

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

June 2021

## Summary of key findings

This fact sheet analyses how behaviour and attitudes to e-cigarettes among adults aged 18 and over have changed over time. The data are taken from an annual survey, Smokefree GB, carried out for ASH by YouGov. The survey first started asking about e-cigarette use in 2010 and this update includes the results of the 2021 survey carried out in February and March 2021.<sup>1</sup> Set out below is a summary of the key findings.

### USE AND AWARENESS OF E-CIGARETTES

- Having fallen last year for the first time, the proportion of the adult population using e-cigarettes has increased this year to 7.1%, the same as in 2019, amounting to 3.6 million people. (Table 1)<sup>2</sup>
- Nearly two thirds of current vapers are ex-smokers (64.6%), and the proportion continues to grow, while the proportion who also smoke (known as dual users) has fallen to 30.5% in 2021.<sup>3</sup> (Figure 1)
- The proportion of adult smokers who have never tried e-cigarettes is continuing to decline slowly to 30.1% in 2021, while the proportion of smokers who are current users has been stable.<sup>4</sup> (Figure 2)
- Fewer than 1% of never smokers are current vapers (amounting to 4.9% of vapers).

### ATTITUDES TOWARDS E-CIGARETTES

- As in previous years the main reason given by ex-smokers for vaping is to help them quit (36%) then to prevent relapse (20%). (Figure 3)
- The main reason given by current smokers for vaping is to cut down (26%) then to help them quit (17%) and to prevent relapse (14%). (Figure 3)
- Nearly a third of smokers incorrectly believe vaping is more or equally as harmful as smoking (32% compared to 34% in 2020). (Figure 7)

### PRODUCTS USED

- The most popular products remain tank systems, with 77% of vapers reporting using them and 18% of vapers reported using cartridge/pod systems. (Figure 10)
- For those who have tried vaping and used cartridges, Vype is still the most popular brand (18%), with Juul (15%) overtaking Blu and Logic to take second place.
- In 2021, nearly two thirds (65%) of those currently vaping nicotine-containing products were using e-liquids between 1-12 mg/ml of nicotine, with another quarter (27%) using 13-20 mg/ml (20mg/ml is the legal limit). Only 1% were using more than 21mg/ml. (Table 4)
- Excluding those who didn't know the strength of nicotine used, 42% of current vapers say that they use the same strength e-liquid as when they first started vaping, while 47% have decreased the strength and only 9% have increased the strength over time. (Figure 11)

## Use and awareness of e-cigarettes

In 2021, 95% of smokers and 93% of the general population had heard of e-cigarettes. This contrasts with 2012, when 49% of adults responding to the same question were aware of e-cigarettes.

The number of e-cigarette users grew from around 700,000 in 2012 to 3.6 million in 2019, falling to 3.2 million in 2020, before increasing again in 2021 to 3.6 million. (Table 1).

There are differences in vaping behaviour by social class, with 8.1% of those classified as C2DE being current vapers compared to only 6.3% of those classified as ABC1. This reflects the socio-economic distribution of smokers (in this survey 15.5% of C2DE are smokers compared to 10.6% of ABC1). However, the rate of growth since 2015 has been greater in C2DEs than ABC1s. In 2015 6.3% of C2DEs vaped and 4.6% of ABC1s.

The peak ages for current e-cigarette use in 2021 are among 35-44 year olds (10.1%) followed by 45-54 year olds (8.6%), and then 25-34 year olds (8.1%). The lowest vaping rates by age are 5% for young adults aged 18-24, followed by those over 55 at 5.4%. A slightly higher proportion of those identifying as male (8.1%) say that they currently use e-cigarettes than those identifying as female (6.2%).

**Table 1: Number of e-cigarette users in Great Britain<sup>2</sup>**

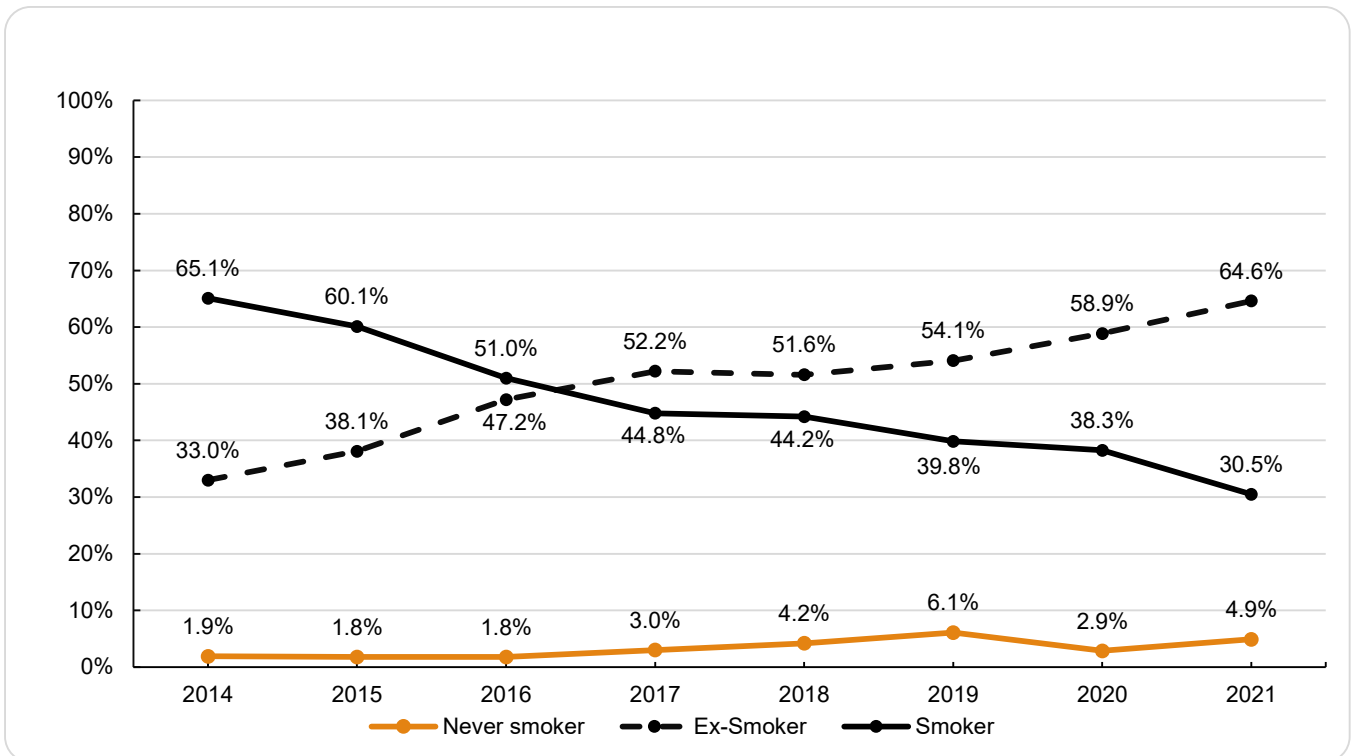
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>% of population current users</b>	1.7%	2.7%	4.2%	5.4%	5.7%	5.8%	6.2%	7.1%	6.3%	7.1%
<b>Percentage point change (YoY)</b>		1.0	1.5	1.2	0.3	0.1	0.4	0.9	-0.8%	+0.8%
<b>Number of users (millions)</b>	0.7	1.3	2.1	2.6	2.8	2.9	3.2	3.6	3.2	3.6
<b>Rate of growth (YoY)</b>		86%	62%	24%	8%	4%	10%	13%	-12%	+13%

## Proportion of vapers by smoking status

Use of e-cigarettes is largely confined to current and ex-smokers and use amongst never smokers remains low. Of the 3.6 million current vapers, just under 2.4 million are ex-smokers; 1.1 million are current smokers; and just under 200,000 are never smokers. Over time, the proportion of current electronic cigarette users who smoke tobacco has fallen, while the proportion who are ex-smokers has risen. (Figure 1) In 2021, 64.6% of current vapers were ex-smokers, while 30.5% also smoked (dual users).

This means that, in every year since 2017, most e-cigarette users have been ex-smokers, rather than dual users or never smokers. However, there are more ex-smokers (34%) than current smokers (13%) in the adult population. As a result, only 13.5% of ex-smokers vape compared to 16.9% of current smokers. (Figure 2).

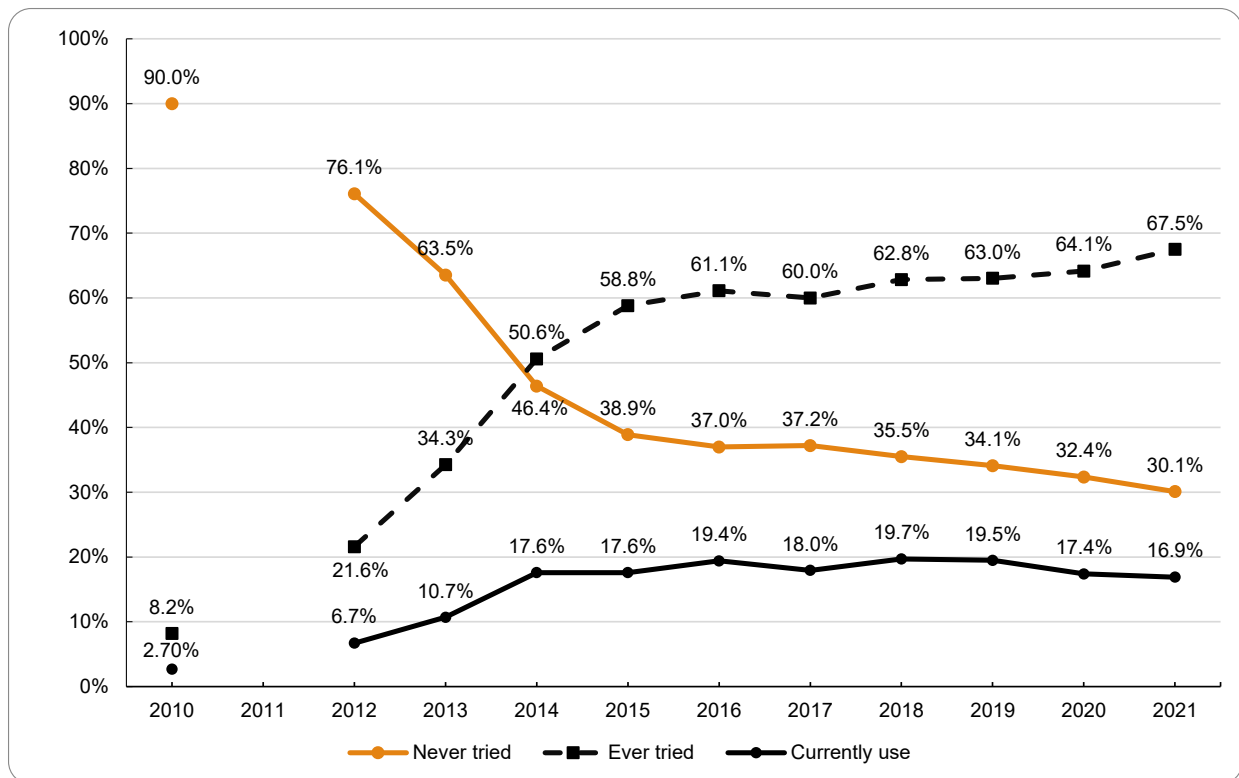
**Figure 1: The population of adult e-cigarette users, Great Britain 2021**



*Unweighted base: GB adult vapers 2014, n=498; 2015, n=614; 2016, n=667; 2017, n=669; 2018, n=738; 2019, n=854; 2020, n=787, 2021, n=826).*

The proportion of adult smokers who have tried e-cigarettes has continued to grow, while those who have never tried continues to decline. However, in 2021 three in ten (30.1%) of current smokers had never used e-cigarettes. (Figure 2).

**Figure 2: E-cigarette use among current adult cigarette smokers, Great Britain (2010-2021)**



*Unweighted base: GB adult smokers (2010, n=2297; 2012, n=2093; 2013, n=1895; 2014, n=1776; 2015, n=2037; 2016, n=1704; 2017, n=1632; 2018, n=1633, 2019, n=1777; 2020, n=1694, 2021, n=1512).*

# Vaping behaviour

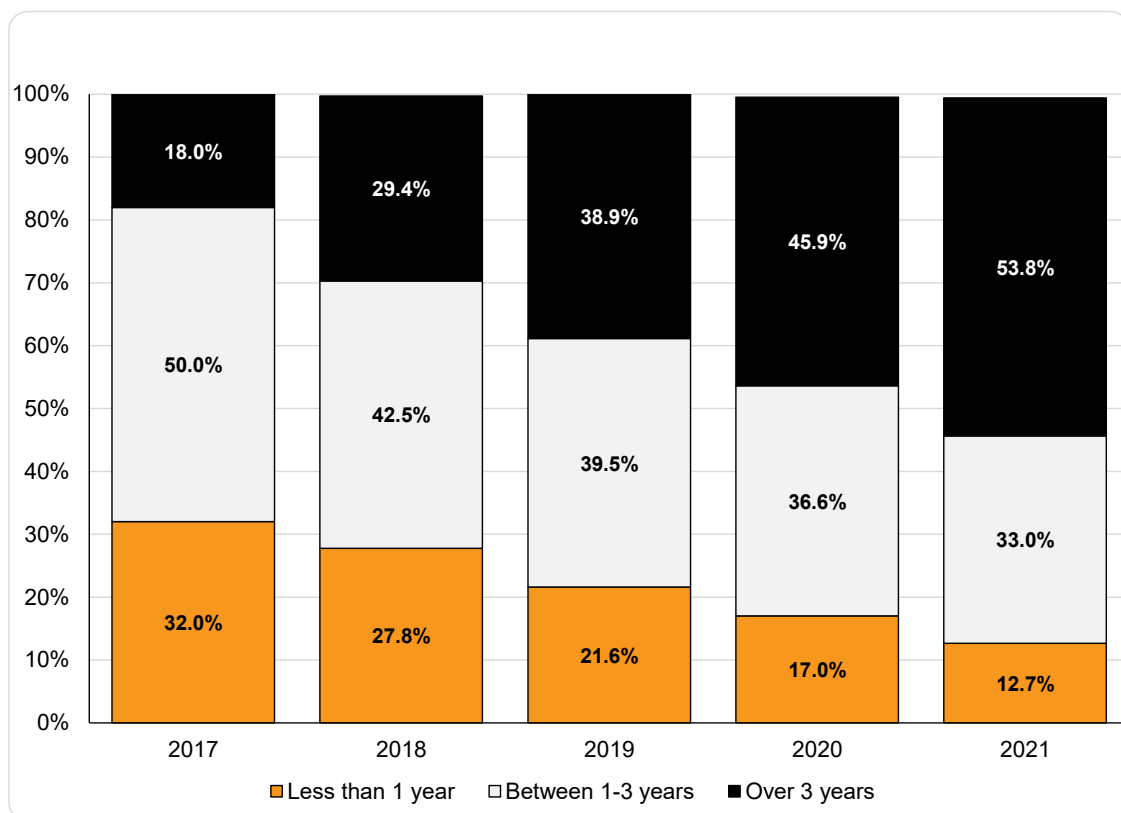
## VAPING BEHAVIOUR IN EX-SMOKERS

17.1% of ex-smokers have tried vaping but no longer vape compared to 13.5% who currently vape. This means there are 3 million ex-smokers who have tried vaping but no longer vape, compared to 2.4 million ex-smokers who are current vapers.

More than half of current vapers who are ex-smokers (53.8%) in 2021 said they had been vaping for over 3 years, compared with 18% in 2017 when we started asking ex-smokers how long they have been vaping.

- 12.7% have vaped for under 1 year
- 33% have vaped for 1-3 years
- 53.8% have vaped for >3 years

**Figure 3: Current E-cigarette use by adult ex-cigarette smokers, Great Britain (2021)**

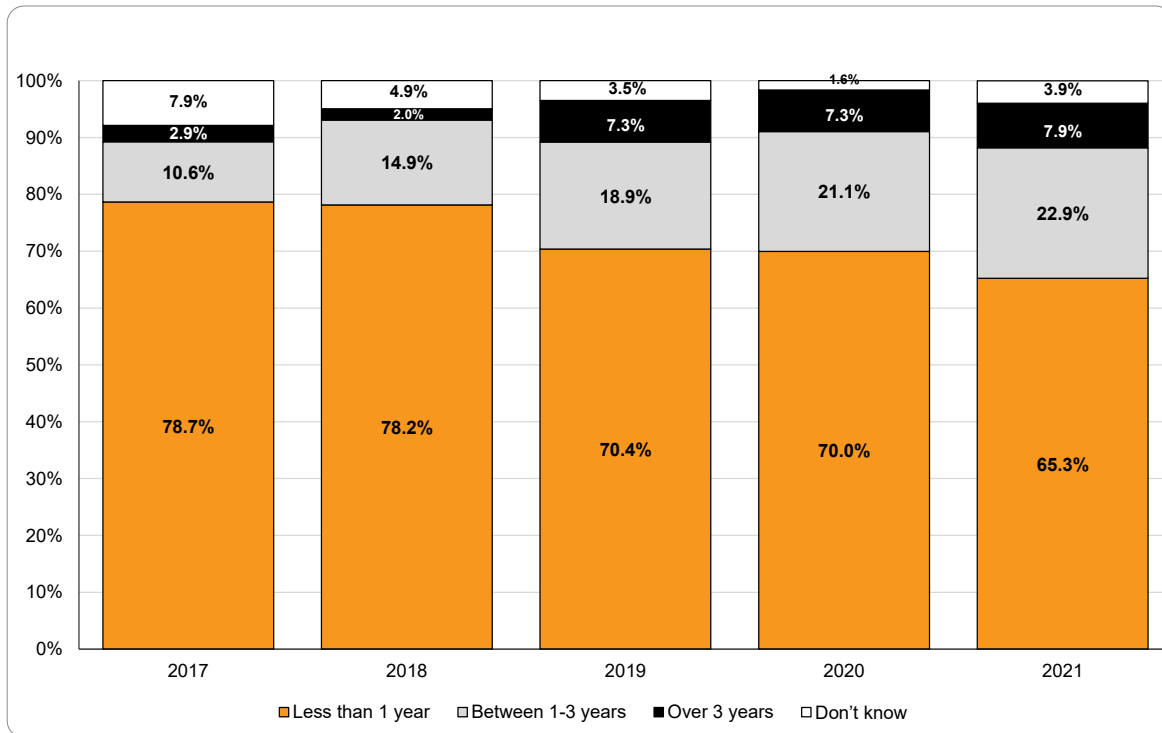


*Unweighted base: GB Current e-cigarette user and ex-smoker (2021, n=533)*

Nine out of ten ex-smokers who currently use e-cigarettes vape daily (90%), with 97% vaping at least weekly. Most ex-smokers who used to vape did so regularly, with almost a third saying they vaped daily (32.4%) and (43%) at least weekly. The remainder reported vaping less frequently with slightly more than a third (37%) reporting they only tried vaping once or twice while 5.2% could not remember or didn't know.

The proportion of ex-smokers who are now ex-vapers who used e-cigarettes for less than a year before stopping has fallen over time from more than three quarters in 2017 to just under two thirds in 2021. The proportion using for more than a year before stopping has more than doubled from 13.5% to 30.8%, with 7.9% saying they vaped for more than three years.

**Figure 4: Ex e-cigarette use by adult ex-cigarette smokers, Great Britain (2021)**



*Unweighted base: GB Ex e-cigarette user and ex-smoker (2021, n=402)*

### 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 5.9 percentage points from 2011 to 2019. In 2011 19.8% of adults smoked, falling to 13.9% in 2019; equivalent to a drop from 7.7 million smokers in 2011 to 5.7 million in 2019.<sup>5</sup>

A comprehensive approach to tobacco control was implemented during this period of time, which has been associated with reductions in smoking prevalence.<sup>6 7 8</sup> 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 are likely to have contributed to this decline in prevalence.

Findings from a recent report commissioned by Public Health England, (PHE) demonstrated that e-cigarettes are the most popular aid used in quit attempts.<sup>9</sup> In 2020, 27.2% of people used a vaping product in a quit attempt in the previous 12 months, compared with 15.5% who used NRT over the counter or on prescription (2.7%) and 4.4% who used varenicline.<sup>9</sup> Vaping is positively associated with quitting smoking successfully. In 2017, over 50,000 smokers stopped smoking with a vaping product who would otherwise have carried on smoking.<sup>9</sup> If the association is causal, e-cigarettes were responsible for an estimated 50,700 additional ex-smokers in England in 2017.<sup>10</sup> 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,<sup>11</sup> and a systematic review of the evidence has concluded that there is moderate-certainty evidence that ECs with nicotine increase quit rates compared to ECs without nicotine and compared to NRT (this is now a living review which will be updated as further evidence is published).<sup>12</sup>

### VAPING BEHAVIOUR IN SMOKERS (DUAL USE)

People who vape and also smoke are known as dual users. However, the patterns of behaviour in this group vary considerably, with 50.5% of smokers who vape doing so daily, while 45.3% do so less than daily. Those who vape everyday smoke on average much less than those who vape less frequently than daily. Table 2

gives a breakdown for the number of cigarettes smoked a day, by daily and non-daily vaping. Fewer than six cigarettes per day is considered low daily smoking, while 21 or more is considered heavy smoking. Just under half of all daily vapers can be defined as “light” smokers, smoking fewer than six a day compared to one in four non-daily vapers (Table 2).

**Table 2: Cigarettes smoked by daily and non-daily vapers**

<b>Cigarettes smoked per day (ready-made or handrolled)</b>	<b>Daily vaper</b>	<b>Non-daily vaper</b>
<b>6 or fewer a day</b>	48%	25%
<b>7-20 a day</b>	37%	60%
<b>More than 20 a day</b>	7%	9%

### VAPING BEHAVIOUR IN NEVER SMOKERS

The proportion of current vapers who say they have never smoked has fluctuated over the years of the survey and is currently 4.9% of current e-cigarette users (see Figure 1). However, never smokers are the majority of the population so the proportion of never smokers who are current e-cigarette users is only 0.7%, with 4.3% having ever tried vaping.

## Attitudes to Vaping

### REASONS FOR E-CIGARETTE USE

Among all e-cigarette users the three main reasons for vaping are as an aid to quitting (28%) followed by preventing relapse (18%) and to cut down among smoked (10%).

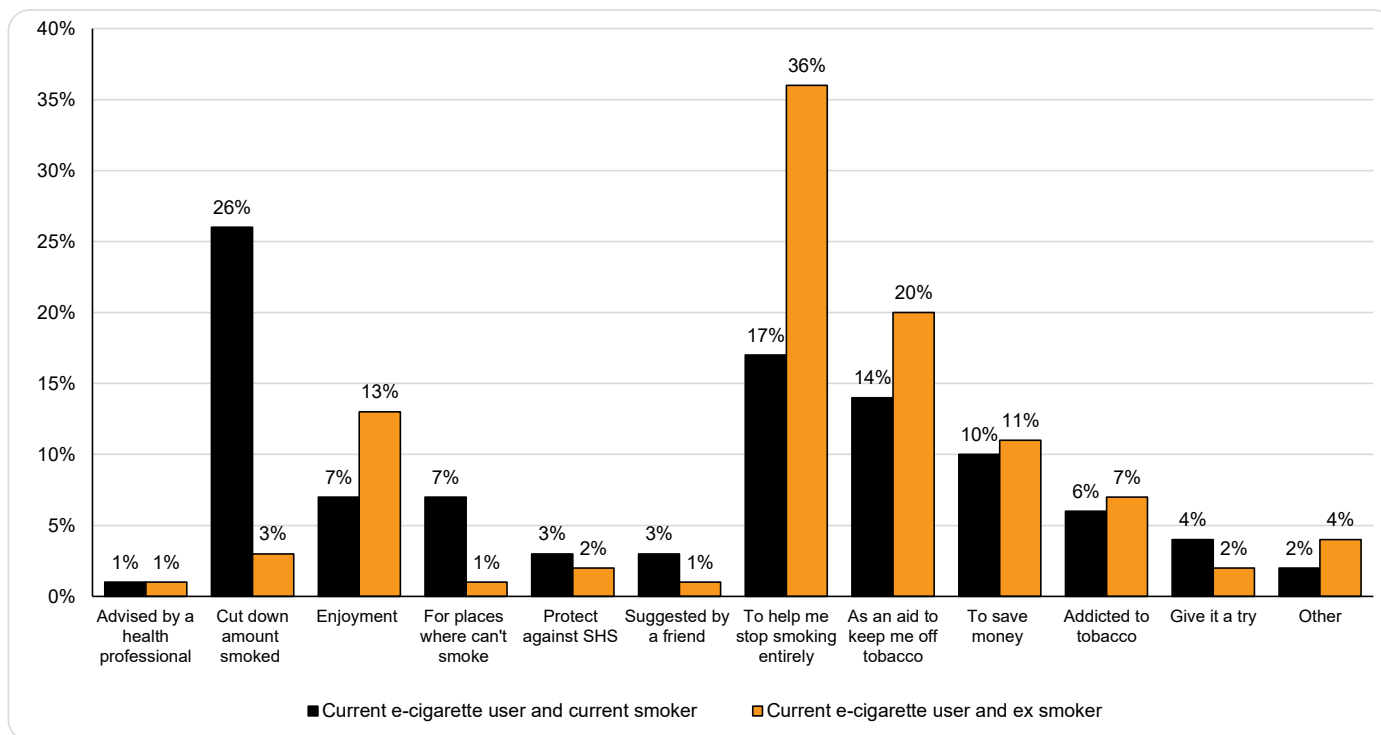
### REASONS FOR E-CIGARETTE USE BY SMOKING STATUS

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 (36%); as an aid to keep them off tobacco (20%); because they enjoy it (13%); and to save money (11%).

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 (26%). However, 17% say that they use them to try to help them quit, and 14% as an aid to keep them off tobacco.

The sample size for never smokers who vape is too small for a detailed breakdown, but a plurality say they just vaped ‘because I enjoy the experience’.

**Figure 5: Main reason for vaping among smokers and ex-smokers who vape, Great Britain (2021)**



Unweighted base: GB adult vapers 2021; current vaper and current smoker n = 250, current vaper and ex-smoker n = 541

In 2019 to explore vapers' views about their e-cigarette use, current vapers were asked whether they agreed or disagreed with a series of statements. For most e-cigarette users, improving their health is their number one reason for vaping. Among all vapers, 60% agree that "health is my number one reason for taking up e-cigarettes". (Table 3)

**Table 3: Vapers' views about e-cigarette use**

Statement	Agree	Neither agree nor disagree/don't know	Disagree
Health is my number one reason for taking up e-cigarettes	60%	26%	14%
I get a great deal of pleasure out of vaping	51%	36%	12%
E-cigarettes have improved my quality of life	51%	37%	12%
Vaping is not a magic solution for stopping smoking	50%	24%	26%
Vaping is a medicine that I use in order to address my smoking addiction	50%	31%	20%
Lowering the levels of nicotine I consume through vaping is a priority for me	44%	34%	22%
I am worried that I'm getting more nicotine now that I use an e-cigarette	13%	26%	61%
I like to spend time discussing vaping online	8%	19%	73%

Unweighted base: GB vapers; 2019, n=854

## SATISFACTION

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

### **Ex-smokers who currently vape**

Satisfaction levels are slowly growing with 68% of e-cigarette users who no longer smoke find vaping more or equally satisfying as smoking in 2021 compared to 65% in 2020. The proportion finding it less satisfying has fallen from 31% in 2020 to 28% in 2021 (Figure 6). However, although enjoyment of vaping is cited as the main motivation for use by only 12% of current e-cigarette users, our 2019 survey found that when asked if they get “a great deal of pleasure from vaping” and whether “e-cigarettes had improved my quality of life” 51% of e-cigarette users agreed (Table 3).

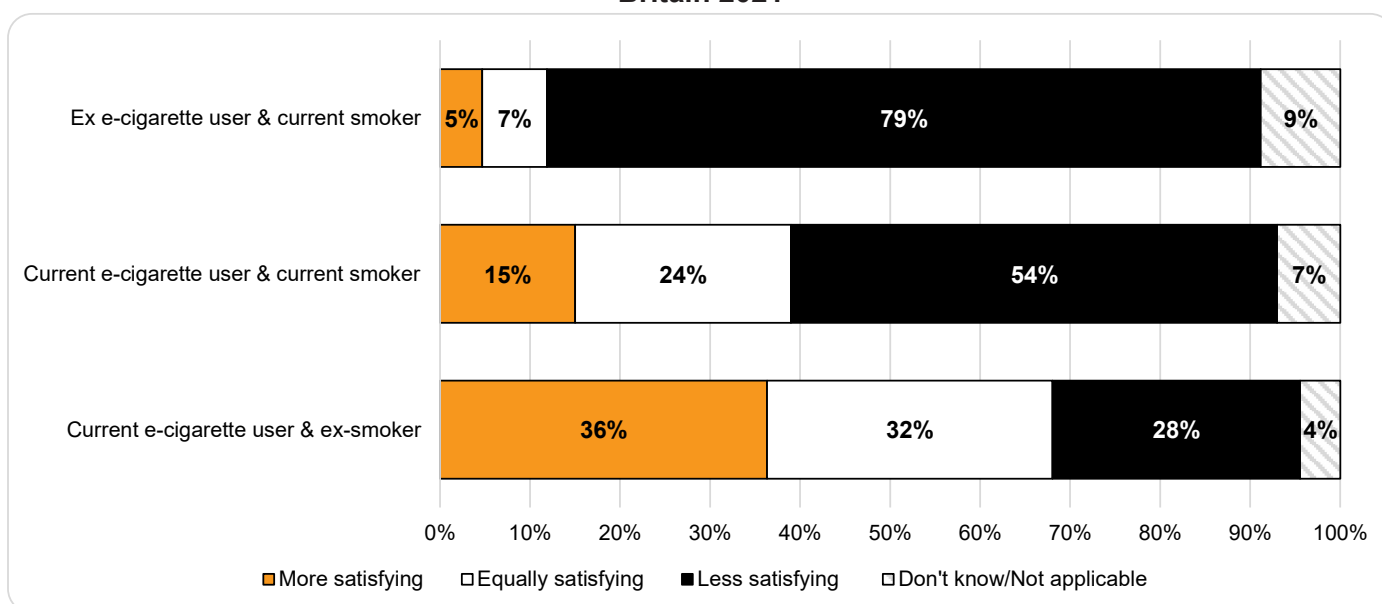
### **Smokers who currently vape**

More than half of vapers (54%) who also smoke find it less satisfying than smoking although this is a decline from 61% in 2020. The proportion of smokers who vape who find it more than or equally as satisfying as smoking has risen from 33% in 2020 to 39% in 2021.

### **Ex-smokers who are ex-vapers**

Satisfaction levels remain lowest of all for smokers who tried but no longer use e-cigarettes, 79% of whom say they found vaping less satisfying, little changed from 80% in 2020. 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: Current e-cigarette satisfaction levels from e-cigarettes compared with smoking, Great Britain 2021**



*\*This includes those that have tried e-cigarettes once or twice in addition to longer-term users Unweighted base: Current vapers & current smokers (2021, n=250); current e-cigarette user & ex-smoker (2021, n= 541); Ex e-cigarette users & current smokers, (2021, n= 771)*

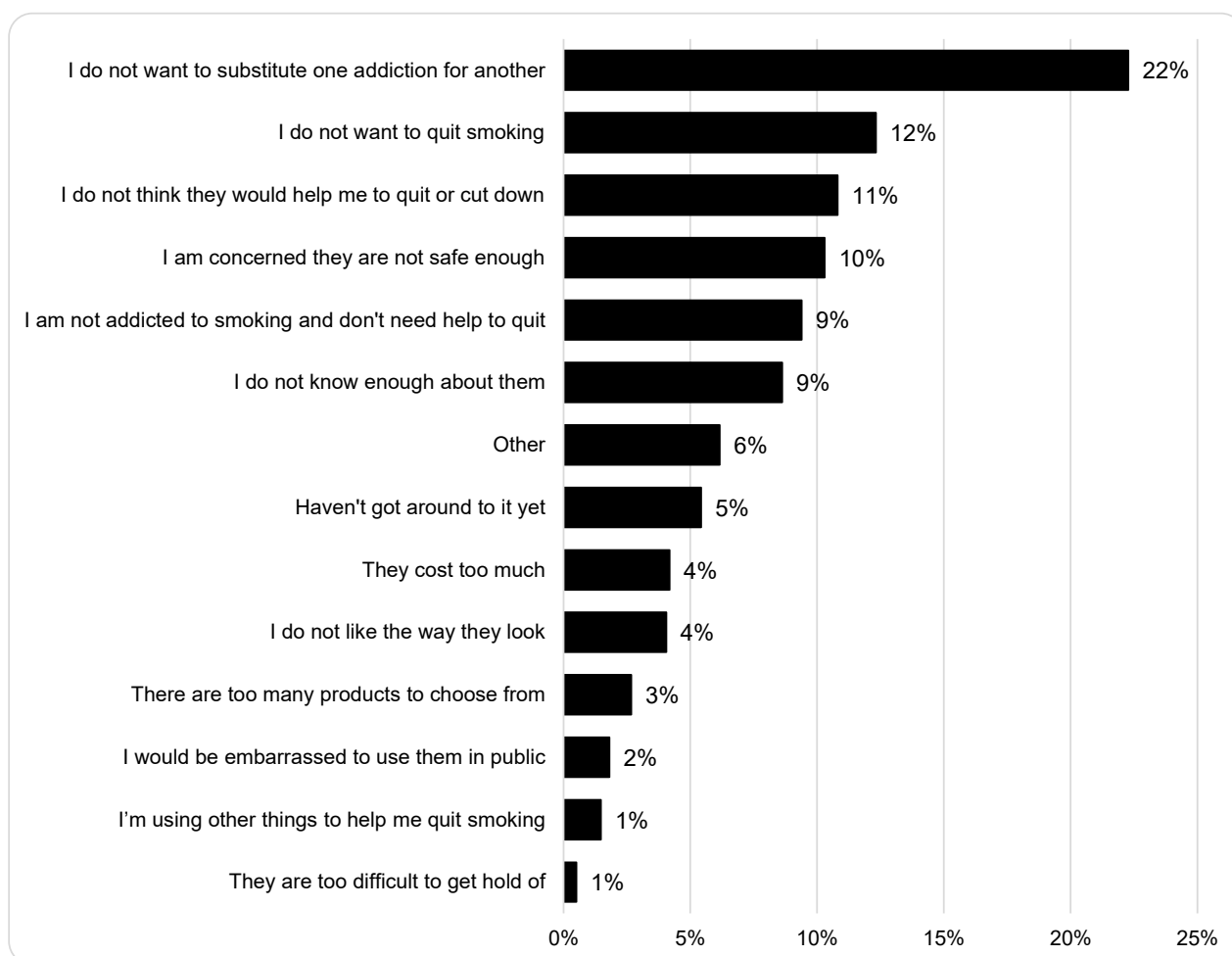


## Reasons why smokers haven't tried or have stopped using e-cigarettes

Less than a third, 30.1%, of smokers have not yet tried e-cigarettes. Smokers' views on addiction were the most frequently cited main reason, with 22% saying they do not want to substitute one addiction for another, while conversely 9% say that they're not addicted to smoking and don't need help to quit. A further 12% say that they do not want to quit smoking, similar to 2020 (13%).

There has been a decrease in those citing safety concerns as their main reason for not trying e-cigarettes from 14% in 2020 to 10% in 2021. A further 9% say that they do not know enough about them, and 11% that they do not believe that e-cigarettes could help them quit or cut down, showing a lack of confidence in these products. (Figure 7).

**Figure 7: Main reason for not trying an e-cigarette among smokers (2021)**



*All GB current smokers who have not tried e-cigarettes; 2021, n=417*

Over a half, 51%, of smokers have tried but no longer use e-cigarettes. The main reasons cited were the same as last year:

- 23%: that vaping did not feel like smoking a cigarette (22% in 2020)
- 14%: that vaping did not help them deal with cravings (16% in 2020)
- 10%: that they had only tried them to see what they were like (12% in 2020)

However, the ASH 2021 YouGov survey shows that 6% report stopping because of concerns about product safety (double the proportion for 2018 and 2019) and a further 1% had stopped at the advice of a friend or health professional. Concerns about using the products too often (6%) may also be linked to misunderstandings about the harms from e-cigarettes. And other surveys suggest that perceptions of harm may discourage some smokers either trying or sustaining use of e-cigarettes.<sup>13</sup>

Some people have problems with the products themselves with 6% saying they leaked and a further 2% saying they were too hard to refill. Around 12% of smokers report not liking products because they either made them feel unwell (5%) or didn't like the taste (7%).

## E-CIGARETTE USERS' OPINIONS ON WHAT THEY WOULD DO IF FLAVOURS WERE NO LONGER AVAILABLE

In March 2019, the US Food and Drug Administration announced a draft compliance policy proposing to prohibit the sale of e-liquid flavours other than tobacco menthol and mint, because of concern about youth uptake in the US.<sup>14</sup> In Great Britain, youth use of e-cigarettes is monitored regularly. Uptake is largely experimental with regular use confined largely to those who currently or previously smoked, with 0.5% of young people aged 11-18 in 2021 who have never smoked using e-cigarettes less than weekly.<sup>15</sup>

In 2019 we asked current e-cigarette users what they would do if flavours were no longer available. Around one in four said they would still try to get flavours and just under one in ten said they would make their own e-liquid. The most popular option after continuing to try to get flavours was using unflavoured e-liquids/cartridges. However, just under one in five said that they would either smoke more or revert to smoking, and around the same proportion said that they did not know what they would do. Less than one in ten said that they would stop vaping.

## Perceptions of harm

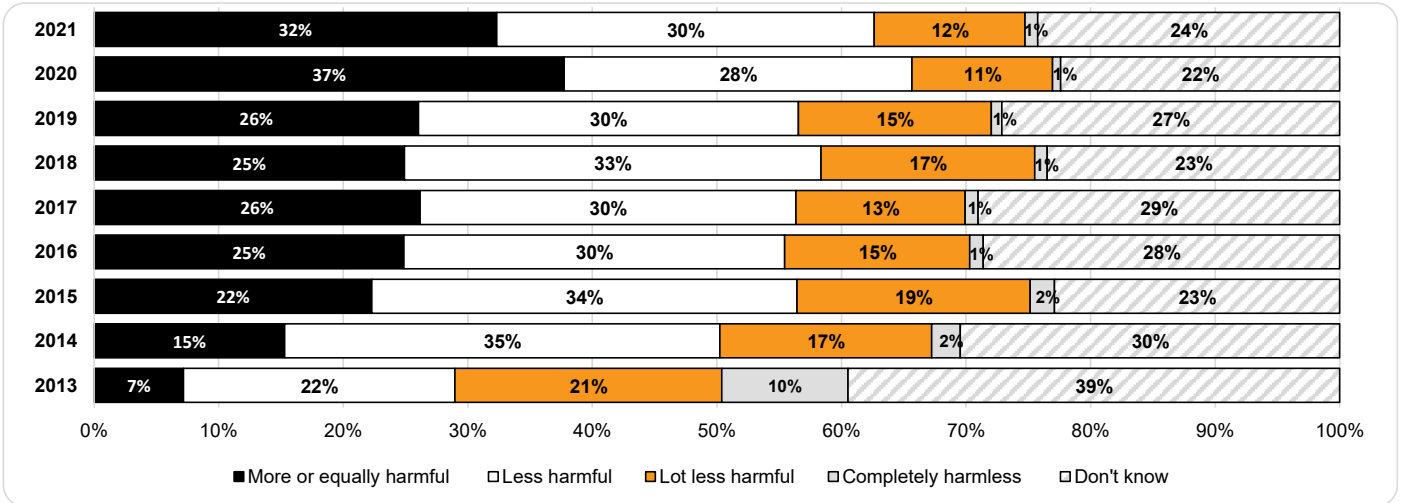
### ADULT POPULATION MISPERCEPTIONS OF HARM

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 40% and 50% believing it was less harmful. 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 the impact of the media coverage of an outbreak of serious lung injury to vapers in the US, called EVALI. The number of hospital admissions from EVALI peaked in September 2019 and by February 2020 the US had reported 2,807 hospitalised cases and 68 deaths.<sup>16</sup> Since 20 May 2016, the MHRA reported that there have been three fatalities in the UK linked with vaping products, one of which appeared to meet the criteria for 'e-cigarette, or vaping product, use-associated lung injury' ('EVALI').<sup>17</sup> While the cause of this outbreak has since been identified as vitamin E acetate used to adulterate cannabis containing e-liquids the media coverage of the initial outbreak was far more prominent than the subsequent explanation or the fact that both vitamin E acetate and THC containing liquids are banned under UK rules.

In 2021 the proportion believing vaping was more or equally harmful fell back from 37% to 32%, while the proportion believing it to be less harmful than smoking rose slightly from 39% to 42%, although only just over one in ten (12%) correctly stated that it was much less harmful than smoking.

**Figure 8: GB adults perception of harm from e-cigarettes (2013-2021)**

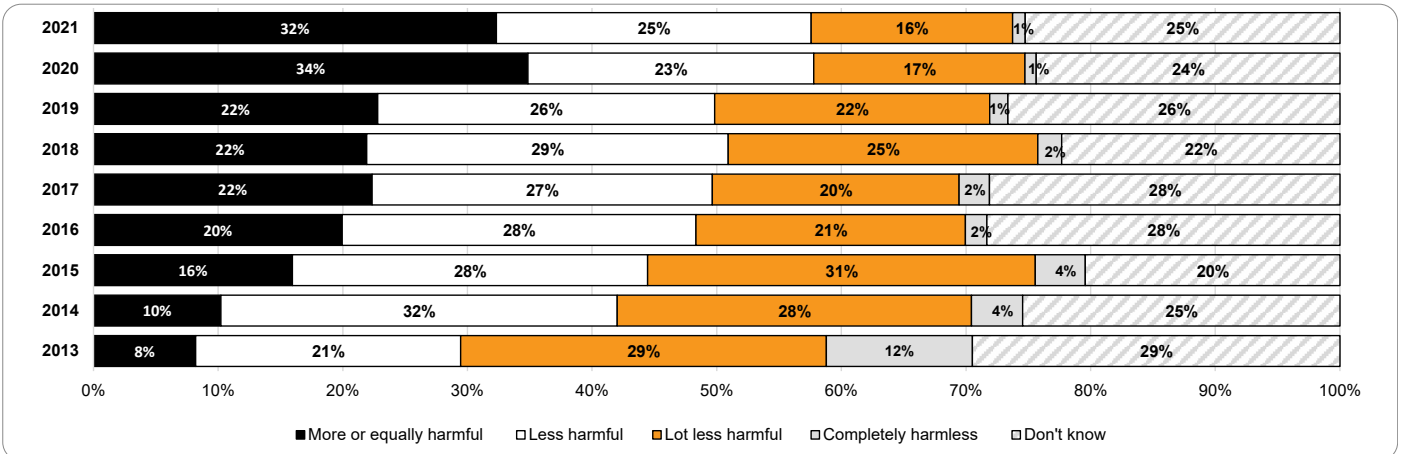


Unweighted base: All GB adults who have heard of e-cigarettes: 2013, n=8936; 2014, n=11,307; 2015, n=11,340; 2016, n=11,489; 2017, n=12,101; 2018, n=12,070; 2019, n=11,634; 2020, n=11,954; 2021, n=11,429).

### SMOKERS' PERCEPTIONS OF HARM

A similar pattern can be seen among smokers' perceptions of harm in 2021 (Figure 9) with nearly a third (32%) believing vaping was more or equally harmful, and one in four (25%) saying they don't know. The proportion thinking that vaping is less harmful than smoking is similar to that among the general population (41% compared to 42%), but a higher proportion think e-cigarettes are a lot less harmful (16% compared to 12%).

**Figure 9: Smokers' perception of harm from e-cigarettes, Great Britain (2013-2021)**

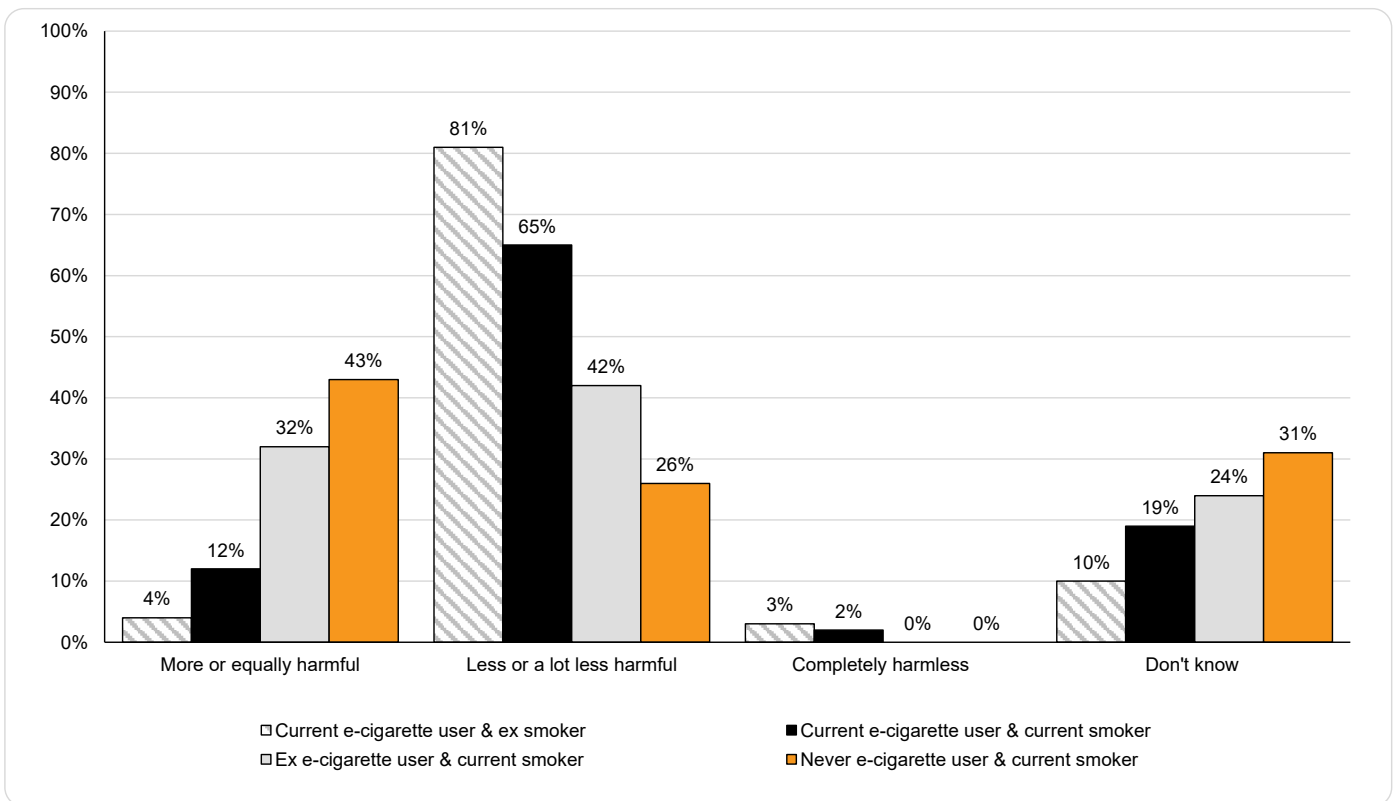


Unweighted base: GB adult smokers who have heard of e-cigarettes (2013, n=1720; 2014, n=1694; 2015, n=1945; 2016, n=1639; 2017, n=1569; 2018, n=1566; 2019, n = 1,679; 2020, n=1; 2021, n=1,438)

Smokers who currently use e-cigarettes have more accurate perceptions of their harm, with 65% thinking that are less or a lot less harmful (down from 71% in 2019) and 12% thinking that they are more or equally harmful (down from 16% in 2019). (Figure 10). The proportion of current smokers who have never tried e-cigarettes who believe they are more than or equally as harmful as cigarettes increased by 15 percentage points between 2019 and 2021 from 27% in 2019 to 42% in 2020 and 43% in 2021.

The only group where perceptions are little changed since 2019 is among ex-smokers who currently vape. 81% think e-cigarettes are less or a lot less harmful than smoking (83% in 2019) and 4% that they are more or equally harmful (5% in 2019). (Figure 10).

**Figure 10: Perception of harm from e-cigarettes by smoking and vaping status 2021**



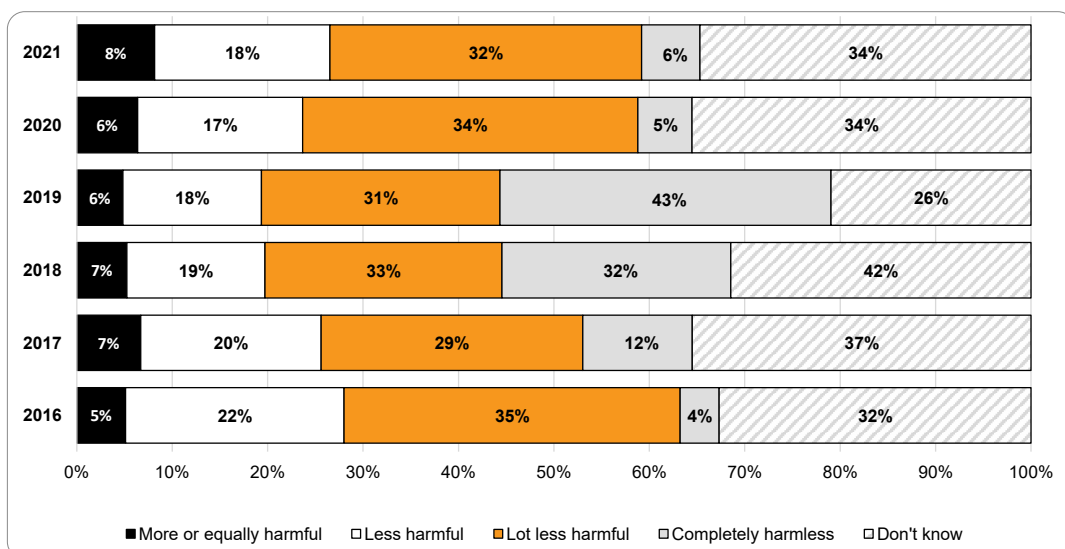
Unweighted base: GB Current e-cigarette user & ex smoker= 541, Current e-cigarette user & current smoker =250, Ex e-cigarette user & current smoker=771, Never e-cigarette user & current smoker=417

### PERCEPTIONS OF HARM FROM NICOTINE REPLACEMENT THERAPIES (NRT)

Over the last five 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.

Understanding of the relative risk of NRT compared to smoking, particularly among smokers, remains poor. (Figure 11) In 2021 more than a third (34%) of smokers said that they did not know how harmful NRT is compared to smoking, 8% thought it was more than or equally as harmful as smoking, and only 32% correctly identified NRT as being much less harmful than smoking.

**Figure 11: Smokers' perception of NRT compared with regular cigarettes, Great Britain (2016-2021)**



Unweighted base: GB adult smokers: 2016, n=1477; 2017, n=1632; 2018, n=1633; 2019, n=1,777; 2020; 1,694, 2021; 1,512)

## 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.<sup>18</sup> From 20th May 2016, a regulatory framework for e-cigarettes was introduced in the UK under the EU Tobacco Products Directive (TPD).<sup>19</sup> 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 new product rules under the TPD for electronic cigarettes introduced a notification process for manufacturers and importers in May 2016.<sup>20</sup> Non-compliant stock was allowed on sale for a further year until 20th May 2017.<sup>21</sup> 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.<sup>22</sup>
- 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.<sup>23</sup> 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.<sup>24</sup> They can also report products suspected to be defective or non-compliant to their local Trading Standards service or to [TPDsafety@mhra.gov.uk](mailto:TPDsafety@mhra.gov.uk).

Since the Yellow Card Scheme was put in place for e-cigarettes on 20 May 2016, MHRA has received 231 Yellow Card adverse reaction reports.<sup>25</sup> 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 is a legal requirement to review the regulations within five years of implementation and publish a report by 20 May 2021.<sup>26</sup> The Department for Health and Social Care carried out a post-implementation review consultation which closed in March 2021.<sup>27</sup> ASH has asked 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.

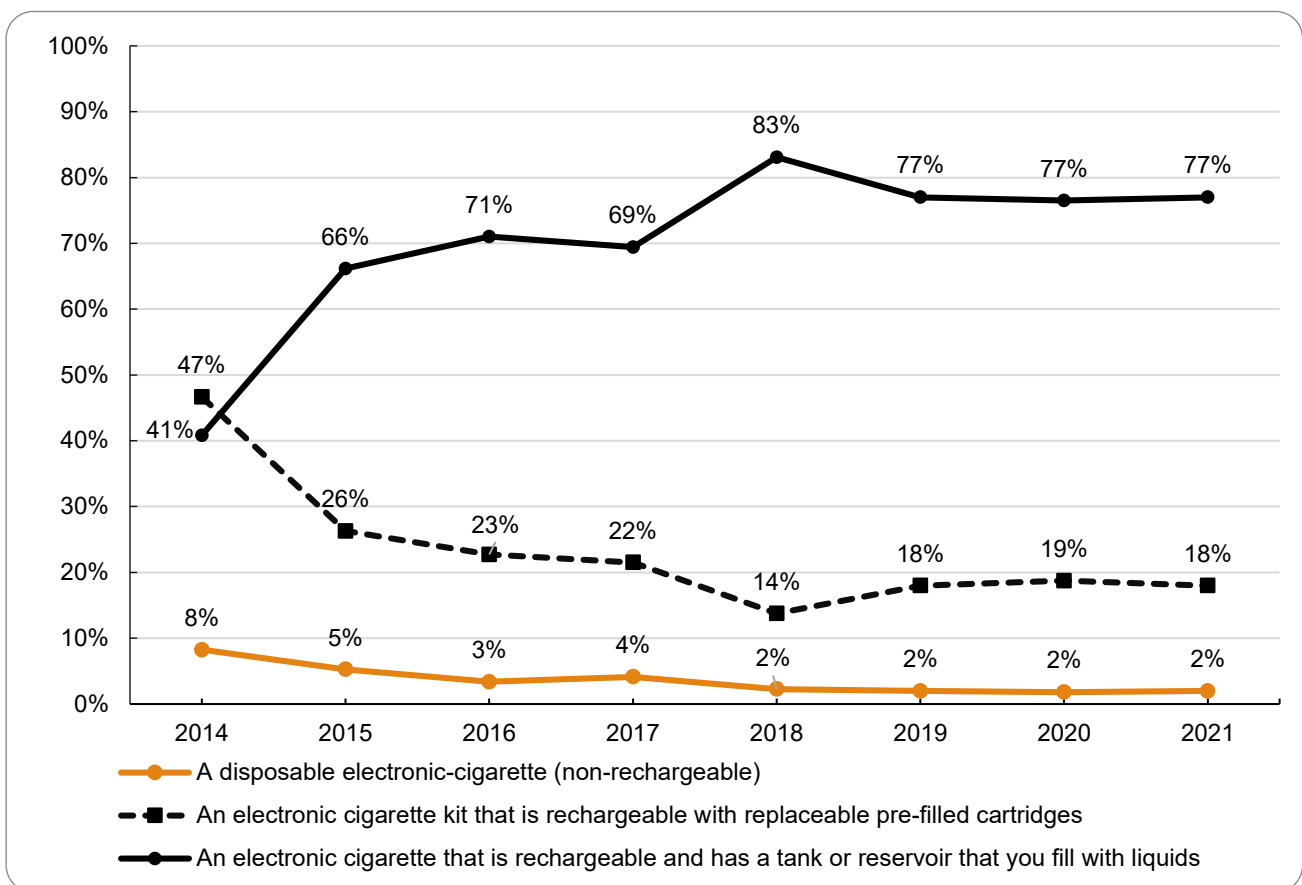
# Types of device and e-liquids in use

## E-CIGARETTE DEVICE USED

Types of product used have remained stable since 2019, with over three quarters of current vapers (77%) reporting mainly using refillable tank systems, nearly one in five using rechargeable e-cigarettes with replaceable pre-filled cartridge and only 2% using disposable e-cigarettes (Figure 12). OF those who have tried vaping with a cartridge, the most popular types of rechargeable products with pre-filled cartridges are Vype (18%), Juul (15%), Logic (14%) and Blu (13%).

In 2021 nearly three quarters (73%) of all e-cigarette users (74% in 2019) said they only used one device, and the most commonly used additional device was a tank system, particularly for current vapers who are ex-smokers. This question was not asked in 2020.

**Figure 12: Type of e-cigarette used by current e-cigarette users, Great Britain (2014 - 2021)**



*Unweighted base: All GB adults who currently use e-cigarettes, excluding those who don't know frequency of use: 2014 (n=498); 2015 (n= 614); 2016 (n=667); 2017 (n=669); 2018 (n=715); 2019 (n=800); 2020 (n=767); 2021 (n=790)*

In 2020 users were asked why they used the device they did. The most popular reasons for both tank and cartridge users was the hit of nicotine delivered (14% cartridge users 13% tank users) ease of use (11% for both) and price (10% cartridge users 12% tank users). However, there were also divergent reasons. For cartridge users easy access to product in local shops was more important (13% cartridge users, 5% tank users) while for tank users it was more important that the device was refillable (10% tank users, 1% cartridge users). This question was not asked in 2021.

## NICOTINE CONSUMPTION

Some stakeholders have expressed concerns that the cap on nicotine levels imposed by the Tobacco Products Directive could be discouraging use among smokers with the highest levels of addiction.<sup>28</sup> For example, in the US, where there is no cap on nicotine levels, the most popular product, Juul, sells in two strengths, 59 mg/ml and 35 mg/ml,<sup>29</sup> both much higher than the legal limit in the EU. In the UK only 20 mg/ml Juul products are available, the legal maximum.<sup>30</sup>

In 2016, before the legislation was introduced, more than three quarters of current e-cigarette users 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 (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, 6% of current vapers were using above the TPD limit, falling to 2% in 2018 and 1% in 2019. (Table 4)

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 2021, 2% of e-cigarette users said they use nicotine strengths above the legal limit, and a further 4% used nicotine strengths just under or at the legal limit (6% did not know what strength they used).

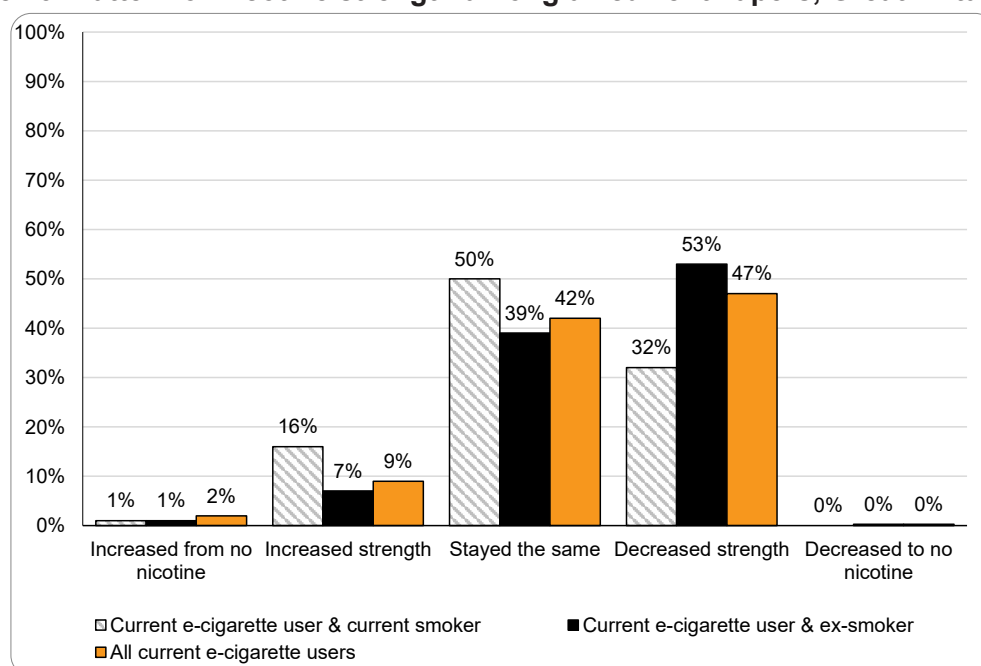
**Table 4: Strength of nicotine used by vapers over time**

Strength of nicotine used by current e-cigarette users					
Strength	2017	2018	2019	2020	2021
TPD level and lower	85%	90%	88%	91%	92%
Higher than TPD	6%	2%	2%	2%	2%
Don't know	9%	8%	10%	7%	6%

*Unweighted base: Current GB e-cigarette user who uses nicotine, 2017 (n=597); 2018 (n=365); 2019 (n=720); 2020 (n=693); 2021 (n=633)*

In 2021, 42% of current vapers say they use the same strength e-liquid as when they started, while 47% have decreased the strength. Only 9% have increased the strength over time, while a further 2% who previously did not use nicotine. (Figure 13) Those who have quit smoking are more likely than dual users to report decreasing nicotine strength over time.

**Figure 13: Pattern of nicotine strength among all current vapers, Great Britain 2021**



*(Change in nicotine strength from first use to current use, excludes don't know) Unweighted base: Current GB e-cigarette user and smoker who have ever used nicotine containing e-cig, 2021 (n=158); current GB e-cigarette user and ex-smoker who have ever used nicotine containing e-cig, 2021 (n=447).*

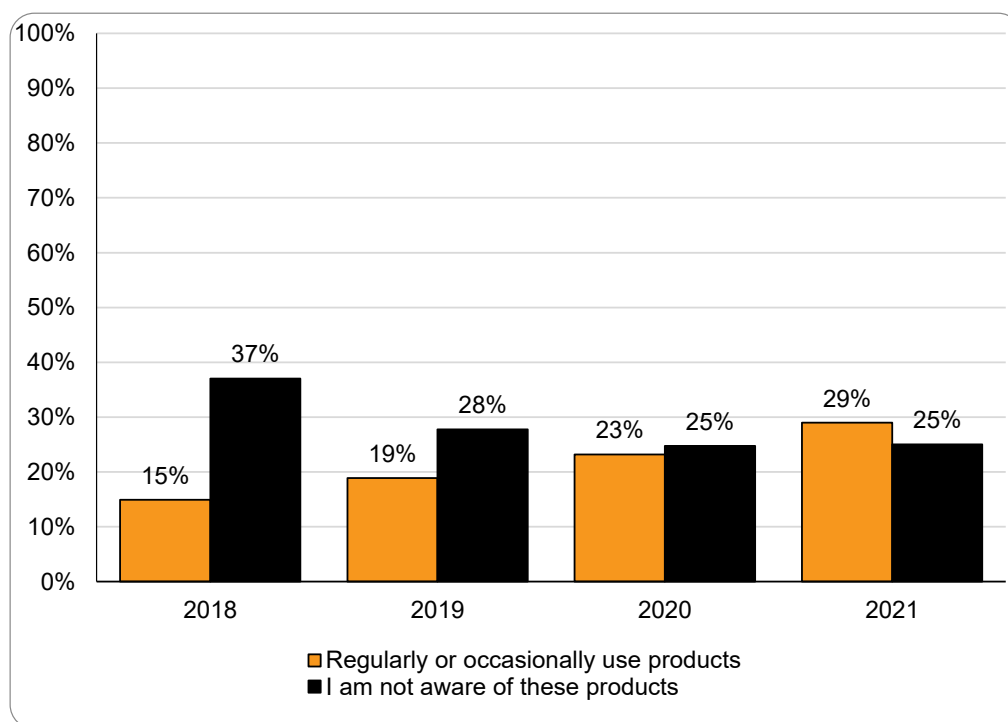
## VOLUME OF E-LIQUID USED IN E-CIGARETTES AND DEDICATED REFILL BOTTLES

Legislation limits the volume of e-liquid in an e-cigarette to less than 2ml and dedicated refill bottles 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 none reporting using more than 10ml of liquid a day. In 2021, the proportions were 27% of all daily e-cig users using 2ml or less a day and 3% more than 10 ml a day. Looking just at those who use less than 10ml of liquid a day the estimated average daily liquid consumption was 3.35ml in 2021. 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 product 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 ASH YouGov survey finds that 29% of current vapers who use tank devices or nicotine report using 'shake and vape' products, an increase on previous years. The proportion not aware of these products had declined from 37% in 2018 to 25% in 2021 (Figure 14). Use is most common among ex-smokers who vape with 30% reporting they use 'shake and vape' products regularly or occasionally. (This product is only used with open or tank systems).

**Figure 14: Change in awareness and use of 'shake and vape' products between 2018 and 2021**



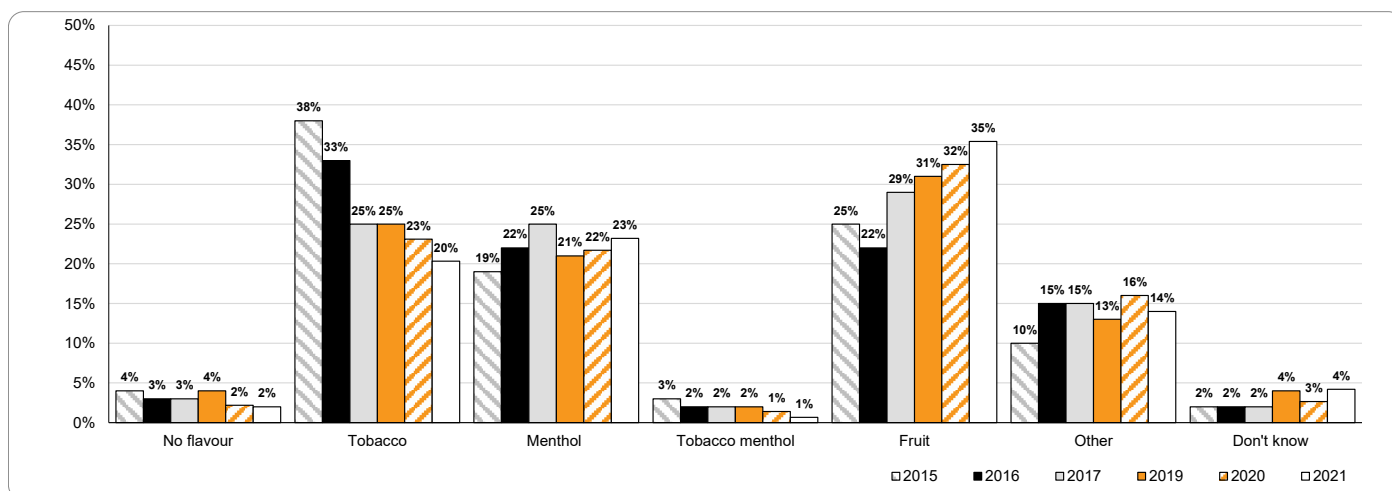
*Unweighted base: Current GB e-cigarette user (using tank as main device and using nicotine) 2018 (n=696); 2019 (n=775); 2020 (n=744); 2021 (n=769)*

## USE OF FLAVOURS

In 2015, we started asking e-cigarette users what flavour they used most often. (Figure 15 below – the question wasn't asked in 2018). 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 35%, followed by menthol and tobacco at 23% and 20%. Very few use products with no flavours. Patterns of behaviour are similar for ex-smokers who vape and dual users, although fruit flavours are most popular with ex-smokers (37% compared to 33% for dual users). Menthol and tobacco are equally popular for dual users at 22% (vs 21% ex smokers), while ex-smokers prefer menthol to tobacco (25% compared to 22% smokers).



**Figure 15: Flavours used by current vapers (2015 -2021)**



*Unweighted base: All GB adults who have tried and still use e-cigarettes 2015 (n=614); 2016 (n=667); 2017 (n=669); 2019 (n=854); 2020 (n=787); 2021 (n=826)*

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%).

## ASH YouGov Surveys in context

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 addressed only to smokers.<sup>31</sup> ASH updated its annual survey with questions on e-cigarettes addressed to all respondents from 2012 onwards.<sup>32 33 34 35 36 37 38</sup> These surveys have all been carried out online by YouGov. All figures have been weighted and are representative of GB adults (aged 18+). 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.<sup>39</sup>

Using the prevalence figures provided by YouGov, ASH, working with Dr Leonie Brose at King's College London, creates an annual estimate of the number of e-cigarette users by smoking status in Great Britain.

Since the ASH-commissioned Smokefree GB survey first commenced, there have been a number of other surveys which have gathered data on e-cigarette use.<sup>40</sup> The Smoking Toolkit Study is probably the most extensive of these and tracks both smoking and e-cigarette use throughout the year in England.<sup>41</sup> The trends are similar in both surveys,<sup>42</sup> but the ASH Smokefree GB survey consistently estimates a slightly lower figure for the proportion of e-cigarette users who are current smokers. The difference results from the assessment of smoking status: there are fewer ex-smokers and more current smokers in the Smoking Toolkit Study than in the ASH Smokefree GB survey. Within the different categories of smoking status, the prevalence of e-cigarette use is similar between the surveys. For further information see the [Smoking Toolkit](#).

The Office for National Statistics (ONS) has been collecting data on e-cigarette use since 2014, and the most recent published data published for use are for 2019. Data on perceptions of harms is only available from 2014 to 2016 as the question is no longer asked.<sup>34</sup>

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).

However, population level of knowledge and use was low to start with and has not grown significantly, so no detailed analysis can be carried out to date. In 2021, 14% of the public had heard of heated tobacco products and 2% had ever tried them. This finding is consistent with both the Smoking Toolkit Study and the ONS, which also find very low levels of knowledge and use of these products. In 2020 we also included questions about other novel nicotine products to assess public awareness. Voke, a medicinally licenced inhalator which resembles an e-cigarette was being used by less than 1% of the population with 8% aware of the product. Nicotine pouches (which includes brands such as Zin and Nordic Spirit) appear to have greater public awareness with 37% of people reporting they have heard of these products. However, use is still low at 3%.

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