

Science Media Centre Factsheet

Electronic Cigarettes

Electronic cigarettes, also known as e-cigarettes, personal vaporizer (PV) or electronic nicotine delivery system (ENDS), are used to supply nicotine to a user without the burning of tobacco leaves. Use of e-cigarettes is often referred to as “vaping”.

Design

- E-cigarettes work through the production of a vapour from a liquid which contains the nicotine and other components. There are a variety of products available, and not all deliver nicotine.
- Generally, a battery-powered heating coil heats the liquid contained in a cartridge to form the vapour, which is then inhaled by the user. The vapour is mainly made up of water, propylene glycol and glycerine, with low levels of other chemicals also present.

Prevalence

- Modern e-cigarettes were first designed and produced in China in 2003 and were marketed in 2004, being exported internationally shortly after. The industry has grown to be worth around US\$3 billion and made up of 466 manufacturers worldwide.
- Recent estimates have suggested that there are 2.1 million users of e-cigarettes within the UK, compared with 700,000 in 2012. Of these 2.1 million, around two thirds are current smokers, with most of the remaining third made up of ex-smokers (from [these figures](#), also the source for the figures below).
- More than 50% of current smokers report ever having tried e-cigarettes, up from 8.2% in 2010, with a similar increase in current smokers reporting regular use of e-cigarettes (2.7% in 2010 compared with 17.6% in 2014).
- Due to being a relatively new technology, there is debate over the potential drawbacks (attracting non-smokers to smoking and posing a danger to smokers who make the switch to e-cigarettes) and benefits (helping smokers avoid smoking-related disease) of e-cigarettes.

Effects on health

- Cigarettes deliver nicotine in combination with carcinogens and other toxic chemicals contained in tar from tobacco; e-cigarettes do not burn tobacco and so avoid delivering these substances. There are some toxins present in the nicotine solution and vapour produced from it, but at negligible levels unlikely to pose much risk to users or bystanders.

Effects on non-smokers

- There are as yet no data to support the fear that e-cigarettes may act as a gateway to smoking conventional cigarettes among those who have never smoked. The number of never-smokers who report having tried e-cigarettes has increased from 0.5% in 2012 to 1.1% in 2014, and those reporting regular use has remained very low (0.1% in 2012 and 0.2% in 2014 – from [figures here](#); the ONS has reported similar [figures here](#)).
- During the time in which e-cigarettes became popular in England, the national prevalence of smoking tobacco cigarettes and using any nicotine product have both continued to decline (from [figures here](#)).

Effects on smokers

- The [MHRA has stated](#) that early indications suggest e-cigarettes may be of benefit in helping people to quit smoking, but that more research is needed.
- There is also some evidence that smokers who do not quit smoking altogether reduce their toxin intake because they smoke less.

Regulation

- The [EU Tobacco Products Directive](#), which must be transposed by member states into national law by May 2016, regulates e-cigarettes containing up to 20mg/ml nicotine including their size, safety and quality, as well as advertising and consumer warnings.
- Advertising of e-cigarettes is allowed in the UK, but adverts must not be directed towards under-18s, nor encourage non-smokers to use e-cigarettes. Despite the World Health Organization recommendations, the use of e-cigarettes in public places is not regulated nationally, though bans are in place in some establishments.

Sources / further information

[Action on Smoking and Health \(ASH\) briefing](#)

[Action on Smoking and Health \(ASH\) fact sheet on use of e-cigarettes in Great Britain](#)

[European Commission Tobacco Products Directive](#)

[MHRA working group on nicotine containing products report](#)

[Office of National Statistics adult smoking habits in Great Britain, 2013](#)

[Public Health England report on electronic cigarettes](#)

[Smoking in England statistics](#)

[World Health Organization backgrounder on regulation of e-cigarettes](#)

[YouGov/ASH Survey 2014](#)

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