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Youth Vaping in Washington County, Vermont: Standardizing Education in the Primary Care Setting

- Colby Fischer
- CVMC Family Medicine – Berlin
- January 2023



Problem Identification

- Vaping or e-cigarette use by adolescents in Vermont has become a major public health problem with the Vermont Department of Health: Vermont Youth Risk Behavior Survey finding that more than a quarter of all high schoolers and 8% of middle schoolers were currently vaping as of 2019 which is roughly double the proportion found in the 2017 survey.
 - In Washington County the proportion of high schoolers using vape products in 2019 was higher than the state average at 29% (vs 26% statewide)
 - The same survey also found that among current students using vaping products, the frequency of use has increased such that in 2017, 15% reported vaping every day compared to 31% in 2019.
- This stands in stark contrast to traditional cigarettes which have seen significant declines in usage by high school students over the past decade.
- More recent data from the US department of Health and Human Services shows that nationwide, the proportion of high schoolers using e-cigarettes was 14.1% in 2022.
- The rapid rise in usage over the last several years is due in part to student perception around vaping and its accessibility.
 - In 2019, 32% of Vermont High schoolers believed that regular use of vaping products presented only slight or no risk of harm.
 - 73% believed that access to vaping products was either “very easy” or “sort of easy.”
- Additionally, rates of vaping among Vermont High schoolers disproportionately affects traditionally marginalized communities including students of color and LGBT students thus presenting additional health concerns to a group that already faces health disparities.

Public Health Costs of Vaping

- Due to the relative novelty of electronic vaping products, there is a lack of long-term studies on the health impacts of vaping. Therefore, the long-term burden of vaping on public health is not truly known.
- Yet, we do know that Vaping products commonly contain many chemicals known to cause harm if inhaled. Including: propylene glycol – shown to cause irritation to the respiratory tract; its transformation product propylene oxide – demonstrates carcinogenicity in animal studies; nicotine – very addictive and in the high doses found in some vaping products can result in toxicity with symptoms including tremors, increased blood pressure and heart rate.
- Many vaping products have also been found to contain metals associated with renal damage, neurotoxicity, cardiovascular disease and cancer.
- Furthermore, THC found in many vaping products is associated with the development of behavioral and psychiatric issues as well as diminished academic performance.
- Worryingly, Children and teenagers who use E-cigarettes are also more likely to smoke traditional tobacco products.
- A potentially life-threatening condition that has been linked to vaping is known as “E-cigarette or vaping product use-associated lung injury” (EVALI).
 - Features of this condition include: shortness of breath, chest pain, diarrhea, abdominal pain, fever and fatigue.
 - Severe cases can lead to acute respiratory distress syndrome (ARDS) which can result in chronic lung fibrosis.

Community Perspective

Kathy Gardner, RN – Spaulding Highschool Nurse

- Notes that vaping is currently “extremely prevalent” and this past year has been “one of the worst” with vape products being confiscated every day
- Cites the following as reasons students choose to vape: desire to fit in, thinking vaping is cool, easier to use without being caught compared to traditional marijuana and tobacco products.
- Also notes that many students are sharing vape products without knowing what they contain and that many students add THC.
- Many high school freshmen started vaping in middle school.

Dawn Poitras – SAP (Substance Abuse Professional) Counselor at Spaulding Highschool

- States that at Spaulding high school, 1st time offences lead to a computer based vaping education course, the 2nd offence leads to a \$24 fine and one-to-one meeting with the school SAP counselors.
 - “Telling a kid to stop is not going to work.” SAP’s focus on presenting students with information about vaping and allow them to make up their own mind.
 - Students also receive education about vaping and other drugs of abuse during their freshman health classes.
- The school has closed up multi-stall bathrooms in an attempt to stop students from vaping.
- Cites the following as reasons students choose to vape: perception that vaping is safer than cigarettes, many teens have family members that vape.
- There is peer pressure against vaping by students who are upset about the bathrooms being closed up
 - Some students have been working on a project aimed at reducing the prevalence of vaping.

Intervention

- The goal of this projection is to standardize vaping education in the primary care setting for children and young adults using an educational pamphlet and question prompts.
- Interviews were conducted with staff of Spaulding high school. With the goal of understanding the scope of the problem and what education their students already receive on vaping.
- Pamphlet was found from a premade online resource hosted by the New South Wales Ministry of Health (see slide 10 for details). It was selected because it provided key information while being clear and concise. It was also felt that the information would be easily understood by a wide range of ages and education levels. Only the first two pages of the pamphlet were used.
- Then at the local health clinic (CVMC Family Medicine – Berlin) patients between the ages of 10 and 20 were invited to participate.
- After reading the pamphlet, participants were given three prompts:
 1. After reading the pamphlet, do you have any questions about what you read?
 2. Based on your personal knowledge of vaping products, what do you find appealing about vaping?
 3. Based on your personal knowledge and what you read in this pamphlet, what are reasons why you might choose not to vape?
- Participants were then invited to share feedback about the educational intervention.

Results

- Participant ages ranged across the age range of 10-20 with median age of 15 and male and female gender identities were equally represented
- Participants were generally able to understand the information in the pamphlet regardless of the participants' age.
- Many found that the some of the information was new and informative, but much of the information was already known to them.
- It was generally felt by participants that the information provided was important to understanding the potential harms of vaping.

Evaluation of Effectiveness and limitations

- Solely quantitative information was gathered. This was due to limitations of time and scope of the project.
- The project also did not objectively assess the prior knowledge of participants, which would require a pre-intervention questionnaire to assess.
- Furthermore, this project did not assess current or past vape patterns of use by participants nor were participants asked if the intervention would change their habits.
 - This information was excluded because many of the younger participants were present in the health clinic with their parents and may not have been comfortable sharing that information in that setting.
- Another limitation in this intervention is the lack of availability of the pamphlet in languages other than English which could limit access to those with low English literacy and those with visual impairments.
- Future research should include longitudinal data gathering to determine long term outcomes (changes in vaping use patterns).

Recommendation for future interventions

- A similar research project was done in Washington county in 2019 by Patricia Wang (see reference slide for link). Due to possible effects of the COVID-19 pandemic and educational disruptions, student knowledge about vaping may have changed, therefore there is value in performing this study. Additionally, this study includes question prompts with the goal of stimulating further deeper thinking by participants.
- Future interventions could include developing standardized approaches to different patient audiences including different age ranges, those who currently use vaping products, those who have never used vaping products, and those who have family members that currently vape.
- Targeting parents that vape may also present a unique opportunity to both treat the parent and reduce the risk of the child starting to vape.

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- Kathy Gardner and Dawn Poitras

THE FACTS ABOUT VAPING

Vapes are electronic devices designed to deliver vapourised liquids into your lungs when you breathe in. Vapes aren't water. The main ingredient in vapes is propylene glycol, vegetable glycerine or glycerol, and they often also contain nicotine, flavours and other chemicals. Vapes may contain harmful chemicals that aren't listed on the pack.

The biggest misunderstanding about vapes is that they are harmless compared to cigarettes. This is not true. **Vapes are not safe.**

DO YOU KNOW WHAT YOU'RE VAPING?



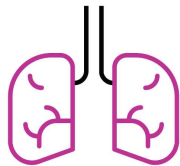
Many vapes contain nicotine making them **very addictive**



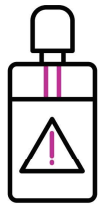
The nicotine in 1 vape can **= 50 cigarettes**



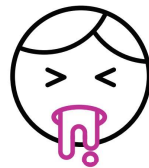
If you vape you are **3 times** as likely to take up smoking cigarettes



Vaping has been linked to **serious lung disease**



Vape aerosol **is not water vapour**



Vapes can contain the same **harmful chemicals** found in cleaning products, nail polish remover, weed killer and bug spray.



Do you know what you're vaping?
Get the evidence* and facts at health.nsw.gov.au/vaping

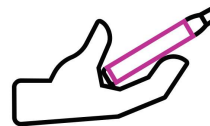


*All statements are backed by evidence which can be found on the website.

VAPES ARE DESIGNED TO BE APPEALING TO YOU

The flavours (e.g. watermelon, grape, caramel, bubble-gum, vanilla and mint) and colourful packaging used for vapes make them appealing. **Many vapes also contain nicotine, which you can become addicted to very quickly.**

Tobacco companies are continuously looking for new customers. Vapes are a new way to get young people addicted to nicotine, which is often difficult to quit.



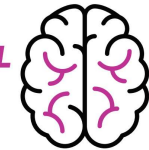
MOST YOUNG PEOPLE DO NOT VAPE

Vaping may seem popular, but in fact, research shows that 4 in 5 young people do not vape.

You might think vaping is harmless, but it isn't, and **the serious consequences of vaping are just starting to emerge.**

Any take up of vaping by young people is worrying.

NICOTINE IS HARMFUL FOR YOUR YOUNG BRAIN



Nicotine is a drug that is in many vapes and is very addictive for young brains. **It can cause long-lasting negative effects on your brain development.**

Nicotine changes the way brain synapses are formed in young people.

This can harm your ability to pay attention, learn and affect your mood and memory.

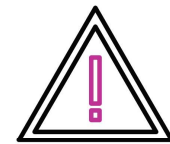
RISKS TO YOUR PHYSICAL AND MENTAL HEALTH

Vapes may expose you to chemicals at levels that have the potential to cause negative health effects. Vaping can impact your lungs and fitness. It can also leave you at increased risk of depression and anxiety. **Vaping has been linked to serious lung disease.** Importantly, many of the long-term harms of vaping are still unknown.

You're not vaping water. When you inhale from a vape you can be exposed to:

- the same harmful chemicals found in cleaning products, nail polish remover, weed killer and bug spray.
- toxins such as formaldehyde and heavy metals.
- ultrafine particles that can be inhaled deep into the lungs.
- flavouring chemicals such as diacetyl (a chemical linked to serious lung disease).

Vapes have even been known to explode causing serious burns.



Do you know what you're vaping?
Get the evidence* and facts at health.nsw.gov.au/vaping



*All statements are backed by evidence which can be found on the website.