

Trends in e-cigarette brands, devices and the nicotine profile of products used by youth in England, Canada and the USA: 2017-2019

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Abstract

Background: The e-cigarette market has rapidly evolved, with a shift towards higher nicotine concentration and salt-based products, such as JUUL; however, the implications for youth vaping remain unclear.

Methods: Repeat cross-sectional online surveys were conducted in 2017, 2018 and 2019, with national samples of youth aged 16–19 years recruited from commercial panels in Canada (n=12 018), England (n=11 362) and the USA (n=12 110). Regression models examined differences between countries and over time in the types of e-cigarette products used (design and nicotine content), reasons for using brands and differences in patterns of use, sociodemographics and dependence symptoms by brand/nicotine content.

Results: In 2019, the use of pod- or cartridge-style e-cigarettes was greater in Canada and the USA than England, with Smok and JUUL the leading brands in all countries. In 2019, youth vapers in England were less likely to report using e-cigarettes with $\geq 2\%$ nicotine (12.8%) compared with Canada (40.5%; adjusted OR (AOR)=4.96; 95% CI 3.51 to 7.01) and the USA (37.0%; AOR=3.99, 95% CI 2.79 to 5.71) and less likely to report using nicotine salt-based products (12.3%) compared with Canada (27.1%; AOR=2.77, 95% CI 1.93 to 3.99) and the USA (21.9%; AOR=2.00, 95% CI 1.36 to 2.95). In 2019, self-reported use of products with higher nicotine concentration was associated with significantly greater frequency of vaping, urges to vape and perceived vaping addiction ($p < 0.05$ for all).

Conclusions: The use of high-nicotine salt-based products is associated with greater symptoms of dependence, including JUUL and other higher-nicotine brands. Greater use of high-nicotine salt-based products may account for recent increases in the frequency of vaping among youth in Canada and the USA.

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