

2. Adopts false and misleading claims about the harmfulness of e-cigarettes

There is no serious doubt that vaping is much less harmful than smoking. There is no real doubt that e-cigarettes are much less harmful than cigarettes.¹ The main reason is that most of the harm from smoking arises from products of combustion of tobacco leaf. E-cigarettes eliminate both combustion and tobacco leaf. In this sense, they are completely different products from a toxicity perspective. The US National Academies of Science, Engineering and Medicine concluded its extensive review:²

While e-cigarettes are not without health risks, they are likely to be far less harmful than combustible tobacco cigarettes. E-cigarettes contain fewer numbers and lower levels of toxic substances than conventional cigarettes. The long-term health effects of e-cigarettes are not yet clear.

Compared to smoking, the exact level of risk reduction is inevitably uncertain as vaping products have not been on the market for the decades needed to establish definitive mortality risk differential from cigarettes through long-term epidemiology. However, in its 2016 assessment, the Royal College of Physicians of London used carefully chosen language to characterise the likely level of risk reduction:³

Although it is not possible to precisely quantify the long-term health risks associated with e-cigarettes, the available data suggest that they are unlikely to exceed 5% of those associated with smoked tobacco products and may well be substantially lower than this figure.

Studies of biomarkers of exposure show greatly reduced risk. To have a sense of relative risk, we can draw on studies of biomarkers of exposure (toxicants in blood, saliva, and urine). These studies tend to show greatly reduced exposures – either close to background levels or comparable to smokers who stop smoking and use nicotine replacement therapy (NRT). In 2018, Public Health England experts reviewed the available studies of biomarkers of exposure.⁴ Based on its assessment of the evidence, PHE concluded in 2018:

Vaping poses only a small fraction of the risks of smoking and switching completely from smoking to vaping conveys substantial health benefits over continued smoking. Based on current knowledge, stating that vaping is at least 95% less harmful than smoking remains a good way to communicate the large difference in relative risk unambiguously so that more smokers are encouraged to make the switch from smoking to vaping. It should be noted that this does not mean e-cigarettes are safe (Executive summary)

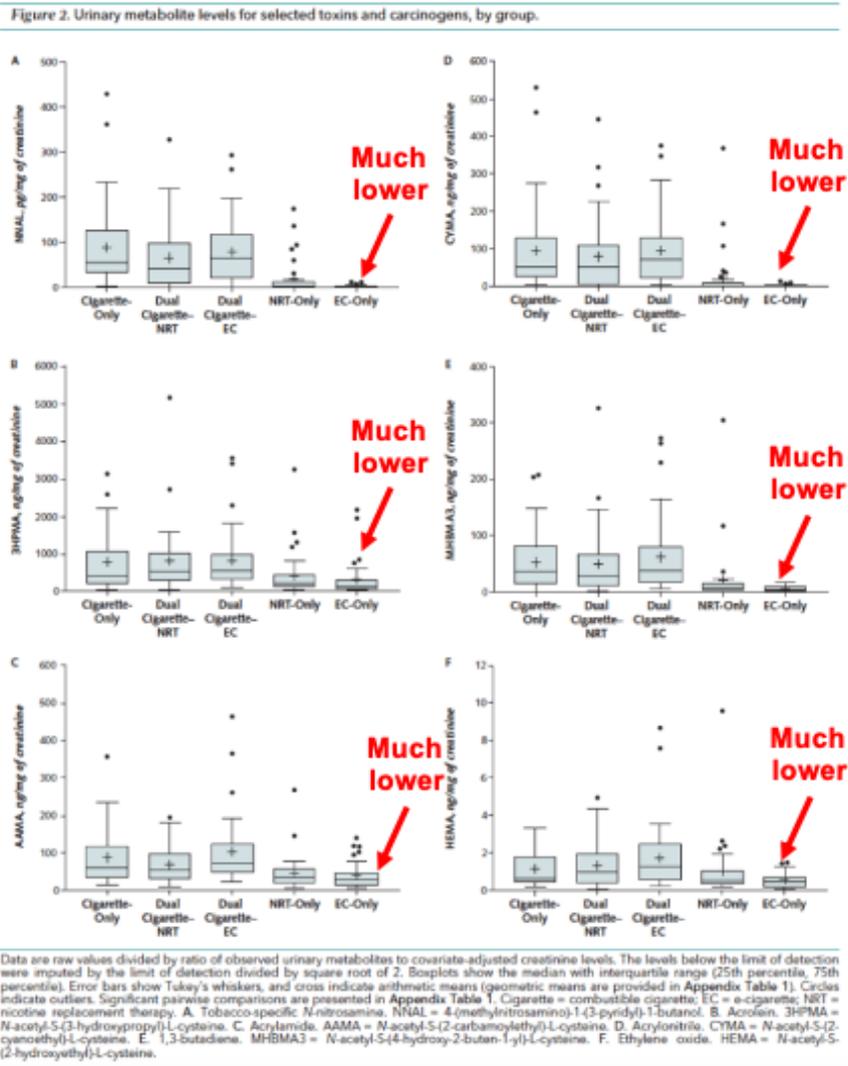
¹ Abrams DB, Glasser AM, Villanti AC, Pearson JL, Rose S, Niaura RS. Managing nicotine without smoke to save lives now: Evidence for harm minimization. *Prev Med (Baltim)*. Academic Press; 2018 Jun 23; [[link](#)]

² National Academies of Science, Engineering and Medicine (US). *The Public Health Consequences of E-cigarettes*. Washington DC. January 2018. [[link](#)]

³ Royal College of Physicians. Nicotine without smoke: tobacco harm reduction. London: RCP; 2016. [[link](#)]

⁴ McNeill A, Brose LS, Calder R, Bauld L, Robson D. Evidence review of e-cigarettes and heated tobacco products 2018. A report commissioned by Public Health England [Internet]. London: 2018 [[link](#)] For biomarker studies see page 163 in the main report [[PDF](#)]

To take one example, Shahab et al. 2017 compare smoking, vaping and NRT (our annotations in red):⁵



With a new product, long term impacts are inevitably uncertain, but we know *enough* to encourage smokers to switch. Anti-vaping arguments often refer to long term uncertainty about risks, implicitly suggesting they may be greater than we realise today – though, in fact, they may equally prove to be negligible. We cannot know the long-term effects of any relatively new product. However, we can use established benchmarks to gauge the health risk arising from the reduced exposures to toxicants. For example, there is extensive data from occupational health science (exposure to chemicals in the workplace). When these benchmarks are used to assess risk from e-cigarettes, the risks appear to be trivial compared to continued smoking.⁶ Some activists point to the fact that it took decades to discover

⁵ Shahab L, Goniewicz ML, Blount BC, et al. Nicotine, carcinogen, and toxin exposure in long-Term e-cigarette and nicotine replacement therapy users. *Ann Intern Med* 2017;166(6):390–400. [\[link\]](#)

⁶ Burstyn I. Peering through the mist: Systematic review of what the chemistry of contaminants in electronic cigarettes tells us about health risks [Internet]. *BMC Public Health*. 2014 [cited 2020 Dec 5];14(1):18. [\[link\]](#)

the health impacts of smoking and try to draw a parallel with e-cigarettes. That argument overlooks decades of progress in science since the 1950s. If cigarettes were introduced today, we would know immediately that these products are very harmful.

So-called precautionary action can do harm. Long term health impacts remain the subject of speculation, but no material adverse health effects have so far been detected at a significant scale. Projections based on greatly reduced toxicity suggest much lower risk.⁷ However, the justification rests on a precautionary approach:

The Trimbos Institute has concluded, based on the precautionary principle, that Dutch public health would benefit most from discouraging the use of e-cigarettes

When evidence is inevitably incomplete, the question arises how much is enough?⁸ Despite the opinion of Trimbos, we do now know *enough* to treat e-cigarettes as though we are confident that they are much less harmful than smoking. Treating them as if there is no difference or a small difference in risk will cause policymakers to implicitly erect regulatory barriers to switching from smoking to vaping, with a public health cost. Taking so-called precautionary action and being wrong in the precautionary assumption is not cost-free and will cause harm. The cost of inaction is continued smoking, from which half of continuing smokers will die prematurely, and many more suffer needlessly. That is the case with using uncertainty about risks to justify the e-cigarette flavour ban.

If vaping substitutes for smoking there is a public health benefit, but this is not acknowledged in the justification for the flavour ban. When flavoured e-cigarettes contribute to smoking cessation, when they substitute for smoking or reduce smoking to low levels, and when they prevent initiation on combustible products there is a potential health benefit from harm reduction that must be acknowledged⁹. These effects can apply to both adults and to youth. The harm reduction benefits arise because non-combustible products are much less risky than smoking products.

⁷ Abrams DB, Glasser AM, Pearson JL, Villanti AC, Collins LK, Niaura RS. Harm Minimization and Tobacco Control: Reframing Societal Views of Nicotine Use to Rapidly Save Lives. *Annu Rev Public Health*; 2018. [\[link\]](#)

⁸ Fairchild AL. Is Good Enough Good Enough? E-Cigarettes, Evidence, and Policy. *Am J Public Health* 2021 ;111(2):221–223. [\[link\]](#)

⁹ Kozlowski LT, Warner KE. Adolescents and e-cigarettes: Objects of concern may appear larger than they are. *Drug Alcohol Depend.* 2017 May;174(1 May 2017):209–14. [\[link\]](#)[\[PDF\]](#)