

E-cigarette use in Great Britain: 2010 and 2012

Summary

E-cigarettes, more accurately known as ENDS (electronic nicotine delivery systems), are a means of inhaling pure nicotine in a vapour, obviating the need to use smoked tobacco. This paper reports data from qualitative and quantitative surveys of smokers conducted in 2010 and population surveys conducted in 2010 and 2012.

- **Use among smokers has increased substantially.** In 2010, 9% of smokers reported ever having used e-cigarettes. By 2012 this had risen to 22%. We found no marked patterns of e-cigarette use by age, gender or socio-economic group. The number of smokers who report being current users of e-cigarettes rose from 3% to 7%, equivalent to 650,000-700,000 smokers.
- **Awareness of e-cigarettes has increased among smokers.** In 2010 almost 4 out of 10 smokers had not heard of e-cigarettes, by 2012 this had fallen to just over 2 out of 10.
- **Of those smokers who reported having tried e-cigarettes one in three was still using them at the time of the survey.** Most smokers who reported trying e-cigarettes were no longer using them by the time of the survey. In 2010 3% reported themselves as current users and 6% reported that they had “tried e-cigarettes but don’t use them anymore”. In 2012, 7% reported themselves as current users and a further 15% reported having tried them.
- **There is little evidence of non-smokers taking up e-cigarettes.** Less than 1% of adults who had never smoked reported having tried e-cigarettes.
- **One in five current e-cigarette users (21%) is an ex-smoker.** Most e-cigarette users use them in combination with smoked tobacco. However, 21% of current e-cigarette users are ex-smokers.

Methods

This paper reports on data from a series of surveys.

- Qualitative data were gathered from online group discussions with 26 smokers who had used e-cigarettes within the past 12 months and separately from face to face group discussions with 11 smokers who had not used e-cigarettes. (1)
- The qualitative results informed the design of an online survey of smokers (486 smokers who had used e-cigarettes and 894 smokers who had not tried e-cigarettes). (2)
- In 2010 a large GB population survey (12,597 adults including 2,297 smokers) was used to assess awareness and use of e-cigarettes among smokers (3) and in 2012 the same survey was used to assess awareness and use of e-cigarettes among the whole population (12,436 adults including 2,093 smokers). (4)

Who currently uses e-cigarettes?

In Great Britain, current e-cigarette use is found predominantly among current smokers. Awareness, having tried e-cigarettes and current use are all most common among daily smokers and use was negligible among non smokers. 1% of ex-smokers report being current e-cigarette users compared to 7% of daily or non-daily smokers ($p < 0.001$ for difference in proportions, table 1 in references).

Although 22% of smokers reported some e-cigarettes use (23% of daily smokers and 17% of non-daily smokers $p = 0.002$ for difference in proportions, table 2 in references), one in three of these reported being current users at the time of the survey (7% of all smokers).

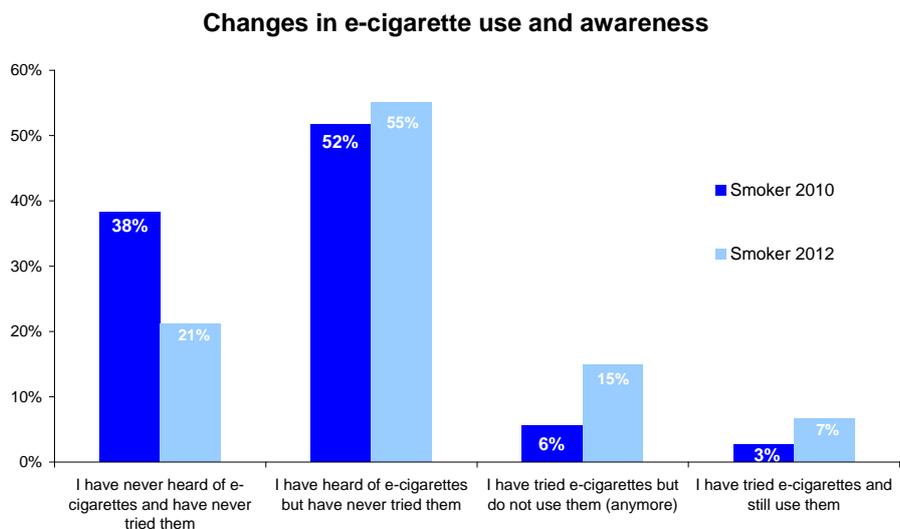
Four percent of ex-smokers report having tried e-cigarettes (95% CI of the proportion, e.g = 3.1 to 4.3%) and 1% (95% CI of proportion = 0.8% to 1.4%) report being current users. Less than one percent of “never-smokers” report having ever tried e-cigarettes. Consequently, there is no evidence to suggest e-cigarettes have been a “gateway” to cigarette smoking. However, e-cigarettes may be a gateway to quitting as one in five current e-cigarette users are ex-smokers, a figure equivalent to between approximately 125,000 - 165,000 adults in Great Britain. (5)

The number of current e-cigarette users identified in the survey was small (207) and there was no marked pattern in use according to age, gender or socio economic group.

How has e-cigarette use changed since 2010?

The proportion of smokers reporting current e-cigarette use has more than doubled from 3% to 7% ($p < 0.001$, table 3). We estimate that there are currently 650,000-700,000 smokers using e-cigarettes in Great Britain.

Awareness of e-cigarettes among smokers has increased markedly over the period with the proportion of smokers reporting that they had not heard of e-cigarettes falling from almost 2 in 5 (38%) in 2010 to just over 1 in 5 (21%) in 2012. ($p < 0.001$, table 4).



The number of smokers who report having tried e-cigarettes but no longer use them has also more than doubled from 6% in 2010 to 15% in 2012 ($p < 0.001$, table 5). Among current smokers between 2010 and 2012, there was no evidence for a difference between years in the ratio of 'current' e-cigarette users to those who have 'tried e-cigarettes but do not use them anymore' ($p = 0.66$ table 6). This suggests that in 2012 as in 2010, e-cigarettes have an enduring appeal to only a minority of those who try them.

What do we know about smokers' attitudes to e-cigarettes?

In 2010, ASH supplemented the annual population survey with a targeted sample of smokers exploring attitudes and behaviours relating to e-cigarette use. We found:

- Smokers were asked if they would be interested in finding out more about "a way to satisfy your desire to smoke in situations where you should not smoke (which was not harmful to your health or the health of others)". Interest was widespread, especially among women (62%) and heavy smokers (those who smoke 20-39 cigarettes per day, 67%).
- In our smokers' survey those who had tried e-cigarettes ($N = 486$) were compared with those who had not ($N = 877$). When asked if they were to design a new NRT product, what features or benefits would they most like to have, those who had tried e-cigarettes were less concerned than others by affordability and discretion of use and more concerned by taste, authenticity, satisfaction and "look and feel".
- The most commonly given reason for trying e-cigarettes was "as a substitute for smoking where smoking is not allowed" (43%). This was especially common among heavy smokers (49%). The second most common was as an aid to quit smoking (35%) followed by a way to cut down without quitting (31%).
- Heavier smokers were more likely to be interested in electronic nicotine delivery, believing they might "relieve cravings where smoking is prohibited", "satisfy the urge to smoke" and "help to cut down on cigarettes".
- Experience resulted in a change in the perceived benefits of e-cigarettes. Those who had used them were most likely to recommend them to others as a "substitute to smoking when it is not allowed" followed by "as a way to cut down without quitting" and less likely to recommend them as a way to quit smoking all together.

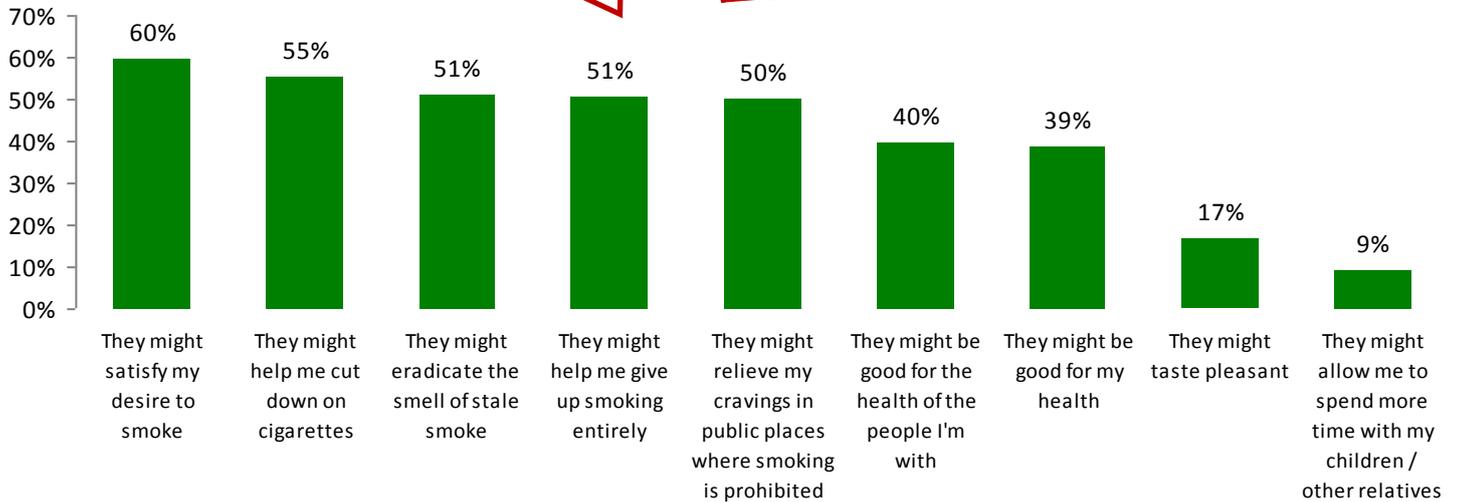
Although the smokers' survey had found that women were more interested in the concept of alternative nicotine delivery systems, they were less likely to be aware of them. By the time of our second survey the numbers reporting not having heard of e-cigarettes had reduced substantially (among men by 16 percentage points to 18% and among women by 18 percentage points to 24%).

Qualitative and quantitative data identified advantages and disadvantages, both those encountered by smokers who had tried e-cigarettes and those anticipated by smokers who had not.

Potential advantages perceived by smokers

*"...I've been using e-cigs for over a year and **have saved fortunes**, can breathe, taste, and smell again. Would definitely recommend to everyone..."*

*"e-cigs are terrific, and I do not understand why they are not available on the NHS like other substitutes. **It gives me the best chance ever of giving up normal cigarettes**, and I know of 3 other people who have managed to stop smoking using them."*



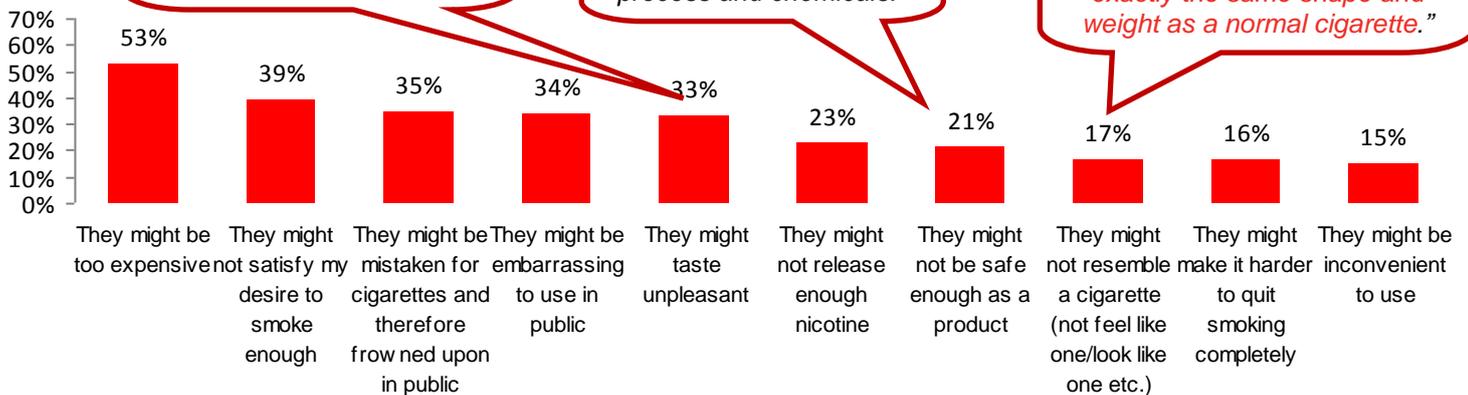
Q. Now thinking back to e-cigarettes... Which, if any, of the following would you consider to be among the advantages of this type of product? (Please tick all that apply.) Base: All smokers (1380) Smokers Survey 2010

Potential disadvantages perceived by smokers

*"e-cigarettes are very good apart from the **awful taste, like coffee and plastic.**"*

*"I have **heard that e-cigs are harmful** due to the process and chemicals."*

*"e-cigs are far too heavy and too large - they need to be **exactly the same shape and weight as a normal cigarette.**"*



Q. Which, if any, of the following would you consider to be among the disadvantages of this type of product? (Please tick all that apply.) Base: All smokers (1380) Smokers survey 2010

Conclusion

e-cigarette use has grown but they remain a niche product. Although awareness has increased, the proportion of smokers who were aware of e-cigarettes but had not tried them, remains at just over 50%.

e-cigarette use is confined to smokers and ex-smokers.

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(1) Qualitative research was undertaken between the 2nd and 3rd of March 2010. Fieldwork was undertaken face to face and online. Two face to face groups were carried out with smokers who had not tried e-cigarettes (n = 5 and 6 respectively). Two online discussions were carried out with smokers who currently used or had tried e-cigarettes in the past 12 months (n = 7 and 7 respectively) and one online forum (n=12) carried out with smokers who currently used or had tried e-cigarettes in the past 12 months

(2) Total sample size was 1380 UK adult smokers. Respondents were pre-screened for e-cigarette use such that 486 respondents had tried e-cigarettes and 894 respondents had not tried e-cigarettes. Fieldwork was undertaken between 9th - 16th April 2010. The survey was carried out online. The figures are unweighted.

(3) Total sample size was 12597 adults. Fieldwork was undertaken between 17th and 22nd March 2010. The survey was carried out online. The figures have been weighted and are representative of all GB adults (aged 18+).

(4) Total sample size was 12436 adults. Fieldwork was undertaken between 27th February and 16th March 2012. The survey was carried out online. The figures have been weighted and are representative of all GB adults (aged 18+).

(5) ASH has calculated the number of adults using e-cigarettes as follows: ONS estimates an adult population of 49,462,000 (ONS Key Population and Vital Statistics 2007) the percentage of adults who are current smokers to be 20% and ex-smokers to be 25%. In our survey 19% of adults report themselves to be current smokers and 33% to be ex-smokers.

	% smokers	Extrapolated number smokers	Extrapolated number smokers who use e-cig	% ex-smokers	Extrapolated number ex-smokers	Extrapolated number ex-smokers who use e-cigs
ONS	20	9.989 million	699,000	25	12.366 million	124,000
YouGov	19	9.398 million	658,000	33	16.322 million	163,000

Data/tables used in statistical testing

Additional analysis conducted which includes significance testing of data and extrapolation of figures to the GB population have been carried out by ASH based on data provided by YouGov:

Table 1 - Current use of e-cigarettes between daily and occasional smokers and ex-smokers (2012)

	Reported current use of e-cigs (n)	Did not report current use (n)	Totals
Daily and occasional smokers	156	2182	2338
Ex-smokers	44	4088	4132

Daily and occasional smoker proportion of current e-cig use = 0.067 (7%), Ex-smokers proportion of current e-cig use = 0.011 (1%)

2 sample Chi-square test for equality of proportions without continuity correction: $X^2(1) = 156.7$, $p < 0.001$
 (% difference in proportions: 6 percentage points, 95% CI of difference in proportions 5 percentage points to 7 percentage points)

Table 2 - Ever use of e-cigs between daily and non-daily smokers (2012)

	Reported ever use of e-cigs (n)	Did not report ever use (n)	Totals
Daily smokers	411	1366	1777
Non-daily smokers	95	466	561

Daily smoker proportion of ever use = 0.231 (23%), Non-daily smoker proportion of ever use = 0.169 (17%)

2 sample Chi-square test for equality of proportions without continuity correction: $X^2(1) = 9.7$, $p = 0.002$
 (% difference in proportions: 6 percentage points, 95% CI of difference in proportions 3 percentage points to 10 percentage points)

Table 3 - Differences in proportions of smokers currently using e-cigs between 2010 and 2012

	Smokers currently using e-cigs (n)	Smokers not currently using e-cigs (n)	Totals
2010	69	2518	2587
2012	156	2181	2337

2010 proportion of current e-cig use = 0.027 (2.7%), 2012 proportion of current e-cig use = 0.067 (6.7%)

2 sample Chi-square test for equality of proportions without continuity correction: $X^2 (1) = 45.2$, $p < 0.001$
 (% difference in proportions: 4 percentage points, 95% CI of difference in proportions 3 percentage points to 5 percentage points)

Table 4 - Differences in proportions of smokers reporting that they had not heard of e-cigs between 2010 and 2012

	Smokers reporting they had not heard of e-cigs (n)	All other responses from smokers (n)	Totals
2010	990	1597	2587
2012	493	1844	2337

2010 proportion of smokers who had not heard of e-cigs = 0.38 (38%), 2012 proportion of smokers who had not heard of e-cigs = 0.21 (21%)

2 sample Chi-square test for equality of proportions without continuity correction: $X^2 (1) = 172.0$, $p < 0.001$
 (% difference in proportions: 17 percentage points, 95% CI of difference in proportions 15 percentage points to 20 percentage points)

Table 5 - Differences in proportions of smokers reporting that they had tried e-cigs, but do not use them anymore between 2010 and 2012

	Smokers reporting they had tried e-cigs, but do not use them anymore (n)	All other responses from smokers (n)	Totals
2010	143	2444	2587
2012	350	1987	2337

2010 proportion of smokers who had tried e-cigs but do not use them anymore = 0.06 (6%), 2012 proportion of smokers who have tried e-cigs but do not use them anymore = 0.15 (15%)

2 sample Chi-square test for equality of proportions without continuity correction: $X^2 (1) = 121.7$, $p < 0.001$
 (% difference in proportions: 9 percentage points, 95% CI of difference in proportions 8 percentage points to 11 percentage points)

Table 6 - Association between year of survey and the proportion of smokers that continue to use e-cigs compared to those who have tried e-cigs but no longer use them

	2010 n (%)	2012 n (%)	Totals n (%)
Smokers who have tried e-cigs but no longer use them	143 (67.5%)	350 (69.2%)	493 (68.7%)
Smokers who are current e-cig users	69 (32.5%)	156 (30.8%)	225 (31.3%)
Total n (%)	212 (100%)	506 (100%)	718 (100%)

Fisher's Exact test for above table (2-sided): $p = 0.66$