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## EDITORIALS



## Electronic cigarettes and smoking cessation in England

Successful quitting through substitution with electronic cigarettes is a likely contributor to the falling prevalence of smoking

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Electronic cigarettes, now used by over two million UK smokers,<sup>1</sup> are possibly the most disruptive new technology in the nicotine market since the cigarette. Although still controversial, there is a growing consensus among UK health organisations that e-cigarettes, by enabling smokers to consume nicotine without the lethal cocktail of toxins in tobacco smoke, could prevent a substantial proportion of otherwise inevitable premature mortality and morbidity among the nine million smokers in the UK.<sup>2</sup> However, there remain many uncertainties over the effects of e-cigarettes on the public health. These include concerns that their availability will reduce smokers' motivation to quit—by offering an easy and socially acceptable means to consume nicotine when smoking is not allowed—and undermine uptake of smoking cessation services offering evidence based behavioural support and pharmacotherapy.

A study in *The BMJ*<sup>3</sup> explores these concerns, using two sources of information. The researchers reviewed nearly 10 years of data from the Smoking Toolkit Study, a rolling monthly survey of smoking, quitting, and e-cigarette use in a nationally representative sample of English adults. They also analysed quarterly data on uptake of and quit rates achieved among smokers accessing the English NHS stop smoking services.

The authors used a time series analysis to explore the temporal relation between the prevalence of e-cigarette use among smokers and the proportion of smokers making a quit attempt in the past year, the proportions using prescribed smoking cessation medicine (nicotine replacement therapy (NRT), varenicline, or bupropion) or over-the-counter NRT during their most recent quit attempt, the number of smokers setting a quit date with the NHS stop smoking services, and the likelihood of self reported successful quitting.

Their analysis identifies a significant direct association between e-cigarette use and successful quitting, a significant inverse association with use of prescription NRT, and no significant associations with other outcomes. However, these statistical associations are perhaps less illuminating than simple visual inspection of the figures depicting the time trends. The figures show a rapid increase in e-cigarette use among all smokers between 2011 and 2013, and overall downward trends in the proportion of smokers making a quit attempt each year and the

proportion purchasing over-the-counter NRT, although with a brief surge in quit attempts during 2013. Use of all prescription medicines, or just prescription NRT, and the numbers of smokers setting quit dates with stop smoking services increased until late 2011, and have since fallen. There was a steady upward trend in the proportion of quit attempts that succeeded, but as a proportion of all smokers, this trend is much less marked.

A simple causal interpretation of these visual trends is that e-cigarettes help smokers to quit smoking; that their emergence also generated a brief upsurge in numbers trying to quit; and that these benefits have come at the cost of reduced uptake of prescription medicines and stop smoking service support. This suggests that e-cigarettes are seen by smokers as an alternative rather than a complement to conventional cessation services.

But there are other potential explanations for the falling uptake of prescribed pharmacotherapy and stop smoking services since 2011. Spending on anti-smoking mass media campaigns, a major driver of motivation to quit,<sup>4 5</sup> fell precipitously after the election of a new UK government in 2010. Future funding and job security for NHS stop smoking services were destabilised from 2010 by the announcement of a proposal to move these services from the NHS to local authority control,<sup>6</sup> which was implemented in 2012.<sup>7</sup> Funding for these services has since fallen dramatically.<sup>8</sup> Uncertainties over the safety and role of e-cigarettes also generated reluctance in many stop smoking services, at least until recently,<sup>9</sup> to integrate e-cigarettes into treatment protocols; hence potentially discouraging e-cigarette users from accessing the services. These are all potentially strong confounders of the reported associations, but the authors were able to control only for spending on mass media campaigns.

It therefore remains unclear whether, or by how much, the availability of e-cigarettes has influenced quitting behaviour in the UK. However, the key arbiter of this and other controversies over the role of e-cigarettes lies less in these data than in trends in smoking prevalence, which in 2015 fell by nearly one percentage point relative to 2014.<sup>10</sup> This significant year-on-year fall indicates that something in UK tobacco control policy is working, and successful quitting through substitution with e-cigarettes is one likely major contributor.<sup>11</sup> The challenge for

public health is to embrace the potential of this new technology, and put it to full use.<sup>12</sup>

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