

## E-cigarettes: striking the right balance



Natalie Walker and colleagues<sup>1</sup> Article provides evidence on New Zealand's new regulatory framework for e-cigarettes, which permitted the sale and marketing of nicotine-containing electronic cigarettes (e-cigarettes) in March, 2018. Before this date, the sale of e-cigarettes was illegal, although as the authors acknowledge, the law was not aggressively enforced. The data analysed by Walker and colleagues<sup>1</sup> are from annual cross-sectional Year-10 student surveys, which were circulated to nearly half of New Zealand students aged 14–15 years. The findings indicate a decrease in ever having used a cigarette and daily use of cigarettes among Year-10 students, between 2014 and 2019, while ever having used an e-cigarette and daily use of e-cigarettes increased.<sup>1</sup>

The provocative question posed by Walker and colleagues<sup>1</sup> is whether nicotine vaping is displacing cigarettes as the preferred form of nicotine consumption among New Zealand adolescents and, if so, to what effect? The idea that cigarette smoking could be replaced by a less harmful tobacco product is not new. Several decades ago, adolescents in northern Sweden largely replaced smoking with a new type of oral tobacco called snus.<sup>2</sup> Over a generation, the development of smoking-associated diseases in Sweden declined at a much faster pace than they did in other countries in Europe, as snus displaced cigarettes as the preferred form of tobacco consumption.<sup>3</sup>

However, evidence of smoking displacement in the New Zealand data remain unclear. Smoking prevalence over the past 30 days changed very little between 2014 and 2019 (from 6.0% to 5.9%), while e-cigarette use more than tripled (from 3.5% to 12.0%). Notably, smoking prevalence among New Zealand youth has been declining for more than 20 years, including the years before the introduction of e-cigarettes. Therefore, whether e-cigarette use among New Zealand youth will eventually displace cigarettes remains unclear, but might be clarified when these teenagers transition into adulthood and smoking patterns are established.

Even though most adolescents who reported using e-cigarettes were current smokers, regular e-cigarette use doubled between 2018 and 2019 among adolescents who had never smoked.<sup>1</sup> Removing the restrictions on the marketing and sale of e-cigarettes in

New Zealand was associated with overall increase in the use of e-cigarettes by both smokers and non-smokers.

Use of nicotine in any form, but especially aerosolized nicotine inhaled into the airways, is a concern for non-smokers of any age because it could lead to nicotine addiction with unknown long-term health consequences.<sup>4,5</sup> However, an addicted smoker who is struggling to stop smoking cigarettes might find a nicotine-containing e-cigarette an acceptable replacement for continued smoking.<sup>4,5</sup> Randomised trials have shown that some nicotine-containing e-cigarettes are equally as effective or more effective for smoking cessation than are nicotine patches.<sup>6–8</sup> Although substitution of e-cigarettes has considerable potential in reducing smoking among adults who are already addicted to nicotine, in the context of youth, the question is how to maintain a reduction in smoking without substitution to other nicotine products.

Public health authorities are concerned about the apparent surge in e-cigarette use by adolescents who have never smoked, but calls for a complete prohibition on the sale of nicotine-containing e-cigarettes is an overreach and could be counterproductive to public health.<sup>9</sup> The recent outbreak of electronic cigarette vaping associated lung injury (EVALI) in the USA suggests caution: EVALI is primarily attributable to vitamin E acetate in cannabis oils distributed through illicit channels.<sup>10</sup> Prohibiting the sale of nicotine-containing e-cigarettes might have the effect of driving some consumers back to smoking or to acquisition of unregulated products through illicit channels.<sup>9</sup>

However, the unfettered marketing of e-cigarettes containing nicotine is not a reasonable option, as non-smokers should not be enticed to use these products.<sup>9</sup> Thus, the question for government regulators is how to strike the right balance between making potentially lower risk nicotine products intended for smokers accessible, while discouraging use by non-smokers, especially youth.<sup>9</sup>

Public health authorities in England have embraced nicotine e-cigarettes as a harm reduction alternative to cigarettes and have seen the prevalence of adult smoking decline at an accelerated pace as e-cigarette use has escalated, without stimulating an epidemic of e-cigarette use by adolescents.<sup>5,11</sup> In England,

Published Online  
January 22, 2020  
[https://doi.org/10.1016/S2468-2667\(20\)30004-9](https://doi.org/10.1016/S2468-2667(20)30004-9)  
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the Medicines and Healthcare Products Regulatory Agency has created a notification system that requires assurance by manufacturers of the safety and quality of any nicotine-containing e-cigarettes sold, alongside regulations on e-cigarette marketing.<sup>5</sup> Additionally, the nicotine concentration of e-liquids sold in England is capped at less than half of the concentration permitted in some products sold in the USA and Canada, where youth vaping prevalence has increased. In response to the surge in adolescent e-cigarette use, some jurisdictions have adopted rules to increase the legal age for purchasing tobacco products, restricted the sale of tobacco products to adult-only retail establishments, and prohibited the use of so-called kid friendly e-liquid flavors. Evaluating the effect of such regulations on the use of e-cigarettes and cigarettes by both adolescents and adults would be helpful to guide the adoption of future policies.

Continued surveillance of e-cigarette and smoking in all age groups is warranted. Health authorities need to recognise the continuum of risk associated with all nicotine products, so that regulations are proportionate to the harm the products cause—ie, more stringent for the highest risk products (cigarettes) than those that are less harmful (nicotine medications, oral tobacco, e-cigarettes).<sup>9</sup>

KMC and DH have served as paid expert witnesses in legal challenges against tobacco companies. KMC receives funding from the US National Cancer Institute. DH is supported by a Canadian Institutes of Health Research (CIHR)-Public Health Agency of Canada (PHAC) Applied Public Health Research Chair

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