



E-CIGARETTE & SMOKING USE AMONG ADOLESCENTS IN IRELAND: A FOCUS GROUP STUDY

Report prepared on behalf of the
Tobacco Control Operational Unit
Health Service Executive

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DECEMBER 2020

Published by Health Service Executive, 2020

ISBN: 978-1898098-92-8

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ACKNOWLEDGEMENTS

We would like to thank all the schoolchildren who took part in the focus groups. Special thanks also to the following staff at each of the participating schools:

1. Mr. Christopher Rowley, Principal, Ms. Orla Murphy, Transition Year (TY) Coordinator (St. Patrick's College, Cullies, Cavan)
2. Sr. Mairead O' Regan, Principal, Siobhan McGriskin, TY Coordinator (Ursuline College, Sligo)
3. Mr. Alan Craven, Principal, Ms. Anita White, Deputy Principal & Mr. Tommy Flynn, TY Co-ordinator (St. Mary's College, Dundalk, Co. Louth).

In addition, we are grateful to members of the Environmental Health Service for facilitating the research. In particular we would like to thank Barry Coady, Caitriona Stack and Rita O' Grady for liaising with schools and helping to set up the focus groups. Special thanks also to Claire Dunne and Fiona Kavanagh, and Patricia Opeoluwa (Department of Public Health, HSE West) for proof reading, cover design, and for assistance throughout the project.

EXECUTIVE SUMMARY

With the growth in popularity of e-cigarettes in recent years, there is concern in terms of their use by young people. In Ireland, there is no mandatory age restriction on the sale of e-cigarettes and their marketing may promote adolescent use. Nicotine exposure can harm adolescent brain development, and may act as a 'gateway' to smoking initiation among the youth. The study aimed to obtain an in-depth understanding of current knowledge, attitudes and behaviour of schoolchildren in terms of e-cigarette use.

Eight focus groups were undertaken in a convenience sample of three schools. This included an all-boy (Cavan), an all-girl (Sligo), and a mixed gender (Louth) school. Each focus group discussed vaping among schoolchildren in Ireland, attitudes to e-cigarettes/vaping, the accessibility and availability of e-cigarette products, the health effects of vaping, and the combined use of vaping, smoking and alcohol. All focus groups were audio recorded and transcribed, from which a number of key themes were identified.

The following key findings emerged from the analysis of the focus groups:

- E-cigarettes appear popular among Irish schoolchildren. Most participants were aware of schoolchildren that used e-cigarettes.
- Most knew that e-cigarettes contained nicotine. However, it is not clear if they were aware of the risk of nicotine addiction, nor the adverse health effects of nicotine.
- There was uncertainty in terms of the health effects of e-cigarettes. Overall there was a perception that they were healthier than cigarettes. There appears to be a lack of information about e-cigarettes from school education programmes on smoking.

- Most participants felt that e-cigarettes were used both by boys and girls; although overall it was thought that they were used more by boys.
- E-cigarettes are used as a group and as an individual activity. Some used them to help fit into groups.
- Underage discos are a key location where participants reported that e-cigarettes are used, and could be concealed from security staff. If a venue for an underage disco had smoking areas, it was reported that security staff would not stop schoolchildren from smoking or vaping in these areas. E-cigarettes are used at a variety of other locations where their use can be concealed (e.g. school toilets due to the absence of cameras).
- The main types of e-cigarettes referred to were the basic stick type and disposable e-cigarettes. Brand names were rarely mentioned, but several were aware of 'Juul' (not available in Ireland at the time of the study). Nobody was aware of people modifying e-cigarettes to increase the nicotine dose, although some were aware of cases where e-cigarettes had "blown up."
- There was awareness of the numerous e-cigarette flavours. Sweet and fruity flavours were the most popular.
- E-cigarettes appear to be relatively easy to access. Social media was the most popular way to obtain them with children using 'Snapchat' and 'Instagram' to buy and sell products between themselves. They were also purchased in shops such as discount stores and vape shops, where any age restrictions were not difficult to overcome. Online purchase was less popular.
- Most had seen e-cigarettes advertised on social media, in retail shops and on the internet. Social media was also being used to view videos of people doing 'vape tricks' and also offering discount codes. Some had also seen 'pop up' advertisements online.

- Most participants had not discussed e-cigarettes with their parents. By contrast, most had discussed smoking with their parents.
- There was a lack of awareness of e-cigarette warning labels among many participants. Among those that had seen warning labels, there was a lack of consistency in terms of what was thought to be written on the warning label.
- The findings suggest that smoking, alcohol consumption, and use of e-cigarettes are interlinked. Most participants felt that e-cigarette users also smoked cigarettes with only a minority thinking that users just vaped. Cigarettes remain more popular than e-cigarettes, particularly at teenage discos.
- Alcohol consumption appears to be common among schoolchildren, particularly for those attending teenage discos (mostly travelling on the bus or outside the venue). This may be a contributory factor in affecting the decision to experiment with cigarettes, e-cigarettes and other substances.

There is a clear need to tackle children's use of e-cigarettes in addition to a range of health risk behaviours such as smoking and alcohol which are all closely interlinked. The following recommendations have been made:

1. Legislation imposing age restrictions on the sale of e-cigarettes should be fast-tracked by the government and once finalised its implementation should be monitored to ensure that new legislation achieves its objectives.
2. A comprehensive multiagency plan (determined by the Department of Health) should be developed to prevent the initiation of e-cigarettes by schoolchildren.
3. The Irish Government should review e-cigarette advertising legislation. This review should consider;
 - a. Further restrictions on advertisements that may promote e-cigarette use among children.
 - b. Developing a robust regulatory system to oversee and control online sales of tobacco and nicotine inhaling products with particular reference to minors. Controls proposed in the 'Online Safety and Media Regulation Bill'¹ should be contemplated.
 - c. Making the Advertising Standards Authority of Ireland Code for e-cigarettes² mandatory.
4. Restrictions in terms of e-cigarette product placement, accessibility and visibility at point of sale should be considered by the Department of Health.
5. The introduction of mandatory e-cigarette warning notices and posters on the addictiveness of nicotine at all retail outlets selling e-cigarettes is recommended.
6. Restrictions on flavours similar to that adopted for cigarettes and other tobacco products should receive consideration for e-cigarette products because of their attractiveness to youth.

7. Schoolchildren need to be better informed of the health effects of e-cigarettes in addition to the addictive nature of nicotine, and e-cigarettes that contain nicotine. Best practice communication techniques should be employed^{3, 4} and their impact should be evaluated.
8. School anti-smoking education programmes should provide schoolchildren with information on nicotine addiction, health effects of e-cigarettes and what they contain. This should be incorporated into the school curriculum
9. Training programmes for children within and outside schools should incorporate social skills such as assertiveness^{5, 6} to help reduce the impact of group influence to undertake health risk behaviours.
10. Parents should be provided with accurate up to date information about nicotine addiction and the adverse health effects of e-cigarettes, particularly its effect on the developing brain in adolescence. This should also stress the importance of discussing e-cigarettes with children. Best practice communication methods should be employed and evaluated.³
11. The governance of underage discos should be reviewed. The HSE Tobacco Free Ireland (TFI)⁷ Programme should advocate for a smoke and vape free policy in venues known to host underage discos. The HSE should promote a review of the management of underage discos in collaboration with key stakeholders. Consideration should be given to introducing mandatory smoke and vape free policies when hosting underage discos.
12. The installation of e-cigarette detection and smoke detection devices should be considered for Irish school toilets.

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1. INTRODUCTION

1.1 Background

The Irish Government has set a target to reduce smoking prevalence to less than 5% by 2025.⁷ While smoking prevalence has reduced significantly in the 10 to 15 years (29% in 2006⁸ compared to 17% in 2019⁹), progress has been slow among some groups such as young adults. At the same time e-cigarette use has been steadily rising in recent years. The 2019 Healthy Ireland Survey⁹ found that 17% of the population have tried e-cigarettes, with 5% still using them. Based on Central Statistics Office (CSO)¹⁰ population data, this equates to 195,970 e-cigarette users in Ireland. The HSE tracker survey shows that current e-cigarette use has increased from 4.7% in 2015 to 5.8% in 2020.¹¹ A number of studies have shown that e-cigarettes are becoming popular among Irish youth. The Growing up in Ireland survey (2016)¹² found that 34% of 17-18 year olds had tried e-cigarettes. The European School Survey Project on Alcohol and Other Drugs (ESPAD) survey (2019)¹³ reported that 39% of Irish 15-16 year olds had ever used e-cigarettes with 18% using them in the last 30 days. The 2019 Planet Youth Survey of 4,848 15-16 year olds in Galway, Mayo, and Roscommon found that 38% had ever used e-cigarettes with 14% using them in the last 30 days.¹⁴ The 2019 Health Behaviour in School-aged Children (HBSC) study found that 22% of 12-17 year olds had ever used e-cigarettes with 9% using them in the last 30 days.¹⁵

The rise in e-cigarette use is of concern as their impact on health is unclear. A review by Callahan-Lyon¹⁶ found that e-cigarettes may be less harmful compared to conventional cigarettes, but their long term effect on health was unknown. A review by Glantz et al¹⁷ found that e-cigarettes expose users to high levels of ultrafine particles and toxins which may increase the risk of cardiovascular and lung

disease. They concluded that it is likely that e-cigarettes will impose similar long term cardiovascular and pulmonary risks as conventional cigarettes. The US Surgeon General¹⁸ highlights that e-cigarettes expose users to several chemicals known to have adverse health effects. They also note that nicotine exposure can harm the adolescent developing brain, which is significantly greater than damage to the adult brain. They recommend that e-cigarette use by youth should be “avoided and actively discouraged (p107).” In contrast, a review by Public Health England¹⁹ concluded that e-cigarettes were 95% less harmful than tobacco. They note that most of the chemicals present in conventional cigarettes that can cause disease are absent, and the chemicals present pose limited danger. However, this report has been criticised by the Lancet²⁰ in an editorial which noted that these conclusions are based on a “flimsy foundation.” Glantz et al¹⁷ note that there was no hard evidence to support the Public Health England claim and that new evidence suggests that the true risk is much higher.

There is also uncertainty in terms of whether e-cigarettes help smokers to quit. The 2019 Health Ireland Survey⁹ found that 38% of those who had tried to quit smoking in the last year had used e-cigarettes in an attempt to quit. A Cochrane Review²¹ found that e-cigarettes with nicotine increase the chances of stopping smoking compared to e-cigarettes without nicotine. However, it could not be determined if they performed better than nicotine patches. A review by Kalkhoran and Glantz²² concluded that e-cigarette use is associated with reduced smoking cessation. The World Health Organization (WHO) reported that it cannot be determined whether e-cigarettes help smokers quit or deter them from quitting.²³ Callahan-Lyon¹⁶ found that there was some evidence to suggest that they may facilitate smoking cessation. Glantz et al¹⁷ found that the use of e-cigarettes as a quitting aid reduces the likelihood of smokers quitting. In Ireland, a Health Technology Assessment (HTA) of smoking cessation interventions HIQA²⁴ did not find enough evidence to reliably demonstrate their effectiveness as an aid to smoking cessation.

The lack of clarity in terms of the long term health effects of e-cigarettes and their effectiveness in terms of helping smokers to quit has contributed to a relative absence of legislation and

regulation concerning their use and sale. Although new legislation is planned, existing legislative controls in Ireland do not sufficiently restrict the sale and advertising of e-cigarettes at point of sale.²⁵ This means that e-cigarettes can be purchased by anyone, including children. Although retailers may impose age restriction policies, the lack of legislation may make e-cigarettes more accessible to young people. Their marketing and the use of 'candy' flavours may also promote their use among this vulnerable group. There is also some evidence that e-cigarettes act as a 'gateway' to smoking initiation among the youth. The Health Information and Quality Authority (HIQA) have raised concerns that e-cigarettes may be used by people who have never smoked, which could lead to cigarette use and long-term nicotine dependency.²⁴ Connor²⁶ in a 12 month follow up study of 13-14 year olds in the UK found a strong association between ever use of e-cigarettes and subsequent smoking initiation. This was particularly strong for adolescents with no friends that smoked (a group considered less susceptible to smoking initiation). Similar findings have also been reported in the US.²⁷ A systematic review of nine studies found e-cigarette use was associated with greater risk of both smoking initiation and past 30 day smoking cigarette smoking.²⁸ Glantz et al,¹⁷ after reviewing a number of studies concluded that e-cigarettes are bringing lower risk youth into the tobacco market. A systematic review by the Health Research Board²⁹ of nine longitudinal cohort studies found a significant association between ever using e-cigarettes and smoking. A European Commission review of e-cigarettes³⁰ concluded that there was strong evidence that e-cigarettes are a gateway to smoking among young people.

The HSE has a legal obligation to monitor e-cigarette market developments, including any evidence that their use is a gateway to nicotine addiction and tobacco consumption among young people and non-smokers.³¹ Although there have been some Irish studies of E-cigarette prevalence among young people in Ireland, detailed information is limited in terms of access, knowledge, the context in which e-cigarettes are used, and their association with tobacco and other drugs. Such information would be valuable in terms of developing policies and interventions to discourage use by children. It is within this context that this study has been undertaken.

1.2 Aims and Objectives

This study aims to obtain an in-depth understanding of current knowledge, attitudes and behaviour of schoolchildren in terms of e-cigarette use. It also aims to establish whether there is a culture of e-cigarette use among the Irish adolescent population. More specifically the objectives of the study are to determine:

1. Patterns of e-cigarette use among schoolchildren.
2. The places where schoolchildren use e-cigarettes.
3. The types of e-cigarettes popular among schoolchildren.
4. The accessibility and availability of e-cigarette products.
5. The main places where e-cigarettes are advertised.
6. Knowledge of the ingredients of e-cigarettes (such as nicotine).
7. Knowledge of the health effects and risks associated with e-cigarette use.
8. Whether children read the warning labels on e-cigarettes.
9. Whether e-cigarettes are used in conjunction with other drugs.
10. The use of e-cigarettes among smokers and non-smokers.

2. METHODOLOGY

2.1 Introduction

The study methodology received ethical approval from the HSE Sligo and HSE Northeast Hospital Research Ethics Committees. A qualitative approach using focus groups was employed to provide an in-depth understanding of e-cigarette use among schoolchildren. This is particularly appropriate due to the existing shortage of information. It was felt that a quantitative approach would lose depth and meaning, and may omit key issues of relevance to policy makers. Focus groups can provide richer information about the knowledge, attitudes and experiences of the participants. They are particularly useful in highlighting cultural norms, shared values and common knowledge, and can facilitate the discussion of sensitive subjects. Unlike in-depth individual interviews, focus groups generate social interaction between participants.³² This can help empower them; they become an active part of the research process as they get an opportunity to voice their opinions. They can also encourage participation from people who are reluctant to be interviewed or who feel they have little to say.³³

2.2 Sampling

A convenience sample of three schools in three different counties and two different HSE regions were selected (Sligo, Cavan, and Louth). The sample included an all-girls school, an all-boys school and a mixed gender school. Therefore the study included all male, all female and mixed gender focus groups. Mixed and single gender focus groups have advantages and disadvantages. For example, Bischooping and Dykema³⁴ note that female input is enhanced by all female focus groups, whereas men are less likely to discuss themselves or personal topics in all male focus groups with male participation enhanced by mixed gender groups. By varying the gender composition, it was hoped that the impact of gender on the

quality of participation would be minimised. Varying gender composition of focus group participants have been undertaken in a number of other focus group studies.³⁵

All transition year (TY) students attending the selected schools were selected for inclusion in the study. TY students (usually aged 15-16 years) were chosen as smoking prevalence among schoolchildren significantly increases from 15 years of age.¹⁵ As such they may be vulnerable to e-cigarette and smoking initiation and the issues raised by the study may be of more relevance to them than a younger age group.

Three focus groups at each school were selected to ensure that analysis of themes achieved data saturation for each school. A review of 40 focus group studies found that 80% of all themes could be identified within 2-3 focus groups and 90% by 3-6 focus groups.³⁶ Nine focus groups therefore provided ample data to analyse themes at a national level yet also permit meaningful results for each participating school.

School Principals from selected schools were contacted by telephone and letter (Appendix 1) to explain the study and agree participation. School Principals then sent letters and consent forms to parents on behalf of the study team to obtain parental consent and consent from children to participate in the focus groups (Appendix 2). Parents of all TY year students were contacted. In one school (Sligo) more than 12 children agreed to participate in each focus group. A random sample of 36 children (12 per focus group) were subsequently selected, to ensure the focus group was a manageable size (One participant did not attend on the day, giving a sample of 35 for Sligo). A focus group size of 6-12 participants is small enough to provide the opportunity for all members to talk, yet large enough to create a diverse group.³⁷ A verbal and written reminder was sent to parents and children that were randomly selected a few days before the discussion. Those that agreed to participate but were not selected were also contacted to explain why they were not included and to thank them for their agreement to participate. All students that participated in the study were given a 'goodie bag' including items such as a 'Healthy Ireland' tee-shirt, a hi-vis vest, a 'Healthy Ireland' water bottle, plus a €10 'One4All' voucher as a

gratuity. There were 38 male and 38 female TY students that agreed to participate in the focus groups. Table 2.1 provides a summary of those that attended the focus groups.

Table 2.1: Summary of the people who attended the focus groups

	Male	Female
SLIGO (all-girls school)		
Focus group 1	na	12
Focus group 2	na	12
Focus group 3	na	11
CAVAN (all boys school)		
Focus group 1	10	Na
Focus group 2	8	Na
Focus group 3	4	Na
LOUTH (mixed school)		
Focus group 1	10	Na
Focus group 2	6	3
Focus group 3	na	Na

2.3 The Discussions

A 'topic guide' (Appendix 3) was developed which was based on input from key stakeholders in the Environmental Health Service, an analysis of international literature, and from feedback from a pilot focus group undertaken in a girls' Secondary School located in Galway. The 'topic guide' consisted of open-ended questions and detailed 'probe' questions. Only the general questions were used as far as possible, so that the participants could raise issues that were priorities for them. The detailed probe questions were for use if conversation 'dried up' or to guide the discussion if important issues had not been mentioned.

The sessions began with an introduction from the moderator who welcomed everyone and asked for consent to audio record the discussion. A flip chart was used to explain the five sections of the discussion (vaping among schoolchildren in Ireland, attitudes to e-cigarettes/vaping, the accessibility and availability of e-cigarette products, the health effects of vaping, and the combined use of vaping, smoking and alcohol). Participants were encouraged to speak freely to each other and the importance of confidentiality was highlighted.

2.4 Analysis

All focus groups were audio recorded and transcribed. Transcripts were analysed following a grounded theory approach.³⁸ Transcripts were read, noting succinct words or phrases (open coding). A list of phrases were then constructed, eliminating duplication and reducing open codes to a smaller number of categories. Similar categories were then grouped together to form a coding framework to identify response categories. Transcripts were then coded using the coding framework, from which a number of key themes were identified.

3. RESULTS

3.1 Introduction

The focus groups aimed to obtain an in-depth understanding of current knowledge, attitudes and behaviour of schoolchildren in terms of e-cigarette use. A total of 76 transition year school children participated in the focus groups (35 from Sligo, 22 from Cavan, and 19 from Dundalk). The key themes that emerged are set out in 3.2 to 3.12 below.

3.2 Vaping among Schoolchildren in Ireland

Some respondents thought that vaping was very popular among schoolchildren. Most however reported that it was popular among certain groups of schoolchildren, while the majority of children do not vape. Some did not think it was popular in their school while others did not know if it was popular:

"I would say it's popular because a lot of secondary school students would Vape."

"You always know like a certain group that would. I just know of like the people and like that would not care."

"...there's definitely a subculture of people that do it."

"I don't know if it's that popular but I can smell in the bathrooms (school)."

"There are a few people in school like that you know that are but there's not that many in our school anyways."

Most people thought that the main reason why schoolchildren used e-cigarettes was because it was cool. If someone saw other people doing it, or their friends they may think that it is cool and may do it because they want to fit in. Some felt that the flavours were an attraction. Others believed that doing something wrong or different, or to relieve boredom was a reason. Some thought schoolchildren used e-cigarettes because it was not as bad as smoking. One respondent thought that if someone's parent's used e-cigarettes, it may expose them and promote experimentation. Several respondents stated that they personally did not think it was cool:

"...some people might think it is cool in some circles and a few of them might just think it is just like a cool idea."

"When you see other people doing it they would think it was cool."

"They think it's cool because their friends do it."

"...a stereotype may be that it's not as bad as smoking but still looks so cool smoking apparently."

"It spreads more because you see your friends try it and its 'oh they tried it so I want to try it' and then you become addicted to it."

"I don't see it as being cool. I think you're an idiot to be doing it."

Many participants thought that smoking e-cigarettes was a group activity, although several felt that people used them both on their own and as part of a group. One person explained that the social group activity was more important to people than whether using e-cigarettes was good or bad:

"I think that's it's more of a social event than anything else you know, that they don't care if it is good or bad..."

In terms of age, most participants felt that e-cigarettes were more popular among younger teenagers (aged 13-15 years). Others felt it was popular among all secondary school students, including both teenagers and older teenagers:

"I think younger years like first, second and third years."

"I think it is really popular at our age. I think it's kind of like younger than us, it's kind of, it's like heard of, but I think of just especially like its popular around like our age."

Overall it was felt that more boys used e-cigarettes than girls. Some explained that boys did not care about the consequences of using e-cigarettes whereas girls would be more concerned, and would also have greater concerns about getting caught. One participant felt that girls did not use e-cigarettes because it did not help them to lose weight and therefore would choose cigarettes as they help to lose weight:

"I think it's a bit more of like boys because they don't want anyway like care."

"Most girls smoke cigarettes if they do smoke. Some boys might do it because it looks good. They think it is like cool."

"Some girls I think they think they have to smoke to lose weight."

"Boys will do it walking down the street but like girls cover it but boys don't. Girls would be more worried about getting caught."

"...guys just seem more like they don't really care."

"Boys want to make themselves look tough."

"...people think it looks a little bit cooler and more like manly."

"Girls do not have an interest in that kind of culture."

3.3 Where Schoolchildren Vape

When asked where schoolchildren vaped, a wide variety of locations were given, although the most frequently stated locations were underage discos and school toilets or bathrooms:

Underage discos often had smoking rooms where people would smoke cigarettes or e-cigarettes:

"If there is a smoking room then people will be smoking and vaping."

Several participants stated that security staff would search children on entry to these discos and confiscate alcohol, e-cigarettes or cigarettes. However, once inside these discos, children were not stopped from using the smoking areas to smoke cigarettes or e-cigarettes, with cigarettes being more popular:

"The main disco we have here, there's like an outside smoking area in it because it's an adults' nightclub and a lot of people sneak their cigarettes in with them, in their tops or whatever.....It was absolutely packed with people just out there smoking."

Bathrooms and dark areas within school discos were also popular locations:

"You walk into the bathroom and a big cloud hits your face."

"And then if there's like a dark place in the disco because there's no lights on and there will be people then smoking and vaping, and then there's some outside as well."

School toilets were reported as a popular location, some explained that this was due to the absence of cameras. Some commented that you could smell the e-cigarettes in the school toilets. Only one person had seen e-cigarettes used somewhere else on the school grounds:

"School bathrooms; maybe outside, but 99% of the time in the bathrooms."

"Yeah if they are doing it in the school it will be in a bathroom."

"There are cameras outside so it's more likely they will do it in the bathroom."

Several commented that e-cigarettes were used at home, in the bedroom or bathroom. Others stated that they would be used anywhere in the local area where people could not be seen using them. A number of specific locations were referred to including the local garage/shop, in town, rear of shopping centre, outside school, walking to school, waiting for school bus, parks, docks, forest, walking the dog, and anywhere where there were no cameras:

"While in school it would probably be in a hidden area to avoid from cameras, maybe in areas where teachers do not patrol that area. Majority is probably done either maybe before or after school, places close to the school campus but maybe not part of it in groups before or after school."

Several participants commented that people did not use e-cigarettes on school trips. One person elaborated that these were supervised by teachers which increased the risk of getting caught. Only one person had seen e-cigarettes used on a school bus. Some commented that this was not a good time, due to the bus being full and the bus driver not liking it.

3.4 Types of E-Cigarettes

Several participants stated that the main type of e-cigarette schoolchildren used was the basic stick that looked like a pen. Some commented that this was the easiest and cheapest to buy. Several others were unsure or did not know about the different types of e-cigarettes. Two participants commented that they had seen both disposable and reusable e-cigarettes:

"I'd say it's the basic stick that looks like a pen. It will cost you 10 quid."

"I think it's just what we can get, like what is available, well like what other people are buying and I think it is like, I don't think anyone really has a preference."

Some were able to name specific brands with two referring to "Juul" which they had seen on the internet:

"I heard one before I don't know, I can't remember what it's called; that looks like a USB stick and you charge it by plugging it into the computer but you wouldn't know if someone was looking at it that it was an e-cigarette."

Most participants had not heard of people modifying e-cigarettes to increase the nicotine dose. Some however gave examples of how e-cigarettes had "blown up" after being modified:

"I have not heard of ways of getting more nicotine."

"You can remove the sand thing and I'm not sure how complicated it is but I've heard of it."

"You often hear of things blowing up and things."

"It was like one of my friends, it was in his bag and it just blew up."

A wide variety of e-cigarette flavours were mentioned by several participants, although there were some that were unaware about available flavours. The most frequently mentioned flavours were strawberry and other fruit flavours (e.g. apple, and watermelon). Other flavours included chocolate, 'sweet flavours,' Coca-Cola, cotton candy, cream, bonbon, mint, and bubble gum. Several participants had heard of children experiment with e-cigarette liquid to make different flavours. One person stated that they were not sure whether mixing e-liquids was dangerous:

"I heard people making their own liquid like juice."

"...and if they are doing e-cigarettes then they're going to experiment."

"There are loads of different flavours you can use to experiment. You just mix them up to see what happens."

3.5 Where Schoolchildren get e-cigarettes

In terms of where schoolchildren get e-cigarette, the most frequently stated response was from people advertising them on social media. In particular, Snapchat was mentioned, with people advertising them on their "stories." These could then be bought in school or after school. Other social media outlets included Instagram and Facebook:

"Yeah, they advertise like on the social media and yeah they have them up for sale and they could actually sell it in school."

"...a lot of people go to the snapchat stories."

Purchasing online was also referred to by several participants, although some commented that they had not seen them online. Some thought that schoolchildren didn't buy online as this would require a credit card which would mean they would have to use their parent's card and get them delivered to their home. Two stated that the parent's credit card would be used by schoolchildren

to purchase e-cigarettes. Several others had their own debit card, and highlighted that teenagers could get debit cards and purchase items online. E-cigarettes could then be delivered to the post office, or alternatively to a friend's address:

"You can get it delivered to the Post Office; some boys do that, get it delivered to the Post Office."

Shops were also identified as places schoolchildren got e-cigarettes. Some highlighted that they were widely available in shops. One pointed out that this meant that there was no need to purchase online:

"I don't think I would want to go to the trouble of going online to get them when they're so available around town."

"Yeah, like so many different shops in town..."

The most frequently mentioned shops were 'discount shops' and 'vape stores.' One person said that there was a 'vape store' very close to the school that sold "slush puppies", and referred to it as a "nice place." Other shops included 'corner shops,' 'pop up stands' (e.g. in shopping centres) and off licences.

3.6 Age Restrictions Purchasing E-cigarettes

Most participants thought that you had to be 18 to purchase e-cigarettes. Some were unsure or said they did not know if there were age restrictions. Some participants indicated that retailers are more concerned with profit than age:

"I think it's over 18 but there a lot of places just don't care. As long as you have the money they don't mind giving them."

"Some business that may not ask for the ID because they just want to make money like."

Several highlighted that it was possible to “get around” age restrictions both online and in shops. For online purchases, someone just had to click an icon to say that they were over 18. Additionally, an account could be set up where someone’s age is given as over 18:

“When you go onto the website, it just asks you if you are over 18 and that’s it.”

In shops, some said fake ID, or someone else’s ID could be used. Some said that schoolchildren could purchase without ID if they looked older, as photo ID was not looked for by retailers:

“If you kind of look 18 they might give it to you. That’s the same with smoke and drink.”

“I’d say it probably be them asking your age, no photo ID. Just are you over 18 and that would be it.”

“You just need to have some form of ID, it doesn’t even have to look remotely like you.”

“...if you go into a shop and you look over 18, and then they don’t ask you for your ID. If you look over 18 then you can get one.”

“Some shops even if you clearly look under 18 you can just go in and buy them.”

Several participants said schoolchildren would just get other people to buy the e-cigarettes for them such as older siblings, older friends, or older relatives. One person said that people would just steal them because of their location near the counter in shops.

In one focus group, access to cigarettes was also discussed. Most felt that it wasn't difficult to buy cigarettes in shops:

"There's a shop in Cavan where I can walk in and ask for smokes and he gives."

"There's a lad that walked in and he's 14 and got them without ID."

3.7 Parent and E-cigarettes

Participants were asked if they thought that the parents of children that vaped allowed them to do it. Several participants thought that the parents would not know if their children vaped:

"Yeah like they do it behind their back, like in school and they wouldn't know."

"They might not know. Most of them probably wouldn't."

Some thought that such parents would not allow it, while others thought that they probably would allow them to vape. Two thought that parents would allow children to vape to help the children give up cigarettes:

"Maybe they were smoking beforehand and then they try to get them off by using vape."

"Some parents may think it's harmless and just let them. They wouldn't know much about it."

Most participants stated that their parents had not discussed e-cigarettes with them, although most had discussed smoking. Some had discussed e-cigarettes with their parents, while others stated that it had not been discussed, although they knew their parents would not allow it:

"A little bit but not like in a big conversation, just to say that it's not better than smoking."

"My dad uses it to try and get off cigarettes but he's never talked to me about it because it's like I have never been into anything like that."

Some felt that parents did not really know much about e-cigarettes in terms of their contents, whether they were addictive, and the difference between smoking and vaping. Several participants also highlighted that they were not taught about the health effects of e-cigarettes in schools:

"Well my parents said that they weren't fully informed of all the affects so they couldn't form a proper opinion on it but they just don't like the idea of it."

"I think parents don't really know too much about e-cigarettes and I think we are taught about smoking in school but we're not taught about e-cigarettes at all."

"We have learned about like the facts of smoking, what I should do, but you wouldn't learn about vaping. I don't think that the teachers know."

3.8 Advertising and E-cigarettes

One of the main places participants had seen e-cigarettes advertised was social media. Several people highlighted that schoolchildren would advertise to other schoolchildren using their 'stories' on Snapchat:

"You know on Snapchat is someone just taking a picture e-cigarettes and put them on the stories that they are for sale."

"You get these shops where they might close down after a few months and then they pop up somewhere else in the street. I thought they don't do that well, but they open up every once in a while and will be there and people like buy them and then sell them for more on Snapchat's stories."

In addition, some participants referred to Instagram accounts where people would be paid to post photos and videos of vaping, and also promoting a particular product:

"It will kind of give you a picture or video of them using it and then I'll give you a discount code to get like 10% off or something, they're promoting the product."

Some also stated that there were videos on Instagram of celebrities that had been "caught" vaping:

"Yeah that sometimes there's video released on Instagram or something like that with celebrities vaping."

Some explained that accounts promoting e-cigarettes may be recommended for them by Instagram, and that this would be based on their "friends" or "followers" that may have viewed the account in the past:

"That's kind of based on like what your friends or what your followers look up."

Several participants also stated that e-cigarettes were advertised by the shops that sold them, particularly vape shops. Adverts would be in shop windows and also on the e-cigarette display stands. One person commented that one vape shop had a van that had adverts on it that "drove around town:"

"If you just go around town there will be a shop on nearly every road. Yeah that's where you see them."

"You know when you go into your shop then there's a big stand there."

E-cigarette advertising had been seen online by several participants. Some had seen 'pop up' advertisements, while several others had specifically seen 'Juul' being advertised:

"Like pop up ads on our website, they'll come up on the side. These are the shops that sticks posters on the windows."

"I have seen Juul advertisement, which is like vaping but it looks like a pen and they advertise it as like you can just hide it away."

Other places referred to where e-cigarettes were advertised included 'word of mouth,' from seeing other people their age using them and from seeing people using them generally.

3.9 Contents of E-cigarettes

Most participants thought that e-cigarettes contained nicotine, although some were unsure. Some also stated that some e-cigarettes did not contain nicotine. In terms of other ingredients, several thought they contained water, while others thought they contained flavouring. Two thought they contained chemicals. Several stated that they did not know what other ingredients or chemicals were in e-cigarettes:

"Well they contain nicotine so that's why they are addictive."

"But I think so you can choose to have some with nicotine or some without, or even put the nicotine in yourself."

I am unsure like what they contain."

"Yes water is a constituent."

"They would use like artificial colour."

3.10 Safe to Inhale and Health Effects

When asked if e-cigarettes were safe to inhale, most thought that they “probably” were not. Some stated that they were safer or healthier than cigarettes. Two thought that they “possibly” were safe with no side effects. One participant thought that they can affect your throat, another thought it could affect your lungs, and two thought they had the same effects as smoking, while two commented that they were addictive. One highlighted that they were not taught about e-cigarettes, while another emphasised that there was a greater awareness of the dangers of smoking, as there was more of a “crack down” on smoking:

“Probably not....but I think a lot of people see it as a healthier option to cigarettes and they don’t think there are any side effects with it.”

“No, more safer than cigarettes I would say.”

“Safer than cigarettes anyway. You are better off not vaping than vaping but you are better off vaping than smoking. E-cigarettes are not as bad as cigarettes because that’s the point of them I suppose.”

“I guess; just because we are not taught about, or taught about smoking and not e-cigarettes.”

“I think smoking is like, everyone, most students would know like the dangers of smoking because of the massive crack down and you see the ‘don’t smoke’ things everywhere. But vaping, not so much I don’t think; people would know it’s not as dangerous as smoking, they know it has some, but there’s not as much of a crackdown on it as smoking.”

3.11 Warning Labels

Most had not seen warning labels on e-cigarettes. Some stated that the warnings were not like the graphic warnings shown on cigarette packets. Two said that they warned not to ingest or drink. One thought that the warning was small and referred to age, while another thought the warning was about the possibility of e-cigarettes exploding. Others said that they hadn't looked at the label or that people just ignore the warnings:

"Yeah I saw one which said it could blow up in your pocket or something."

"It says do not ingest...That's in the box. It's not actually on view."

"I don't think I have seen any about the actual effects."

"I don't think it says how it can affect your health."

"No, not like cigarettes. I think it is just plain box."

"Not as much as smoking. Smoking has all images on the back now, clearly showing you that it will destroy your lungs."

"People just avoid them...they just ignore them."

3.12 E-cigarettes, Smoking and Alcohol

Participants were asked if vaping was undertaken in conjunction with smoking and alcohol. Several people said that those that used e-cigarettes would also drink alcohol and smoke cigarettes. Some said that they would use all three at the same time. Several thought e-cigarette users would just consume alcohol, while several others stated that they would smoke at the same time. Some thought that e-cigarette users would "just vape." One commented that e-cigarette users may use cigarettes if they had no liquid or anything containing nicotine:

"Yeah, I'd say that people who would vape would smoke and drink alcohol as well. Anybody that I know that vape, they smoke and they drink as well."

"If you have no liquid like or anything with nicotine then you would smoke."

"I think most of them smoke as I think they have all at least tried smoking, like cigarettes. They tried it at least once or twice."

Most participants thought that smoking was more popular than e-cigarettes. Some female participants commented that boys thought that cigarettes were 'cooler' than e-cigarettes. Some however thought that there were more using e-cigarettes, particularly among younger schoolchildren. One thought that they were more discreet, while another thought that e-cigarettes were "trendier" due to the choice of flavours. One person felt 'vaping' was more popular as it was less dangerous than smoking. Some referred to the fact that you could do "tricks" when vaping. Videos of people doing "tricks" could be seen on social media platforms such as YouTube and Instagram:

"I think more people vape than smoke because I think people think that vaping would be less bad for you than smoking; because personally I think smoking nowadays people are more aware of how bad it is for you. Maybe I don't think people are as worried that vaping is bad for you as well."

"They do tricks; this is big on YouTube as well.....They blow shapes with smoke."

"Yeah, it's all over social media, the tricks with vaping or smoking."

Going to and attending underage discos was the main time when e-cigarettes, smoking, and drinking alcohol occurred. Most participants felt that the vast majority of those attending discos

consumed alcohol. Alcohol would be consumed mainly while travelling on the bus to the disco and also outside the disco. This was because alcohol was not allowed in the disco and it would be confiscated if someone tried to bring it into the disco with them. One person pointed out that although the Guards sometimes stopped buses, the bus drivers would allow alcohol consumption on the bus, but would not allow smoking or e-cigarettes:

"...they either drink or smoke before they leave or definitely on the bus where the majority drinking will happen."

"You get your drink; you go to where the buses go. You meet up with whoever is on the bus. On the bus drink and you get there."

"I think a bus driver would realise that smoking is a step too far. It is more obvious as well."

"Most people drink through, drink alcohol through disco and well not all people but most people would and I would say more people would smoke cigarettes than vaping at discos because it's, I don't know; it's wilder. It's because you're allowed to. There's less chance of you being caught because you're out."

Most participants thought that smoking was far more popular than e-cigarettes at the underage discos. One person thought they were easier to conceal. Another pointed out that e-cigarettes would be confiscated if you tried to bring them in to the disco. However, most felt a smaller proportion smoked compared to Alcohol (ranging from 10% to a third). Smoking was allowed inside the discos in smoking areas. Security staff at discos would allow smoking in this area but would not allow alcohol consumption. These areas would mainly be used for smoking, with a minority using e-cigarettes:

"They don't care as long as they are smoking in the smoking area and obviously drink wouldn't get in"

with you but they don't mind if smoking in a smoking area."

"The disco here, the main one we have, there's like an outside smoking area like in it because it's an adults' nightclub like, and a lot of people sneak like cigarettes and vaping in with them like, in their tops or whatever and they just like vape there."

"...it was mad with so many people smoking and doing e-cigarettes and vaping there. Like the smoking area was absolutely packed."

Some also stated that other drugs such as "weed" were also smoked in the smoking areas of underage discos, although this was not common:

"I know people who would bring stuff like that...That's cannabis or something like that, just hashish. That type of stuff."

There would also be people smoking and using e-cigarettes outside the disco. Some commented that the disco was the place where a lot of people first try smoking and e-cigarettes, which would be shared among schoolchildren:

"Maybe a third I'd say would just try it when they are in there. They may not have the intention of going to do it, but they end up doing it."

4. DISCUSSION

4.1 Introduction

With the current lack of sufficient regulation surrounding the sale and access to e-cigarettes in Ireland and many countries, it is important to determine knowledge and behaviour of vulnerable groups such as schoolchildren. This is also important in terms of meeting obligations set by the European Union³¹ to assess if e-cigarettes are a gateway to nicotine addiction among young people. By employing a qualitative approach, the study has provided an in depth insight from the perspective of schoolchildren. This raises a number of important issues which have implications for future regulations and policy development. The key issues emerging from the study will now be discussed

4.2 E-Cigarette use among Schoolchildren

The study suggests that e-cigarettes are popular among Irish schoolchildren. Most participants were aware of schoolchildren that used e-cigarettes and it appears that a sub-culture of e-cigarette users has emerged. Focus group participants reported that they are particularly popular among younger teenagers (aged 13-15), but are also used by those older. This finding is of concern, as it has been shown that the younger adolescents start using e-cigarettes the more addicted they become to nicotine.³⁹ Nicotine is the cause of tobacco addiction and schoolchildren that use e-cigarettes may also start smoking cigarettes as a result of nicotine addiction. Indeed e-cigarette use among youth is associated with increased risk of cigarette initiation and use.⁴⁰ There is also the danger of liquid nicotine ingestion which can result in death.⁴¹ Most participants knew that e-cigarettes contained nicotine. However, it is not clear if they were aware of the risk of nicotine addiction, nor the health effects of nicotine. Although nicotine does not directly cause smoking related diseases,⁴² studies have found it to be

carcinogenic, having adverse effects on cardiovascular, respiratory, renal, and reproductive systems.⁴³ Schoolchildren need to be better informed of the health effects in addition to the addictive nature of nicotine, and e-cigarettes that contain nicotine.

In terms of gender, e-cigarettes were reported to be used both by boys and girls; although overall it was felt that they were used more by boys. Kong et al,⁴⁴ in a review of gender and e-cigarette use found that all studies which reported gender differences found that boys had higher usage rates. They also note that studies of e-cigarette marketing report that advertisements focus on sporting events and male sex appeal which may promote use by boys.

The study suggests that e-cigarettes are used by schoolchildren both as a group and as an individual activity. Within groups it was seen as an important group activity which led to people using e-cigarettes to fit in with the group. Being part of a group for some was more important than whether e-cigarettes were good or bad in terms of health. This demonstrates the vulnerability of schoolchildren to group influence. This finding is similar to Hilton et al⁴⁵ who found that fitting in was an explanation for the appeal of e-cigarettes. Hilton et al also found e-cigarettes were used in social contexts such as parties when the different flavours and colours were used as a conversation starter. It would be important to ensure that schoolchildren are equipped with the skills to cope with such influences to help reduce the likelihood of them trying e-cigarettes and other behaviours that could impact on their health. It would be important that schools and other organisations that work with children build social skills such as assertiveness into their training programmes for children. For example, the Lifeskills Training Program has been shown to be effective at reducing smoking among students in a number of studies.^{5, 6} It is notable that the SPHE school training programme does address resilience and being able to manage peer pressure.⁴⁶

Although the qualitative nature of our study did not provide an estimate of prevalence, a recent study of the West of Ireland⁴⁷ supports our finding that e-cigarettes are popular. This found that 14% of 15-16 year olds had used e-cigarettes in the last 30 days, which is almost double the prevalence of smoking (8%). A number

of studies in other countries have shown that e-cigarette use among teenagers is increasing.⁴⁸ Significant advances have been made in terms of reducing smoking prevalence in Ireland. Smoking among Irish schoolchildren (10-17) reduced from 12% in 2010⁴⁹ to 8% in 2014⁵⁰ and 5% in 2018.¹⁵ The government is committed to reduce overall smoking prevalence to less than 5% by 2025 and have developed a comprehensive implementation plan.⁵¹ There is now a need to consider developing a similar approach for e-cigarettes.

4.3 Where Schoolchildren Vape

Underage discos emerged as a key location where schoolchildren use e-cigarettes. These events can attract large numbers of adolescents from a wide geographical area, with buses used as a common means of transport to and from the venue. Although these discos would have security staff that would search and confiscate alcohol, cigarettes and e-cigarettes at the entrance, some children were able to conceal e-cigarettes and cigarettes, and use them once inside the venue. As underage discos were often held in adult venues such as nightclubs and hotels, they would also often have various types of smoking areas (e.g. courtyard areas with canopies). It appears that security staff do not stop schoolchildren from smoking and using e-cigarettes in these areas. Some children also vaped in dark areas within the disco in addition to the toilet. This raises an important issue in terms of the level of supervision and control at these events. Underage discos are events where many school-aged children appear to experiment with e-cigarettes, cigarettes and alcohol. A study of alcohol and drug use in rural Ireland revealed that parents felt that teenage discos were a contributory factor in the normalisation of alcohol and drug use among young people.⁵² There is a clear need to review the regulations governing underage discos. They should be venues where schoolchildren can meet friends themselves, but at the same time provide a safe environment, protected as far as possible from health risk behaviours. Our study suggests that the opposite is the case. This is also supported by media coverage of incidents that have taken place at underage discos.⁵³

In terms of other locations, it appears that e-cigarettes are used at a variety of locations where their use can be concealed. Schools and

school trips were not popular locations due to the level of supervision, although school toilets were places where e-cigarettes were used due to the absence of cameras. Detection devices have been developed in USA⁵⁴ that can detect e-cigarette fumes. The introduction of similar devices should be considered for Irish school toilets.

4.4 E-cigarette Types and Flavours

There are a wide variety of different types and brands of e-cigarettes. A review undertaken in 2014 found 460 brands.⁵⁵ Some focus group participants were not familiar with e-cigarette types while several referred to the 'basic stick type' that looks like a pen. These typically are rechargeable and reusable, and can be used with different flavour e-liquids. Some were also familiar with disposable e-cigarettes. A review of eight studies of e-cigarettes among youth found that the pen type (second generation) was the most common type used across studies.⁵⁶ E-cigarettes contain a number of components that can be interchanged. This can enable users to modify product performance.⁵⁷ Focus group participants did not know anybody that modified e-cigarettes to increase the nicotine dose. However, some were aware of cases where e-cigarettes had "blown up." Brown and Cheng⁵⁷ noted that the risk of e-cigarettes exploding is due to the use of lithium batteries combined with poor design and quality, and improper use. This highlights the importance of warning labels in addition to adherence to best practice safety standards for products manufactured and imported into Ireland.

Although specific brand names were rarely mentioned, the fact that Juul was referred to by several participants is of some concern as this product has contained much higher concentrations of nicotine in other jurisdictions.^{58, 59} Juul was not available in Ireland at the time of the study. However, they had been advertised on the internet and are now available along with a number of other similar 'pod' type nicotine inhaling products. Juul and these 'pod' like nicotine inhaling products are similar in size and appearance to a USB memory stick and are rechargeable using a USB port. Some of the alternatives to Juul are also disposable. The e-liquid in this type of product is supplied in prefilled cartridges ('pods') in a variety of

flavours. Each 'pod' is equivalent to one packet of cigarettes.⁶⁰ Due to its size and appearance, it is easy to conceal, and teenagers in USA have used them in schools.^{60, 61} Juul sales have rapidly grown since their launch in 2015, and account for almost three quarters of the US e-cigarette market⁶⁰ and are very popular among youth.⁶² With these products now available in Ireland there is a danger that they will become popular among schoolchildren. This may increase the potential for schoolchildren to become addicted to nicotine. Although regulations in Ireland have placed restrictions on the nicotine concentration allowable, their slick inconspicuous design and marketing on the worldwide web and social media may attract schoolchildren. Regulations should provide greater controls on advertising by social media providers, and this could be included in Online Safety and Media Regulation Bill¹ or the new Public Health (Tobacco and Nicotine Inhaling Products) Bill⁶³ which are in draft format. The Advertising Standards Authority of Ireland (ASAI) have developed a Code of Standards for advertising, marketing, and communication which addresses e-cigarettes.² This considers issues such as appealing to people under 18 by reflecting youth culture, endorsement by health professionals or celebrities (of nicotine inhaling products), or encouraging non-smokers or non-nicotine-users to use these products. These standards should be considered for inclusion in the new legislation to make them mandatory.

E-cigarettes are available in a wide variety of flavours and several participants were aware of numerous flavours. Flavours referred to included sweet and fruity flavours. This reinforces the growing concern that the e-cigarette flavours are promoting e-cigarette use among youth. Walley et al⁶⁰ note that the flavours and labelling of some products mimic some brands of sweets. Similarly, an Irish focus group study⁶⁴ of 14-16 year olds found that participants felt that sweet, food and beverage flavours appealed to people their age. Appeal was promoted with packaging and labelling that used bright and vibrant colours with designs and names similar to sweets. Flavours are banned in the main types of tobacco products in many countries⁶⁰ including Ireland. Similar restrictions should now be considered for e-cigarettes. Several participants had heard of people mixing e-liquid flavours. The ability to 'mix and match' flavours may sustain use by maintaining the novelty of e-cigarettes.^{65, 66} Erythropel et al found that flavourings can react with

e-liquid forming harmful compounds.⁶⁷ The use of flavourings requires further monitoring to ensure they are not leading to harmful health effects.

4.5 Accessibility and Availability of E-cigarettes

E-cigarettes appear to be relatively easy to access if schoolchildren wished to obtain them. The most popular way to obtain e-cigarettes was by using social media. Mobile phone and tablet 'apps' such as Snapchat and Instagram are being used by some children to buy and sell e-cigarettes, either during school or at other times. It is also possible to purchase e-cigarettes online using a debit card and a parcel collection service (e.g. Parcelmotel, Addresspal), or a friends' address to avoid parents finding out. However, online purchase was not popular, as there were more convenient ways available to purchase e-cigarettes. E-cigarettes were reported to be widely available in shops and this was another main place where e-cigarettes were purchased. The most frequently mentioned shops were 'discount shops' and 'vape stores.' E-cigarettes are displayed in prominent locations in shops such as the main point of sale⁶⁸ which may also encourage purchase; some children commented that such locations make it easy for e-cigarettes to be stolen by schoolchildren. It has been shown that recall of e-cigarette point of sale displays is associated with use and intention to use e-cigarettes among adolescents.⁶⁹ Studies of point of sale restrictions on tobacco displays have shown that restrictions are associated with a reduction in children's exposure to tobacco products, a reduction in children purchasing cigarettes, and a de-normalising of smoking among children.^{70, 71} Similar restrictions in terms of e-cigarette product placement should be considered by relevant health practitioners and other key stakeholders in terms of advocating for changes in legislation. It is envisaged that Environmental Health Services would play a key role in enforcing and monitoring any new legislation relating to point of sale displays.

Most schoolchildren thought that you had to be 18 years or over to purchase e-cigarettes. Currently there are no mandatory age restrictions on e-cigarette sales in Ireland but many retailers nevertheless place age restrictions on e-cigarette sales. These restrictions do not appear to be difficult for schoolchildren to

overcome. Enforcement of these restrictions does not appear to be strict. Schoolchildren also use fake ID or get friends and relatives to purchase e-cigarettes for them. These findings demonstrate the importance of developing mandatory age restrictions and systems of enforcement. This is supported by the Royal College of Physicians of Ireland (RCPI) who have recommended a ban on sale of electronic cigarettes to children.⁷² Legislation to impose age restrictions is currently being developed and progressed by the Irish Government, which is a promising development.⁷³ The impact of introducing age restrictions should be monitored to ensure that new legislation achieves its objectives.

4.6 Parents and E-cigarettes

Parents expectations in terms of health risk behaviours (e.g. smoking) have been shown to influence adolescents decisions in terms of undertaking such behaviour.⁷⁴ Discussions that parents have with their children in terms of e-cigarettes could therefore be very important in terms of helping to prevent initiation. It is therefore disappointing that the study found that most participants had not discussed e-cigarettes with their parents. Some perceived their parents would not allow them to use e-cigarettes without ever discussing the issue, but this was a minority. By contrast, most had discussed smoking with their parents. Parents may be unclear in terms of the e-cigarette health risks and as such may be reluctant to discuss the topic with their children. They could also be oblivious to the fact that their child could be at risk of using e-cigarettes, as their use by adolescents may be easier to conceal compared to traditional cigarettes. As such parents may be less inclined to have such a discussion. A US study found that e-cigarettes were not perceived as negatively by parents as traditional tobacco use. This subsequently led to adolescents being more likely to use e-cigarettes.⁷⁵ Parents need to be aware and communicate the health risks of e-cigarettes to their children such as the impact on brain development¹⁸ and tobacco initiation.^{26, 27} Communicating negative views of e-cigarettes may help prevent adolescent e-cigarette use.⁷⁵ It is important that information about cigarettes is available to parents using a variety of methods that have been shown to be effective.³ In particular the importance of parents discussing the dangers of e-cigarettes with their children should be stressed.

4.7 Advertising and E-cigarettes

E-cigarettes have been advertised as a “healthier alternative” to smoking and “harmless.”⁷⁶ As part of European Union legislation, advertising of e-cigarettes to the public is not permitted on TV, radio and in publications such as newspapers and magazines.³¹ However there is a lack of advertising restrictions in other areas such as at the point of sale, on advertising billboards, at bus shelters, and difficulties with policing restrictions of advertising on the internet and social media. Although there are restrictions in terms of message content (such as health benefit claims),³¹ schoolchildren nevertheless are being exposed to e-cigarette advertising. The study found that most participants had seen e-cigarettes advertised on social media, in retail shops selling e-cigarettes and on the internet. It appears that social media is being used by schoolchildren to buy and sell e-cigarettes between themselves. It was also being used to view videos of people using e-cigarettes which promoted them by showing ‘vape tricks’ (making shapes with exhaled fumes) and also offering discount codes. Some had also seen ‘pop up’ advertisements online. Viewing ‘vape tricks’ on social media was also found in an Irish focus group study by McCaffrey (IPSOS).⁶⁴ The promotion of e-cigarettes via tricks may be contributing to the perception that e-cigarettes are ‘cool.’ A US study found that approximately three quarters of e-cigarette using adolescents had tried or watched ‘vape tricks’ online.⁷⁷ There is an urgent need to review e-cigarette advertising regulations. This is supported by the Irish Cancer Society and the Irish Heart Association in an evidence review of e-cigarettes.⁷⁸ The need to improve advertising regulations is also reinforced by studies that show that exposure to e-cigarettes advertisements increases the likelihood of e-cigarette use.⁷⁹ It is also supported by the standards contained in the Advertising Standards Authority of Ireland Code for e-cigarettes.²

In terms of online content, a number of countries are considering new laws. The Irish government are progressing an online safety and media regulation Bill.¹ This proposes a range of measures to protect against harmful and inappropriate media content including a definition of age inappropriate online content. This provides scope

to ban online advertisements for nicotine and tobacco inhaling products. The proposed Online Safety Commissioner could set rules and expectations through binding online safety codes providing a legal framework to curtail and ultimately prevent advertising of e-cigarettes via social media platforms.

4.8 Ingredients and Health Effects

Although most focus group participants thought that e-cigarettes contained nicotine, there appeared to be a lack of knowledge in terms of what e-cigarettes contained. There was also a lack of clarity in terms of the health effects of e-cigarettes and whether they are safe to inhale. Overall there was a perception that they were healthier than cigarettes. This is similar to a US focus group study of adults⁸⁰ which found a lack of knowledge of e-cigarette ingredients and health effects. Other US studies have found that adolescents perceived e-cigarettes to be less harmful than cigarettes,^{81, 82} with Gorukanti et al⁸² also reporting that 19% thought that they only contained water.

In addition to nicotine, e-cigarettes contain a number of toxic substances that have short and long term health effects (e.g. cancers, systemic inflammation, "popcorn lung").^{83, 84} Studies have shown that exposure to e-cigarette marketing lowers harm perception. This, combined with lack of knowledge in terms of contents and health effects, may increase likelihood of e-cigarette initiation. Best practice communication techniques (such as those used to warn and engage young people about the dangers of tobacco)^{3, 4} should be employed to help make children aware of the evidence available to date in terms of the health risk from both nicotine and other chemicals when using e-cigarettes. There appears to be a lack of information about e-cigarettes from school education programmes on smoking. These should provide schoolchildren with information on e-cigarettes so that children can inform decisions, which should help reduce both e-cigarettes and smoking initiation. A Healthy Choices module for junior cycle Social, Personal and Health Education (SPHE) is currently being developed by the HSE/Department of Education. This module will contain a number of tobacco lessons which will also address e-cigarettes. The proposed e-cigarette component (unpublished) includes a number

of learning activities that consider the health effects of e-cigarettes, the link between e-cigarettes and nicotine addiction, the role of e-cigarette marketing, e-cigarettes compared to smoking, and the current HSE position on e-cigarettes. This is a welcome development. All school smoking education programmes should be reviewed to help ensure that they provide up to date evidence base information on e-cigarettes.

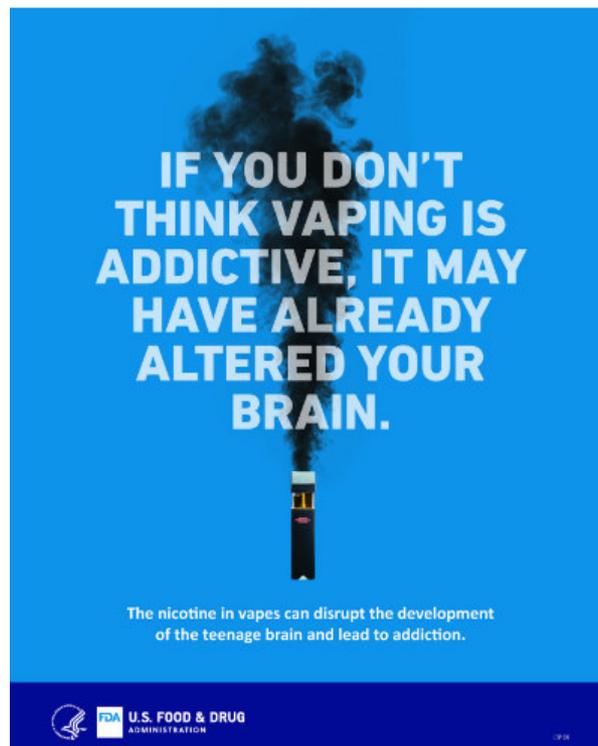
4.9 Warning Labels

European Union Regulations^{31, 85} states that it is obligatory for e-cigarettes to have health warnings advising consumers that they contain nicotine. It is also mandatory for all ingredients to be listed and a leaflet has to be included giving adverse effects, risk groups, addictiveness, and toxicity.

Most focus group participants were not aware of e-cigarette warning labels. For those that had seen warning labels, there was a lack of consistency in terms of message content. A study by Sontag et al⁸⁶ found that youth recall of e-cigarette warnings was low. The majority of focus group participants were not e-cigarette users and as such may not have seen e-cigarette packaging, or closely examined e-cigarettes. Despite this, the findings suggest that warning labels and health warnings may not be prominently placed. Indeed two participants noted that warnings were not like cigarette warnings. Cigarette warnings occupy at least 50% of the cigarette box and show graphic images of health effects. Warning labels should be placed in a prominent position on e-cigarettes and e-cigarette packaging to ensure that people are aware of the contents and the risks involved. A review of e-cigarette marketing found that after viewing e-cigarette advertisement warning labels, perceptions of harm increased and intentions to use e-cigarettes decreased.⁷⁹ This demonstrates the potential role e-cigarette warnings can have. European Union (EU) regulations need to be examined and recommendations made in terms of strengthening them in terms of e-cigarette warning labels. The EU Tobacco Products Directive⁸⁵ is currently under review and HSE Environmental Health Services have made a submission to the Irish Department of Health highlighting the need to ensure that the font size of warning labels is readable. In addition, as e-cigarette boxes and containers are smaller than

'traditional' cigarette packaging, it is difficult to place warning labels on them that are prominent that are easily read. As such, there may also be a need to consider additional alternative approaches to displaying e-cigarette health warnings. For example, the introduction of mandatory e-cigarette health warning notices and posters at all retail outlets selling e-cigarettes warrants consideration. These could contain all the legally required information that is currently contained on leaflets placed inside the e-cigarettes packaging. The notice should be clearly legible and displayed in a prominent position. This could be a condition of the granting of a licence to sell e-cigarettes. It is worth noting that Ireland can introduce such regulations on domestic sales under the Tobacco Products Directive (Recital 48).⁸⁵ Point of sale anti-smoking warnings and signs have been shown to be effective. For example, Coady et al found that they raised awareness of the health risks of smoking and promoted thoughts of quitting.⁸⁷ Similarly, Lin Li found that point of sale health warnings were associated with increased interest in quitting and quit attempts.⁸⁸ Posters warning about the dangers of e-cigarettes are currently being used by the Federal Drug Administration (FDA) in the US (figure 4.1).

Figure 4.1: FDA E-cigarette Poster



Source: https://digitalmedia.hhs.gov/tobacco/print_materials/CTP-120

4.9 E-cigarettes, Smoking and Alcohol

The findings suggest that there is an association between smoking, alcohol consumption and use of e-cigarettes. Most participants felt that e-cigarette users also smoked cigarettes with only a minority thinking that users just vaped. One participant suggested that e-cigarette users would smoke cigarettes to get nicotine if they had no e-liquid. This demonstrates the addictive nature and potential 'gateway effect' of e-cigarettes. The subsequent use of traditional cigarettes following e-cigarette initiation has been reported in a number of other studies.^{28, 89} For example a US study of 6123 youths found that someone whose first tobacco product was e-cigarettes was three times more likely to be a smoker (at two year follow up).⁸⁹ Although prevalence data suggests that e-cigarettes are becoming more popular among schoolchildren,⁴⁷ focus group participants felt that cigarettes remained more popular, particularly at locations such as teenage discos. Some commented that e-cigarettes are more popular among young schoolchildren, highlighting the issue of children 'moving onto cigarettes' as they

get older. This stresses the importance of addressing e-cigarette consumption in any anti-smoking educational programme targeted at schoolchildren, as our findings suggest that e-cigarette use is linked and may promote smoking.

Another finding of concern is the use of alcohol by schoolchildren. Most felt that those who smoked or vaped also consumed alcohol which would often be consumed at the same time. It was felt that most schoolchildren that attended teenage discos had consumed alcohol (mostly travelling on the bus or outside the venue). Some commented that the school disco was where a lot of people first tried smoking or e-cigarettes. Alcohol may be a contributory factor in affecting the decision to experiment with cigarettes, e-cigarettes and other substances. A study by Hughes et al found that adolescents who binge drink or regularly consumed alcohol were significantly more likely to have accessed e-cigarettes, particularly those that never smoked. It would be also important to address the role of alcohol when developing initiatives to address e-cigarette consumption. Again this highlights the need to review the regulations governing the management of underage discos. The HSE Environmental Health Service could be advocates for a smoke and vape free policy in those large venues known to host these events, working in collaboration with key stakeholders including Health Promotion Services. In addition, considering the pending restrictions (such as a banning of sales to under 18s) in the new Tobacco and Nicotine Inhaling Products Bill,⁶³ parameters could be set (e.g. a conditional requirement to maintain the areas smoke free and vape free) when granting a dance licence for a teenage disco.

5. CONCLUSIONS AND RECOMMENDATIONS

The HSE has a legal obligation to monitor e-cigarette market developments, including any evidence that their use is a gateway to nicotine addiction and tobacco consumption among young people and non-smokers.³¹ In the relative absence of regulation, schoolchildren are being exposed to e-cigarettes, potentially leading to experimentation and indeed use with tobacco and alcohol. Lacking information in terms of their health effects, many schoolchildren perceive them as healthier alternatives to regular cigarettes. There is a clear need to address the current policy vacuum, and formulate a way forward to tackle children's use of e-cigarettes in addition to a range of health risk behaviours such as smoking and alcohol which are all closely interlinked. The following recommendations have been made:

1. Legislation imposing age restrictions on the sale of e-cigarettes should be fast-tracked by the government and once finalised its implementation should be monitored to ensure that new legislation achieves its objectives.
2. A comprehensive multiagency plan (determined by the Department of Health) should be developed to prevent the initiation of e-cigarettes by schoolchildren.
3. The Irish Government should review e-cigarette advertising legislation. This review should consider;
 - a. Further restrictions on advertisements that may promote e-cigarette use among children.

- b. Developing a robust regulatory system to oversee and control online sales of tobacco and nicotine inhaling products with particular reference to minors. Controls proposed in the 'Online Safety and Media Regulation Bill'¹ should be contemplated.
 - c. Making the Advertising Standards Authority of Ireland Code for e-cigarettes² mandatory.
- 4. Restrictions in terms of e-cigarette product placement, accessibility and visibility at point of sale should be considered by the Department of Health.
- 5. The introduction of mandatory e-cigarette warning notices and posters on the addictiveness of nicotine at all retail outlets selling e-cigarettes is recommended.
- 6. Restrictions on flavours similar to that adopted for cigarettes and other tobacco products should receive consideration for e-cigarette products because of their attractiveness to youth.
- 7. Schoolchildren need to be better informed of the health effects of e-cigarettes in addition to the addictive nature of nicotine, and e-cigarettes that contain nicotine. Best practice communication techniques should be employed^{3, 4} and their impact should be evaluated.
- 8. School anti-smoking education programmes should provide schoolchildren with information on nicotine addiction, health effects of e-cigarettes and what they contain. This should be incorporated into the school curriculum
- 9. Training programmes for children within and outside schools should incorporate social skills such as assertiveness^{5, 6} to help reduce the impact of group influence to undertake health risk behaviours.

10. Parents should be provided with accurate up to date information about nicotine addiction and the adverse health effects of e-cigarettes, particularly its effect on the developing brain in adolescence. This should also stress the importance of discussing e-cigarettes with children. Best practice communication methods should be employed and evaluated.³
11. The governance of underage discos should be reviewed. The HSE Tobacco Free Ireland (TFI)⁷ Programme should advocate for a smoke and vape free policy in venues known to host underage discos. The HSE should promote a review of the management of underage discos in collaboration with key stakeholders. Consideration should be given to introducing mandatory smoke and vape free policies when hosting underage discos.
12. The installation of e-cigarette detection and smoke detection devices should be considered for Irish school toilets.

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APPENDIX 1



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

National Tobacco Control Office,
Health Service Executive,
2nd Floor, Oak House,
Limetree Ave, Millennium Park,
Naas, Co Kildare. Tel: (045) 880400

Briefing Note for School Principals

March 2018

Dear Sir/Madam,

The National Tobacco Control Operational Unit, Environmental Health Service, HSE are proposing a research project designed to ascertain information about attitudes and behaviours concerning vaping and smoking among adolescents in Ireland. Vaping is increasing in popularity and there are concerns over how this may lead to a rise in the popularity of smoking by association, rather than abolishing it, particularly among young people, who may not differentiate e-cigarettes from normal cigarettes so readily. The long term effects of vaping are still unknown, since it is a relatively new trend. E-cigarettes may very well incite health problems of a serious nature that we have yet to see and which scientists have only begun to investigate. If there are long term health consequences then it is those who have started young and whose bodies are the more vulnerable to undesirable effects that will ultimately bear the heaviest burden.

S.I. 271 of 2016¹ which transposes the requirements of Article 20 of the Tobacco Products Directive 2014, places a legal obligation on the HSE to monitor market developments concerning electronic cigarettes and refill containers, including any evidence that their use is a gateway to nicotine addiction and ultimately traditional tobacco consumption among young people and non-smokers.

We propose to carry out the research in three secondary schools in Ireland. The intention is that the cohort representing a boys/ girls/ mixed school is sourced from transition year students in your school, comprising a number of three discussion groups of 9 – 12 students ideally. Should the study be oversubscribed in your school, participants will be randomly selected. The research is scheduled to take place in 2018. The study involves an open discussion lasting approximately one hour, facilitated by two HSE researchers. The facilitators' will use a predetermined topic guide based on the following listed areas of interest, to steer the discussion.

1. Vaping among schoolchildren in Ireland.
2. Attitudes to e-cigarettes/vaping.
3. The accessibility and availability of e-cigarette products.
4. The health effects of vaping.
5. Vaping, smoking and alcohol.

The proceedings will be audio recorded and participants will be assured that confidentiality is paramount. All the information given in the study is confidential and will not be available to anyone other than the research team, with the exception of where a participant seeks a copy. It is important to note that statements will not be attributed to any individual – the data will be anonymous in that respect. A dedicated person from the HSE will be present on the day in the school overseeing the data gathering and to deal with any problems arising. The recorded data will be transcribed and analysed in conjunction with that collected in the other school settings.

Please see attached letter of consent for parents/guardians/students which is required for participation in the research. Permission from these stakeholders is essential in ensuring that the results of the study can be

¹ EUROPEAN UNION (MANUFACTURE, PRESENTATION AND SALE OF TOBACCO AND RELATED PRODUCTS) REGULATIONS 2016

published and can inform health policy in this area. This will lead to a better understanding of the salient issues concerning this new social phenomenon and how it is viewed by the adolescents of today.

To facilitate these requirements we are seeking the schools assistance in distributing and collecting the consent forms. We appreciate that this places an additional burden on the school, however, participation in the study will be beneficial to all the transition year students in many ways. Their involvement will contribute to a unique and important piece of social research. We earnestly hope you will support this worthwhile proposal and consent to your school partaking in the study. In so doing, please be assured that your school will be acknowledged and thanked as one of the participating schools when the research is ultimately published, if you are agreeable to this. Alternatively you may choose that the school remain unidentified in the written research.

If you need any further information in relation to this request, please do not hesitate to contact:

Ms. Rita O'Grady

Principal EHO

Chair National Tobacco Control Operational Unit and Steering Committee

Phone: 071 9115408

rita.ogrady@hse.ie

or

Relevant Local Liaison EHO

Name

Address

Contact Details

APPENDIX 2



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Environmental Health Service, Health Service Executive (HSE), Research Study of TY students concerning attitudes and behaviour towards E-cigarettes and Smoking

A chara,

The National Tobacco Control Operational Unit, Environmental Health Service (EHS), HSE is undertaking a research project designed to ascertain information regarding vaping and smoking among adolescents in Ireland. There is a legal obligation on the HSE to monitor market developments concerning electronic cigarettes and refill containers, including any evidence that their use is a gateway to nicotine addiction and smoking among young people.

All transition year students in (-----**Insert name & address of school**-----) , are eligible for inclusion in the study. If the study is oversubscribed there will be random selection of participants. The research is scheduled to take place in 2018. The study involves an open discussion lasting approximately one hour, facilitated by two members of the research team. There will be an audio recording of the proceedings and participants can be assured that confidentiality is paramount.

Prior to the open discussion on the day the researchers will advise the participants of the format and ensure that they are aware of the contents of Form A (see over).

It is important to note that statements will not be attributed to any individual – they will be anonymous in that respect. A dedicated person from the HSE will be present on the day in the school overseeing the data gathering and to deal with any problems arising. The recorded data will be transcribed and analysed in conjunction with that collected in the other schools participating in the study. The research findings will be published and all participants will be given a copy of the report.

If you have any queries about the study please contact **Dr David Evans, Senior Research Officer (Tel 091 775204)**.

We are seeking permission from both you (as the Parent/Guardian) and your child, to participate in this important study. If your child is interested in participating and you are giving permission for him/her to do so, we would be extremely grateful if you and your child would sign and return Form A to the school by

_____ .
A Healthy Ireland goodie bag will be offered to each participant in the study to include an official Healthy Ireland T-shirt. Please indicate the size requirement in the appropriate box on Form A, when returning.

We look forward to hearing from you.

Mise le meas,

Paul Hickey,
Senior Environmental Health Officer

See Form A overleaf

Form A

Consent



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

**National Tobacco Control Operational Unit, Environmental Health Service, Health Service Executive:
*Transition Year Qualitative Study***

- I declare that I have been fully briefed on the nature of this study and my role in it and have been given the opportunity to ask questions before agreeing to participate.
- The nature of my participation has been explained to me, and I have full knowledge of how the information collected will be used.
- I am aware that my participation in this study will be audio recorded and I agree to this. However, should I feel uncomfortable at any time I can request that the recording software be switched off. I am entitled to copies of all recordings made, should I request them, and am fully informed as to what will happen to these recordings once the study is completed.
- I am also aware that any information, or recordings collected will be securely stored, and destroyed after seven years in line with the Data Protection Act.
- I am aware that such information may also be used in future academic presentations and publications about this study, but that my anonymity will be protected at all times.
- I fully understand that there is no obligation on me to participate in this study.
- I fully understand that I am free to withdraw my participation at any time without having to explain or give a reason and that if I withdraw, none of my data will be used.
- I am entitled to full anonymity.
- I am entitled to full confidentiality in terms of my participation and personal details.

I _____ hereby consent to the participation of my son/daughter in the Research:
(Signature of Parent/Guardian)

(Print name of student) T-shirt size XLarge Large Medium Small

(Signature of Student)

APPENDIX 3

E-Cigarette and Smoking Topic Guide

The sections consist open-ended questions for each section (in bold) and detailed probe questions (normal, indented). The detailed, probe questions will only be used if conversation dries up or to guide the discussion if certain issues have not been mentioned.

Introduction (structured)

Background Information

My name is and this is . We are looking at e-cigarette use and smoking among schoolchildren in this area.

We aim to get an understanding of key issues surrounding e-cigarettes and smoking, and your thoughts in terms of areas where our current policies need to be changed.

Confidentiality

All the information given here today is confidential and will not be available to anyone other than the research team.

Consent for Taping and Ground Rules

We would like to get your consent to tape record today's discussion to ensure that we have a complete transcript of what people have said. If you would like access to the transcript at a later stage, please contact us. No statement will be attributed to an individual and only we will have access to the tape. There will be no way of tracing any comment to any individual and names will not be mentioned on any report arising from this research. To ensure that everybody gets a fair chance to share their views can we ask that only one person speak at a time and that no one will carry on side conversations with a neighbour.

As you can see from the flip chart there are four main things we want to learn about:

- 6. Vaping among schoolchildren in Ireland.*
- 7. Attitudes to e-cigarettes/vaping.*
- 8. The accessibility and availability of e-cigarette products*
- 9. The health effects of vaping.....knowledge etc.*
- 10. Vaping, smoking and alcohol.....associated??*

We want to hear all you have to say on the subject so feel free to talk to each other.

Introductions

We will start by introducing ourselves. If you could say a little bit about yourself, your name, where you are from and what are the favourite things you like to do you're your friends.

Section 1: Vaping among schoolchildren in Ireland.

Aims of discussions questions:

To explore and illustrate the nature of vaping among schoolchildren in Ireland to determine whether a vaping culture is emerging

Is vaping popular among schoolchildren?

What attracts schoolchildren to vaping?

Is vaping cool?- why/why not?

Do people vape on their own or among a group of friends?

Is vaping popular more with boys, girls, or both?

What age groups of schoolchildren vape the most?

What flavours of e-cigarettes are popular with children?

Where do schoolchildren vape?

During school time (school breaks)? On campus or off campus?

On school trips?

At school discos?

At non-school youth discos?

At out of school sports and social clubs?

At home

Travelling to and from school?

What types of e-cigarette are popular among schoolchildren?

What types are cool? - What makes certain types cool?

What types of images makes these types of products attractive? & Why?

Are disposable or atomisers more popular?

What are the Favourite brands that schoolchildren use?

Do children modify E cigarettes to increase the nicotine dose?

Do children experiment with E Cig liquid to make different flavours?

Section 2: The accessibility and availability of e-cigarette products

Aims of discussions/ questions:

To determine the main ways school children are obtaining e-cigarettes

Where do schoolchildren get e-cigarettes?

Do they buy them themselves?

Do they get friends to buy them for them?

Do they get them from friends or relatives?

Do some children sell e-cigarettes in school?

What type of shops do they buy them from (e.g. e-cigarettes shops/garage/supermarket/newsagent)?

Do they purchase online?

How do they pay if they purchase online? (themselves or parents)?

Are there any age restrictions on the purchase of e-cigarettes?

Are there age restrictions in shops?

Are there age restrictions for online purchase?

How do school children 'get around' age restrictions?

Do you feel that parents of children who vape allow them to do this?

- What do your own parents feel about vaping?
- Have your parents ever discussed vaping with you ?
- Have your parents ever discussed smoking with you?

Where are the main places that e-cigarettes are advertised?

- Television
- Cinemas
- Online
- Shops
- Advertising billboards

Can anyone describe the best e-cigarettes advertisement that they have seen?

- What was so good about it?

Section 3: Vaping, and health effects

Aim of discussions/ questions: To determine the perceptions of the health effects and the risks associated with vaping.

What do e-cigarettes contain?

- What is the main ingredient of e-cigarettes?
- Are they safe to inhale?
- Do they contain nicotine?
- Do they contain other chemicals?

What comes to mind about warning labels on e-cigarette products?

- Has anyone ever seen the warning labels?
- What do the warning labels say?

Section 4: Vaping, smoking and alcohol

Aim of discussions/ questions: To identify whether vaping is undertaken in conjunction with the use of other drugs.

Do people that vape like to smoke at the same time or consume alcohol?

- Do they consume alcohol at the same time
- Do they smoke cigarettes at the same time
- Do they consume any other drugs at the same time?

Ending

Wind the session down a few minutes before the specified time.

Give a brief resume of the main points and issues raised.

Ask: *Do you think we've missed anything?*

Thank everybody for their time and inconvenience and explain that the results will be very useful.

Reiterate confidentiality and take details of participants who want a transcript or further information about the results of the study.

Probes for use During the Focus Groups

1. The silent probe
2. The 'Go on I'm listening' probe
3. The 'journalist's probes e.g. When? Who? Where? What? How?
4. The immediate elaboration probe
 - e.g. 'Can you tell me a bit more about that?'
 - 'What happened after that?'
 - 'What did you think/ feel about that?'
 - 'Why is that? Why do you think that is?'
5. The retrospective probe
 - e.g. 'Can I take you back to something you said earlier.....'
 - 'You said....., could I ask you a bit more about that?'
 - 'You said you felt embarrassed about, why did you feel embarrassed?'