

If Vaping E-Cigarettes Is A Gateway To Cigarette Smoking, What Are The Implications?

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Background

- Some never-smoking adolescents who use e-cigarettes (vape) may become cigarette smokers as a result.
- Some adolescents become smokers independent of vaping.
- As adults, some smokers may eventually quit smoking by switching to e-cigarettes.
- There are elevated lifetime mortality risks associated with smoking and likely with exclusive vaping.

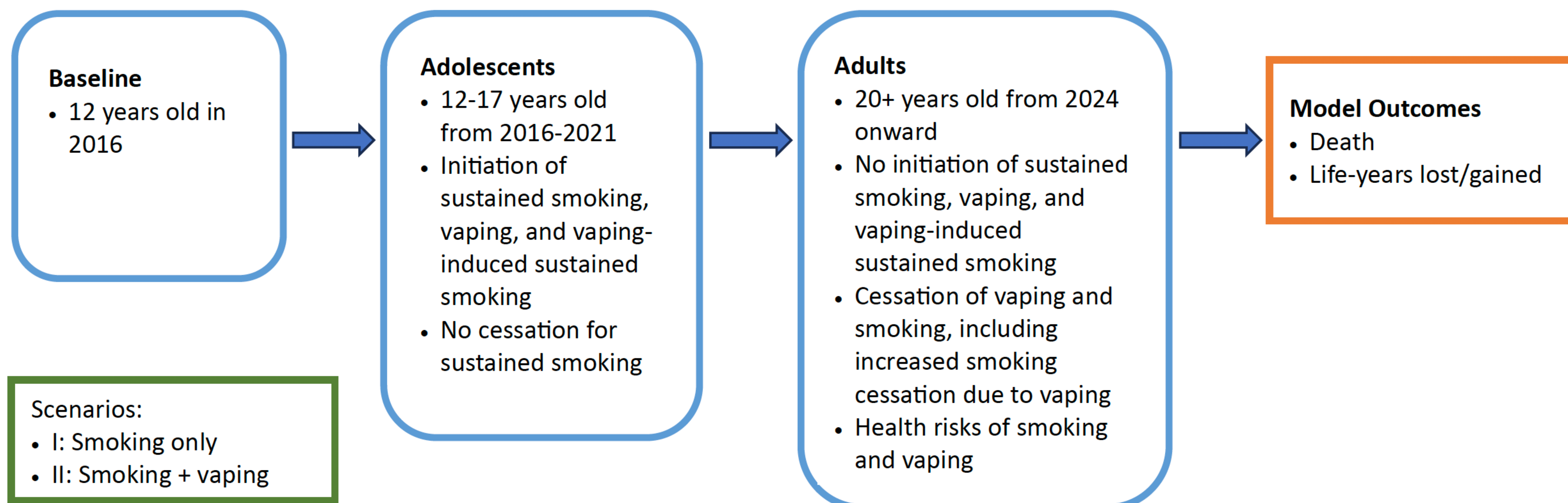
Objectives

- To estimate the net lifetime mortality consequences of a cohort's vaping history, considering
 - Mortality attributable directly to vaping itself;
 - Mortality attributable to vaping-induced smoking;
 - Reduction in mortality due to adult smokers switching to vaping.

Data

- Population Assessment of Tobacco and Health (waves 3-5)
- National Youth Tobacco Survey
- Census population estimates

Model Flowchart



Model Description

Cohort: Lifetime model of 4.1 million 12-year-olds in 2016

Structure: Microsimulation model with annual updates

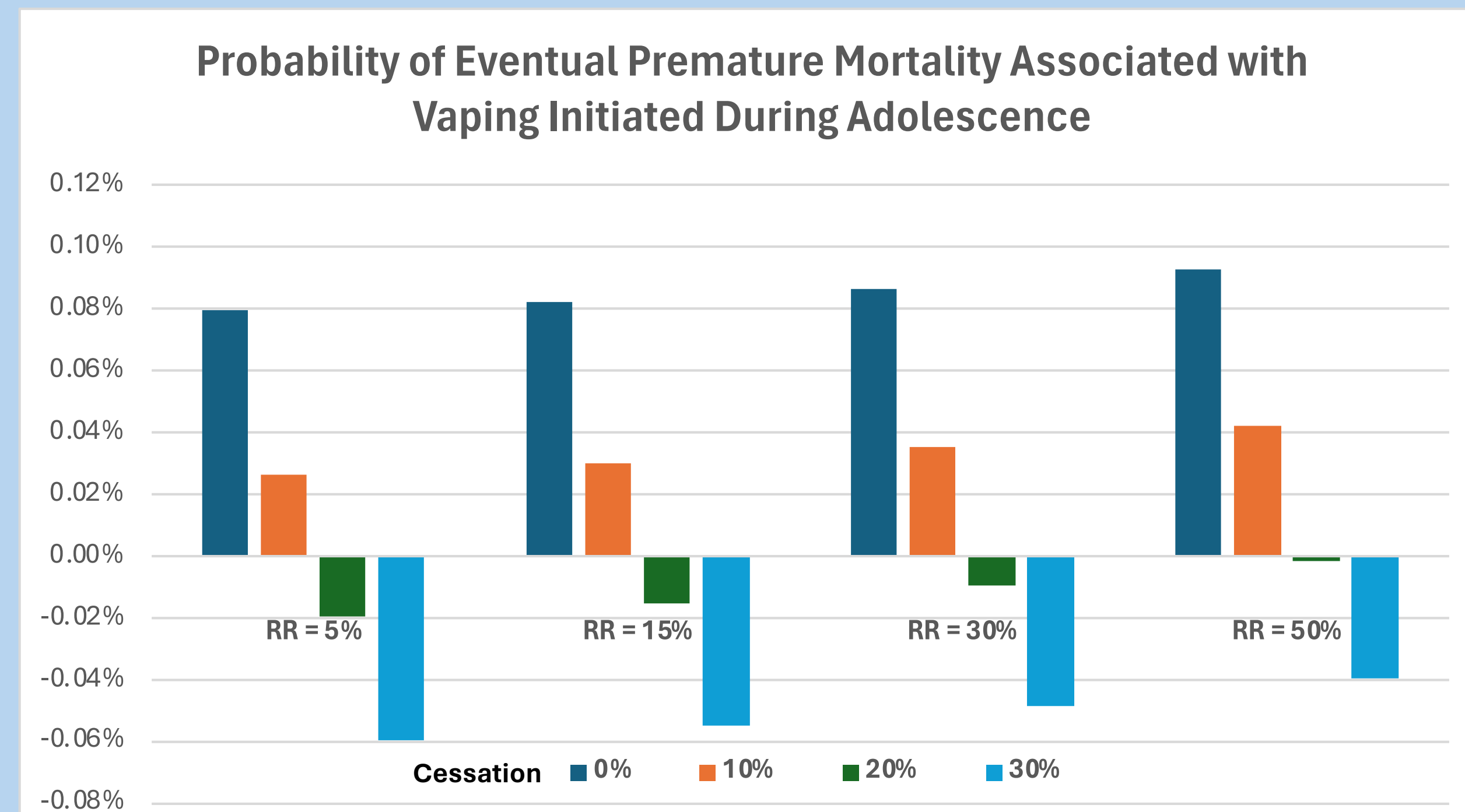
Gateway Assumption: Applying the risk of sustained smoking due to vaping

Outcomes:

1. Probability of premature death due to exclusive vaping, vaping-induced smoking, and vaping-induced smoking cessation
2. Life years gained or lost due to exclusive vaping, vaping-induced smoking, and vaping-induced smoking cessation



Results



RR is the relative mortality risk of vaping compared to smoking. Cessation refers to the increase in the smoking cessation rate due to vaping.

Table. Number of days lost per person associated with vaping initiated during adolescence.

Relative risk of vaping to smoking	Smoking cessation increase due to vaping			
	0%	10%	20%	30%
5%	6.1	2.8	-0.2	-2.7
15%	6.5	3.3	0.4	-2.1
30%	7.2	4.1	1.2	-1.2
50%	8.2	5.1	2.4	0.0

Conclusions

- Compared to a world without vaping, the eventual premature deaths associated with vaping initiated during adolescence in our cohort are small, ranging from -3,865 to 3,829. The worst case constitutes less than one-tenth of 1 percent of the cohort.
- By comparison, there were 106,699 drug overdose deaths, 42,939 motor vehicle deaths, and 48,830 firearm deaths in 2021.

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