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**“Changes in Youth Tobacco Product Access After Federal Tobacco 21 Legislation:
Evidence from the National Youth Tobacco Survey”**

Introduction: The United States has a high prevalence of electronic cigarette (e-cigarette) use among adolescents. In 2025, 7.2% of students ages 9-19 reported using tobacco products, with 5.2% using e-cigarettes. Adolescent tobacco use can cause respiratory illness, lead to addiction, and affect cognitive functions. Because of these health concerns, several policies have been introduced to reduce youth access to tobacco products. Federal Tobacco 21 (T21), enacted in December 2019, raised the minimum legal age to purchase tobacco products from 18 to 21 years. Although previous studies have evaluated the short-term effects of T21 on youth tobacco use, less is known about whether the policy changed how adolescents who continue to use e-cigarettes obtain these products. This study examined the changes in e-cigarette acquisition sources before and after implementation of T21.

Methodology: We conducted a repeated cross-sectional study using data from the National Youth Tobacco Survey (NYTS) between 2018 and 2025. We restricted the sample to adolescents who used and had purchased e-cigarettes within the past 30 days and had valid information on acquisition sources (N=11,281). Survey years were grouped into pre-T21 (2018-2019) and post-T21 (2021-2025). The year 2020 served as a transition year, excluded from regression but retained in temporal trend visualizations. The primary dependent variable was the source of e-cigarette acquisition, categorized as commercial, online, social, or other. The primary independent variable was the policy period (pre- and post-T21), and covariates included age, sex, race, and grade level. Survey-weighted descriptive statistics were used to summarize participant characteristics and acquisition sources. Chi-Square tests compared participants' characteristics by policy period, while survey-weighted regressions examined the associations between the policy period and e-cigarette acquisition sources after adjusting for covariates.

Results: Respondents most reported obtaining their e-cigarettes from social sources (54.2%), followed by commercial purchases (37.2%). Across the study period, the proportion of youth obtaining e-cigarettes through social sources declined, whereas commercial purchasing became more common following implementation of T21. Youth surveyed post-T21 implementation had three times higher odds of obtaining e-cigarettes from a commercial retailer, compared to the youth pre-T21 policy (AOR=3.10, 95% CI: 2.69–3.58, $p<0.001$). Also, post-T21 implementation, youth had 36% lower odds of reporting e-cigarette online purchasing rather than commercial sources (AOR=0.64, 95% CI: 0.48–0.87, $p=0.004$) and 80% lower odds of reporting social acquisition compared to commercial purchases (AOR=0.20, 95% CI: 0.17–0.23, $p<0.001$). However, post-T21 youth had 2.85 times higher odds of reporting “other” for method of obtainment rather than commercial sources (AOR=2.85, 95% CI: 2.13–3.80, $p<0.001$).

Conclusion: These findings found significant changes in where adolescents bought their e-cigarettes after implementation of T21. Results highlight the importance of continued monitoring and enforcement of adolescent e-cigarette acquisition. Future research should assess what “other” sources of e-cigarette acquisition include, and the cause of its increase post-T21 implementation.