



## Vaping

Last edited: 12 October 2022

A vape or e-cigarette is a handheld device that uses battery power to heat a liquid, creating a vapour for inhalation. The vapour may contain nicotine, the addictive compound found in conventional tobacco cigarettes. Vaping is less harmful than smoking – a [2018 report commissioned by Public Health England](#)<sup>1</sup> stated that nicotine vaping products are at least 95% less harmful than cigarettes, although estimates vary. For example, [one study](#)<sup>2</sup> estimated that vaping may be two-thirds less harmful than smoking, while in 2019 [the World Health Organisation concluded](#)<sup>3</sup> that aerosols from nicotine-based vapes are “likely to be less toxic than cigarettes but there is insufficient evidence to quantify the precise level of risk associated with them.”

At least 80 chemical compounds have been detected in e-cigarette vapour. These compounds are derived from the e-liquid (which is comprised primarily of glycerol and propylene glycol, and can also contain nicotine and flavouring agents). [Metals have also been found in e-liquid and vapour](#),<sup>4</sup> transferred from the heating coil in the vape itself. We don’t know how all the constituents of e-cigarette vapour affect human health when inhaled, but several studies have found an [association between vaping and respiratory symptoms](#)<sup>5</sup> including asthma, wheezing, chronic cough, phlegm and bronchitis. Because vaping is relatively new, we also don’t fully understand its long-term health impacts, including the impacts of second-hand exposure. And vapes that contain nicotine can be addictive, potentially contributing to dependence.

In Aotearoa New Zealand, vaping is regulated under the [Smokefree Environments and Regulated Products Act 1990](#),<sup>6</sup> which was [amended in 2020](#) to cover vaping,<sup>7</sup> with [new regulations](#)<sup>8</sup> relating to vaping currently being phased in.

### Vaping to quit smoking

According to the [Ministry of Health](#),<sup>9</sup> vaping products have the potential to contribute to the [Smokefree 2025 goal](#)<sup>10</sup> by serving as a route out of smoking, but the Ministry does not recommend non-smokers to take up vaping. [A New Zealand study](#)<sup>11</sup> published in 2020 found that vaping was most common among ex-smokers, indicating that vaping is being used by smokers as a tool to transition away from cigarettes. The 2020/21 New Zealand Health Survey results also suggest that some smokers are substituting cigarettes for vapes, as [explored in a blog post](#)<sup>12</sup> by a group of University of Otago academics.

A [2021 evidence update](#)<sup>13</sup> on vaping in England found that vaping products were the most popular aid used in attempts to quit smoking and their use was positively associated with smoking cessation. Other smoking cessation tools – including stop smoking support services, licenced medication, and nicotine replacement therapy – were also confirmed as effective, to varying extents. A [2021 systematic review](#)<sup>14</sup> found that nicotine vape use increases smoking quit rates compared to nicotine replacement therapies, with moderate certainty.

When vaping is used to quit smoking, vape use can endure, with one study finding that [80% of people](#)<sup>15</sup> who successfully gave up smoking using vapes were still vaping one year on. And some people don’t quit smoking completely but rather become ‘dual users’ of both conventional cigarettes and vapes.<sup>16</sup> A [2022 New Zealand-based study](#) that followed 100 people engaged in a ‘vape to quit’ initiative found that after six months, 16% were smoke and vape-free, 31% were

smokefree and vaping, 31% were smoking and not vaping, and 22% were smoking and vaping.<sup>17</sup> Amongst participants who were vaping, 88.6% were using vape products containing nicotine.

The [Vaping Facts website](#)<sup>18</sup> produced by the Ministry of Health and the Health Promotion Agency provides information about vaping for people who want to quit smoking. As well continuing to look at vaping uptake and individual and population health impacts, the Ministry of Health is monitoring the effectiveness of vaping products as tools to support smoking cessation.

## Vaping and young people

The safest approach for non-smokers is to avoid vaping. Some researchers are particularly concerned about uptake of vaping among non-smoking youth, with a [survey-based study](#)<sup>19</sup> published in 2021 finding that, among 13-18 year olds, 80% of ever-vapers and 49% of regular vapers reported that they were non-smokers when they first vaped.

The 2020/21 New Zealand Health Survey found that, while there has been a recent sharp decrease in youth smoking, there has been [an even sharper increase](#)<sup>20</sup> in vaping among people aged between 15 and 25 years old such that, overall, there has been an increase in the prevalence of current use of any nicotine-based product in this age group. And a [2021 survey of New Zealand secondary school students](#),<sup>21</sup> published by the Asthma and Respiratory Foundation New Zealand and Secondary Principals’ Association of New Zealand, found that 27% of students reported vaping in the last week (compared to 15% who reported smoking). 75% of vapers (or 20% of total respondents) reported vaping daily or several times a day, most with high nicotine doses, and 86% of those who reported vaping multiple times a day said that they felt addicted to vaping.

According to the [Smokefree Aotearoa 2025 Action Plan](#)<sup>22</sup> published in December 2021, the Ministry of Health will “focus on supporting our children and young people to choose to never vape.” In addition, vaping products can’t be sold to people under 18 years of age, it is illegal to vape in cars carrying young people, and specialist vape retailers must advise the Ministry of Health if they are selling vape products so that the government has a better understanding of how many retailers are operating. Te Whatu Ora is also working with a social change agency, Curative, to design and deliver a ‘preventing youth from vaping’ campaign. This will be going live in November 2022.

## Vaping-associated pulmonary injury

In 2019, the US Centres for Disease Control and Prevention (CDC) reported an [outbreak of lung injury](#)<sup>23</sup> associated with the use of vaping products (vaping-associated pulmonary injury, VAPI). Over 2,800 hospitalisations and nearly 70 deaths were reported as of 18 February 2020. Current evidence suggests that the outbreak was linked to vaping tetrahydrocannabinol (THC)/cannabis products, and in particular to the additive vitamin E acetate. THC/cannabis-containing e-liquids are illegal in Aotearoa New Zealand and there have been [no reports of VAPI here](#).<sup>24</sup>

If you experience an adverse event associated with vaping, you can report it through the [New Zealand Pharmacovigilance Centre](#).<sup>25</sup>

## Read more

- [Smokefree NZ](#)<sup>26</sup>
- [Asthma and Respiratory Foundation NZ](#)<sup>27</sup>
- [Health Navigator New Zealand](#)<sup>28</sup>
- [ASH – Action for Smokefree 2025](#)<sup>29</sup>
- [Vaping and schools – Healthy Promotion Agency Te Hiringa Hauora](#)<sup>30</sup>

- New Zealand Science Media Centre [expert reactions to VAPI](#)<sup>31</sup> and the [link to vitamin E acetate](#)<sup>32</sup>
- Listen to Dr Michelle Dickson discuss vaping with expert Dr Kelly Burrowes and current vaper Will Toogood on the [Science Direct podcast](#)<sup>33</sup>

## Endnotes

<sup>1</sup> Report commissioned by Public Health England – Evidence review of e-cigarettes and heated tobacco products (2018), accessed on 24 February 2022 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/684963/Evidence\\_review\\_of\\_e-cigarettes\\_and\\_heated\\_tobacco\\_products\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/684963/Evidence_review_of_e-cigarettes_and_heated_tobacco_products_2018.pdf)

<sup>2</sup> *BMC Public Health* paper – Improving on estimates of the potential relative harm to health from using modern ENDS (vaping) compared to tobacco smoking (2021), accessed on 24 February 2022 <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-021-12103-x>

<sup>3</sup> World Health Organisation report – WHO report on the global tobacco epidemic (2019), accessed 11 August 2022 <https://www.who.int/publications/i/item/9789241516204>

<sup>4</sup> *Environmental Health Perspectives* paper – Metal Concentrations in e-Cigarette Liquid and Aerosol Samples: The Contribution of Metallic Coils (2018), accessed 28 August 2022 <https://doi.org/10.1289/EHP2175>

<sup>5</sup> *The Journal of Allergy and Clinical Immunology* review – Electronic Cigarettes and Their Impact on Allergic Respiratory Diseases: A Work Group Report of the AAAAI Environmental Exposures and Respiratory Health Committee (2021), accessed on 24 February 2022 <https://www.sciencedirect.com/science/article/pii/S221321982100057X?via%3Dihub>

<sup>6</sup> Smokefree Environments and Regulated Products Act 1990, accessed on 24 February 2022 <https://www.legislation.govt.nz/act/public/1990/0108/latest/DLM223191.html>

<sup>7</sup> Smokefree Environments and Regulated Products (Vaping) Amendment Act 2020, accessed on 24 February 2022 <https://www.legislation.govt.nz/act/public/2020/0062/latest/LMS313857.html>

<sup>8</sup> Vaping Facts webpage – Law and Regulations, accessed on 24 February 2022 <https://vapingfacts.health.nz/the-facts-of-vaping/vaping-law-and-policy/>

<sup>9</sup> Ministry of Health webpage – Position statement on vaping, accessed on 24 February 2022 <https://www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control/vaping-smokefree-environments-and-regulated-products/position-statement-vaping>

<sup>10</sup> Smokefree webpage – What is Smokefree 2025?, accessed on 24 February 2022 <https://www.smokefree.org.nz/smokefree-in-action/smokefree-aotearoa-2025>

<sup>11</sup> *International Journal of Environmental Research and Public Health* paper – Patterns of Use of Vaping Products Among Smokers: Findings from the 2016-2018 International Tobacco Control (ITC) New Zealand Surveys (2020), accessed on 24 February 2022 <https://pubmed.ncbi.nlm.nih.gov/32932952/>

<sup>12</sup> University of Otago blog post – Key findings on smoking and e-cigarette use prevalence and trends in the 2020/21 NZ Health Survey (2021), accessed on 26 August 2022 <https://blogs.otago.ac.nz/pubhealthexpert/key-findings-on-smoking-and-e-cigarette-use-prevalence-and-trends-in-the-2020-21-nz-health-survey/>

<sup>13</sup> Report commissioned by Public Health England – Vaping in England: An evidence update including vaping for smoking cessation (2021) <https://assets.publishing.service.gov.uk/government/>

[uploads/system/uploads/attachment\\_data/file/962221/Vaping\\_in\\_England\\_evidence\\_update\\_February\\_2021.pdf](#)

<sup>14</sup> Cochrane Database of Systematic Reviews – Electronic cigarettes for smoking cessation, accessed 12 October 2022 <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010216.pub6/full>

<sup>15</sup> *New England Journal of Medicine* paper – A randomized trial of e-cigarettes versus Nicotine-Replacement Therapy (2019) <https://www.nejm.org/doi/full/10.1056/NEJMoa1808779>

<sup>16</sup> World Health Organisation report – WHO report on the global tobacco epidemic (2019), accessed 11 August 2022 <https://www.who.int/publications/i/item/9789241516204>

<sup>17</sup> *New Zealand Medical Journal* paper – An evaluation of a New Zealand “vape to quit smoking” programme (2022), accessed on 5 September 2022 <https://journal.nzma.org.nz/journal-articles/an-evaluation-of-a-new-zealand-vape-to-quit-smoking-programme>

<sup>18</sup> Vaping Facts website, accessed on 24 February 2022 <https://vapingfacts.health.nz/>

<sup>19</sup> *Australian and New Zealand Journal of Public Health* paper – New Zealand Youth19 survey: vaping has wider appeal than smoking in secondary school students, and most use nicotine-containing e-cigarettes (2021), accessed on 24 February 2022 <https://onlinelibrary.wiley.com/doi/full/10.1111/1753-6405.13169>

<sup>20</sup> University of Otago blog post – Key findings on smoking and e-cigarette use prevalence and trends in the 2020/21 NZ Health Survey (2021), accessed on 26 August 2022 <https://blogs.otago.ac.nz/pubhealthexpert/key-findings-on-smoking-and-e-cigarette-use-prevalence-and-trends-in-the-2020-21-nz-health-survey/>

<sup>21</sup> ARFNZ/SPANZ report – The ARFNZ/SPANZ vaping in NZ youth survey (2021), accessed on 24 February 2022 <https://www.asthmafoundation.org.nz/assets/images/A-2021-report-into-youth-vaping.pdf>

<sup>22</sup> Smokefree Aotearoa 2025 Action Plan (2021), accessed on 24 February 2022 [https://www.health.govt.nz/system/files/documents/publications/hp7801\\_-\\_smoke\\_free\\_action\\_plan\\_v15\\_web.pdf](https://www.health.govt.nz/system/files/documents/publications/hp7801_-_smoke_free_action_plan_v15_web.pdf)

<sup>23</sup> United States Centres for Disease Control and Prevention webpage – Outbreak of Lung Injury Associated with the Use of E-Cigarette, or Vaping, Products, accessed on 24 February 2022 [https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/severe-lung-disease.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html)

<sup>24</sup> Medsafe webpage – Reporting vaping side effects, accessed on 24 February 2022 <https://www.medsafe.govt.nz/profs/PUArticles/December2019/Report-vaping-side-effects.htm>

<sup>25</sup> New Zealand Pharmacovigilance Centre reporting page – Report a side effect to Vaping, accessed on 24 February 2022 <https://nzphvc.otago.ac.nz/report-vaping/>

<sup>26</sup> Smokefree webpage – Learn about vaping, accessed on 24 February 2022 <https://www.smokefree.org.nz/help-advice/learn-about-vaping>

<sup>27</sup> Asthma and Respiratory Foundation webpage – E-Cigarettes and Vaping, accessed 24 February 2022 <https://www.asthmafoundation.org.nz/your-health/e-cigarettes-and-vaping>

<sup>28</sup> Health navigator webpage – Vaping, accessed on 24 February 2022 <https://www.healthnavigator.org.nz/healthy-living/e/e-cigarettes-and-vaping/>

<sup>29</sup> Action for Smokefree 2025 webpage – Harm Reduction and Vaping, accessed on 24 February 2022 <https://www.ash.org.nz/vaping-and-harm-reduction>

<sup>30</sup> Health Promotion Agency webpage – Vaping and Schools, accessed on 24 February 2022  
<https://www.hpa.org.nz/programme/education/vaping>

<sup>31</sup> Science Media Centre Expert Q&A – Should we be worried about vaping? (2019), accessed on 24 February 2022 <https://www.sciencemediacentre.co.nz/2019/10/03/should-we-be-worried-about-vaping-expert-qa/>

<sup>32</sup> Science Media Centre Expert Reaction – Vitamin E acetate found in lungs of vaping victims (2019), accessed on 24 February 2022 <https://www.sciencemediacentre.co.nz/2019/11/12/vitamin-e-acetate-found-in-lungs-of-vaping-victims-expert-reaction/>

<sup>33</sup> Science Direct podcast episode – Vaping: Is it really any healthier than smoking? (2022), accessed on 16 August 2022 <https://www.iheart.com/podcast/1049-science-digest-86515273/episode/vaping-is-it-really-any-healthier-101173581/>