

## Vaping - An inquiry into reducing rates of e-cigarette use in Queensland

**Submission No:** 14  
**Submitted by:** Drug Free Australia  
**Publication:**  
**Attachments:**  
**Submitter Comments:**



*Promoting Illicit Drug Prevention Initiatives Nationally*

---

April 11, 2023

Committee Secretary  
Health and Environment Committee  
Parliament House  
George Street  
Brisbane Q 4000

***Drug Free Australia congratulates the Queensland Premier Anastacia Palaszczuk as first state in Australia to actually see the urgent need for this important vaping inquiry with a clear focus on children and teenagers.***

***The current chaotic unregulated is out of control. The unfettered vaping 'black market' here in Queensland raises grave concerns of the number of school-aged children accessing vapes both online and via unscrupulous retailers only increasing the availability and prevalence of vaping devices. Among the many health concerns, is that vaping (far from being a smoking prevention mechanism) appears to be a "steppingstone to smoking" for younger Australians.***

***Drug free Australia would like to bring to the attention of Government members of this Inquiry some of serious problems regarding vaping.***

*In recent years, due to several factors, not least aggressive and faux 'health benefit' marketing, vaping has become increasingly popular among young adults instead of smoking, which was supposed to be a 'better' option. Though this harm reduction endeavour was supposed reduce harms, it is in reality only adding to them.*

*Vaping involves the use of electronic cigarettes or other devices that heat a liquid containing nicotine and other chemicals, including carcinogenic chemicals found in cannabis, producing an aerosol that is inhaled into the lungs. While vaping may be perceived as a safer alternative to smoking, there are potential risks associated with the practice, including aspiration.*

*Aspiration occurs when foreign material, such as food or liquid, enters the lungs instead of the stomach. This can lead to a variety of health problems, including pneumonia, lung abscesses, and respiratory failure. Aspiration can occur because of a variety of factors, including impaired swallowing, neurological disorders, and certain medical procedures. In the case of vaping, aspiration can occur when the aerosol produced by the device enters the lungs.*

*One of the reasons that vaping may increase the risk of aspiration is because the aerosol produced by electronic cigarettes contains a variety of chemicals that can irritate the lungs. Some of these chemicals, such as propylene glycol and vegetable glycerin, are used as carriers for the nicotine and flavorings in the liquid. Others, such as formaldehyde and acrolein, are produced when the liquid is heated. These chemicals can damage the delicate tissues of the lungs, making them more susceptible to infection and inflammation.*

*Another factor that can contribute to the risk of aspiration is the way in which electronic cigarettes are used. Unlike traditional cigarettes, which are typically smoked in short bursts, electronic cigarettes are often used for longer periods of time, with users inhaling the aerosol deeply into their lungs. This can increase the amount of aerosol that enters the lungs, increasing the risk of aspiration.*

Pulmonary and Critical Care Considerations for E-Cigarette, or Vaping, Q20 Product Use-Associated Lung Injury <https://www.med.upenn.edu/ifi/assets/user-content/documents/pulmonary.pdf>

Of the 2,708 patients with confirmed or probable EVALI requiring hospitalization as of January 21, 2020, a total of 1,604 (59.2%) had data available on ICU admission. Of these, 705 (44.0%) were admitted to the ICU and are included in this analysis. The majority of ICU patients required respiratory support (88.5%) and in severe cases required intubation (36.1%) or extracorporeal membrane oxygenation (6.7%). The majority (93.0%) of these ICU patients survived discharge. Review of the clinical course and expert opinion provided insight into imaging; considerations for bronchoscopy; medical treatment, including use of empiric antibiotics, antiviral agents, and corticosteroids; respiratory support, including considerations for intubation, positioning maneuvers, and extracorporeal membrane oxygenation; and patient outcomes.

A Case Series of Vaping-Associated Lung Injury Requiring Mechanical Ventilation <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7063900/>

Vaping-associated lung injury has rapidly become a nationwide epidemic and a threat to public health. In this case series, we describe unique clinical features of severe vaping-associated lung injury, defined as respiratory failure due to vaping that requires mechanical ventilation.

Outbreak of Electronic-Cigarette–Associated Acute Lipoid Pneumonia — North Carolina, July–August 2019 <https://www.cdc.gov/mmwr/volumes/68/wr/mm6836e1.htm>

1A. Formaldehyde Exposure In Marijuana Vaping <https://www.abc.net.au/news/2023-03-12/vaping-parliamentary-inquiry-queensland-health-risks-youth/102085734>

By [Alexandria Utting](#) and [Kelsie Iorio](#)

To prove that the flavoring compounds, not the carrier e-liquid solvents (most commonly propylene glycol and/or vegetable glycerin) dominated production of aldehydes during vaping, the authors performed a series of experiments in which a test flavored e-liquid was diluted with different amounts of the unflavored e-liquid. Liquids with higher flavor content produced larger amounts of aldehydes due to pyrolysis of the flavoring compounds.

In all experiments, the number of aldehydes produced by the flavored e-cigarette liquids exceeded the American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLVs) for hazardous chemical exposure.

1. Vaping information sheet <https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/Vaping%20Info%20Sheet%20Taskforce%2006-12-22.pdf>

VAPING MESSES WITH YOUR GENES & IMPACTS IMMUNITY.

“Our study, for the first time, investigates the biological effects of vaping in adult e-cigarette users, while simultaneously accounting for their past smoking exposure. Our data indicates that vaping, much like smoking, is associated with dysregulation of mitochondrial genes and disruption of molecular pathways involved in immunity and the inflammatory response, which govern health versus disease state...”

Ahmad Besaratinia, PhD, Professor of research population and public health sciences at Keck School of Medicine. Full Research <https://www.nature.com/articles/s41598-021-01965-1>

VAPING ANYTHING IS BAD – CBD VERY MUCH INCLUDED! “Depending on the temperature and atmosphere, 25–52% of CBD was transformed into other chemical substances:  $\Delta$ 9-THC,  $\Delta$ 8-THC, cannabinal and cannabichromene were the predominant pyrolysates in both conditions, all formed by cyclization reaction. THC was the main pyrolysis product at all temperatures under both oxidative and inert conditions. Our results point out that CBD in e-cigarettes can be considered as a precursor of THC, thus it bears all the dangers related to this psychoactive compound. Our findings are fundamental contributions to the safety profile of CBD-based e-cigarettes.” Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8076212/>

## 2. Drug Free Australia responses to proposed reforms Vaping Products

<https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/DFA%20letter%20to%20TGA%20re%20vaping%2020230116.pdf>

## 3. Vaping Cannabinoid Acetates Leads to Ketene Formation

<https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/vaping-cannabinoid-acetates-leads-to-ketene-formation.pdf>

The studies described herein show that ketene exposure can occur from vaping or dabbing cannabinoid acetates. This is not surprising, considering the fact that ketene was previously shown to form via a structurally-related phenyl acetate-containing compound, vitamin E acetate, under e-cigarette vaping conditions.<sup>8</sup> The ketene emission levels observed in the dabbing experiments were in range of the NIOSH IDLH value.<sup>7</sup> More studies are needed to understand the factors promoting ketene formation vaping cannabis and related products, along with in-depth profiling of the contents of cannabis oil condensates, and are underway in our laboratories.

## 4. Harms of Vaping THC [https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/Vaping\\_2022.pdf](https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/Vaping_2022.pdf)

Vaping is not harmless as there is a potential risk from toxic exposure to carcinogenic compounds generated by these products.<sup>1</sup> • Reports link cartridges containing THC to over 70% of reported vape-related lung illnesses.<sup>2</sup>

The Centers for Disease Control and Prevention (CDC) and the U.S. Food and Drug Administration (FDA) have warned the public to stay away from e-cigarettes and vapes containing THC. These products were confirmed to be the source of the outbreak of a dangerous lung illness that can cause coughing, shortness of breath, chest tightness, wheezing, and can eventually lead to lipoid pneumonia, collapsed lung, and death.<sup>3,4</sup>

## 5. E-cigarette Use and Respiratory Disorder: An Integrative Review of Converging Evidence from Epidemiological and Laboratory Studies

<https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/2021/2020%20E%20Cig%20and%20Lung.pdf>

In summary, we find that Hill’s criteria have been adequately satisfied and the evidence supports the conclusion of a real relationship between e-cigarettes and respiratory disorder.

There are still many questions that need to be clarified; for example, whether e-cigarette use is more related to onset of disease or to exacerbation of existing symptomatology, or whether there are different types of effects at different ages. However, it is our contention that the concerning evidence already in play is more than sufficient to warrant serious

action to abate the population impact of e-cigarettes [132]. The research tabled here has engaged sound experimental parameters, but further research is needed to consolidate knowledge about the health consequences of e-cigarettes. Toward this end, we integrate the findings in a heuristic model of e-cigarettes and respiratory disorder (Figure 3). This model is testable based on methods used in prior research on behavioral consequences of e-cigarette use [10, 30]. It is not clear whether the processes we have discussed work independently or in tandem and the model aims to clarify tests of this question.

We can reasonably suggest that e-cigarette use affects susceptibility to infection indirectly through altering expression of genes involved in immune-system function and ciliary mobility, whereas effects of e-cigarettes on cytotoxicity and oxidative stress may occur through biochemical effects on lung or airway membranes. All three processes are hypothesized to increase the likelihood of asthma and/or COPD, possibly at different ages. Our model recognizes that other risk factors for respiratory disease (e.g., cigarette smoking and obesity) have their own effects on outcomes and need to be included as covariates in research on e-cigarettes. Direct effects from e-cigarette use to asthma or COPD, not mediated through the specified biological processes, are possible in principle and are testable in appropriately designed studies. Whether direct or indirect effects are found, more would be learned about how e-cigarette use is related to respiratory outcomes.

Epidemiological studies have consistently noted that dual users have significantly more respiratory symptomatology compared with exclusive e-cigarette users or exclusive smokers. While e-cigarette use tends to be correlated with smoking, they are not interchangeable, and they produce additive effects. Laboratory studies of genetic expression also show that effects of e cigarettes occur in part through different biological pathways than cigarettes. E-cigarette use does not merely parallel effects of smoking but contributes independently to risk. Thus, there is every reason to work actively to deter e-cigarette use among smokers as well as nonsmokers.

#### 6. Prevalence of Adolescent Cannabis Vaping A Systematic Review and Meta-analysis of US and Canadian Studies

<https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/2021/Prevalence%20of%20Adolescent%20Cannabis%20Vaping.pdf>

Seventeen studies met the eligibility criteria (n = 198 845 adolescents). Although no restrictions were imposed on study location, all 17 studies were from the US and Canada. Across all school grades, the pooled prevalence increased for lifetime use (6.1% in 2013-2016 to 13.6% in 2019-2020), use in the past 12 months (7.2% in 2017-2018 to 13.2% in 2019-2020), and use in the past 30 days (1.6% in 2013-2016 to 8.4% in 2019-2020). Heterogeneity across studies was large. The limited evidence from studies using similar survey and study designs suggested that adolescents' preference for cannabis products other than dried herbs, which usually contain higher  $\Delta 9$ -tetrahydrocannabinol levels, may have shifted over time. **CONCLUSIONS AND RELEVANCE** The findings of this study suggest that the prevalence of cannabis vaping has increased among adolescents in the US and Canada and that more effective preventive and response measures are required.

#### 7. Reducing Vaping Among Youth and Young Adults

<https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/2021/Reducing%20Vaping%20youth%20and%20young%20adults.pdf>

MESSAGE FROM THE ASSISTANT SECRETARY FOR MENTAL HEALTH AND SUBSTANCE USE, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES As the first U.S. Department of Health and Human Services Assistant Secretary for Mental Health and Substance Use at the Substance Abuse and Mental Health Services

Administration (SAMHSA), I am pleased to present this new resource: Reducing Vaping among Youth and Young Adults. In response to the charge of the 21st Century Cures Act to disseminate information on evidence-based practices and service delivery models, the National Mental Health and Substance Use Policy Lab has developed the Evidence-Based Resource Guide Series focused on the prevention and treatment of substance use disorders and mental illnesses. With this guide, SAMHSA's goal is to inform school administrators, community leaders, educators, parents, policy makers, and others of the rising rates of vaping among youth and the need for targeted prevention programs and policies, as well as a comprehensive vaping reduction strategy. Vaping among youth is a serious public health issue. In the past decade, vaping has increased among all age and demographic groups and is more popular than traditional cigarettes among high school students. According to the joint Food and Drug Administration/Centers for Disease Control and Prevention 2019 National Youth Tobacco Survey, 28 percent of high school students and 11 percent of middle school students reported using e-cigarettes in the previous 30 days. E-cigarette use among teens doubled from 2017 to 2019.<sup>1</sup> Adverse health events have heightened the short- and long-term risks associated with vaping and the need for prevention efforts. This guide discusses effective programs and policies to prevent vaping among youth and young adults, challenges to reducing e-cigarette use and vaping, and program and policy implementation strategies that can be used to address those challenges. I encourage you to use this guide to identify prevention programs and policies you can implement to address vaping among youth in your communities. Elinore F. McCance-Katz, MD, PhD Assistant Secretary for Mental Health and Substance Use U.S. Department of Health and Human Services 1 Cullen, K. A., Gentzke, A. S., Sawdey, M. D., Chang, J. T., Anic, G. M., Wang, T. W., Creamer, M. R., Jamal, A., Ambrose, B

***DFA believes that the inquiry members are aware that this paper is a clear reflection of what is now happening here in Queensland.***

8. 'Necrotizing Pneumonia' May Be New Vaping Hazard 2020

<https://www.webmd.com/lung/news/20200304/necrotizing-pneumonia-may-be-new-vaping-hazard>

"Inhaling anything but air is a risky behavior. We don't know at all what the true short- and long-term effects are of vaping, and speculation that it's safe [or safer than cigarettes] is just that -- speculation. The effects have not been carefully studied and need to be. In the meantime, I'd just remind people that the lungs were designed to inhale AIR, and that's it. Not anything else," Kalhan advised.

9. Imaging Findings of Vaping-Associated Lung Injury 2020

<https://www.ajronline.org/doi/10.2214/AJR.19.22251>

E-cigarette use is associated with a range of lung injury patterns that have only recently been recognized as use of these products continues to rise. When the radiologist sees one of these patterns of lung injury, it is important to raise the possibility of vaping-induced lung injury because cessation of vaping is an important step in treatment.

Read More: <https://www.ajronline.org/doi/10.2214/AJR.19.22251>

10. E-cigarette or vaping product use-associated lung injury (EVALI) Jan 17, 2023.

<https://www.uptodate.com/contents/e-cigarette-or-vaping-product-use-associated-lung-injury-evali>

EVALI was initially recognized in the summer of 2019 [3,8-11]. More than 2800



hospitalized cases of EVALI were reported to the Centers for Disease Control and Prevention (CDC) as of February 18, 2020, and, among those, there have been 68 deaths [5]. The CDC stopped collecting these data in February 2020; epidemiologic statistics can be found at the CDC website. Approximately 66 percent of reported cases were male, and nearly 80 percent were younger than 35 years old (range 13 to 85 years) [6]. Approximately 22 percent of patients had underlying asthma [3].

Data obtained from emergency department visits associated with possible EVALI, Google searches, and case reports to the CDC confirmed similar trends in all three databases for potential cases of EVALI [12]. Peaks were seen between June and September of 2019, with a subsequent reduction in trends since then.

#### 11. Cannabis, Vaping, and Respiratory Symptoms in a Probability Sample of U.S. Youth 2021

<https://pubmed.ncbi.nlm.nih.gov/33676824/>

This study provides preliminary evidence that adolescents' cannabis use with ENDS may have negative health consequences. Lifetime cannabis use with ENDS was substantially associated with higher odds of respiratory symptoms.

Measuring indoor fine particle concentrations, emission rates, and decay rates from cannabis use in a residence 2021

<https://www.sciencedirect.com/science/article/pii/S259016212100006X>

Pollution levels as fine particulate matter in the air and how long they persistent was compared with marijuana joint, the bong with its bowl, the glass pipe, electronic vaping pen, and a Marlboro cigarette inn 60 controlled experiments. Cannabis joints were the most polluting – 3.5 times that of a Marlboro. The emission rate for a cannabis bong was 67% that of a joint; the glass pipe's emission rate was 54% of the joint, and the vaping pen's emission rate was 44% of the joint, as polluting as a cigarette, but hung around longer.

#### 12. Quick Facts on the Risks of E-cigarettes for Kids, Teens, and Young Adults

[https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/Quick-Facts-on-the-Risks-of-E-cigarettes-for-Kids-Teens-and-Young-Adults.html)

The use of e-cigarettes is unsafe for kids, teens, and young adults. Most e-cigarettes contain nicotine. Nicotine is highly addictive and can harm adolescent brain development, which continues into the early to mid-20s.<sup>1</sup>E-cigarettes can contain other harmful substances besides nicotine. Young people who use e-cigarettes may be more likely to smoke cigarettes in the future.

#### 13. UK health expert raises alarm at vaping 'epidemic' among teenagers

**Leading respiratory doctor fears generation could end up with long-term addictions and lung damage.**

<https://www.theguardian.com/society/2023/mar/18/uk-health-expert-raises-alarm-at-epidemic-of-vaping-among-teenagers>

One of the UK's leading respiratory doctors has raised the alarm about the exploding popularity of vaping among teenagers, saying that without urgent regulation a generation could end up with long-term addictions and lung damage. Dr Mike McKean, vice-president of policy for the Royal College of Pediatricians and Child Health, said vaping was becoming an "epidemic" among teenagers even though it is illegal before the age of 18. If its rapid growth maintains the same trajectory, almost all children will vape within five years, he said.

#### 14. Association between electronic nicotine delivery systems and electronic non-nicotine delivery systems with initiation of tobacco use in individuals aged < 20 years. A

systematic review and meta-analysis see attached. There is an urgent need for policies that regulate the availability, accessibility, and marketing of ENDS/ENNDS to children and adolescents. Governments should also consider adopting policies to prevent ENDS/ENNDS uptake and use in children and adolescents, up to and including a ban for this group.

***Drug Free Australia submits 10 Questions to the inquiry these are clearly outline in item 2 Drug Free Australia responses to proposed reforms Vaping Products***  
<https://d3sdr0llis3crb.cloudfront.net/images/pdf-files/library/vaping/DFA%20letter%20to%20TGA%20re%20vaping%2020230116.pdf>

*It is important for governments to be fully aware of their responsibilities in the public health arena, and to ensure all reasonable measures are taken by said governments to protect the health and well-being of their citizens. In that context it is important to note that the Queensland Government has clear responsibility for some of these emerging problems. For example, letter dated 26 August 2001 to Dr. John Smith State Manager Public Health Services, replaced the **Police control** “Juvenile Smoking Suppression Act 1905” with the toothless tiger act called “Tobacco and other Smoking Products (Prevention of supply to children) Act 1988”.*

*Under the “Tobacco and Other Smoking Products (Prevention of supply to children) Act 1998 only one of over 200 complaints in regard to this Act was taken to court. It is our understanding that this happened in North Queensland and only went to court because the tobacconist sold tobacco to children on credit card, and he kept a register of monies owing to him by children in this register? The Australian Parents for Drug Free Youth took our valued and just complaint to letter from Frank King Deputy Commissioner Ombudsman Parliamentary Commissioner and Peter Cantwell Assistance dated 14 November 2001 Commissioner State Government Division for Administrative Investigations and for whatever unknown reason the Queensland Ombudsman cancel the APFDFY submission.*

*The above example not only highlights the failure of existing legislation to be effectively used to protect our children, but (it would appear) a lack of political will to use existing vehicles to protect the health and well-being of our States children.*

*With the clear and mounting evidence of harms from vaping and e-cigarette use, we believe it is past time to not merely engage existing legislation to protect public health but expand legislation to better ensure that the addiction for profit tobacco industry is not enabled to sabotage further the public health sector at the expense of the tax-payer.*

Kind regards

Herschel Baker  
International Liaison Director,  
Drug Free Australia

Prevent. Don't Promote Drug Use.  
E: [drugfreeaust@drugfree.org.au](mailto:drugfreeaust@drugfree.org.au)  
Web: <https://drugfree.org.au/>

Gary Christian  
RESEARCH DIRECTOR  
Drug Free Australia



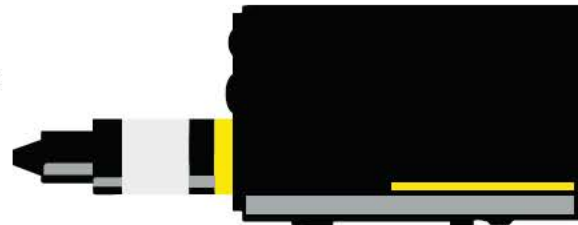
# VAPING

Vaping is the act of inhaling and exhaling aerosols that could contain nicotine, THC (the active ingredient in marijuana), or other substances through an electronic cigarette, vape pen or personal vaporizer. These devices and products are appealing to youth as they come in a wide array of fruit and candy flavors. Since there is little odor, vaping is easy to conceal and enables people to use in public places including schools, with impunity.



## Harms of Vaping THC

- Vaping is not harmless as there is a potential risk from toxic exposure to carcinogenic compounds generated by these products.<sup>1</sup>
- Reports link cartridges containing THC to over 70% of reported vape-related lung illnesses.<sup>2</sup>



The Centers for Disease Control and Prevention (CDC) and the U.S. Food and Drug Administration (FDA) have warned the public to stay away from e-cigarettes and vapes containing THC. These products were confirmed to be the source of the outbreak of a dangerous lung illness that can cause coughing, shortness of breath, chest tightness, wheezing, and can eventually lead to lipoid pneumonia, collapsed lung, and death.<sup>3,4</sup>

## Vaping and Youth

- Approximately 2.06 million youths were estimated to be current e-cigarette users in 2021.<sup>5</sup>
- The most commonly used device in 2019 and 2020 was a prefilled pod or cartridge, disposable e-cigarette. Use increased from 3% to 15.2% among middle school youths and from 2.4% to 26.5% among high school youth.<sup>6</sup>
- Youth who use e-cigarettes are 3.5 times more likely to use marijuana than those who do not use e-cigarettes.<sup>7</sup> Additionally, nearly 1 out of 3 high school and 1 out of 4 middle school students who use e-cigarettes have used marijuana in the device.<sup>8</sup>
- The percentage of college students who said they vaped marijuana in the past 30 days rose from 5.2% in 2017 to 14% in 2019. Usage among their non-college-attending peers increased from 7.8% in 2017 to 17% in 2019.<sup>9</sup>
- Exposure to high levels of nicotine as well as THC during adolescence can have detrimental effects on the developing brain, impacting learning, memory, attention, and mental health.<sup>10</sup>



## Increases in Vaping Marijuana and CBD

- Increases in the prevalence of vaping marijuana may be attributed to the proliferation of marijuana and vaping products,<sup>11</sup> legalization of marijuana, and the decrease in perception of harm from marijuana use.<sup>12</sup>
- Studies indicate that there is a strong upward track for the prevalence of vaping high-potency marijuana concentrates, indicating an urgent need for mitigation of the harms through regulation and preventive measures.<sup>13</sup>
- Studies show an increase in vaping CBD. Vaping CBD (the second most active ingredient in marijuana) is unregulated by the U.S. Food and Drug Administration allowing for the use of risky solvents, yielding potentially dangerous and carcinogenic byproducts when the solvents are heated. Vape devices were found to leak dangerous compounds into the CBD oil when heated.<sup>14</sup>
- Additionally, research suggests that CBD is partly transformed to THC during e-cigarette use. These results indicate that CBD in e-cigarettes can be considered as a precursor of THC. When consumed in e-cigarettes, CBD bears all the dangers related to this psychoactive compound.<sup>15</sup>

<sup>1</sup>Rubinstein ML, Delucchi K, Benowitz NL, Ramo DE. Adolescent Exposure to Toxic Volatile Organic Chemicals From E-Cigarettes. *Pediatrics*. 2018 Apr;141(4):e20173557. doi: 10.1542/peds.2017-3557. Epub 2018 Mar 5. PMID: 29507165; PMCID: PMC5869331. <sup>2</sup>CDC. (2020, February 25). Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products. Retrieved from [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/severe-lung-disease.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html) <sup>3</sup>CDC. (2020, February 25). Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products. Retrieved from [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/severe-lung-disease.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html) <sup>4</sup>FDA. (2019, October 4). Vaping Illness Update: FDA Warns Public to Stop Using Tetrahydrocannabinol (THC)-Containing Vaping Products and Any Vaping Products Obtained Off the Street. Retrieved from <https://www.fda.gov/consumers/consumer-updates/vaping-illness-update-fda-warns-public-stop-using-tetrahydrocannabinol-thc-containing-vaping> <sup>5</sup>CDC. E-cigarette use among youth and young adults. A report of the surgeon general. Atlanta, GA: US Department of Health and Human Services, CDC, Office on Smoking and Health; 2016. [https://e-cigarettes.surgeongeneral.gov/documents/2016\\_SGR\\_Full\\_Report\\_non-508.pdf](https://e-cigarettes.surgeongeneral.gov/documents/2016_SGR_Full_Report_non-508.pdf) <sup>6</sup>Wang TW, Gentzke AS, Neff LJ, et al. Disposable e-cigarette use among U.S. youth—an emerging public health challenge. *N Engl J Med* 2021;384:1573–6. <https://doi.org/10.1056/NEJMc2033943> <sup>7</sup>Chadi N, Schroeder R, Jensen JW, Levy S. Association Between Electronic Cigarette Use and Marijuana Use Among Adolescents and Young Adults: A Systematic Review and Meta-analysis. *JAMA Pediatr*. 2019;173(10):e192574. doi:10.1001/jamapediatrics.2019.2574 <sup>8</sup>Trivers KF, Phillips E, Gentzke AS, Tynan MA, Neff LJ. Prevalence of Cannabis Use in Electronic Cigarettes Among US Youth. *JAMA Pediatr*. 2018;172(11):1097–1099. doi:10.1001/jamapediatrics.2018.1920 <sup>9</sup>NIDA. (2020, September 15). Vaping, marijuana use in 2019 rose in college-age adults. Retrieved from <https://www.nih.gov/news-events/news-releases/vaping-marijuana-use-2019-rose-college-age-adults> <sup>10</sup>CDC. (2018, December 1). Surgeon General's Advisory on E-cigarette Use Among Youth. Retrieved from [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/surgeon-general-advisory/index.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/surgeon-general-advisory/index.html) <sup>11</sup>Bentivegna K, Atuegwu NC, Oncken C, DiFranza JR, Mortensen EM. Electronic cigarettes associated with incident and polysubstance use among youth. *J Adolesc Health*. 2021;68(1):123–129. doi:10.1016/j.jadohealth.2020.05.026 <sup>12</sup>Miech R, Johnston L, O'Malley PM. Prevalence and attitudes regarding marijuana use among adolescents over the past decade. *Pediatrics*. 2017;140(6):e20170982. doi:10.1542/peds.2017-0982 <sup>13</sup>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*. Published online October 25, 2021. <sup>14</sup>Gill, L. L. (2020, January). Is It Safe to Vape CBD? Consumer Reports. Retrieved from <https://www.consumerreports.org/cbd/is-it-safe-to-vape-cbd/> <sup>15</sup>Source: Czégény, Z., Nagy, G., Babinszki, B. et al. CBD, a precursor of THC in e-cigarettes. *Sci Rep* 11, 8951 (2021). <https://doi.org/10.1038/s41598-021-88389-z>



# Vaping

## Harm Reduction or Harm Promotion?

Get the Facts – Make the Healthier Choice!



[/DALGARNOSNB](#)

[NOBRAINER\\_DRUGS](#)

[DALGARNOINSTITUTE.ORG.AU](#)



### IS VAPING BAD FOR YOU? AND 12 OTHER FAQs

Vaping has risks, regardless of what you vape. Although it's [less risky than smoking cigarettes](#), the safest option is to avoid vaping and smoking altogether.

Effects on heart	Effects on lungs	Effects on teeth and gums	Other physical effects	Vaping vs. smoking	Vaping vs. Juuling
With vs. without nicotine	Marijuana and CBD oil	Fluid flavor	Ingredients to avoid	How to minimize side effects	For more search <a href="#">'vaping' on healthline.com</a>



**Dangerous to All  
– But MORE to Teens!**  
CLICK TO WATCH.



### HERE'S HOW A SINGLE SESSION OF VAPING CAN HURT YOUR LUNGS

Researchers are learning how vaping e-cigarettes can cause lung damage.

- One vaping session can result in changes in blood flow.
- Researchers worry vaping can lead to hardening of arteries over time.
- Vaping remains most popular with young people under 30.

For more go to [Vaping? #NotEvenOnce](#)

## E-CIGARETTES EVIDENCE ON HEALTH IMPACTS

**A GATEWAY TO SMOKING**  
**3x** Non-smokers who vape are three times as likely to take up regular smoking as non-smokers who don't vape.

**SMOKING CESSATION UNCLEAN**  
Evidence that e-cigarettes are effective for smoking cessation is limited. Most smokers who use e-cigarettes continue to smoke.

**CAUSES INJURY**  
Impacts include poisoning, seizures, burns, and lung disease.

**HARMFUL TO THE ENVIRONMENT**  
E-cigarettes contain single-use plastics & lithium batteries, cause pollution & can start fires.



Source: [https://nceph.anu.edu.au/research/projects/health\\_impacts\\_electronic\\_cigarettes#health\\_outcomes](https://nceph.anu.edu.au/research/projects/health_impacts_electronic_cigarettes#health_outcomes)



This guide supports health care providers, systems, and communities seeking to prevent vaping. It describes relevant research findings, examines emerging and best practices, identifies knowledge gaps and implementation challenges, and offers useful resources.

CLICK TO ACCESS



## E-CIGARETTES ARE HARMFUL AND ADDICTING YOUTH. (REPORT: ANU).

The major review found use of nicotine e-cigarettes increases the risk of a range of adverse health outcomes, particularly in youth, including taking up smoking, addiction, poisoning, seizures, trauma and burns and lung injury.

"We reviewed the global evidence in order to support informed choices on vaping for Australia," lead author Professor Emily Banks from the ANU National Centre for Epidemiology and Population Health said.

"The evidence shows e-cigarettes carry significant harms. Nicotine is a key ingredient and one of the most addictive substances known. Vaping is causing addiction in a new generation of users.

"Young non-smokers who vape are around three times as likely to take up smoking than non-vapers. Nicotine use in children and adolescents can lead to lifelong addiction issues as well as difficulties in concentration and learning. Vaping is also illegal if it isn't on prescription."

The report found early warning signs of adverse effects of e-cigarettes on cardiovascular health markers, including blood pressure and heart rate, and lung functioning.

"The evidence is there for some of the risks but for most major health outcomes, like cancer, cardiovascular disease and mental illness, we don't know what the impacts of e-cigarettes are. Their safety for these outcomes hasn't been established," Professor Banks said.

"There are myths targeting young people; the false ideas that vapes wouldn't be widely available if they were dangerous and 'it's just water vapour'.

"Vapes deliver hundreds of chemicals - some of them known to be toxic and many others with unknown effects.

"In Australia, over two million people have used e-cigarettes. Use is more common among youth, particularly young males, and among smokers and the majority is not for the purposes of smoking cessation."

The report found more than half, 53 per cent, of current e-cigarette



use in Australia is by people who also smoke, 31.5 per cent is by past smokers and 15.5 per cent is people who have never smoked.

"The report found limited evidence that nicotine e-cigarettes were effective to help people quit smoking in the clinical setting," Professor Banks said.

"Most people who quit smoking successfully do so unaided.

"E-cigarettes are likely to be harmful for non-smokers and for people who use them while continuing to smoke - the commonest use pattern currently.

"E-cigarettes may be beneficial in the small number of smokers who use them to quit smoking completely and promptly, but there is a huge uncertainty about their effectiveness and the overall balance of risks and benefits for quitting."

The report supports national and international efforts to avoid e-cigarette use in the general population, particularly in non-smokers and youth.

"Our young people have been through a lot and they deserve the best future possible," Professor Banks said.

"The evidence is in that avoiding e-cigarettes should be part of that."

Source: <https://www.anu.edu.au/news/all-news/e-cigarettes-are-harmful-and-addicting-youth-report>

## CHILD VAPING 'SKYROCKETING'

"A single 30-minute vaping session can significantly increase cellular oxidative stress. Middlekauff et al demonstrated that vaping is associated with adverse changes in the body that can presage future health problems."

Source: <https://jamanetwork.com/journals/jamapediatrics/article-abstract/2782800>





## NHMRC 2022 CEO STATEMENT ON ELECTRONIC CIGARETTES

### PRODUCT SAFETY:

- E-liquids can contain nicotine (even when labelled 'nicotine-free') and many other chemicals. More than 200 chemicals have been detected in e-liquids.
- E-cigarettes can be harmful. All e-cigarette users are exposed to chemicals and toxins that can harm your health.
- Use of e-cigarettes can result in serious burns and injuries. In some cases, these burns and injuries have resulted in death. Poor quality e-cigarette batteries or high-power devices increase the risk of explosions that can cause serious burns and injuries.

### HEALTH EFFECTS:

- Use of e-cigarettes can result in seizures in some users.
- Exposure to e-liquids that contain nicotine can result in poisoning for some users which, although it may not happen to everyone, can be severe and cause death.
- E-cigarette-related calls to Australian Poisons Information Centres have increased over the past 5 years. Most poisonings occur in toddlers and adults.
- Use of e-cigarettes can result in a serious and sometimes fatal lung condition known as E-cigarette or Vaping Associated Lung Injury (EVALI) in some users. Most cases of EVALI reported in the United States of America were linked to cannabis oils and vitamin E acetate, but other chemicals may also contribute to this condition.
- Use of e-cigarettes that contain nicotine probably results in throat irritation, cough, dizziness, headaches and nausea.
- There is not enough information from human research studies to know about the potential impacts of e-cigarette use on conditions such as cancer and cardiovascular disease, reproductive health, respiratory conditions (e.g. asthma) and mental illness.
- Lack of information does not mean that e-cigarettes are safe. More information is needed to know if long-term e-cigarette use is safe or if it harms your health.
- Can cause serious burns and injuries.

### SPECIFIC HEALTH EFFECTS BY TOBACCO SMOKING STATUS:

- If you have never smoked tobacco cigarettes and you use or are thinking of using e-cigarettes. There are no health benefits of using e-cigarettes if you do not currently smoke tobacco cigarettes. You can become addicted if you use e-cigarettes

that contain nicotine. If you are a current tobacco smoker and you use or are thinking of using e-cigarettes you will probably experience immediate increases in heart rates and blood pressure and stiffening of the arteries if you use e-cigarettes. You may become addicted to e-cigarettes if they contain nicotine and you may use e-cigarettes in excess.

- If you are a former tobacco smoker and you use or are thinking of using e-cigarettes
- You may experience a decrease in blood pressure after you have switched.

### E-CIGARETTE USE AND TOBACCO SMOKING:

- **Tobacco smoking uptake** – If you have never smoked tobacco cigarettes and you use or are thinking of using e-cigarettes
- **You are more likely to try tobacco smoking or become a tobacco smoker if you use e-cigarettes.**
- **Tobacco smoking cessation**
- If you are a current tobacco smoker and you use or are thinking of using e-cigarettes
- **There are other proven safe and effective options to help you quit smoking. E-cigarettes are not proven safe and effective smoking cessation aids.**
- **Short-term e-cigarette use may benefit you if you are able to quit smoking and have been previously unsuccessful with other smoking cessation aids. However, not everyone finds e-cigarettes helpful for quitting.**
- Research studies have found that it was more common for smokers to become dual users (using both e-cigarettes and tobacco products at the same time) than quit if they used nicotine e-cigarettes. For some smokers, using nicotine e-cigarettes may assist them to quit; however, more research is needed to confirm the harms and benefits of using them for this purpose. For additional assistance to quit tobacco smoking or quit e-cigarettes you are encouraged to seek further information from reliable sources, such as your healthcare practitioner or quit services.
- **Relapse to tobacco smoking:** If you are a former tobacco smoker and you use or are thinking of using e-cigarettes. Using an e-cigarette may increase your chance of smoking relapse.  
(Source: <https://www.nhmrc.gov.au/health-advice/all-topics/electronic-cigarettes/ceo-statement>)

## VAPING MESSES WITH YOUR GENES & IMPACTS IMMUNITY.

"Our study, for the first time, investigates the biological effects of vaping in adult e-cigarette users, while simultaneously accounting for their past smoking exposure. Our data indicates that vaping, much like smoking, is associated with dysregulation of mitochondrial genes and disruption of molecular pathways involved in immunity and the inflammatory response, which govern health versus disease state..." Ahmad Besaratinia, PhD, Professor of research population and public health sciences at Keck School of Medicine. **Full Research:** <https://www.nature.com/articles/s41598-021-01965-1>

## VAPING ANYTHING IS BAD – CBD VERY MUCH INCLUDED!

(US military have a blanket ban on vaping CBD products)

"Depending on the temperature and atmosphere, 25–52% of CBD was transformed into other chemical substances:  $\Delta 9$ -THC,  $\Delta 8$ -THC, cannabiniol and cannabichromene were the predominant pyrolysates in both conditions, all formed by cyclization reaction. THC was the main pyrolysis product at all temperatures under both oxidative and inert conditions. *Our results point out that CBD in e-cigarettes can be considered as a precursor of THC, thus it bears all the dangers related to this psychoactive compound.* Our findings are fundamental contributions to the safety profile of CBD-based e-cigarettes." Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8076212/>





## OTHER ARTICLES: (CLICK TO VISIT)



**E-Cigarettes and Vaping-Related Disease**



**Vaping and popcorn lung?**



**Adolescents' Use of "Pod Mod" E-Cigarettes — Urgent Concerns**



**CDC, FDA, States Continue to Investigate Severe Pulmonary Disease Among People Who Use E-cigarettes**



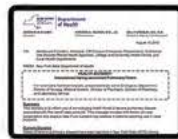
**DON'T BUY STREET VAPING PRODUCTS, CDC, FDA WARN**



**Officials Warn People Against Vaping Amidst Outbreak of Mysterious Lung Disease**



**School vaping ban goes into effect as students return**



**New York State Dept of Health: Unexplained Vaping-associated Pulmonary Illness**



**India proposes ban on e-cigarettes, with jail terms for offenders**



**North Carolina Says It Is Suing 8 E-Cigarette Companies**



**What's New in E-Cigarette Regulation?**



**Youth Vaping and Associated Risk Behaviors — A Snapshot of Colorado**



**Juul is the new Big Tobacco? Wave of lawsuits signal familiar problems**



**Vaping-Related Injuries Surge; "Consider Not Using" e-Cigs: CDC**



**Kansas confirms first death due to vaping, sixth vaping-related death nationwide**



**What we know about the mysterious vaping-linked illness and deaths**



**Not so fast CDC is not ready to blame illicit street vapes for illnesses**



**Pulmonary Illness Related to E-Cigarette Use in Illinois and Wisconsin — Preliminary Report**



**Imaging of Vaping-Associated Lung Disease**



**Vaping Illnesses: Consumers can Help Protect Themselves by Avoiding Tetrahydrocannabinol (THC) — Vaping Products**



**FDA warns JUUL Labs for marketing unauthorized modified risk tobacco products, including in outreach to youth**



**FTC Sends Warning Letters to Companies Advertising Their CBD-Infused Products as Treatments for Serious Diseases,**



**US Government looks to ban flavoured vaping products**



**What you should know about the outbreak of severe lung problems linked to e-cigarettes and vaping — Gold, MD**



**Vaping: As an imaging scientist I fear the deadly impact on people's lungs**



**#PotVaping — Facts & Talking Points**



**VAPING In Australia — Not Reducing Harm!**



**CDC — Centre for Disease Control (Outbreak of Lung Injury Associated with E-Cigarette Use, or Vaping)**