E-cigarettes: making healthcare professionals myth busters

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Electronic cigarettes (e-cigarettes) have an important role in helping many people to stop smoking, but widespread myths and misconceptions remain about their safety. Public Health England’s recent evidence review aims to help healthcare professionals dispel some of these myths.

A pregnant woman had switched from tobacco to e-cigarettes. But ‘scare stories’ in the media led her to fear that vaping would do her baby more harm than smoking. So, she told the practice nurse that she had switched back to tobacco. “If a pregnant woman can’t give up entirely, e-cigarettes are undoubtedly safer than tobacco,” says Hazel Cheeseman, director of policy at charity Action on Smoking and Health (ASH). “But the nurse told me that she didn’t know how to explain that vaping was safer for the mother and baby.”

The story exemplifies a deeper, more widespread problem: smokers who believe the numerous myths and misconceptions that surround e-cigarettes and healthcare professionals who do not know how to reassure “sceptical and nervous” tobacco users. However, a new report from Public Health England (PHE), the imminent launch of a licensed product that fits between conventional nicotine-replacement therapy (NRT) and e-cigarettes, and several educational initiatives should help healthcare professionals bust the myths. “The report has a very clear message for community practitioners,” says Ms Cheeseman. “E-cigarettes can help people who are unwilling or unable to quit in other ways to give up smoking.”

The continuing death toll
Sixty-eight years after Doll and Hill identified “a real association between carcinoma of the lung and smoking”, about 16% of adults in England still smoke. Smoking causes about 80% of deaths from lung cancer, bronchitis and emphysema, and accounts for approximately 14% of the mortality from heart disease, according to ASH.

For example, new research found that the proportion of cancers caused by modifiable risk factors in the UK was highest in Scotland (41.5%) and lowest in England (37.3%) in 2015. In Wales and Northern Ireland, modifiable risk factors caused 37.8% and 38.0% of cancers respectively. Tobacco smoking remains the most common cause of preventable cancer across the UK, responsible for 17.7% of all malignancies in men and 12.4% in women during 2015. Indeed, PHE remarks, “smoking remains the leading preventable cause of illness and premature death and one of the largest causes of health inequalities.”

Even ‘light smoking’ carries considerable health risks. A recent meta-analysis estimated that men and women who smoked, on average, one cigarette daily were 48% and 57% respectively more likely to develop coronary heart disease (CHD) than non-smokers. Light smokers
were also more likely to have a stroke than non-smokers and were at about half the cardiovascular risk of those smoking 20 a day. For instance, men smoking one and five cigarettes daily had 46% and 57% respectively of the excess CHD risk caused by smoking 20 cigarettes a day. Women smoking one and five cigarettes daily had 31% and 43% respectively of the excess risk.\(^5\)

Similarly, there seems to be no safe form of smoked tobacco. Researchers from the USA reported that people who currently smoked cigars or pipes exclusively had a higher risk of dying from smoking-related cancers, by 61% and 58% respectively.\(^6\)

**Helping patients quit**

Over the years, NRT, bupropion and varenicline have helped thousands of people to stop smoking. A recent meta-analysis reported that after a year, 19.9% of smokers using bupropion remained abstinent, compared to 19.8% with NRT, 18.7% with varenicline and 11.4% among controls. But the net benefit of the cessation treatment compared with controls declined from 17.3% at three months to 11.8% at six months and 8.2% at 12 months. The authors commented that healthcare professionals “would be well served by realistic expectations when prescribing” smoking cessation drugs and could plan to continue to intervene over the longer term.\(^7\)

Against this background, e-cigarettes can make an important contribution to improving cessation rates. PHE estimates that between 16,000 and 22,000 additional people quit each year because of e-cigarettes. Depending on the model’s assumptions, however, e-cigarettes might result in up to 57,000 additional people quitting smoking a year in England alone.\(^1\)

Indeed, PHE note, it’s clear that e-cigarettes are associated with “only a small fraction of the risks of smoking and switching completely from smoking to vaping conveys substantial health benefits over continued smoking.”\(^1\) For example, based on published data, vaping’s lifetime carcinogenic potential is “largely under 0.5% of the risk of smoking.” Further studies need to quantify the risks of cardiovascular and lung diseases associated with e-cigarettes, but, the report notes, these are probably “substantially below” those linked to smoking.\(^3\)

Overall, the PHE report estimates, e-cigarettes are “at least 95% less harmful than smoking.”\(^1\) “It’s possible that this is a conservative estimate,” Ms Cheeseman says. “It’s a rule of thumb, based on a comprehensive literature review, which revealed nothing to suggest that the estimate is widely out.”

Linda Bauld, professor of health policy at the University of Stirling and deputy director of the UK Centre for Tobacco and Alcohol Studies, who helped draft the PHE report, adds: “The 95% estimate or close to it is broadly in line with other doc...
Myths and misconceptions

Improving uptake, however, means countering widespread myths and misconceptions. For example, only 48.9% of smokers believe that vaping is less harmful than smoking, falling to 33.1% among smokers who have never tried e-cigarettes. Similarly, just 52.9% of smokers believe that NRT is less harmful than smoking (see Figure 2). Only about 8% of adults understand that nicotine is not responsible for most smoking-related harm.1

Ms Cheeseman and Professor Bauld lay much of the blame for these myths and misconceptions on the mass media. “Controversy sells newspapers,” Ms Cheeseman says. “So, a story that says e-cigarettes are harmful is more likely to generate headlines than one that says vaping helps people quit. Yet most studies regarding harm looked at the effects of a single chemical – such as lead and other toxic metals released during heating – in animals or on cells in culture. Whether these effects can be generalised to humans isn’t clear.”

“The mass media tends to focus on negative stories around e-cigarettes, most of which are difficult to interpret,” agrees Professor Bauld. “It’s clear, however, that any risks do not compare to the scale of harm caused by smoking.”

Nevertheless, countering the myths isn’t easy. However, Professor Bauld helped develop a public information campaign currently being piloted in Manchester by Cancer UK that stresses that vaping is less harmful than cigarettes. “We need to spell out to the general public that vaping is far less harmful than smoking,” she says. “Healthcare professionals need to help smokers keep the risks in context, despite the scare stories.”

Unfortunately, Ms Cheeseman says, many community healthcare professionals lack both background information around e-cigarettes and access to the latest, most robust, evidence. “There is a need for more training and information to support healthcare professionals,” she says. In response to this need, the National Centre for Smoking Cessation and Training recently launched a training course on e-cigarettes (elearning.ncsct.co.uk/e-cigarettes-launch).

Second-hand vaping

Healthcare professionals can reassure people that second-hand vaping does not seem to cause significant harm. “There is no evidence to raise concerns about the health effects of passive vaping,” Ms Cheeseman says. “However, some people with asthma or another respiratory condition can find the vapour irritating, in the same way that some of them react to other non-specific triggers, such as cut flowers or perfume. Passive smoking is much worse for people with asthma.”

“Vaping does not release the fine particulate matter PM2.5 [inhalable particles with diameters 2.5 micrometres and smaller] that can be so harmful in second-hand smoke,” Professor Bauld adds. “Scented candles can, for sensitive people, be unpleasant and so can second-hand vapour. But we need to be clear that we don’t have evidence that vaping around others is damaging to health in the way that second-hand smoke is.”

Similarly, no compelling evidence suggests that e-cigarettes are a common ‘gateway’ into tobacco use. Indeed, regular e-cigarette use among never-smokers is rare (less than 1%) and similar to the level with NRT. “Despite some experimentation with these devices among never-smokers, e-cigarettes are attracting very few young people who have never smoked into regular use,” the PHE report says. The popularity of e-cigarettes does not seem to undermine the continuing decline in smoking among young people in the UK.
Moreover, only “a minority” of never-smokers who have ever tried e-cigarettes used nicotine-containing liquids (some people vape nicotine-free liquids) and the “vast majority” did not progress to regular use.1 “There is a need for better survey data. But at present there is little evidence that vaping is replacing smoking as a social norm,” Professor Bauld says.

Nevertheless, Ms Cheeseman was an author on a recent paper that showed that young people who tried e-cigarettes were more likely to experiment with smoking and vice versa. “The study showed a potential ‘revolving door’ between the different products,” she says. “The finding may indicate that the relationship between vaping and smoking in young people is dynamic and that there may be common risk factors.”

The survey included 1152 young people aged between 11 and 18 years old in Great Britain. At baseline, 19.8% were ever-smokers and 11.4% had ever used an e-cigarette. Ever e-cigarette users were more likely to try smoking than never users (53% and 8% respectively), and ever-smokers were more likely to try an e-cigarette than never-smokers (32% and 4% respectively). Further analysis showed a direct effect of trying an e-cigarette on trying smoking and vice versa (odds ratio 1.34 and 1.08 respectively).9 “It’s worth noting, however, that only 21 young people had tried an e-cigarette but not smoked, compared with 118 who had tried smoking but not e-cigarettes,” Ms Cheeseman remarks.

A licensed product
Currently, the European Tobacco Products Directive regulates the manufacture and sale of e-cigarettes. But a device licensed as a medicinal product could help dispel some of the myths and misconceptions and give healthcare professionals the confidence to suggest a particular brand. “A licensed product would offer reassurance for smokers and healthcare professionals,” Ms Cheeseman says.

“There is definitely a need to empower GPs, pharmacists, nurses and other healthcare professionals to better inform their patients. A licensed product would be really useful and give healthcare professionals confidence about which product to suggest,” Professor Bauld remarks. “In addition, relatively few pharmacists sell e-cigarettes. While this reluctance is understandable, it’s also a missed opportunity.”

Against this background, the Voke 0.45mg Inhaler, a licensed medicinal product that will be available on the General Sale List, should reach the UK market in early 2019. Voke delivers a 0.45mg dose of pressured nicotine for-
Price can also pose a barrier to wider use of e-cigarettes. “At least to start with, vaping is not necessarily cheaper than smoking,” Ms Cheeseman says. “There is an upfront cost and the person may be unsure whether or not vaping will work.” Mr Triniman points out that the Voke will cost “broadly” the same as a packet of cigarettes. “Price shouldn’t be a reason why a person does not quit smoking,” he says.

“People who use OTC products are less likely to quit smoking than those who receive the NRT on prescription,” Ms Cheeseman adds. “We’d expect the same with vaping: a prescribed e-cigarette might be more effective than one bought OTC.” The difference in price and a perception that a prescribed drug comes with the implicit approval and authority of a healthcare professional could contribute to the success of the quit attempt. But willpower remains central to any quit attempt. PHE recommend that local stop smoking services and healthcare professionals should provide behavioural support to smokers who want to quit using e-cigarettes.¹

“In an ideal world, every NRT, including e-cigarettes, would be licensed,” Ms Cheeseman says. “But that isn’t going to happen, certainly not in the short-term. At the moment, requiring every product to be licensed might limit innovation. The large number of people who have never tried e-cigarettes shows that there is a clear unmet need that new devices might help meet. We may need a mix of products.²

Professor Bauld would also welcome further innovation in e-cigarette design. “Many people, especially the elderly or those with arthritis or other problems with dexterity can find changing the coil or refilling the device with the e-liquid difficult,” she says. “I’d welcome an increase in the size of e-liquid containers and also easier-to-use devices.”

Legitimate concerns
Despite the increasing body of evidence highlighting vaping’s effectiveness at aiding smoking cessation and short-term safety, some unanswered questions remain. PHE, for instance, called for further studies determining the potential harms of inhaled nicotine, such as any long-term effects on lung tissue. “There are legitimate concerns about long-term exposure,” Ms Cheeseman comments. “Currently, we don’t have the evidence to determine if regular long-term use over several years has any detrimental effects, but it seems inconceivable that any long-term risk would be anywhere near the magnitude of smoking. It’s also worth noting that many people use e-cigarettes as a quitting aid and then stop using e-cigarettes – avoiding any risk of long-term use.”

PHE also calls for studies that monitor any adverse effects of passive vaping and assess similarities and differences in the addictiveness of nicotine inhalation and tobacco smoking.¹ Among many other suggestions, PHE calls for research examining why and when ex-smokers started using e-cigarettes; factors that increase or decrease the likelihood of relapse, including comparisons with other antismoking medications; and assessments of the impact of e-cigarettes on health and economic inequalities.³

Against this background, the NICE guideline published in March 2018 aims to improve stop smoking interventions and services delivered in primary care and community settings for people older than 12 years of age.¹⁰ As part of this, the guidance says that healthcare professionals should offer advice about NRT and e-cigarettes on general sale. Healthcare professionals should explain that e-cigarettes are not licensed medicines, but are controlled by the Tobacco and Related Products Regulations 2016. Healthcare professionals should add that “many people” find that e-cigarettes help them quit. However, healthcare professionals should encourage people using e-cigarettes to stop smoking tobacco completely and explain that while “the evidence suggests that e-cigarettes are substantially less harmful” than smoking they “are not risk free”. Finally, NICE comments that the evidence base, including the long-term health impact, is still developing.

Hopefully, the NICE guidance will help encourage more people to use e-cigarettes and new licensed devices. “There is a really big job to do to win around sceptical and nervous smokers,” Ms Cheeseman concludes. “E-cigarettes are only one option among many to help people quit. We need to abandon our caution and tell smokers that, if they’ve tried other things, why not give e-cigarettes a go?”

References

Declaration of interests
Mark Greener is a full-time medical writer and, as such, regularly provides editorial and consultancy services to numerous pharmaceutical, biotechnology and device companies and their agencies. However, he has not worked on any smoking cessation project in the last five years.

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