/news/articles/2019-11-08/senior-white-house-official-says-fda->

days into 2020, however, the FDA issued a policy “prioritizing enforcement” against all fruit- or mint-flavored e-cigarette pods but not tobacco or menthol flavored ones.⁹³ Most significantly, the “flavor ban” would not apply to e-liquid products used in refillable “open-tank” (non-cartridge-based) systems, which are purportedly more common among adult vapers.⁹⁴ This exemption for flavored e-liquids, which the FDA characterized as a “balance” between “health concerns related to youth use” with “considerations regarding addicted adult cigarette smokers,”⁹⁵ resembled a major concession to the vape industry and may ultimately be based in poor conclusions about teen usage patterns; data suggest that open-tank systems are becoming increasingly popular among adolescents and young adults.⁹⁶ Ultimately, the FDA was careful to warn the manufacturers of these systems that they may face consequences for marketing to minors or failing to “take . . . adequate measures to prevent minors’ access” to the open-tank products.⁹⁷ Though there is widespread consensus that youth vaping is harmful, there remains a great deal of skepticism over the prudence and potential effectiveness of a nationwide ban on flavored vaping products.⁹⁸ First, just three in ten youth cite the availability of flavors as a reason they tried vaping; social pressure is the number one factor prompting vaping initiation.⁹⁹ Additionally, a comparison with the United Kingdom reveals that British youth have a similar choice of flavors, but vaping rates are much lower there among

shouldn-t-regulate-tobacco [<https://perma.cc/Q55R-4GSB>].

93. Press Release, U.S. Food & Drug Admin., FDA Finalizes Enforcement Policy on Unauthorized Flavored Cartridge-Based E-Cigarettes That Appeal to Children, Including Fruit and Mint (Jan. 2, 2020), <https://www.fda.gov/news-events/press-announcements/fda-finalizes-enforcement-policy-unauthorized-flavored-cartridge-based-e-cigarettes-appeal-children> [<https://perma.cc/6EQ9-5C67>]; see also Dawsey & McGinley, *supra* note 87.

94. Press Release, *supra* note 93; Laurie McGinley & Josh Dawsey, *Trump Administration’s Compromise Vape Ban Provokes Public Health Outcry*, WASH. POST (Jan. 1, 2020, 6:30 PM), https://www.washingtonpost.com/health/trump-administrations-compromise-vape-ban-provokes-public-health-outcry/2020/01/01/973f3684-2cc9-11ea-bcb3-ac6482c4a92f_story.html [<https://perma.cc/8C3J-4YYP>].

95. Press Release, *supra* note 93.

96. See McGinley & Dawsey, *supra* note 94.

97. U.S. FOOD & DRUG ADMIN., ENFORCEMENT PRIORITIES FOR ELECTRONIC NICOTINE DELIVERY SYSTEMS (ENDS) AND OTHER DEEMED PRODUCTS ON THE MARKET WITHOUT PREMARKET AUTHORIZATION (REVISED) (2020). Even prior to the September deadline for premarket submissions, the FDA acted on its new enforcement policy by sending out warning letters to companies selling cartridge-based, flavored e-cigarettes as well as distributors of open-tank vaping products targeted to young people. Andrew Whalen, *The FDA Wants 10 Vape Companies to Ban Flavored E-Liquids, Is Your Brand on the List?*, NEWSWEEK (Jul. 20, 2020, 1:54 P.M.), <https://www.newsweek.com/vape-ban-fda-vaping-regulations-2020-e-liquid-tobacco-flavors-brands-1519155> [<https://perma.cc/9567-BKAG>].

98. See Terry Nguyen, *Flavored Vapes Are Facing a Ban. What Does That Mean for Vapers?*, VOX (Sept. 18, 2019, 12:50 PM), <https://www.vox.com/the-goods/2019/9/18/20872295/flavored-vape-ban-what-it-means-vapers> [<https://perma.cc/N5ZD-S9WM>].

99. James Tsai, Kimp Walton, Blair N. Coleman, Saida R. Sharapova, Sarah E. Johnson, Sara M. Kennedy & Ralph S. Caraballo, *Reasons for Electronic Cigarette Use Among Middle and High School Students — National Youth Tobacco Survey, United States, 2016, 67 MORBIDITY & MORTALITY WKLY. REP.* 196, 196 (2018).

adolescents¹⁰⁰—suggesting flavors cannot be the cause of the spike in youth vaping. Next, analysis of the Prohibition era shows that the nationwide ban on the production and sale of alcohol exerted a modest—and possibly *positive*—effect on alcohol consumption.¹⁰¹ Possible economic explanations of this phenomenon include the “forbidden fruit effect” and the potential that the black market for alcohol kept prices low by allowing producers to evade government regulations and taxes, thus providing the supply to meet the persisting demand.¹⁰² The black market for vapes has already shown itself to be both formidable and potentially dangerous.¹⁰³ And there is at least some potential that a flavored vape ban could drive youth to take up smoking instead; for example, the FDA’s 2009 ban on flavored cigarettes resulted in an increase in use of menthol cigarettes, cigars, and pipes among adolescents.¹⁰⁴ While a flavor ban may reduce vaping initiation and nicotine consumption among youth in the short term, historical comparisons suggest that the effort would likely prove misplaced.

B. A New Minimum: Congress Raises Legal Age of Tobacco Sale to Twenty-One

On December 20, 2019, President Trump signed into law an amendment to the FD&C Act that raised the federal minimum age of the sale of tobacco products from eighteen to twenty-one.¹⁰⁵ The statute now adds a provision stating “[i]t shall be unlawful for any retailer to sell a tobacco product to any person younger than 21 years of age”¹⁰⁶—a warning that was announced on the FDA’s website¹⁰⁷ but has left many retailers questioning the enforceability of the provision and what liability they may face if they continue to sell to adults between the ages of eighteen and twenty-one while more formal FDA regulations are pending.¹⁰⁸ The federal government has enforced the minimum purchase age of eighteen by withholding block grants from

100. Katie Hunt, *The US and UK See Vaping Very Differently. Here’s Why*, CNN (Sept. 17, 2019, 3:37 PM), <https://www.cnn.com/2019/09/17/health/vaping-us-uk-e-cigarette-differences-intl/index.html> [<https://perma.cc/C8JM-CYKW>].

101. Jeffrey A. Miron, *The Effect of Alcohol Prohibition on Alcohol Consumption 2* (Nat’l Bureau of Econ. Res. Working Paper No. 7130, 1999), <https://www.nber.org/papers/w7130> [<https://perma.cc/K2AU-NW7V>].

102. *Id.* at 22.

103. *See supra* Part I.A.

104. Charles J. Courtemanche, Makayla K. Palmer & Michael F. Pesko, *Influence of the Flavored Cigarette Ban on Adolescent Tobacco Use*, 52 AM. J. PREVENTATIVE MED. e139, e144 (2017).

105. Further Consolidated Appropriations Act, 2020, Pub. L. No. 116-94, §§ 603–604, 133 Stat. 3124, 3124–27 (2019).

106. *Id.* at § 603(a)(5).

107. *Selling Tobacco Products in Retail Stores*, FOOD & DRUG ADMIN., <https://www.fda.gov/tobacco-products/retail-sales-tobacco-products/selling-tobacco-products-retail-stores#references> [<https://perma.cc/EB6T-MRAV>] (last updated Dec. 20, 2019).

108. *See* Kellie Hwang & Elizabeth DePompei, *The Legal Age to Buy Cigarettes Is Now 21. But Retailers Say the Situation is Hazy.*, INDY STAR (Dec. 27, 2019, 4:33 PM), <https://www.indystar.com/story/news/health/2019/12/27/new-smoking-age-law-has-some-indiana-retailers-unclear-over-when-starts/2756342001/> [<https://perma.cc/8U9F-FJGF>].

states who do not comply with the minimum.¹⁰⁹ The new law uses the same basic enforcement method, requiring that states submit an annual report detailing how the state is preventing the sale of tobacco to individuals under twenty-one and carry out random inspections to ensure that retailers are abiding by the restriction in order to receive funding.¹¹⁰

The rise in the tobacco purchase age has not faced much pushback from key players; Juul has already expressed its support for a national Tobacco 21 policy,¹¹¹ and as of the beginning of 2020, nineteen states had already increased the age of tobacco purchase within their borders to twenty-one.¹¹²

Evidence suggests that raising the age of tobacco purchase to twenty-one nationally may have a significant impact on reducing vaping and smoking initiation rates among youth and begin to reduce overall levels of tobacco consumption among adolescents.¹¹³ And decades of data show that the increase in the national drinking age to twenty-one has at least played some part in reducing alcohol consumption among youth.¹¹⁴ However, one legal pitfall of increasing the legal purchase age is the resulting lack of access for teens to products that would help them quit vaping or smoking, such as nicotine patches or gum.¹¹⁵ There are no FDA-approved quit products for children—a fact that could lead nicotine-addicted teens to the black market.¹¹⁶

III. THE PROMISE OF FEDERAL REGULATION & HARM REDUCTION POLICIES

A. International Comparison: Vaping & Regulations in the United Kingdom

In the haze of the vaping panic and its political implications, federal policymakers have lost sight of the true threat behind vaping for youth—nicotine dependence—as well as the lessons that can be gleaned from conditions in other nations. A

109. Ryan Prior, *Hawaii Is Considering a Bill That Bans Cigarette Sales to Anyone Under 100*, CNN (Feb. 7, 2019, 6:51 PM), <https://www.cnn.com/2019/02/04/health/hawaii-cigarette-ban-bill-trnd/index.html> [<https://perma.cc/CS6W-YZG4>].

110. Further Consolidated Appropriations Act, 2020 § 604(a)(4).

111. Angelica LaVito, *Campaign to Raise Minimum Smoking Age to 21 Finds Unlikely Supporter: Big Tobacco*, CNBC (May 12, 2019, 10:30 AM), <https://www.cnbc.com/2019/05/11/juul-altria-british-american-tobacco-push-t21-laws-amid-teen-vaping-epidemic.html> [<https://perma.cc/2TBG-AGKY>].

112. *Pennsylvania Officially Raises Age of Tobacco Purchase to 21*, CBS PITTSBURGH (Nov. 27, 2019, 1:15 PM), <https://pittsburgh.cbslocal.com/2019/11/27/tobacco-purchase-age-21-pa/> [<https://perma.cc/37YF-KAVY>].

113. See generally INST. OF MED. OF THE NAT'L ACADS., PUBLIC HEALTH IMPLICATIONS OF RAISING THE MINIMUM AGE OF LEGAL ACCESS TO TOBACCO PRODUCTS (2015).

114. Christopher Carpenter & Carlos Dobkin, *The Minimum Legal Drinking Age and Public Health*, 25 J. ECON. PERSPS. 133, 134 (2011).

115. Russell Haythorn, *Colorado Doctors, Teens Raise Red Flag Over Unintended Consequences of New Tobacco, Vaping Laws*, THE DENVER CHANNEL.COM (Oct. 25, 2019, 5:41 PM), <https://www.thedenverchannel.com/news/local-news/colorado-doctors-teens-raise-red-flag-over-unintended-consequences-of-new-tobacco-vaping-laws> [<https://perma.cc/N7FU-B2FT>].

116. *Id.*

comparison between vaping patterns and policies in the United States and Britain illuminates a great deal about what can and should be done to deal with the rise in youth e-cigarette use. In the United Kingdom, just 3.3% of youths aged eleven to eighteen use cigarettes “less than weekly,” and just 1.6% use them at least weekly—rates that dwarf the figures among American youth.¹¹⁷ This lower level of youth dependence is likely attributable, at least in part, to the fact that there is a European Union-imposed 2% limit on nicotine concentrations for e-cigarettes.¹¹⁸ A normal Juul pod contains nearly three times as much nicotine.¹¹⁹ Likewise, in Britain, “a manufacturer or importer of e-cigarettes must submit a notification to the authorities six months in advance of a product launch and is subject to strict product-safety regulations, including toxicological testing of the ingredients and emissions, as well as rules ensuring tamper-proof and leakproof packaging.”¹²⁰ A comparison suggests that the tight regulation on ingredients has proven effective: While in the United States, the death and severe illness toll continues to rise, there have been zero deaths and few if any cases of acute lung illnesses associated with vaping in the United Kingdom.¹²¹

B. Product Safety Regulations

Instead of rushing to clear convenience store shelves of flavored Juul pods, the FDA should adopt the harm reduction approach of European regulators, using its power under the Deeming Rule to increase safety regulations of e-cigarettes.¹²² Under the rule, the FDA already has the authority to impose product safety standards, ban certain ingredients, and require testing of any new product that seeks to enter the marketplace.¹²³ The premarket authorization process provides the FDA ample opportunity to set national product safety standards; likewise, front-end testing of products would go a long way in ensuring the safety of ingredients reaching the lungs of American adolescents.

C. Reducing Nicotine Levels

The harms of vaping cannot be reduced, however, if regulators treat vaping as an isolated practice and ignore how other tobacco products influence patterns and levels of nicotine consumption.¹²⁴ Nicotine levels should be reduced for both e-liquids used in all e-cigarettes—including the closed cartridge systems and “open-tank” systems

117. Hunt, *supra* note 100.

118. Matt Ridley, *Why the U.K. Isn't Having Problems with Vaping*, WALL ST. J. (Oct. 24, 2019, 10:53 AM), <https://www.wsj.com/articles/why-the-u-k-isnt-having-problems-with-vaping-11571928833> [<https://perma.cc/4ZSA-9TLB>].

119. *Id.*

120. *Id.*

121. *Id.*

122. See Deeming Rule, *supra* note 76.

123. *Id.*

124. See Jeffrey S. Stein, Mikhail N. Koffarnus, Irina Stepanov, Dorothy K. Hatsukami & Warren K. Bickel, *Cigarette and E-Liquid Demand and Substitution in E-Cigarette-Naïve Smokers*, 26 EXPERIMENTAL & CLINICAL PSYCHOPHARMACOLOGY 233, 233 (2018).

that are manually refilled—and traditional cigarettes in order to counteract any potential substitution or gateway effect and to reduce the risk of nicotine dependence among youth, bringing levels in line with existing European Union standards.¹²⁵ In 2017, before the FDA became concerned over the risks unique to vaping, the Agency strongly considered setting a maximum nicotine level for cigarettes in order to reduce their addictiveness and help prevent experimenters (mainly youth) from becoming regular smokers.¹²⁶ A 2018 study commissioned by the FDA showed that regulations reducing nicotine levels to “minimally addictive levels” could reduce smoking prevalence in the United States to as low as 1.4% by 2060 and could “save millions of lives and tens of millions of life-years over the next several decades.”¹²⁷ Likewise, data shows that reduced-nicotine cigarettes may cause current smokers to form the intent to quit, actually attempt to quit, or even eventually succeed in quitting while also reducing the rate of regular smoking initiation among nonsmokers.¹²⁸

D. Product Label Warnings

Since the beginning of 2018, the FDA has required e-cigarettes and all related advertising to include text-based warning labels about the potential harmful effects of nicotine.¹²⁹ In approving products for sale, FDA regulators should also require *pictorial* health warnings on packaging—a method that has proven more effective than text-based warnings and has been shown to decrease the risk of dependence among youth.¹³⁰ Research also shows that placing health warnings on e-cigarettes may actually motivate vapers to quit and discourage any potential transition to smoking traditional cigarettes—dispelling potential gateway effect concerns.¹³¹

E. State & Local Excise Taxation

By instilling a more robust regulation scheme at the federal level, the FDA would facilitate the development of a safer national market for e-cigarettes. From this solid

125. See Directive 2014/40/EU of the European Parliament and of the Council of 3 April 2014 on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC, 2014 O.J. (L 127) 1.

126. Tobacco Product Standard for Nicotine Level of Combusted Cigarettes, 83 Fed. Reg. 11,818, 11,818 (proposed Mar. 16, 2018) (to be codified at 21 C.F.R. pt. 1130).

127. Benjamin J. Apelberg et al., *Potential Public Health Effects of Reducing Nicotine Levels in Cigarettes in the United States*, 378 NEW ENG. J. MED. 1725, 1727, 1732 (2018).

128. *Id.* at 1731–32.

129. *Advertising and Promotion*, FOOD & DRUG ADMIN., <https://www.fda.gov/tobacco-products/products-guidance-regulations/advertising-and-promotion> [<https://perma.cc/8GM8-8A4V>] (last updated Jan. 30, 2020).

130. Diane B. Francis, Nia Mason, Jennifer Cornacchione Ross & Seth M. Noar, *Impact of Tobacco-Pack Pictorial Warnings on Youth and Young Adults: A Systemic Review of Experimental Studies*, 17 TOBACCO INDUCED DISEASES 1, 2 (2019).

131. Noel T. Brewer, Michelle Jeong, Marissa G. Hall, Sabeeh A. Baig, Jennifer R. Mendel, Allison J. Lazard, Seth M. Noar, Madeline R. Kameny & Kurt M. Ribisl, *Impact of E-Cigarette Health Warnings on Motivation to Vape and Smoke*, 28 TOBACCO CONTROL 64, 64 (2019).

baseline, states would at least be equipped with the information necessary to reform their tobacco policies in light of the spike in youth vaping.¹³² State legislatures can amend their current excise taxes on cigarettes to encompass e-cigarettes, tying the tax amount to the level of nicotine and thereby ensuring any preventative effect is tied to a reduction in the harm of nicotine intake and dependence. Because young people are particularly vulnerable to price changes, excise taxes on cigarettes have proven effective at reducing smoking rates and frequency of use at the state and local level.¹³³

CONCLUSION

The response to the rise in vaping among American youth in many ways has resembled the nation's prior moral panics, such as the hysteria that led to the "Tough on Crime" or "War on Drugs" movements of the 1980s. Since the FDA Commissioner called adolescent vaping an "epidemic,"¹³⁴ proposed solutions to the crisis have poured in from lawmakers and interest organizations—some going so far as to suggest a blanket ban on all vaping products.¹³⁵ While the full extent of the effect of vaping on younger generations is not yet known, the nuances of the various dangers of the new practice indicate that the most salient threat lies in the fact that vaping has increased the overall exposure of youth to the harmful developmental effects of nicotine. Bans on flavored vaping products, such as the recently proposed plan by the Trump administration and the FDA, miss the mark by overlooking the more significant causes of vaping initiation and opening the door to the black market. And the new law changing the national tobacco purchase age to twenty-one may be effective, but will distract federal policymakers from the important task of regulating a class of products that is surging in popularity and delivering at least one harmful chemical to the brains of adolescents across the country.

The FDA should use its powers under the Deeming Rule to impose controls over nicotine levels, warning labels, and ingredients for both e-cigarettes and cigarettes—an approach that evidence suggests is effective in limiting tobacco consumption and dependence as well as vaping-related illnesses and deaths. If policymakers do not want to see their prevention efforts go up in smoke, they will heed the warnings of the past and the lessons of today to take a wholistic view of tobacco consumption and embrace the material promise of harm reduction.

132. For a thoughtful analysis of potential state and local policies to combat vaping, see Note, *Marketing, Federalism, and the Fight Against Teen E-Cigarette Use: Analyzing State and Local Legislative Options*, 69 CASE W. RES. L. REV. 173 (2018).

133. Christopher Carpenter & Philip J. Cook, *Cigarette Taxes and Youth Smoking: New Evidence from National, State, & Local Youth Risk Behavior Surveys* (Nat'l Bureau of Econ. Rsch., Working Paper No. 13046, 2007), <https://core.ac.uk/download/pdf/6586304.pdf> [<https://perma.cc/XA2H-7WF5>].

134. Press Release, FDA, Statement from FDA Commissioner Scott Gottlieb, M.D., on New Steps to Address Epidemic of Youth E-Cigarette Use (Sept. 11, 2018).

135. See, e.g., Lindsey Tanner, *AMA Calls for Total Ban on All E-Cigarette, Vaping Products*, ASSOCIATED PRESS (Nov. 19, 2019), <https://apnews.com/fb92709abf944e8f980321-ebc8b96622> [<https://perma.cc/BB2Y-ZGWJ>].