The most frequently asked questions about electronic cigarettes

Research shows that people are confused and misinformed about electronic cigarettes. (1, 2) Even public policy on e-cigarettes is being heavily influenced by fear and misinformation. (3) This evidence-based explainer article answers the most frequently asked questions.

Authors: Associate Professor Colin Mendelsohn and Dr Alex Wodak AM

***1. Do e-cigarettes really help people to quit smoking?***

Millions of people have now quit smoking using e-cigarettes. For example, in the European Union over 6 million smokers reported having quit using an e-cigarette (4) and a further 1.3 million have quit in the UK (5). Clinical trials of early e-cigarette models have found that they are at least as effective as nicotine replacement therapy, such as patches and gum (6, 7). However, these early models delivered low levels of nicotine and are now obsolete. More advanced devices which deliver higher nicotine levels are more effective. (8)

Comprehensive reviews including those by [Public Health England](https://www.gov.uk/government/publications/e-cigarettes-an-evidence-update) and the respected UK [Royal College of Physicians](https://www.rcplondon.ac.uk/projects/outputs/nicotine-without-smoke-tobacco-harm-reduction-0), which look at the full range of evidence on e-cigarettes have concluded that they are effective quitting aids. (9-12)

Randomised clinical trials are normally the gold standard for testing medicines but are not the best way to study complex, rapidly evolving consumer products. (13)

***2. Don’t most people who use e-cigarettes continue to smoke?***

Some smokers quit very soon after using an e-cigarette for the first time. However, many others go through a transition stage of smoking and vaping together (dual use) before finally quitting smoking permanently. (14) This transition stage can take weeks or years. In one study, almost 60% of dual users went on to quit smoking completely within a 2 year period. (15) In another study, the quit rate of dual users was 26%. (16)

The evidence suggests that even long-term dual use is less harmful than smoking alone because most dual users significantly reduce the number of cigarettes they smoke (16, 17) thereby lowering their exposure to toxins (18-20). Consequently, health conditions such as emphysema (21), asthma (22) and high blood pressure improve (23) after switching to dual use. There is no evidence that dual use delays or prevents quitting. However, quitting smoking altogether should always be the preferred goal for smokers.

***3. How safe are e-cigarettes?***

The scientific consensus is that e-cigarettes are far safer than smoking. [Public Health England](https://www.gov.uk/government/publications/e-cigarettes-an-evidence-update) and the UK [Royal College of Physicians](https://www.rcplondon.ac.uk/projects/outputs/nicotine-without-smoke-tobacco-harm-reduction-0) estimate the hazard to health from e-cigarettes is unlikely to exceed 5% of the harm from smoking tobacco. (9, 10) It is impossible to measure the precise risk reduction, but whether it is 1% or 10% less harmful than smoking, there is a clear health benefit for smokers who switch.

The harmful effects of smoking are almost entirely due to the tar, carbon monoxide and other toxic chemicals produced by burning tobacco. The vast majority of the 7,000 toxins in tobacco smoke are absent from e-cigarette vapour or are only present at trace levels. Studies of up to 12 months have demonstrated that e-cigarette users have substantially reduced levels of carcinogens and other toxins in their bodies compared to smokers.(24)

There have been rare reported cases of e-cigarettes causing fires, but far fewer than the number caused by cigarettes, which are the most common cause of lethal house fires. (25) The risk of fire from e-cigarettes appears to be comparable to similar electrical goods (9) especially with lithium batteries (26). Electrical safety is improving and guidelines are available to reduce the risk. (27)

E-cigarettes are not completely safe. Nothing ever is. However, any risk needs to be compared to the risk from smoking which kills up to two in three long-term users. (28)

***4. Isn’t nicotine harmful?***

Nicotine is relatively harmless in the low doses used in vaping (except in pregnancy). Although it is the main chemical that smokers are addicted to, there is no evidence that nicotine causes cancer or lung disease and it only plays a minor role in cardiovascular disease. (29, 30)

There is also no evidence in humans that nicotine is harmful to the adolescent brain (30) although there appears to be the case in some animal studies. However, it is unclear how this research translates to humans. It is important to note that nicotine replacement therapy (patches, gum, lozenges etc) are approved for use in adolescence from the age of 12 and appear to be well tolerated.(31)

Most cases of intentional or accidental nicotine poisoning involving nicotine e-liquid result in prompt vomiting and rarely cause serious harm. (32, 33) According to Public Health England, the risk from ingesting nicotine is comparable to similar potentially poisonous household substances. (9)

Fifty years of high dose nicotine use in snus (moist, oral tobacco) in Swedish men (34) and over 30 years of nicotine replacement therapies have not been associated with any significant adverse health effects (35).

***5. What are the long-term risks of e-cigarettes?***

Like all new products, the long-term health effects of e-cigarettes have yet to be established. However, based on current knowledge of the ingredients of e-cigarette vapour, e-cigarettes are likely to be much less harmful to vapers or bystanders. (36) Studies of up to two years have not detected any serious health harm from e-cigarette use. (37) Ten years of real-world experience have also not identified any significant harm to health.

***6. Are e-cigarettes a gateway to smoking for children?***

Overseas experience suggests that vaping is replacing—rather than encouraging—smoking of tobacco cigarettes among young people. (10, 11) Smoking rates in young people are falling faster in countries where e-cigarettes are readily available, and in some places faster than ever. (38)

Young people who experiment with vaping are more likely to become smokers, however there is no evidence that e-cigarette use leads to smoking. A more likely explanation is ‘common liability’ i.e. that young people who are more attracted to experimentation are more likely to try both products. (39) It is obviously better for young people not to use e-cigarettes, but vaping is still preferable to smoking. (40)

Regular vaping by non-smoking adolescents is rare. Most e-cigarette use by young people is experimental, occasional (not daily) and short-lived. (12, 41-45) Many young smokers also use e-cigarettes to help them quit. (46, 47) Furthermore, the great majority of young people who experiment with vaping use flavoured solutions without nicotine. (38, 48)

***7. Are adult non-smokers taking up e-cigarettes?***

Regular e-cigarette use by adults who have never smoked is rare. The UK Royal College of Physicians concluded that ‘e-cigarettes are being used almost exclusively as safer alternatives to smoked tobacco, by confirmed smokers who are trying to reduce harm to themselves or others from smoking, or to quit smoking completely’.

In the 2014 US national survey, only 0.1% of never-smokers were daily e-cigarette users in 2014.(49) In Europe, only 0.04% of people who had never smoked were using nicotine e-cigarettes daily.(50) A German study found only 0.1% of never smokers were using e-cigarettes.(51)

***8. Won’t e-cigarettes just ‘renormalise’ smoking’?***

There is no evidence that e-cigarettes are renormalising smoking. There is also no evidence that they are undermining the decline in cigarette smoking rates among adults and youth; on the contrary, present evidence suggests they are contributing to the decline. (9, 10, 12). Most e-cigarettes now look nothing like cigarettes and don’t smell of smoke. Their visibility may encourage smokers to switch and quit smoking.

***9. Is second-hand vapour harmful?***

There is no evidence that second-hand e-cigarette vapour is dangerous to others. (9, 10, 12, 36, 52-54) Some studies have found traces of toxic chemicals in second-hand vapour, but at such low levels that they are not harmful. Also, vapour dissipates very quickly, unlike smoke which hangs around in the air for long periods. (55)

***10. Aren’t e-cigarettes just a tobacco company ploy to sell more cigarettes?***

E-cigarettes were developed by consumers for consumers. More recently, the tobacco industry has started buying into the market fearing a loss of market share. However, not one e-cigarette sold in Australia is made by a tobacco company.

If the tobacco industry invests in ‘reduced risk products’ which replace combustible tobacco, that is a good thing. The more smokers who switch from combustible tobacco, the better, irrespective of who makes them.

The past behaviour of tobacco companies has been despicable, but the goal of public health is to reduce deaths, disease and costs from smoking, not to specifically destroy tobacco companies.

***11. Is Australian policy on e-cigarettes consistent with other similar countries?***

In Australia, it is illegal to possess or use nicotine in an e-cigarette without a prescription. (56) However, e-cigarettes with nicotine are now legal and freely available in the United Kingdom, the European Union and the United States. They are in the process of being legalised in Canada and New Zealand. (57) Australia is falling behind its peer countries in this important public health opportunity.

However, there are 2 options for Australian smokers who wish to use nicotine solutions in an e-cigarette to help them quit smoking. Firstly, they need to get a prescription for nicotine from a medical practitioner. (58)They can then have the nicotine solutions prepared by an Australian compounding pharmacist or can legally import supplies from overseas under the Therapeutic Goods Administration [Personal Importation Scheme](https://www.tga.gov.au/personal-importation-scheme).

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