

E-cigarettes are becoming an increasingly popular alternative to smoking. However, it is still not clear whether they are a safe and effective way of quitting

Are e-cigarettes a safer alternative to smoking?

In this article...

- › Definition of e-cigarettes
- › Research on the effectiveness of these devices
- › Advice to give patients about their use

5 key points

- 1** E-cigarettes are electronic devices that mimic real cigarettes
- 2** The nicotine content of e-cigarettes is variable and they can be purchased in several strengths
- 3** Regulation of e-cigarettes and related devices may help to develop this potential treatment
- 4** Patients should be encouraged to attend smoking cessation services
- 5** More research on e-cigarettes is required

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Abstract Preston W, Ayre S (2014) Are e-cigarettes a safer alternative to smoking? *Nursing Times*; 110: 7, 20-21. Smokers appear to be using electronic cigarettes in attempts to quit but the products are currently unregulated.

This article explores evidence regarding electronic nicotine delivery devices – usually known as e-cigarettes – and how this relates to clinical practice. It also discusses secondary care smoking cessation services in the light of NICE guidance.

The safety of electronic cigarettes has received considerable attention (Hogenboom, 2013; Traynor, 2013), as people appear to be increasingly using them as an alternative to tobacco (Action on Smoking and Health, 2014).

Electronic nicotine delivery devices (ENDDs) – commonly called e-cigarettes – are electronic devices that mimic real cigarettes. Operated using chargeable batteries, they deliver nicotine through vapour rather than smoke. They usually look like cigarettes, and reproduce the glowing light at the end of a cigarette when it is inhaled, and steam that mimics smoke when it is exhaled. The nicotine content varies and they are made in several strengths.

There are also devices that deliver vapour with nicotine, in a process known as “vaping”. These also come in a variety of strengths and flavours, and can contain shisha, which is predominately a fruit-based tobacco mix.

E-cigarettes: product variety

Tobacco is smoked to obtain nicotine, mainly to relieve nicotine withdrawal symptoms. Although nicotine has few serious adverse effects, smokers expose themselves to serious harm from tar and gases, including oxidant gases and carbon monoxide, from cigarettes (National Institute for Health and Care Excellence, 2012).

Replacing conventional cigarettes with e-cigarettes and similar devices could appear to be reducing harm from cigarettes, and a body of evidence is developing to support this (ASH, 2014). However, currently, the evidence for smoking cessation is stronger, and NICE recommends a programme of behavioural support and a licensed nicotine replacement product or medication (NICE, 2012).

E-cigarettes are not regulated medicines so the ingredients and amount of nicotine contained in each e-cigarette may vary. In response to this, the Medicines and Healthcare Products Regulatory Agency is planning to introduce regulation from 2016.

The difficulty when looking at the effectiveness of e-cigarettes in helping smokers quit is that the range of devices is vast and they work in different ways. There are many formulas and flavours; these are tested as food products for oral consumption – their effects on airways when inhaled have not been studied.

These issues were discussed at the E-Cigarette Summit held in November 2013 in London (<http://e-cigarette-summit.com>), which was attended by health professionals and policy makers. Discussions highlighted the range of flavours, that the long-term effect on airways is unknown and that the products have the potential to be an irritant.



E-cigarettes have a glowing light and emit vapour so they resemble real cigarettes

Recent research on e-cigarettes

Last year, two studies were published looking at the effectiveness of e-cigarettes in cessation.

The first was a randomised control trial studying 697 adults who wanted to stop smoking (Bullen et al, 2013). The study investigated whether e-cigarettes were more effective than nicotine patches at helping smokers to quit. Participants were given electronic cigarettes with 16mg of nicotine, a daily 21mg nicotine patch or placebo electronic cigarettes. They were studied from the week before they intended to stop smoking until 12 weeks after their designated quit day.

The study found that e-cigarettes, with or without nicotine, were moderately effective at helping smokers to quit, with similar achievement of abstinence as with nicotine patches. However, the researchers said more studies were urgently needed to establish the benefits and harms of e-cigarettes as they were unable to follow up the results of 22% of participants.

The second 12-month randomised control trial looked at the efficiency and safety of e-cigarettes (Caponetto et al, 2013). Three hundred smokers, aged 18-60 years, who did not intend to quit were divided into three groups. One group was given up to four 7.2mg nicotine cartridges per day, the second 7.2mg nicotine cartridges for six weeks followed by up to four 5.4mg nicotine cartridges per day for six weeks, and the third group up to four placebo cartridges per day.

While all three groups smoked fewer cigarettes at the end than at the start of the study, after 52 weeks there were no significant differences between them in terms of the number of cigarettes smoked or quit rates. The study also found that, for

BOX 2. E-CIGARETTES AND CLINICAL PRACTICE

- E-cigarettes are not licensed so health professionals should not recommend them
- Devices vary significantly and offer a wide range of nicotine doses
- Abrupt cessation is the most effective method of smoking cessation. Support is available from NHS stop smoking services in a range of locations
- Health professionals should suggest to patients that advice can be sought from smoking cessation services for support to cut down to quit
- Health professionals should consult hospital smoke-free policies to check whether e-cigarettes are allowed

smokers not intending to quit, the use of e-cigarettes, with or without nicotine, decreased cigarette consumption and resulted in their being able to stop smoking without significant side-effects.

Again, because of the high drop-out rate (39%), researchers recommended that more studies were needed to establish the safety and effectiveness of e-cigarettes.

Using e-cigarettes in practice

In clinical practice, the lack of robust evidence makes it difficult for health professionals to recommend e-cigarettes or related devices. However, patients are using e-cigarettes to help them quit and practitioners need to respond to this development.

People using e-cigarettes should still be offered smoking cessation referrals because quitting is thought to have better outcomes than harm reduction. Patients

should be informed of the lack of robust evidence supporting the use of e-cigarettes to stop smoking, but it is important to be non-judgemental if they are using them. If patients are not ready to try quitting, this may be a harm reduction opportunity and, in time, may lead to cessation.

Advice on cessation services is outlined in Box 1 and use of e-cigarettes in Box 2.

E-cigarettes: the future

Once regulated, e-cigarettes and related devices may become useful in smoking cessation as part of a treatment plan that includes behavioural support.

However, more research is required to provide evidence on how effective this approach would be in helping people to quit, and this research needs to compare like with like. For example, it could compare: behavioural support; nicotine patch and e-cigarettes with behavioural support; nicotine patches; and a short-acting nicotine replacement product.

Smokers have the best chance at quitting if they have medication combined with behavioural support for at least 12 weeks, and a combination approach to nicotine replacement therapy is more effective than a single therapy (NICE, 2008). This means future research needs to compare e-cigarettes or similar devices with a combination approach (NICE, 2013a; 2013b).

More research is also needed to establish how e-cigarettes work and their effect on the body. **NT**

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BOX 1. STOP-SMOKING SERVICES

Smoking cessation services should be available in a range of locations that are accessible to the public, including hospitals.

National Institute for Health and Care Excellence (2013a) guidelines describe how stopping smoking at any time has considerable health benefits for people who smoke and for those around them.

In hospitals, there are additional advantages, including shorter hospital stays, lower drug doses, fewer complications, higher survival rates, better wound healing, fewer infections and fewer readmissions after surgery.

NICE (2013a) recommends that smoking should be banned on hospital premises. Secondary care providers have a duty of care to protect the health of and promote healthy behaviour among people who use or work in their services.

The British Thoracic Society has published a recommendation paper for services. It also has a range of resources to help clinicians develop services, such as the *Case for Change* paper and the Return on Investment calculator (BTS, 2013).

- Details of local smoking cessation services are available at www.nhs.uk/smokefree or by calling 0300 123 1014.