

E-cigarettes—peering into the mist of uncertainty

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Nothing creates greater debate in medicine than a lack of hard evidence. Lack of evidence creates a void that is filled with personal opinion and conviction, often swathed in emotion and rhetoric. At the moment, the role of e-cigarettes in providing a healthier future for New Zealanders is one such good example, and it is into this void that, in this edition of the *Journal*, Dr Truman and colleagues tread.¹

Dr Truman and colleagues must be congratulated on their feasibility study exploring the acceptance of e-cigarettes in a population with multiple long-term addictions by comparing e-cigarettes to standard nicotine replacement therapy during their inpatient stay. A group of drug- and alcohol-dependent patients is notoriously hard to study, and it would certainly be challenging to run this study within the constraints of an inpatient setting for medically supported alcohol withdrawal. The main finding of the study was one of patient perception; both treatment groups were positive about the endeavours of health professionals in supporting them to stop smoking, but comments from the group using the e-cigarettes were more positive.

The finding of higher participant satisfaction with e-cigarettes should not surprise us. Most forms of nicotine replacement therapy provide a slow peak background level of nicotine. In contrast, the vapour from e-cigarettes, much like the smoke of combustible cigarettes, is designed to allow rapid absorption and peak levels of nicotine in the CNS, thereby providing positive feedback to the user. Depending on the reader's bias, this rapid nicotine hit may be seen as something to assist smokers to stop smoking or at least reduce combustible smoking and so to hopefully reduce harm. Alternatively, the pleasure created by the rapid nicotine hit can be seen as a concern if the e-cigarettes were to be used by non-smokers; it is likely to be habit forming

and with a strong addictive potential, exposing these people to greater harm.

The study also found that the impression of the nursing staff was that patients using e-cigarettes were easier to manage on the ward, even though nurses encountered some new technical issues with charging batteries and supply of e-cigarette fluid. The ease of patient management is obviously of importance, particularly in this difficult patient group. However, it needs to be balanced with the knowledge that e-cigarettes do create increased concentrations of particulate matter, and that the resultant effects of second-hand exposure is still uncertain. Although this is likely to not be as bad as combustible smoking, it should be remembered that the association of second-hand smoke on health outcomes was not seen until many years after smoking was initially implicated in disease. This finding raises a new plethora of debate as to the safety of second-hand e-cigarette exposure on healthcare workers and other patients if patients were to use them indoors. Where should they do it and what precautions should be in place? How would you do it to minimise risk? How can it be done in a way to ensure that smoking does not become 'normalised' again?

Our challenge to all health professionals

Dr Truman and colleagues make a constructive and positive contribution to the debate of e-cigarettes as part of smoking cessation. The e-cigarette debate has the recipe for a perfect public health storm. Evidence is weak or lacking, opinions are strong and the financial stakes are high—the e-cigarette market is currently valued at US\$ 10 billion, and estimated to increase to US\$ 34 billion by 2021. Most distressing is the discord among scientists, public health physicians, physicians and smoke-free advocates. This is out of the playbook of the unhealthy commodity industries, alcohol,

fast food, smoking, gambling and sugar beverages.² And, while none of us will have all the facts, all of us probably need to build an opinion on e-cigarettes. Our opinions may still be biased; however, they should be better informed than the local store owner currently selling the attractive e-cigarette flavours.

Fortunately for us, the most comprehensive, balanced, authoritative and independent review of evidence has just been published in January 2018 by the National Academic of Sciences, Health and Medicine Division: “*Public Health Consequences of e-cigarettes*”.³ We strongly encourage the interested reader to explore this document. The take-home message of the review is that overall e-cigarettes are likely to cause less harm than combustible tobacco smoke, but a lot more work needs to be done in the field. The report states that there is conclusive evidence that substituting e-cigarettes for combustible smoke reduces users’ exposure to numerous toxins and carcinogens present in combustible tobacco smoke. However, the report also highlights that e-cigarettes are not without their harmful effects on the airways, and the consequences of these on long-term respiratory disease are simply unknown. In terms of smoking cessation, it reports that there is limited evidence that e-cigarettes may be effective aids in smoking cessation, but there is also worrying substantial evidence that e-cigarette use increases risk of ever-using combustible tobacco cigarettes among youth and young adults—potentially to a more intense degree.

Every country in the world is currently struggling to apply existing regulations to e-cigarettes or write new regulations. On one hand, Singapore has imposed a complete ban because the Health Ministry considers them gateway products that

get users addicted to nicotine, which then leads to cigarette use.⁴ This is similar to the current state of play in our neighbour, Australia. On the other hand, the regulations in the US and UK are generally more liberal, because e-cigarettes are seen to be assisting smokers to stop smoking tobacco or at least reduce harm.

Here in New Zealand we are observing a rapidly changing e-cigarette landscape. The Ministry of Health website published a position statement in October 2017 believing that e-cigarettes have the potential to contribute to the Smokefree 2025 goal,⁵ but to achieve this they need to find their way into the hands of current smokers. We are disturbed how the argument “e-cigarettes will probably assist smokers to become smoke free”, metamorphoses to the marketing of e-cigarettes to the whole population in a range of different flavours like Old Fashioned Apple Pie, Smurf Berries, Strawberry Kream or Vanilla Custard.⁶ It is anticipated that nicotine containing e-cigarettes will become available for sale in New Zealand during 2018. The Ministry of Health position statement states that they should come with safety standards, have R18 sale restrictions, have limited commercial advertising and will be prohibited in the workplace or areas where smoking is not permitted under the Smokefree Environments Act. The position statement is a good start; however, this needs to be put into operation. For this to be meaningful we need an ongoing debate on how to find the optimal balance to enable smokers to stop smoking or switch to potentially less harmful nicotine products, while at the same time protecting our young and non-smoking New Zealanders from taking up e-cigarettes with the misconception that it is safe.

Please take up our challenge to become informed and to become involved.

Competing interests:

Nil.

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REFERENCES:

1. Truman P, Gilmour M, Robinson G. Acceptability of electronic cigarettes as an option to replace tobacco smoking for alcoholics admitted to hospital for detoxification. *NZMJ* 2018; 131(1470):22–28.
2. Petticrew M, Katikireddi SV, Knai C, et al. ‘Nothing can be done until everything is done’: the use of complexity arguments by food, beverage, alcohol and gambling industries. *J Epidemiol Community Health* Published Online First: 04 October 2017. doi: 10.1136/jech-2017-209710
3. The National Academies of Sciences, Engineering, Medicine. Public Health Consequences of E-cigarettes. <http://nationalacademies.org/hmd/Reports/2018/public-health-consequences-of-e-cigarettes.aspx> Accessed on the 20 Feb 2018.
4. Primack BA, Shensa A, Sidani JE, Hoffman BL, Soneji S, Sargent JD, Hoffman RM, Fine MJ. Initiation of Traditional Cigarette Smoking after Electronic Cigarette Use Among Tobacco-Naïve US Young Adults. *Am J Med.* 2017 Dec 11. pii: S0002-9343(17)31185-3. doi: 10.1016/j.amjmed.2017.11.005
5. Ministry of Health position statement – E-cigarettes Vaping (e-cigarettes) <http://www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control/e-cigarettes> Accessed on the 20 Feb 2018.
6. Vaporized New Zealand. <http://www.vaporized.co.nz/vaporized/e-juices> Accessed on the 20 Feb 2018.