Responding to the Vaping Crisis: THC Addendum

Revisiting Strategies from EAB's Report to Address Student Vaping (2019) Due to THC's Growing Prevalence

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THC Addendum to Responding to the Vaping Crisis

This addendum to the 2019 report focuses specifically on responding to THC vaping but should be consulted in conjunction with our previous report to address vaping holistically.

In 2019, EAB authored a report outlining strategies for school districts to respond to the vaping crisis. Since its release, the prevalence of e-cigarette use among adolescents has continued to increase across the country. This report focused primarily on nicotine vaping, but the increasing prevalence of THC products consumed through vaping poses a continued risk. Thus, this brief highlights strategies districts can use to address student vaping with an emphasis on THC specifically.

Student Vaping Continues to Be a Problem

In a recent EAB survey, nearly 50 percent of high school teachers reported frequently observing illegal substance use behaviors. Further, teachers of grades as early as middle and elementary school noted issues with illicit substance abuse in the past year.[1] The Food and Drug Administration's (FDA) 2022 National Youth Tobacco Survey revealed that more than 2.5 million students currently use e-cigarettes with an estimated 1 in 4 students using e-cigarettes daily.[2]

Today's e-cigarettes or "vapes" may contain nicotine, THC, and/or flavored solutions of propylene glycol, glycerin, and other additives. This means in addition to addressing the effects and addictive nature of nicotine, effective vaping prevention strategies must also consider the effects and consequences of THC consumption in this format.

What is Tetrahydrocannabinol or THC?

THC is the psychoactive ingredient in marijuana. Marijuana, also known as cannabis or weed, refers to the dried flowers, leaves, stems, and seeds of the cannabis plant. The cannabis plant contains more than 100 compounds including tetrahydrocannabinol (THC), which is an impairing or mind-altering substance. In other words, THC is the contributing compound for the "high" from cannabis use.

What is THC Vaping?

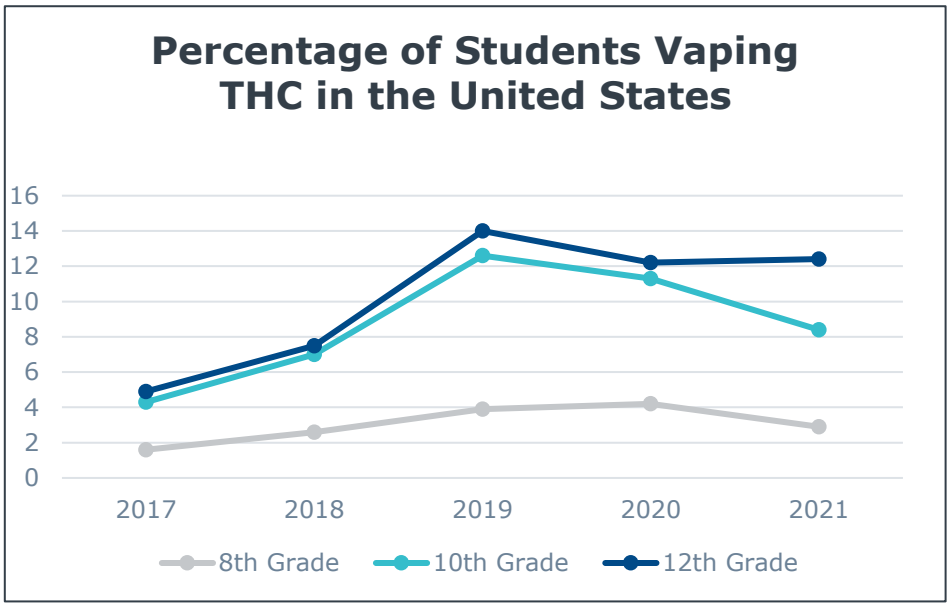
THC vaping involves the use of vaporizers to heat dried cannabis herb or cannabis oil to a temperature that releases Δ9-tetrahydrocannabinol (THC) and cannabidiol into vapor for inhalation.

(Source: Center for Disease Control and Prevention)

1) EAB Interviews, 2022-2023
2) U.S. Food and Drug Administration. (2022, December 20). *Results from the Annual National Youth Tobacco Survey*. Annual National Youth Tobacco Survey. Retrieved from https://www.fda.gov/tobacco-products/youth-and-tobacco/results-annual-national-youth-tobacco-survey

Prevalence of Adolescent THC Vaping Increasing

According to a 2021 study, THC vaping by school-aged youth doubled between 2013 and 2020 and the 30-day prevalence (an important marker of growing new user addiction) increased nearly seven-fold.[3] Since 2018, vaping THC has continued to rise among eighth, tenth, and twelfth graders according to the NIH, though it is important to note that these data likely underreport the true percentage as the substance is illegal for youth and young adults to use.[4]



Source: Monitoring The Future Data

While 2020-2021 saw a small drop in the prevalence of adolescent vaping in some age groups, research suggests incidences of student vaping following the COVID-19 pandemic lockdowns may have drastically increased. For instance, a 2021 article profiling Clarksville-Montgomery County Schools (TN) in the 2021-2022 school year reported a 73 percent increase in tobacco and vaping citations in high school and a 48 percent increase in middle school from the previous school year.[5] Similarly, administrators from SoPo Unite, a drug-free community partnering with South Portland High School (ME), noted a large increase in student vaping incidents following the COVID lockdowns after seeing a decline in incidents during the 2018-2019 school year.[6]

Further, research indicates today's "high" is much more intense than in the past. According to the National Institute on Drug Abuse (NIDA), modern ultra-potent strains of marijuana can contain over 15 percent THC compared to the roughly four percent or so available in the 1990s. Choosing vaping oils, extracts, and other resins over dried cannabis is an especially dangerous trend, as vape extracts contain three to five times more THC than the marijuana plant itself.[7]

3) Lim CCW, Sun T, Leung J, et al. Prevalence of Adolescent Cannabis Vaping: A Systematic Review and Meta-analysis of US and Canadian Studies. JAMA Pediatr. 2022;176(1):42–51. doi:10.1001/jamapediatrics.2021.4102
4) NIDA. (2022, December 15). *Monitoring the Future*. National Institute on Drug Abuse. Retrieved from https://nida.nih.gov/research-topics/trends-statistics/monitoring-future
5) Quinlan, K. (2022, March 7). *Vaping in schools on rise*, CMCSS turns to 'smart' sensors in bathrooms. ClarksvilleNOW.com. Retrieved from https://clarksvillenow.com/local/vaping-in-schools-on-rise-cmcss-turns-to-smart-sensors-in-bathrooms/
6) EAB Interviews, 2023
7) NIDA. 2019, December 24. Cannabis (Marijuana) DrugFacts. Retrieved from https://nida.nih.gov/publications/drugfacts/cannabis-marijuana

Vaping THC Can Negatively Impact Physical Health, Mental Health, and Academic Performance

Research suggests people who begin using marijuana before the age of 18 are four to seven times more likely to develop a marijuana use disorder than adults, according to NIH.[8] The CDC suggests nearly one in six teens who use marijuana regularly become addicted.[9] Further, ADHD-like symptoms have been reported in students who regularly use e-cigarettes. Some students are unable to remain in the classroom for a full class period or at sports practice for the duration of the practice without vaping. In addition to the naturally addictive nature of vaping products, adolescent vaping has been linked to numerous physical and mental health problems and has been shown to impact student's academic performance.

Potentially Negative Effects of THC Vaping

Physical Health

- Chemicals in e-cigarettes can cause serious and irreversible lung damage. Sixty eight people in the US have died from lung disease related to vaping, and there have been more than 450 possible cases of lung illness related to the practice.
- Teens are almost twice as likely to report "wheezing or whistling" in the chest after THC vaping compared to when they smoked cigarettes or e-cigarettes.[1]
- The Food and Drug Administration (FDA) is investigating a reported link between vaping and seizures.

Mental Health

- Research suggests heavy use of marijuana by teens and young adults with mood disorders – such as depression and bipolar disorder – is linked to an increased risk of self-harm, suicide attempts and death.
- In addition to uncontrollable vomiting and addiction, adolescents who frequently use high doses of THC may also experience psychosis that could possibly lead to a lifelong psychiatric disorder, an increased likelihood of developing depression and suicidal ideation, changes in brain anatomy and connectivity and poor memory.

Academic Performance

- Marijuana and nicotine can affect brain development. Those who begin smoking in their teens may develop impaired memory, altered brain functioning, and declined cognitive ability.
- Not only is THC linked to poorer cognitive development in adolescents, it could also increase the risk of dependence, other substance use, and many other health, social, and behavioral problems.
- Further, the use of marijuana by teens is linked to poor school performance and an increased likelihood of dropping out.
- According to the NIH, many of the long-term effects of THC, especially those related to brain function and cognition, are exacerbated when use begins during adolescence.

Long-Term Effects of Vaping Remain Unknown

Research from Truth Initiative, a non-profit public health organization dedicated to ending youth nicotine and tobacco use, notes the FDA has not reviewed or approved e-cigarettes for any purpose (including as a tobacco-based cigarette cessation tool). Currently, no research exists describing the long-term effects of nicotine or THC e-cigarette use.

8) NIDA. 2021, April 13. Is marijuana addictive?. Retrieved from https://nida.nih.gov/publications/research-reports/marijuana/marijuana-addictive
9) Fontanella CA, Steelesmith DL, Brock G, Bridge JA, Campo JV, Fristad MA. Association of Cannabis Use With Self-harm and Mortality Risk Among Youths With Mood Disorders. JAMA Pediatr. 2021;175(4):377–384. doi:10.1001/jamapediatrics.2020.5494

Use Nicotine Strategies to Address All Forms of Student Vaping, Including THC

Available research suggests youth who use tobacco products are more likely to engage in vaping THC, regardless of its legality in their state. When asked how districts can best address THC vaping specifically during a research interview, Carmen Lim, a research expert in the field of vaping THC, said, "Strategies aimed at addressing nicotine e-cigarettes will naturally address all forms of vaping because of the high prevalence of individuals using multiple products or making the common switch from nicotine to THC vaping." Given that, many of the strategies recommended in EAB's 2019 report can be used for students' THC vaping.

For a full breakdown of strategies and approaches to student vaping see EAB's 2019 report.

Steps to Address Vaping Using External Resources

Prevention	Redirection	Intervention
Education and Training Use targeted, evidence-based strategies and programs to teach students, parents, and teachers about the risks of vaping. Communicate strategies to resist peer pressure. Disseminate policies outlining the school's approach to vaping and train teachers on how to identify e-cigarettes/vaping devices. For more information see **pages 11-17** of EAB's report.	**Re-Education for First Offense** For students found vaping for the first time, require participation in additional educational programs about vaping. Experts at Stanford Medical School explain that frequent, consistent messaging is important to help students comprehend the dangers of vaping. For more information see **pages 20-21** of EAB's report.	**Behavioral Support for Subsequent Offenses** Students repeatedly found vaping may be addicted to nicotine. Use a range of district-based and external resources to help students overcome nicotine addiction and stop vaping. For more information see **pages 22-23** of EAB's report.
Supporting Resource Tobacco Prevention Toolkit This free resource provides curricula for administrators to teach students about the risks of e-cigarettes. The curricula include interactive exercises that build students' refusal skills and literacy around nicotine and THC vaping. Originated by Stanford Medical School	**Supporting Resource** Second Chance This free, self-paced education program redirects students after their first offense for tobacco/electronic nicotine product use. The program aims to build protective factors (e.g., sense of belonging at school) that can help students stop vaping. Originated by RMC Health	**Supporting Resources** This is Quitting This free, text-based program provides adolescents with research-backed support to help them quit vaping. As an additional, paid service, districts can partner with This is Quitting to receive a customized version of the program with reporting capabilities. Originated by Truth Initiative

"This Is Quitting" Program Works

A 2019 study observed This is Quitting participants and found that two weeks after enrollment, 61% of the respondents said they had reduced their use of vaping devices or quit altogether. At three months, 25% said they had not vaped in the past seven days and 16% said they had not vaped in the past 30 days. This study does not differentiate between participants' use of THC and/or nicotine.

Invest in Peer Education to Decrease the Social Acceptance of Vaping

There is currently a positive social association around vaping among adolescents despite broad scale efforts to advise against nicotine and THC use. One of the key contributing factors to this is social media's positive portrayal of vaping. A 2022 research paper examined marijuana and vaping related content on the social media platform TikTok and found over 800 videos with a median view count of 518,700 portraying marijuana use positively.[10] With over 1 billion monthly users globally, a third of whom are under 14 years old, TikTok's influence on shaping the social norms around adolescent vaping is highly significant. Similarly, a 2021 research paper analyzed the content of THC vaping videos on YouTube and found an alarming number of videos positively portraying THC vaping receiving consistently positive social interaction.[11] Further these videos usually remain on the platform with no age restrictions despite their content. These social media studies demonstrate just one aspect of the positive norms associated with adolescent vaping.

SoPo Unite is one of 15 Drug-Free Communities (DCFs) in Maine and one of over 700 nationwide. Learn more about DFCs at the CDC website here.

While changing the social norms requires a broad, holistic, and sustained approach involving multiple stakeholders, peer education programs offer one solution by encouraging students to take part in changing the narrative themselves. Research suggests school-based peer education interventions can positively impact health initiatives at the school level.[12] In response to a growing vaping crisis in their student population, South Portland High School helped found "SoPo Unite," a drug-free community funded through a federal grant. One of the program's key components is peer education. Contacted administrators report student members regularly offer two peer-to-peer education events.

SoPo Unite Regularly Offers Two Peer-to-Peer Education Events

Middle School Presentations

SoPo Unite high school students offer regular presentations to middle schoolers on the consequences of vaping specifically and substance abuse generally. Part of this presentation involves answering anonymously submitted questions that the middle school students fill out ahead of time.

Captains Training

SoPo Unite student members train the captains of sports teams each season and invite alumni captains to return and share their wisdom, advice, and lessons learned. By training captains and inviting alumni, SoPo hopes to create a sustained culture of awareness around substance abuse.

10) Rutherford, B.N., Sun, T., Johnson, B., Co, S., Lim, T.L., Lim, C.C.W., Chiu, V., Leung, J., Stjepanovic, D., Connor, J.P. and Chan, G.C.K. (2022), Getting high for likes: Exploring cannabis-related content on TikTok. Drug Alcohol Rev., 41: 1119-1125. https://doi.org/10.1111/dar.13433

11) Lim, C. C. W., Leung, J., Chung, J. Y. C., Sun, T., Gartner, C., Connor, J., Hall, W., Chiu, V., Tisdale, C., Stjepanović, D., and Chan, G. (2021) Content analysis of cannabis vaping videos on YouTube. *Addiction*, 116: 2443– 2453. https://doi.org/10.1111/add.15424.

12) Dodd, Steven & Widnall, Emily & Russell, Abigail & Curtin, Esther & Simmonds, Ruth & Limmer, Mark & Kidger, Judi. (2022). School-based peer education interventions to improve health: a global systematic review of effectiveness. BMC Public Health. 22. 10.1186/s12889-022-14688-3

Rethink Strict Disciplinary Responses to Student Vaping

For more on Boulder Valley School District's approach to stop student vaping see EAB's 2019 webinar.

Research from our 2019 report on vaping outlines the disadvantages of overemphasizing strict disciplinary punishment and suspension in response to student vaping. Due to the addictive nature of nicotine and THC, administrators should address student vaping through prevention and treatment rather than just surveillance or discipline.[13] To recognize that addicted students may be unable to resist the urge to use e-cigarettes, districts should adapt their discipline policies for students found vaping to incorporate some flexibility. See these two examples of how profiled districts adopt a restorative lens in their responses to students caught vaping:

Vaping Related Suspension is a Last Resort at Boulder Valley School District

1st	On the first offense, students must complete online modules. First, they meet with the school nurse to create a profile on the free, online program "Second Chance". They are then tasked with completing this self-paced program to learn about the dangers of vaping.
2nd	On the second offense, students discuss quitting and meet with a district nurse specializing in teen substance abuse. They must complete the "Teen Intervene" program with the nurse, which is designed to motivate students to quit vaping.
3rd	On the third offense, students face disciplinary consequences and are subject to more serious discipline responses including suspension. Some sites shifted to a Saturday suspension model to minimize lost instructional time.

Use In-School Suspension to Provide Students with Necessary Cessation and Addiction Supports

Similar to Boulder Valley, South Portland High School replaced their mandatory 7–10-day suspension policy with a restorative substance use policy in 2018. Under this policy, students found vaping are sent home only for the day they are caught and required to attend in-school suspension the following day. Importantly, this in-school suspension is a response focused on keeping students in school, preventing them from falling behind in coursework, and getting students the supports they need rather than merely punishing them by sending them home where they are likely to simply continue vaping. During in-school suspension, students are required to see a Licensed Alcohol and Drug Counselor (LACD) at the school to determine where the student falls on the continuum of substance use. After their second offense, students must participate in at least 10 hours of community service at youth serving agencies (i.e., Boys and Girls Clubs of America) in addition to the aforementioned process.

13) Harrell MB, Clendennen SL, Sumbe A, Case KR, Mantey DS, Swan S. Cannabis Vaping Among Youth and Young Adults: a Scoping Review. Curr Addict Rep. 2022;9(3):217-234. doi: 10.1007/s40429-022-00413-y. Epub 2022 May 7. PMID: 35573056; PMCID: PMC9078633.