

Use of e-cigarettes (vapes) among adults in Great Britain

August 2023

Summary of key findings

This factsheet analyses how behaviour and attitudes to e-cigarettes among adults aged 18 and over have changed over time. The Smokefree GB analysis conducted by ASH is based on data collected by YouGov for ASH, and is carried out in the Spring each year. The survey first started asking about e-cigarette use in 2010 and this update includes the results of the 2023 survey carried out in February and March 2023. Appendix 1 sets out the methodology in detail. Set out below is a summary of the key findings.

USE OF E-CIGARETTES

- The proportion of the population using e-cigarettes this year is 9.1%, the highest rate ever, equal to 4.7 million adults in Great Britain (Table 1).
 - 2.7 million (56%) are ex-smokers
 - 1.7 million (37%) are current smokers
 - 320,000 are never smokers (1.1% of never smokers are current vapers, and 6.7% of current vapers are never smokers)

WHY PEOPLE VAPE

- The main reasons given by ex-smokers for vaping is to help them quit (31%); to prevent relapse (22%); because they enjoy the experience (14%); and to save money (12%).
- The main reasons given by current smokers for vaping is to cut down on smoking (19%), to try to help them quit (17%) and to prevent relapse (13%).
- The main reasons never-smokers vape is because they enjoy the experience (39%) and just to give it a try (27%).

DEVICES AND PRODUCTS USED

- The most commonly used type of e-cigarette device remains a refillable tank system, with 50% of current vapers reporting this type as their main device. (Figure 12).
- However, disposable vapes have become more popular in 2023 (31%), compared with 2022 (15%) and 2021 (2.3%).
- E-cigarettes with replaceable cartridges were used by 17% of vapers.
- Use of disposable vapes has risen particularly quickly among younger adults. (Figure 13). Among 18-24 year olds, over half of current e-cigarettes users (57%) use disposables as their main type in 2023.
- The majority of adults currently vaping use nicotine strengths below 13 mg/ml. Only 1.2% of current vapers use e-liquids over the legal limit of 20 mg/ml with 13% saying they don't know.

PERCEPTIONS OF HARM

- Four in ten smokers incorrectly believe vaping is as or more harmful than smoking up from a third last year and one in five in 2019. (Figure 9)
- A third of smokers understand that vaping is less harmful than smoking, but fewer than one in ten that they are a lot less harmful than smoking.
- Ex-smokers who vape (2.9 million) have the most accurate perceptions of harm, with 75% correctly identifying that vaping is less harmful than smoking.

REASONS WHY SMOKERS HAVEN'T TRIED USING E-CIGARETTES

- 1.8 million (27%) of smokers have not yet tried e-cigarettes giving as their main reasons (Figure 7):
 - Addiction (20% said they do not want to substitute one addiction for another, while conversely 9.0% said that they are not addicted to smoking and don't need help to quit).
 - Another 14% cited safety concerns; 13% that they do not believe that e-cigarettes could help them quit or cut down; and 8.4% not knowing enough about e-cigarettes.

Use of e-cigarettes

In 2023, 94% of smokers and 92% of the general population had heard of e-cigarettes or vapes. This contrasts with 2012, when 49% of adults responding to the same question were aware of them. The number of e-cigarette users has grown from around 700,000 in 2012 to 4.7 million in 2023. (Table 1, see Appendix 1 for methodology).

Table 1: Number of e-cigarette users in Great Britain

	Percentage of population who currently vape	Percentage point change (YoY)	Rate of Growth (YoY)	Number of current vapers (millions)			
				Current smokers	Ex-smokers	Never smokers	All
2012	1.7%	-	-	0.6	0.2	0.03	0.8
2013	2.7%	1.0%	+62%	0.9	0.4	0.08	1.3
2014	4.2%	1.6%	+60%	1.4	0.7	0.04	2.1
2015	5.4%	1.2%	+29%	1.6	1.0	0.05	2.7
2016	5.7%	0.3%	+7%	1.5	1.4	0.05	2.9
2017	5.8%	0.1%	+3%	1.3	1.5	0.09	2.9
2018	6.2%	0.4%	+7%	1.4	1.6	0.13	3.2
2019	7.1%	0.9%	+16%	1.5	2.0	0.22	3.6
2020	6.3%	-0.8%	-11%	1.2	1.9	0.09	3.3
2021	7.1%	0.8%	+13%	1.1	2.4	0.18	3.7
2022	8.3%	1.2%	+17%	1.5	2.5	0.35	4.3
2023	9.1%	0.8%	+10%	1.7	2.7	0.32	4.7

There are differences in vaping behaviour by social class, with 10% of those classified as C2DE being current vapers compared to 8.1% of those classified as ABC1. This reflects the socio-economic distribution of smokers; in this survey 15% of C2DE are smokers compared to 11% of ABC1. In 2015 6.3% of C2DEs vaped, compared with 4.6% of ABC1s.

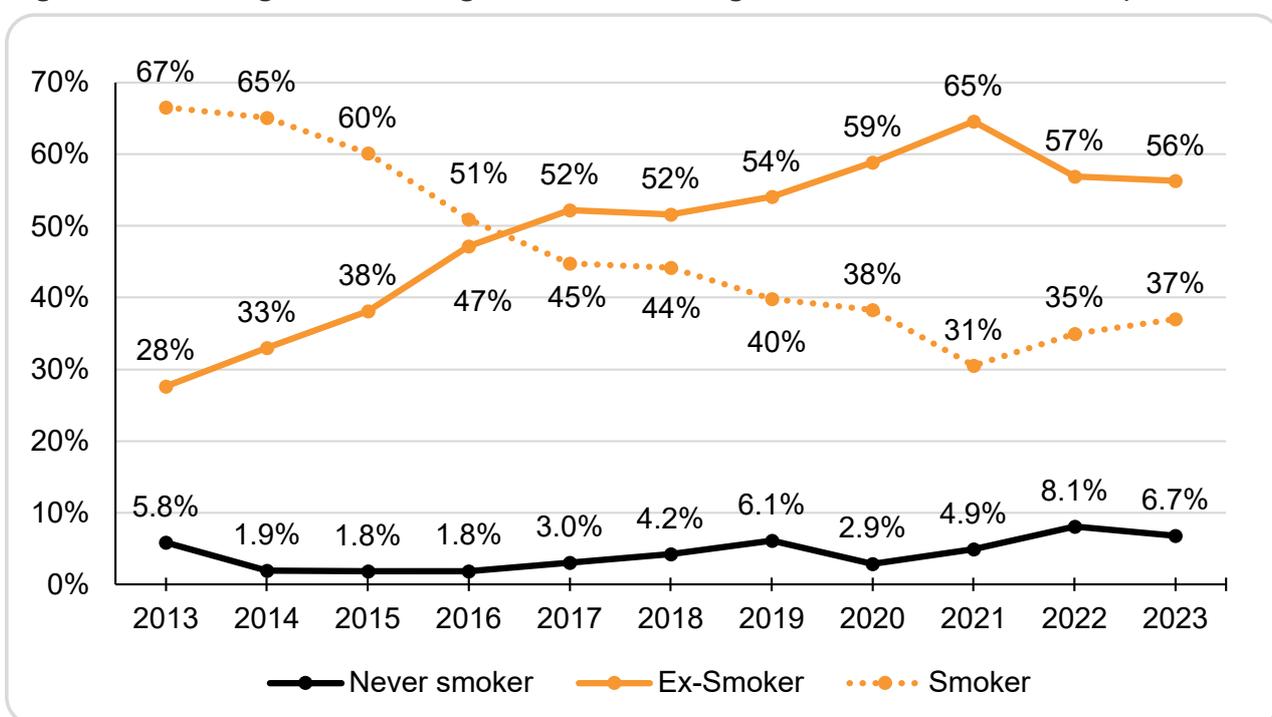
Current e-cigarette use in 2023 is highest in those aged 18 to 54. People aged 25-34, 35-44 and 45-54 all have a current vaping rate of 12%, and 18-24 year olds have a similar rate (11%). People over 55 are less likely to currently use vapes (55-64 year olds; 8.1%, 65+ year olds 3.4%) Use of e-cigarettes isn't significantly higher in men (9.7%) than women (8.6%).

PROPORTION OF VAPERS BY SMOKING STATUS

Use of e-cigarettes is largely confined to current and ex-smokers. Of the 4.7 million current vapers, around 2.7 million are ex-smokers, 1.7 million are current smokers and 320,000 are never smokers. Since 2013, the proportion of current vapers who smoke tobacco has generally fallen, while the proportion who are ex-smokers has risen (Figure 1). However, this trend reversed in 2022. There is a significant decrease in the proportion of current vapers who are ex-smokers, from 65% in 2021 to 56% in 2023. In 2023, 37% of current vapers also smoked (dual users).

In every year since 2017, most e-cigarette users have been ex-smokers. However, there are more ex-smokers (33%) than current smokers (13%) in the whole adult population. As a result, only 15% of the whole group of ex-smokers vape compared to 27% of all current smokers.

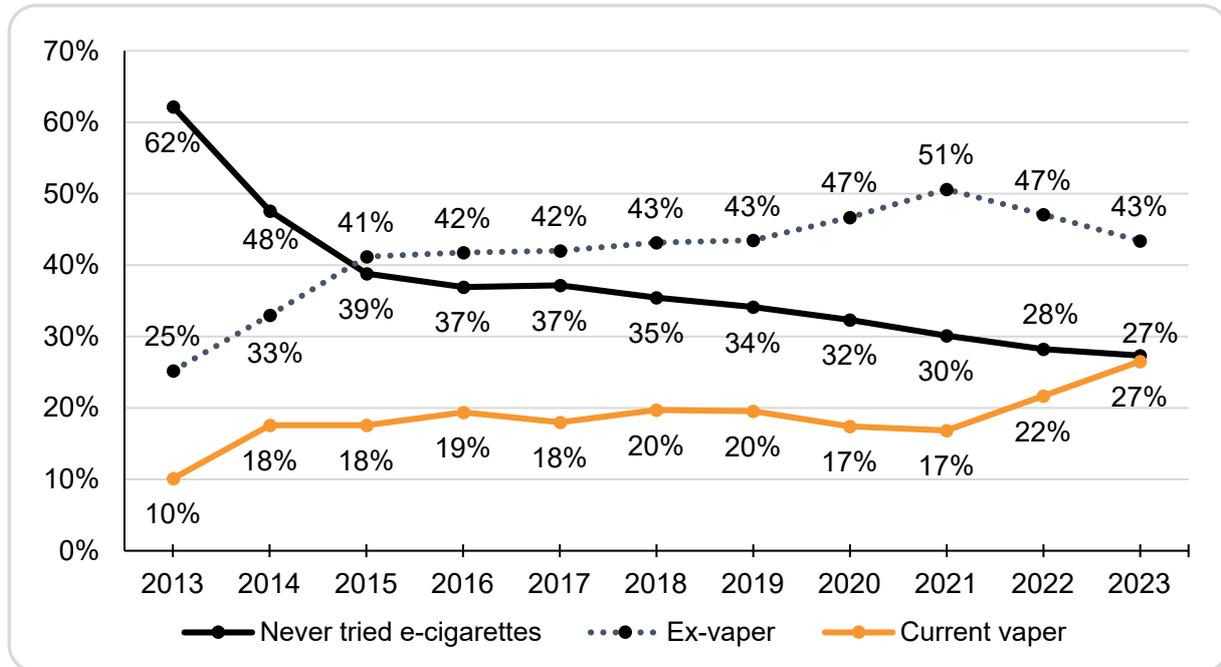
Figure 1 - Smoking status among current adult e-cigarette users, Great Britain (2013–2023)



ASH Smokefree GB Adult Surveys 2013-2023. Unweighted base: Adult current vapers (2013=325, 2014=498, 2015=614, 2016=667, 2017=669, 2018=738, 2019=854, 2020=787, 2021=826, 2022=1,089, 2023=1,079)

The proportion of adult smokers who have tried e-cigarettes has continued to grow. However, in 2023, 27% of current smokers had never used e-cigarettes. (Figure 2).

Figure 2 - E-cigarette use among current adult cigarette smokers, Great Britain (2013-2023)



ASH Smokefree GB Adult Surveys 2013-2023. Unweighted base: Adult current smokers (2013=1,895, 2014=1776, 2015=2037, 2016=1704, 2017=1632, 2018=1633, 2019=1777, 2020=1694, 2021=1512, 2022=1751, 2023=1517)

VAPING BEHAVIOUR

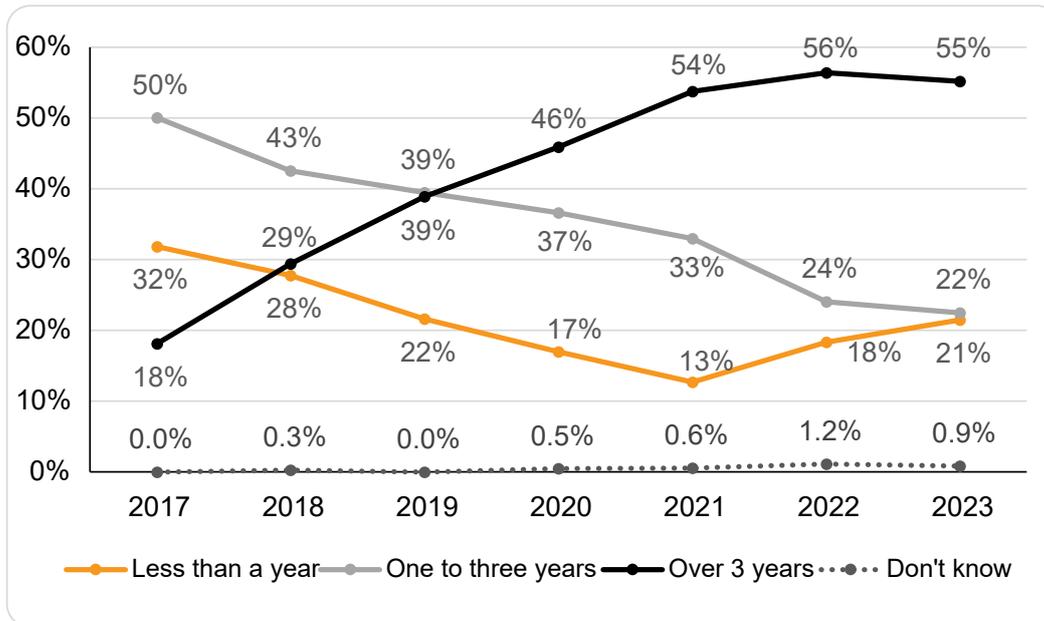
Vaping behaviour in ex-smokers

Current use of e-cigarettes among ex-smokers is 15%, and a further 17% have tried vaping but no longer vape. This means there are 2.7 million ex-smokers who are current vapers and 2.9 million ex-smokers who have tried vaping but no longer do it.

More than half of current vapers who are ex-smokers in 2023 said they had been vaping for over 3 years (55%), compared with 18% in 2017 when we started asking this question. (Figure 3). The proportion of long-term vapers (over 3 years) has grown rapidly since 2017 so from 2022 we have asked in more detail (3-5; 5-10; and 10+ years). In 2023 the proportions were:

- 21% have vaped for under 1 year (570,000)
- 22% have vaped for 1-3 years (600,000)
- 20% have vaped for 3 – 5 years (520,000)
- 30% have vaped for 5 – 10 years (810,000)
- 5% have vaped for over 10 years (140,000)

Figure 3 - Length of e-cigarette use by adults who are ex-smokers and who currently vape, Great Britain (2017-2023)

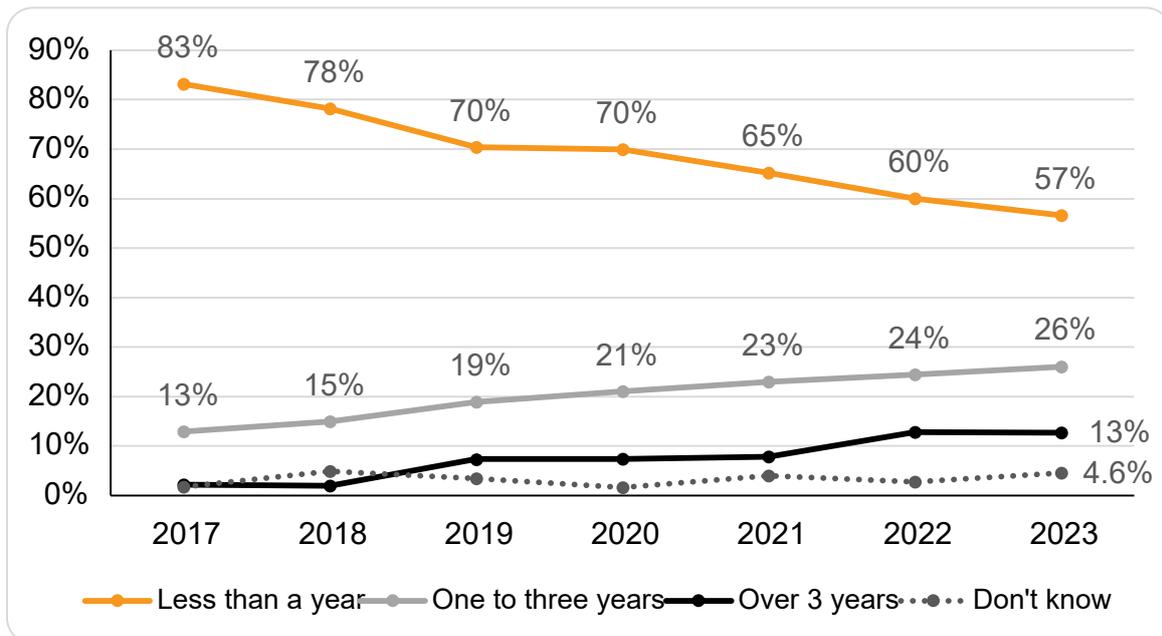


ASH Smokefree GB Adult Surveys 2017-2023. Unweighted base: Adult ex-smokers who currently vape, excluding 'once or twice' and DK frequency of use (2017=357, 2018=399, 2019=456, 2020=473, 2021=533, 2022=586, 2023=604)

Most ex-smokers who currently use e-cigarettes vape daily (86%), with 94% vaping at least weekly. Many ex-smokers who used to vape but have stopped did so regularly, with almost a third saying they vaped daily (32%) and 46% at least weekly.

The proportion of ex-smokers, who are also ex-vapers and used e-cigarettes for less than a year has fallen over time from 83% in 2017 to 57% in 2023. (Figure 4) The proportion using vapes for over a year before stopping has more than doubled from 15% in 2017 to 39% in 2023, with 13% saying they vaped for more than three years before stopping.

Figure 4 - Length of e-cigarette use by adult ex-vapers who are also ex-smokers, Great Britain (2017-2023)



ASH Smokefree GB Adult Surveys 2017-2023. Unweighted base: Adult ex-smokers who no longer vape but once did, excluding 'once or twice' and DK frequency of use (2017=233, 2018=242, 2019=272, 2020=321, 2021=402, 2022=418, 2023=407)

Vaping behaviour in smokers (dual use)

People who vape and smoke are known as dual users. The proportion of e-cigarette users who smoke in our survey is the same as the proportion of NRT users who smoke: 37% or just over a third.

The evidence shows that smokers who cut down before quitting are just as likely to succeed as those who quit abruptly, and some evidence that use of NRT in cutting down can increase the likelihood of successfully quitting.¹ Cutting down to stop with NRT is recommended in NICE guidance for smokers not yet ready or able to stop smoking completely.²

Dual use of e-cigarettes is less well understood. However, of smokers who vape in our survey, 49% do so daily and 48% less than daily, with the remaining 2.5% being unsure or having only tried e-cigarettes once or twice. Of ex-smokers who vape in our survey, 86% do so daily and 12% less than daily with the remaining 2.0% being unsure or having only tried e-cigarettes once or twice.

Vaping behaviour in never-smokers

The proportion of current vapers who say they have never smoked has fluctuated over the years of the survey but is currently 6.7% of current e-cigarette users, equal to 320,000 GB adults. (Figure 1). However, never smokers make up most of the population so the proportion of never smokers who are current vapers is only 1.1%, with 5.7% having ever tried vaping. They are significantly less likely to vape regularly with only 8.8% of never smokers who have ever tried e-cigarettes reporting vaping daily, compared to 32% of never smokers who currently vape, and 86% of ex-smokers who vape and 49% of current smokers who vape.

ARE E-CIGARETTES CONTRIBUTING TO DECLINES IN SMOKING?

The Annual Population Survey found that smoking prevalence among adults aged 18 and over in England declined by 6.8 percentage points from 2011 to 2021. In 2011 20% of adults smoked, falling to 13% in 2021; equivalent to a drop from 7.7 million smokers in 2011 to 5.4 million in 2021.³

A comprehensive approach to tobacco control was implemented during this period, which has been associated with reductions in smoking prevalence.^{4 5 6} This included a tobacco display ban, large graphic health warnings on the front of packs, plain packaging, increased tobacco taxes and minimum pack sizes. A number of factors therefore are likely to have contributed to this decline in prevalence.

However, the Smoking Toolkit Study (an ongoing series of monthly surveys of the adult population of England) has shown a clear association between changes in population rates of quitting smoking and prevalence of e-cigarette use after adjusting statistically for a range of potential confounding factors.⁷ If the association is causal, then the use of e-cigarettes in quit attempts appears to have helped in the region of 30,000 to 50,000 additional smokers to successfully quit each year in England since 2013.⁸ Furthermore, evidence from a randomised controlled trial found that vaping was nearly twice as effective as NRT in helping smokers quit in a Stop Smoking Service setting in England.⁹ A Cochrane systematic living review of the evidence concluded that there is high-certainty evidence that electronic cigarettes (ECs) containing nicotine increase quit rates compared to NRT and moderate-certainty evidence that they increase quit rates compared to ECs without nicotine.¹⁰

Attitudes to vaping

REASONS FOR E-CIGARETTE USE

Among all e-cigarette users who vaped more than once or twice, the four main reasons for vaping are as an aid to quitting (24%) followed by preventing relapse (17%), because they enjoy the experience (14%) and to save money compared with smoking tobacco (11%).

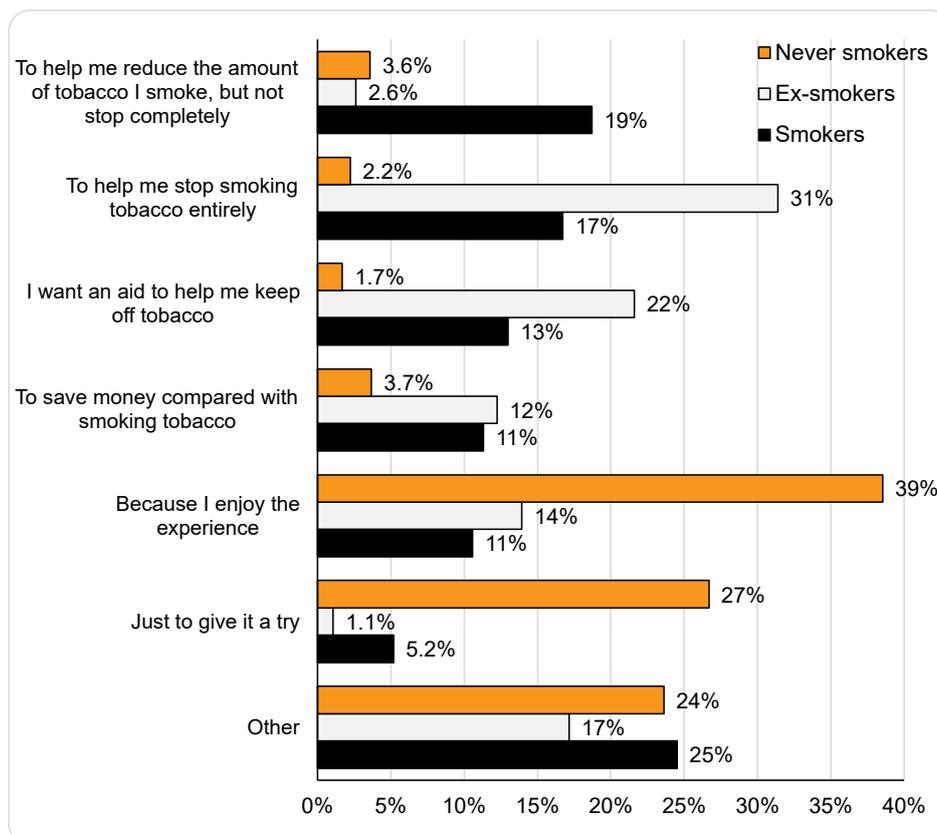
REASONS FOR E-CIGARETTE USE BY SMOKING STATUS

When current e-cigarette users who are ex-smokers are asked for their main reason for vaping, the most frequently cited reasons are: to help them quit (31%); as an aid to keep them off tobacco (22%); because they enjoy it (14%); and to save money (12%). (Figure 5)

The main reasons current e-cigarette users who also smoke (dual users) give for using e-cigarettes are to help them to help cut down the amount smoked (19%), to try to help them quit (17%), and as an aid to keep them off tobacco (13%). However, smokers also give as a main reason to help them deal with situations where they cannot smoke (6.5%) and to avoid putting those around them at risk of secondhand smoke (4.5%).

The main two reasons for vaping among never smokers are enjoying the experience (39%) and just to give it a try (27%).

Figure 5 - Main reason for vaping among adult smokers, ex-smokers and never smokers who vape, Great Britain (2023)



ASH Smokefree GB Adult Surveys 2023. Unweighted base: Adults who currently vape, excluding 'once or twice' (Smokers=384, ex-smokers=607, never smokers=62). Other options to choose are grouped under 'Other': 'To help deal with situations where I cannot smoke', 'To avoid putting those around me at risk', 'Because I feel I am addicted to smoking tobacco', 'It was advised by a health professional', 'It was suggested or recommended by a friend' and 'Other'. These were all chosen by less than 7% of any group. 'Other' was directly chosen by 8% of never smokers and 2% of current smokers and ex-smokers.

SATISFACTION

Those who tried vaping were also asked how satisfying they found it.

Ex-smokers who currently vape

Around two thirds of e-cigarette users who no longer smoke find vaping more or equally satisfying as smoking (66%). The proportion finding it less satisfying is 28% (Figure 6).

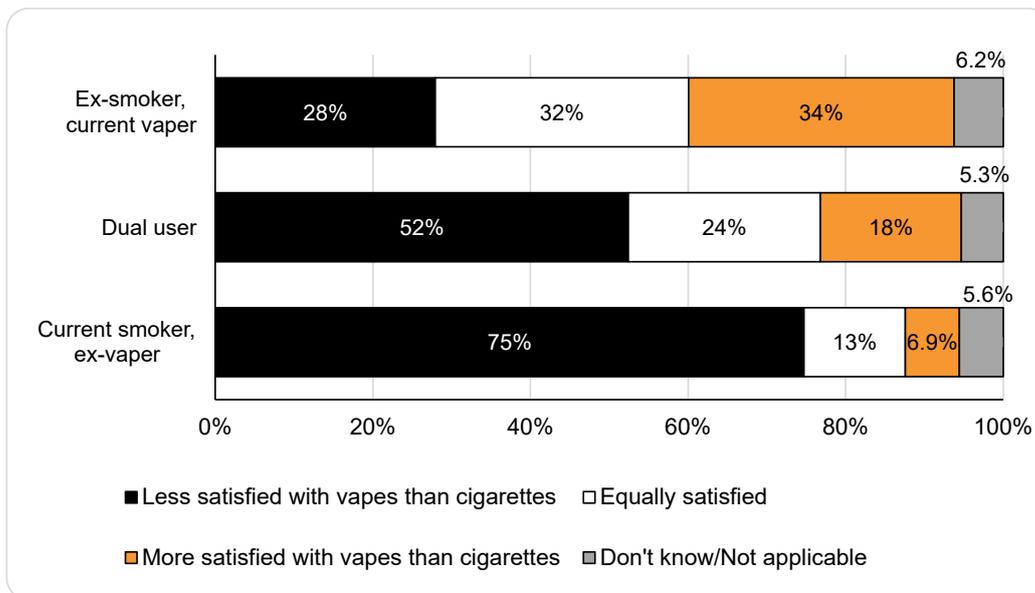
Smokers who currently vape

Less than half of vapers (42%) who also smoke find it more or equally satisfying than smoking, while 52% find it less satisfying.

Smokers who are ex-vapers

Satisfaction levels are lowest of all for smokers who have tried but no longer use e-cigarettes, 75% of whom say they found vaping less satisfying than smoking, little changed from 79% in 2021. Products have improved over the years, and it could be worth encouraging ex-vapers who smoke to try vaping again to prompt further quit attempts.

Figure 6 - Satisfaction levels from e-cigarettes compared with smoking in adults, Great Britain (2023)



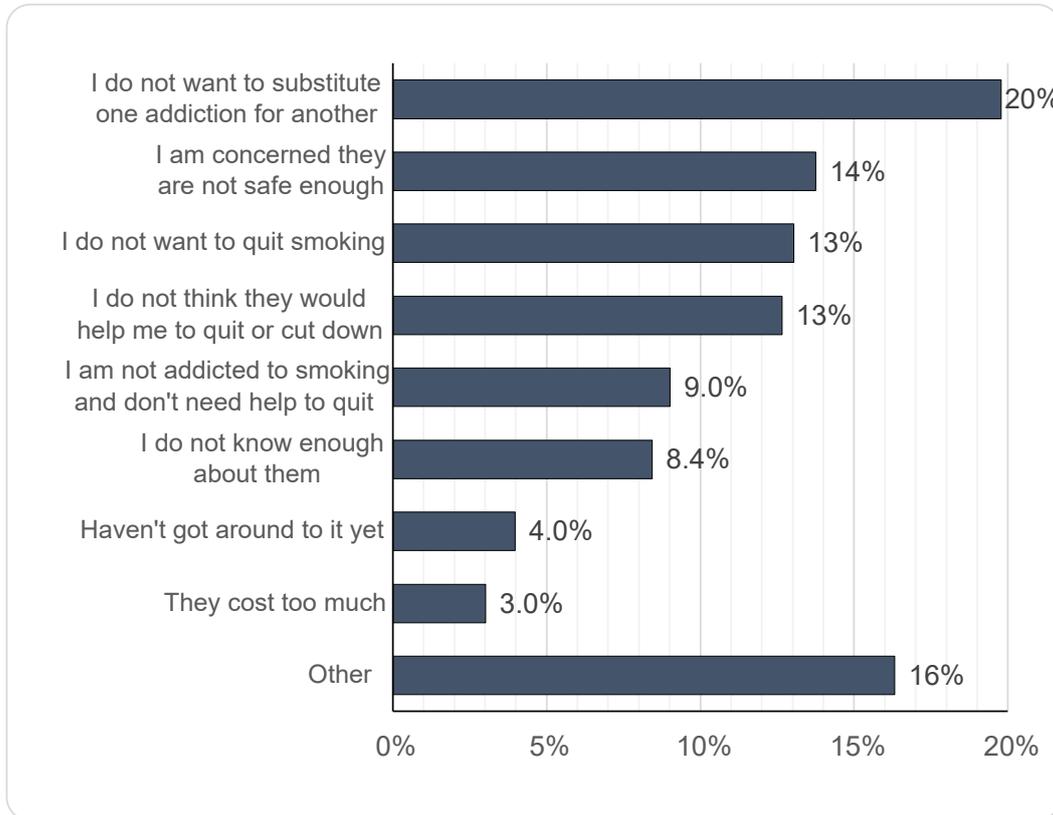
ASH Smokefree GB Adult Surveys 2023. Unweighted base: Adults who have ever smoked and ever vaped, excluding 'once or twice' (currently smoking, ex-e-cig user=363, currently both smoking and using e-cigarettes=384, ex-smoker currently using e-cigarettes=607)

REASONS WHY SMOKERS HAVEN'T TRIED OR HAVE STOPPED USING E-CIGARETTES

Just over a quarter, 27%, of smokers have not yet tried e-cigarettes. Smokers' views on addiction were the most frequently cited main reason, with 20% saying they do not want to substitute one addiction for another, while conversely 9.0% say that they're not addicted to smoking and don't need help to quit. A further 13% say that they do not want to quit smoking, similar to 2022 (12%). (Figure 7)

Concern for the safety of e-cigarettes is the main reason for 14% of smokers who hadn't tried them, and a further 13% say that they do not believe that e-cigarettes could help them quit or cut down, showing a lack of confidence in these products. Another 8.4% say their main reason was not knowing enough about e-cigarettes.

Figure 7 - Main reason for not trying an e-cigarette among adult smokers, Great Britain (2023)



ASH Smokefree GB Adult Survey 2023. Unweighted base: Adults who are current smokers, who have not tried e-cigarettes and who have heard of e-cigarettes 2023=372. Other options to choose are grouped under 'Other'; 'I do not like the way they look' (2.6%), 'There are too many products to choose from' (2.5%), 'I would be embarrassed to use them in public' (2.4%), 'I'm using other things to help me quit smoking' (1.9%), 'They are too difficult to get hold of' (0.5%) and 'Other' (6.5%).

More than four in ten, 43%, of smokers have tried but no longer use e-cigarettes. The main three reasons cited for stopping using e-cigarettes were the same as last year:

- 26%: that vaping did not feel like smoking a cigarette (23% in 2022)
- 21%: that vaping did not help them deal with cravings (17% in 2021)
- 19%: that they had only tried them to see what they were like (14% in 2021)

Negative experiences included feeling unwell (9.1%) and not liking the taste (4.8%).

Perceptions of harm

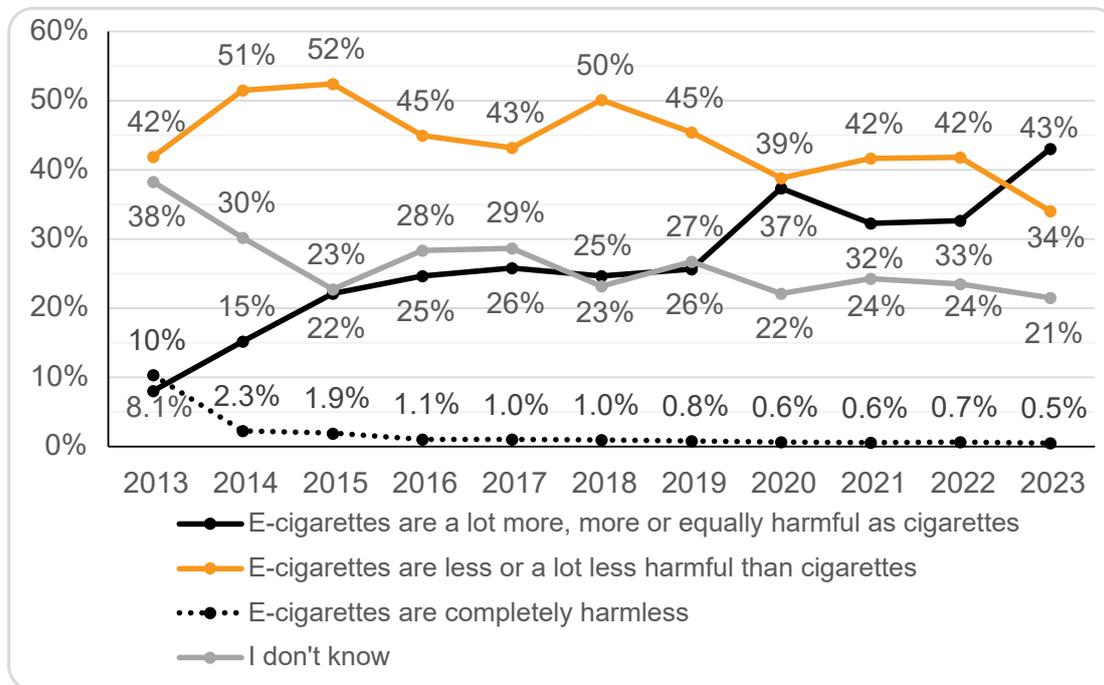
ADULT POPULATION MISPERCEPTIONS OF HARM

From 2016 to 2019 the proportion of adults who inaccurately believed that vaping is as, or more harmful than smoking hovered around one in four, with between 43% and 50% believing it was less harmful. (Figure 8) However, in 2020 the proportion believing it was more or equally harmful rose significantly to 37% with the proportion believing it to be less harmful falling to 39%.

The likely driver for this change in public perception was significant media coverage of injuries to health in the US from products banned in the UK. This year's significant drop in public understanding that vaping is less harmful than smoking could be linked to widespread media coverage of youth vaping which has not always clearly distinguished the differences between the harms from smoking and vaping.

The proportion believing vaping was more or equally harmful fell back from 37% in 2020 to 32% in 2021 and 33% in 2022. However, there has been another sharp rise in this misconception in 2023, to 43%. For the first time, the most common view is that e-cigarettes are at least as harmful as cigarettes. One in four adults (26%) believe e-cigarettes are less harmful but only 8% correctly state that e-cigarette use is a lot less harmful than smoking.

Figure 8 - Adult perception of harm from e-cigarettes, Great Britain (2013-2023)

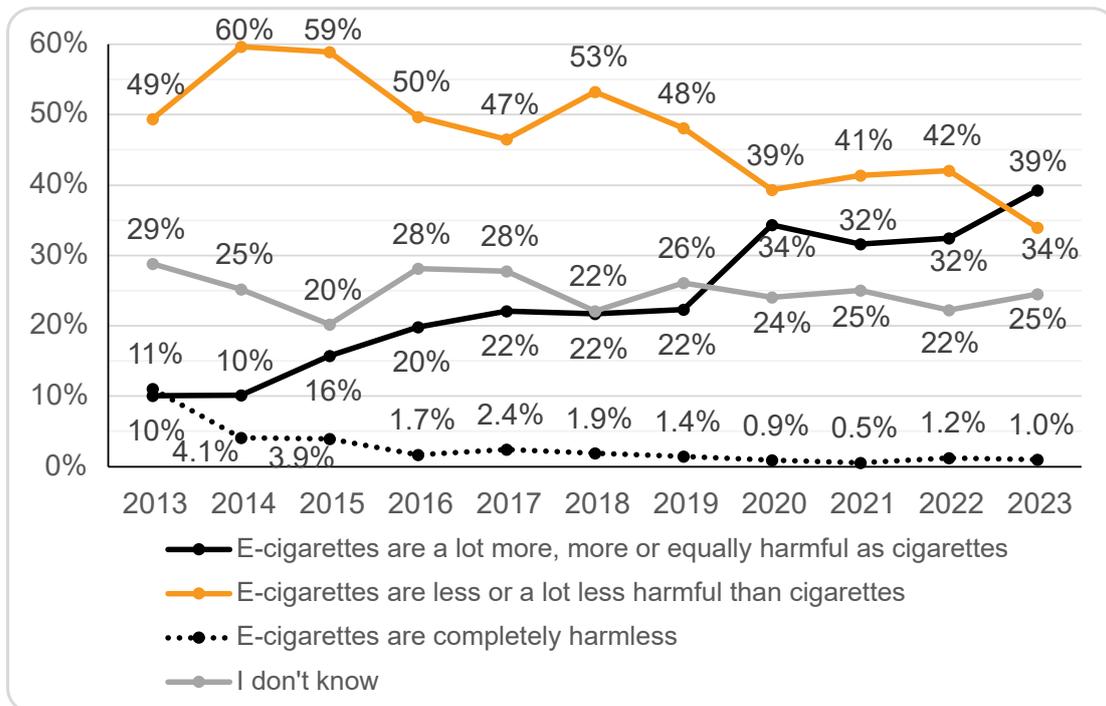


ASH Smokefree GB Adult Surveys 2013-2023. Unweighted base: Adults who have heard of e-cigarettes (2013=8,936, 2014=11,307, 2015=11,340, 2016=11,489, 2017=12,101, 2018=12,070, 2019=11,634, 2020=11,954, 2021=11,429, 2022=12,039, 2023=11,327). Figures do not sum to 100% as the small proportions thinking cigarettes are completely harmless are excluded.

SMOKERS' PERCEPTIONS OF HARM

A similar pattern can be seen among smokers' perceptions of harm in 2023 (Figure 9) with nearly four in ten (39%) believing vaping was more or equally harmful, and a quarter (25%) saying they don't know. The proportion thinking that vaping is less or a lot less harmful than smoking is similar to that among the general population (both 34%) but a higher proportion think e-cigarettes are a lot less harmful (11% compared to 8%). One in a hundred smokers (1.0%) believe that e-cigarettes are completely harmless.

Figure 9 - Smokers' perception of harm from e-cigarettes, Great Britain (2013-2022)

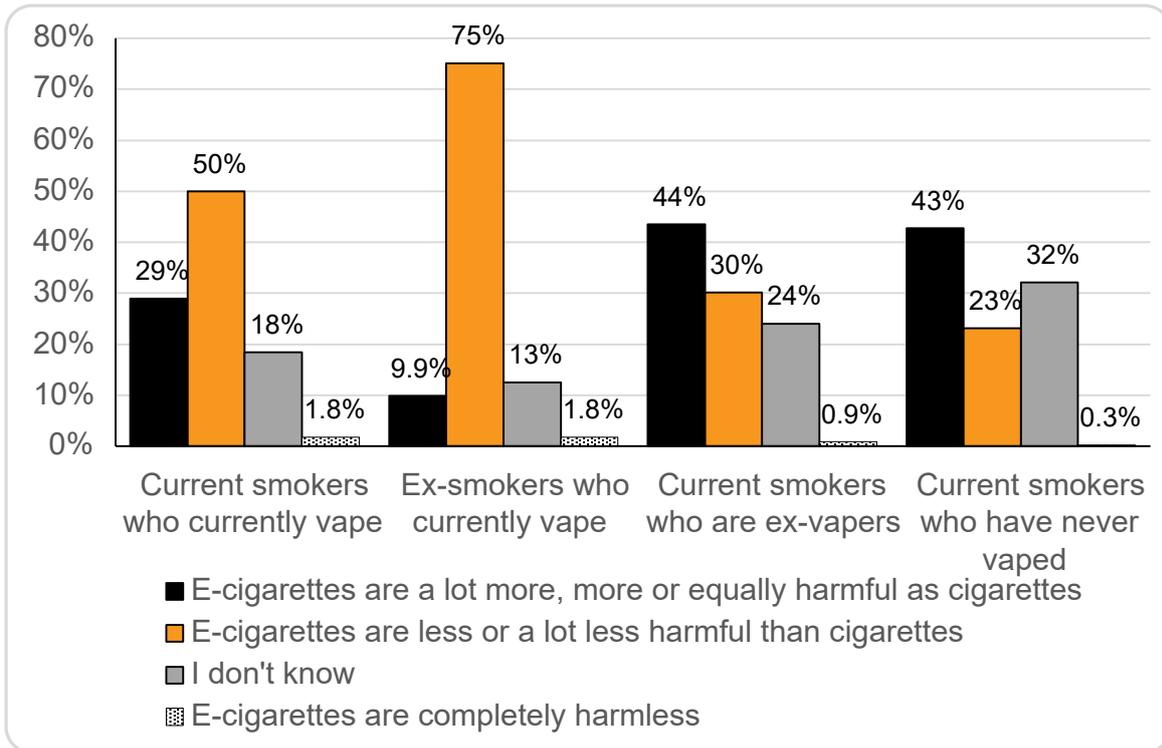


ASH Smokefree GB Adult Surveys 2013-2023. Unweighted base: Adult current smokers who have heard of e-cigarettes (2013=1,720, 2014=1,705, 2015=1,945, 2016=1,639, 2017=1,569, 2018=1,566, 2019=1,679, 2020=1,599, 2021=1,438, 2022=1,641, 2023=1,426) Figures do not sum to 100% as the small proportions thinking cigarettes are completely harmless are excluded.

Smokers who currently use e-cigarettes have slightly more accurate perceptions of their harm, with 50% thinking that e-cigarettes are less harmful (down from 71% in 2019) and 29% thinking that they are more or equally harmful (up from 9.2% in 2019). (Figure 10). However, the proportion of current smokers who have never tried e-cigarettes who believe they are more than or equally as harmful as cigarettes increased from 27% in 2019 to 43% in 2023.

Ex-smokers who currently use e-cigarettes have the most accurate perceptions of the harm of e-cigarettes. In 2023, 75% of them correctly thought e-cigarettes are less harmful than smoking. In 2023, 9.9% of ex-smokers who currently use e-cigarettes said that they are more or equally harmful (5.0% in 2019). (Figure 10).

Figure 10 - Adults' perception of harm from e-cigarettes by smoking and vaping status, Great Britain (2023)



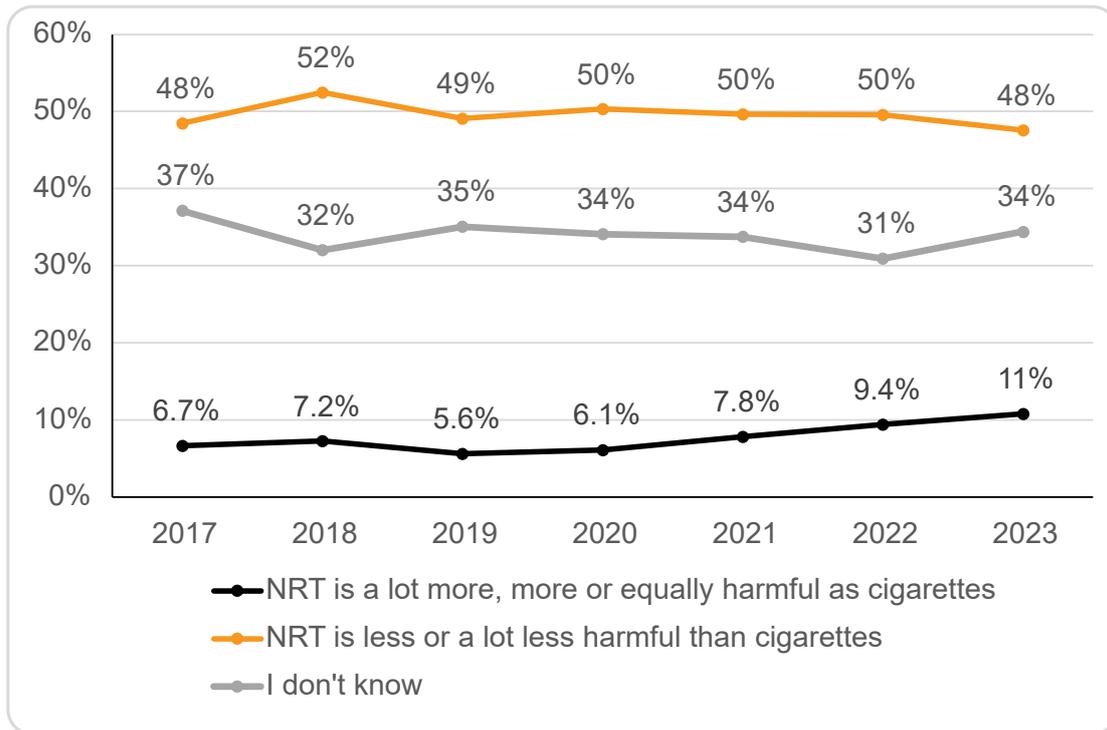
ASH Smokefree GB Adult Survey 2023. Unweighted base: Adults who have heard of e-cigarettes (Current smokers who currently vape=388, Ex-smokers who currently vape=617, Ex-vapers who currently smoke=666, Current smokers who have never vaped=372). Figures do not sum to 100% as the small proportions thinking cigarettes are completely harmless are excluded.

PERCEPTIONS OF HARM FROM NICOTINE REPLACEMENT THERAPIES (NRT)

Over the last eight years we also asked people for their views of the relative harms of NRT compared with tobacco smoking. NRT is a licensed medication with minor side effects, which is recognised as an essential medicine by the WHO.¹¹

Understanding of the relative risk of NRT compared to smoking among smokers remains poor. (Figure 11). However, it is considerably better than their understanding of the relative risk of vaping and smoking. (Figure 9). In 2023 a third (34%) of smokers said that they did not know how harmful NRT is compared to smoking, 11% thought it was more than or equally as harmful as smoking, and only 29% correctly identified NRT as being a *lot less* harmful than smoking.

Figure 11 – Adult smokers’ perception of NRT compared with regular cigarettes, GB Great Britain (2017-2023)



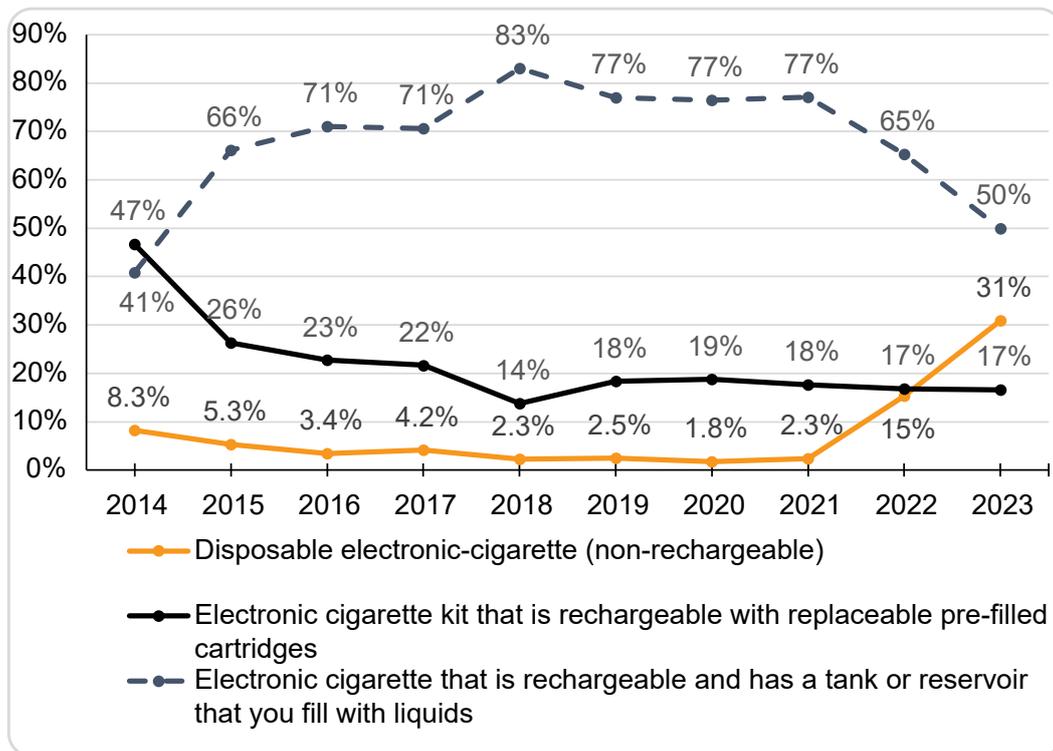
ASH Smokefree GB Adult Surveys 2017 - 2023. Unweighted base: Adult current smokers (2017=1,632, 2018=1,633, 2019=1,777, 2020=1,694, 2021=1,512, 2022=1,751, 2023=1,517) Figures do not sum to 100% as the small proportions thinking cigarettes are completely harmless are excluded.

Types of device and e-liquids in use

E-CIGARETTE DEVICE USED

The most commonly used type of e-cigarette device remains a refillable tank system, with 50% of current vapers reporting this type as their main device. (Figure 12). However, this has decreased since 2021 when 77% of current vapers mainly used a tank-type e-cigarette. There has been a corresponding increase in the main use of disposable e-cigarettes, from 2.3% in 2021 to 31% in 2023. The proportion of current e-cigarette users who mainly use devices that are rechargeable with prefilled cartridges is 17%, which has been stable since 2019.

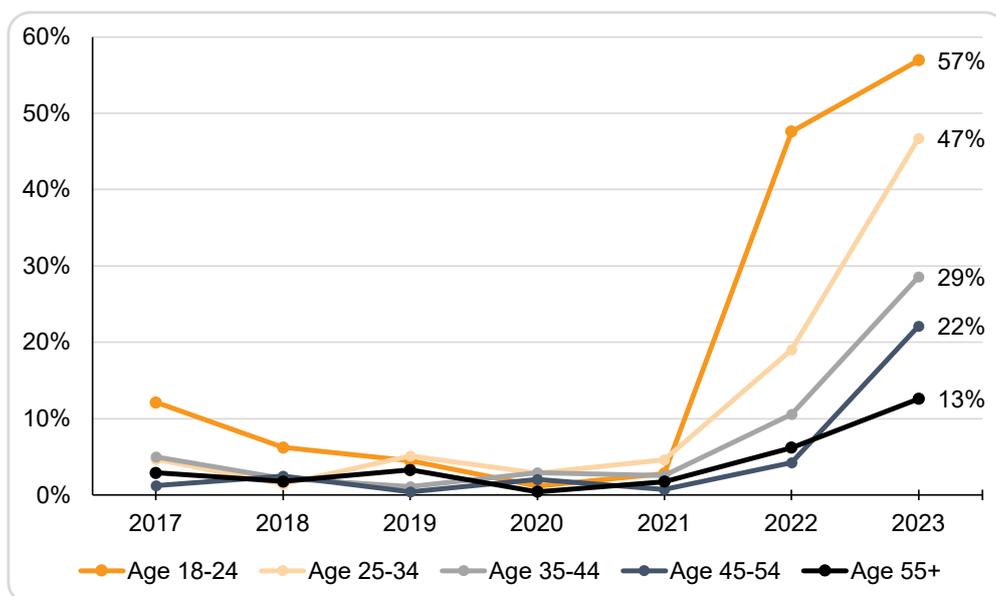
Figure 12 - Type of e-cigarette used by current e-cigarette users, Great Britain (2014 - 2023)



ASH Smokefree GB Adult Surveys 2014-2023. Unweighted base: Adults who currently use e-cigarettes, excluding 'once or twice' and DK frequency of use from 2017 onwards (2014=498, 2015=614, 2016=667, 2017=657, 2018=715, 2019=800, 2020=767, 2021=790, 2022=1,033, 2023=1,042) Figures do not sum to 100% as the small proportions saying Don't Know and Other have been excluded.

Younger adults are mostly driving the increase in using disposable e-cigarettes as the main type of e-cigarette. (Figure 13). For 18-24 year olds, more than half of current e-cigarettes users (57%) use disposables as their main type in 2023, an increase from only 2.8% in 2021. In 2023, disposable e-cigarettes are also the most popular main device type among 11-17 year old e-cigarette users (69%).¹²

Figure 13 - Use of disposable e-cigarettes by age group, Great Britain (2017-2023)



ASH Smokefree GB Adult Surveys 2023. Unweighted base: Adult current e-cigarette users, excluding only tried once or twice and don't know freq. of use - see Table in Appendix for counts.

Nearly three quarters (74%) of all current e-cigarette users said they only used one type of device.

Current vapers considered convenience of use and price to be important factors in their choice of device type, although there is no consensus about which types deliver these benefits:

- The most common reasons for choosing a disposable vape are convenience of use (32%), being able to get desired flavours (21%) and that it's cheaper (11%).
- The most common reasons for choosing a cartridge type device are convenience of use (28%) and that it's cheaper (12%).
- The most common reasons for choosing a tank type device are that it's cheaper (25%), being able to choose the strength of nicotine (16%) and convenience of use (13%).

BRANDS OF VAPES

- Of those who currently mainly use disposable vapes, the most popular brands are Elf Bar 600 (55%), Lost Mary BM500 (23%), Crystal Bar (16%), Elux Legend Mini (13%) and Geek Bar (11%).
- Of those who currently vape with a cartridge, the most popular brands are Vuse (23%), Juul (17%) and Elf Bar Mate (13%).
- Of those who currently vape with a tank type device, the most popular brands are Aspire (18%), Smok (17%), Innokin (14%) and GeekVape (10%).

NICOTINE CONSUMPTION

Some stakeholders have expressed concerns that the cap on nicotine levels imposed by the Tobacco Products Directive (TPD)¹³ could be discouraging use among smokers with the highest levels of addiction.¹⁴ For example, in the US, where there is no cap on nicotine levels, one of the most popular products, Juul, sells in two strengths, 59 mg/ml and 35 mg/ml,¹⁵ both much higher than the legal limit in the EU. In the UK only 18 mg/ml Juul products are available, below the legal maximum of 20 mg/ml.¹⁶

In 2016, before the legislation was introduced, more than three quarters of current or former e-cigarette users surveyed by ASH vaped liquids with concentrations of nicotine of 18 mg/ml or less (77%), with nearly half (49%) using e-liquid containing 12 mg/ml or less. One in ten (10%) used more than 18 mg/ml (the legal limit of 20 mg/ml was only included as a specific break point from 2017 onwards). In 2017, at the time the sell through period was coming to an end, 5.9% of current vapers were using above the TPD limit, falling to 2.1% in 2018 (Table 2).

The ASH survey suggests that the current nicotine cap of 20 mg/ml is not a problem for the majority of e-cig users who use e-liquid containing nicotine, as they are using strengths well under the legal limit. In 2023, 1.2% of current e-cigarette users said they use nicotine strengths above the legal limit, and a further 8.4% used nicotine strengths just under or at the legal limit (19-20mg/ml). 13% did not know what strength they used. The majority of adults currently vaping use nicotine strengths below 13 mg/ml.

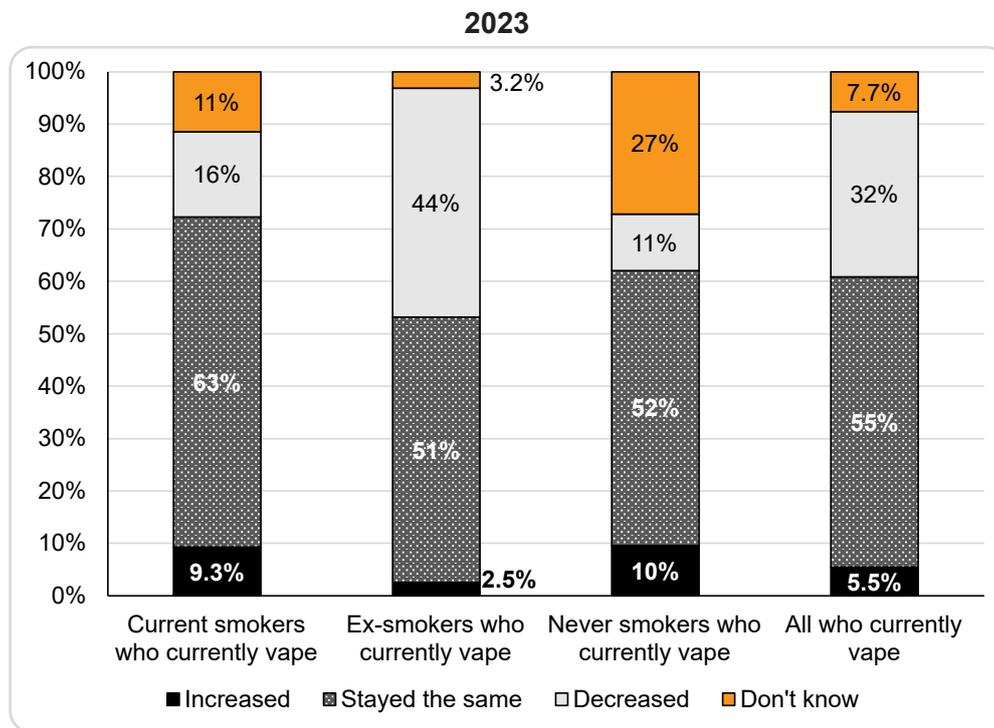
Table 2

Strength of nicotine used by current e-cigarette users							
Strength	2017	2018	2019	2020	2021	2022	2023
TPD level and lower	85%	90%	88%	91%	92%	90%	86%
Higher than TPD	5.9%	2.1%	2.0%	2.1%	1.5%	0.9%	1.2%
Don't know	9.5%	8.4%	9.8%	7.0%	6.5%	9.0%	13%

ASH Smokefree GB Adult Surveys 2017-2023. Unweighted base: Current GB adult e-cigarette users who use nicotine. 2017 n=597; 2018 n=365; 2019 n=720; 2020 n=693; 2021 n=633; 2022 n=938, 2023 n=953

In 2023, 55% of current vapers say they use the same strength e-liquid as when they started, while 32% have decreased the strength. Only 5.5% have increased the strength over time. (Figure 14). E-cigarette users who have quit smoking are more likely than dual users to report using a lower nicotine strength over time (44% of ex-smokers who vape say the strength they use has decreased compared with 16% of current dual users).

Figure 14 - Change over time of e-liquid nicotine strength among current adult vapers, Great Britain



ASH Smokefree GB Adult Surveys 2023. Unweighted base: Adults who currently use e-cigarettes, excluding once or twice (Current smokers=384, Ex-smokers=607, Never Smokers=62, All=1,053). Question asked e-cigarette users about any change in nicotine strength comparing their first use to current use.

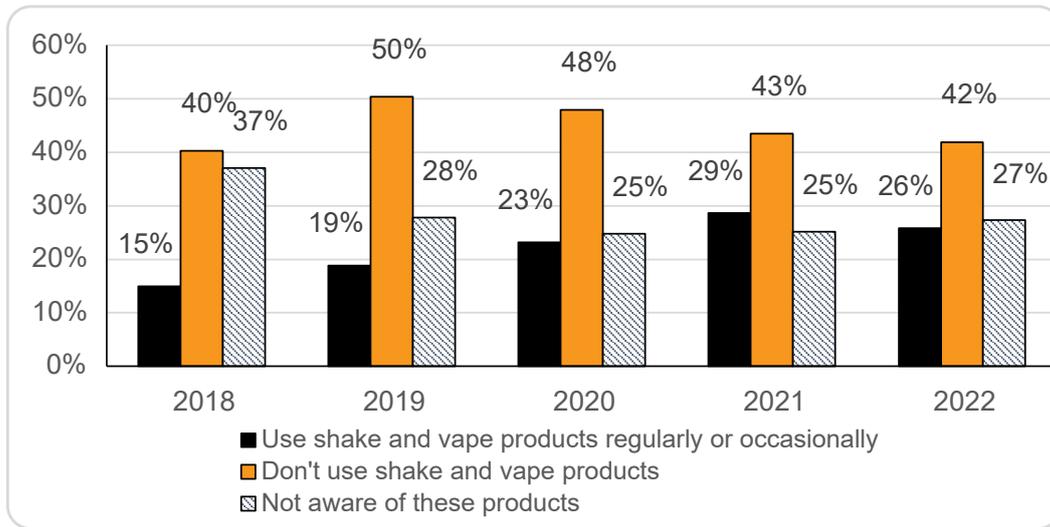
VOLUME OF E-LIQUID USED IN TANK-TYPE E-CIGARETTES AND DEDICATED REFILL BOTTLES

Legislation limits the volume of e-liquid in an e-cigarette to less than 2ml and dedicated refill bottles for tank-type devices to 10ml.

In 2016, prior to this legislation coming into force, 44% of those vaping daily and using a tank device reported using 2ml or less a day with 0.2% reporting using more than 10ml of liquid a day. In 2023, 28% of all daily e-cig users used 2ml or less a day and 3.1% more than 10 ml a day. We have not asked why vapers have increased the amount of liquid they use, but the most likely reasons are either the cap on nicotine strengths and/or changes in the types of products being used.

To get around the limits, larger bottles of zero-strength liquid are on sale alongside smaller bottles with the highest legal limit nicotine strength liquid, sold to be mixed together. This is sometimes marketed as 'shake and vape'. The product is only used with open or tank systems, as disposable and cartridge-type devices do not have refillable liquid. The 2023 ASH YouGov survey did not include this question, but in 2022 26% of current vapers who mainly use tank devices or who use nicotine reported using 'shake and vape' products. (Figure 15)

Figure 15 - Change in awareness and use of 'shake and vape' products, Great Britain (2018 to 2022)



Unweighted base: Current GB e-cigarette user using tank as main device and using nicotine. 2018 n=696; 2019 n=775; 2020 n=744; 2021 n=769; 2022 n=993

OTHER NICOTINE PRODUCTS

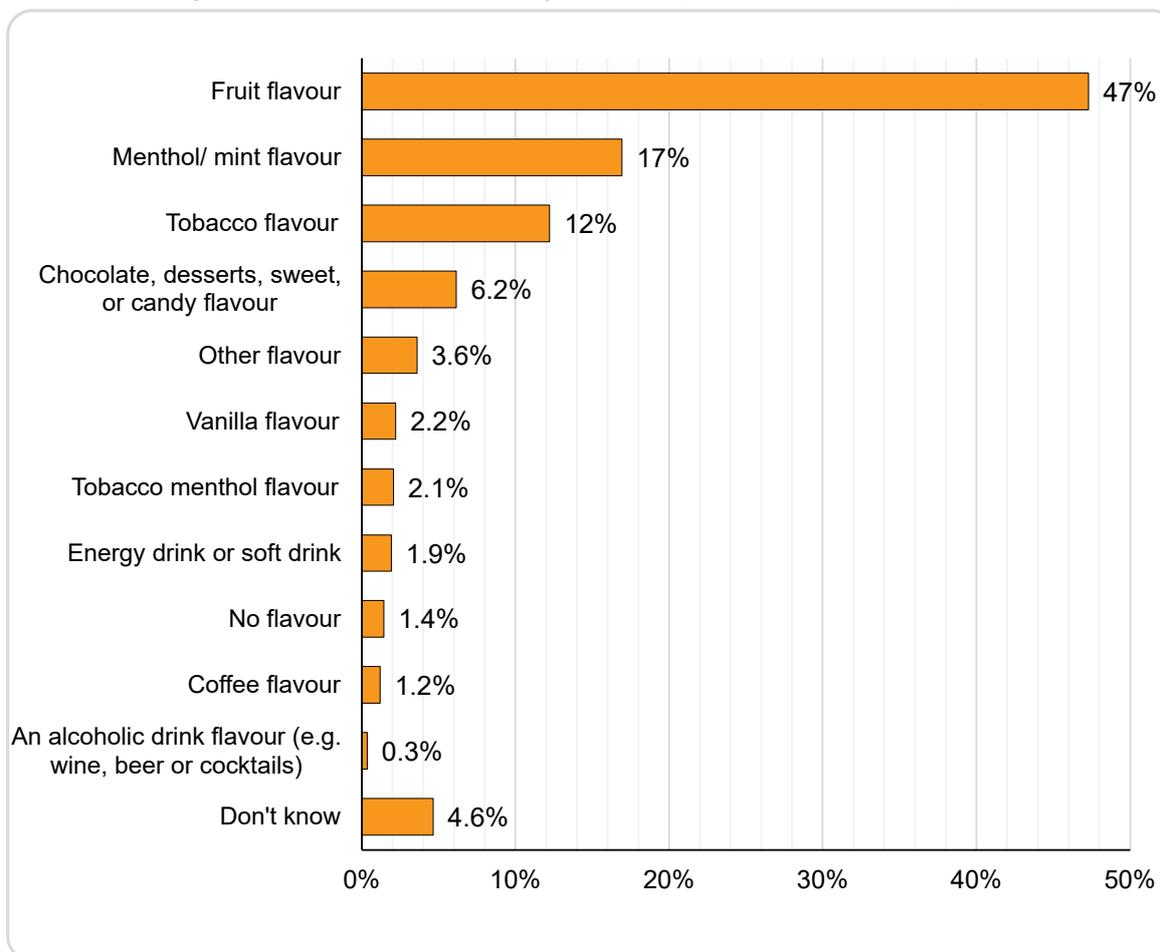
From 2017, after the launch of the Philip Morris International (PMI) product IQOS, the ASH Smokefree GB survey has asked about knowledge and use of heated tobacco products (also known as heat not burn). Population level of knowledge and use was low to start with. In 2021, 30% of smokers had heard of heated tobacco products and 6.1% had ever tried them. In 2023, smokers' knowledge of heat not burn products had increased slightly to 36%, with 8.6% having ever tried them.

Nicotine pouches (which includes brands such as Zin and Nordic Spirit) appear to have greater public awareness with 54% of smokers reporting they have heard of these products in 2023. Ever use of nicotine pouches is at 15% among smokers in 2023. Fewer than 1% of never smokers have tried nicotine pouches, and only 0.2% say they are still using them.

USE OF FLAVOURS

In 2015, we started asking e-cigarette users what flavour they used most often. (Figure 16). In 2015 tobacco was most popular at 38% followed by fruit flavour at 25% and menthol 19%. This has changed over time with fruit flavours now the most popular at 47%, followed by menthol at 17%. Tobacco flavour has fallen to third most popular at 12%. Very few report using products with no flavours.

Figure 16 - Flavours used by adult vapers, Great Britain (2023)



ASH Smokefree GB Adult Surveys 2023. Unweighted base: Adults who currently use e-cigarettes=1,079.

Patterns of behaviour are similar for ex-smokers who vape and for dual users (Table 3), although ex-smokers are more likely to choose menthol/mint flavour than current smokers. Never smokers are much more likely than other groups to not know what flavour e-cigarettes they use (24%), with very few choosing menthol or tobacco flavours (3.1% and 0.0%).

Table 3

Vape liquid flavour most often used (current e-cigarette users)			
	Current smokers (dual users)	Ex-smokers	Never smokers
Fruit flavour	49%	47%	43%
Menthol/mint flavour	14%	21%	3.1%
Tobacco flavour	11%	14%	0.0%
Don't know	4.8%	2.2%	24%

Unweighted base: All GB adults who currently use e-cigarettes 2023. Current smokers n=388; ex-smokers n=617; never smokers=74

In 2020, we asked vapers to describe their use of flavours and a higher proportion of ex-smokers who currently vape (74%) said they stick to the same flavours compared to dual users (61%).

Appendix 1

METHODS

Percentages in this report are given to the nearest whole number, or to one decimal place if under 10%. As a result, some sums may appear out by ± 0.1 percentage points due to rounding error.

This briefing reports the results of the ASH Smokefree GB surveys on the use of e-cigarettes among adults in Great Britain. All figures, unless otherwise stated, are from YouGov Plc. ASH included questions on e-cigarette use in this annual survey starting in 2010 with questions initially addressed only to smokers. ASH updated its annual survey with questions on e-cigarettes addressed to all respondents from 2012 onwards. (Appendix Table 1). These surveys have all been carried out online once a year in Spring by YouGov. All figures have been weighted and are representative of GB adults (aged 18+). Not all questions are asked every year, especially where answers have proven stable in the past. A few new questions are also introduced each year. ASH has also carried out a survey of youth e-cigarette use (11-18-year olds) since 2013. Analysis of e-cigarette use among youth is published separately.¹¹

Calculations of the total number of vapers in Great Britain set out in Table 1 are by ASH. Counts are based on population estimates from ONS [Estimates of the population for the UK, England, Wales, Scotland and Northern Ireland](#). For 2022 and 2023, the most recent population estimate, for 2021, has been used. In future publications when 2022 and 2023 population estimates are available, the 2022 and 2023 figures may be very slightly different.

In each of the years we applied the proportions of e-cigarette use in the YouGov survey to the most recent available ONS mid-year GB population estimates at the time the YouGov data was gathered.¹⁷ In 2022 and 2023 the average rate of growth in population size from 2013 to 2021 has been applied to the 2021 figure.

Table 4 - History of ASH Smokefree GB Surveys

Year	Sample Size	Dates
2008	3,329	20th – 25th February
2009	13,075	25th – 30th March
2010	12,597	17th – 22nd March
2012	12,436	27th February – 16th March
2013	12,171	1st – 19th February
2014	12,269	5th – 14th March
2015	12,055	26th February – 12th March
2016	12,157	2nd – 23rd March
2017	12,696	16th February – 19th March
2018	12,767	8th February – 6th March
2019	12,393	12th February – 10th March
2020	12,809	17th February – 11th March
2021	12,247	18th February – 18th March
2022	13,088	16th February – 21st March
2023	12,271	22nd February – 15th March

Since the ASH-commissioned Smokefree GB survey first started, there have been a number of other surveys which have gathered data on e-cigarette use. The Smoking Toolkit Study is probably the most extensive of these and tracks both smoking and e-cigarette use throughout the year.¹⁸ The study started in England in January 2007 and expanded to Scotland and Wales in December 2020. The countries' surveys are reported separately rather than together as Great Britain, and only the England data are discussed here. The trends are similar in both surveys,¹⁹ but the ASH Smokefree GB survey consistently estimates a slightly lower figure for the proportion of e-cigarette users who are current smokers. The ASH surveys find different results which are likely explained by different methodologies and different definitions. The ASH Smokefree GB surveys define a never smoker as someone who agrees with the statement "I have never smoked", while in the Smoking Toolkit Study a never smoker is someone who agrees with the statement, "I have never been a smoker (i.e. smoked for a year or more)". For further information see the [Smoking Toolkit](#).

COVID-19

The YouGov data collection for the ASH Smokefree surveys occurs in February and March, so we do not expect that the 2020 data was significantly affected by the COVID-19 pandemic. The data in subsequent years may capture changes in smoking and vaping attitudes and behaviours that are causally related to the pandemic or lockdown. In 2020, data collection for both the Annual Population Survey²⁰ and the Smoking Toolkit Study²¹ had to be changed from face-to-face to telephone interviews. This means it is difficult to determine how far the changes in vaping patterns in these surveys were due to changes in the mode of data collection and how far they were directly due to COVID-19. To compensate for the change of modality, the APS made a statistical adjustment to the data for 2020 onwards.²² The ASH Smokefree survey has always been online, so did not have a discontinuity in method during the pandemic.

Table 5 - Sample sizes for Figure 13

		Year						2023
		2017	2018	2019	2020	2021	2022	
Age	18-24	52	50	56	55	52	217	147
	25-34	53	68	101	104	129	181	192
	35-44	127	129	159	168	177	217	238
	45-54	190	199	223	176	156	188	207
	55+	235	269	261	264	276	230	258

Appendix 2

E-CIGARETTE REGULATIONS

In 2015 a minimum age of sale for e-cigarettes of 18 was introduced, making it illegal to sell e-cigarettes containing nicotine to under 18s or to purchase them on behalf of under 18s.²³ From 20th May 2016, a regulatory framework for e-cigarettes was introduced in the UK under the EU Tobacco Products Directive (TPD) Article 20.¹¹ From that date, the advertising or promotion, directly or indirectly, of electronic cigarettes and re-fill containers on a number of media platforms, including on television, radio, newspapers and magazines, was prohibited. The only advertising still allowed is at point of sale and other local advertising such as billboards.

The product rules under the TPD for electronic cigarettes introduced a notification process for manufacturers and importers in May 2016.²⁴ Non-compliant stock was allowed on sale for a further year until 20th May 2017.²⁵

See below for a summary of the key product standards:

Nicotine strength of e-liquid

- Electronic cigarettes which contain up to 20 mg per ml of nicotine are regulated as consumer products.
- Products containing over 20mg per ml of nicotine cannot be sold unless they have a medicinal licence.²⁶
- Zero nicotine products are not included in the TPD and do not require a medicinal licence.

Quantity of e-liquid

- Disposable electronic cigarettes, cartridges and tanks can contain a maximum of 2ml of e-liquid, while dedicated refill containers can contain up to 10ml.

Safety

- Products must be child-resistant and tamper evident.

Health warnings

- The pack must carry a health warning covering 30% of the surfaces of the unit packet and any outside packaging stating '*This product contains nicotine which is a highly addictive substance.*'

The Medicines and Healthcare products Regulatory Agency (MHRA) is the competent authority for the notification scheme for e-cigarettes and refill containers in the UK.²⁷ Consumers and healthcare professionals can report side effects and safety concerns with e-cigarettes or refill containers to the MHRA through the Yellow Card reporting system.²⁸ They can also report products suspected to be defective or non-compliant to their local Trading Standards service or to TPDsafety@mhra.gov.uk.

Although the Yellow Card Scheme was formally put in place for e-cigarettes on 20 May 2016, the earliest submission to the yellow card scheme dates back to 1 January 2010. Between 2010 and 31 May 2023 the MHRA received 339 reports covering 942 adverse reactions to vaping.²⁹ There were five fatalities associated with vaping products (2 cardiac and 3 respiratory), however the MHRA cautions that the fact that a report has been submitted does not necessarily mean that the e-cigarette has been proven to cause a reaction.³⁰ MHRA assess all reports received in associated with nicotine-containing e-cigarettes and should any potential safety concerns be identified regulatory action would be taken and communicated as appropriate. The MHRA also receives reports of potential safety concerns and works with local Trading Standards teams to investigate as needed.

There was a legal requirement to review the regulations within five years of implementation and publish a report by 20 May 2021.³¹ The Department for Health and Social Care carried out a post-implementation review consultation January to March 2021.³² The regulations were found to be fit for purpose and to be retained in their current format.³³ ASH asks e-cigarette users questions about the type of product they use to inform our understanding of the impact of the current regulations and how the market for e-cigarettes is evolving.

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