LEGALISE VAPING AUSTRALIA (LVA): SUBMISSION TO THE THERAPEUTIC GOODS ADMINISTRATION (TGA) JOINT ADVISORY COMMITTEE ON MEDICINES SCHEDULING (ACMS)/ADVISORY COMMITTEE ON CHEMICALS SCHEDULING (AACS)

Proposed Amendments to the Poisons Standard (Medicines/Chemicals)

Schedule 7 – Amend Entry - to exempt Nicotine in tobacco prepared and packed for heating

10 February 2020

Legalise Vaping Australia

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Introduction

Legalise Vaping Australia (LVA) is Australia's largest pro-vaping, grassroots vaping advocacy organisation. LVA is an initiative launched in 2017 by the Australian Taxpayers' Alliance and is funded entirely by the Australian vaping community and concerned individuals who want to see scientifically proven lifesaving vaping products appropriately legislated and regulated in Australia. LVA does not accept funding from the tobacco industry.

LVA supports the sale of non-combustible tobacco products, nicotine liquid products, and other reduced risk alternatives to traditional tobacco products such as SNUS. All of these products are significantly less harmful than traditional tobacco products which kill 2 in 3 long term users. It is our view that all reduced risk products should be legally available within Australia as a consumer product. This will assist in achieving long held public health goals that we have failed to achieve in recent years, such as reducing smoking rates and smoking related deaths.

Nicotine vaping products are at least 95% less harmful than traditional tobacco products. It is our organisation's view that it is illogical and downright shameful to allow the legal sale of cigarettes which kill 21,000 Australians every year, while keeping harm reduced alternatives illegal and creating potential criminals of the 300,000 strong Australian vaping community. Whilst we believe vaping is not risk free and appropriate regulations should be put in place to ensure some basic consumer protections, we strongly believe these products must be legalised in Australia as quickly as possible to reduce smoking related harm.

The evidence in support of nicotine vaping as a harm reduction product and a less harmful alternative to smoking is overwhelming. Our own Evidence Review (annexure A), produced last year and co-authored by Dr Joe Kosterich outlines some of the core studies showing the benefits of safe, legally obtained and regulated nicotine vaping products. The evidence in support of legal vaping products continues to grow each and every day.

It is our view that any attempt to continue Australia's outdated regulatory approach to nicotine vaping products will serve to only benefit the tobacco companies who still continue to sell traditional tobacco products, as well as multi-national, multi-billion dollar pharmaceutical companies who have invested heavily in existing nicotine replacement products such as patches and gums.

We urge the TGA to bring Australia's legal treatment of less harmful alternatives to traditional cigarettes into line with most other advanced countries around the world, including New Zealand, Japan, Canada, the United States, the United Kingdom and the European Union members states.

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Recommendation

LVA supports Phillip Morris International's application to the Therapeutic Goods Administration for Heated Tobacco Products to be exempted from the poisons schedule. We note however that our organisation believes all harm reduced nicotine products should be made exempt. These products include, but are not limited to: liquid nicotine vaping products, SNUS, and other reduced risk alternatives.

LVA recommends that the TGA and the Secretary of the Department of Health approve the applicant's request to amend the poisons schedule and allow for the sale of nicotine in tobacco prepared and packed for heating. In addition, LVA recommends further amendments are made to allow for the sale of nicotine in liquid prepared and packed for vapourising, and other reduced risk alternatives containing nicotine such as SNUS.

We believe in applying an equal regulatory approach to all harm reduced products to avoid giving artificial market share to a select few companies (in this case, tobacco companies) over the rest of the affected industry. As such, it is our strong recommendation that nicotine vaping liquids and SNUS are exempt from the poisons schedule. Failure to do so while exempting only HTPs would result in the federal government and associated departments giving multi-national tobacco companies an unfair market advantage, effectively protecting the tobacco industry from more innovative and agile competitors consisting of family run, small business vape shops all across Australia.

The Australian Vaping Landscape:

Australia's vaping community consists of approximately 300,000 vapers with hundreds of small business brick and mortar vape shops dotted across the country serving some of their consumer needs. Unfortunately, Australia is lagging behind the rest of the developed world in developing a cohesive and logical regulatory approach to vaping.

The sale and distribution of non-nicotine vaping products in Australia is legal in each and every state and territory, however Federal and state laws prohibit the sale, distribution and even the possession of nicotine vaping products. This is despite numerous surveys indicating more than 70% of vapers in Australia use nicotine vaping products. For their efforts to achieve our stated public health goals of quitting smoking, many of Australia's vapers and the vaping scene at large faces the risk of becoming a criminal simply for switching to a reduced risk alternative that we know is 95% less harmful than traditional tobacco products.

Our organisation is of the view that this regulatory framework needs to be changed as a matter of urgency

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Summary and Conclusion

Australian smokers and Australian vapers deserve access to reduced risk alternatives such as HTPs, liquid vaping products, and other products such as SNUS. This will greatly benefit the public health outcomes of our nation and help addicted smokers finally quit their use of traditional tobacco products that kill 21,000 Australians every year.

We believe in a risk-proportionate regulatory framework that protects Australian consumers and gives the Australian vaping industry, consisting of small family run businesses to have an even footing in this new market place of harm reduced products. Nicotine vaping products in al forms have the potential to save tens of thousands of Australian lives, however this cannot be achieved so long as the current, backwards and out of date regulatory approach stands.

We request that the TGA approve the current PMI application and we strongly recommend the TGA amend the poisons standard to exempt all harm reduced nicotine products. These products include but are not limited to: liquid nicotine vaping products, SNUS, and other reduced risk alternatives.

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An evidence review:

The case for tobacco harm reduction in Australia

by Dr. Joe Kosterich & Brian Marlow

June 2019

[redacted]

This report lays out the evidence to demonstrate that electronic cigarettes and vaping are indeed less harmful than conventional cigarettes and can assist smokers in quitting cigarettes for good.

Contents

Executive Summary

Legalise Vaping Australia undertook a review of the wide-ranging evidence surrounding vaping and electronic cigarette use to assess whether the legalisation of nicotine vaping products in Australia would benefit individual smokers and the wider population.

METHOD

Legalise Vaping Australia examined all available scientific studies on the health effects of vaping and electronic cigarettes and found over 60 studies that consider electronic cigarettes as a harm minimisation and smoking cessation tool and suggest potential regulation on electronic cigarettes. The claims of these studies were then reviewed to inform what the future policy on electronic cigarettes might look like in Australia.

FINDINGS

The review found that use of electronic cigarettes resulted in significant health benefits, with a reduction of up to 450 times the toxin exposure, compared to conventional cigarettes. Electronic cigarette use also had less impact on lung functionality. Another important finding was that electronic cigarettes support smokers who wish to quit by helping to increase the success of smoking cessation. Vaping and electronic cigarette use led to a reduction in cravings, an increase in quit attempts, a more manageable quitting process and supported ex-smokers to remain smoke free. In addition, studies reviewed point to electronic cigarette use as being more effective than Nicotine-Replacement Therapies. Other conclusions were that:

- People who use electronic cigarettes overwhelmingly do so to quit smoking
- No evidence suggests that electronic cigarette use is a gateway to conventional cigarette smoking
- Many medical bodies around the world are supportive of the use of electronic cigarettes to assist patients in quitting smoking

CONCLUSION

The review concludes that the legalisation of vaping products would bring Australia in line with almost all other OECD countries, while providing a significant health benefit to smokers by assisting them to quit smoking for good. Furthermore, the review found that strong regulation around the marketing of these products, including restriction on sales to people over the age of 18, would have considerable support from the community.

Introduction

Australia prides itself as a world leader in smoking cessation innovation and regulation. This pride dates back to 1997, when the Government launched the 'Every cigarette is doing you damage' campaign. In 2013, just one year after the introduction of plain packaging, which was perceived as a triumphant world-first, smoking rates in Australia stopped falling and have flatlined.

Despite plain packaging laws, ever-increasing taxes on cigarettes, and the proliferation of smoking bans across the country, 2.6 million people continue to smoke. Refusing to adapt to innovation will leave these smokers, who have tried all other quit options, with no other choice but to keep smoking. Australia stands with Turkey as the only OECD nation that has yet to legalise smoke-free products — such as vaping and electronic cigarettes — to be used as quit tools for current smokers. These products are legal in the United States of America, New Zealand, Canada, Japan and the United Kingdom, where smoking rates continue to decline at a record pace.[1]

As Australia falls further and further behind, advocacy bodies such as the Australian Tobacco Harm Reduction Association (ATHRA), Legalise Vaping Australia (LVA) and Australian Vaping Advocacy, Trade and Research (AVATAR) continue to make a case for a harm reduction approach. Medical bodies such as the Royal Australian and New Zealand College of Psychiatrists (RANZCP) and the Drug and Alcohol Nurses of Australasia have also called on the government to legalise these products as a way of reducing harm and alleviate the biggest cause of disease burden in Australia, costing $1.8bn a year.

1 Selbie D. Turning the tide on tobacco: Smoking in England hits a new low Public health matters. Publichealthmatters.blog.gov.uk. https://publichealthmatters.blog.gov.uk/2018/07/03/turning the tide on tobacco smoking in england hits a new low. Published 2019

These groups all agree that electronic cigarettes are for current adult smokers who have tried everything and still cannot quit, and not for non-smokers. The available evidence around electronic cigarette use supports this position, as it shows that an increase in the use of vapes is not associated with non-smokers picking up smoking.

This is the first scientific review of its kind in Australia, and the purpose is clear: to better understand the potential benefits of electronic cigarettes on current smokers in Australia, while also weighing up any risks. This review examines over 55 studies, evaluating electronic cigarettes as a less harmful product or an effective quit smoking tool. It also seeks to identify the motivations behind electronic cigarette use.

Australia takes pride in having a conservative approach to smoking regulation. Many public health officials in Australia say there is not enough evidence regarding the benefits of vaping and electronic cigarette use as less harmful alternatives to smoking and question the associated risks.

This report lays out the evidence to demonstrate that these products are indeed less harmful than conventional cigarettes and can assist smokers in quitting cigarettes for good.

Vaping and electronic cigarette products hold unprecedented promises for Australia's 2.6 million smokers. Australians deserve to make the choice of using a less harmful alternative, just like the millions of other smokers around the world who have already made the switch.

Vaping as a harm reduction measure

The design and use of electronic cigarettes has always been intended for harm reduction purposes. Electronic cigarette were invented in 2003 by Chinese pharmacist, Hon Lik, following the passing of his father from lung cancer. The first product patent application described the product as "an electronic atomization cigarette that functions as substitutes (sic) for quitting smoking and cigarette substitutes". Since then, there have been numerous studies on how electronic cigarettes and vaping products function as a harm reduction product.

A study titled, *'Patterns of e-cigarette use, biochemically verified smoking status and self-reported changes in health status of a random sample of vapeshops customers in Greece'*[2] found that there were significant health improvements associated with electronic cigarette use. A random sample of 309 participants was selected among customers of fourteen vape shops in Athens, Greece. A questionnaire was used to identify their past smoking status, patterns of electronic cigarette use and, changes in health conditions. Among those surveyed, 82.5 per cent were daily electronic cigarette users and 98 per cent were smokers before electronic cigarette initiation. The results found that, while there were minor side effects like throat irritation and coughing, users experienced **significant improvements in health, particularly in physical status, exercise capacity, taste and smell**. It also showed a **strong correlation between being a former smoker and daily electronic cigarette use. The study also identified that electronic cigarette take-up by never smokers was rare**.

Electronic cigarettes produce 100 times less carcinogenic emissions compared to combustible cigarettes, according to research by William E. Stephen from the University of St. Andrews. His study, titled *'Comparing the Cancer Potencies of Emissions from Vapourised Nicotine Products Including E-Cigarettes with Those of Tobacco Smoke'*[3], quantified relative harm from nicotine-delivering aerosols by examining the chemicals in emissions and risks of inhalation. It modelled the lifetime risk of cancer by estimating the potencies from daily consumption and concluded that optimal combinations of device settings, liquid formulation and vaping behaviour normally result in **electronic cigarette emissions with much less carcinogenic potency than tobacco smoke**.

The authors of *'Evaluation of toxicant and carcinogen metabolites in the urine of e-cigarette users versus cigarette smokers'*[4] began their 2014 paper by recognising the increase in popularity of electronic cigarettes. They also noted that, at the time, there was little information available on the potential toxic or carcinogenic effects of using one. To determine these effects, they studied a cohort of twenty-eight electronic cigarette users, none of whom had consumed a conventional cigarette for at least two months at the time of the study. The twenty-eight participants then provided a urine sample which was examined for eight toxicant and carcinogenic metabolites, including nicotine and cotinine (nicotine's main metabolite). The results

2 Diamantopoulou E, Barbouni A, Merakou K, Lagiou A, Farsalinos K. Patterns of e cigarette use, biochemically verified smoking status and self reported chang es in health status of a random sample of vapeshops customers in Greece. *Intern Emerg Med.* 2019. doi:10.1007/s11739 018 02011 1

3 Stephens W. Comparing the cancer potencies of emis sions from vapourised nicotine products including e cigarettes with those of tobacco smoke. Tob Control. 2017;27(1):10 17. doi:10.1136/tobaccocon trol 2017 053808

4 Hecht S, Carmella S, Kotandeniya D et al. Evaluation of Toxicant and Carcinogen Metabolites in the Urine of E Cigarette Users Versus Cigarette Smokers. *Nicotine & Tobacco Research*. 2014;17(6):704 709. doi:10.1093/ntr/ntu218

of the analysis were then compared against those found in conventional cigarettes from three previous experiments. They found that six of the eight metabolites were present at significantly reduced concentrations compared to the tobacco experiments. The authors concluded that **electronic cigarettes have a more favourable toxicity profile compared to cigarettes** based on the metabolites analysed.

A study[5] published in the *Tobacco Control* journal tested twelve brands of electronic cigarettes and their vapours for the four most important groups of toxic compounds present in tobacco. The detected toxicants were extracted from vapours into solid or liquid states, and then analysed using various methods. The result was that **while electronic cigarette vapour did contain traces of toxic substances, the amount was up to 450 times less than that of cigarette smoke**.

Comparison of *'Nicotine and Toxicant Exposure in Users of Electronic Cigarettes and Combustible Cigarettes'*[6] also found that **exclusive electronic cigarette use resulted in lower toxicant exposure than cigarette smoking or dual usage**. The researchers conducted a population-based, longitudinal cohort study in the United States in 2013-14 and a cross-sectional analysis in 2016-2017 of exposure to tobacco-related toxicants. Over 5,000 people participated in the study and were either: current electronic cigarette users, current exclusive conventional cigarette users, dual users or never tobacco users.

In the study *'Nicotine, Carcinogen and toxicant exposure in long-term e-cigarette and nicotine replacement therapy users: a cross-sectional study'*,[7] the authors set out to compare the exposure to nicotine, tobacco-specific N-nitrosamines (TSNAs), and volatile organic compounds (VOCs) of five groups through urine and saliva samples, including:

- Conventional cigarette only smokers,
- Former smokers with long term electronic cigarette use,
- Former smokers with long-term Nicotine-Replacement Therapy (NRT) use,
- Long-term cigarette and electronic cigarette users and
- Long-term cigarette and NRT users.

The researchers found that there was no clear difference between nicotine intake between groups, but that electronic cigarette and NRT-only users had significantly lower levels of TSNAs and VOCs present in their samples than the groups which also used cigarettes. Electronic cigarette users also had significantly lower NNAL (a key TSNA) than all other groups. Ultimately, the study found that **long-term electronic cigarette use without cigarettes led to significantly reduced levels of carcinogens**.

Published in *Inhalation Toxicology*, *'Acute Impact of Active and Passive Electronic Cigarette Smoking on Serum Cotinine and Lung Function'*[8]

5 Goniewicz M, Knysak J, Gawron M et al. Levels of selected carcinogens and toxicants in vapour from electronic cigarettes. *Tobacco Control*. 2013;23(2):133 139. doi:10.1136/tobaccocontrol 2012 050859

6 Goniewicz M, Smith D, Edwards K et al. Comparison of Nicotine and Toxicant Exposure in Users of Electronic Cigarettes and Combustible Cigarettes. *JAMA Netw Open*. 2018;1(8):e185937. doi:10.1001/jamanetworkopen.2018.5937

7 Shahab L, Goniewicz M, Blount B et al. Nicotine, Carcinogen, and Toxin Exposure in Long Term E Cigarette and Nicotine Replacement Therapy Users. *Annals of International Medicine*. 2017;166(6):390. doi:10.7326/m16 1107

8 Flouris A, Chorti M, Poulianiti K et al. Acute impact of active and passive electronic cigarette smoking on serum cotinine and lung function. *Inhal Toxicol*. 2013;25(2):91 101. doi:10.3109/08958378.2012.758197

researchers used two participant groups: 15 smokers (who consume more than 15 cigarettes per day) and 15 never-smokers. Smokers were tested for active cigarette smoking and active electronic cigarette smoking. Never-smokers were tested for passive cigarette smoking and passive electronic cigarette smoking. Both groups also underwent a controlled lung function testing session. **The result showed that electronic cigarette use had less impact on lung function compared to smoking conventional cigarettes**.

'Effect of Smoking Abstinence and Reduction in Asthmatic Smokers Switching to Electronic Cigarettes: Evidence for Harm Reversal'[9] found that electronic cigarettes were a valid option for asthmatic patients who could not quit smoking by other methods. The study, published in the *International Journal of Environmental Research and Public Health*, found significant improvements in breathing, asthma control and airway hyper-responsiveness after looking at those who switched to exclusively using electronic cigarettes and dual users. The researchers concluded that **regular use of electronic cigarettes as a substitute for smoking is associated with objective and subjective improvements in asthma outcomes**.

Research in *Harm Reduction Journal*, published in April 2019, analysed data from two longitudinal studies for a potential association between smokeless tobacco use and disease-specific mortality. The results from *'Smokeless tobacco mortality risks: an analysis of two contemporary nationally representative longitudinal mortality studies'*[10] found that **smokeless tobacco exclusive users consistently had significantly lower mortality risk compared to conventional cigarette exclusive smokers and dual users. For example, mortality risk from lung cancer was 12 times higher for exclusive cigarette smokers compared to never smokers but rarely present among exclusive smokeless tobacco users**.

'Monitoring the transition from cigarette smoking to vaping using exposure, biochemical, brain dynamics and psychometric markers: The SmokeFreeBrain study'[11] looked at how a switch from heavy tobacco smoking to electronic cigarette use impacted various biomarkers and the brain. Volunteer smokers recruited from St George's University of London selected their own electronic cigarettes and nicotine liquids. They were then tested for blood, saliva, urine and buccal cell samples and completed a behavioural questionnaire. After 28 trial days on electronic cigarettes, participants had significantly reduced levels of tobacco-related chemicals, as well as significant changes in electrical charges in the brain. Thus, the study concluded that **switching to electronic cigarettes leads to beneficial changes in the level of toxicant exposure** as well as neuro-psychometrics.

A 2014 paper, *'Peering through the mist: Systematic review of what the chemistry of contaminants in electronic cigarettes tells us about health risks'*[12], published in BMC Public Health, reviewed available data on the aerosols and liquids in electronic cigarettes to assess the level of health

9 Polosa R, Morjaria J, Caponnetto P et al. Effect of Smoking Abstinence and Reduction in Asthmatic Smokers Switching to Electronic Cigarettes: Evidence for Harm Reversal. *Int J Environ Res Public Health*. 2014;11(5):4965 4977. doi:10.3390/ijerph110504965

10 Fisher M, Tan Torres S, Gaworski C, Black R, Sarkar M. Smokeless tobacco mortality risks: an analysis of two contemporary nationally representative longitudinal mortality studies. *Harm Reduct J*. 2019;16(1). doi:10.1186/s12954 019 0294 6

11 Marczylo T, Zhuikova E, Goldsmith N et al. Monitoring the transition from cigarette smoking to vaping using exposure, biochemical, brain dynamics and psychometric markers: The SmokeFreeBrain Study. *Tob Prev Cessat*. 2018;4(Supplement). doi:10.18332/tpc/90427

12 Burstyn I. Peering through the mist: systematic review of what the chemistry of contaminants in electronic cigarettes tells us about health risks. *BMC Public Health*. 2014;14(1). doi:10.1186/147124

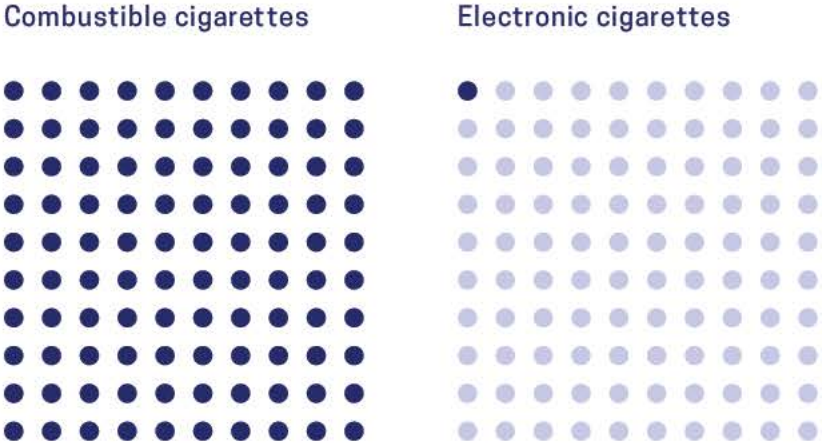
risks caused by chemical contaminants. More than 9,000 observations were extracted from literature and assessed using Threshold Limit Values, the universally recognised workplace exposure standards. **The findings showed there was no evidence of electronic cigarette users being exposed to significant health risks**. For most chemical contaminants, exposures were limited to less than one per cent Threshold Limit Value. The research concludes that **vaping does not produce any inhalable contaminants that warrant health concerns** by the workplace safety standard.

Electronic cigarettes produce 100 times less carcinogenic emissions than conventional cigarettes, lead to beneficial changes to the level of toxicant exposure for smokers and can create positive changes in the health of those who make the switch (including improved impact on lung function). Electronic cigarettes are found to be a less harmful product when used as an alternative to conventional cigarettes.

> Long term electronic cigarette use without cigarettes leads to significantly reduced levels of carcinogens

Source:
Shahab et al., 2017

Units of carcinogenic emissions produced



Study by William E. Stephen from the University of St. Andrews found that electronic cigarettes produce 100 times less carcinogenic emissions compared to combustible cigarettes.

The projected health gains of liberalising vapourised nicotine products in New Zealand amounted to $3.4 billion in health cost savings and an additional 236,000 health adjusted life years...

The researchers stated that these estimates would also apply to Australia.

Source:
Petrovic-van der Deen et al., 2019.

Modelling

Numerous researchers have used statistical modelling to predict the impact that legalising electronic cigarettes would have on the greater community. These models project the number of deaths avoided, savings made to the healthcare system and the increase in quit attempts as a result of legalised vaping.

A study by Australian and New Zealand researchers published in *Epidemiology,* titled '*Potential Country-Level Health and Cost Impacts of Legalizing Domestic Sale of Vaporized Nicotine Products*'[13], modelled the net impact of vapourised nicotine products in New Zealand. The projected health cost savings of liberalising these products amounted to NZ$3.4 billion. It also found that the **level of health gains would be similar to that of other public health interventions such as tax increases or the colorectal cancer screening program. The researchers stated that these estimates would also apply to Australia**.

'Potential deaths averted in USA by replacing cigarettes with e-cigarettes,'[14] published in *Tobacco Journal*, found that up to 6.6 million fewer premature deaths could be averted and 86.7 million life years could be saved in the United States by replacing conventional cigarettes with electronic cigarettes. To measure the impact of vaping, researchers projected a maximum and a minimum number of life years gained from switching to vaping and compared it to a "Status Quo Scenario" in which vaping is absent. Even at the lower estimate, switching to vaping was projected to lead to 1.6 million fewer premature deaths and 20.8 million life years gained. From these findings, the paper **concludes that a strategy to substitute smoking with vaping would result in significant life gains**.

A study titled, 'E-cigarettes: Comparing the Possible Risks of Increasing Smoking Initiation with the Potential Benefits of Increasing Smoking Cessation'[15] examined the potential life years gained or lost from vaping. The research team developed a model which tracked the smoking status and smoking-related deaths of adults in the United States over time and made a projection up to the year 2070. The base assumption was that vaping increases smoking initiation by 2% and cessation by 10%, annually. This was compared against three highly conservative simulations that assumed low net benefits of vaping. The researchers conclude that the **potential life-years gained from vaping-induced smoking cessation is greater than the life-years lost from vaping-induced smoking initiation**.

To determine if an increase in the use of electronic cigarettes led to an increase in smokers quitting at the population level, *'E-cigarette use and associated changes in population smoking cessation: evidence from US current population surveys'*[16] used data from the United States Current Population Survey-Tobacco Use Supplement from 2001-02 to 2014-15. The study found that electronic cigarette users were 25 per cent more likely to attempt to quit smoking, and that the overall cessation rate at

13 Petrović van der Deen F, Wilson N, Crothers A, Cleghorn C, Gartner C, Blakely T. Potential Country level Health and Cost Impacts of Legalizing Domestic Sale of Vaporized Nicotine Products.*Epidemiology*. 2019;30 (3):396 404. doi:10.1097/ ede.0000000000000975

14 Levy D, Borland R, Lindblom E et al. Potential deaths averted in USA by replacing cigarettes with e cigarettes. *Tob Control*. 2017;27(1):18 25. doi:10.1136/ tobaccocontrol 2017 053759

15 Warner K, Mendez D. E cigarettes: Comparing the Possible Risks of Increasing Smoking Initiation with the Potential Benefits of Increasing Smoking Cessation. *Nicotine & Tobacco Research*. 2018;21(1): 41 47.doi:10.1093/ntr/nty062

16 Zhu S, Zhuang Y, Wong S, Cummins S, Tedeschi G. E cigarette use and associated changes in population smoking cessation: evidence from US current population surveys. *BMJ*. 2017:j3262. doi:10.1136/bmj. j3262

a population level was significantly higher in 2014-15 than in 2010-11. This finding led the authors to conclude that **at the population level, a substantial increase in electronic cigarette use was linked with a statistically significant increase in the smoking cessation rate**.

Researchers used a model to estimate the public health impact of vapourised nicotine products. '*The Application of a Decision-Theoretic Model to Estimate the Public Health Impact of Vaporized Nicotine Product Initiation in the United States*'[17] looked at whether electronic cigarette uptake encouraged or deflected progression to cigarette smoking. Based on use patterns up to 2017 and conservative assumptions, the researchers projected that **the use of vaping products would result in a 21 per cent reduction in smoking-attributable deaths and a 20 per cent reduction of lost life years**. As such, the study concluded that under most plausible scenarios, vaping use generally had a positive public health impact.

17 Levy D, Borland R, Villanti A et al. The Application of a Decision Theoretic Model to Estimate the Public Health Impact of Vaporized Nicotine Product Initiation in the United States. *Nicotine & Tobacco Research*. 2016;19(2):149 159. doi:10.1093/ntr/n

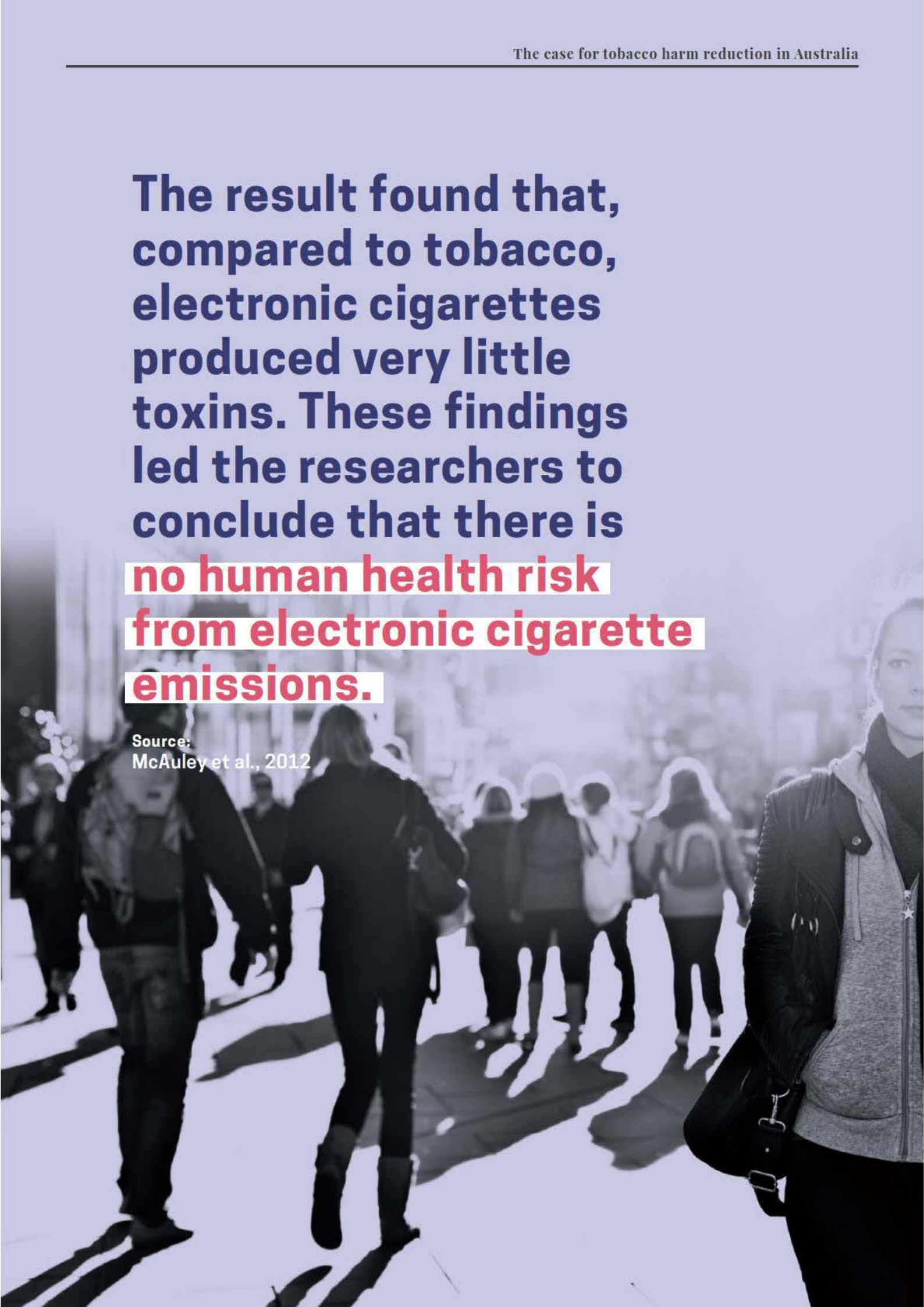
Passive smoking rates

Not only have electronic cigarettes been found to be less harmful to the individual smoker, but studies have also investigated the perceived risks of vaping to bystanders. The study, *'Comparison of the effects of e-cigarette vapor and cigarette smoke on indoor air quality'*[18], published in *Inhalation Toxicology*, assessed how electronic cigarette use impacts health and air quality. The researchers conducted experiments using high nicotine e-liquids and collected emissions to assess for common tobacco smoke by-products, including VOCs, Carbonyls, PAHs, nicotine, TSNAs and glycols. The same tests were also conducted with tobacco smoke. The result found that, compared to tobacco, electronic cigarettes produced very little toxins. These findings led the researchers to conclude that **there is no human health risk from electronic cigarette emissions**.

18 McAuley T, Hopke P, Zhao J, Babaian S. Comparison of the effects of e cigarette vapor and cigarette smoke on indoor air quality. *Inhal Toxicol*. 2012;24(12):850 857. doi:10.3109/08958378

The result found that, compared to tobacco, electronic cigarettes produced very little toxins. These findings led the researchers to conclude that there is no human health risk from electronic cigarette emissions.

Source:
McAuley et al., 2012



Vaping as a smoking cessation tool

Not only are electronic cigarettes less harmful to smokers and bystanders, but research has also shown that electronic cigarettes are a useful tool to help smokers quit and remain smoke-free for good.

Researches from the United Kingdom recognised that while electronic cigarettes were commonly used in quit smoking attempts, the evidence was limited regarding their effectiveness when compared with Nicotine-Replacement Therapies. *'A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy'*[19], published in The New England Journal of Medicine, randomly assigned 886 adults attending NHS stop-smoking services to either Nicotine-Replacement Therapy products of their choice, including product combinations, or an electronic cigarette starter pack. Those who were provided with an electronic cigarette starter pack had a one-year abstinence rate of 18 per cent, compared to 9.9 per cent of those in the Nicotine-Replacement Therapy group — that is, **electronic cigarettes were approximately twice as effective in helping smokers quit smoking than Nicotine-Replacement Therapy**.

Members of the media and the anti-vaping community have raised concerns that observing other people using electronic cigarettes undermines the motivation to quit smoking, as it renormalises smoking. The *BMC Medicine* published a study which considered the question, *'Are smokers who are regularly exposed to e-cigarette use by others more or less motivated to stop or to make a quit attempt? A cross-sectional and longitudinal survey'*.[20] The study used data from 1,580 respondents and found that smokers who reported regular second-hand exposure to electronic cigarettes were more likely to have tried to stop smoking in the past year than those who did not. **Being exposed to other people using electronic cigarettes also provided a high motivation to quit**, as opposed to those who were exposed to other people smoking cigarettes, who were found to become demotivated to quit.

In *'Vaping' profiles and preferences: an online survey of electronic cigarette users'*,[21] the authors set out to understand who used electronic cigarettes, how they used them and what their effects were. The research team hosted an online survey between September 2011 and May 2012, receiving more than 1,300 responses from 33 countries. On average, the respondents had been using their electronic cigarette for ten months. 47 per cent reported not smoking for at least a few weeks after using electronic cigarettes, and 70 per cent reported a reduced urge to smoke. Overall, the results suggested there was less dependence on electronic cigarettes than on cigarettes, and those surveyed reported significantly reduced cravings than did current smokers. Importantly, **the study concluded that electronic cigarettes point towards being effective as a quit-smoking tool over a longer period than traditional Nicotine-Replacement Therapy**.

The authors of *'E-cigarette Usage Is Associated with Increased Past-12-*

19 Hajek P, Phillips Waller A, Przulj D et al. A Randomized Trial of E Cigarettes versus Nicotine Replacement Therapy. *New England Journal of Medicine*. 2019;380(7):629 637. doi:10.1056/nejmoa1808779

20 Jackson S, Beard E, Michie S et al. Are smokers who are regularly exposed to e cigarette use by others more or less motivated to stop or to make a quit attempt? A cross sectional and longitudinal survey. *BMC Med*. 2018;16(1). doi:10.1186/s12916 018 1195 3

21 Dawkins L, Turner J, Roberts A, Soar K. 'Vaping' profiles and preferences: an online survey of electronic cigarette users. *Addiction*. 2013;108(6):1115 1125. doi:10.1111/add.12150

Month Quit Attempts and Successful Smoking Cessation in Two US Population–Based Surveys'[22] compared quit attempts in the previous twelve month period and successful quit rates between 2006 and 2016. Using the data, the authors tried to determine the impact of electronic cigarettes on these two variables at the population level. Using data from the National Health Interview Survey from 2006 to 2016 and the Tobacco Use Supplement to Current Population Survey, they found quit attempts in the previous twelve months were higher than in 2006, and **electronic cigarette use was associated with higher quit attempts and more effective smoking cessation**. Both data sets demonstrated this result.

After investigating successful smoking cessation rates of those who purchased an electronic cigarette for the first time in a bricks-and-mortar vape shop in Flanders, Belgium, researchers discovered that '*About One in Five Novice Vapers Buying Their First E-Cigarette in a Vape Shop Are Smoking Abstinent after Six Months*'[23]. Participants completed a survey on their smoking and vaping habits at three intervals: when they purchased an electronic cigarette, three months after purchase and six months after purchase. Participants also had their smoking status biochemically tested using exhaled carbon monoxide (eCO) measurements. Of the 71 smokers who purchased an electronic cigarette with liquid nicotine and completed the survey, half responded that they wanted to quit soon. After six months, the researchers observed a reduction from eighteen cigarettes per day to eight cigarettes per day. Eighteen per cent of participants had quit smoking entirely, while 25 per cent reduced cigarette consumption by at least half. Most notably, this study found that **six months after they purchased an electronic cigarette from a physical store, one in five electronic cigarette users had quit smoking entirely**.

To assess the impact of electronic cigarettes as a cessation device, *'E-cigarette initiation and associated changes in smoking cessation and reduction: the Population Assessment of Tobacco and Health Study, 2013–2015'*[24] used data from the Population Assessment of Tobacco and Health Study in 2013-14. Reviewing the surveys, the researchers found that after controlling for other factors, cigarette smokers who transitioned to **electronic cigarettes were nearly eight times more likely to have quit for 30 days compared to conventional cigarette users**. Those who did not quit entirely were 5.7 times more likely to have reduced their average smoking rate by at least 50 per cent.

A study of almost 19,000 smokers published by the Addiction Journal found that electronic cigarette use was associated with the greatest quit success rate when compared to other cessation assistance products such as Champix and Nicotine Replacement Therapies. '*Moderators of real-world effectiveness of smoking cessation aids: a population study*' found that **those who used electronic cigarettes were 95 per cent more likely to give**

22 Johnson L, Ma Y, Fisher S et al. E cigarette Usage Is Associated With Increased Past 12 Month Quit Attempts and Successful Smoking Cessation in Two US Population Based Surveys. *Nicotine & Tobacco Research*. 2018. doi:10.1093/ntr/nty211

23 Adriaens K, Van Gucht D, Baeyens F. About One in Five Novice Vapers Buying Their First E Cigarette in a Vape Shop Are Smoking Abstinent after Six Months. *Int J Environ Res Public Health*. 2018;15(9):1886. doi:10.3390/ijerph15091886

24 Berry K, Reynolds L, Collins J et al. E cigarette initiation and associated changes in smoking cessation and reduction: the Population Assessment of Tobacco and Health Study, 2013 2015. *Tob Control*. 2018:to baccocontrol 2017 054108. doi:10.1136/tobaccocon trol 2017 054108

up smoking than those who did not use any cessation tool, with 21.2 per cent of those who used electronic cigarettes remaining abstinent. Those who used Champix were 82 per cent more likely to succeed than those who went cold turkey, with 20.4 per cent of the group remaining abstinent. The study found that **those who used Nicotine Releasement Therapies were significantly less likely to remain abstinent**[25].

In *'Evaluating Nicotine Levels Selection and Patterns of Electronic Cigarette Use in a Group of "Vapers" Who Had Achieved Complete Substitution of Smoking'*,[26] the authors investigated the levels of nicotine for cessation, reported benefits, associated side effects and dependence on electronic cigarettes relative to conventional cigarettes. After interviewing 111 participants who had been exclusively using an electronic cigarette for at least a month, the **researchers found that 42 per cent reported quitting cigarettes within the first month of using an electronic cigarette**. Further, during the period between quitting and being interviewed, the majority of respondents had reduced their nicotine consumption. **Most participants also reported better exercise and improved smell and taste.** The research team argued that any **regulation should consider the "pragmatic" use of electronic cigarettes for those who have substituted it for smoking entirely.**

'Effectiveness and safety of electronic cigarettes among sole and dual user vapers in Kuantan and Pekan, Malaysia: a six-month observational study'[27] looked at smoking cessation among dual electronic cigarette users and conventional cigarette smokers. Over a six-month period, the study observed 218 electronic cigarette users and dual users. The research found that almost 25 per cent of participants quit cigarettes entirely, with a significantly higher rate of electronic cigarette users quitting cigarettes than those who were dual users. **The study concluded that electronic cigarettes may be useful as a smoking cessation aid**.

According to an Australian study, *'Electronic cigarettes: what should you tell your patients?'*,[28] the evidence surrounding electronic cigarettes shows they are significantly safer than smoking. The authors believe electronic cigarettes are popular because they deliver nicotine, along with the behavioural (feel of a cigarette), sensory ('throat feel,' taste, and sensation of exhaling vapour) and the social aspect associated with smoking. **The combination of these factors makes the use of electronic cigarettes more satisfying than traditional Nicotine-Replacement Therapies, such as patches and gum. They argue electronic cigarettes may have a therapeutic role in helping people who have been unsuccessful in previous cessation attempts** and that they are likely to be most effective while a user receives support from a GP or tobacco counsellor.

'The unique contribution of e-cigarettes for tobacco harm reduction in supporting smoking relapse prevention'[29], published in the journal *Harm*

25 Jackson S, Kotz D, West R, Brown J. Moderators of real world effectiveness of smoking cessation aids: a population study. *Addiction*. 2019. doi:10.1111/add.1

26 Farsalinos K, Romagna G, Tsiapras D, Kyrzopoulos S, Voudris V. Evaluating Nicotine Levels Selection and Patterns of Electronic Cigarette use in a Group of "Vapers" Who Had Achieved Complete Substitution of Smoking. *Substance Abuse: Research and Treatment*. 2013;7:SART. S12756. doi:10.4137/sart. s12756

27 Mohamed M, Rahman A, Jamshed S, Mahmood S. Effectiveness and safety of electronic cigarettes among sole and dual user vapers in Kuantan and Pekan, Malaysia: a six month observational study. *BMC Public* Health. 2018;18(1). doi:10.1186/ s12889 018 5951 2

28 Mendelsohn C, Gartner C. "Electronic Cigarettes: What Should You Tell Your Patients?" *Medicine Today*, October 1, 2015

29 Notley C, Ward E, Dawkins L, Holland R. The unique contribution of e cigarettes for tobacco harm reduction in supporting smoking relapse prevention. *Harm Reduct J*. 2018;15(1). doi:10.1186/ s12954 018 0237 7

Reduction, considered the role that electronic cigarettes may have in reducing the health-related harms of tobacco smoking, not only through assisting smoking cessation attempts but also supporting long-term abstinence from smoking. Semi-structured qualitative interviews with 40 vapers found that the entire group had a long history of smoking. While most of the group had a history of multiple quit attempts, a small portion had never attempted to quit. This data demonstrated that **electronic cigarettes might be a unique harm reduction innovation for smoking relapse prevention**, with electronic cigarettes meeting the needs of some ex-smokers by substituting physical, psychological, social, cultural and identity-related aspects of tobacco addiction.

Since their introduction to the French market in 2010, electronic cigarettes have rapidly grown in popularity across France. Researches from the French National Institute of Prevention and Health Education wanted to investigate the prevalence of electronic cigarette use and dual use. '*Electronic cigarette use in France in 2014*'[30] interviewed 15,635 individuals and found that 25 per cent of those between 15-75 years old had tried electronic cigarettes, 2.9 per cent were daily vapers, while six per cent classified themselves as current vapers. **Four out of five current vapers had reduced their cigarette consumption through electronic cigarette use**, while just under one per cent of all vapers had completely quit cigarettes. The authors concluded that this reduction could **equate to hundreds of thousands of individuals quitting smoking**.

Tobacco use by patients before surgery is linked with an increased likelihood of complications. The authors in '*E-cigarettes versus nicotine patches for perioperative smoking cessation: a pilot randomized trial*'[31] set out to investigate whether electronic cigarettes are a better option than patches for veterans before surgery. Preoperative patients were randomly allocated to two groups; a nicotine patch group (10 people) and an electronic cigarette group (20 people). Both groups were given a 6-week supply of their respective cessation measure. The study found that the smoking cessation rates were similar in both groups. The research team concluded that electronic cigarettes could be a tool for preoperative smoking cessation among veterans, as results were similar to quit rates with the nicotine patches.

'*Long-term e-cigarette use and smoking cessation: a longitudinal study with US population*'[32] examines the link between long-term electronic cigarette use and quit smoking rates over two years by using a nationally representative sample of 2,028 smokers in the United States. At the end of the study, 43.7 per cent of dual users were still using electronic cigarettes, but long-term electronic cigarette users had significantly higher quit rates than short-term or non-electronic cigarette users. Those participants who were attempting to quit using electronic cigarettes performed better than

30 Andler R, Guignard R, Wilquin J, Beck F, Richard J, Nguyen Thanh V. Electronic cigarette use in France in 2014. *Int J Public Health*. 2015;61(2):159 165. doi:10.1007/s00038 015 0773 9

31 Lee S, Tenney R, Wallace A, Arjomandi M. E cigarettes versus nicotine patches for perioperative smoking cessation: a pilot randomized trial. *Peer J*. 2018;6:e5609.doi:10.7717/ peerj.5609

32 Zhuang Y, Cummins S, Y Sun J, Zhu S. Long term e cigarette use and smoking cessation: a longitudinal study with US population. *Tob Control*. 2016;25(Suppl 1):i90 i95. doi:10.1136/tobacco control 2016 053096

those who used other FDA-approved pharmacotherapies. The researchers concluded that electronic cigarette use in the long-term was linked with higher quit rates.

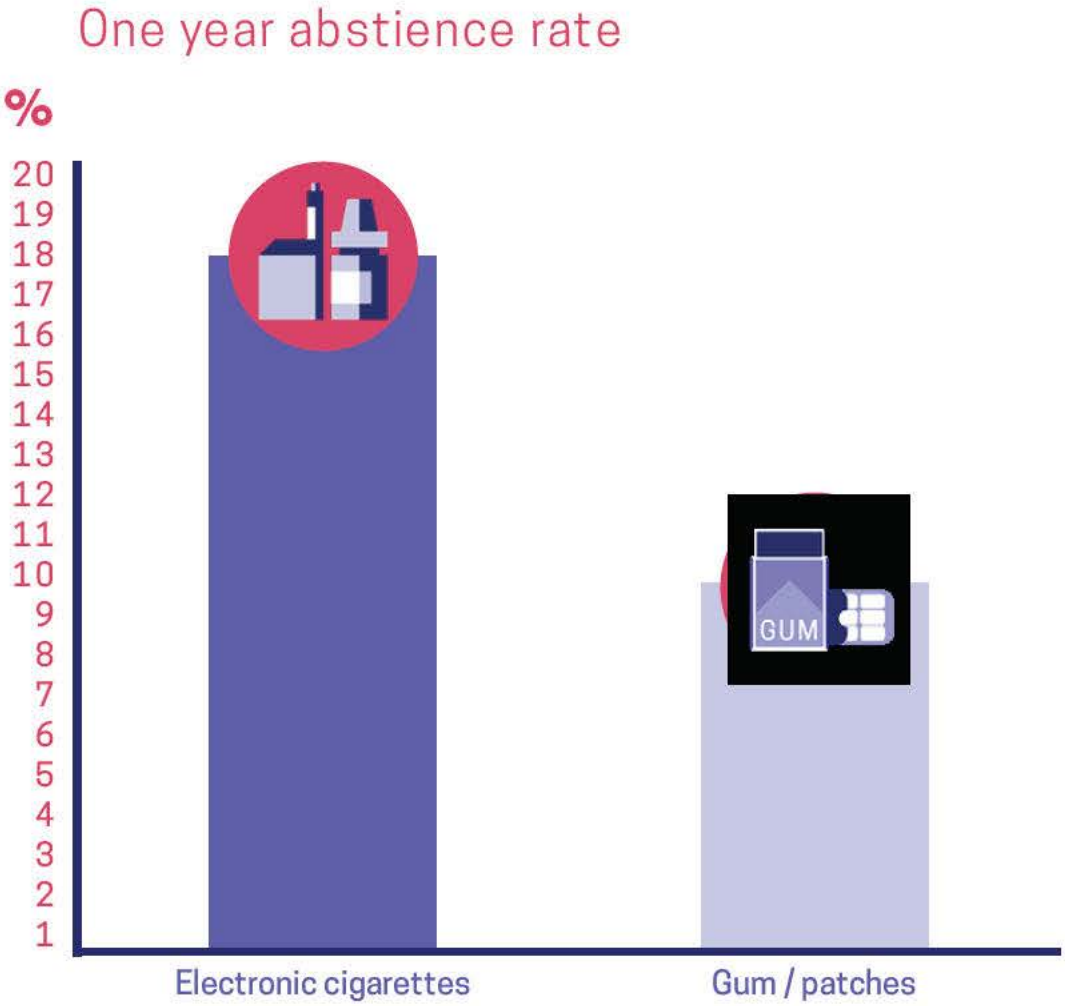
Following the increasing number of studies that suggested electronic cigarettes can aid smoking cessation, the *UK Centre for Tobacco and Alcohol Studies* undertook research aimed at assessing the effectiveness of electronic cigarettes. The study used an established methodology to compare electronic cigarettes with Nicotine-Replacement Therapy and unaided quitting. Using 5,863 adults who had smoked within the previous 12 months, '*Real-world effectiveness of e-cigarettes when used to aid smoking cessation: a cross-sectional population study*'[33] found that electronic cigarette users were 63 per cent more likely to report abstinence than those who used Nicotine-Replacement Therapy bought over-the-counter. The study found that electronic cigarette users were 1.63 times and 1.61 times more likely to be abstinent than NRT users or those who did not use an aid respectively.

Published in Addictive Behaviours, '*Prevalence of population smoking cessation by electronic cigarette use status in a national sample of recent smokers*'[34] set out to understand whether electronic cigarettes can play a role in reducing the harm from conventional cigarettes. Using data from the 2014 and 2015 National Health Interview Study, researchers found that regular electronic cigarette users were more likely to have quit smoking entirely than those who had never used electronic cigarettes. This study found that the single strongest link between having recently quit and staying smoke free was the regular use of an electronic cigarette.

From reducing cravings to assisting smokers successfully quitting and ensuring that ex-smokers remain smoke-free, these studies prove that electronic cigarettes are a helpful tool to assist smokers in quitting cigarettes for good.

33 Brown J, Beard E, Kotz D, Michie S, West R. Real world effectiveness of e cigarettes when used to aid smoking cessation: a cross sectional population study. *Addiction*. 2014;109(9):1531 1540. doi:10.1111/add.12623

34 Giovenco D, Delnevo C. Prevalence of population smoking cessation by electronic cigarette use status in a national sample of recent smokers. *Addict Behav*. 2018;76:129 134. doi:10.1016/j.addbeh..addbeh. 20 17.08.002



Electronic cigarettes were approximately twice as effective in helping smokers quit smoking than Nicotine-Replacement Therapy.

Source:
Hajek et al., 2019

Electronic cigarette usage

When considering the benefits and the drawbacks of electronic cigarette use, it is important to consider the reasons why people use electronic cigarettes. Several studies have considered who uses electronic cigarettes and why.

'*An Online Survey of New Zealand Vapers*'[35] surveyed 218 electronic cigarette users in New Zealand, with follow-up surveys one and two months after the initial survey. Almost all respondents were smokers, but 75 per cent no longer consumed cigarettes after making the switch. Those who continued to smoke had significantly reduced their cigarette consumption. The study found that **the main reason for electronic cigarette initiation was a desire to stop or reduce smoking**. The results found that participants initially used both traditional and electronic cigarettes, but all either stopped or reduced their conventional cigarette use. **Ultimately, the authors found that electronic cigarettes were effective in helping most respondents to quit or reduce their conventional cigarette consumption**.

After conducting an online survey of 452 current and ex-electronic cigarette users in Australia and Bangladesh, researchers discovered that **the most commonly cited reason for using electronic cigarettes in both countries was to reduce or quit cigarette smoking altogether**. '*E-cigarettes or vaping: is there any difference in perceptions of use and associated harm among the current users between a developed and a developing country?*'[36] also found that more than three-quarters of respondents in both countries perceived electronic cigarettes as less harmful and **more than two-thirds perceived them as less addictive**. The research group concluded that these findings supported prior evidence regarding the effectiveness of electronic cigarette use for smoking cessation.

35 Truman P, Glover M, Fraser T. An Online Survey of New Zealand Vapers. *Int J Environ Res Public Health*. 2018;15(2):222. doi:10.3390/ijerph15020222

36 Rahman M, Edvardsson D, McDonald C, Castle D. E cigarettes or vaping: is there any difference in perceptions of use and associated harm among the current users between a developed and a developing country?. *Tob Induc Dis*. 2018;16(1). doi:10.18332/tid/83853

'Correlates of electronic cigarette use in the general population and among smokers in Australia — Findings from a nationally representative survey',[37] published in *Addictive Behaviours*, aimed to estimate the prevalence of electronic cigarette use in Australia. Using data from the National Drug Strategy Household Survey, the researchers found that 1.2 per cent of the population were current electronic cigarettes users, and 0.5 per cent used them daily. Those who were more likely to use electronic cigarettes were younger males who smoked and had a higher level of psychological distress. The study also found that **smokers who used electronic cigarettes did so with the intent of either quitting smoking or reducing the number of conventional cigarettes that they smoke**.

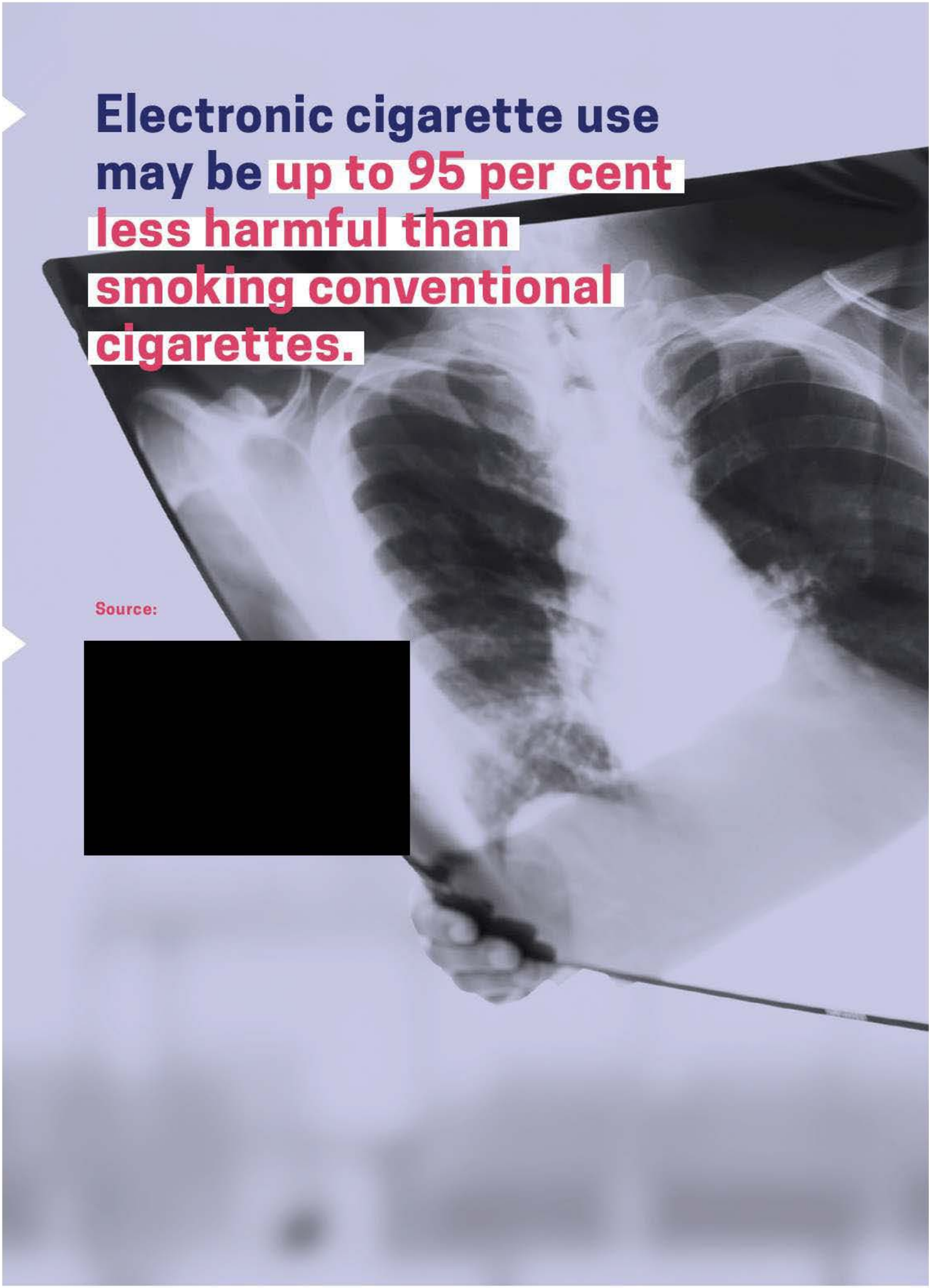
Researchers from the National Addiction Centre at Kings College, London, considered the question, '*How and Why Do Smokers Start Using E-Cigarettes? Qualitative Study of Vapers in London, UK*'[38] in a study published in the *International Journal of Environmental Research and Public Health*. The study identified multiple factors that may lead to electronic cigarette initiation, such as an understanding of the concept of harm reduction. Other factors identified included those that could be influenced by policy and policymakers, for example, the price of electronic cigarettes relative to traditional cigarettes and use in smoke-free environments.

> Smokers who used electronic cigarettes did so with the intent of... quitting smoking.
>
> Source: Chan et al., 2019

37 Chan G, Leung J, Gartner C, Yong H, Borland R, Hall W. Correlates of electronic cigarette use in the general population and among smokers in Australia Findings from a nationally representative survey. *Addict Behav*. 2019;95:6 10. doi:10.1016/j.addbeh.2019.02.012

38 Wadsworth E, Neale J, McNeill A, Hitchman S. How and Why Do Smokers Start Using E Cigarettes? Qualitative Study of Vapers in London, UK. *Int J Environ Res Public Health*. 2016;13(7):661. doi:10.3390/ijerph13070661

Electronic cigarette use may be up to 95 per cent less harmful than smoking conventional cigarettes.



Source:

[redacted]

Gateway theory

One of the main criticisms that anti-vaping campaigners put forward is that vaping products are a gateway to smoking. The theory is that those who start to vape will eventually move to more harmful conventional cigarettes, however, these concerns are not founded.

Researchers in the United States set out to understand electronic cigarette use by smokers and non-smokers at the national level by analysing the 2014 National Health Interview Survey. *'Patterns of Electronic Cigarette Use Among Adults in the United States'*[39] found that electronic cigarette use was extremely low among those who have never smoked and for those who had ceased smoking for more than a year. Experimentation with electronic cigarettes was high for current smokers and young adults, but electronic cigarette use was highest among smokers who had quit in the preceding 12 months. They found **extremely low rates of electronic cigarette use by those who had never smoked** and who were formerly long-term smokers, which suggests **electronic cigarettes do not encourage people to start smoking**, nor do they lead to a relapse. Additionally, they found that electronic cigarettes may contribute to helping some people quit.

Action for Smokefree 2025 has released a smoking snapshot of year 10 students every year since 1999. The snapshot is one of the largest youth smoking surveys in the world, consistently receiving 20,000-30,000 responses from year 10 children from across New Zealand. *'The 2018 ASH Year 10 Snapshot'* found that **less than two per cent of year 10 students reported daily use of an electronic cigarette**, while less than one per cent of respondents who never smoked also reported daily electronic cigarette use. This survey provides further confirmation that **regular use of electronic cigarettes among youth is still low** and largely confined to those who are already smokers[40].

A group of researchers from leading British universities found that regular vaping among youths occurred only among those who also smoke tobacco. For never smoking young people, there was no evidence that they regularly use e-cigarettes. Their research, 'E-Cigarette Uptake Amongst UK Youth: Experimentation, but Little or No Regular Use in Nonsmokers'[41], examined then-available peer-reviewed journal articles on youth vaping and concluded that the majority do not differentiate experimentation from regular use. It is crucial to consider different patterns of consumption, according to the researchers, because the data then suggested that trying vaping did not progress to habitual use.

In their 2017 report, *'Adolescents and E-Cigarettes: Objects of Concern May Appear Larger than They Are'*[42], Lynn T. Kozlowski and Kenneth E. Warner examined the relative merits of leading studies that examined whether electronic cigarettes pose significant threats to youth health and well-being. The authors concluded that the risks of electronic cigarette use on youth fell far short of what opponents feared. It found that teen uptake of vaping

39 Delnevo C, Giovenco D, Steinberg M et al. Patterns of Electronic Cigarette Use Among Adults in the United States. *Nicotine & Tobacco Research*. 2015;18(5):715 719. doi:10.1093/ntr/ntv237

40 Action for Smokefree 2025.2018 *ASH Year 10 Snapshot*. 2019

41 Bauld L, MacKintosh AM, Ford A, McNeill A. E Cigarette Uptake Amongst UK Youth: Experimentation, but Little or No Regular Use in Nonsmokers. *Nicotine Tob Res*. 2016; 18(1): 102 103. doi:10.1093/ntr/ntv132

42 Kozlowski L, Warner K. Adolescents and e cigarettes: Objects of concern may appear larger than they are. *Drug and Alcohol Dependence*. 2017;174:209 214. doi:10.1016/j.drugalcdep.2017.01.001

product had not been accompanied by an increase in teen smoking rates. They also discovered that multiple studies document a fall in the rate of teen smoking as youth vaping increased. As a result, the authors concluded that electronic cigarettes may create a net benefit for some high-risk young people.

Following the 2018 *National Academies of Sciences, Engineering and Medicine Report*, which concluded that electronic cigarette use by youth is associated with an increased risk in using conventional cigarettes, researchers decided to examine vaping and youth smoking using multiple data sets. Exploring whether vaping promoted smoking initiation in the United States, *'Examining the relationship of vaping to smoking initiation among US youth and young adults: a reality check'*[43] found that while there was a substantial increase in youth vaping beginning in 2014, the analysis of time trends showed that 'past 30-day smoking' rates declined by two to four times after 2014. This led the researchers to conclude that while trying electronic cigarettes may causally increase smoking prevalence among some youth, **the aggregate effect at the population level appears to be negligible**.

43 Levy D, Warner K, Cummings K et al. Examining the relationship of vaping to smoking initiation among US youth and young adults: a reality check. *Tobacco Control*. 2018: tobaccocontrol 2018 054446. doi:10.1136/tobaccocontrol 2018 054446

Cigarette use pre-vaping and with vaping

Data source: Examining the relationship of vaping to smoking initiation among US youth and young adults: a reality check. ***Tobacco Control***. 2018

Positioning papers

Many health organisations across the world have endorsed vaping as a less harmful product when compared to conventional cigarettes, or as a useful quit tool. These groups include the British Medical Association (BMA) and the Royal Australian & New Zealand College of Psychiatrists (RANZCP).

The Royal Australian & New Zealand College of Psychiatrists (RANZCP) came out in support of the legalisation and regulation of nicotine-containing electronic cigarettes in its position statement, *'E-Cigarettes and Vaporisers'*,[44] released in October 2018. Given the disproportionally high smoking prevalence and low quit rates among people with mental illnesses, the College stated that smokers should have access to tools for harm reduction and smoking cessation. The RANZCP asserted that **electronic cigarettes are a less harmful way to deliver nicotine for those who are unwilling or unable to quit smoking. The paper concluded by calling for electronic cigarettes to be regulated as a consumer product and for lower rates of tax on electronic cigarettes to ensure their affordability**.

In *'Drug and Alcohol Nurses of Australasia Position Statement #3: Electronic Cigarettes for Tobacco Harm Reduction'*[45], Drug and Alcohol Nurses of Australasia (DANA) came out in support of using electronic cigarettes to assist in smoking cessation. It stated that electronic cigarettes are much safer alternatives for smokers who are unable to quit through conventional methods. Although recognising that electronic cigarettes are not risk-free, DANA affirmed that **burning tobacco is what harms the body, so switching to vaping would have significant health benefits**. It concluded that nurses should explain to their patients that electronic cigarettes deliver nicotine in a far less harmful way than conventional cigarettes do and can help people quit smoking.

Published by the leading progressive think tank the *McKell Institute*, *'Legalising Vaping in Australia'* considered the debate surrounding the legalisation of smoke-free products in Australia. The authors argue that **greater access to vaping for smokers is likely to lead to a substantial public health benefit and that the government's first step to reducing tobacco harm should be to legalise nicotine liquid**. The authors also argue that smoke-free products with nicotine should be classified as a general consumer product, so they can be managed effectively under existing consumer laws that regulate quality, safety, advertising, display, sales to minors and restrictions on use. Sensible risk proportionate regulation should also be placed on the products, including discouraging use by minors and non-smokers. The paper concludes that **vaping has the potential to speed up the demise of smoking** and the massive health, social and financial costs borne by the Australian community. This is a huge public health opportunity which should not be delayed[46].

'Vaping: The argument for relaxing Australian laws', by the Cancer Council Victoria's Steve Woodward and the University of Sydney's Bruce Armstrong,

44 The Royal Australian & New Zealand College of Psychiatrists. *E Cigarettes And Vaporisers.*; 2018

45 Drug and Alcohol Nurses of Australasia Incorporated. *Drug And Alcohol Nurses Of Australasia Position Statement #3: Electronic Cigarettes For Tobacco Harm Reduction.*; 2017

46 Mendelsohn C, Wodak A. *Legalising Vaping In Australia.* Sydney: The Mckell Institute; 2019

reviewed the role electronic cigarettes can play in harm reduction for current conventional cigarette smokers. Their study found that **if the prohibitions on vaping in Australia were lifted, and the same proportion of cigarette smokers switched to vaping as in the UK, then tens of thousands of Australian ex-cigarette smokers would potentially live healthier lives** and avoid premature death from diseases due to tobacco smoking. Furthermore, the researchers found that there could be other community benefits associated with quitting smoking such as reduced hospital costs and reduced absenteeism in employment and volunteer environments. This led the researchers to conclude that **Australia's vaping laws should be reviewed due to the substantial harm reduction benefits for smokers if Australia were to take a more permissive approach to vaping**[47].

The British Medical Association (BMA) Board of Science published a position paper on electronic cigarette regulation in 2018. '*E-cigarettes: Balancing risks and opportunities*'[48] lays out policy recommendations that aim to regulate electronic cigarettes to help smokers access these reduced harm products. One key message is that evidence for the effectiveness of electronic cigarettes as a smoking cessation tool is mounting. Given this fact, the paper recommends that health professionals be trained to advise on the safety and efficacy of electronic cigarettes as a quit smoking tool. Referring to data on smoking rates and use of electronic cigarettes in the UK, **the British Medical Association rejects the claim that electronic cigarettes are re-normalising smoking**. It also found that there is currently a lack of evidence that suggests electronic cigarette vapour poses a risk to bystanders. The paper concludes that a regulatory framework for electronic cigarettes would maximise the potential for harm reduction and minimise any risks for young people.

National Health Service (NHS) Scotland declared in its '*Consensus Statement on E-Cigarettes*'[49] that current evidence shows **vaping is not risk-free but is definitely less harmful than smoking tobacco**. Therefore, NHS Scotland concluded that it is ideal for smokers to switch to using electronic cigarettes instead of conventional cigarettes.

47 Woodward S, Bruce A. Vaping: the argument for relaxing Australian laws. *InsightPlus*. MJA. 2018

48 British Medical Association. *E Cigarettes: Balancing Risks And Opportunities*.; 2018

49 National Health Service Scotland. *Consensus Statement On E Cigarettes*.; 2017

From a public health perspective it is important to promote the use of electronic cigarettes, NRT and other non tobacco nicotine products as widely as possible as a substitute for smoking in the UK.

Evidence reviews

Not only have nicotine vaping products been found to be less harmful and an effective quit smoking tool in each of these papers, upon rigorous peer-review the conclusion remains the same: electronic cigarettes provide a harm minimisation option for policymakers.

According to the Royal College of Physicians (RCP), electronic cigarettes appear to be an effective aid in quitting smoking. In their position paper, *'Nicotine without smoke: Tobacco harm reduction,'*[50] the college argues that while electronic cigarettes are probably more harmful than traditional Nicotine-Replacement Therapy (NRT), they are **unlikely to exceed 5 per cent of the harm from cigarettes**. They point to the available evidence which almost exclusively suggests they are safer than conventional cigarettes and are being used by smokers to reduce harm to themselves. According to the Royal College of Physicians, from a public health perspective it is "**important to promote the use of electronic cigarettes, NRT and other non-tobacco nicotine products as widely as possible as a substitute for smoking in the UK**."

'Evidence review of e-cigarettes and heated tobacco products 2018'[51] and *'Vaping in England: an evidence update February 2019 A report commissioned by Public Health England'*[52] are leading reports by Public Health England into vaping as a harm reduction tool. The reports argue that those smokers who have tried conventional quit methods (i.e. patches, gum, or going 'cold turkey'), and those who do not want to quit, can be encouraged to try electronic cigarettes to quit and to reduce harm. They found that if electronic cigarettes are used as intended, there is no risk of nicotine poisoning, and **the perception that electronic cigarettes are as harmful as cigarettes is a misconception**. According to the report, **electronic cigarette use may be up to 95 per cent less harmful than smoking conventional cigarettes**, and there is no evidence to suggest that electronic cigarettes have undermined the decline in smoking among youth. The updated 2019 report found that while youth experimentation had increased, regular use remains at 1.7 per cent for those under 18. By contrast, the report argues that 7 per cent of 15-year-olds in the UK are regular smokers.

Funded by the United States Food and Drug Administration, a report from the National Academies of Sciences, Engineering, and Medicine examined over 800 peer-reviewed scientific studies on the health impact of electronic cigarette use. According to *'Public Health Consequences of E-Cigarettes'*[53], evidence shows that electronic cigarettes do expose people to risks but are far less harmful than conventional cigarettes, as they contain fewer and lower levels of toxicants and carcinogens. It also concludes that there is **substantial evidence suggesting electronic cigarette use may help adult smokers to quit smoking**.

A research paper titled, *'Managing nicotine without smoke to save lives now: Evidence for harm minimization,'*[54] published in Preventive Medicine, compiles

50 Royal College of Physicians. *Nicotine Without Smoke: Tobacco Harm Reduction.*; 2016

51 McNeill A, Brose L, Calder R, Bauld L, Robso D. *Evidence Review Of E Cigarettes And Heated Tobacco Products 2018*. London: Public Health England; 2018

52 McNeill A, Brose L, Calder R, Bauld L, Robso D. Vaping In England: *An Evidence Update February 2019. A Report Commissioned By Public Health England*. London: Public Health England; 2019

53 Daynard R. Public health consequences of e cigarettes: a consensus study report of the National Academies of Sciences, Engineering, and Medicine. *J Public Health Policy*. 2018;39(3):379 381. doi:10.1057/s41271 018 0132 1

54 Abrams D, Glasser A, Villanti A, Pearson J, Rose S, Niaura R. Managing nicotine without smoke to save lives now: Evidence for harm minimization. *Prev Med*. 2018;117:88 97. doi:10.1016/j.ypmed.2018.06.010

the evidence supporting the use of electronic cigarettes to minimise harm. According to the study's findings, **products that do not burn tobacco are much less harmful than products that produce smoke**. Electronic cigarettes also help smokers quit because it is appealing and also satisfying enough to displace smoking. As such, researchers concluded that the harm minimisation effect of electronic cigarettes will mean that **if smokers switch to vaping, more than 6 million lives will be saved over ten years**.

Given the pace of change in electronic cigarettes and the tobacco market more broadly, the *American Journal of Preventive Medicine* published a paper to review the literature on electronic cigarettes in May 2016. '*Overview of Electronic Nicotine Delivery Systems: A Systematic Review*'[55] found that while use of electronic cigarettes was on the rise, namely among those who currently smoke, they were used to reduce smoking rates and help people quit.

To examine whether studies provided sufficient evidence to conclude that electronic cigarettes are effective in smoking reduction or cessation, researchers reviewed 91 studies and assessed them against six criteria: outcomes, cessation as a goal, appropriate control groups and dosage of electronic cigarette liquid. Publishing their findings in the article, '*How do we determine the impact of e-cigarettes on cigarette smoking cessation or reduction? Review and recommendations for answering the research question with scientific rigour*',[56] the authors found that only a small number of studies met the criteria to determine if electronic cigarettes were effective in smoking reduction or cessation. The paper did conclude, however, that while limited, the findings of the papers that did meet the six criteria were consistent with three randomised control trials. This suggested to the research team that **electronic cigarettes can help adults reduce smoking or quit altogether**.

Donald Kenkel, a Professor at Cornell University (United States) and an expert in areas of health economics and public sector economics, conducted a review of existing scientific studies and public health surveillance data to evaluate the impact of vaping on public health. '*Healthy innovation: Vaping, smoking, and public policy: Point / counterpoint*,'[57] published in *Journal of Policy Analysis and Management*, found that both the absolute risks and relative risks of vaping when compared to smoking were very low, according to existing evidence. Using public health data from the United States, he also found that vaping products were substitutes, rather than complements to smoking. This was also true for adolescents. Professor Donald Kenkel's paper concludes that the low risk of vaping and its use patterns suggest that **a policy supporting an emerging market of vaping products could yield substantial benefits for public health and social welfare**.

55 Glasser A, Collins L, Pearson J et al. Overview of Electronic Nicotine Delivery Systems: A Systematic Review. *Am J Prev Med*. 2017;52(2):e33 e66. doi:10.1016/j.amepre.2016.10.036

56 Villanti A, Feirman S, Niaura R et al. How do we determine the impact of e cigarettes on cigarette smoking cessation or reduction? Review and recommendations for answering the research question with scientific rigor. *Addiction*. 2017;113(3):391 404. doi:10.1111/add.14020

57 Kenkel D. Healthy innovation: Vaping, smoking, and public policy. *Journal of Policy Analysis and Management*. 2016;35(2):473 479. doi:10.1002/pam.21895

Regulation

The regulation of electronic cigarettes should be proportionate to their relative harm minimisation effect. Several researchers from across the Western world have considered the impact of how strict regulation can help to achieve overall cessation results.

Hannah Farrimond and Charles Abraham considered how smoking cessation staff perceive electronic cigarettes in their paper for the *Harm Reduction Journal*. *'Developing E-cigarette friendly smoking cessation services in England: staff perspectives'*[58] considered the uptake and usage of electronic cigarette guidance, from the viewpoint of those 'on the ground' undertaking tobacco cessation interventions. **Their investigation revealed that smoking cessation staff were working in the context of considerable change, with a renewed emphasis on targeting 'hard to reach' or 'disadvantaged' smokers**. Some stop smoking services have embraced electronic cigarettes and were actively engaging with the vaping community. Some cessation services were working with local vape shops, and in the case of one service, offering electronic cigarettes through a voucher scheme to disadvantaged groups. The paper found that although stop smoking services in the United Kingdom are currently in a state of austerity and change, **there are opportunities for active engagement with electronic cigarettes to achieve overall cessation goals**.

Many questions have been raised on how nicotine vaping products would be sold in Australia should they be legalised for domestic sale. With major questions surrounding the future of vape stores, it is important to consider the international experience before agreeing to a regulatory framework. *BMC Public Health* published an article which considered the products sold by vape shops in the United Kingdom, their marketing techniques and the extent to which they provide information or encouragement to smokers to quit conventional cigarette use. *'Vape shops: who uses them, and what do they do?'*[59] found that **84 per cent of customers were current users of electronic cigarettes. Only a small proportion of those were dual users, at 19 per cent, while the vast majority or 78 per cent had quit smoking conventional cigarettes altogether**. Most staff (90 per cent) reported that they had been asked to provide information on quitting smoking, however, less than half of them had provided such information. This is despite 76 per cent of staff reporting feeling confident in delivering cessation advice to customers who ask for it. The researchers concluded that vape shop staff play a central role in providing customers with product information, and that many provide smoking cessation advice.

Following the Canadian Government's commitment to a target of less than 5 per cent tobacco use by 2035, *Canadian Medical Association Journal* released *'Smokers' support for tobacco endgame measures in Canada: findings from the 2016 International Tobacco Control Smoking and Vaping Survey'*[60]. The survey aimed to assess the level of support for potential smoking cessation policies and electronic cigarette regulation among

58 Farrimond H, Abraham C. Developing E cigarette friendly smoking cessation services in England: staff perspectives. *Harm Reduct J*. 2018;15(1). doi:10.1186/s12954 018 0244 8

59 Pattinson J, Lewis S, Bains M, Britton J, Langley T. Vape shops: who uses them and what do they do?. *BMC Public Health*. 2018;18(1). doi:10.1186/ s12889 018 5467 9

60 Chung Hall J, Fong G, Driezen P, Craig L. Smokers' support for tobacco endgame measures in Canada: findings from the 2016 Internation al Tobacco Control Smoking and Vaping Survey. *CMAJ Open*. 2018;6(3):E412 E422. doi:10.9778/cmajo.20180025

Canadian smokers. The study reviewed data from 3,215 adult smokers. It found that among electronic cigarette policies, a **majority of people supported policies that restricted youth access (86.1 per cent)**, restricted the amount of nicotine content that could be in electronic cigarette liquid (64.9 per cent) and **prohibited the use of electronic cigarettes in smoke-free places (63.4 per cent)**. Respondents also **supported a ban on marketing and advertising of electronic cigarettes (54.8 per cent)**.

Professor David T. Sweanor J.D., member of the Centre for Health Law, Policy & Ethics at the University of Ottawa cautioned policymakers in '*Smoking, vaping and public health: Time to be creative*'[61], he warns that **opposition to vaping based on inaccurate and incomplete information, or fear of unlikely and avoidable hypothetical unintended consequences will invariably cause great harm to individuals**. He argues that if the mission of health care organisations is to improve the health of communities, the best way to pursue this is through efforts that facilitate a reduction in smoking. He argues that we should consider encouraging innovation within the electronic cigarette market so that **"the technology of tomorrow better meets the needs of those wishing to quit".**

'A critical analysis of Australia's ban on the sale of electronic nicotine delivery systems'[62], published in Neuroethics, critically reviewed the justification for Australia's policy on the sale of Electronic Nicotine Delivery Systems (ENDS) and explained how Australia's regulatory policy was implemented. The paper explored the justifications Australian governments have provided for their policy, arguing that: **these justifications are based on interpretations of weak evidence, a sales ban is an overprotective policy towards adult smokers, and a ban embodies an incoherent approach to managing health risks**. The paper concludes by suggesting policies such as: restricting what products can be sold and where, limiting the sales to licensed tobacconists or vape shops, and applying the same advertising bans as tobacco products. The paper suggests that these **regulations would address reasonable concerns about the potential adverse public health impacts of electronic nicotine delivery systems while allowing for their sale to adult smokers under tight regulations**.

'Harm Minimization and Tobacco Control: Reframing Societal Views of Nicotine Use to Rapidly Save Lives'[63] reviewed alternative nicotine delivery systems and concluded that **taking a harm minimisation approach with these products can help smokers quit and save more lives than would otherwise be possible**. It concludes that with proportionate harm regulation, electronic cigarettes and Swedish snus would have the potential to disrupt the smoking-related pandemic and lead to further innovations that may improve public health. The risk of alternative nicotine delivery systems leading to youth up-take in smoking is marginal compared to the overall benefits of switching both youth and adults to safer less harmful products.

61 Sweanor D. Smoking, vaping and public health: Time to be creative. *Canadian Journal of Public Health*. 2015;106(8): e464 e466. doi:10.17269/cjph.106.5389

62 Hall W, Morphett K, Gartner C. A critical analysis of Australia's ban on the sale of electronic nicotine delivery systems. *Neuroethics*. 2019. doi:10.1007/s12152 019 09402 x

63 Abrams D, Glasser A, Pearson J, Villanti A, Collins L, Niaura R. Harm Minimization and Tobacco Control: Reframing Societal Views of Nicotine Use to Rapidly Save Lives. *Annu Rev Public Health*. 2018;39(1): 193 213. doi:10.1146/annurev publhealth 040617 013849

Conclusion

The legalisation of vaping would provide the opportunity for millions of Australians who are struggling with their smoking addiction to quit for good. The evidence outlined in this review strongly indicates that not only is vaping less harmful to the individual than conventional cigarettes, but it is also an effective quit smoking tool.

This report looked at 12 papers that found that electronic cigarettes had a less harmful toxicology and did less damage to the smoker's body than conventional cigarettes. While a further six studies considered the harm reduction effect at a population level. These finding suggest that when considered against conventional cigarettes, electronic cigarettes are far less harmful.

Not only are these products less harmful than conventional cigarettes, but they are also an effective tool to assist smokers in quitting. This report looked at 16 studies that considered the entire spectrum of what smokers face when quitting cigarettes and how vaping products could assist in the process – from reducing cravings and increasing quit attempts, to simplifying the quitting process and supporting ex-smokers to remain smoke-free. Several papers also found that electronic cigarettes are a more effective way of quitting smoking than over-the-counter Nicotine-Replacement Therapies such as patches and gum.

The legalisation of these smoke-free products would provide not only a significant benefit to the health of Australian smokers and their families, but also to bystanders and the entire community. Proper regulation and education of the public on the health benefits of smoke-free products to smokers, while also warning against the obvious risks to non-smokers, would help prompt the Government to legalise these products, without abandoning the strong reputation Australia has when it comes to smoking regulations.

The significant amount of evidence contained in this review highlights that the time for studies and reviews is over. The Australian Government must act to save the lives of the 2.6 million Australian smokers who have tried everything and still cannot quit.

In 1997, Australia was leading the way on the back of innovation and world firsts, but now it is trailing behind. The time has come for Australia to regulate the sale of smoke-free products to catch up to the rest of the developed world.

Authors

Brian Marlow

Brian Marlow is the Campaign Director of Legalise Vaping Australia.

Brian comes from a family of smokers and knows how hard it can be to quit. He is passionate about offering Australia's 2.6 million smokers a less harmful alternative and has seen benefits smoke-free products have had on the health of his friends and family.

Brian spends most of his time on the road educating the community and policy makers on the benefits of vaping in an aim to have it legalised in Australia.

Brian has been interviewed by major national news sources in Australia including the SBS, the ABC, The Daily Telegraph and various state-based media outlets including 2GB in Sydney, 6PR in Perth, 2CC in Canberra and the NBN and WIN regional networks.

Dr. Joe Kosterich

Dr Joe Kosterich writes for numerous medical and mainstream publications and is also a regular on radio and television. He is often called to give opinions in medico legal cases and he is also an adjunct professor (teaching) at University of Western Australia. He is on the editorial advisory panel of Medical Forum Magazine and Reed Medical Conferences. He is also a supporting clinical editor of Medical Forum Magazine and an advisor to Reed Medical Conferences, and sits on the board of Australian Tobacco Harm Reduction Association.

Previously, Dr Kosterich held senior positions in medical associations and sat on numerous industry and government boards. He has extensive corporate experience in the setting up and management of medical centres and in helping businesses maintain a healthy workforce.

Through all this he continues to see patients as a General Practitioner each week.

Glossary

Buccal Cell samples	A test to collect DNA samples from inside a person's cheek.
Carbonyl	A commonly found group of elements (which must include carbon and oxygen sharing a double bond) which typically is part of a much larger group of elements. It can also refer to carbon monoxide.
Carcinogen	A cancer-causing substance.
Controlled Lung Function Testing	Refers to a range of different tests to determine the health of someone's lungs. The simplest is spirometry, which determines how much air a person's lungs can hold and how well they can empty their lungs of air.
Cotinine	The primary metabolite of nicotine.
Disease-specific mortality	All the deaths which occur as a result of a specific disease.
Dual user	Someone who uses both electronic cigarettes and conventional cigarettes.
Electonic cigarette	A battery-powered device which heats e-liquid (a solution typically — but not necessarily — containing nicotine) into an aerosol to inhale. They are often referred to as e-cigarettes, electronic nicotine delivery systems, vapes, or vaporisers.
Exhaled carbon monoxide (eCO)	The concentration of carbon monoxide exhaled in a lung function test.
Glycols	Preservatives added to tobacco to make it more pliable, increase the shelf life, and make the smoke taste smoother.
Longitudinal study	Research in which the same variables (i.e. smoking status) are observed over a period of time (weeks, months, years, etc). Also referred to as a panel study or a longitudinal survey.
Metabolite	A substance formed in metabolism.
Nicotine Replacement Therapies (NRT)	Therapies which satiates a smokers' craving for nicotine, without smoking or vaping. These can be in the form of patches, gum, spray, or medicines (i.e. Champix).
Nicotine	A naturally occurring and highly addictive stimulant which drives the craving to smoke.

N-nitrosamines (TSNAs)	Typically carcinogenic chemical compounds. They are commonly found in some cosmetics, pesticides and most rubber products.
PAHs	Organic compounds which consist only of carbon and hydrogen and are released in the burning of tobacco, wood, oil, coal and garbage. They are often found in deposits of coal and tar.
Randomised control trial	An experiment designed to reduce bias as much as possible in testing a new treatment. Participants are randomly allocated into groups. One group is given a treatment and the other a placebo with the differences in outcomes observed and measured to determine the effect of the treatment.
Smoke-free products (SFPs)	Broadly, all electronic cigarettes are smoke-free products, but it may also refer to products that heat tobacco (rather than a liquid) to produce an aerosol to be inhaled. Can also be referred to as smokeless tobacco.
Smoking cessation (or complete smoking cessation)	Refers to quitting — or ceasing — smoking.
Smoking	Consumption of burned tobacco products (i.e. cigarettes, cigars, or cigarillos).
Statistical Model	A mathematic model to help understanding behaviour or to explain the effects of changes in components of the model (i.e. e-cigarette use), based on underlying statistical assumptions about the origins of sample data. May also be referred to as modelling, models or statically modelled.
Threshold Limit Values	The amount of a substance a person may have repeat exposure to without any adverse effects.
Tobacco Harm Reduction	Public health strategies to reduce the harm caused by tobacco. This usually exists in the form of things like smoking bans, excise on cigarettes, plain packaging, public awareness campaigns, etc. May also be referred to as harm minimisation.
Toxicant	A toxic substance which is not naturally occurring in an environment and is introduced.
Volatile organic compounds (VOCs)	Organic compounds (i.e. a chemical compound which contains carbon) which are vapour at room temperature.

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The evidence outlined in this review strongly indicates not only is vaping less harmful to the individual than conventional cigarettes, but it is also an effective quit smoking tool.

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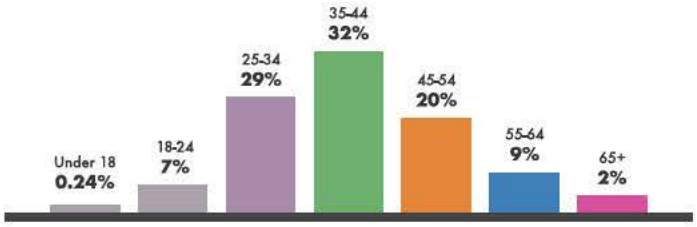
VAPE USER SURVEY

Survey of **3,300 Australian vapers** conducted between 16-23 September

How old are Australian Vapers?

MORE THAN 92%
OF AUSTRALIAN VAPERS ARE AGED OVER 25 YEARS OF AGE



Are Australian vapers worried about the safety of vape products in light of vaping related illnesses in the United States?

58%
of Australian vapers would feel safer buying Australian products that are regulated with appropriate standards

A further **39%** of respondents still feel safe buying regulated products from overseas as well as Australian products

Should vape liquid ingredients be listed?

MORE THAN 93% of Australian vapers want the ingredients contained in all vape products to be listed

Should vape equipment meet certain minimum safety standards?

87%

of Australian vapers want vaping equipment to meet the **same standards** as other electronics sold in Australia.

If nicotine vaping products were legal and regulated in Australia, would you prefer to purchase products online or in person?

- **37%** IN PERSON
- **17%** ONLINE
- **45%** NO PREFERENCE
- **1%** UNSURE

How often do Australian vapers vape?

- **89%** Vape daily
- **6%** No longer vape
- **2%** Vape at least once a week
- **2%** Only vape once a week

Has vaping helped Australian smokers quit smoking?

86%
of vapers reported that they have quit smoking completely and now only vape

9%
of vapers are still dual users of vaping and conventional cigarettes

2%
have quit smoking and vaping altogether

ONLY 2%
of respondents were never smokers but now vape

Where do Australian vapers source their nicotine liquid?

81% of vapers order their nicotine online from overseas

>1% import their nicotine using a script from their doctor

15% reported purchasing their nicotine from "other" sources

How many vapers are former smokers?

93% of respondents were former smokers

Among former smokers who now vape:

75% tried but failed to quit smoking using nicotine gum

57% tried but failed to quit smoking using champix

76% tried but failed to quit smoking using nicotine patches

84% tried but failed to quit smoking using the cold turkey method

Only 11% of former smokers tried but failed to quit smoking using vaping

How long have vapers now been SMOKE FREE?

- **14%** Less than **100 days**
- **42%** Over **a year**
- **24%** Over **3 years**
- **15%** Over **5 years**
- **4%** I **still smoke**

How long had Australian smokers been smoking before vaping helped them to quit permanently?

- **75%** of vapers had smoked for **LONGER THAN 10 YEARS**
- **13%** of vapers had smoked between **5 AND 10 YEARS**
- **8%** of vapers had smoked for **LESS THAN 5 YEARS**

How many other methods had Australian vapers tried before turning to vaping?

- **48%** 4 METHODS
- **25%** 3 METHODS
- **13%** 2 METHODS
- **10%** 1 METHOD

In Response To Warnings From Australian Cancer Groups About The Safety Of Vaping Products, And Specifically That "THIS STUFF COULD BE MADE IN PEOPLE'S BATH TUBS IN BACKYARDS"

88% of Australian vapers believe governments should legalise and regulate vaping products according to appropriate standards and to ensure the safety of liquids and devices

10% of vapers remain unconcerned

2% believe vaping is dangerous and may return to smoking conventional cigarettes

VAPE USER SURVEY

Survey of **3,300 Australian vapers** conducted between 16-23 September

How old are Australian Vapers?

MORE THAN 92%
OF AUSTRALIAN VAPERS ARE AGED OVER 25 YEARS OF AGE

ONLY 7% of Australian vapers are between **18-24**

LESS THAN 0.25% of Australian vapers are under18

Among former smokers who now vape:

- **75%** tried but failed to quit smoking using nicotine gum
- **76%** tried but failed to quit smoking using nicotine patches
- **57%** tried but failed to quit smoking using champix
- **84%** tried but failed to quit smoking using the cold turkey method

86% have quit smoking altogether

75% of Australian vapers had smoked for **LONGER THAN 10 YEARS** before they turned to vaping

How many other methods had Australian vapers tried before turning to vaping?

- **48%** 4 METHODS
- **25%** 3 METHODS
- **13%** 2 METHODS
- **10%** 1 METHOD

58% of Australian vapers would feel safer buying Australian products that are regulated with appropriate standards

A further **39%** of respondents still feel safe buying regulated products from overseas as well as Australian products

Should vape equipment meet certain minimum safety standards?

87% of Australian vapers want vaping equipment to meet the **same standards** as other electronics sold in Australia.

Should vape liquid ingredients be listed?

MORE THAN 93% of Australian vapers want the ingredients contained in all vape products to be listed