



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: Δ 9-THC, Δ 8-THC, cannabinal and cannabichromene were the predominant pyro lysates 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.⁸ The ketene emission levels observed in the dabbing experiments were in range of the NIOSH IDLH value.⁷ 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

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

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 lipid pneumonia, collapsed lung, and death.^{3,4}

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 Δ^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-les/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 2019.¹ 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 in 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

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.¹E-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 APDFY 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

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