**DECLARATION:** Aotearoa Vapers Community Advocacy aka AVCA has NO financial interest or vested commercial interest in the tobacco industry nor in the electronic cigarette manufacturing/import/distribution industry. We are solely a grassroots community organisation that is an umbrella charitable trust board to represent the interests and concerns of users of electronic cigarettes and personal vaporisers that utilise legally produced and imported e-liquid in New Zealand. Our mission statement is: Educate, Advocate, Inform, (within the whole) Community.

**INTRODUCTION:** This submission addresses the proposal to exempt nicotine from the Australian Poisons Schedule 7 at concentrations of 3.6 per cent or less of nicotine for self-administration with an electronic nicotine delivery system (ENDS, personal vapouriser or electronic cigarette.

The main emphasis is how there may be reduction from harm from tobacco smoking through the use of nicotine containing e-cigarettes (ENDS). It appears to AVCA, that there are three main issues that need to be discussed and clarified with regards to the concerns held by public health and governmental officials with regards to nicotine being utilised for self administration with ENDS. This document, which is very similar to one that we have submitted to the Minister of Health here in New Zealand, , we believe it would be **best practice to address this issue with the five criteria** that were outlined in that document: **Harm Reduction, Harm Prevention, Proportionality, Cost of Implementation and Ease of Implementation**.

From perusal of the policy document and a discussions within the global vaping community, the “big three” concerns are the toxicity of nicotine, the effect of the use of ENDS on youth smoking and exposure – aka “The Gateway Effect” and the effects of ENDS on others. These issues are addressed below, with a background section on the background of research into ENDS, and how research can be affected by the location where it happens, the source of research funding and the influences and perceptions of the particular institutions where research is carried out.

**BACKGROUND:** It is of paramount importance to keep the concept of “good science” in mind when deciding which studies are best for evidence to address the concerns that are presented in the policy that surrounds nicotine e-liquid and nicotine containing ENDS. Research on ENDS that comes from the United States and the EU, especially from the former - needs to be approached cautiously for its veracity and its ethical underpinnings due to the possibility of it being unduly influenced by commercial interests and profits – the protection thereof, as well as professional investment (scientists, some not all) and government revenue (protection of same) are the driving force behind much of the “science” as it relates to ENDS. There are quite a few researchers in both the United States (Michael Siegel, PhD from Boston University) and the EU (Konstantinos Farsolinos, MD and his team at the Onassis Research institute in Athens) that not only conduct their own research, but review the research from around the world for its validity based on scientific method, ethical standards and process of funding.

**DISCUSSION:**

***Nicotine – carcinogenicity, toxicity and harms:*** *Nicotine is a widely used addictive substance, which has a psychoactive effect and can be lethal in large quantities. On the other hand, the long-term use of small quantities of nicotine in approved nicotine replacement therapy (NRT) products (such as gum, patches or lozenges) is considered to be safe.*

Nicotine is no more addictive than that of the caffeine contained in coffee and tea. (7). Although nicotine is the main psychoactive agent in tobacco, it has relatively minor health effects - It is not a carcinogen, does not cause respiratory disease and has only minor cardiovascular effects. (3) Also, the nicotine used in ENDS, while it may contain small amounts of other chemicals including volatile organic compounds, carbonyls, aldehydes, tobacco-specific nitrosamines (TSNAs) and metal particles, research indicates that they are present at much lower levels than in cigarette smoke. (4) In normal conditions of use, toxin levels in inhaled ENDS aerosol are below prescribed threshold limit values for occupational exposure, in which case significant long-term harm is unlikely. (5)

Lethal overdose of nicotine is rare as nicotine itself is an emetic and any ingestion of liquid nicotine diluent, such as that used for ENDS would result in vomiting. (7,8,9). This also coincides with the issues the ministry holds regarding “dual use” of ENDS with combustible tobacco, that it may cause harm does not take into account the concept of “reduced harm” There is no evidence of increased nicotine intake from dual use. Smokers regulate their smoking behaviour in order to maintain the blood concentrations of nicotine within a comfortable range. If those levels get too high, symptoms of nicotine toxicity – such as nausea, headache and dizziness can occur and smoking is then reduced. A recent study found that smokers using ENDS maintain their intake of nicotine, but reduce their smoke and toxin intake, which results in an overall health benefit, therefore reducing harm through reducing exposure to the toxicants in combustible tobacco (10). It is extremely difficult for someone to have a fatal overdose of nicotine through either ENDS use or through ingesting nicotine containing e-liquid due to nicotine’s inherent emetic qualities.

***Promotion to young people:*** *Overseas evidence shows that promotion of e-cigarettes targeting young people through flavours, packaging may appeal to young people.*

The main issue with youth is harm reduction. One cannot, in an unequivocal manner state that they can prevent youth from uptake or experimentation with any harmful substance of behaviour with 100% guarantee. “Common Liability”, as discussed by Bell and Keane1, as it relates to the “gateway theory” defines this as the association between youth who are more risk takers and attracted to experimentation and more likely to try anything that seems to be “taboo” be it ENDS, alcohol, drugs, etc. (11).

With regards to the uptake of “vaping” in previously non-smoking youth, the available evidence does not support the “gateway hypothesis” that ENDS encourages nicotine addiction or uptake by youth. In the UK, daily ENDS use in youth is almost exclusively confined to those who already use combustible tobacco daily and regularly. Less than .2% of youth who have never smoked combustible tobacco have taken up vaping and there is no evidence of progression to smoking in this cohort. (12,13)

Keeping this in mind, as far as harm reduction and youth: nicotine dependence in youth develops rapidly and over 50% of those youth who smoke daily are already nicotine dependent. Young people who are already smoking can reduce their harm by switching to ENDS by 95%, as was shown in the Public Health UK Report.

***Impact of vaping on others:***  *“vaping clouds may be a nuisance to others, especially in enclosed spaces” and “could have negative health impacts.”*

With regards to second hand exposure concerns, the ministry needs to look again at the Public Health UK report that they referenced in their policy document. Contained therein is a review that passive exposure to vapour have generally concluded that the risk to bystanders is very small and that Public Health England found that “ENDS release negligible levels of nicotine into ambient air with no health risks to bystanders.”(14,15)­

As far as the argument that “vaping clouds could be a nuisance to others especially in enclosed spaces”, unless the government also wishes to regulate the use of body sprays, perfumes, and deodorants which are also a nuisance – and can be a health hazard to those who have respiratory difficulties and disease (unlike second hand vapour which has NO health harms associated with it (15,16) therefore this argument is not valid.

**CONCLUSION:**

When looking at the research and information on ENDS from a Public Health perspective, one needs to weigh the same five criteria that we mentioned in our introduction: Harm Prevention, Harm Reduction, Proportionality, Ease of Implementation and Cost Effectiveness. It is in the spirit of this point of view that we at AVCA have addressed the foregoing and will be utilising in our submission on Nicotine E Liquid and ENDS products here in New Zealand as well as this submission to the Australian government for consideration.

Thank you for the opportunity to provide you with this information and should you require more in depth information or explanation, please do not hesitate to contact us as we wish to work with the Ministry on this process.

If there are any questions or concerns, please do not hesitate to contact me directly at [nsutthoff@avca.org.nz](mailto:nsutthoff@avca.org.nz), telephone 0272348463 or correspondence to 90 Church Street, Masterton 5810 New Zealand.

17 August 2016

**REFERENCES:**

1. Bell K, Keane H. All gates lead to smoking: the 'gateway theory', e-cigarettes and the remaking of nicotine. Soc Sci Med. 2014;119:45-52.
2. Zwar N, Bell J, Peters M, Christie M, Mendelsohn C. Nicotine and nicotine replacement therapy – the facts. Australian Pharmacist. 2006;25(12):969-73
3. Goniewicz ML, Knysak J, Gawron M et al. Levels of selected carcinogens and toxicants in vapour from electronic cigarettes. Tob Control. 2014;23(2):133-9
4. 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):18
5. Mayer B. How much nicotine kills a human? Tracing back the generally accepted lethal dose to dubious self-experiments in the nineteenth century. Arch Toxicol. 2014;88(1):5-7
6. Christensen L. Three cases of attempted suicide by ingestion of nicotine liquid used in e-cigarettes. Clinical Toxicology. 2013;51:290
7. Schipper EM, de Graaff LC, Koch BC et al. A new challenge: suicide attempt using nicotine fillings for electronic cigarettes. Br J Clin Pharmacol. 2014;78(6):1469-71
8. Misra, M., Leverette, R., Cooper, B., Bennett, M., & Brown, S. (2014). Comparative In Vitro Toxicity Profile of Electronic and Tobacco Cigarettes, Smokeless Tobacco and Nicotine Replacement Therapy Products: E-Liquids, Extracts and Collected Aerosols. *International Journal of Environmental Research and Public Health IJERPH,* *11*(11), 11325-11347. doi:10.3390/ijerph111111325
9. McRobbie H, Phillips A, Goniewicz ML et al. Effects of Switching to Electronic Cigarettes with and without Concurrent Smoking on Exposure to Nicotine, Carbon Monoxide, and Acrolein. Cancer Prev Res (Phila). 2015;8(9):873-8
10. Rachemacher, L., MD, PhD. (2016). Dopamine Returns to Normal 3 Months After Quitting Smoking | Psych Central News. Retrieved August 08, 2016, from <http://psychcentral.com/news/2016/07/31/dopamine-function-returns-to-normal-3-months-after-quitting-smoking/107912.html>.
11. Bell K, Keane H. All gates lead to smoking: the 'gateway theory', e-cigarettes and the remaking of nicotine. Soc Sci Med. 2014;119:45-52.
12. Bauld L, MacKintosh AM, Ford A, McNeill A. E-Cigarette Uptake Amongst UK Youth: Experimentation, but Little or No Regular Use in Non-smokers. Nicotine Tob Res. 2016;18(1):102-3.
13. Use of electronic cigarettes among children in Great Britain. Action on Smoking and Health, UK, 2015 Contract No.: Fact sheet 34. Available at

http://www.ash.org.uk/information/facts-and-stats/fact-sheets (accessed August 2016).

1. McNeill A, Brose LS, Calder R, Hitchman SC, Hajek P, McRobbie H. E-cigarettes: an evidence update. A report commissioned by Public Health England. PHE publications gateway number: 2015260 2015. Available at https://www.gov.uk/government/publications/e-cigarettes-an-evidence-update (accessed July 2016).
2. Marco, E., & Grimaldo, J. O. (2015, September 4). A rapid method for the chromatographic analysis of volatile organic compounds in exhaled breath of tobacco cigarette and electronic cigarette smokers. Retrieved August 08, 2016, from http://www.ncbi.nlm.nih.gov/pubmed/26243705