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

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## SUBMISSION

The Australian Dental Association Queensland Branch (ADAQ) is the peak professional body for dentistry in Queensland. ADAQ's mission is to support and advocate for the profession as the trusted source of knowledge and information about oral health and clinical practice.

We ensure Queensland dentists have a voice in all matters concerning the oral health of Queenslanders.

ADAQ welcomes the opening of the Queensland Parliament Health and Environment Committee's *Vaping – An Inquiry Into Reducing Rates Of E-Cigarette Use In Queensland*, which we hope is only the first step to urgently address this fast-developing public health crisis to protect the most vulnerable, before it reaches the magnitude of last century's tobacco problem.

However, a quicker and stronger stance will be needed to stamp out this new public health challenge.

ADAQ calls on all levels of government to significantly increase restrictions on the sale and import of all vaping devices and flavoured e-liquids, and to declare all e-cigarette devices, components and cartridges a prohibited import, unless imports are strictly bound for pharmacy retailers. Sale should be only under medical prescription to support smoking cessation as a last resort, under strict supervision and for a limited time.
Clearing the market of these devices and substances will ensure that no loopholes in current or future regulations can be exploited by the vaping industry. Advertising and promotion of any e-cigarette devices should also be banned, including via social media platforms.

ADAQ further calls for dedicated research funding to be made available, to increase understanding of mid- and long-term implications of inhaling vaping liquids for oral health, respiratory health, and other health risks, such as mental health and brain development, especially in the most vulnerable young cohorts, for which evidence is currently insufficient or unavailable.

More studies are also urgently needed to identify effective public health intervention measures that discourage further usage and assist with cessation in teens and young adults who are already addicted. A holistic approach to evaluate and implement these measures is best, and should take young people's views into account.

ADAQ's comments relate mainly to parts 1 and 2 of the published Terms of Reference for the inquiry on reducing rates of e-cigarette use in Queensland. To aid the Committee in their research, for part 4, ADAQ will provide links to current research of which we are aware and that we think helps exemplify the current *status quo* in evidence.

We look forward to assisting the Committee in gaining a better understanding of the risks of vaping to oral health. As trusted health professionals, dentists can play an important role in increasing awareness of the harmful effects of vaping and smoking, by educating young patients and through dental practitioner awareness campaigns.

## 1. Current status in Queensland:

### a. Prevalence of e-cigarette use, particularly amongst children and young people

The popularity and availability of e-cigarette devices and flavoured e-liquids has skyrocketed among teens and increasingly, younger children.

A new generation of addicted youth is being created before our eyes, with potential chronic effects in paediatric users still largely unknown. The rise of vaping habits in young Queenslanders is a fast-growing and significant public health concern, its negative contribution to the burden of disease is still poorly understood even for adults. It is quickly undermining the public health efforts to curb the smoking rate in Queensland, as in other jurisdictions.

Despite earlier changes in regulation, vaping products remain easily accessible in shops and online, with most young users sourcing their supplies from familiar adults or friends, or purchasing directly in stores or online through social media contacts.[1]

COVID-19 pandemic conditions and lockdown stress partly explain the astonishing rise in the number of vapers, increasingly younger, over the last couple of years. Social media helped ensure more devices fell in the hands of kids: *#VapeChallenge*, *#VapeTricks* and *#VapeGhost* online challenges were hugely popular.

The fruity flavours and sleek packaging are designed to appeal younger users, most of whom have never been tobacco smokers. Despite what manufacturing companies declare, young people themselves are aware of being the target, with popular flavours available such as cupcakes, cherry, caramel cappuccino etc.[2] This latest generation of 'youth-appealing e-liquids' are undeniably manufactured and marketed specifically to appeal children and teens[3], because that is the fastest growing customer base for this industry.

### b. Risks of vaping harmful chemicals, including nicotine, to individuals, communities, and the health system

While the risks and outcomes of nicotine addiction and tobacco smoking are well understood today, the extent of adverse health implications of vaping and e-liquids inhalation are still uncertain, especially long-term[4]. This is a new, rapidly evolving global phenomenon, and further research needs to be supported urgently.

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[1] Watts *et al*., 2022

[2] McKelvey et al., 2019, Jongenelis, M.I. E-cigarette product preferences of Australian adolescent and adult users: a 2022 study. BMC Public Health 23, 220 (2023). https://doi.org/10.1186/s12889-023-15142-8

[3] Virgili F, Nenna R, Ben David S, Mancino E, Di Mattia G, Matera L, Petrarca L, Midulla F. E-cigarettes and youth: an unresolved Public Health concern. *Ital J Pediatr*. 2022 Jun 14;48(1):97. doi: 10.1186/s13052-022-01286-7. PMID: 35701844; PMCID: PMC9194784..

[4] Virgili et al., 2023; Banks *et al.*, 2023

There are hardly any positive sides to vaping, including for adult tobacco quitters. Recent studies have shown that the use of any e-cigarettes for smoke cessation is not as effective as initially thought. Moreover, there is robust evidence that non-smokers who vape are much more likely to move to combustible tobacco and other drugs[5].

Electronic cigarettes (e-cigarettes), or vapes, are devices that heat an 'e-liquid' pot or cartridge into an aerosol, which is then inhaled by the user. Many e-liquids contain nicotine, whether it shows in the package or not. Nicotine is highly addictive, and especially dangerous in the hands, and lungs, of children and teens. Australian researchers found that, out of 10 vaping liquids that declared no nicotine content, six were found to contain nicotine.[6]

E-liquids also contain flavourings or additives which may be tested safe when ingested, but were never tested for inhalation, as well as other toxic substances such as formaldehyde, volatile organic compounds (VOCs), diacetyl, and traces of metals including lead.

The first e-cigarettes devices were bulky or looked like traditional cigarettes, and they were marketed mostly to appeal to adults in their tobacco-quitting journeys. Latest generation devices are more sinister: they are small and easily concealed, don't look like cigarettes but more like novelty products, often mimicking the look of small electronic devices or make-up items, and contain highly concentrated liquids.

The emission of vaping devices is an aerosol, that is a colloidal suspension of particles dispersed in gas. The term 'vaping' itself implies that a vapour is inhaled, feeding the narrative that this habit is not as harmful as 'real' smoking[7]. It's important that a clear message is sent to young people that vaping is not the same, or better, than smoking.[8]

Nicotine content is only one part of the problem. TGA does not test vaping devices or e-liquids. There are no regulations on what these products should or should not contain, they can be manufactured and imported in Australia by anyone from anywhere without safety controls. It is also possible to mix a home-made liquid for inhaling through a purchased device, and many devices are now used to consume cannabis or other addictive drugs (other than nicotine), increasing their potential for harm[9].

The new devices are heated by lithium batteries, and have been known to leak, ignite or explode, causing serious facial injuries and burns. They are also mostly single use, thus creating a rapidly increasing environmental hazard in the form of dangerous waste.

[5] SCHEER, 2021. Lyzwiski *et al.* 2022

[6] Chivers *et al.* 2019

[7] See Orellana-Barrios et al, 2015, cited in SCHEER (Scientific Committee on Health, Environmental and Emerging Risks), *Scientific Opinion on electronic cigarettes*, 16 April 2021..

[8] Rohde JA, Noar SM, Sheldon JM, Hall MG, Kieu T, Brewer NT. Identifying Promising Themes for Adolescent Vaping Warnings: A National Experiment. *Nicotine Tob Res*. 2022 Aug 6;24(9):1379-1385. doi: 10.1093/ntr/ntac093. PMID: 35397474; PMCID: PMC9356688.

[9] Holt et al., 2023

In 2022, researchers at the Australian National University published a comprehensive review of the global evidence on e-cigarettes and the risks of vaping. Their review shows evidence is mounting on the links between vaping and addiction, cardiovascular diseases, cancer, even mood disorders.

There is moderate to strong evidence about the adverse role of vaping and flavoured e-liquids on lung function, respiratory conditions and cardiovascular system, including second-hand exposure. There is some evidence that vaping can affect mood disorders and function in the growing brain[10] .

Evidence is also fast emerging on the role of e-cigarette use on oral health, as first physical point of contact with the device and substances emitted. Aside from the risk of facial injuries and burns from malfunctioning devices, research has linked e-cigarette use with changes in the oral microbiome that increase the risk of developing caries, periodontitis and oral cancer[11] . Young patients who vape while undergoing orthodontic treatment may also be exposed to higher inflammation and bone loss risks than non-vapers [12].

Studies have shown that the use of e-cigarettes for smoke cessation is not as effective as initially thought. Moreover, there is strong evidence that non-smokers who vape are much more likely to move to combustible tobacco and other drugs[13].

While the risks and outcomes of nicotine addiction and tobacco smoking are well understood today, the systemic effects of e-liquid inhalation are still uncertain, especially long-term[14]. This is a new and rapidly evolving global phenomenon, and further research needs to be supported.

**c. Approaches being taken in Queensland schools and other settings relevant to children and young people to discourage uptake and use of e-cigarettes.**

We can't comment directly on this sub-point from the perspective of the dental profession. However, Queensland families with children of school age, and many in the general community are aware that Queensland schools have resorted to locking up bathroom facilities to prevent children from vaping during school hours.

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[10] See literature reviewed at: Banks et al., 2023; Heller et al., 2022; and the *Scientific Statement from the American Heart Association* (Wold et al.)

[11] Vemulapalli A, Mandapati SR, Kotha A, Aryal S. Association between vaping and untreated caries: A cross-sectional study of National Health and Nutrition Examination Survey 2017-2018 data. *J Am Dent Assoc*. 2021 Sep;152(9):720-729. doi: 10.1016/j.adaj.2021.04.014. Epub 2021 Jul 15. PMID: 34274068.

Wadia R. Vaping and caries risk. *Br Dent J*. 2022 Dec;233(12):1020. doi: 10.1038/s41415-022-5365-5. PMID: 36526771.

[12] Michelogiannakis D, Rahman I. Influence of E-Cigarette and Cannabis Vaping on Orthodontically Induced Tooth Movement and Periodontal Health in Patients Undergoing Orthodontic Therapy. *Int J Environ Res Public Health*. 2022 May 27;19(11):6518. doi: 10.3390/ijerph19116518. PMID: 35682101; PMCID: PMC9180231

[13] SCHEER, 2021. Lyzwiski et al. 2022

[14] Virgili et al., 2023; Banks, E., AM, Yazidjoglou, A., Brown, S., Nguyen, M., Martin, M., Beckwith, K., Daluwatta, A., Campbell, S. and Joshy, G. (2023), Electronic cigarettes and health outcomes: umbrella and systematic review of the global evidence. *Med J Aust*. https://doi.org/10.5694/mja2.51890

This is unfair for the non-vaper students, and school management should be supported with appropriate measures that do not impinge on young people's right to use sanitary facilities when they need it and for legitimate purposes.

Teachers are struggling to manage the ill-effects of vapes on behaviour and learning. More targeted training should be provided within schools as the connection between escalating behaviour and learning difficulties and vaping habits becomes clearer.

## 2. Opportunities

### a. Increase awareness of the harmful effects of e-cigarette use (with and without nicotine) to an individual's health, and the effectiveness of preventative activities.

Vaping is a socially rewarding activity for young vapers: the 'nicotine hit' is only part of the picture for these users. Vapes are shared and traded, just as smoking cigarettes had been for older generations. Tricks and new flavours provide entertainment and novelty. Most importantly, many kids continue to see vaping as 'harmless' or at least one of the least harmful things to do with their friends, and totally separate from traditional tobacco smoking.

A recent study by the WA Behaviour Change Collaborative group, *Being Gen Vape – implication for Intervention Design*[15] , looked at the vaping phenomenon through the eyes of teenagers themselves. The report confirmed that, in order to change teenagers' perception on vaping, it is better to steer away from moral arguments and blame towards vaping industry tactics, and instead focus on more direct strategies that explain the physical consequences:

- Not harmless vapour: explain clearly to teenagers what chemicals are present, and how they are harmful. Potential for damage exists from the very first puff.
- Cheap & easy buzz: address the ubiquity of vapes in young people's environments, such as schools, and curb access through industry bans and controls.
- 'Bring facts to life': let them see the evidence of what happens in their body, e.g., imagery of the effects of nicotine on the brain.[16]

The same study also identifies 'trusted adults' as vehicles for communications, including health professionals. Dental professionals can help increase awareness of the harmful effects of vaping as they already do with tobacco use and other forms of smoking and addiction.

The dental profession is open and ready to support government agencies: dentists and their teams can position themselves as trusted source of information, by educating young patients and their carers. We are advising our members to include the question about vaping as separate from smoking in their patient questionnaire. This is not only a way to start the conversation with patients, but also an important avenue for data collection. Further, ADAQ commits to educate its members through dental practitioner awareness campaigns.

[15] van Bueren, D., van der Beeke, L., Grainger, A. *Being Gen Vape – Implications for Intervention Design*. The Behaviour Change Collaborative, July 2022.

[16] *Ibid.*

Last year, ADAQ has also presented the Queensland Museum Network (QMN) with a proposal for a 'Queensland Smiles' exhibition that would make use of ADAQ's own historical collection on dentistry and oral health. The exhibition would have an educational purpose for oral health, and the proposal included vaping as a topic to explore. While we haven't received a reply from QMN on this, we maintain that there is a value in providing oral health advice, including about vaping, in unusual and creative settings.

There are already good resources available online from Australia and other countries, especially the United States, where the issue of young vapers pre-dates ours by a few years. Queensland can take inspiration and improve these resources to fit our experiences. Young people themselves should be included in the creation of resources and programs.

An Australian example is ABC's *BTN High* video: The Science of Vaping - Behind The News (abc.net.au)

The ADA Federal Branch has information on its Teeth.org.au website. ADAQ has created a factsheet targeted at young people and their carers. These and other resources should be incorporated in school programs.

**b. Increase accessibility and effectiveness of services and programs to prevent uptake and continuing use of e-cigarettes.**

Dental practices are an ideal point of access for both preventive and remedial programs to combat e-cigarette use.

## 3. Consideration of waste management and environmental impacts of e-cigarette products.

We have no specific comments to contribute on this point. In general, exploring the environmental impact of these products may be a lever to positively engage a very environmentally aware generation.

## 4. A jurisdictional analysis of other e-cigarette use inquiries, legislative frameworks, policies and preventative activities (including their effectiveness in reducing e-cigarette use).

ADAQ urges the Committee to look deep into conflicts of interests and undue influences applied by the global tobacco industry and other industries including pharmaceuticals that may have, and will continue to, steer researchers' agenda and policy makers away from a 'precautionary' approach. See for example: Smith et al, 2021 and 2023[17].

The above references can also serve as examples of jurisdictional analyses for this point.

[17] Smith, M. J., Vittal Katikireddi, S., Skivington, K., & Hilton, S. (2023). Contextual influences on the role of evidence in e-cigarette recommendations: a multi-method analysis of international and national jurisdictions, *Evidence & Policy* (published online ahead of print 2023). https://doi.org/10.1332/174426421X16711062023280

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## CONTACTS

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**ADAQ acknowledges the Traditional Owners across Australia and their continuing connection to land, sea and community.**
**We pay respect to First Nations Peoples and their Elders, past, present and emerging.**