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Spotlight on Vaping : evidence on dual use with tobacco cigarettes

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Learning Objectives

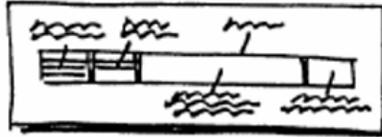
- (1) Understand the health impacts of dual use of vaping products and tobacco cigarettes
- (2) Understand the role that vaping plays in harm reduction of tobacco use
- (3) Describe the impacts of regulations on use and the relationship between vaping products and tobacco sales
- (4) Identify vaping tools and resources available to those working on tobacco and vaping.

E-cigarettes: the promise and the peril

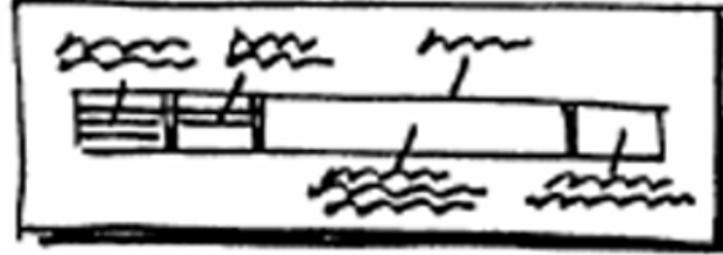


SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.

THE SURGEON GENERAL'S WARNING YOU WON'T FIND ON NEW VISION.



New VISION
We took away the tar,
the carbon monoxide and the smoke
but left all the enjoyment.

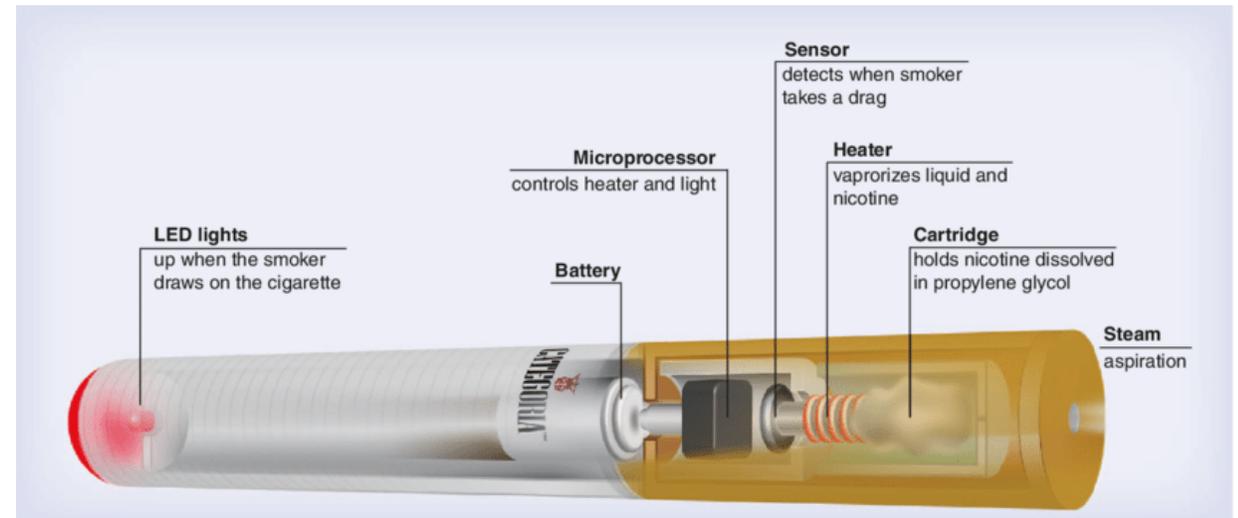


New VISION
We took away the tar,
the carbon monoxide and the smoke
but left all the enjoyment.



The vast amount of harm from cigarettes is attributed to the smoke not the nicotine

Nicotine is the chemical responsible for addiction



Dual Use in Canada

Among Canadians aged 15 years and older who currently vape, 33.5% reported current smoking

Those who reported current and former smoking made up most (78%) adults aged 25 years and older who reported past-30-day vaping

Those who reported never smoking made up over two-thirds of youth aged 15 to 19 years who reported past-30-day vaping

In 2023, 5.3% of students in grades 7-12 reported use of both cigarettes and vaping device in the past year.

Project Vector:
CAMH Intrepid Lab Literature Review
Expert Panel

<https://intrepidlab.ca/en/project-vector>

E-CIGARETTE USE

EVIDENCE-INFORMED GUIDANCE
ON HARMS AND BENEFITS

Project Vector Recommendations

If you are not a cigarette smoker, then evidence demonstrates that the known risks are sufficient to suggest that you should not use

Cancer

Do not use

Cardiovascular

Do not use

Dependence

Do not use

**Respiratory
Health**

Do not use

Project Vector Recommendations

If you are a current e-cigarette users where relapse is not a concern, then evidence is also clear:

Avoid long-term use of e-cigarettes

Cancer

Avoid long term use

Cardiovascular

Dependence

Avoid long term use

**Respiratory
Health**

Avoid long term use

Project Vector Recommendations

If you are a cigarette smoker trying to quit and not successful with other methods, then evidence is also clear:

Switch to e-cigarettes to reduce risk

Cancer

Switch completely to e-cigarettes

Cardiovascular

Switch completely to e-cigarettes

Dependence

Switch completely to e-cigarettes

**Respiratory
Health**

Switch completely to e-cigarettes

Direct evidence on harms of e-cigarettes is still limited

Cancer

Switch completely to e-cigarettes to reduce exposure to tobacco-related cancer-causing chemicals (High/Moderate)

Cardiovascular

Switch completely to e-cigarettes to reduce exposure to cardiovascular toxicants (Moderate/High), improve measures of cardiovascular function (Moderate/Low)

Dependence

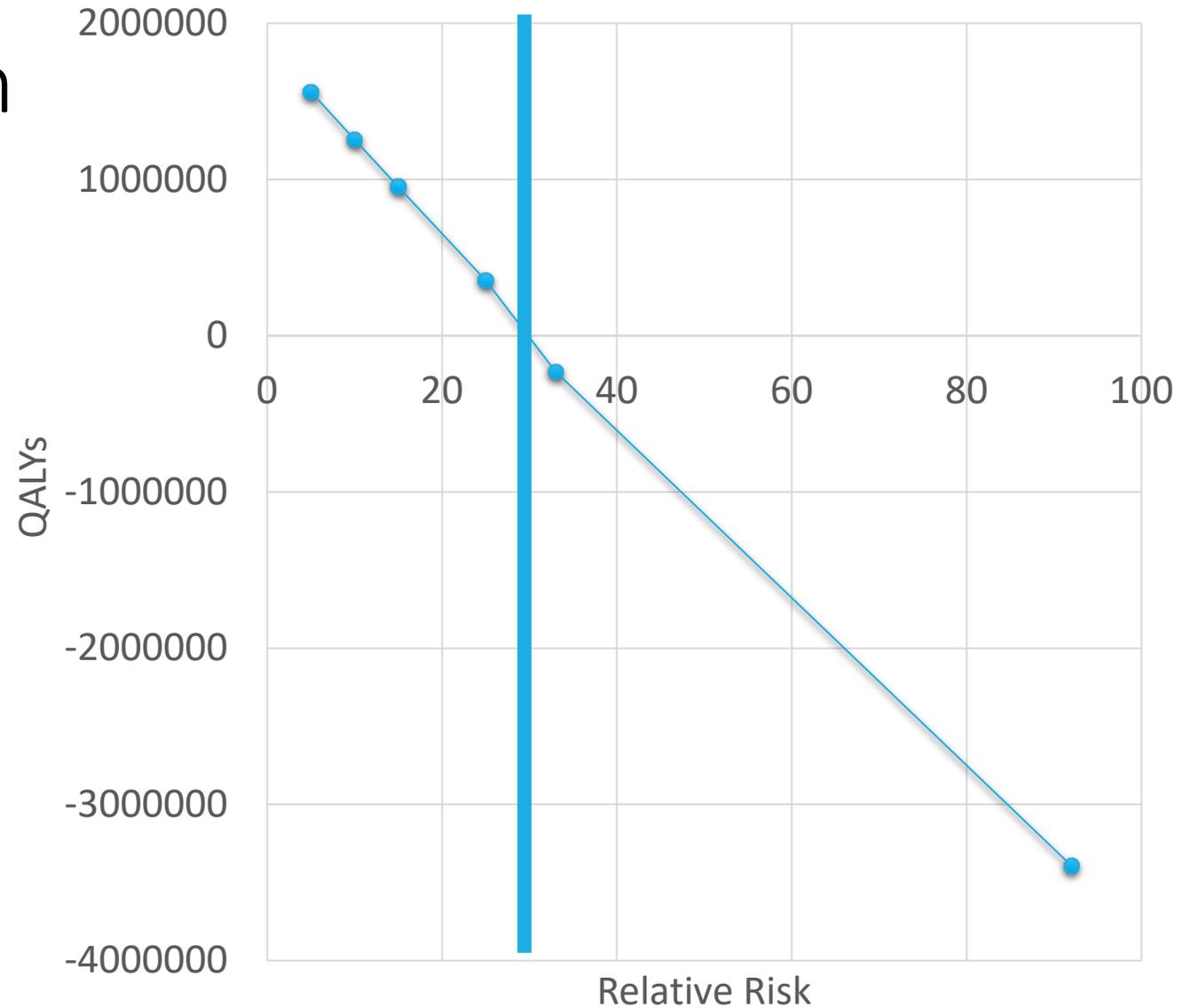
Switch completely to increase their chance of remaining smoke free (High/Moderate) and reduce their dependence (Moderate/Low—no consensus)

Respiratory Health

Tobacco users with pre-existing conditions should switch completely for better lung health (Moderate)

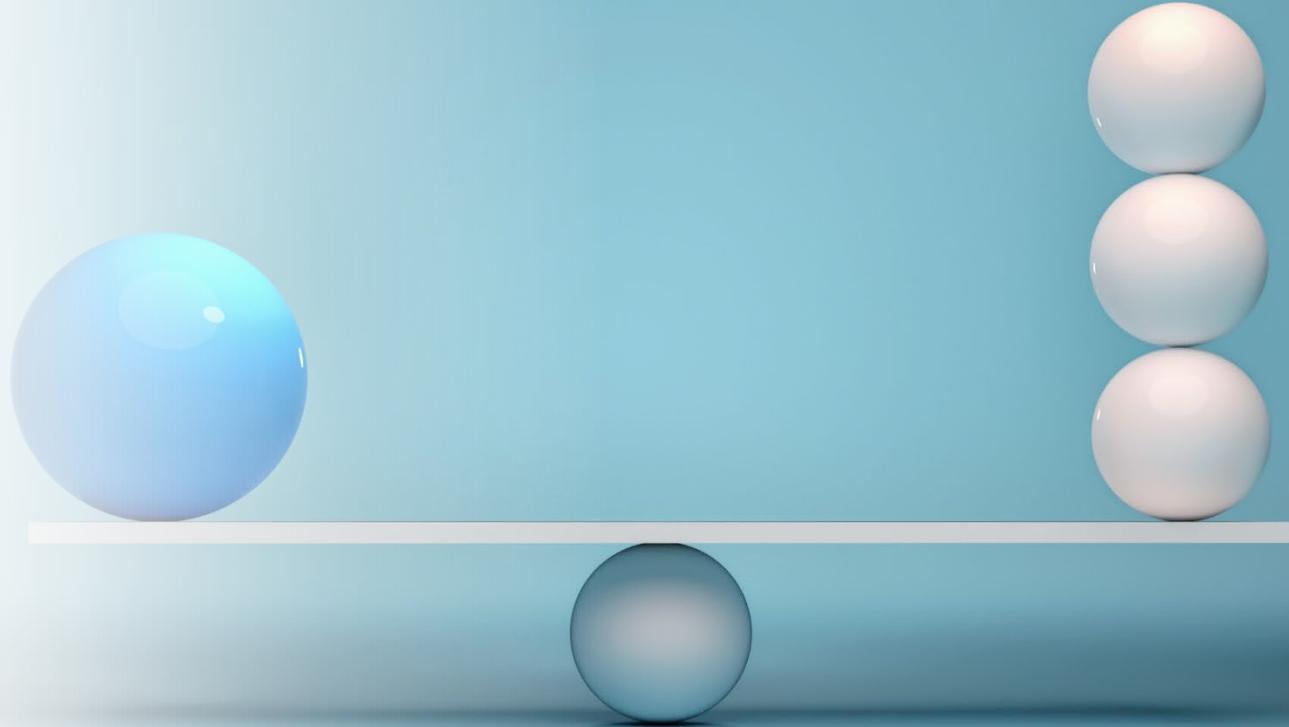
Relative Risk of E-cigarettes: Simulation study

- Simulation study with OTRU/University of Melbourne found that overall population health impact depends on the estimate of risk



Balance of Recommendations

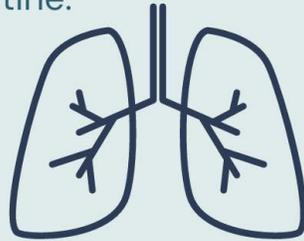
- Don't start
- Stop eventually
- Switch completely



Lower Risk E-Cigarette Use Guidelines for Dual Users

Use Nicotine Replacement Therapy (NRT) to help you stop using other nicotine products.

NRT products are the safest way to use nicotine. They can help you manage your nicotine cravings while you are trying to quit other nicotine products. NRT products include the patch, gum, lozenge, oral mist, and inhaler. These are not associated with the negative health effects such as cancers, lung or heart disease, which are caused by cigarettes and other forms of tobacco.



Switch completely from smoking to e-cigarettes.

Using both tobacco and e-cigarettes, i.e. "dual use", increases your exposure to harmful chemicals. If you are going to use nicotine, switch completely from cigarettes to e-cigarettes to reduce your exposure and increase your chances of staying cigarette-free.



Cut back on your nicotine use.

Limit the number of time(s) you use any nicotine product. Try to use less than daily. If using daily, try not to use more than once every 3 - 4 hours.



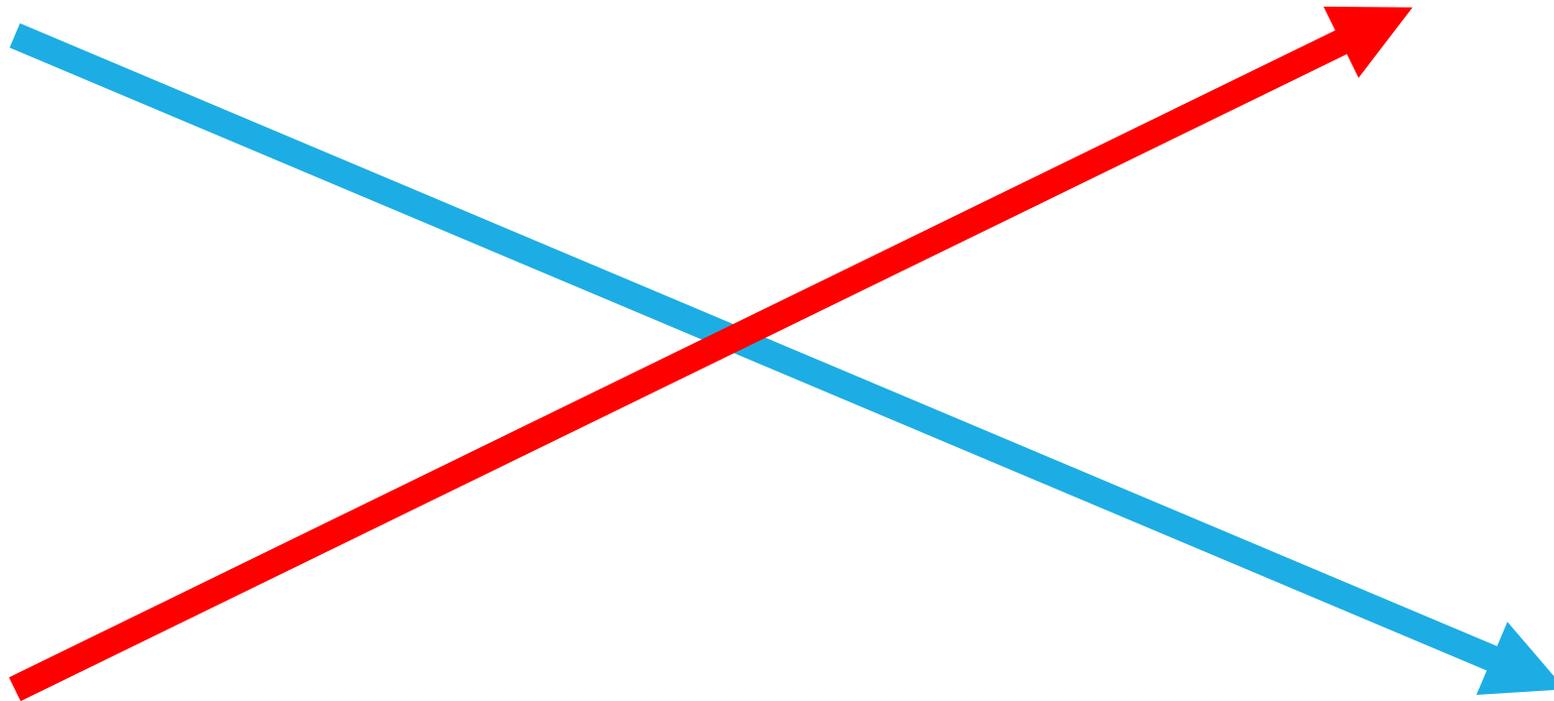
If you are vaping, choose e-cigarette cartridges with less nicotine.

Choose products that have lower levels of nicotine. Products with more nicotine increase your risk of addiction. Purchase cartridges with the lowest amount of nicotine available.



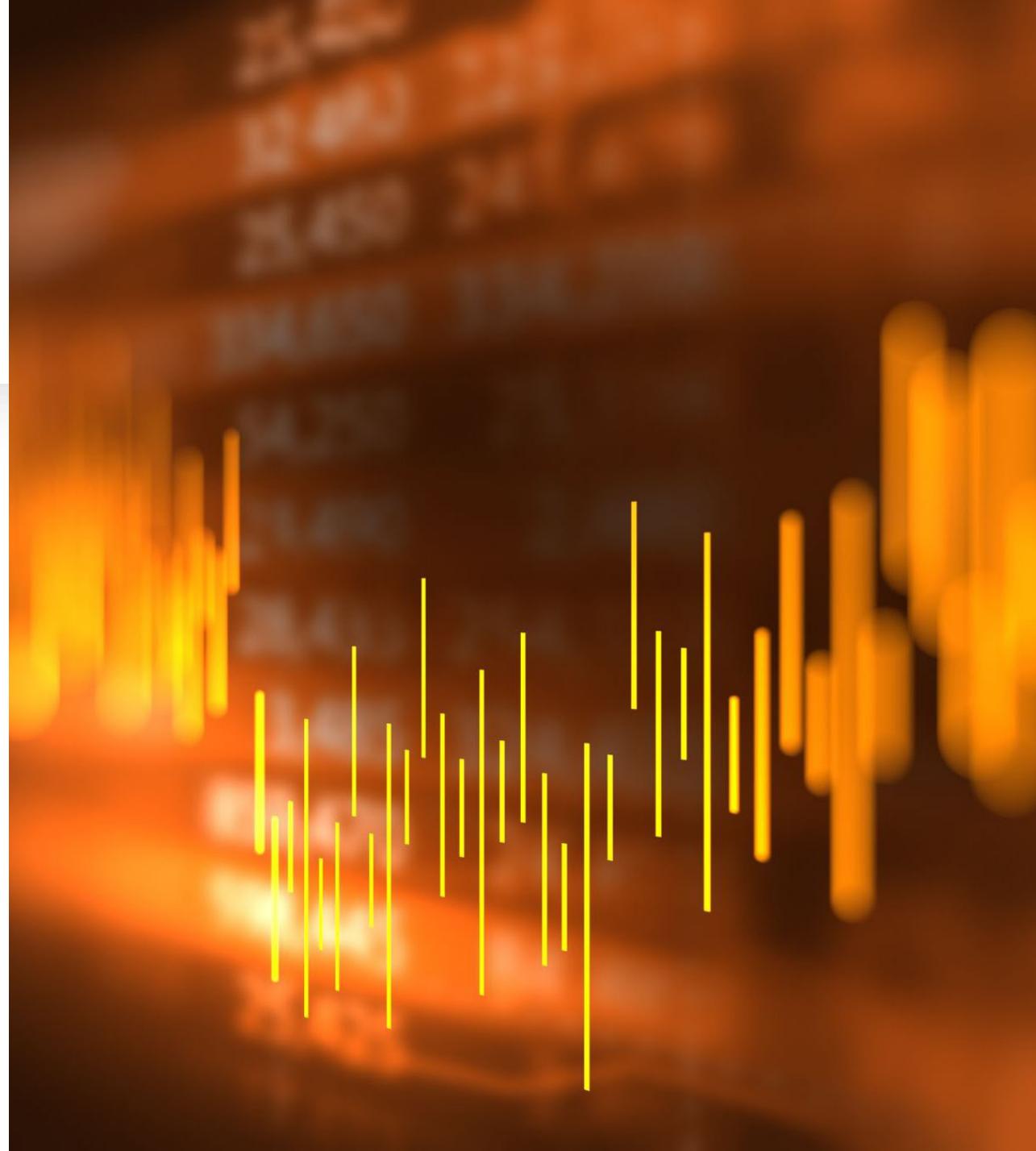
Have e-cigarette sales affect cigarette sales?

- Long term trends of reduced cigarette use over time
- Increase in e-cigarette use over the past decade



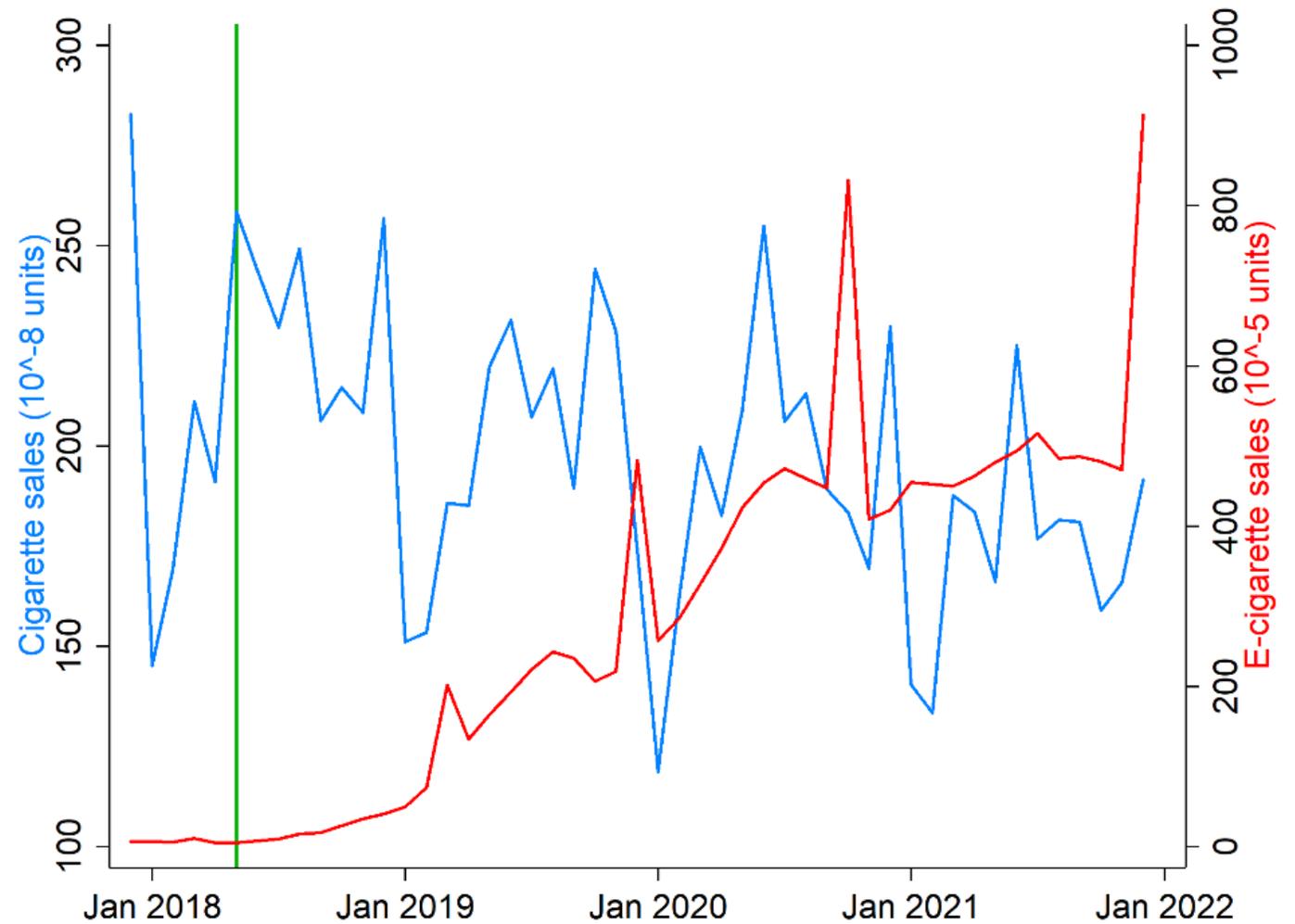
Granger causality and sales

- Cigarette wholesale data was reported to Health Canada on a monthly basis
- NielsenIQ data representing sales from grocery stores, gas stations, and convenience stores from Ontario, Quebec, BC, Alberta, Saskatchewan, and the Maritimes between 2017 and 2022
- Vector autoregressive (VAR) models, after differencing for baseline sales and seasonality, assessed the relationship between cigarette and e-cigarette sales in order to determine the timing of the association between cigarette and e-cigarettes and direction.



E-cigarette changes predict cigarette changes

- Month to month changes in sales of e-cigarettes are associated with decreases in sales of cigarettes at a 2 month lag
- Month to month changes in cigarettes are *not* associated with e-cigarette sales



DOES VAPING PREDICT SMOKING CESSATION AMONG YOUTH AND YOUTH ADULTS?

A L O N G I T U D I N A L
P O P U L A T I O N S T U D Y



Methods

Vaping Dependence Cohort

Canadians (16–25 years old) recruited starting in 2020 and followed every 3 months for up to 21 months (76% follow up rate; average)

Analysis

Survival analysis examined time to quitting, defined as not smoking within past 30 days, controlling for age, sex, race, education, province, number of cigarettes per day, use of other tobacco products, use of cannabis or alcohol and time in survey comparing lagged e-cigarette use

Current Smokers

Sub sample of 905 past 30 day cigarette smokers (65% concurrent current e-cigarette users)

Sensitivity Analyses

E-cigarette users who indicated the main reason for vaping being quitting smoking
Interaction with number of cigarettes per day
Vaping frequency, PS-EDI score

Results

Current e-cigarettes users were less likely to quit smoking before and after adjustment. Among e-cigarette users, those who reported the main reason they were vaping was to quit smoking were no more likely to quit.

Crude HR

0.79 (0.65, 0.96)

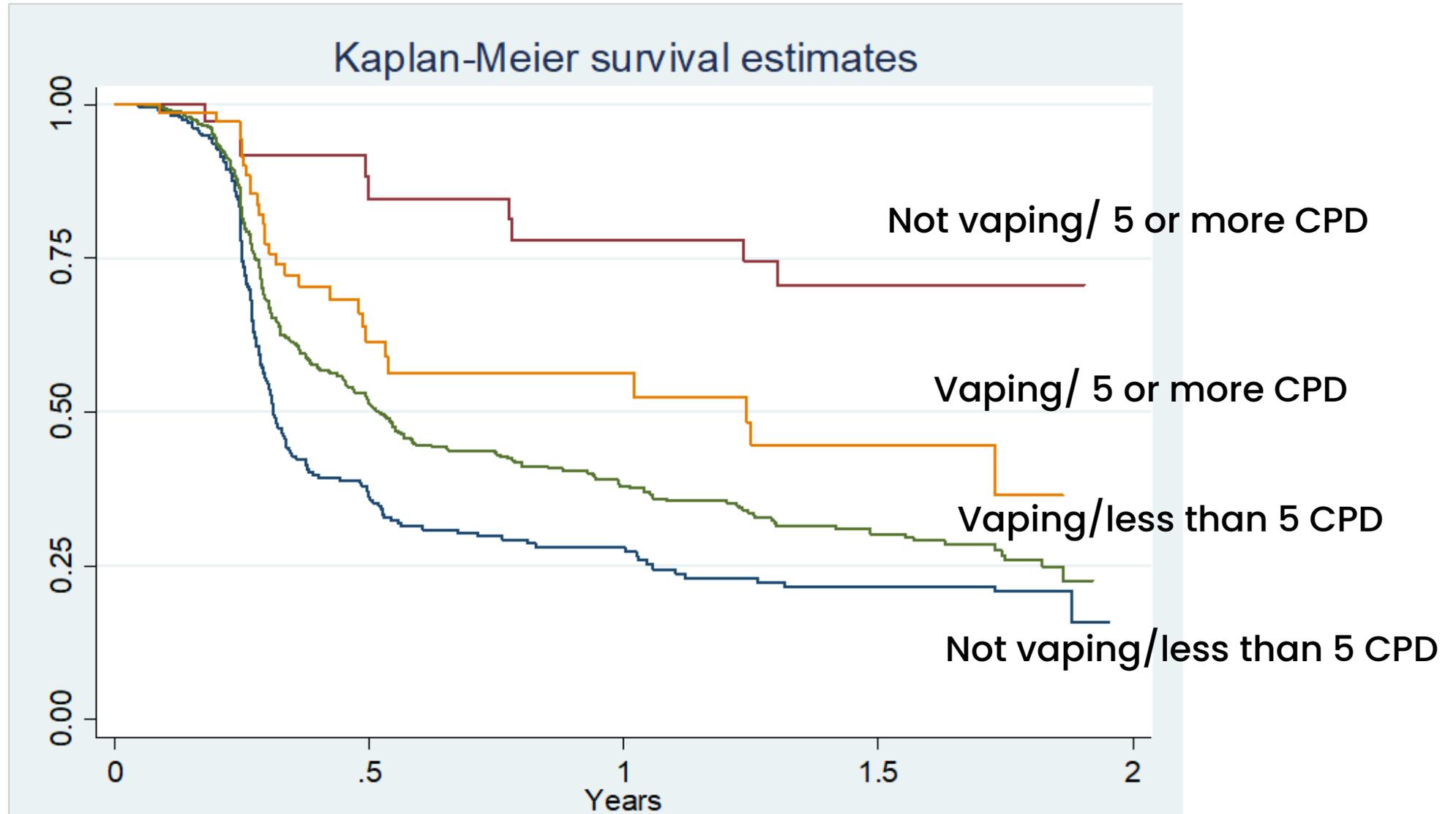
Adjusted HR

0.75 (0.61, 0.91)

**Vaping for
quitting vs other
reason HR**

1.04 (0.77, 1.42)

Interaction with smoking frequency



Association depends on smoking frequency

Results

The effect of e-cigarette on smoking cessation depends on the frequency of smoking. Low frequency smokers were less likely to quit smoking if they were vaping; higher frequency smokers were more likely to quit. The magnitude of the effect increased with increased addiction score and vaping frequency.

Interaction with
CPD

0.12 (0.04,0.20) **

Interaction with
PS-EDI and CPD

0.01 (0.0, 0.02)***

Interaction with
Vaping frequency
and CPD

0.01 (0.00, 0.01)**

Youth and young adults are in different life stages compared to older adults.

E-cigarette use predicts greater difficulty in quitting among those who may be still developing nicotine dependence. The more frequent use of e-cigarettes predicts greater difficulty.

However, among more established smokers the reverse is true.



Policy Options: Restrictions on Flavours

	Vaping prevalence	Vaping cessation (among those vaping at previous wave)	Vaping initiation (among never vapers)
Flavour regulation	-0.09**	-0.03	-0.64
	[-0.16,-0.03]	[-0.11,0.04]	[-1.61,0.32]
Date	0.00	-0.00	0.00***
	[-0.00,0.00]	[-0.00,0.00]	[0.00,0.00]
N	8548	3792	1516

Threading the needle

- The cigarette/e-cigarette association is nuanced
- Still much to be learned about the health effects of e-cigarettes which will determine the costs/benefits at a population level
- However, we have strong recommendations that vary by status
- E-cigarettes may have had some benefits in Canada
- We can do better at balancing the costs and benefits with our choice of policies



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**LUNG HEALTH
FOUNDATION**

#stopvaping challenge

#stopvapingchallenge allows youth to challenge their friends to try to quit vaping (and helps us learn more about the natural history of quitting)

App collected data on e-cigarette use and demographics in a baseline survey and conducted a follow up survey at the time of relapse.





Vaping Cessation Guidance Resource

<https://intrepidlab.ca/>

