Questions on Notice: Inquiry into Tobacco Harm Reduction

Respondent: Dr Michelle Jongenelis

QoN 016-01 Please indicate if you agree or disagree with the following statements, made by Adjunct Professor John Skerritt of the Therapeutic Goods Administration, during the inquiry's public hearing on 13 November 2020. Please state the reasons for your position.

- a. "I believe that smoking is more harmful than vaping but that does not make vaping harmless in the same way that being hit by a car on the freeway is less harmful than being hit by a truck but it is not desirable."
- b. "In the same way that we didn't know in 1960 about the long-term effects of cigarettes, because vaping, especially at a significant level, is still a relatively recent phenomenon, the evidence is still fairly scant. However, there are a number of studies published in the medical literature... that have shown detrimental effects from vaping of nicotine cigarettes and also detrimental effects even when the e-cigarettes do not have nicotine, because many of the substances in e-cigarettes were never really intended to be heated up and put into the lungs."

Answer: I strongly agree with both statements made by Professor John Skerritt. Based on the evidence to date, e-cigarettes are likely to be less harmful than conventional cigarettes, but they are not harmless. They have been found to contain a number of substances known to be harmful to people including formaldehyde, tobacco-specific nitrosamines, nicotine, and heavy metals¹⁻⁶. The flavourings added to e-liquids have been shown to be unsafe when inhaled directly to the lungs, posing a potential threat to the health of users⁷. This is a particular concern for young adults who have been found to cite the availability of e-liquid flavourings as a major contributor to their initiation and continued use of e-cigarettes⁸. There are significant health risks associated with the use of e-cigarettes, including reduced lung function, stiffness of the arteries, and increased risk of cardiovascular disease ⁹⁻¹¹.

References:

- 1. Chivers E, Janka M, Franklin P, Mullins B, Larcombe A. Nicotine and other potentially harmful compounds in "nicotine-free" e-cigarette liquids in Australia. *The Medical Journal of Australia*. 2019;210:127-128. https://doi.org/10.5694/mja2.12059.
- 2. El-Hellani A, Salman R, El-Hage R, Talih S, Malek N, Baalbaki R, et al. Nicotine and carbonyl emissions from popular electronic cigarette products: Correlation to liquid composition and design characteristics. *Nicotine Tob Res.* 2018;20:215-223. https://doi.org/10.1093/ntr/ntw280.
- 3. Hess CA, Olmedo P, Navas-Acien A, Goessler W, Cohen JE, Rule AM. E-cigarettes as a source of toxic and potentially carcinogenic metals. *Environ Res.* 2017;152:221-225. https://doi.org/10.1016/j.envres.2016.09.026.
- 4. Offermann FJ. Chemical emissions from e-cigarettes: Direct and indirect (passive) exposures. *Build Environ*. 2015;93:101-105. https://doi.org/10.1016/j.buildenv.2015.03.012.
- 5. Goniewicz ML, Knysak J, Gawron M, Kosmider L, Sobczak A, Kurek J, et al. Levels of selected carcinogens and toxicants in vapour from electronic cigarettes. *Tob Control*. 2014;23:133-9. https://doi.org/10.1136/tobaccocontrol-2012-050859.
- 6. National Academies of Sciences, Engineering, and Medicine. Public health consequences of e-cigarettes. Washington, DC: The National Academies Press; 2018. https://doi.org/10.17226/24952.
- 7. Sassano MF, Davis ES, Keating JE, Zorn BT, Kochar TK, Wolfgang MC, et al. Evaluation of e-liquid toxicity using an open-source high-throughput screening assay. *PLoS Biol.* 2018;16. https://doi.org/10.1371/journal.pbio.2003904
- 8. Kong G, Morean ME, Cavallo DA, Camenga DR, Krishnan-Sarin S. Reasons for electronic cigarette experimentation and discontinuation among adolescents and young adults. *Nicotine Tob Res.* 2015;17:847-854. https://doi.org/10.1093/ntr/ntu257.
- 9. Li D, Sundar IK, McIntosh S, Ossip DJ, Goniewicz ML, O'Connor RJ, et al. Association of smoking and electronic cigarette use with wheezing and related respiratory symptoms in adults: cross-sectional results from the Population Assessment of Tobacco and Health (PATH) study, wave 2. *Tob Control*. 2020;29:140-147. https://doi.org/10.1136/tobaccocontrol-2018-054694.

Questions on Notice: Inquiry into Tobacco Harm Reduction

Respondent: Dr Michelle Jongenelis (michelle.jongenelis@unimelb.edu.au)

10. Bozier J, Chivers EK, Chapman DG, Larcombe AN, Bastian NA, Masso-Silva JA, et al. The evolving landscape of e-cigarettes: A systematic review of recent evidence. *Chest*. 2020;157:1362-1390. https://doi.org/10.1016/j.chest.2019.12.042.

11. Lynch J, Jin L, Richardson A, Conklin DJ. Tobacco smoke and endothelial dysfunction: Role of aldehydes? *Curr Hypertens Rep.* 2020;22:1-9. https://doi.org/10.1007/s11906-020-01085-7.