# Rhode Island Public Health Brief

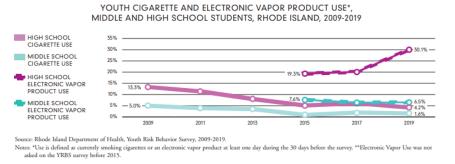


# Risks and Benefits of Flavored E-cigarettes

## **Background:**

Electronic cigarettes (e-cigarettes) are used by both youth and adults. In 2019, 30.1% of high school students in Rhode Island reported using electronic vaping products in the past 30 days (see figure)<sup>1</sup> and in 2018, 5.5% of

adults were current e-cigarette users.<sup>2</sup> The influence of flavorings (i.e., tobacco, menthol, fruit and other flavors) on e-cigarette use is multifaceted. Flavors may impact both youth and adult e-cigarette use and preferences. Understanding how flavored e-cigarette use is related to youth initiation, adult cessation, and nicotine dependence is critical for guiding policy.



In 2007, the World Health Organization Study Group on Tobacco Product Regulation published a report that expressed growing concern regarding flavored tobacco products.<sup>3</sup> This report called for regulations to prohibit tobacco products with exciting and candy-like flavors from being marketed to "young and novice smokers." Although flavors other than menthol were banned from combustible cigarettes, the recommended regulations did not apply to e-cigarettes. By 2014, nearly 7,800 different e-cigarette flavors were marketed.<sup>4</sup>

## The Regulatory Status of E-Cigarette Flavors

In 2020, the U.S. Food and Drug Administration (FDA) banned the sale of all flavored e-cigarette cartridges, with the exception of tobacco and menthol flavors. This enforcement action required tobacco manufacturers to seek premarket authorization to bring flavored products back on the market.<sup>5</sup> This enforcement included requirements aimed at preventing access by minors access and to stop marketing of any flavored e-cigarette cartridge targeted to minors or whose marketing is likely to promote use among minors. In enforcing these regulatory changes, the FDA cited evidence of youth use of electronic nicotine delivery system (ENDS) products.

In response to the FDA 2020 regulatory enforcement actions, market sales of menthol-flavored e-cigarettes increased 82.8% in 8 weeks following the ban.<sup>6</sup> Paradoxically, banning all flavored e-cigarettes without also banning flavors in all other nicotine and tobacco products may lead to e-cigarette users switching to other products where flavors are still available, including more dangerous products such as combustible cigarettes.<sup>7</sup> For example, these regulations apply to pod- or cartridge-based products (e.g., JUUL) but not to self-contained, disposable vaping devices (e.g., Puff Bar) whose popularity among high school students increased rapidly following the ban.<sup>8</sup> In July 2020, the FDA formally notified manufacturers of self-contained vaping devices that they were in enforcement violation for not having received premarket authorization, which will likely lead to the devices coming off the market.<sup>9</sup> Also missing from regulations are e-liquids flavors designed for older third generation refillable e-cigarette cartridges, often referred to as 'tank systems' or 'mods.'

Accordingly, the American Lung Association has called for Rhode Island's elected officials to reduce tobaccorelated harms. Components of their comprehensive plan include removing flavored tobacco products from shelves and addressing loopholes.<sup>10</sup>

#### Balancing Risks and Benefits: Youth and Young Adult Use and Adult Cessation

Flavors play an important role in young people's decisions to use e-cigarettes<sup>11</sup>, as flavors are used at initiation of e-cigarettes for the majority of youth.<sup>12</sup> Among current e-cigarette users ages 18-34, 58% of current smokers report flavor-related motives.<sup>13</sup> Further, youth who use non-tobacco flavors are more likely to continue vaping and vape more heavily after six months.<sup>14</sup> For this reason, advocacy groups and the American Academy of Pediatrics endorse flavor bans to reduce harms to youth.<sup>15</sup>

In contrast, imposing legislative restrictions on flavors may have the unintended consequence of undermining harm reduction efforts for both youth and adult smokers.<sup>16</sup> For example, San Francisco's recent flavor ban was associated with more than doubled odds of recent smoking among underage high school students relative to other California districts<sup>17</sup>. Flavor availability increases the likelihood that young adult smokers would select e-cigarettes over other potentially more harmful nicotine and tobacco products<sup>11</sup>. Further, adults who use flavored e-cigarettes are more likely to stop smoking than those who used unflavored products.<sup>18</sup> In the U.S., e-cigarettes are now the leading product used to assist adult smokers trying to quit.<sup>19</sup> As such, promoting the substitution of combustible cigarettes for flavored e-cigarettes in conjunction with behavioral support among adult smokers may facilitate smoking cessation<sup>20</sup>, a priority for the Rhode Island Department of Health.<sup>21</sup>

There is a need to find policy solutions that minimize the availability of e-cigarette flavors for youth, while maintaining access for adult smokers who want to quit. Because the impact of vaping on combustible cigarette smoking is central to evaluating its public health impact, understanding how flavored e-cigarette use is related to smoking initiation and cessation across different subgroups is critical to guiding policy.

#### REFERENCES

- 1. Rhode Island Kids Count. Trends in Youth Tobacco Use: E-Cigarettes and Vaping; 2020. https://www.rikidscount.org/Portals/0/Uploads/Documents/Fact Sheets/6774 YouthSmoking1\_Final for Event.pdf?ver=2020-10-30-093705-380
- 2. CDC. Behavioral Risk Factor Surveillance System, State Tobacco Activities Tracking and Evaluation System; 2020.
- 8. WHO. The scientific basis of tobacco product regulation. World Health Organ Tech Rep Ser. 2007;(945):1-112, back cover.
- 4. Zhu S-H, Sun JY, Bonnevie E, et al. Four hundred and sixty brands of e-cigarettes and counting: implications for product regulation. *Tob Control*. 2014;23(suppl 3):iii3 LP-iii9. doi:10.1136/tobaccocontrol-2014-051670
- 5. US Food & Drug Administration. Enforcement Priorities for Electronic Nicotine Delivery System (ENDS) and Other Deemed Products on the Market Without Premarket Authorization Guidance for Industry. https://www.fda.gov/regulatory-information/search-fda-guidance-documents/enforcement-priorities-electronicnicotine-delivery-system-ends-and-other-deemed-products-market
- 6. Diaz MC, Donovan EM, Schillo BA, Vallone D. Menthol e-cigarette sales rise following 2020 FDA guidance. *Tob Control.* Published online September 23, 2020:tobaccocontrol-2020-056053. doi:10.1136/tobaccocontrol-2020-056053
- 7. Pacek LR, Oliver JA, Sweitzer MM, McClernon FJ. Young adult dual combusted cigarette and e-cigarette users' anticipated responses to a nicotine reduction policy and menthol ban in combusted cigarettes. Drug Alcohol Depend. 2019;194:40-44. doi:10.1016/j.drugalcdep.2018.10.005
- 8. Truth Initiative. New federal data: Flavored e-cigarettes continue to drive youth vaping epidemic, with disposable use up 1,000% among high schoolers. Published 2020. https://truthinitiative.org/research-resources/emerging-tobacco-products/new-federal-data-flavored-e-cigarettes-continue-drive
- US Food & Drug Administration. FDA Notifies Companies, Including Puff Bar, to Remove Flavored Disposable E-Cigarettes and Youth-Appealing E-Liquids from Market for Not Having Required Authorization. Published 2020. https://www.fda.gov/news-events/press-announcements/fda-notifies-companies-including-puffbar-remove-flavored-disposable-e-cigarettes-and-youth
- 10. American Lung Association. American Lung Association Announces Robust Plan To End Youth Vaping for Rhode Island Students, Parents, Schools. Published 2020. https://www.lung.org/media/press-releases/vape-free-schools-initiative-ri
- 11. Pesko MF, Kenkel DS, Wang H, Hughes JM. The effect of potential electronic nicotine delivery system regulations on nicotine product selection. Addiction. 2016;111(4):734-744. doi:https://doi.org/10.1111/add.13257
- 12. Goldenson NI, Leventhal AM, Simpson KA, Barrington-Trimis JL. A Review of the Use and Appeal of Flavored Electronic Cigarettes. Curr Addict Reports. 2019;6(2):98-113. doi:10.1007/s40429-019-00244-4
- 13. Berg CJ. Preferred flavors and reasons for e-cigarette use and discontinued use among never, current, and former smokers. Int J Pub Heal -SPRINGER- VO 61. 2016;(2):225. http://search.ebscohost.com/login.aspx?direct=true&db=edsbl&AN=RN376598145&site=eds-live&scope=site
- 14. Leventhal AM, Goldenson NI, Cho J, et al. Flavored E-cigarette Use and Progression of Vaping in Adolescents. *Pediatrics*. 2019;144(5):e20190789. doi:10.1542/peds.2019-0789
- 15. American Academy of Pediatrics. Teenage vaping is a growing problem & the rates are reaching epidemic proportions. 2020. https://aapca2.org/vaping/
- 16. Pepper JK, Ribisl KM, Emery SL, Brewer NT. Reasons for Starting and Stopping Electronic Cigarette Use. Int J Environ Res Public Heal . 2014;11(10). doi:10.3390/ijerph111010345
- 17. Friedman AS. A Difference-in-Differences Analysis of Youth Smoking and a Ban on Sales of Flavored Tobacco Products in San Francisco, California. JAMA Pediatr. Published online May 24, 2021. doi:10.1001/jamapediatrics.2021.0922
- Friedman AS, Xu S. Associations of Flavored e-Cigarette Uptake With Subsequent Smoking Initiation and Cessation. JAMA Netw Open. 2020;3(6):e203826e203826. doi:10.1001/jamanetworkopen.2020.3826
- 19. Pierce JP, Benmarhnia T, Chen R, et al. Role of e-cigarettes and pharmacotherapy during attempts to quit cigarette smoking: The PATH Study 2013-16. PLoS One. 2020;15(9):e0237938-e0237938. doi:10.1371/journal.pone.0237938
- 20. Hajek P, Phillips-Waller A, Przulj D, et al. A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy. N Engl J Med. 2019;380(7):629-637. doi:10.1056/NEJMoa1808779
- 21. Rhode Island Department of Health. Emergency Health Regulations Ban the Sale of Flavored E-Cigarettes in Rhode Island. 2019. https://www.ri.gov/press/view/36850