

Vaping Products

Prepared by Fraser Health Population and Public Health, Wellness Program

Surgeon General Warns Youth Vaping Is Now An 'Epidemic'

December 18, 2018 · 12:08 PM ET

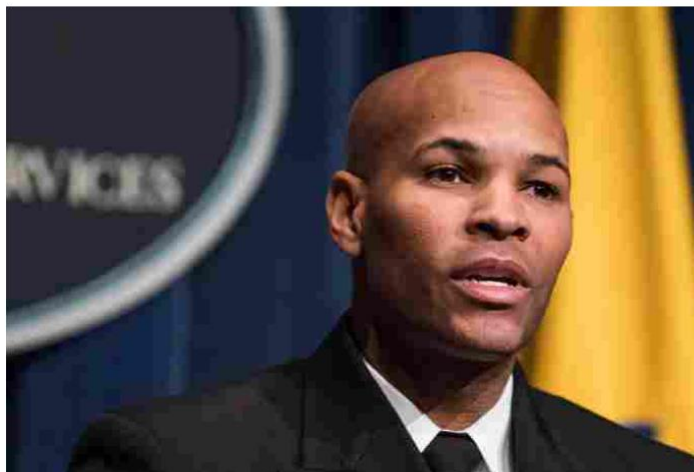


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Number of children vaping doubles in five years, new research shows



THE WALL STREET JOURNAL
"Schools and Parents Fight a Juul E-Cigarette Epidemic"

JOURNAL SENTINEL
"JUULing is the New Teen Vaping Fad Taking Over School Bathrooms"

The New York Times
"I Can't Stop': Schools Struggle With Vaping Explosion"

CNN
"Vaping Now An Epidemic Among US High Schoolers"

TabaccoFreeKids.org



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'Almost everyone has tried it' increase in teen vaping

“I don’t know much about vaping, how am I supposed to talk to my teen about it?”

“All my friends are vaping, what’s the big deal?”

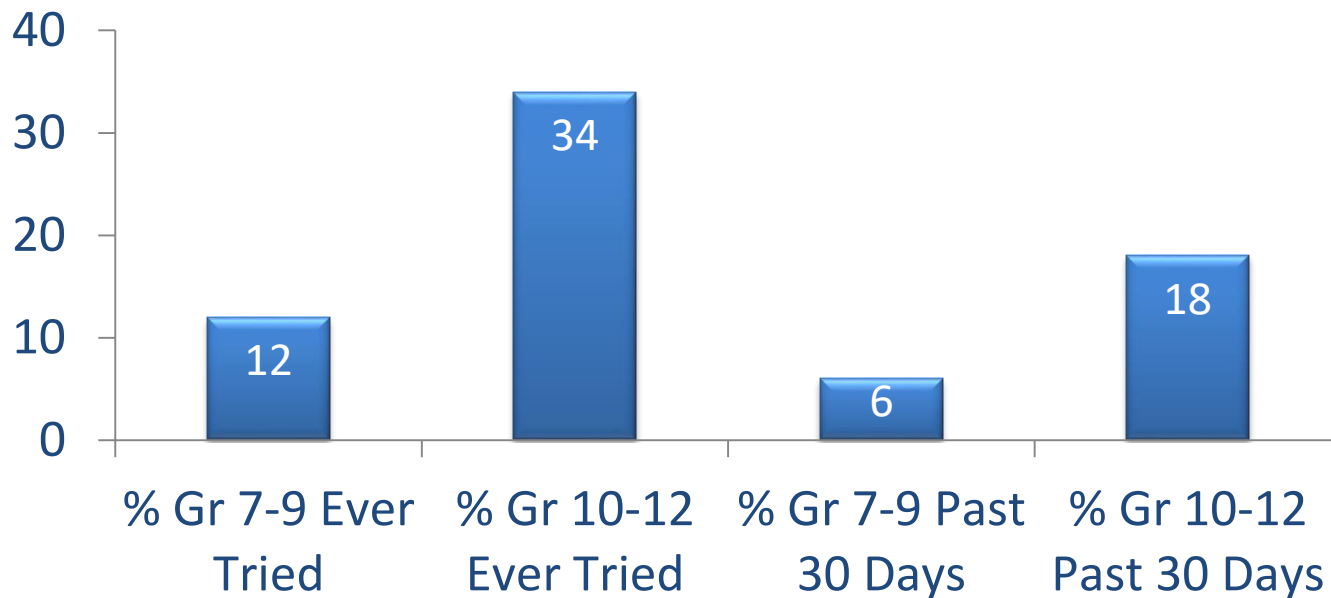
“There is a lot of research on vaping, let’s explore the evidence.”



Who uses vaping products?



Student E-Cigarette Use in BC 2016/17



Adolescent Health Survey – 2018:

- 21% of students used a vaping product with nicotine
- 19% of students used a vaping product without nicotine

Why are youth attracted to vaping?



- The flavours are appealing; the devices look cool
- It makes them feel rebellious: they vape in places that are not allowed as it is easy to conceal
- Their friends are vaping, it helps them fit in
- Curiosity and/or boredom
- They consider the vapour to be water vapour, harmless compared to tobacco smoke
- They like the “hit” they get from nicotine



When did vaping products first come on the scene?



- 2003: E-cigarettes first developed
- 2007: First appeared in the Canadian market
- Vaping products or ENDS (electronic nicotine delivery device system) have many names



What do vaping products look like?



Cig-a-Likes



Box Mods

Large-size tank devices



1st Generation

2nd Generation

3rd Generation

Current Generation



Vape Pen Mods
Medium-size tank devices



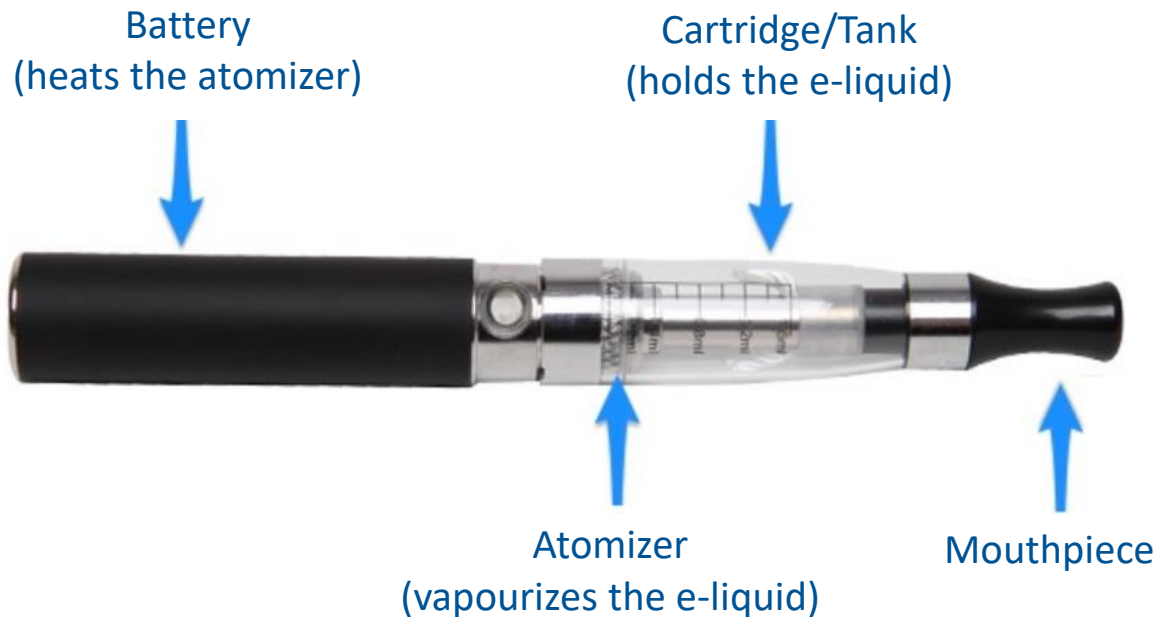
Pod Mods



How do vaping products work?



- All vaping products are comprised of 3 components: a lithium battery, a tank or cartridge of vaping liquid and an atomizer



How much nicotine is in the e-liquid?



- Nicotine content of e-liquid is available in different strengths, from zero to very high
- Earlier devices do not deliver nicotine very efficiently
- Newer devices that use nicotine salts can deliver nicotine as efficiently as a tobacco cigarette



Is nicotine addictive?



- Once inhaled, nicotine reaches the brain rapidly
- It stimulates the release of neurotransmitters that affect the brain's reward center
- Increased alertness and euphoria are experienced
- Tolerance is developed and higher amounts of nicotine is needed to achieve the same feelings
- Also, high doses can cause nicotine toxicity or nicotine poisoning

Isn't vaping liquid (e-juice) just flavourings and water?



- No, “e-juice” contains:
 - propylene glycol: provides throat hit
 - vegetable glycerin: makes the vapour/cloud
 - flavourings
 - possibly nicotine
- Heating the e-juice creates toxicants



Isn't the vaping cloud just water vapour?



- Toxicants are created from heating the liquid:
 - Heavy metals
 - Carbonyls; Volatile organic compounds
 - Tobacco nitrosamine
 - Polycyclic aromatic hydrocarbons (PAHs)
 - Particulate Matter
- Level of known toxicants are lower than cigarette smoke; varying across and within brands
- Some of the above are carcinogenic

Summary

- Vaping is a relatively new nicotine delivery system
- Vaping = Device + flavorings +/- nicotine
- Vaping nicotine is as addictive as smoking cigarettes
- E-liquid contains carcinogenic toxicants

Are there any safety issues with vaping devices?



- Vaping devices are known to have exploded and cause fires and burns
- The root cause of these incidents is the lithium-ion battery
- Most incidents have occurred when the device or spare batteries were in a pocket or during use
- Some have also occurred during charging or while being stored



What is 'Juuling'?

- Juul, as an example, is a vape that looks like a USB flash drive
- A JUUL pod contains approximately 0.7mL with 5% nicotine by weight which is approximately equivalent to 1 pack of cigarettes or 200 puffs
- The Juul vapourizes nicotine salts rather than free-base nicotine therefore delivers nicotine as efficiently as a tobacco cigarette



Who sells vaping products?



- Tobacco giants like Philip Morris, Imperial Tobacco and British American Tobacco all own popular e-cigarette brands

Then

LUCKY STRIKE CIGARETTES

LUCKIES ARE ALL-WAYS KIND TO YOUR THROAT

"it's toasted"

Only the Center Leaves...these are the Mildest Leaves

They Taste Better

Copyright, 1964, The American Tobacco Company

Lucky Strike Cigarettes
American Tobacco Company

Now

SMOKE IN STYLE
With blu Electronic Cigarettes

Freedom never goes out of fashion. Control when and where you want to smoke with blu electronic cigarettes. blu produces no smoke and no ash, only vapor, making it the ultimate accessory and the smarter alternative to regular cigarettes. Step out in style with blu.

SCAN FOR A CHANCE TO WIN A STARTER KIT

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Facebook logo 'Like' us on Facebook
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blucigs.com

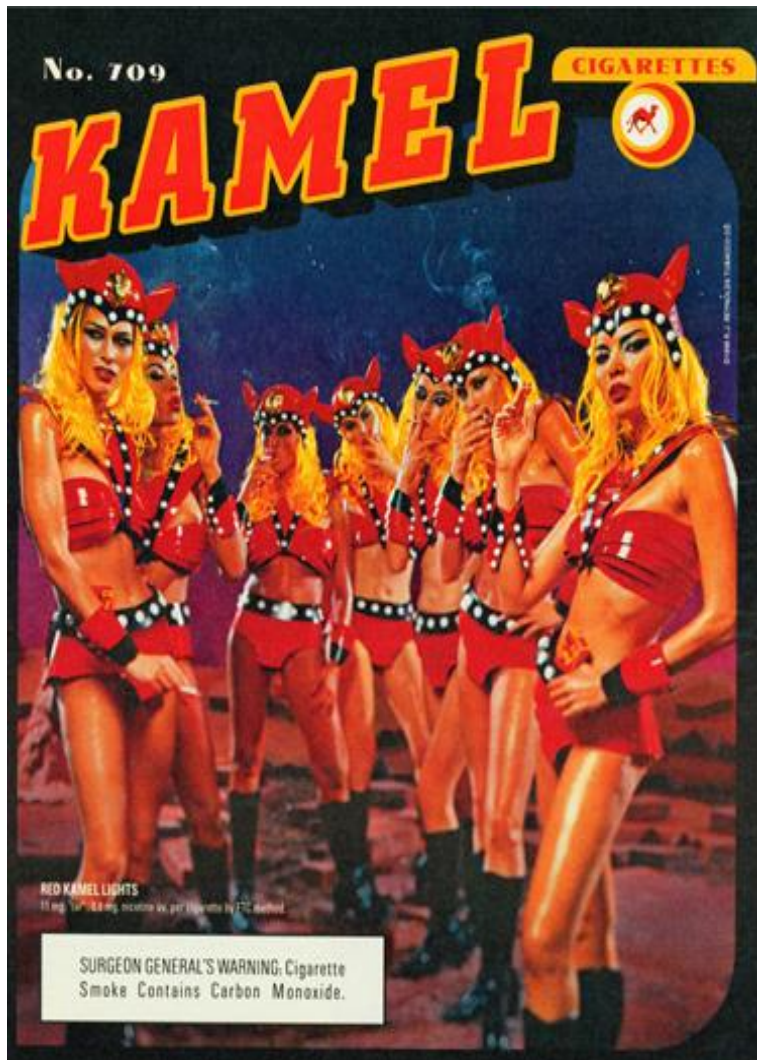
Available at these fine retailers:
WALGREENS HEB ROSS'S meijer

18+ only. CALIFORNIA PROPOSITION 65 Warning: This product contains nicotine, a chemical known to the state of California to cause both defects or other reproductive harm.

* Introducing the World's First Smart Pack (www.blucigs.com)

blu E-Cigarettes
Imperial Tobacco Company

Then



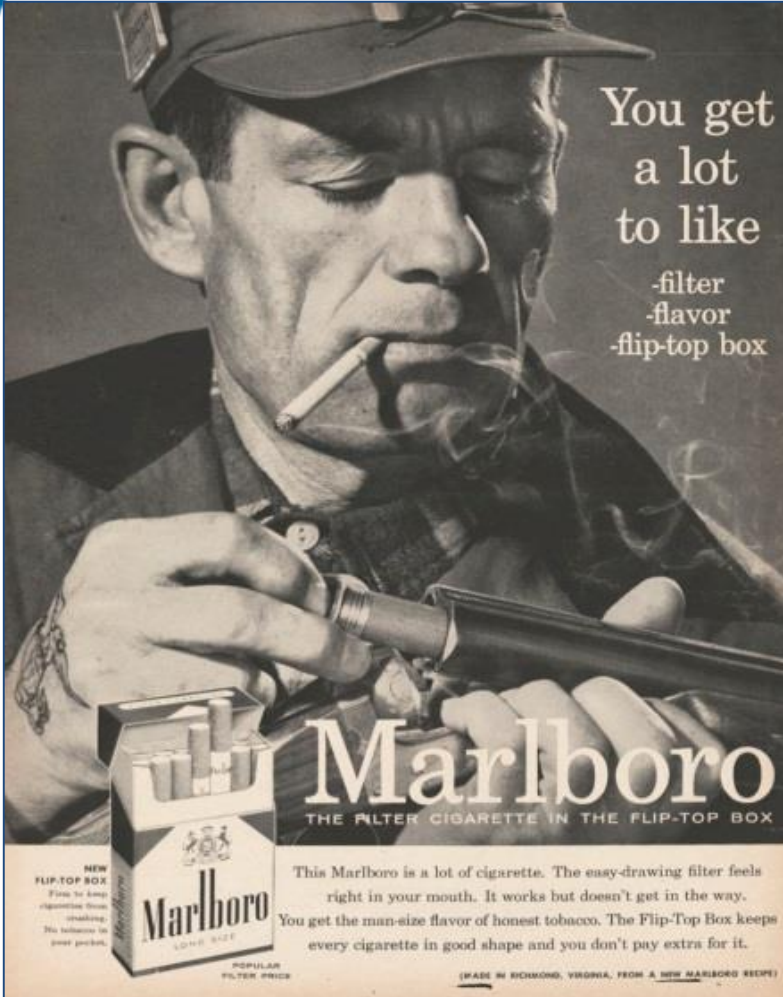
Kamel (Camel) Cigarettes
RJ Reynolds Company

Now



E-Lites E-Cigarettes
Japan Tobacco Company

Then



You get
a lot
to like

- filter
- flavor
- flip-top box

Marlboro
THE FILTER CIGARETTE IN THE FLIP-TOP BOX

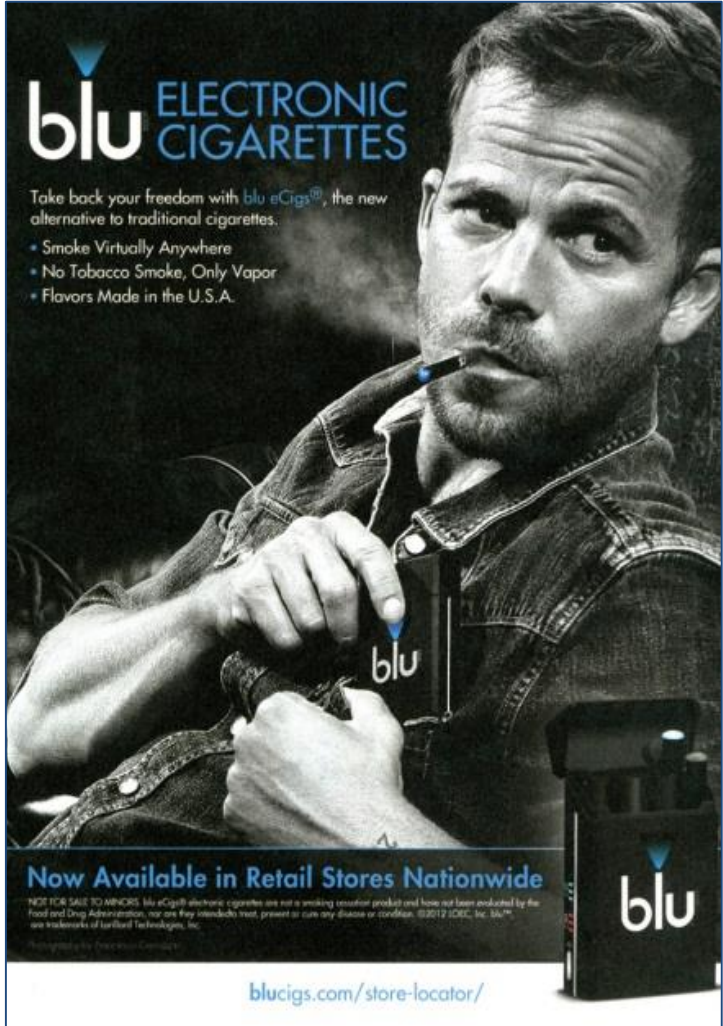
NEW FLIP-TOP BOX
Flips for easy
cigarette draw
(smoking)
No tobacco in
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This Marlboro is a lot of cigarette. The easy-drawing filter feels right in your mouth. It works but doesn't get in the way. You get the man-size flavor of honest tobacco. The Flip-Top Box keeps every cigarette in good shape and you don't pay extra for it.

POPULAR FILTER PRICE
(MADE IN RICHMOND, VIRGINIA, FROM A NEW MARLBORO RECIPE)

Marlboro Cigarettes
Philip Morris International

Now



blu ELECTRONIC CIGARETTES

Take back your freedom with blu eCigs[®], the new alternative to traditional cigarettes.

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Now Available in Retail Stores Nationwide

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blucigs.com/store-locator/

blu E-Cigarettes
Imperial Tobacco Company

What is the cost of vaping?



- Over 1 year vaping liquid is \cong 4 times less expensive than tobacco
 - 30ml bottle of vaping liquid is about \$20 and lasts about two weeks
 - 1 pack of cigarettes is \$13-14; lasts 1-2 days (moderate to heavy smoker)
 - Vaping starter kits are \$25 - \$200
 - Single disposable e-cigarette \cong \$10

Where can vaping products be purchased?



- Vaping products are available online, at convenience stores and vape shops
- “Vape shops” (adult-only stores) can show customers how to use vapour products and do product testing in the store



How is vaping regulated in BC?

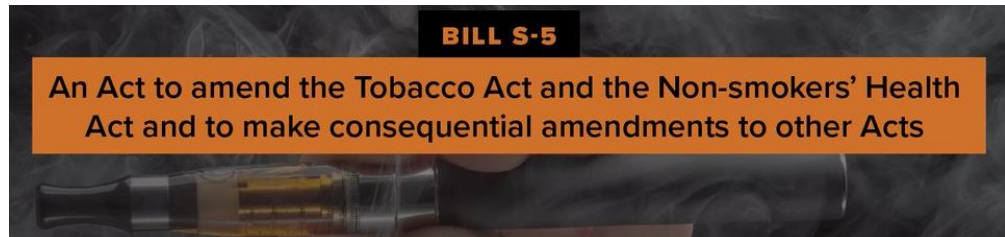


- The Tobacco Control Act was amended in 2016 to include vapour products
- To protect youth the Act stipulates:
 - Retail sales not allowed to those under 19 years
 - Retail displays do not target youth; and advertising is not visible to youth
 - Use is prohibited on public and private school grounds

How is vaping advertising regulated in Canada?



- Federal legislation prohibits promotion of vaping products that appeal to youth e.g. dessert or confectionery flavours
- The Act bans lifestyle advertising; sponsorships and celebrity endorsements
- Prohibits retailers to make health claims



Summary

- Vaping is supported by tobacco companies
- It is illegal to sell, offer to sell, distribute, advertise or promote the use of tobacco or vapour products to individuals under 19 years of age
- Federal Bill S-5 will restrict advertising to youth

Isn't vaping safer than smoking cigarettes?



- Vaping is less harmful than tobacco products such as cigarettes, but it is not harmless.
- There are still significant health concerns with vaping given the presence of chemicals, toxic compounds, and nicotine. When people breathe in the vapour, they inhale tiny particles that can harm their lungs.
- Vaping regularly can become a habit, which can be harmful to health.

Can vaping products be used to help quit smoking?



- The evidence for e-cigarettes to be effective cessation aids is inconclusive
- The direction of the effect seems to be positive in the majority of moderate and strong studies
- There is *moderate* evidence that nicotine e-cigarettes are a better cessation aid than no nicotine e-cigarettes



Vaping Controversy



- Vaping products as ‘harm reduction’ vs ‘being harmful’ is highly controversial
- Some health experts advocate for vaping products to reduce the harm caused by smoking tobacco
- Others are concerned about their harmful constituents, the risk they pose to initiation among non-smokers and smoking cessation effectiveness



Health Consequences: Conclusive Evidence



- That indoor use increases airborne concentrations of particulate matter and nicotine
- Most contain/emit numerous potentially toxic substances
- Devices can explode causing burns and projectile injuries



Health Consequences: Substantial Evidence



- Nicotine intake can be comparable to tobacco
- The aerosol contains metals
- Use results in symptoms of dependence
- Use increases the risk of ever using combustible tobacco cigarettes among youth and young adults



Health Consequences: Moderate Evidence



- There is increased cough and wheeze in adolescents who use vaping products
- There is an association with vaping products use and an increase in asthma exacerbations
- Youth and young adults who use vaping products and move on to smoke combustible tobacco will smoke tobacco more frequently and with greater intensity



Health Consequences: More Research Needed



- Short-term health effects
- Long-term health effects
- How vaping product use effects initiation of using combustible tobacco
- If vaping products are effective as a smoking cessation aid



Summary

- Vaping is less harmful than smoking tobacco
- Long term impact of vaping on health is not known
- Vaping likely to lead to smoking initiation in youth
- More research is needed

How do I have a conversation with my teen?



- Have honest conversations where all aspects of vaping are discussed
- Be patient and ready to listen when taking part in conversations with youth
- Try to avoid criticism and encourage an open dialogue.
- Keep the conversation going, and do not expect to make an impact with just one conversation.

Resources Coming Soon

Resource #1 – Frequently Asked Questions

VAPING PRODUCTS | FAQs



1 WHAT ARE VAPING PRODUCTS?

Vaping products are battery powered devices that heat a liquid solution to create an aerosol (vapour).

Vaping products have many names such as: e-cigarettes, vapes, vape pens, mods (box or pod), tanks, e-hookahs and are also known by various brand names. These devices do not contain tobacco and do not involve combustion. They consist of the following:

- vaping liquid (e-juice or e-liquid)
- battery
- mouthpiece
- heating element (atomizer/cartomizer/clearomizer)
- chamber (a cartridge or tank or reservoir to contain the vaping liquid)

2 WHAT VAPING DEVICES ARE MOST COMMONLY USED?

Original vaping devices mimicked the design of traditional cigarettes. However, newer generations of vaping products are more advanced and come in many shapes, sizes and styles. 'JUUL' and 'Aspire Breeze' are examples of vaping products that use pods and are now becoming very popular. The pods can contain high amounts of nicotine, which are readily absorbed; thus providing a greater nicotine "hit".




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3 WHAT LIQUIDS CONTAIN NICOTINE?

Most e-liquids contain nicotine. The amount of nicotine in e-liquids varies, but it is generally higher than in traditional cigarettes. Some e-liquids are labeled as "nicotine free" or "0mg/ml", but they may still contain trace amounts of nicotine.

4 WHAT LIQUIDS CONTAIN FLAVOURS?

E-liquids contain a variety of flavours, including fruit, menthol, and tobacco. Some flavours may contain chemicals that are harmful when inhaled.

5 HOW IS THE AEROSOL CREATED FROM VAPING PRODUCTS?

The aerosol created from vaping products is a mixture of nicotine, flavouring, and other chemicals. It is created when the heating element in the device heats the e-liquid, causing it to evaporate.

6 ARE THERE ANY HEALTH EFFECTS OF USING VAPING PRODUCTS?

Yes, vaping products have an impact on health. The toxicants in the aerosol, some of which are carcinogenic, can lead to short-term respiratory and cardiovascular health effects.

The long-term health effects of using vaping products are currently unknown and continue to be assessed.

Vaping products that contain nicotine can lead to nicotine addiction and physical dependence. The immediate response to nicotine includes increased heart rate and blood pressure. Youth are particularly susceptible to the negative effects of nicotine. It can alter their brain development; affect memory, concentration and mood.

7 ARE VAPING PRODUCTS LESS HARMFUL THAN TRADITIONAL CIGARETTES?

Yes, for people who smoke, vaping is less harmful.

This is because the aerosol contains fewer toxic chemicals compared to cigarettes.

However, given the potential harms of vaping products, people including youth, who have never smoked should **NOT** vape.

8 CAN BE VAPED?

Vaping is not recommended for pregnant women, people with heart disease, high blood pressure, or other health conditions. It is also not recommended for people who are taking certain medications.

9 HEALTH EFFECTS WITH EXPOSURE TO VAPOUR?

Exposure to the aerosol from vaping products can cause irritation of the eyes, nose, and throat. It can also cause coughing, wheezing, and shortness of breath. In severe cases, it can lead to asthma and other respiratory conditions.

10 ARE VAPING PRODUCTS LEGAL IN CANADA?

Vaping products are legal in Canada. However, there is both federal and provincial legislation that regulates where vaping is allowed and how vaping products are sold.

11 WHAT IS THE AGE RESTRICTION FOR PURCHASING VAPING PRODUCTS?

In BC, you must be 19 years or older to purchase vaping products.


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Resource #2 – Information for Teachers

VAPING PRODUCTS INFORMATION FOR TEACHERS

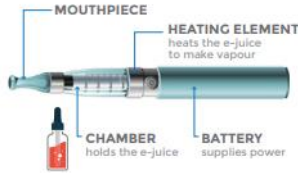


Vaping among youth is on the rise and has become an issue in schools and among young people. Currently, the limited regulatory environment for vaping products allows advertising, some flavours and promotions that may appeal to youth. This gives rise to the concern of increased experimentation and uptake of vaping products among youth.

The ultimate aim of this toolkit is to help teachers inform their students about the known and unknown risks of using vaping products. As teachers, you have the unique opportunity to reach students and their parents with credible information about vaping products. Below is an overview of vaping products, the associated risks, and how the activities presented align with the education curricula.

COMPONENTS OF VAPING PRODUCTS

Vaping products are battery powered devices that heat a liquid solution to create an aerosol. The vaping liquid inside a chamber typically contains a base solution of propylene glycol (PG) and/or vegetable glycerin (VG), flavourings, and varying amounts of nicotine. The act of inhaling and exhaling an aerosol produced by a vaping product is commonly referred to as "vaping", "Breezing" or "Juuling" in reference to popular vaping products in/on the market.



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studies suggest that vaping could lead to similar diseases as smoking: lung disease, heart disease and possibly some cancers. However, as possible health effects continue to be assessed.

Short-term: vaping can increase coughing and wheezing and may cause asthma exacerbations. Vaping products can cause fires and explosions and result in injuries due to defective batteries.

LONG-TERM: Vaping is not a healthy choice and has never smoked.

SMOKING CESSATION: Nicotine replacement therapies (patch, gum, inhaler, and mouth spray) are better medications proven to be effective for tobacco cessation. These products provide a clean dose of nicotine without the harmful tar and carbon monoxide withdrawal while someone is quitting. The delivery of nicotine is more consistent through these products than through traditional tobacco and vapour products and is not addictive.

ADDITIONAL RISKS: The delivery of nicotine is more consistent through these products than through traditional tobacco and vapour products and is not addictive. Nicotine has only been shown to have limited control over addiction effectiveness. Nicotine products as a replacement therapy, the second study found that these products to be as effective as traditional tobacco. The first study found that these products to be slightly more effective than traditional tobacco. The third found vapour to be twice as effective. In the third study, 80% of those in the vapour group were still using the devices at 12 weeks, whereas only 9% were still using traditional cigarettes. Nicotine replacement therapy has positive results cannot be extrapolated to the real world. In the real world, liquids vary extensively between brands and a market continues to rapidly expand with new products and e-cigarettes. E-cigarettes are a less harmful way than traditional cigarettes and may reduce health risks for those who are unwilling or unable to quit. Quitting using approved nicotine replacement therapies (such as patch, gum, lozenge, inhaler and mouth spray) or medication along with quit using counseling.

BREATHING DONE RIGHT: International public health organizations recommend legislation to limit youth as well as uphold existing smoking regulations. The U.S. Food and Drug Administration (FDA) has stated that there is an epidemic of youth vaping, and is taking measures to address it. For instance, the FDA is reviewing the manufacture, sale, and distribution requirements for e-cigarettes.

REGULATION (CANADA): At the federal level, the Tobacco and Vaping Act (TVPA) was enacted on May 20, 2022. It regulates the manufacture, sale, and distribution of tobacco and vaping products. Vaping products are not regulated for youth under 18 years. The act prohibits the promotion of vaping products that are appealing to youth, such as dessert flavours.

REGULATION (BC): The Tobacco Control Act and the Vaping Act (2016) was updated (2016) to include e-cigarettes, it is now called the BC Tobacco and Vaping Act.

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Resource #3 – Information for Families

VAPING PRODUCTS

INFORMATION FOR FAMILIES



The use of vaping products by youth is on the rise, and becoming more prevalent. Currently, there are some misconceptions about the vapour produced, and unknowns surrounding the health effects of these products. As caregivers, you have the opportunity to connect and discuss issues around vaping products with your child/teen. The information provided in this resource is a helpful tool to inform you and help start the conversation.

WHAT ARE VAPING PRODUCTS?

Vaping products are battery powered devices that heat a liquid solution to create an aerosol (vapour).

Vaping products have many names such as: e-cigarettes, vapes, vape pens, mods (box or pod), tanks, e-hookahs and are also known by various brand names. These devices do not contain tobacco and do not involve combustion. They consist of the following:

- vaping liquid (e-juice or e-liquid)
- battery
- mouthpiece
- heating element (atomizer/cartomizer/clearomizer)
- chamber (a cartridge or tank or reservoir to contain a liquid solution)

The liquid inside the chamber is called vaping liquid, and typically contains a base solution of propylene glycol (PG) and/or vegetable glycerin (VG), flavourings, and varying amounts of nicotine (none to very high).

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regrets, difficulties and health effects you may have experienced.

Regardless, be patient and ready to listen when taking part in conversations with youth. Try to avoid criticism and encourage an open dialogue. Remember to keep the conversation going, and do not expect to make an impact with just one conversation. With time, your conversations about vaping will change and influence the pressures youth may face.

QUESTIONS YOU MAY BE ASKED

Here are some questions and comments you may get from your child about vaping products, and suggestions on how to respond:

"Why don't you want me to use vaping products?"

Researchers have found that vaping products contain toxic and addictive ingredients that could damage your body. When people breathe in the vapour, they inhale tiny particles that can harm their lungs. Vaping regularly can become a habit, in much the same way we frequently check our cell phones.

"Aren't vaping liquids just flavourings and water?"

Vaping liquid typically contains two chemicals as well as flavouring. The two chemicals and flavourings are approved for use in food but the long-term effect of these flavourings on the lungs is unknown. Most liquids also contain nicotine, a highly addictive substance.

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- Particulate matter: all solid and liquid droplets in the air - all of the above plus others like dust, soot, smoke etc. - may cause lung disease.
- If you are around friends who vape, the cloud exhaled exposes you to chemicals that are not safe to breathe.

"Isn't vaping safer than smoking cigarettes?"

Vaping is less harmful than tobacco products such as cigarettes, but **it is not harmless**. There are still significant health concerns with vaping given the presence of chemicals, toxic compounds, and nicotine.

The long term health effects of vaping are currently unknown. Short term health effects are increased coughing and wheezing, worsened asthma and increased heart rate.

Vaping products can also cause fires and explosions and result in injuries. This is due to defective batteries.

WHAT PARENTS SHOULD KNOW ABOUT PODS/MINI PODS

- Looks like a USB or a flash drive
- Easy to conceal and use
- Recharges on a USB port
- Flavourings appeal to youth
- Highly addictive
- Have high nicotine content
- Aerosols produced are not harmless
- Often called "juuling" or "breezing"

**1 pod = 20 cigarettes

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Resource #4 – Infographic



Conclusions

- A significant public health achievement would result if the great majority of tobacco smokers switched to vaping products, then stop using them; the caveat being only if minors and non-smokers weren't recruited
- The evidence is sufficient to warn children and adolescents, pregnant women, and women of reproductive age against nicotine containing vaping products



World Health
Organization

Conclusions

- Vaping products are unlikely to be harmless; long-term use is expected to increase the risk of chronic obstructive pulmonary disease, lung cancer, and possibly cardiovascular disease as well as some other diseases also associated with smoking
- There is no specific figure on how much “safer” use of these products is compared to smoking – for a population benefit it would have to be 3 fold



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Conclusions

- Disclaimer:
 - The multitude of past and current studies have presented *contradictory* evidence in regards to vaping products as a cessation aid as well as vaping being a gateway for youth smoking initiation.
 - The information is derived from sources which is believed to be the strongest and most current.

References

- Disease Interrupted. (2017). In C. Els et. al. (Eds.), *Electronic Nicotine Delivery Systems as a Smoking Cessation Aid* (2nd ed., pp. 269-289) Toronto, ON: CAMH Education.
- Govindarajan,P., Spiller,H.A., Casavant, M. J., Chounthirath,T., Smith,G.A. (2018) E-cigarette and liquid nicotine exposures among young children. *Pediatrics*. 141 (5): e20173361
- Hajek,P., Dunja, P., Phillips, A., Anderson, R., McRobbie, R. (2017). Nicotine delivery to users from cigarettes and from different types of e-cigarettes. *Psychopharmacology*, 234 (5). Retrieved from <https://link.springer.com/article/10.1007%2Fs00213-016-4512-6>
- Malas, M., van der Tempel, J., Schwartz, R., Minichiello, A., Lightfoot, C., Noormohamed, A., Andrews , J., Zawertailo, L., Ferrence, R. Electronic cigarettes for smoking cessation: a systematic review. *Nicotine and Tobacco Research*. 8(10), pp.1926–1936.
- McNeill A, Brose L.S., Calder R., Hitchman, S.C. , Hajek, P., McRobbie ,H. (2015). E-cigarettes: an evidence update A report commissioned by Public Health England. Retrieved from Public Health England website https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/457102/E-cigarettes_an_evidence_update_A_report_commissioned_by_Public_Health_England_FINAL.pdf
- The National Academies of Science Engineering Medicine. (2018). The Public Health Consequences of E-Cigarettes. Washington, United States. Author. Retrieved from <http://nationalacademies.org/hmd/Reports/2018/public-health-consequences-of-e-cigarettes.aspx>
- Mayer, Bernd. (2014). How much nicotine kills a human? Tracing back the generally accepted lethal dose to dubious self-experiments in the nineteenth century. *Archives of Toxicology*, 88 (1). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3880486/>
- Pellegrino, R.M., Tinghino, B., Mangiaracina, G., Marani, A., Vitali, M., Protano, C., Osborn, J.F., Cattaruzza, M.S. (2011). Electronic cigarettes: an evaluation of exposure to chemicals and fine particulate matter (PM). *Annali di igiene: medicina preventiva e di comunità*, 24(4):279-88
- Rubinstein, M.L. , Delucchi, K. , Benowitz, Neal. L., & Ramo, D.E. (2018). Adolescent exposure to toxic volatile organic chemicals from e-cigarettes. *Pediatrics*, 141 (4): e20173557
- Statistics Canada. (2015). *Canadian Tobacco Alcohol and Drugs (CTADS): 2015 Summary*. <https://www.canada.ca/en/health-canada/services/canadian-tobacco-alcohol-drugs-survey/2015-summary.html>
- Statistics Canada. (2016). *Canadian Student Tobacco Alcohol and Drugs (CTADS): Detailed Tables for 2014-15*. <https://www.canada.ca/en/health-canada/services/canadian-student-tobacco-alcohol-drugs-survey/2014-2015-supplementary-tables.html>
- US Public Health Service. (2016). *Surgeon General's Report: E-Cigarette Use Among Youth and Young Adults*. Pp A4.1-1 - A4.1-6 Retrieved from Centre for Disease Control and Prevention website: https://www.cdc.gov/tobacco/data_statistics/sgr/e-cigarettes/index.htm
- World Health Organization. (2016). *Electronic Nicotine Delivery Systems and Electronic Non-Nicotine Delivery Systems (ENDS/ENND) Report* . Retrieved from World Health Organization website: <http://www.who.int/tobacco/communications/statements/electronic-cigarettes-january-2017/en/>

Questions

Feedback is appreciated!



Survey link -

<https://form.simplesurvey.com/f/l/VapingSurreySD>