

# E-cigarette and Tobacco Product Use Among NYS Youth Before and After a Statewide Vaping Flavor Restriction Policy, 2020-2021

Liane M. Schneller<sup>1</sup>, Karin A. Kasza<sup>1</sup>, David Hammond<sup>2</sup>, Maansi Bansal-Travers<sup>1</sup>, Richard J. O'Connor<sup>1</sup>, Andrew Hyland<sup>1</sup>

1. Roswell Park Comprehensive Cancer Center, Buffalo, NY 14263

2. University of Waterloo, Waterloo, ON N2L 3G1

## BACKGROUND

- The availability of various flavored electronic cigarettes (e-cigs) is enticing to both new consumers and established cigarette smokers.<sup>1-5</sup>
- Flavor additives in e-cigs have been shown to reduce the harshness of the nicotine taste, which allows for increased inhalation, increased nicotine delivery, increased appeal, and promotes experimentation among youth.<sup>6-13</sup>
- Reducing youth e-cig use is a New York State (NYS) public health priority.<sup>14</sup>
- In May 2020, a statewide restriction on flavored e-cigs, except tobacco and unflavored products, was passed in NYS.
- During this time, the US was also experiencing the COVID-19 pandemic.
- The purpose of this study is to examine nicotine product use among NYS youth before and responses after the statewide vaping flavor restriction policy.

## METHODS

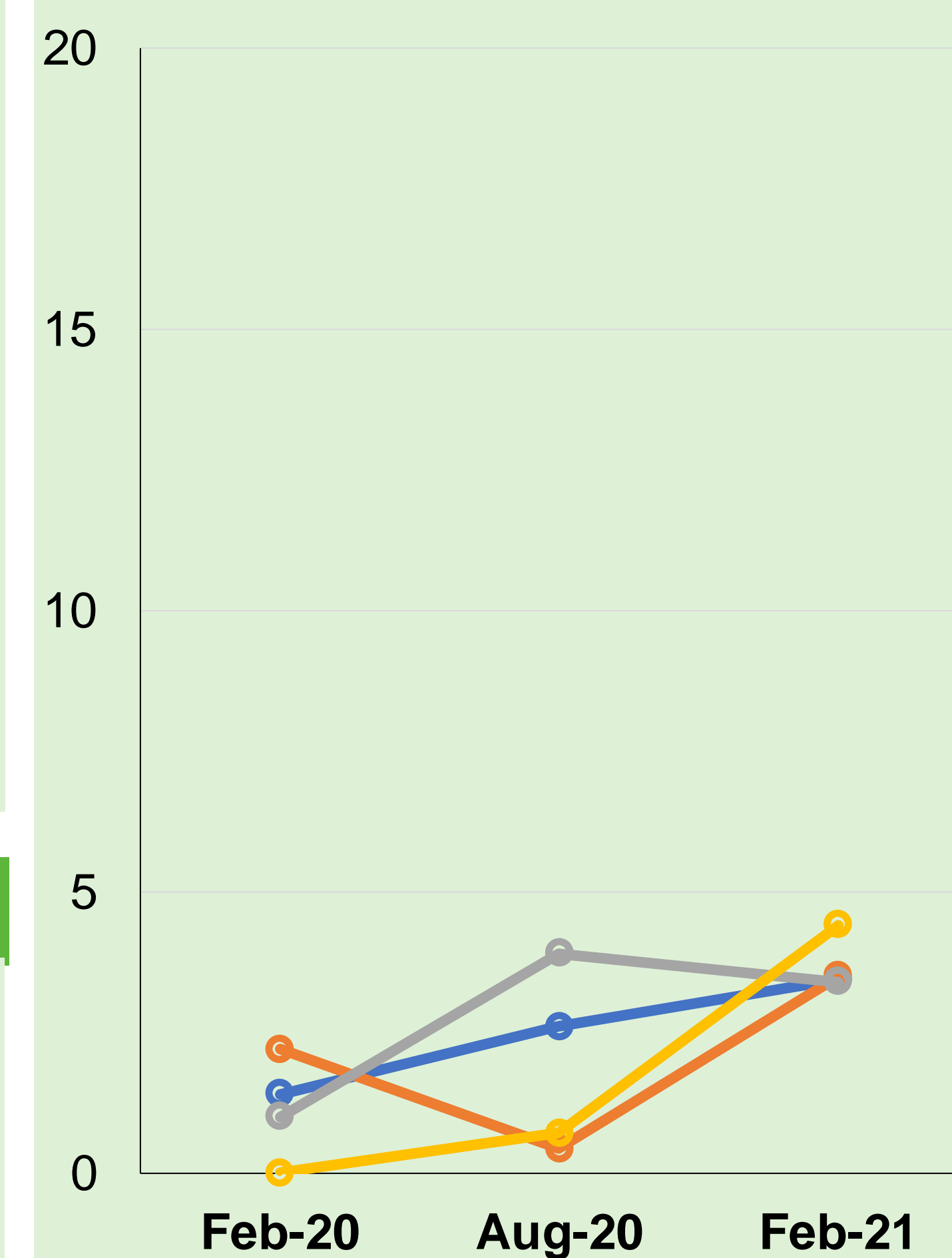
- NYS data were analyzed cross-sectionally from Feb 2020 (N=955), Aug 2020 (N=938), and Feb 2021 (N=1,030) from the US ITC Youth Tobacco and Vaping Survey conducted among youth 16-19 years from US Nielsen consumer panels.
- Past 30-day use of nicotine products were assessed at each wave.
- E-cig flavor used most often, product type and brand, reasons for vaping, and purchasing behaviors were asked of past 30-day vapers at each wave.
- The perceived association of COVID-19 and vaping behavior and product access were evaluated in Aug 2020 and Feb 2021.
- Weighted descriptive statistics and regression models were used to describe trends in nicotine product use behavior and perceptions. Models were adjusted for age, sex, race/ethnicity, and perceived family SES.

## RESULTS

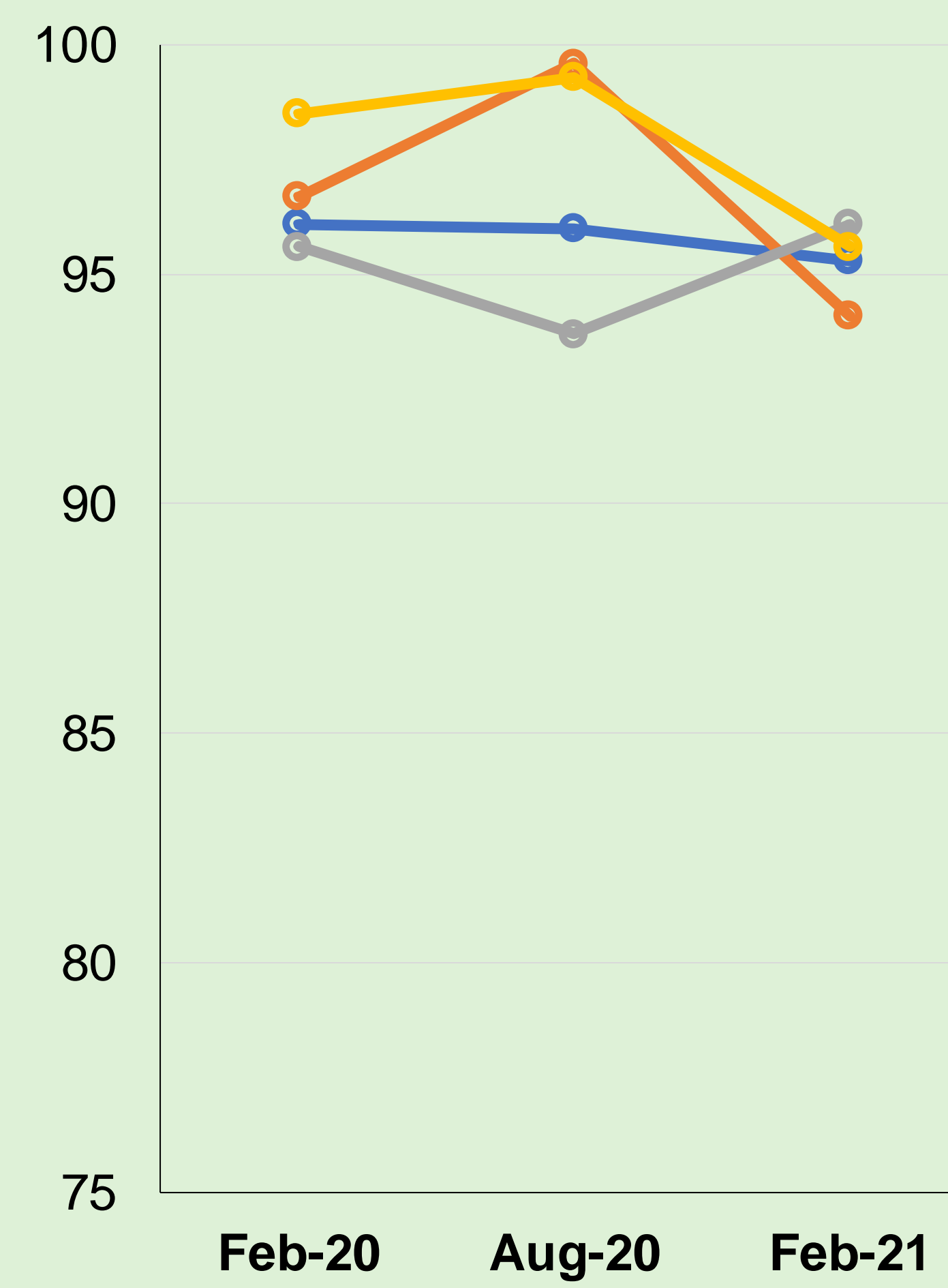
- Past 30-day e-cig use dropped from 20% to 15% to 14% (p=0.0035) as did dual use of e-cigs and cigarettes (5% to 5% to 3%; p=0.0424).
- NYS youth were less likely to vape in the past 30-day in Aug 2020 (aOR: 0.72; 95%CI: 0.54, 0.96) and in Feb 2021 (aOR: 0.62; 95%CI: 0.46, 0.83).
- About one-third of past 30-day youth vapers reported using their e-cigarette in the p30 for the flavor (38%, 33%, and 37%).
- Nearly all past 30-day vapers reported using any non-tobacco flavored e-cig, with fruit being the most popular at each wave (Fig 1, 2, & 3), despite the restriction.
- The product source (obtained them myself vs. someone else) was almost split at each time point (Myself: 47.2%, 46.5%, 49.8%, respectively).
- Most reported purchasing their own products at a vape shop (74.6%, 80.1%, 69.2%, respectively) vs. a retail store.
- JUUL was the leading product in Feb 2020 (43%) and Aug 2020 (25%) but dropped to the third leading product in Feb 2021 (16%) behind Hyde (29%) and Puff Bar (18%).
- More past 30-day vapers perceived that their vaping behavior changed, while most perceived that their access did not change, as a result of the COVID-19 pandemic (Fig 4).

## RESULTS (cont'd)

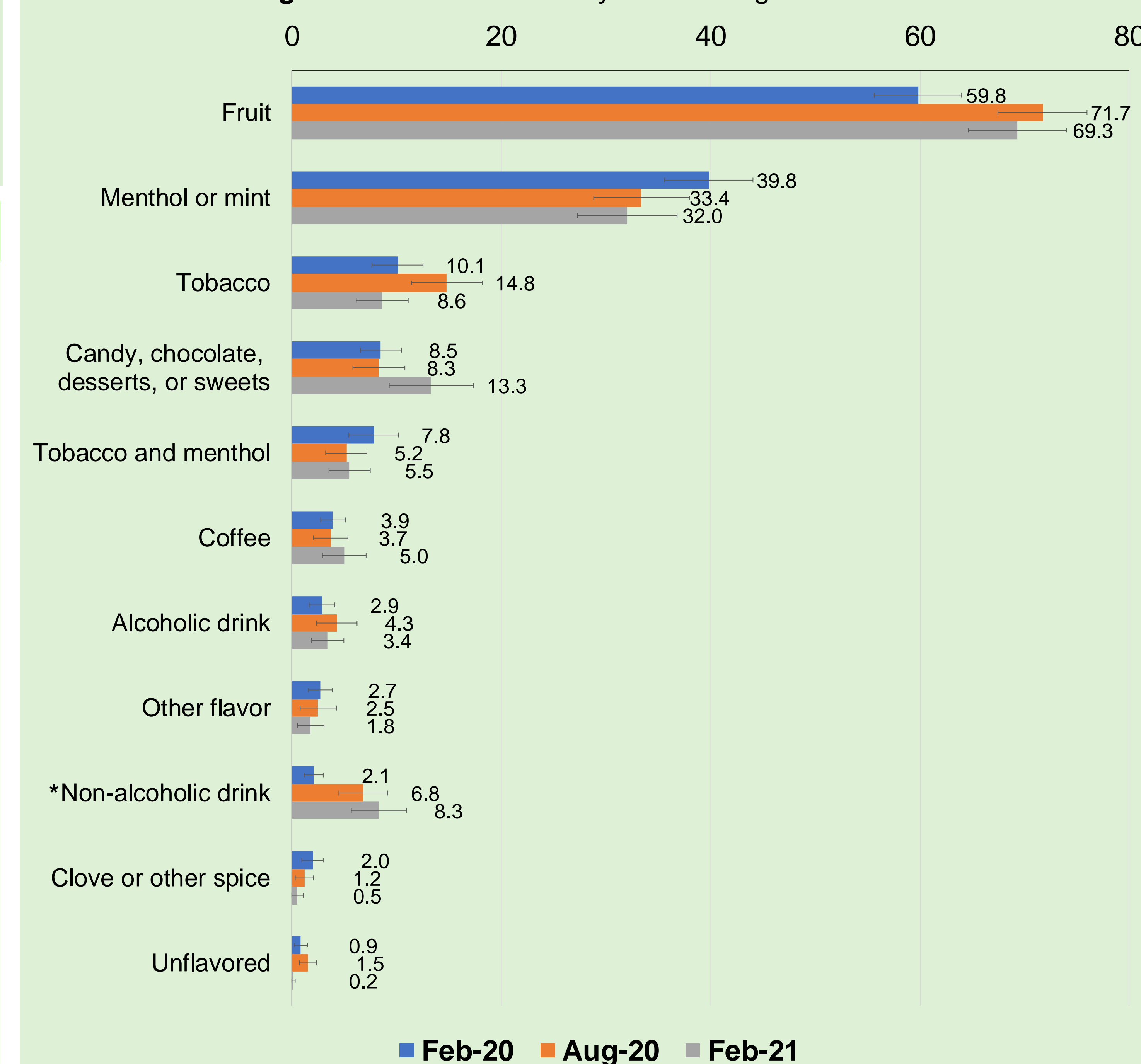
**Figure 1:** Exclusive tobacco flavor use in the past 30-days



**Figure 2:** Any non-tobacco flavor use in the past 30-days



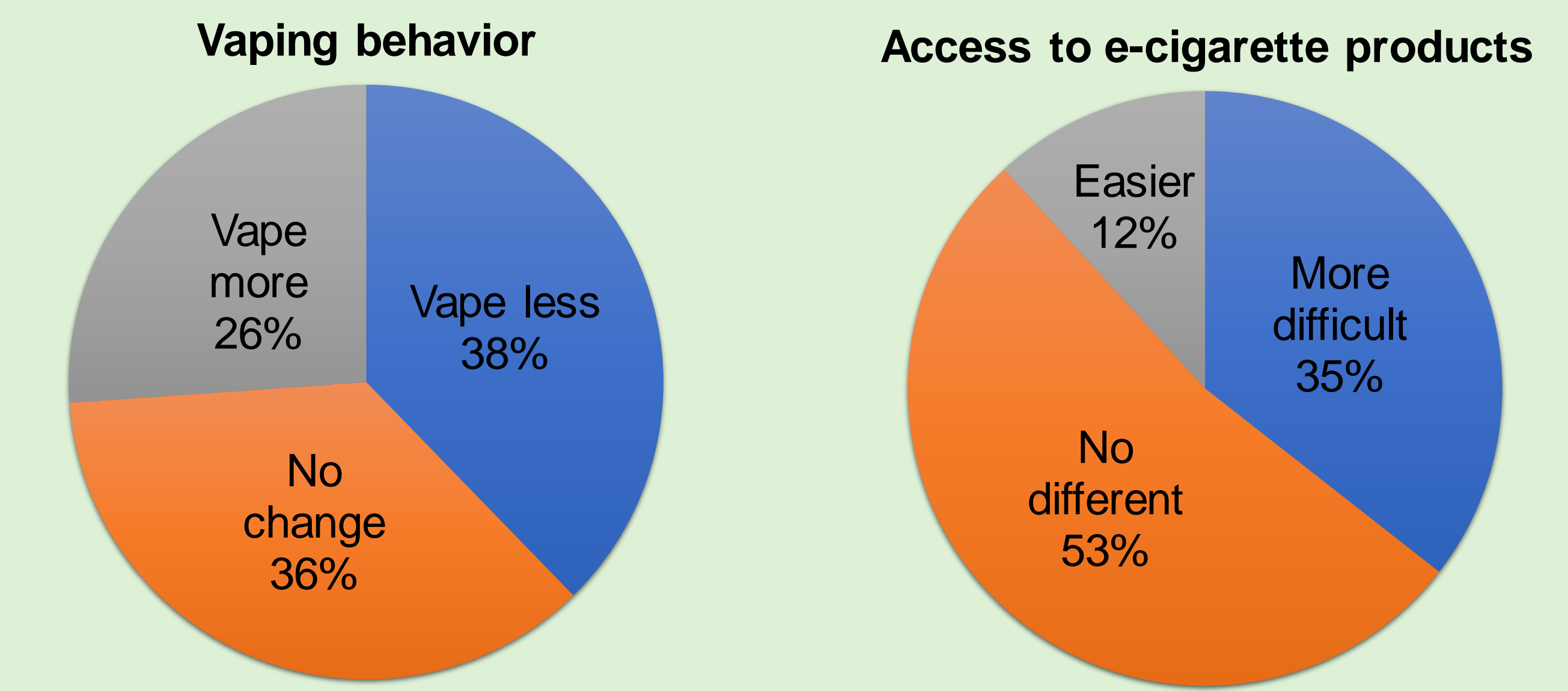
**Figure 3:** Prevalence of any use of e-cigarette flavors



\* Indicates statistical significance with a p<0.05

## RESULTS (cont'd)

**Figure 4:** Association of COVID-19 and NYS youth vaping behavior and access to vaping products



## CONCLUSIONS

- The use of non-tobacco flavors did not change from Feb 2020 to Feb 2021, with nearly all past 30-day youth continuing to report vaping restricted non-tobacco flavors.
- Past 30-day e-cigarette use was the only tobacco product use measure that decreased significantly post-restriction with each subsequent survey.
- Increased flavor restriction compliance may result in a greater decrease in the prevalence of use among youth.
- T21 precedes these data, but we did not observe any significant changes in how past 30-day vapers obtained their products or where they bought them that would suggest age-based changes in restriction of access.
- One of the first studies to examine nicotine product use among NYS youth before and responses after the statewide vaping flavor restriction policy.
- It is important to continue monitoring changes in user responses to the policy, as many continue to vape prohibited flavors, additional policies may be implemented, and the nicotine market continues to evolve (e.g., PMTA authorization, novel nicotine products).

## REFERENCES

- Villanti AC, Johnson AL, Ambrose BK, et al. Flavored Tobacco Product Use in Youth and Adults: Findings From the First Wave of the PATH Study (2013-2014). *Am J Prev Med*. 2017.
- Dai H, Hao J. Flavored Electronic Cigarette Use and Smoking Among Youth. *Pediatrics*. 2016;138(6).
- Fairchild AL, Bayer R, Colgrove J. The renormalization of smoking? E-cigarettes and the tobacco "endgame". *N Engl J Med*. 2014;370(4):293-295.
- Soule EK, Lopez AA, Guy MC, Cobb CO. Reasons for using flavored liquids among electronic cigarette users: A concept mapping study. *Drug Alcohol Depend*. 2016;166:168-176.
- Coleman BN, Rostron B, Johnson SE, et al. Electronic cigarette use among US adults in the Population Assessment of Tobacco and Health (PATH) Study, 2013-2014. *Tob Control*. 2017.
- Kowitz SD, Meernik C, Baker HM, Osman A, Huang LL, Goldstein AO. Perceptions and Experiences with Flavored Non-Menthol Tobacco Products: A Systematic Review of Qualitative Studies. *Int J Environ Res Public Health*. 2017;14(4).
- Cullen KA, Liu ST, Bernat JK, et al. Flavored Tobacco Product Use Among Middle and High School Students - United States, 2014-2018. *MMWR Morb Mortal Wkly Rep*. 2019;68(39):839-844.
- Carpenter CM, Wayne GF, Pauly JL, Koh HK, Connolly GN. New cigarette brands with flavors that appeal to youth: tobacco marketing strategies. *Health Aff (Millwood)*. 2005;24(6):1601-1610.
- Klein SM, Giovino GA, Barker DC, Tworek C, Cummings KM, O'Connor RJ. Use of flavored cigarettes among older adolescent and adult smokers: United States, 2004-2005. *Nicotine Tob Res*. 2008;10(7):1209-1214.
- Kostyginina G, Glantz SA, Ling PM. Tobacco industry use of flavours to recruit new users of little cigars and cigarillos. *Tob Control*. 2016;25(1):66-74.
- Rabinoff M, Caskey N, Rissling A, Park C. Pharmacological and chemical effects of cigarette additives. *Am J Public Health*. 2007;97(11):1981-1991.
- Squier CA, Mantz MJ, Wertz PW. Effect of menthol on the penetration of tobacco carcinogens and nicotine across porcine oral mucosa ex vivo. *Nicotine Tob Res*. 2010;12(7):763-767.
- Sterling KL, Fryer CS, Nix M, Fagan P. Appeal and Impact of Characterizing Flavors on Young Adult Small Cigar Use. *Tob Regul Sci*. 2015;1:42-53.
- New York State Department of Health Announces Statewide Ban of Flavored Nicotine Vapor Products Takes Effect Today [press release]. 2020.

## ACKNOWLEDGMENTS

This work was supported by the Center for Research on Flavored Tobacco (CROFT), a Tobacco Center of Regulatory Science (TCORS), funded by the US Food and Drug Administration and National Cancer Institute (U54CA238110), as well as the ITC Youth Tobacco and Vaping Survey (P01CA200512). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or the US Food and Drug Administration. The authors declare that they do not have competing financial interests or personal relationships that could have influenced the work reported in this presentation. Dr. Hammond has served as an expert witness on behalf of governments in litigation involving the tobacco industry