

LET'S TALK ABOUT VAPING

A QUICK REFERENCE GUIDE

Prepared: June 2024

Review date: June 2025

Prepared by: Horizon Health Network's Centre of Excellence for Clinical Smoking Cessation



CURRENT STATE

“E-cigarette use has become an epidemic among our nation’s young people.”

U.S. Surgeon General’s Report, 2018

New Brunswick has the highest vaping prevalence in Canada among youth ages 15-19.¹

WHAT'S INSIDE

GENERAL INFORMATION
NICOTINE AND THE YOUNG BRAIN
NICOTINE AND MENTAL HEALTH
HEALTH IMPACTS OF VAPING
MARKETING TACTICS TARGETING YOUTH
QUITTING VAPING
REFERENCES AND RESOURCES

GENERAL INFORMATION

WHAT IS AN E-CIGARETTE OR VAPING DEVICE?

E-cigarettes are devices that operate by heating a liquid solution to a high enough temperature so that it produces an aerosol that is inhaled.

Older generations of e-cigarettes used free-base nicotine. Current e-cigarettes on the market, including pre-filled pod systems, refillable systems, and disposable systems, use nicotine salts in the e-liquids.

The nicotine salt formulas allow for much higher levels and more efficient absorption of nicotine compared to earlier generations of e-cigarettes.

NICOTINE SALTS

Current e-cigarette products deliver nicotine as efficiently as a cigarette.²

The use of nicotine salts lowers the pH of e-liquids, allowing much higher concentrations of nicotine to be inhaled with less irritation.

The nicotine content of many e-cigarettes also raises concerns about the potential for addiction.

A study found that among current youth and young adult nicotine pod/mod users, the majority — 63% — did not know the product always contains nicotine.³ Anecdotally, youth are reporting signs of severe dependence, such as inability to concentrate in class, using an e-cigarette upon waking, and using e-cigarettes at night after waking with a craving.

Newer generations of e-cigarettes, which use nicotine salt-based pods, contain nicotine levels equivalent to, or exceeding, one pack of cigarettes.

E-CIGARETTE CONTENT

Most e-cigarettes contain nicotine, flavouring, polycyclic aromatic hydrocarbons, propylene glycol/vegetable glycerin, aldehydes, carcinogenic nitrosamines, particulate matter, heavy metals, diacetyl, and other drugs.

Some e-cigarettes are advertised as 'nicotine-free'; however, research indicates they may still contain nicotine.⁴

CONTENT CONCERNS

Nicotine is highly addictive.⁵

Polycyclic aromatic hydrocarbons can cause cancer.

Propylene glycol/vegetable glycerin has never been approved for inhalation. It is dangerous when heated, as in e-cigarettes.

Diacetyl is known to cause lung toxicity, including bronchiolitis obliterans.

Heavy metal levels have been found to be higher in e-cigarettes when compared with traditional cigarettes.

GENERAL INFORMATION CONT'D

TOOLS FOR PARENTS AND TEACHERS

Vaping prevention and quitting resources: top tips for parents and schools

<https://truthinitiative.org/research-resources/quitting-smoking-vaping/vaping-prevention-and-quit-resources-top-tips-parents>

Health Canada

<https://www.canada.ca/en/services/health/publications/healthy-living/talking-teen-vaping-tip-sheet-parents.html>

Dictionary of Vape Lingo

https://truthinitiative.org/sites/default/files/media/files/2020/06/Truth_Vaping_Lingo_Dictionary_FINAL.pdf

QUASH Facilitator Training

<https://www.quashapp.com/adult-allies>

Vaping is harmful.

Nicotine impacts brain development in youth and young adults.

Most vape pods contain more nicotine than one package of cigarettes.

New Brunswick has the highest vaping prevalence in Canada among youth ages 15-19 years old.

Vaping leads to smoking.

Young non-smokers who vape nicotine are 3x as likely as non-users to start smoking tobacco cigarettes.⁶

NICOTINE AND THE YOUNG BRAIN

HOW NICOTINE AFFECTS YOUNG BRAINS

Youth are uniquely at risk for long-term, long-lasting effects of exposing their developing brains to nicotine.

These risks include nicotine addiction, mood disorders, and permanent lowering of impulse control.⁷

Nicotine use during adolescence can disrupt the formation of brain circuits that control attention, learning, emotional regulation, and can increase susceptibility to other addictions.⁷

Research has shown early age of nicotine use and pleasurable initial experiences are correlated with daily use and lifetime nicotine dependence.

5 mg of nicotine a day is enough to establish a nicotine addiction.⁸

E-cigarette devices popular with youth contain up to 250-300mg of nicotine.

Youth who have never smoked previously and begin using e-cigarettes are more likely to smoke cigarettes in the future.

One study found that nicotine naive youth and young adults who had ever used e-cigarettes had seven times higher odds of becoming smokers one year later compared with those who had never vaped.⁹

contains 300 mg of nicotine



NICOTINE AND MENTAL HEALTH

Studies have shown that nicotine can worsen anxiety symptoms¹⁰ and amplify feelings of depression.¹¹

Youth with single and dual e-cigarette and marijuana use had increased odds of reporting depressive symptoms and suicidality compared to youth who denied use.¹²

Current e-cigarette users have double the odds of having a diagnosis of depression compared to those who have never vaped.

Frequent vaping is tied to even higher odds (2.4x) of having a diagnosis of depression compared to never users.¹³

Vaping is significantly associated with higher levels of ADHD symptoms.¹⁴

Nicotine use — whether through smoking or vaping — can increase stress levels.

Many people believe nicotine containing products can relieve stress or anxiety, giving the illusion of nicotine as a stress reliever. They might be interpreting the ability of the products to curb the symptoms of nicotine withdrawal as a beneficial effect on mental health. The irony is that while you may experience temporary relief from stress on a cognitive level, the body is experiencing **increased** stress. Your blood pressure and heart rate increase, muscles become tense, and less oxygen is available to the body and brain.¹⁵

More than half of vapers use e-cigarettes to cope.¹⁶

50.3% of frequent vapers – those who vaped 20 or more days in the past month – reported that they need to vape to cope with stress or anxiety.

Many e-cigarette brands are now tapping into themes of stress relief and mental well-being.

A popular disposable e-cigarette brand, Puff Bar, marketed its product during the COVID pandemic, as a way to “stay sane.”

There is emerging evidence of a link between quitting vaping and improvements in mental health symptoms.¹⁶

Survey data shows support for this link between quitting nicotine-containing e-cigarettes and improved mental health outcomes:

- 90% of those who quit said they felt less stressed, anxious, or depressed.
- 47% of respondents who quit vaping reported that when they quit vaping they felt more in control.
- 78% of respondents who reported ever vaping but had not quit said they would feel better about themselves if they quit vaping.

HEALTH IMPACTS OF VAPING

Overall Health Impact

It took several decades before the negative health impacts from smoking cigarettes were fully known. Likewise, it will take several decades to realize the full extent of any potential harm associated with vaping.

Despite the need for more time to fully understand the health impacts of vaping, a recent study of 2,000 youth and young adults revealed half (50.9%) of participants were quitting vaping due to health-related reasons.¹⁷

Respiratory complications

E-cigarette use is associated with increased risk for respiratory disease¹⁸.

Cancer

There are known carcinogens in e-cigarettes. Carcinogens are cancer causing substances.

Cardiovascular Complications

The risk of e-cigarettes for cardiovascular health remains uncertain¹⁸.

Mental Health

Refer to Vaping and Mental Health section

Impact on the Brain

Refer Nicotine and the Young Brain section

MARKETING TACTICS TARGETING YOUTH

The Tobacco Industry has a long history of targeting youth, and the trend continues with e-cigarettes.

Big Tobacco is now Big Vape.

All major tobacco companies now own at least one e-cigarette brand.

The tobacco industry spends \$1 million per hour on marketing.

This equates to \$8.8 billion per year.

Initially, e-cigarettes were heavily marketed in the U.S., and even though the regulations in Canada are more strict, there is “cross-over” from U.S. marketing.

To bypass the strict marketing regulations in Canada, Big Tobacco has relied on social media marketing, using viral campaigns, testimonials, and influencers to sell their products.¹⁹

“Nicotine is not addictive”



A word about the tobacco industry

Big tobacco is an industry that has a long history of targeting vulnerable populations, including youth.

This is a picture of the CEOs of the 7 largest tobacco companies in North America testifying, under oath, before a House of Representatives. Each one was asked individually if nicotine is addictive and each one answered “no”, nicotine is not addictive. This occurred in 1994. Addiction is central to their business model.

All major tobacco companies now own e-cigarette brands.

Tobacco companies have seen a decline in profits with the reduction in smoking prevalence, primarily due to a decrease in youth and young adult populations not starting to smoke.

Vaping is a multi-billion-dollar industry. It's all about profits.

QUITTING VAPING

Currently, there are no evidence-based clinical practice guidelines for how to quit vaping.

As a result of the tobacco epidemic there are known tools and strategies to treat nicotine addiction. Some of these same strategies are used to treat vaping dependence. Clinical guidelines for treating vaping dependence are currently under development.

Vaping should not be used as a smoking cessation tool for youth due to lack of effectiveness and evidence of harm.²⁰

The Canadian Paediatric Society recommends behaviour strategies known for treatment in other addictions as first line therapy and suggests considering nicotine replacement therapy (NRT) for youth with severe nicotine dependence or withdrawal symptoms (nicotine patch, gum, and lozenges).²⁰

NRT, such as patches, gums, lozenges, inhalers, and mouth sprays have been shown to be safe for youth, though evidence of effectiveness for smoking and vaping cessation in youth is limited.²¹

Behavioural strategies to help youth quit vaping:

- Try to reduce the amount of nicotine you are vaping.
- Try not to carry your vape with you (i.e. keep it in your locker at school).
- When you are having a craving, try to keep yourself busy. Cravings only last a few minutes.
- Try to delay vaping for as long as possible each time.
- Consider speaking with your healthcare provider about using nicotine replacement therapy to quit vaping (patch, gum, inhaler, mouth spray or lozenges).

Quit Vaping Resources for Youth in New Brunswick

Resources for youth are limited.

Consult your family physician or nurse practitioner.

Contact the provincial quit line, Smoke-Free NB, at 1-866-366-3667.

Consider trying digital apps, such as Quash or Crush the Crave.

Note: limited data is available as to how effective these apps are in helping youth quit vaping.

RESOURCES

THE TRUTH INITIATIVE

Some of the content contained in this guide comes from the Truth Initiative. They are leaders in the field of youth vaping, and are committed to making tobacco use and nicotine addiction a thing of the past.

The Truth Initiative provides youth, educators, and parents with relevant, up-to-date, evidence-based facts about vaping and smoking.

Although the information from the Truth Initiative in the links below is available to everyone, quit vaping support through their 'This is Quitting' program is only available for youth living in the United States.

<https://truthinitiative.org/research-resources/emerging-tobacco-products/e-cigarettes-facts-stats-and-regulations#What-is>

[E-cigarettes: Facts, stats and regulations \(truthinitiative.org\)](https://truthinitiative.org/research-resources/emerging-tobacco-products/e-cigarettes-facts-stats-and-regulations#What-is)

[Colliding Crises: Youth Mental Health and Nicotine Use \(truthinitiative.org\)](https://truthinitiative.org/research-resources/emerging-tobacco-products/e-cigarettes-facts-stats-and-regulations#What-is)

Vaping: Know the Truth

A free, four-part digital learning experience that gives students and teachers core knowledge around the dangers associated with using e-cigarettes:

<https://everfi.com/courses/k-12/vaping-programs-for-high-school-students/>

EXAMPLES OF COMMON BRANDS

*Please note- brand popularity changes very fast in this industry. Chances are these examples will be dated within months however content will only be updated annually.

Caliburn, Nord, Mr. Fog, Puff bar, Smok, Rick and Morty products (e.g. tornadoes), Elfbar

REFERENCES

1. <https://www150.statcan.gc.ca/n1/daily-quotidien/220505/dq220505c-eng.htm>
2. Voos, N., Goniewicz, M.L., Eissenberg, T. What is the nicotine delivery profile of electronic cigarettes? National Library of Medicine. HHS Public Access. 2020.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6814574/>
3. Willet, J.G., Bennett, M., Hair, E.C. et al. Recognition, use and perceptions of JUUL among youth and young adults. Tobacco Control. 2018.
<https://pubmed.ncbi.nlm.nih.gov/29669749/>
4. Lau, L., Conti, A.A., Hemmati, Z., Baldacchino, A. The prospective association between the use of E-cigarettes and other psychoactive substances in young people: A systematic review and meta-analysis. Neuroscience and Biobehavioral Reviews. 2023. <https://www.sciencedirect.com/science/article/pii/S0149763423003615?via%3DiHub>
5. <https://www.fda.gov/tobacco-products/health-effects-tobacco-use/nicotine-why-tobacco-products-are-addictive>
6. Jones, K., Salzman, G., The Vaping Epidemic in Adolescents. Mo Med, 2020.
7. Centre for Disease Control Smoking and Tobacco, 2024. [Health Effects of Vaping | Smoking and Tobacco Use | CDC](#)
8. Benowitz, N.L., Henningfield, J.E. Establishing a nicotine threshold for addiction-the implications for tobacco regulation. The New England Journal of Medicine. Volume 331:123-125. July 14, 1994.
<https://www.hri.global/files/2011/07/13/Benowitz - Nicotine Regulation.pdf>
9. Hair, E.C., Barton, A.A., Perks, S.N., et al. Association between e-cigarette use and future combustible cigarette use: Evidence from a prospective cohort of youth and young adults, 2017-2019. Addictive Behaviors. 2021.
<https://www.sciencedirect.com/science/article/abs/pii/S0306460320307231?dgcid=author>
10. Kutlu, M.G., Gould, T.J. Nicotine modulations of fear memories and anxiety: Implications for learning and anxiety disorders. Biochemical Published Online First. 2015.
<https://pubmed.ncbi.nlm.nih.gov/26231942/>
11. Lechner, W.V., Janssen, T., Kahler, C.W., et al. Bi-directional associations of electronic and combustible cigarette use onset patterns with depressive symptoms in adolescents. Preventative Medicine. 2017.
<https://pubmed.ncbi.nlm.nih.gov/28024859/>
12. Chadi, N., Guilin Li, N.C., Weitzman, E.R. Depressive symptoms and suicidality in adolescents using e-cigarettes and marijuana: A secondary data analysis from the youth risk behavior survey. Addict Med. 2019.
<https://pubmed.ncbi.nlm.nih.gov/30688723/>
13. Obisesan, O.H., Mirbolouk, M., Osei, A.D., et al. Association between e-cigarette use and depression in the behavioral risk factor surveillance system. JAMA Network Open. 2019.
<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2756260>
14. Bierhoff, J., Haardorfer R., Windle, M., et al. Psychological risk factors for alcohol, cannabis, and various tobacco use among young adults: A longitudinal analysis. Substance Use & Misuse. 2019.
<https://pubmed.ncbi.nlm.nih.gov/31023112/>
15. <https://www.canada.ca/en/department-national-defence/corporate/news/regional-news/western-sentinel/2021/04/smoking-to-relieve-stress.html>
16. Youth Mental Health and Nicotine Use. Truth Initiative, 2021.
https://truthinitiative.org/sites/default/files/media/files/2021/10/Mental%20Health%20and%20Nicotine%20Report_10.7.2021.pdf
17. Amato, M.S., Bottcher, M.M., Cha, S. "It's really addictive and I'm trapped:" A qualitative analysis of the reasons for quitting vaping among treatment seeking young people. Addictive Behaviors. January 2021.

REFERENCES (con't)

18. Pipe, A.L., Mir, H. E-cigarettes re-examined: Product toxicity. Canadian Journal of Cardiology. 2022.
<https://www.sciencedirect.com/science/article/pii/S0828282X22005037?via%3Dihub>
19. <https://www.theglobeandmail.com/canada/article-vaping-advertising-marketing-investigation/>
20. Canadian Pediatric Society. <https://cps.ca/uploads/issues/VapingTool-EN.pdf>
21. American Academy of Pediatrics.
<https://www.aap.org/en/patient-care/tobacco-control-and-prevention/youth-tobacco-cessation/nicotine-replacement-therapy-and-adolescent-patients/#:~:text=Can%20Adolescents%20Use%20NRT%3F,lack%20of%20adequately%2Dpowered%20studies>