

# Comparison of smoking prevalence in Canada before and after nicotine vaping product access using the SimSmoke model

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## Abstract

**Objectives:** The public health impact of nicotine vaping products (NVPs) is subject to complex transitions between NVP and cigarette use. To circumvent the data limitations and parameter instability challenges in modeling transitions, we indirectly estimate NVPs' impact on smoking prevalence and resulting smoking-attributable deaths using the SimSmoke simulation model.

**Methods:** Canada SimSmoke uses age- and sex-specific data on Canadian population, smoking prevalence and tobacco control policies. The model incorporates the impact of cigarette-oriented policies on smoking prevalence but not the explicit contribution of NVPs. The model was calibrated from 1999 to 2012, thereby projecting smoking prevalence before NVPs were widely used in Canada. The NVP impact on smoking prevalence is inferred by comparing projected 2012–2020 smoking trends absent NVPs to corresponding trends from two Canadian national surveys. We further distinguish impacts before and after NVPs became regulated in 2018 and more available.

**Results:** Comparing 2012–2020 survey data of post-NVP to SimSmoke projected smoking prevalence trends, one survey indicated an NVP-related relative reduction of 15% (15%) for males (females) age 15+, but 32% (52%) for those ages 15–24. The other survey indicated a 14% (19%) NVP-related smoking reduction for ages 18+, but 42% (53%) for persons ages 18–24. Much of the gain occurred since Canada relaxed NVP restrictions. NVP-related 2012–2020 smoking reductions yielded 100,000 smoking-attributable deaths averted from 2012 to 2060.

**Conclusion:** Smoking prevalence in Canada, especially among younger adults, declined more rapidly once NVPs became readily available. The emergence of NVPs into the Canadian marketplace has not slowed the decline in smoking.

## Recommended Citation

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