Prevention strategies for vaping marijuana

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Cannabis Policy Resource Center at Prevention First
Learning objectives

1. Examine trends in youth vaping use
2. List risk and protective factors and consequences of youth vaping use
3. Identify and describe evidence-based strategies for preventing youth vaping
Jake Levinson is the Administrator of Prevention First’s Cannabis Policy Resource Center, working to assist municipalities, coalitions, and law enforcement in using cannabis policy as a prevention tool. Beginning in prevention in 2010, Jake’s areas of interest include prevention policy, planning and implementing youth prevention education; school-based communication campaigns; coordinating community coalitions; engaging stakeholders in community assessment and data analysis; and grants management.
Prevention First advances efforts to promote healthy behaviors and prevent substance misuse in every community through a variety of evidence-based and collaborative approaches, including training, support, and public awareness.
Mission in action

ADVISE
We work with organizations that actively promote healthy behaviors so they can be effective in their missions.

AMPLIFY
Through training and ongoing education, we work with individuals who deliver prevention services so they are equipped and confident to best support clients, schools, and communities.

ADVOCATE
We actively address prevention areas of need through public awareness campaigns, resource centers, special initiatives, conferences, and networking events.
Cannabis policy resource center

Audience
- Municipal leaders
- Community coalitions
- Law enforcement

Services
- Education
- Resources
- Support

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motivations

1. Vaping has become one of the most common methods of using nicotine and cannabis (Miech et. al., 2023)

2. Perceived risk of harm is comparatively low (Burrow-Sánchez & Ratcliff, 2022)

3. Vaping may cause youth to initiate combustible tobacco use (O’Brien et. al., 2021)

4. Vaping in and of itself can be harmful (Muthumalage et. al., 2018)
There are misperceptions about what is inhaled when using a vape device (Cheng, 2014).

However, e-cigarettes/ENDs as terms do not fully encompass the range of substances used.

Cannabis vaping routes are defined by many terms (carts/oils, dabbing, heat not burn).

Like with nicotine vaping, these terms can be misleading, not fully describing the chemistry.
In 2016, the FDA forwarded a rule stating that all tobacco products would be regulated, including smokeless tobacco such as nicotine vaping devices (Food and Drug Administration, 2016).

To date, no e-cigarette or vaping product has received authorization as a cessation assistance device (Food and Drug Administration, 2022).
When it comes to kids, the harm reduction question doesn't apply because kids should not be inhaling any of these products into their lungs.

- - Mitch Zeller, J.D., Director of FDA Center for Tobacco Products (Phillips, 2022)
The FDA stated in 2020 that no flavored vape products were authorized. Some states and localities have gone further and banned menthol and other flavors regardless of FDA authorization (Chicago Board of Health, 2013).
Monitoring the Future is “an ongoing study of the behaviors, attitudes, and values of Americans from adolescence through adulthood,” conducted by the University of Michigan with funding from the National Institute on Drug Abuse (Johnston et. al., 2023).
Youth nicotine vaping

Lifetime Vaping
After quick growth capping in 2020, rates came back down and are holding steady.

Johnston et. al., 2023
Youth nicotine vaping

Past 30-Days
JUUL was added as a separate question in 2019.

Johnston et. al., 2023
Youth cannabis vaping

Lifetime Cannabis Vaping
While smoked cannabis is the most common method, vaping is approaching or exceeding it in some localities.

Johnston et. al., 2023
Youth cannabis vaping

Past 30-Days
Regular cannabis vaping has remained fairly stable over the past few surveys.

Johnston et. al., 2023
Data considerations

COVID
Youth vaping levels dropped between 2020 and 2021. This pattern repeated between 2021 and 2022. However, this was only after historic increases, and vaping remains a common method of use.

Alcohol
When comparing vaping rates to alcohol use rates between 2020 and 2022, it becomes clear that something different may be driving the vaping trends. Parental monitoring may have increased and availability may have decreased. Finally, because these drops seem to have occurred within adolescence, this group may be more likely to abstain through young adulthood.
Vaping risks

Vaping is still a relatively new form of using both nicotine and cannabis products, and there is much research to still be done. However, both nicotine and cannabis vaping have some known health outcomes, as well as non-nicotine and non-cannabis vaping.
Vaping specific outcomes

Secondhand Exposure
After controlling for current smoking/vaping, evidence suggests respiratory symptoms from secondhand vape aerosols (Islam et al., 2022).

EVALI
E-cigarette or vaping associated lung injury is an acute lung disease caused primarily by contamination by vitamin-E acetate used as a solvent to create cannabis vaping oils. Since identification, cases have dropped (Blount et al., 2020).
### Table 3. Frequency of Detection of Priority Toxicants in EVALI Case Patients and in Healthy Comparators.

<table>
<thead>
<tr>
<th>Toxicant</th>
<th>EVALI Case Patients (N = 51)</th>
<th>Healthy Comparators</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nonusers (N = 52)</td>
<td>E-Cigarette Users</td>
<td>Cigarette Smokers</td>
<td>All Comparators (N = 99)</td>
<td></td>
</tr>
<tr>
<td><strong>number/total number (percent)</strong></td>
<td></td>
<td>(N = 18)</td>
<td>(N = 29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin E acetate</td>
<td>48/51 (94)</td>
<td>0/18</td>
<td>0/29</td>
<td>0/99</td>
<td></td>
</tr>
<tr>
<td>Medium-chain triglyceride oil</td>
<td>0/49</td>
<td>0/34</td>
<td>0/11</td>
<td>0/18</td>
<td>0/63</td>
</tr>
<tr>
<td>Coconut oil</td>
<td>1/48 (2)</td>
<td>0/34</td>
<td>0/11</td>
<td>0/18</td>
<td>0/63</td>
</tr>
<tr>
<td>Plant oil</td>
<td>0/49</td>
<td>0/34</td>
<td>0/11</td>
<td>0/17</td>
<td>0/62</td>
</tr>
<tr>
<td>Squalane</td>
<td>0/38</td>
<td>0/52</td>
<td>0/17</td>
<td>0/29</td>
<td>0/98</td>
</tr>
<tr>
<td>Squalene</td>
<td>0/38</td>
<td>0/52</td>
<td>0/17</td>
<td>0/29</td>
<td>0/98</td>
</tr>
<tr>
<td>α-Pinene</td>
<td>0/39</td>
<td>0/52</td>
<td>0/17</td>
<td>0/28</td>
<td>0/97</td>
</tr>
<tr>
<td>β-Pinene</td>
<td>0/39</td>
<td>0/52</td>
<td>0/17</td>
<td>0/28</td>
<td>0/97</td>
</tr>
<tr>
<td>3-Carene</td>
<td>0/39</td>
<td>0/52</td>
<td>0/17</td>
<td>0/28</td>
<td>0/97</td>
</tr>
<tr>
<td>Limonene</td>
<td>1/39 (3)</td>
<td>0/52</td>
<td>0/17</td>
<td>0/28</td>
<td>0/97</td>
</tr>
<tr>
<td>Petroleum distillates</td>
<td>0/12</td>
<td>0/52</td>
<td>0/17</td>
<td>0/29</td>
<td>0/98</td>
</tr>
</tbody>
</table>

*The listed toxicants were detected in bronchoalveolar-lavage fluid obtained from 51 patients with EVALI in 16 states from August through December 2019 and in 99 healthy comparators.*

**Vaping specific outcomes**
Cannabis outcomes

Physical Health
Early evidence suggests cannabis use in adolescents is a predictor of poor sleep quality (Ogeil et. al., 2019).
Cannabis use during middle to late adolescence may be associated with altered cerebral cortical development (Albaugh et. al., 2021).

Mental Health
Certain mental health outcomes, such as earlier onset of psychosis and episodes of schizophrenia, are associated with adolescent cannabis use (Hasan et. al., 2020).
The potency of cannabis products has greatly increased over the past several decades, and vaping is one of the most efficient routes of use (Cash et al., 2020).

- Emerging research has examined dose-dependent effects, however, more is needed to firmly establish the relationship
- Vaping cannabis typically delivers a much higher dose than smoked cannabis
- Increased legalization in states has coincided with increases in potency

<table>
<thead>
<tr>
<th>Potency</th>
<th>21.5%</th>
<th>2-4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average reported THC concentration in products advertised online for adult use cannabis states</td>
<td>Average THC content of cannabis flower prior to 1990</td>
<td></td>
</tr>
</tbody>
</table>
Other outcomes

Comparison to Combustibles

Research is currently only estimate-based at the population level, but predicts lower rates of adverse youth outcomes compared to combustibles (Levanthal et. al., 2019).

Vaping and Pregnancy

Despite hopefulness around cessation, some research suggests pregnant vapers are not any more likely to cease simultaneous cigarette smoking than non-vapers (Calder et. al., 2021).
Co-use of alcohol and cannabis

Cannabis and alcohol are the two most commonly co-used substances among youth.

Existing literature on co-use suggests the possibility of both or either additive and synergistic effects (Yurasek et. al., 2017).

Driving impairment for co-use of alcohol and cannabis seems worse when compared to one substance (Hartman et. al., 2015).
Vaping prevention strategies

Evidence-based and promising practices are best implemented as part of a community-wide strategic planning process that ensures stakeholders are involved to maximize impact and sustainability.
Strategic prevention framework
To encourage youth engagement, define exactly which activities are desirable and what the specific role of youth should be in the activities. Engaging youth in planning and implementing substance misuse prevention efforts is an important part of ensuring that programs targeting youth are relevant to them.
Community readiness

A community can be more than ready to address one issue, while being at early stages of readiness in relation to another.

A community may be more ready to address an issue in some ways than in others.

Community readiness can vary across different segments of the community.

Understanding community readiness is essential knowledge for addressing an issue.
Step 1: Assessment

Assess problems and related behaviors

Prioritize problems (criteria: magnitude, time trend, severity, comparison)

Assess risk and protective factors
Step 2: Capacity

Engage community stakeholders

Develop and strengthen a prevention team

Raise community awareness
Step 3: Planning

Prioritize risk and protective factors (criteria: importance, changeability)

Select interventions (criteria: effectiveness, conceptual fit, practical fit)

Develop a comprehensive plan that aligns with the logic model
Step 4: Implementation

Deliver programs and practices
Balance fidelity with planned adaptations
Retain core components
Establish implementation supports and monitor
Center for substance abuse prevention strategies

**Environmental**
Establish or change policies to reduce the incidence of public health issues

**Education**
Increases knowledge and skills, and influences attitudes and behavior

**Identification/Referral**
Brief intervention or screening for high risk individuals

**Information Dissemination**
Builds health awareness and knowledge of prevention services

**Alternatives**
Positive behavior support to reduce risk factors and enhance protective factors

**Community-Based**
Enhances the ability of a community to provide prevention services
Environmental strategies

- Environmental strategies enhance protective factors and reduce risk factors by changing the conditions of a community.
- Policies, from legal to institutional, can greatly impact the conditions of a community.
- Policy work requires an understanding of a community’s landscape and investment in enforcement of the policy.
Policy strategies

Policy change can be a highly-effective strategy to invest in because it seeks to change the conditions or context in which substance use occurs, affecting whole communities or other geographies. Care must be taken to ensure unintended outcomes do not occur (SAMHSA, 2020).

- **Pricing**: Reduces access through increases in price. Primarily through taxation, though minimums are sometimes used.
- **Zoning**: Restricts where outlets can be located within a community and relative to other locations such as schools.
- **Marketing**: Restricts where and how products can be marketed and to whom.
- **Point of Sale**: Relates to where products can be placed, in which outlets, and how they are advertised in-store.
**Education**

Focuses on the delivery of prevention services to target audiences with the intent of increasing knowledge and skills.

<table>
<thead>
<tr>
<th>Evidence based</th>
<th>Selected programs should be evidenced based or promising if no evidence based available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested with population</td>
<td>Check that the program has been evaluated with a population and setting similar to yours.</td>
</tr>
<tr>
<td>Be mindful of outcomes</td>
<td>Ensure that any program lists vaping prevention as one of its outcomes.</td>
</tr>
<tr>
<td>Weave into efforts</td>
<td>Education programs should be implemented into a more comprehensive strategy.</td>
</tr>
</tbody>
</table>
Identification and referral

FOR SCREENING AND INTERVENTION

Identification and referral activities are performed prior to a clinical assessment.

Preventionists should work to ensure they understand and update resources for referral when intervention may be indicated.
School districts are often confronted with the challenge of even identifying vape usage when it occurs on campus due to the relative ease of concealing devices intended to blend in.

Some products advertise being able to detect vapor. While their effectiveness at identifying vaping devices may be high, evidence to invest in them as a prevention strategy is limited.
Evidence suggests students at schools where out-of-school suspensions were used for cannabis violations were more likely to have used cannabis in the past year.

Schools may instead reduce student cannabis use by delivering abstinence messages, enforcing nonuse policies, and adopting a remedial approach to policy violations rather than use of suspensions (Evans et al., 2015).
Information dissemination

NATIONAL CAMPAIGNS

The Food and Drug Administration’s “The Real Cost” campaign focuses on both e-cigarettes and combustible tobacco products.

The National Highway Traffic Safety Administration’s “If you feel different, you drive different” focuses on impaired driving.
takeaways

Vaping’s quick rise to one of the most prevalent forms of use of nicotine and cannabis among youth is historic. While it may take more time for research to catch up, there are strategic interventions communities can employ to enhance protective factors against use and reduce risk factors.

Growth is leveling

Vaping is common method of use, and certain populations have more risk, but use is stabilizing.

Vaping is risky

Despite its perception as safer than combustibles and therefore preferable, vaping carries risks.

Be strategic

Focusing on environment, such as policy, access, and marketing increases outcomes.

Involve youth

Prevention and intervention is more likely to be successful when youth are meaningfully engaged.
Resources

1. PTTC Network
   Webinars, trainings, resources and toolkits

2. SAMHSA
   Talk. They Hear You. Campaign. Evidence-Based Practices Resource Center

3. National Campaigns
   Lung.org, Thetruth.com
   This is Quitting
1. Tobacco Education Resource Library
   [Resources for talking with students](#)
2. Vaping Prevention Resource
   [Media and policy resources](#)
3. Stanford REACH
   [Cannabis education resources aimed at school-aged youth](#)
Thank you


references


