

## Research brief

# E-cigarette use and cessation attempts among Victorian adults (2015 to 2018)

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## Key messages

1. E-cigarette use in Victoria remains relatively uncommon and those who do vape tend to do so infrequently.
2. Fewer than 2% of smokers and 1% of former smokers vape daily. This is occurring in the wider context of ongoing declines in smoking prevalence in the Victorian adult population.
3. In 2018, 16% of adults who currently vaped were never smokers; this is a significant increase since 2016.
4. The vast majority of use by never smokers is experimental (trying once or twice). Nevertheless, the increase in e-cigarette use among adult never smokers is concerning and needs to be monitored carefully.
5. The majority of adults who had vaped in the past year in 2017 stated that curiosity was a major reason for doing so. Almost all never smokers who vaped used e-cigarettes out of curiosity. More than twice as many adult smokers used e-cigarettes out of curiosity (71.9%), as used them to help quit (31.3%) or to cut down (32.7%). About four times as many former smokers used them out of curiosity (84.3%) as used them to prevent relapse (22.4%). In 2017, one-in-four current dual users had not used e-cigarettes for a quitting related purpose in the past year (to quit, cut down or to avoid relapse).
6. Slightly more than one-in-ten past year quit attempters (12.8%) reported using e-cigarettes during their last quit attempt.
7. There is no evidence to suggest that use of e-cigarettes is impacting either negatively or positively on quitting outcomes in Victoria.

## Results

**Table 1: E-cigarette use among Victorian adults 18 years and over, 2015-2018**

	<b>2015</b> (N=4000) % (n)	<b>2016</b> (N=4001) % (n)	<b>2017</b> (N=3998) % (n)	<b>2018</b> (N=4000) % (n)	Linear trend (2015 to 2018)
Ever tried an e-cigarette	13.6 (543)	14.1 (565)	13.7 (547)	14.9 (596)	No change
Any past year e-cigarette use	7.1 (285)	6.2 (249)	5.9 (238)	7.1 (285)	No change
Any current e-cigarette use <sup>#</sup>	1.8 (71)	1.8 (72)	1.6 (64)	2.6 (105)	↑ linear increase at p<0.05.
- Current daily e-cigarette use	0.4 (17)	0.7 (26)	0.5 (21)	0.6 (23)	No change
- Current regular (daily or weekly) e-cigarette use	0.8 (31)	1.1 (43)	0.8 (34)	1.2 (50)	No change
- Current at least monthly use	1.2 (47)	1.3 (50)	1.1 (44)	1.5 (61)	No change
- Current less than monthly use	0.6 (24)	0.5 (21)	0.5 (19)	1.1 (44)	↑ linear increase at p<0.05.

**Footnote:** <sup>#</sup> Any current e-cigarette use includes daily, at least weekly, at least monthly and less than monthly use.

### Prevalence of e-cigarette use among Victorian adults

There was no change in the proportion of Victorian adults who had ever tried an e-cigarette across the study period. In 2018, 14.9% of Victorian adults had tried an e-cigarette at least once in their lifetime.

A minority (7.1%) of adults reported having used an e-cigarette at least once during the past year. Past year use of e-cigarettes remained consistent across the study period.

In 2018, 1.1% of Victorian adults used an e-cigarette at least once per month. While 1.2% had used e-cigarettes in the past week, a small minority (just 0.6% of Victorian adults) reported current daily use. As illustrated in Table 1, the proportion of Victorians currently using e-cigarettes on a less than monthly basis remained low, but statistically increased up to 1.1% in 2018. Across the 2015 to 2018 period there was no statistical change in the prevalence of current daily, regular (daily or weekly) or at least monthly e-cigarette use.

Current vapers most commonly responded that they were using e-cigarettes less than monthly (42.1% of current users). Frequency of use is broken down in more detail, and by smoking status in Table 2.

### **Current e-cigarette use by smoking status**

The prevalence of current e-cigarette use among Victorian smokers and former smokers remained stable between 2015 and 2018 (Table 2). In 2018, one-in-ten current smokers indicated that they currently vaped at any frequency. Only a small minority of smokers reported current daily e-cigarette use, (in 2018, 1.8% of Victorian smokers reported daily use of e-cigarettes). A further 3.1% of Victorian smokers reported currently vaping at least once a week. Most current vapers were using e-cigarettes on an infrequent basis – for example 4.6% of Victorian smokers identified as using e-cigarettes on a less-than-monthly basis.

Within each survey year, only a small minority of former smokers identified as being current vapers. Indeed, the vast majority of former smokers indicated that they had never used e-cigarettes. Notably, the percentage of former smokers who had tried or used e-cigarettes in the past but who did not currently use them also remained stable between 2015 and 2018.

Today, most Victorian adults report that they have never smoked conventional cigarettes. There was a statistical increase in current e-cigarette use among never smokers across the study period, however vaping remains rare among this group; just 0.7% of never smokers reported current e-cigarette use in 2018. Even among those never smokers who have tried e-cigarettes, most report having tried vaping just ‘once or twice’.

**Table 2: E-cigarette use by smoking status, Victorians 18 years and over (base: Victorian adults aged 18 plus)**

Smoking status	E-cigarette use	Year				Linear trend (2015 to 2018)
		2015 % (n)	2016 % (n)	2017 % (n)	2018 % (n)	
<b>Current smokers</b> (N=614-738)	<b>ANY Current</b> (daily, weekly, monthly & less than monthly)	7.8 (58)	8.1 (50)	7.8 (50)	10.4 (64)	No change
	Current daily	1.2 (9)	2.4 (15)	2.1 (14)	1.8(11)	
	Current weekly	1.3 (10)	2.0 (12)	1.7 (11)	3.1 (19)	
	Current monthly	2.2 (16)	0.6 (4)	1.6 (11)	1.0 (6)	
	Current less than monthly	3.1 (23)	3.1 (19)	2.4 (15)	4.6 (28)	
	Tried once or twice	20.6 (152)	23.5 (144)	17.4 (112)	28.4 (175)	
	No current use: Past user	16.3 (121)	19.2 (118)	22.0 (141)	11.1 (69)	
	No current use: Never tried	55.2 (407)	49.3 (303)	52.5(338)	49.9 (308)	
<b>Former smokers</b> (N=1073-1116)	<b>ANY Current</b> (daily, weekly, monthly & less than monthly)	1.2 (13)	1.8 (20)	0.9 (9)	2.2 (24)	No change
	Current daily	0.8 (8)	1.1 (12)	0.6 (7)	0.8 (9)	
	Current weekly	0.3 (4)	0.4 (4)	0.1 (1)	0.3 (4)	
	Current monthly	0.0 (0)	0.4 (4)	0.0 (0)	0.3 (3)	
	Current less than monthly	0.1 (1)	0.0 (0)	0.1 (2)	0.8 (8)	
	Tried once or twice	4.6 (50)	4.7 (51)	6.3 (69)	6.0 (67)	
	No current use: Past user	5.2 (56)	6.4 (70)	4.5 (48)	5.3 (59)	
	No current use: Never tried	88.9 (954)	87.1 (955)	88.3 (956)	86.5 (965)	
<b>Never smokers</b> (N=2189-2290)	<b>ANY Current</b> (daily, weekly, monthly & less than monthly)	0.0 (0)	0.1 (3)	0.2 (4)	0.7 (17)	↑ linear increase at p<0.05.
	Current daily	0.0 (0)	0.0 (0)	0.0 (0)	0.1 (3)	
	Current weekly	0.0 (0)	0.0 (0)	0.1 (1)	0.2 (4)	
	Current monthly	0.0 (0)	0.0 (0)	0.0 (0)	0.1 (3)	
	Current less than monthly	0.0 (0)	0.1 (3)	0.1 (2)	0.3 (8)	
	Tried once or twice	3.0 (66)	3.6 (82)	1.7 (40)	3.9 (88)	
	No current use: Past user	1.3 (28)	1.2 (28)	3.1 (72)	1.3 (30)	
	No current use: Never tried	95.7 (2095)	95.1 (2178)	94.9 (2158)	94.0 (2131)	

**Table 3: Characteristics of current e-cigarette users (base: current e-cigarette use includes daily, weekly, less than weekly, and less than monthly users)**

	2015 (N= 71) % (n)	2016 (N=72) % (n)	2017 (N=64) % (n)	2018 (N=105) % (n)	Linear trend (2015-2018)
Current smoker (dual users)	81.6 (58)	69.1 (50)	79.2 (50)	61.0 (64)	↓ linear decline at p<0.05.
Former smoker	18.4 (13)	27.4 (20)	14.7 (9)	23.1 (24)	No change
- Past year quitter	10.6 (7)	11.7 (8)	5.6 (4)	8.9 (9)	No change
- Quit >1 year ago	7.9 (6)	15.7 (11)	9.1 (6)	14.2 (15)	No change
Never smoker	0.0 (0)	3.5 (3)	6.1 (4)	16.0 (17)	↑ linear increase at p<0.01.

Table 3 presents the smoking status of current vapers. In 2018, most current vapers (61.0%) were dual users (who were concurrently vaping and smoking conventional cigarettes), 23.1% were former smokers and 16.0% were Victorian adults who had never smoked conventional cigarettes.

The proportion of current vapers who currently smoke conventional cigarettes declined between 2015 and 2018 (from 81.6% of current vapers to 61.0% of current vapers in 2018).

The decline in the proportion of current vapers who smoke cigarettes between 2015 and 2018 was mirrored by an increase in the proportion of vapers who were never smokers across the same period. At the time of the 2015 survey, no never smokers reported current vaping. By the 2018 survey, 16.0% of current vapers were Victorian adults who had never smoked.

Across the study period, the proportion of current vapers who were former smokers remained consistent, (from 18.4% to 23.1% of current vapers). Two subsets of former smokers were also included in the analyses; former smokers who had quit within the past year and former smokers who have been quit for over one year. The proportion of current vapers who were past year quitters did not statistically change across the study period (10.6 to 8.9%), nor did the percentage of current vapers who indicated having been quit for over a year (7.9 to 14.2%).

**Table 4: Reasons for e-cigarette use among past year vapers (2017) (base: past year vapers)**

	<b>All past year vapers (N=238)</b> % (n)	<b>Current smokers* (N=167)</b> % (n)	<b>Former smokers (N=32)</b> % (n)	<b>Never smokers (N=39)</b> % (n)	<b>Current DUAL use (N=50)</b> % (n)
Curiosity	77.5 (184)	71.9 (120)	84.3 (27)	96.2 (38)	53.9 (27)
Healthier than conventional cigarettes	26.8 (64)	29.2 (49)	25.8 (8)	17.4 (7)	48.7 (24)
Taste better than conventional cigarettes	26.1 (62)	27.4 (46)	12.6 (4)	31.6 (12)	42.9 (22)
To help quit	26.0 (60)	31.3 (52)	30.3 (10)	NA	47.8 (24)
To cut down on conventional cigarettes	25.3 (60)	32.7 (55)	17.5 (6)	NA	61.1 (31)
Cheaper than conventional cigarettes	23.7 (56)	27.2 (45)	16.2 (5)	15.0 (6)	33.9 (17)
More socially acceptable than conventional cigarettes	19.7 (47)	19.1 (32)	18.0 (6)	23.5 (9)	30.1 (15)
To prevent relapse to regular cigarettes	17.5 (42)	20.7 (35)	22.4 (7)	NA	40.6 (20)
To vape where regular cigarettes are banned	12.8 (30)	12.8 (21)	9.3 (3)	15.6 (6)	22.8 (11)
Any quitting related purpose (e.g. to quit or cut down or prevent relapse)	35.6 (85)	44.0 (74)	35.3 (11)	NA	71.9 (36)

**Footnote:**\* Includes dual users, NA: response option did not apply to this group; multiple responses were allowed

In 2017, survey respondents who identified as past year vapers were asked their reasons for using e-cigarettes during the past year. As shown in Table 4, in 2017 the majority of past year vapers stated that they had used e-cigarettes out of curiosity. Curiosity was the most commonly cited reason for past year e-cigarette use among each smoker group (current, former and never smokers). Overall, just over one-third of all past year vapers (35.6%) indicated that they had used an e-cigarette for a quitting related purpose during the past year.

Less than half of current smokers who had vaped during the past year reported having used e-cigarettes for a quitting related purpose (to cut down, to quit or to avoid relapse during an earlier quit attempt) during the past year (44.0%).

Approximately one-third of former smokers who had vaped during the past year had used e-cigarettes for a quitting related purpose during the past year (35.3%).

Just over half of the current dual users (current cigarette and vapers) stated curiosity had been a reason for use in the past year. The majority of respondents in this dual user group

(71.9%) stated that they had used e-cigarettes for a quitting related reason in the past year (e.g. either to cut down on conventional cigarettes (61.1%), or to help quit (47.8%), or to avoid relapse 40.6%). Therefore, one-in-four current dual users had not used e-cigarettes for quitting related purposes during the past year.

At worst, some of the reasons for e-cigarette use could indicate that vapers are using e-cigarettes to circumvent tobacco control measures aimed at reducing smoking. For example, 24% of past year vapers stated that they had used e-cigarettes because they are cheaper than conventional cigarettes. Meanwhile, 12.8% of past year vapers stated that had used e-cigarettes in places where conventional cigarettes are banned.(1)<sup>1</sup>

**Table 5: E-cigarette use among past year attempters in Victoria (base: Victorian adult smokers and former smokers who made a past year quit attempt)**

% of past year attempters	2015 % (n)	2016 % (n)	2017 % (n)	2018 % (n)	Linear trend
...who used an e-cigarette as a cessation aid during their last quit attempt (N=327-373)	NA	12.2 (44)	9.7 (32)	12.8 (48)	No change (2016 to 2018)
... who used an e-cigarette for a cessation related purpose (e.g. to quit, cut down or avoid relapse) in the past year (N=327-366)	16.2 (60)	17.2 (63)	15.7 (51)	NA	No change (2015 to 2017)

**Footnote:** NA: data are not available for this year

There was no evidence to suggest an increase in the use of e-cigarettes to aid cessation by Victorians who were attempting to quit across the study period (Table 5).

The proportion of Victorian past year attempters who reported having used an e-cigarette during their last attempt to quit smoking did not change between 2016 (12.2%) and 2018 (12.8%). Similarly, the proportion of past year attempters who had used an e-cigarette for a quitting related purpose during the past year remained stable between 2015 (16.2%) and 2017 (15.7%).

<sup>1</sup> Note that from August 2017 onwards (three months before the 2017 survey) new Victorian legislation was introduced to restrict the use of e-cigarettes in smoke free areas.

**Table 6: Trends in quitting by e-cigarette use (base: Victorian adult smokers and former smokers who made a past year quit attempt)**

% of past year attempters who...	2015 % (n)	2016 % (n)	2017 % (n)	2018 % (n)	Linear trend (2015-2018)
...were quit (regardless of e-cigarette use)	22.8 (84)	23.0 (84)	21.6 (71)	22.1 (83)	No change
...used an e-cigarette for any purpose in past year, who were quit	22.4 (17)	17.4 (11)	15.7 (11)	19.1 (15)	No change
... used an e-cigarette as a cessation aid during their last quit attempt , who were quit	NA	18.6 (8)	8.4 (3)	15.6 (7)	No change <sup>#</sup>
... used an e-cigarette for a cessation related purpose (e.g. to quit, cut down or avoid relapse) in the past year, who were quit	16.0 (10)	18.1 (11)	13.0 (7)	NA	No change <sup>*</sup>
... did not use an e-cigarette at all in past year, who were quit	26.0 (19)	16.9 (16)	30.4 (24)	24.5 (18)	No change

**Footnote:** NA: data were not collected during this year. <sup>#</sup>Linear trend calculated for 2016 to 2018. <sup>\*</sup>Linear trend calculated for 2015 to 2017.

Table 6 presents data on the outcomes of past year quit attempts among Victorians. The proportion of Victorians who had made a quit attempt during the past year and who were quit on the day of the survey remained stable across the 2015 to 2018 period. In 2015, 22.8% of past year attempters were quit compared to 22.1% of past year attempters in 2018.

Across the study period, there was no change in the proportion of past year attempters who used an e-cigarette during their last quit attempt and who reported that they were quit on the day of the survey. Among the past year attempters who did use e-cigarettes during their last quit attempt, 18.6% were quit at the time of the 2016 survey, compared to 15.6% in 2018.

Not all smokers or former smokers use e-cigarettes for purposes related to quitting (e.g. to quit, cut down or avoid relapse). When we restricted analyses to this group (those who made a past year quit attempt and who reported e-cigarette use for a quitting related purpose during the past year) 13.0% were quit on the day of the survey in 2017, the most recent year these data were collected. This was consistent with data collected in 2015 and 2016: there had been no change across the study period.

## Methods

The Victorian Smoking and Health Survey is a cross-sectional telephone survey undertaken between late October and early December each year. Interviews were undertaken with a representative sample of English speaking adults aged 18 years and over, residing in the general population of the Australian state of Victoria. Data from the 2015, 2016, 2017 and 2018 surveys were examined to inform this research brief. Each year, the survey sample was generated via Random Digit Dialling to both landline and mobile phones. The proportion of the sample recruited via calls to mobile phones has increased gradually in recent years to reflect changes in phone use in the general population; in 2015 and 2016 60% of the sample was recruited via mobile, in 2017 this increased to 65% and then to 70% in 2018.

Linear regression analyses were used to examine the changes in the prevalence of e-cigarette use from 2015 to 2018 (unless otherwise stated). It should be noted that it is common to have fluctuations in data between single years, and observations over multiple years are necessary to gain a reliable indication of the trends in smoking prevalence.

A multi-stage weighting procedure, including a design weight and a post stratification weight, was used to adjust for any biases inherent with differences between the survey respondents and the wider Victorian population. The design weight took into account the relative chance of inclusion in the landline and/or the mobile phone frame, a chance of selection adjustment based on the number of landlines in each household and the number of in-scope persons per household.<sup>(2)</sup> Information on telephone ownership in the Victorian population (“mobile-only”, “landline and mobile” or “landline only”) that was used in the calculation of the design weight was obtained from Roy Morgan Single Source.<sup>(3)</sup> The post stratification weight was calculated using a raking method with adjustments for age, sex and education based on estimates of the Victorian population at the 2016 Census.<sup>(4)</sup>

### Measures relating to smoking status

All respondents were asked a standard tobacco use question to determine their smoking status.<sup>(5)</sup> In this report, current smokers are defined as those who, at the time of the survey, were smoking conventional cigarettes at any frequency; either daily, at least weekly, or less than weekly. Former smokers reported that they did not smoke conventional cigarettes at the time of the survey, but had smoked at least 100 cigarettes or a similar amount of tobacco in their lifetime. Respondents who indicated that they had never smoked more than 100 conventional cigarettes or the equivalent amount of tobacco in their lifetime were classified as never smokers. Never smokers may therefore have tried conventional cigarettes in the past.

Current smokers were also asked: “Approximately how many times, if any, have you ever tried to give up smoking?” Those who had attempted to quit at least once were then asked how long ago their most recent quit attempt ended. In addition, former smokers were asked how long ago they stopped smoking. All current smokers who attempted to quit in the past

year and all former smokers who quit within the past year were considered to be past year attempters.

### **Measures relating to e-cigarettes**

The 2015 to 2018 Victorian Smoking and Health Surveys included questions to assess Victorian adults' patterns of e-cigarette use. E-cigarettes were described to respondents, and respondents were then asked if they were aware of these devices in the following way:

'Electronic cigarettes (or e-cigarettes) are devices that are designed to be used like cigarettes, but users inhale vapours rather than smoke. The vapours usually contain flavourings (such as apple or coffee) and may contain nicotine as well. Have you ever heard of electronic cigarettes or e-cigarettes?' Respondents who indicated that they had heard of e-cigarettes were then asked further questions to ascertain if and how frequently they had used these devices.

Ever e-cigarette users responded 'yes' to the question, 'have you ever tried an electronic cigarette?'

Current e-cigarette users reported any frequency of current e-cigarette use, from 'daily' through to 'less than monthly' current e-cigarette use.

Within the survey, past year users of e-cigarettes were identified as individuals who either reported any frequency of current e-cigarette use, or who responded yes to the question: 'Have you used an e-cigarette in the past 12 months?'

Between 2015 and 2017, all respondents who identified as having vaped during the past year were asked their reasons for having used e-cigarettes during the past 12 months. Respondents were read a list of response options (with multiple responses allowed) that depended on their current smoking status. The list of response options read out for smokers included 'to cut down', 'to help me quit' and 'to avoid relapse during an earlier quit attempt' whilst the following response options were available to former smokers: 'to cut down', 'to help me quit' and 'to avoid relapse'. Response options that were read out to all respondents (current, former and non-smokers) were: 'out of curiosity', as 'a healthier alternative to cigarettes', as 'a cheaper alternative to cigarettes', 'they taste better than cigarettes', 'to smoke indoors where regular cigarettes are banned' and 'they are more socially acceptable than regular cigarettes'. A variable was derived to identify respondents who cited a quitting related reason for having used e-cigarettes in the past year (i.e. to quit, to cut down, or to avoid relapse).

## References

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