**Submission No 83**

# INQUIRY INTO VAPING AND TOBACCO CONTROLS

**Name:** Matilda Centre for Research in Mental Health and Substance Use

**Date Received:** 28 March 2024

THE UNIVERSITY OF SYDNEY
Matilda Centre

# SUBMISSION TO THE INQUIRY INTO VAPING AND TOBACCO CONTROLS IN VICTORIA

Submission by The Matilda Centre for Research in Mental Health and Substance Use, The University of Sydney

**Dr Lauren Gardner**, Senior Research Fellow, Program Lead of School-Based Health Interventions

**Dr Amy-Leigh Rowe**, Postdoctoral Research Fellow, Vaping Prevention Trial Coordinator

**A/Prof Emily Stockings**, Associate Professor, Program Lead of Smoking, Vaping and Mental Health Research

**Dr Katrina Champion**, Senior Research Fellow, Program Lead of Healthy Lifestyles Research

**Dr Jack Wilson**, Postdoctoral Research Fellow

**Prof Maree Teesson**, AC, Director of the Matilda Centre

**Prof Nicola Newton**, Director of Prevention Research

**Submitted**: 28 March 2024

**Please cite this submission as:**

Gardner, L.A., Rowe, A., Stockings, E., Champion, K.E., Wilson, J., Teesson, M., & Newton, N.C. (2023). *Submission to the Inquiry into Vaping and Tobacco Controls in Victoria.* The Matilda Centre for Research in Mental Health and Substance Use, the University of Sydney, 28 March, 2024.

For further information regarding this submission, please contact Dr Lauren Gardner [redacted]

THE UNIVERSITY OF SYDNEY
Matilda Centre

# ABOUT THE MATILDA CENTRE

The Matilda Centre for Research in Mental Health and Substance Use (the Matilda Centre) is a Flagship Centre at the University of Sydney that delivers research programs to prevent, treat and reduce substance use and mental disorders.

Our mission is to improve health and wellbeing through research conducted in collaboration with multi-disciplinary international experts, consumers, carers, policy makers, and other key stakeholders. We achieve this by:

- bringing together globally recognised national and international researchers with a shared commitment to the prevention, early intervention and treatment of mental and substance use disorders
- building the evidence base for a thriving and empowered youth and
- engaging with decision makers and lived experience to enact real change

With a focus on prevention, treatment and epidemiology, our research streams facilitate knowledge exchange and develop strategic partnerships with the aim of increasing the knowledge base around the effective prevention and treatment of mental and substance use disorders.

THE UNIVERSITY OF SYDNEY
Matilda Centre

# EXECUTIVE SUMMARY

This submission draws on the latest scientific evidence to respond to the following Terms of Reference:

1. Trends in vaping and tobacco use and the associated financial, health, social and environmental impacts on the Victorian community.
2. The adequacy of the State and Commonwealth legislation, regulatory and administrative frameworks to minimise tobacco and e-cigarette harm experienced in the community and control illicit trade compared to other Australian and international jurisdictions.
3. The effectiveness of current public health measures to prevent and reduce the harm of tobacco use and vaping in Victoria and potential reforms.
4. Any other related matters.

We highlight that **rates of vaping among Victorians have increased in recent years.** Since 2018/19, the number of adults reporting use has doubled, resulting in approximately 308,000 Victorians using vapes in 2022 [1]. Adding further concern, the majority of consumers are <30-years of age, and although Victorian data is scarce, national data shows an increase in use among 12-17-year-olds (30% ever using vapes) [2-5]. **This warrants urgent attention given the significant known and emerging health risks and other related harms**. For example, there is conclusive clinical evidence that vape use can cause poisoning and inhalation toxicity (including seizures), dependence, and e-cigarette or vaping product use-associated lung injury (EVALI), along with growing evidence supporting associations between vape use and mental ill-health, headaches, coughs, nausea, dizziness, throat irritation, dental problems, and poor cardiovascular health [6-10]. There is also emerging evidence linking youth vape use with the initiation of tobacco cigarette smoking [11], putting young people at risk of the substantial short- and long-term harms and burden of disease that tobacco can cause [12]. Indeed, recent Australian data shows the prevalence of tobacco cigarette smoking is now, for the first time in decades, increasing among young people [3]. Beyond the health harms, we also highlight the various social, economic and environmental harms of vape use, including increased crime, educational impacts, costs to the Australian community, damage to relationships and increased environmental waste.

**An important observation is the limited number of rigorous evaluations of programs and services** aimed at preventing the uptake, or reducing the use, of vapes among young people. Randomised controlled trials (RCTs) offer the highest quality scientific evidence and are the gold standard approach for determining whether a program or service is effective. Examples of programs and services currently being implemented in Victoria include the Department Health/VicHealth funded '*See through the haze*' and '*Get the facts on vaping*' campaigns, and the Blurred Minds program, however, these programs lack robust evidence of effectiveness. To our knowledge, there are only two Australian RCTs of youth vape interventions underway. This includes a school-based vaping prevention program known as the *OurFutures Vaping Program* [13], and a text-message based intervention [14]. However, results on the impact on vaping are pending.

In our submission we emphasise that **Victoria's current regulatory framework, and the Federal Government's recent and planned reforms, primarily focus on supply-reduction, yet demand-reduction strategies are of critical importance**. Previous research relating to other substance use demonstrates that a prohibitionist approach risks increasing crime, desirability, an explosive black market and driving youth towards other substances [15]. There is also emerging evidence for this in relation to vapes, with international studies linking vape flavour restrictions to increases in tobacco cigarette sales [16]. Similarly, preliminary evidence shows that vape detection

THE UNIVERSITY OF SYDNEY
Matilda Centre

devices are both expensive [17] and limited in their efficacy [18], and that punitive disciplinary measures (e.g., detentions, suspensions and expulsions) can cause young people to further disengage from their education and exacerbate vape/tobacco use [19, 20]. Effective behavioural interventions that empower young people with knowledge and skills to make informed and positive health decisions are vital to ensure that fewer take up vape use (primary prevention); and, that those already using vapes reduce their use and seek help earlier, before dependency develops (secondary prevention).

We highlight the **strong potential of school-based preventive interventions to address vape use**, and specifically draw attention to the *OurFutures* prevention model which was developed by our team at the Matilda Centre with national and international experts in the field. This model is grounded in a social influence and harm-minimisation approach [21] and has been rigorously evaluated in 8 RCTs, yielding some of the largest and most sustained effect sizes reported for the prevention of substance use globally [22-25]. Notably, an independent review found *OurFutures* to be one of only two school-based alcohol and other drug education programs in Australia with a strong evidence base [26].

We have now capitalised on the effective *OurFutures* prevention model and applied it to vaping prevention in the *OurFutures Vaping Program*. The intervention is based on principles of effective tobacco and vaping prevention programs and was co-designed with students and education experts. The program is being evaluated in the first, and currently only, RCT of a school-based vaping prevention program in Australia (ACTRN12623000022662) [13]. The landmark trial includes 40 schools and >5,000 students across NSW, WA and QLD. Already delivered to >2,600 students, the intervention has demonstrated feasibility and acceptability, and results regarding the efficacy of the program at preventing, or reducing, vape use, along with improving secondary outcomes (e.g., tobacco smoking, knowledge about vapes/tobacco cigarettes, behavioural intentions, motives and attitudes related to vapes and mental health) will be available in 2024. We propose that, **if found to be effective, the *OurFutures Vaping Program* should be utilised in combination with the Government's supply-reduction strategies to curb vape use among young people**.

Finally, we offer support for the Victorian Government's commitment to stop the supply and uptake of illegal vapes and support for young people who are addicted to vapes, however, we wish to highlight the critical importance of ***investment in prevention*** research and evidence-based interventions to future-proof Australia's youth. This is an efficient and economical approach, particularly when focused on the school context.

Based on this evidence, we outline four key recommendations and priorities for addressing vape use among young people in Victoria:

1. *We recommend vaping prevention programs with robust evidence of effectiveness are invested in and made immediately available to all schools in Victoria.*
2. *We recommend support for targeted research among young people from regional/remote areas, lower socio-economic backgrounds, and those who are Aboriginal and Torres Strait Islander, to ensure prevention programs adequately address the unique needs of diverse communities.*
3. *We recommend schools avoid: i) punitive disciplinary measures (e.g., suspensions and expulsions) against students caught using vapes; and, ii) implementing strategies, such as vape detectors, without evidence of effectiveness. Instead, students should be diverted to educative interventions and professional treatment programs.*
4. *We recommend investment in a state-wide youth vape monitoring program to enable trends in vape use and related harms to be tracked and responded to efficiently and effectively.*

THE UNIVERSITY OF SYDNEY
Matilda Centre

# RESPONSE TO TERMS OF REFERENCE

## 1. Trends in vaping and tobacco use and the associated financial, health, social and environmental impacts on the Victorian community

### *Trends in vaping and tobacco use*

Victoria has seen a dramatic increase in vape use over the past 5-years, with over one-fifth of adults having reported use [1]. Regular use more than doubled (1.6% to 3.5%), and the largest increase in use was seen among those below 30-years of age. National data demonstrates similar trajectories with the latest wave (2022-2023) of the National Drug Strategy Household Survey (NDSHS) finding that rates of vape use have steadily increased, with 7% of people over 14 years (~ 1.5 million Australians) indicating current use [27]. Those aged 18-24 were the most likely to use vapes, with rates among this cohort quadrupling since 2019 (5.3% to 21%) [27]. Further, although data specifically among young people in Victoria is scarce, the NDSHS survey showed the greatest increases in vape use were among 14 -17-year-olds, where rates have increased more than five-fold since 2019 (1.8% to 9.7%). Conversely, tobacco cigarette use has shown the opposite trend with daily smoking decreasing from 11% to 8.3% between 2019 and 2022/2023 among people aged 14 + years.

Similar trajectories are reflected in the Australian Secondary School Students Alcohol and Drug (ASSAD) (Scully et al., 2023). In 2022/23, around 30% of school students (aged 12-17 years) reported ever vaping, while 16% did so in the past month (4-times as high as in 2017). Of those that had never used vapes, 15.4% classified themselves as being susceptible to vaping. In relation to tobacco cigarette use, lifetime and past-month use have declined across all age groups (12-17 years) between 2017 and 2022/2023. However, rates of smoking susceptibility (a lack of firm commitment to not smoke in the future) have increased from 11.1% in 2017 to 15.3% in 2022/2023 among those aged 12-17 years. Although, caution should be taken when interpreting these results due to the low response rate (6%) [5].

Other, albeit non-representative, data collected from >4200 students aged 14-17 across New South Wales (NSW), Western Australia (WA) and Queensland (QLD) between July-December 2022 found 26% had used vapes, with the mean age of first use being 14 [2]. Vape use in the prior 12-months was reported by 20% of respondents, current use (preceding 30 days) by 10%, and current regular use (preceding 30 days and at least weekly frequency) by 6%. This study also explored the sociodemographic characteristics of the vape users, finding that the prevalence of past 12-month use was higher for boys and non-binary young people, than for girls. The prevalence of current regular use was higher for non-binary participants and those who preferred not to report their gender, compared to girls. However, rates of vape use did not significantly differ by socio-economic status or geographical remoteness.

Other population survey data, drawn from five capital cities (Sydney, Melbourne, Brisbane, Perth and Adelaide), has explored trends in current (past month) vape use over time [3]. Sharp increases in the prevalence of current vape use were observed among young people in recent years. Specifically, between 2020 and January-March 2023, the rate of vape use among 14-17-year-olds increased from 2% to 15%, and among 18-24-year-olds, from 6% to 20%. Notably, despite consistently low rates of tobacco cigarette smoking among youth in recent decades [3, 28], this study also showed smoking prevalence has trended upwards among 14-17-year-olds since 2020, with 13% of 14-17-year-olds reporting current smoking in January-March 2023 [3]. Dual use of

vapes and tobacco cigarettes was also most common among this age group [4]. Overall, this evidence indicates that vape use among people in Victoria has increased in recent years and warrants urgent attention.

### *The Associated health, financial, social and environmental impacts*

A recent umbrella and systematic review of vaping health outcomes highlighted a range of adverse effects [6]. Conclusive evidence showed nicotine vape use can cause poisoning and inhalation toxicity (including seizures), dependence, and e-cigarette or vaping product use-associated lung injury (EVALI). Evidence was also found for adverse impacts on cardiovascular health (including heart rate and blood pressure) as well as minor events such as headaches, coughs, nausea, dizziness, and throat irritation. Other reviews have shown that vape users are at greater risk of periodontal and peri-implant disease, along with oral cancer [7].

There is also emerging evidence suggesting vape use adversely impacts the mental health of young people. For example, recent reviews have found adolescent vape use to be associated with depressive and anxiety symptoms, perceived stress, suicidality, disordered eating, conduct disorder, ADHD, and impulsivity [9, 10]. Among young adults, vape use has been associated with internalising and externalising problems, depression, increased perceptions of stress, and sensation seeking [10]. Preliminary evidence also suggests there may be an association between second-hand exposure to vape emissions and mental health problems [29]. Specifically, the odds of severe internalising mental health problems were equivalent between second-hand vape emission and second-hand tobacco smoke, both of which were significantly greater than unexposed nonusers. However, much of the existing evidence linking vape use and mental health relies on cross-sectional studies and more research is needed to understand the directionality of these relationships and establish causality.

Importantly, given vaping is a relatively recent phenomenon, many of the long-term health effects are still yet to be known. Of particular concern is the finding that young people who use vapes are 2-3 times more likely to take up tobacco smoking, compared to those who don't use vapes [11]. This puts them at risk of the substantial short- and long-term harms and burden of disease that tobacco can cause. Indeed, despite our world-leading success in tobacco control, tobacco remains the leading preventable cause of death and disability in Australia [12]. This burden is now set to rise as tobacco smoking increases among young people for the first time in decades [3].

In addition to the known and emerging physical and mental health harms, it is also important to acknowledge the various social, financial and environmental harms of vape use, such as:

- Increased crime – Growing rates of vape use and nicotine dependence among youth results in more young people engaging in illegal activity to obtain vapes, more retailers illegally selling vapes, and increased risk of young people turning towards other substance use [11, 15, 30-34].
- Educational impacts – Vaping has been linked with poorer academic achievement [35]. Additionally, schools often adopt punitive disciplinary measures, such as detentions, suspensions and expulsions, against students caught using vapes. This can cause young people to further disengage from their education and exacerbate use [19, 20].
- Economic impacts – It is estimated the tobacco costs the Australian community $137B annually [36], a cost that will rise as dual smoking and vaping becomes more common among youth.
- Damage to relationships – Vaping may lead to loss of trust or judgement from peers, siblings, parents or coworkers [37, 38].

THE UNIVERSITY OF SYDNEY
Matilda Centre

- Damage to the environment – Vapes lead to plastic waste from the device, electronic waste from the batteries, and hazardous chemical waste from the e-liquid [39].

**2. The adequacy of the State and Commonwealth legislation, regulatory and administrative frameworks to minimise tobacco and e-cigarette harm experienced in the community and control illicit trade compared to other Australian and international jurisdictions**

On 1st October 2021, vapes and e-liquids containing nicotine were classified as a prescription-only medicine in Australia, available to individuals over the age of 18 via community pharmacies or online via the Therapeutic Goods Administration (TGA) personal importation scheme. In Victoria, vapes that do not contain nicotine remain legal for retailers to sell to individuals over the age of 18; however, it is illegal to sell vapes (regardless of nicotine content) or vape accessories to individuals under the age of 18. It is also illegal to display, advertise or promote vapes, or to use vapes in smoke-free areas.

On 2nd May 2023, the Federal Government announced a suite of proposed reforms. From 1st January 2024:

- The importation of all disposable vapes is banned, with very limited exceptions
- The Special Access Scheme C (SAS C) pathway, is available to facilitate legitimate patient access to therapeutic vapes, for smoking cessation and the management of nicotine dependence
- A form for importers and manufacturers of therapeutic vapes is available
- An application form for therapeutic vape importers is available to apply for licences and permits for importing therapeutic vapes

From 1 March 2024:

- The importation of all vapes is banned unless importers have an import licence and permit from the Office of Drug Control- external site
- Therapeutic vape importers and manufacturers are required to notify the TGA about compliance with the relevant product standards before importation to Australia or release for supply in Australia
- The Personal Importation Scheme for vapes is closed
- Travellers may bring a small quantity of vapes into Australia
- Some changes to the quality requirements for therapeutic vapes for smoking cessation and the management of nicotine dependence, including restrictions on flavours to mint, menthol and tobacco
- A new medical device standard applies to therapeutic vaping devices that were previously excluded from the therapeutic goods framework.

Throughout 2024:

- Domestic ban on the manufacture, supply, advertising, and commercial possession of disposable and non-therapeutic vapes
- Reduce nicotine content
- Plain pharmaceutical packaging
- Vapes to only be available in pharmacies (i.e., no retail stores)
- Pharmaceutical-style/plain packaging
- Restrictions on flavours
- Quality standards, including being free of TGA-listed dangerous chemicals and limits on

nicotine concentrations

- Increased border control to detect illegal imports of non-prescription vapes
- Authorisation for all GPs to provide scripts for patients to obtain vapes for smoking cessation
- Investment in education and support programs

For anyone with information on breaches of the above laws, the Victorian Government urges people to make a complaint via their local police station or crime stoppers.

Despite the announced reforms and increasing monitoring of, and penalties for, illegal vape sales [40], vape retailers are thriving and continuing to open new stores, particularly in areas frequented by young people [31, 32]. Young people report easy access to vapes via peers, under the counter sales at convenience stores and tobacconists, and illegal online purchases [30]. In fact, regardless of age, most vape users access nicotine vapes through illicit (i.e., non-prescription) sources [41], meaning there are limited to no quality control standards, amplifying risk of harm.

**3. The effectiveness of current public health measures to prevent and reduce the harm of tobacco use and vaping in Victoria and potential reforms**

Whilst the new reforms aim to address and reduce these harms, the effectiveness is yet to be known. In fact, previous evidence in relation to other substances suggests a prohibitionist approach risks increasing crime, desirability, an explosive black market and driving youth towards other substances [15]. There is also emerging international evidence [16] that suggests that restricting vape flavours is associated with an increase in tobacco cigarette sales, putting young people at risk of the substantial tobacco harms and burden of disease. Similarly, preliminary evidence shows that vape detection devices are both expensive [17] and limited in their efficacy due to the discrete nature of vaping [18]. This suggests that we should not rely on prohibitionist and supply-reduction approaches. Responses must aim to reduce uptake among young people with effective behavioural interventions.

The gold standard approach for determining whether a program or service is effective at preventing the uptake, or reducing the use, of vapes are randomised controlled trials (RCT). RCTs offer the highest quality scientific evidence as they control for the influence of extraneous variables. Without conducting an RCT, there cannot be certainty that any change in the outcome is due to exposure to the intervention. Unfortunately, very few youth vaping prevention or cessation programs and services have been subject to this level of evaluation worldwide [42, 43]. To our knowledge, there are only two RCTs of youth vaping interventions underway in Australia [13, 14], however, findings are not yet available.

Examples of youth vaping prevention programs and services being used in Victoria include:

- 'Get the facts on vaping' - Developed by VicHealth and the Department of Health, this is an online hub targeting parents and carers of young people. The objective is to provide parents with guidance to start conversations with young people about vapes, advises on how to know if their child is vaping, and directs to additional resources for support. However, to our knowledge, there is no data available to indicate the efficacy or impact of this resource.
- 'See through the haze' - developed by VicHealth and the Department of Health, this is a multi-channel campaign targeted at people aged 14-39 years. The objective is to raise awareness to the harms associated with vaping. However, to our knowledge, there has been no rigorous evaluation of the efficacy of this campaign.

THE UNIVERSITY OF SYDNEY
Matilda Centre

- *Blurred Minds.* This is a curriculum aligned program that uses games, videos, quizzes and in-class activities to educate students, with the aim of preventing vaping. To our knowledge, there has not been a rigorous evaluation of the program undertaken to provide evidence of effectiveness.

Even with the announced reforms including a tightening of border control and ban on all disposable vapes, the sheer volume of vapes being imported, and move towards stealth designs (e.g., vapes made to appear like highlighters, USBs and concealed within clothing) [44, 45], means illicit vapes are bound to slip through.

Other challenges include difficulty accessing vapes via the prescription-only model, meaning that route is rarely used [41]. This issue is similarly targeted within the new reforms, which aim to make it easier to obtain a prescription for therapeutic use. However, most young people are not using vapes for smoking cessation. Instead, primary motives include curiosity, the attractive flavours, peer use, and the false belief that vapes offer mental health benefits [28, 46, 47]. The prescription-only model may therefore remain rarely used among this group, and the reforms may inadvertently fuel a black market of flavoured vapes that will still appeal to young people. Moreover, much of this appeal is generated through the promotion of vapes on social media [48], another strategy employed to circumvent current advertising restrictions, or illegal advertising on/around vape retailers [49].

Given the likelihood of continued challenges to enforcement and compliance of the new reforms, which largely focus on supply-reduction, simultaneously implementing demand-reduction strategies will be critical. By empowering young people with knowledge and resistance skills to make informed and positive health decisions, we can ensure that fewer take up vaping (primary prevention); and, that those already using vapes reduce their use and seek help earlier, before dependency develops (secondary prevention).

Schools are an ideal setting to deliver such prevention initiatives as they provide the greatest opportunity to reach large numbers of young people, via mandatory drug education [50], and allow intervention prior to the onset of harmful use [51]. Yet, the current evidence base is limited, with only a few effective school-based drug prevention programs available worldwide, most of which only show modest and short-term effects [52] and a lack of rigorously evaluated programs specifically targeting vapes [42]. Moreover, evidence suggests that less than one in four teachers implement an alcohol and other drug prevention program with evidence of effectiveness [53, 54], highlighting the need to guide schools and communities in identifying and delivering evidence-based prevention initiatives.

*An innovative approach to preventing vaping:*
Our team at the Matilda Centre for Research in Mental Health and Substance Use have led the development and rigorous evaluation of the *OurFutures* prevention model (formerly '*Climate Schools*') in 8 randomised controlled trials (the gold-standard of evidence), including 240 schools and >21,000 students across Australia. The innovative model is based on a social influence and harm-minimisation approach to prevention [21], utilising online cartoon storyboards and interactive activities to engage and educate students. The world-first program of research spans 21 years, >20 institutions and >60 researchers globally, and has yielded some of the largest and most sustained effect sizes reported for the prevention of substance use. Within Australia, an independent review found OurFutures to be one of only two school-based alcohol and other drug education programs with a strong evidence base [15]. Specifically, *OurFutures* has been shown to be more effective than health education as usual in reducing alcohol consumption, binge drinking, cannabis use, MDMA use, harms from substance use, intentions to use substances and increasing knowledge about substance use up to 3 years following the intervention [22-24]. Notably, reductions in harmful alcohol use have also been observed up to age 20 (7 years post-intervention) [25].

THE UNIVERSITY OF SYDNEY
Matilda Centre

Capitalising on this success, we applied the effective *OurFutures* prevention model to vaping via the *OurFutures Vaping Program*. The program includes 4x40min lessons, simultaneously targeting vapes and tobacco cigarettes, via a web-based cartoon component (approx. 20mins; Fig. 1) and class activities (e.g., quizzes, discussions, role plays). After rigorous peer review, funding was awarded by the Medical Research Future Fund (MRFF; APP2023130) to evaluate the efficacy and cost-effectiveness of the intervention. This is the first, and currently only RCT of a school-based vaping prevention program in Australia, and the landmark trial is presently underway in 40 schools and >5,000 students across NSW, WA and QLD (ACTRN12623000022662) [13]. To date, the intervention has been delivered to >2,600 students and has been well-received by both students and teachers, demonstrating feasibility and acceptability. Results regarding the effect of the intervention on vaping, as well as secondary outcomes including tobacco cigarette use, knowledge about vapes/tobacco cigarettes, intentions to use vapes/tobacco cigarettes, motives and attitudes relating to vaping, self-efficacy to resist peer pressure and refuse vapes, mental health, quality of life, and resource utilisation will be available in 2024. If found to be effective, this program serves as one example of a school-based vaping prevention initiative that should be utilised in combination with the supply-reduction strategies to curb vape use among young people.


*Figure 1. OurFutures: Vaping cartoon*

**4. Any other related matters**

In order for the Victorian Government to facilitate the Federal reforms, to stop the supply and uptake of illicit vapes, as well as prevent young people from becoming addicted to vapes, it is critical to ***invest in prevention***. It is well established that prevention is more cost-effective than treatment, with school-based alcohol and other drug prevention offering an estimated $18 return per $1 invested [55]. An efficient and economical approach is therefore to future-proof Australia's youth through a coordinated vape control plan that includes investment in school-based vaping prevention research and evidence-based interventions.

*As such, our key recommendations and priorities for addressing vaping among young people in Victoria include:*

***Recommendation 1: We recommend vaping prevention programs with robust evidence of effectiveness are invested in and made immediately available to all schools in Victoria.***

These programs should be added to the Schools Mental Health Menu in a timely manner, with linked funding to support implementation in schools across Victoria.

While the RCTs required to generate the highest quality evidence can take time, there is one RCT of a school-based vaping preventive intervention already underway in Australia (The OurFutures Vaping Trial [13]). In the interim, schools can access evidence-based resources related to the prevention of vaping among young people via the *Positive Choices* portal. The *Positive Choices* portal helps educators to easily identify the level of evidence behind the resources using an Evidence Rating System. Resources with the strongest level of evidence, including support via multiple RCTs and/or a systematic review, are signified by a 'Platinum Medal'. More broadly, 360edge offer packages to schools encompassing needs analyses, school policy reviews and evidence-based advice and support as part of their Schools of Substance program.

THE UNIVERSITY OF SYDNEY
Matilda Centre

***Recommendation 2: We recommend support for targeted research among young people from regional/remote areas, lower socio-economic backgrounds, and those who are Aboriginal and Torres Strait Islander, to ensure prevention programs adequately address the unique needs of diverse communities.***

Young people from regional/remote areas, lower socio-economic backgrounds, and those who are Aboriginal and Torres Strait Islander, face unique barriers to health (e.g., more limited access to health services). This has resulted in disparities in health outcomes in the past, including higher rates of cigarette smoking and risky alcohol use. Moreover, these young people are often underrepresented in health research, contributing to inequity. It is therefore imperative that students from diverse backgrounds have equal opportunities to contribute to, and benefit from, health research.

We recommend support for rigorous evaluations of the efficacy and effectiveness of existing vaping prevention programs among diverse communities, as well as the development of tailored interventions, should existing programs present limited efficacy/effectiveness. Such tailored interventions should be: i) co-designed with young people from these diverse communities; ii) built on principles of effective tobacco and other substance use prevention; and, iii) aligned with the health education curriculum.

***Recommendation 3: We recommend schools avoid: i) punitive disciplinary measures (e.g., suspensions and expulsions) against students caught using vapes; and ii) implementing strategies, such as vape detectors, without evidence of effectiveness. Instead, students should be diverted to educative interventions and professional treatment programs.***

***Recommendation 4: We recommend investment in a state-wide youth vape monitoring program.***

Conducting regular, representative, and detailed surveys among young people will allow trends in vape use and related harms to be monitored and responded to efficiently and effectively. This includes capturing the comprehensive, longitudinal data required to better understand the directionality and potential causality of relationships between vaping, mental health and other substance use, along with information about emerging vape technologies and e-liquids to inform prevention/treatment programs and supply-reduction strategies.

THE UNIVERSITY OF SYDNEY
Matilda Centre

## REFERENCES


1. Bayly, M.M., E. Durkin, S. Scollo, M., *E-cigarette use and purchasing behaviour among Victorian adults: Findings from the 2018-19 and 2022 Victorian Smoking and Health Surveys*. 2022, Quit Victoria.
2. Gardner, L.A., et al., *Prevalence, patterns of use, and socio-demographic features of e-cigarette use by Australian adolescents: a survey.* Medical Journal of Australia, 2023. **219**: p. 332-334.
3. Wakefield, M., et al., *Current vaping and current smoking in the Australian population aged 14+ years: February 2018-March 2023*, D.o.H.a.A. Care, Editor. 2023, Centre for Behavioural Research in Cancer, Cancer Council Victoria.
4. Centre for Epidemiology and Evidence and NSW Ministry of Health, *NSW Population Health Survey (SAPHaRI)*. 2022.
5. Scully, M.B., E. Koh, I. Wakefield, M. Durkin, S. , *ASSAD 2022/2023: Australian secondary school students' use of tobacco and e-cigarettes*. 2023, Centre for Behavioural Research in Cancer, Cancer Council Victoria.
6. Banks, E., et al., *Electronic cigarettes and health outcomes: umbrella and systematic review of the global evidence.* Medical Journal of Australia, 2023. **218**(6): p. 267-275.
7. Abbott, A.J., et al., *Oral and Systemic Health Implications of Electronic Cigarette Usage as Compared to Conventional Tobacco Cigarettes: A review of the literature.* American Dental Hygienists' Association, 2023. **97**(4): p. 21-35.
8. Javed, S., et al., *A Scoping Review of Vaping, E-Cigarettes and Mental Health Impact: Depression and Suicidality.* J Community Hosp Intern Med Perspect, 2022. **12**(3): p. 33-39.
9. Truong, M. and E. Cotton, *The impact of vaping on adolescent mental health*, Australian Institute of Family Studies, Editor. 2023.
10. Becker, T.D., et al., *Systematic Review of Electronic Cigarette Use (Vaping) and Mental Health Comorbidity Among Adolescents and Young Adults.* Nicotine & Tobacco Research, 2021. **23**(3): p. 415-425.
11. Yoong, S.L., et al., *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.* PLoS One, 2021. **16**(9): p. e0256044.
12. Australian Institute of Health and Welfare, *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2018. Australian Burden of Disease Study series no. 23. Cat. no. BOD 29. C.* 2021, AIHW: Canberra, Australia.
13. Gardner, L.A., et al., *Study protocol of the OurFutures Vaping Trial: A cluster randomised controlled trial of a school-based eHealth intervention to prevent e-cigarette use among adolescents.* Preprint, 2023.
14. *A randomised controlled trial to examine the potential effect of a text-message based intervention on preventing adolescent e-cigarette use*. 2023, Australian New Zealand Clinical Trials Registry.
15. Wodak, A., *The failure of drug prohibition and the future of drug law reform in Australia.* Aust Prescr, 2015. **38**(5): p. 148-9.
16. Friedman, A., et al., *E-cigarette Flavor Restrictions' Effects on Tobacco Product Sales (September 26, 2023). Available at SSRN: https://ssrn.com/abstract=.* 2023.
17. Harris, C. *The plan to purchase 40,000 vape detectors for public school toilets.* 2023.
18. Sanchez, S., et al., *Is vaping cessation like smoking cessation? A qualitative study exploring the responses of youth and young adults who vape e-cigarettes.* Addictive Behaviors, 2021. **113**: p. 106687.
19. Hemphill, S.A., et al., *The impact of school suspension on student tobacco use: a longitudinal study in Victoria, Australia, and Washington State, United States.* Health Educ Behav, 2012. **39**(1): p. 45-56.
20. The Truth Initiative, *Discipline Is Not the Answer: Better Approaches to On-campus Student Tobacco Use.* 2021.

21. Botvin, G.J. and K.W. Griffin, *Prevention of substance abuse.* APA Handbook of Clinical Psychology: Applications and Methods, 2016. **3**: p. 485-509.
22. Vogl, L.E., et al., *A universal harm-minimisation approach to preventing psychostimulant and cannabis use in adolescents: a cluster randomised controlled trial.* Subst Abuse Treat Prev Policy, 2014. **9**: p. 24.
23. Newton, N.C., et al., *Internet-based prevention for alcohol and cannabis use: final results of the Climate Schools course.* Addiction, 2010. **105**(4): p. 749-59.
24. Slade, T., et al., *The long-term effectiveness of universal, selective and combined prevention for alcohol use during adolescence: 36-month outcomes from a cluster randomized controlled trial.* Addiction, 2021. **116**(3): p. 514-524.
25. Newton, N.C., et al., *The 7-year effectiveness of school-based alcohol use prevention from adolescence to early adulthood: a randomized controlled trial of universal, selective, and combined interventions.* Journal of the American Academy of Child & Adolescent Psychiatry, 2022. **61**(4): p. 520-532.
26. Rowland, B., et al., *A review of alcohol and drug education and early intervention programs in Australian government schools*. 2019: Victoria, Australia.
27. Welfare., A.I.o.H.a., *National Drug Strategy Household Survey 2022–2023*. 2024.
28. Australian Institute of Health and Welfare, *National Drug Strategy Household Survey 2019*. 2020, AIHW: Canberra.
29. Farrell, K.R., et al., *Passive exposure to e-cigarette emissions is associated with worsened mental health.* BMC Public Health, 2022. **22**(1): p. 1138.
30. Watts, C., et al., *Vaping product access and use among 14–17-year-olds in New South Wales: a cross-sectional study.* Australian and New Zealand Journal of Public Health, 2022. **46**(6): p. 814-820.
31. Scott, L., et al., *The emergence of e-cigarette retail shops in a regulated tobacco control environment.* Health Promotion Journal of Australia, 2023. **34**(1): p. 185-192.
32. The Guardian *Vape stores opening near Australian schools to 'recruit new generation to nicotine', Mark Butler says*. 2023.
33. Morgan, J. *Why the ban on nicotine vape fluid will do more harm than good: The Conversation.* . 2020.
34. Westling, E., et al., *A Longitudinal Study of E-Cigarette, Cigarette, and Marijuana Use Sequence in Youth.* Tob Use Insights, 2022. **15**: p. 1179173x221101813.
35. Dearfield, C.T., et al., *E-cigarette initiation predicts subsequent academic performance among youth: Results from the PATH Study.* Preventive Medicine, 2021. **153**: p. 106781.
36. Rethink Addiction and KPMG, *Understanding the Cost of Addiction in Australia*. 2022, Rethink Addiction: Richmond, Victoria.
37. Romberg, A.R., et al., *Vaping in the Workplace: Prevalence and Attitudes Among Employed US Adults.* J Occup Environ Med, 2021. **63**(1): p. 10-17.
38. McKelvey, K., et al., *Adolescents have unfavorable opinions of adolescents who use e-cigarettes.* PLOS ONE, 2018. **13**(11): p. e0206352.
39. Pourchez, J., C. Mercier, and V. Forest, *From smoking to vaping: a new environmental threat?* The Lancet Respiratory Medicine, 2022. **10**(7): p. e63-e64.
40. The Premier & Minister for Health *Crackdown on illegal vape sellers in NSW.* . 2023.
41. Pettigrew, S., et al., *E-cigarette attitudes and use in a sample of Australians aged 15-30 years.* Aust N Z J Public Health, 2023. **47**(2): p. 100035.
42. Gardner, L.A., et al., *School-based preventive interventions targeting e-cigarette use among adolescents: a systematic review protocol.* BMJ Open, 2022. **12**(9): p. e065509.
43. Liu, J., S.M. Gaiha, and B. Halpern-Felsher, *A Breath of Knowledge: Overview of Current Adolescent E-cigarette Prevention and Cessation Programs.* Current Addiction Reports, 2020. **7**(4): p. 520-532.
44. Ramamurthi, D., C. Chau, and R.K. Jackler, *JUUL and other stealth vaporisers: hiding the habit from parents and teachers.* Tobacco Control, 2019. **28**(6): p. 610-616.
45. Dormanesh, A. and J.-P. Allem, *New products that facilitate stealth vaping: the case of SLEAV.* Tobacco Control, 2022. **31**(5): p. 685-686.

46. Gupta, P.S. and K.M. Kalagher, *Where There Is (No) Smoke, There Is Still Fire: a Review of Trends, Reasons for Use, Preferences and Harm Perceptions of Adolescent and Young Adult Electronic Cigarette Use.* Curr Pediatr Rep, 2021. **9**(3): p. 47-51.
47. Thoonen, K.A.H.J. and M.I. Jongenelis, *Perceptions of e-cigarettes among Australian adolescents, young adults, and adults.* Addictive Behaviors, 2023. **144**: p. 107741.
48. Smith, M.J., et al., *User-generated content and influencer marketing involving e-cigarettes on social media: a scoping review and content analysis of YouTube and Instagram.* BMC Public Health, 2023. **23**(1): p. 530.
49. Pettigrew, S., et al., *Exposure to e-cigarette advertising and young people's use of e-cigarettes: A four-country study.* Tobacco Induced Diseases, 2023. **21**(October): p. 1-8.
50. Australian Curriculum Assessment and Reporting Authority. *Health and Physical Education (Version 8.4)*. Australian Curriculum. 2017; Available from: https://www.australiancurriculum.edu.au/f-10-curriculum/health-and-physical-education/.
51. Guerin, N. and V. White, *ASSAD 2017 Statistics & Trends: Australian Secondary Students' Use of Tobacco, Alcohol, Over-the-counter Drugs, and Illicit Substances*. 2018, Cancer Council Victoria.
52. Stockings, E., et al., *Prevention, early intervention, harm reduction, and treatment of substance use in young people.* The Lancet Psychiatry, 2016. **3**(3): p. 280-296.
53. Stapinski, L., et al., *Empowering young people to make Positive Choices: Evidence-based resources for the prevention of alcohol and other drug use in Australian schools.* Learning Communities: International Journal of Learning in Social Contexts, 2017. **21**(Special Issue: 2017 30th ACHPER International Conference): p. 152-167.
54. Newton, N.C. and N. Lee, *Evidence-based prevention and the need for tough decisions: Alcohol and other drug education in schools.* Drug Alcohol Rev, 2019. **38**(6): p. 595-596.
55. Miller, T. and D. Hendrie, *Substance Abuse Prevention Dollars and Cents: A Cost-Benefit Analysis, DHHS Pub. No. (SMA) 07-4298.* . 2008: Rockville, MD.