

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

Submission No: 37
Submitted by: RACGP Queensland
Publication: Making the submission and your name public
Attachments: See attachment
Submitter Comments:



RACGP

Response to Queensland
Parliament Health and
Environment Committee:
*Vaping – An inquiry into
reducing rates of e-cigarette
use in Queensland.*

3 May 2023

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Committee Secretary
Health and Environment Committee
Parliament House
George Street
Brisbane QLD 4000
via email: HEC@parliament.qld.gov.au

Dear Committee Secretary,

RE: Response to *Vaping – An inquiry into reducing rates of e-cigarette use in Queensland*

The Royal Australian College of General Practitioners (RACGP) Queensland Faculty thanks Queensland Parliament Health and Environment Committee (HEC) for the opportunity to provide input to the *Inquiry into reducing rates of e-cigarette use in Queensland*.

The RACGP is Australia's largest professional general practice organisation, representing over 40,000 members working in or toward a specialty career in general practice, including 4-in-5 rural general practitioners (GPs) who are members of the RACGP. The RACGP set the standards for general practice, facilitate lifelong learning for GPs, connect the general practice community, and advocate for better health and wellbeing for all Australians.

GPs are the backbone of Australian healthcare with almost nine in ten Australians visiting a GP each year.¹ The RACGP produces evidence-based clinical guidelines and resources relevant to all healthcare professionals who provide support for people who wish to quit using e-cigarette products.

The potential reforms outlined by the HEC have been carefully reviewed by the RACGP and its Smoking Cessation Expert Advisory Group (EAG) responsible for producing the Smoking cessation guidelines. The EAG is a multi-disciplinary group consisting of health professionals from the fields of general practice, respiratory medicine, addiction psychiatry, nursing, and pharmacy, therefore ensuring that the guideline has broad applicability to all health professionals supporting smoking cessation.

The following feedback is provided from a clinical perspective, addressing only the selective terms of reference that RACGP can offer expert advice on. Approaches being taken in Queensland schools, consideration of waste management and environmental impacts of e-cigarette products, and jurisdictional analysis of other e-cigarette legislative frameworks are critical but the RACGP's expertise does not lie in these areas, so we have not addressed these points.

The RACGP notes that the terms of reference to be considered in this inquiry does not include clinical guidelines and recommended dosage regimes for NVPs. We would welcome the opportunity to provide more data and advice as requested.

The current status in Queensland relating to prevalence of e-cigarette use, particularly amongst children and young people.

The transition from tobacco smoking in Queensland.

In the past 30-50 years tobacco smoking has lost popularity and social status and has been de-normalised in Australian culture. As evolution dictates, when one element declines another takes its place. First commercialised in China in 2003 Nicotine Vaping Products (NVPs) have been in widespread use in many nations for only one decade or less.²

Queensland daily tobacco smoking prevalence halved between 2002 and 2022 (49.6% decrease over the entire period). The decrease was greater among younger adults than older adults, and among adults living in the most socioeconomically disadvantaged areas than those in the most advantaged areas. Daily smoking prevalence is more than three times higher in the most disadvantaged areas compared to the most advantaged areas. Daily smoking prevalence is almost 80% higher in remote areas compared to major cities.³

The rise of Vaping in Queensland.

In 2022, 19.7% Queensland adults had 'ever used' an e-cigarette. 14.5% of adults 18 to 29 years currently vape.⁴ In 2017, 15.6% of Queensland school children 12 to 17 years 'had ever' used an e-cigarette. While the number of high school students who have tried e-cigarettes may appear modest, it is crucial to highlight that e-cigarette use among young people is increasing. Based on trends from 2018 to 2022, current e-cigarette use has increased 40% over the time period. The largest increase in vaping was for young people 15 to 24 years. Between 2016 and 2019, the proportion of people who had ever used e-cigarettes rose from 8.8% to 11.3%.⁵ While state and territory results were similar, Queensland ranked 2nd highest.⁶

Based on the available data, on average there are 250,000 Queenslanders using disposable vaping devices every week, who dispose of 750,000 devices per week.⁷ This volume does not represent re-fillable devices.

Non-nicotine vaping products contain nicotine.

There is an increasing widespread acceptance that non-nicotine vape products may in fact contain nicotine in varying quantities. With little to no regulation of their manufacture, incorrect nicotine levels have been identified in studies. Of particular concern is the frequency with which nicotine is detected in e-liquids labelled "nicotine-free". E-liquids containing nicotine cannot legally be sold in Australia, but inaccurate labelling means that users may unwittingly inhale this addictive substance, or retailers may sell incorrectly labelled nicotine-containing e-liquids to willing customers.

A 2019 Australian study determined that as many as 60% of the vapes they tested were labelled as nicotine 'Not Detected', contained various traces of nicotine.⁸ The fact that nicotine was present has important implications for addiction and health and reflects the prolific use of nicotine in the e-cigarette liquid manufacturing process. While this study was a relatively small sample, it warrants further investigation.

Liquid nicotine cannot be identified by sight or smell. 'Non-nicotine' vaping products which contain hidden nicotine can be sold legally in Queensland and can be personally imported without regulation. This means that the true statistics of nicotine vaping use in Queenslanders is unknown but likely to be much higher than reported.

The current status in Queensland relating to risks of vaping harmful chemicals, including nicotine, to individuals, communities, and the health system.

There are numerous potential dangers associated with using e-cigarettes and other vaping devices for people, communities, and the healthcare system.

Nicotine.

Most of the data on the impact of nicotine on a variety of health outcomes derives from studies conducted on the tobacco smoker population. The evidence unequivocally has conclusively demonstrated the harms of nicotine.

Briefly, nicotine is an addictive parasympathomimetic substance that binds to nicotinic acetylcholine receptors in the central nervous system, causing key neurotransmitters to be released. It also binds to nicotinic acetylcholine receptors in various regions of the body, including parasympathetic nervous system components. It has both stimulating and relaxing effects.⁹ While generally considered to be a safer alternative of tobacco, nicotine poses several health hazards. Ingestion or inhalation of nicotine presents an increased risk of cardiovascular, respiratory, gastrointestinal disorders, decreased immune response and it also poses ill impacts on reproductive health. It affects cell proliferation, increases oxidative stress, apoptosis, and DNA mutation by various mechanisms which leads to cancer. It also affects tumor proliferation and metastasis and causes resistance to chemotherapy and radiotherapeutic agents.¹⁰

The RACGP would welcome longitudinal studies to assess the impact of using nicotine vaping products as opposed to smoking tobacco. However, reliable assumptions can be drawn from what is already known about the impact of nicotine from smoking.

Chemicals in vaping products.

As Vaping is a relatively new phenomenon, more research is necessary to fully evaluate the longitudinal effects on health outcomes. Marketed as a nicotine replacement therapy, vaping products have been believed to much safer than smoking tobacco. Originally touted as a revolutionary and harmless tobacco smoking cessation tool, NVPs have been heavily backed by 'big tobacco' themselves.

E-cigarettes use a battery to heat up a prepared liquid into an aerosol that users inhale. In addition to nicotine, the "juice" that fills the device usually contains propylene glycol, Glycerin, 2-chlorophenol, solvents (triacetin, benzyl alcohol), 2-amino-octanoic, hexadecenoic, and octadecanoic acids, synthetic flavourings, and other unidentified chemicals.¹¹ When the liquid is heated, more toxic compounds are formed. Johns Hopkins University researchers applied liquid chromatography–high-resolution mass spectrometry (LC–HRMS) and chemical fingerprinting techniques to characterise e-liquids and aerosols from a selection of popular vaping products (Mi-Salt™, Vuse™, Juul™ and Blu™). They found nearly 2,000 chemicals in these products, the vast majority of which were unidentified. Six potentially hazardous additives and contaminants, including the industrial chemical tributylphosphine oxide were identified. The authors noted "*Existing research that compared e-cigarettes with normal cigarettes found that cigarette contaminants are much lower in e-cigarettes. The problem is that e-cigarette aerosols contain other completely uncharacterized chemicals that might have health risks that we don't yet know about.*"¹²

Chronic lung disease and progressive pulmonary symptoms, such as small airway-centered fibrosis, constrictive bronchiolitis, and bronchiolitis obliterans are quickly becoming increasingly diagnosed conditions associated with the use of vaping products.¹³ Bronchiolitis obliterans (popcorn lung) is closely associated with

inhaling the chemical diacetyl, which has been found in many studies examining the contents of vaping products.¹⁴

Considering emerging research findings such as the above, RACGP advocates for a cautious approach under the care of General Practitioner, when implementing Nicotine Replacement Therapy (NRT) as a cessation tool.

Opportunities to 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.

As the peak body for General Practitioners RACGP are well placed to raise awareness from GPs to their patients on the harmful effects of e-cigarette use to an individual's health, and the effectiveness of preventative activities.

The RACGP produces evidence-based clinical guidelines and resources relevant to all healthcare professionals who provide support for people wishing to quit smoking. [*The guideline Supporting smoking cessation: A guide for health professionals \(Smoking cessation guidelines\)*](#) reflects the rescheduling of nicotine e-liquids in response to the Therapeutic Goods (Standard for Nicotine Vaping Products) TGO 110 which came into effect on 1 October 2021, making the supply of nicotine e-liquids prescription only.¹⁵

The current lack of data on both quality and safety of NVPs is of considerable concern. For the purposes of smoking cessation, the RACGP supports the establishment of robust safety standards but acknowledges the difficulty in achieving such a standard for an unapproved product.

The RACGP supports progressing toward an Australian Register of Therapeutic Goods (ARTG) registered NVP. This would give clinicians greater confidence about efficacy, quality and safety and bring NVPs into line with most medicines prescribed by doctors. Given the importance of the issue to public health the RACGP encourages the TGA and other relevant organisations to work collaboratively with suitable sponsors (those not connected with the tobacco industry) to progress NVPs to achieve registration.

The *RACGP Smoking cessation guidelines* recommends the restriction of flavours where possible to tobacco flavour. There is limited evidence about the long-term safety of inhaled flavourings. It is also acknowledged that flavourings increase the appeal of vaping, and fruit and sweet flavours are popular with young people and may encourage uptake among non-smokers. However, within the framework of medically prescribed NVPs the issue of flavours can be managed, and the greatest problem is with illegal use.

In addition to the quality, safety and efficacy of nicotine liquids, there remain challenges around the type of vaping device used. Devices are not covered by any TGA standard. The RACGP recommends the use of closed systems to reduce the risks of inappropriate or incorrect dilution of liquid nicotine, ingestion or exposure through skin or eyes and the addition of potentially toxic or illegal substances, or contamination.

General practitioners play a critical role in boosting the effectiveness of Queensland's preventative actions. Individuals aiming to quit smoking or vaping can access information, advice, and support from their trusted GP. With opportunistic care in a GP setting, it is possible to reach more individuals who may not have access to other sources of support.

Opportunities to increase awareness of accessibility and effectiveness of services and programs to prevent uptake and continuing use of e-cigarettes.

The cost of an ARTG registered NVP and whether it may be subsidised for smoking cessation will need to be addressed. It would be necessary to educate consumers as to the benefits of using a registered product particularly as cost may be a barrier to its uptake.

The RACGP supports pharmaceutical-like packaging with additional warning statements outlining the short- and longer-term risks of vaping, including poisoning and burns. It should be noted that nicotine in salt form in pods has a reduced poisoning risk. However, the relevance of packaging of medically prescribed NVPs to addressing the issue of youth uptake is extremely limited as overwhelmingly that is not how young people are getting access to vaping products.

The RACGP's view is that decisions about nicotine concentration are best made by clinicians who have access to evidence-based guidance. The dose of nicotine received by the person can vary by the type of vaping device, concentration of nicotine and inhalation technique. Therefore, the *RACGP Smoking cessation guidelines* provide advice on initial dosing but note that dose titration may be needed with regular follow-up and should be discussed with the patient.

As indicated in the *RACGP Smoking cessation guidelines*, blood concentrations of nicotine similar to or greater than combustible cigarettes are attainable with free-base liquid nicotine concentrations of up to 20 mg/ml which is thought to be an adequate concentration for more dependent smokers. Also, concentrations over 20mg/ml of freebase nicotine will typically result in throat irritation. Therefore, exceeding 20 mg/ml of freebase nicotine should not be necessary.¹⁶

At the time of writing the *RACGP Smoking cessation guidelines* in 2021, there were no trials of the efficacy of nicotine in salt form to assist smoking cessation, however, trial evidence is beginning to accumulate. This new information will assist with answering questions around adequate dosing for nicotine salt pods. The *RACGP Smoking cessation guidelines* note the potential advantages of higher-concentration nicotine salt NVPs in that their pharmacokinetics more closely replicate nicotine from smoking, which may facilitate people transitioning away from combustible tobacco. Also, the consumption of e-liquid is reduced, which may result in reduced exposure to toxic compounds (including volatile aldehydes) and flavouring molecules with unknown toxicity. The guidelines note the lack of evidence of efficacy in smoking cessation (though trials are now emerging and are included in the recent Cochrane review update¹⁷) and the concerning level of uptake of high concentration nicotine salt products in non-smokers including young people. This has been a particular feature in countries with high consumer availability such as the United States and Canada. Therefore, risk of diversion needs to be considered and minimised. As far as the RACGP is aware, diversion has not been an issue of concern with medically prescribed nicotine salt pods.

Importantly, if any restriction of concentration is to be applied, clarification is required about how the equivalence of freebase versus salts concentration is determined and to be clear about distinguishing the concentration of the nicotine salt compound versus the concentration of nicotine. Any limits set on the concentration of nicotine salts should not be too low, to ensure that the product is useful for smoking cessation. Higher concentrations nicotine salt NVPs should not be an issue if under prescription by a doctor under a medical model.

The *RACGP Smoking cessation guidelines* recommends limiting the supply of NVPs to a maximum of three months' supply and recommends against the supply of disposable NVPs due to their poor manufacture and environmental footprint.

To summarise, the RACGP welcomes any activity that increases awareness and effectiveness of medically lead Nicotine Replacement Therapies. We support the regulation of NVPs to ensure clinical governance and patient safety is prioritised.

The RACGP thanks the Queensland Parliament Health and Environment Committee for the opportunity to provide input on this very important inquiry. If you have any queries regarding this submission or require further details, please feel free to contact me directly on [REDACTED] or contact Mr James Flynn, State Manager RACGP Queensland, on [REDACTED] or [REDACTED].

Best regards,

[REDACTED]

Dr Bruce Willett FRACGP
Chair RACGP Queensland and RACGP Vice-President

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