

Summary: Intervention & Options

Department /Agency: Department of Health	Title: Draft Regulatory Impact Assessment of regulations prohibiting the sale of nicotine inhaling products to under 18s	
Stage: Draft RIA		Date: August 2017
Related Publications: Consultation on the Health (Miscellaneous Provisions) Bill; the Health (Miscellaneous Provisions) Act 2016		

Available to view or download at: www.health-ni.gov.uk

What is the problem under consideration? Why is government intervention necessary?

Since the introduction of smoke-free legislation in Northern Ireland in April 2007, the market for nicotine inhaling products (NIPs) has grown exponentially. The most common form of NIPs are e-cigarettes. These products are completely tobacco-free and are made up of a nicotine-based liquid which is then vaporised and inhaled. Nicotine is a highly addictive substance and given that there are currently no legal restrictions on the sale of NIPs to children, the Department is concerned that e-cigarette use by minors may act as a gateway into smoking tobacco products. Furthermore, while research has shown NIPs to be considerably less harmful than tobacco, the long-term effects of e-cigarette use are largely unknown.

What are the policy objectives and the intended effects?

The policy objective is to prevent children and young people from becoming addicted to nicotine by restricting the sale of NIPs (including refill cartridges and nicotine liquids) to persons over the age of 18. Existing licensed nicotine replacement products, currently available on general sales license to under 18s, will be excluded from the new requirements. The intended effect is fewer young people using NIPs and consequently moving on to using tobacco products.

What policy options have been considered? Please justify any preferred option.

1. Option 1 - Do nothing: continue to allow NIPs to be available for sale to under 18s.
2. Option 2 – (preferred option): The option of (a) introducing an age of sale of 18 years for nicotine inhaling products together with (b) an offence of proxy purchasing nicotine inhaling products by adults for children is preferred. This would bring NIPs into line with other age-restricted products such as tobacco and alcohol and would help to protect young people from becoming addicted to nicotine which could in turn lead to tobacco use.
- Option 3 (non-regulatory): Introducing a voluntary agreement with retailers that they will not sell these products to under 18's.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?

Three years after the date of implementation of the policy, expected to be December 2020.

Summary: Analysis & Evidence

Policy Option: 2	Description: (a) Introducing an age of sale of 18 years for nicotine inhaling products and (b) Introducing an offence of proxy purchasing for nicotine inhaling products by adults for children.
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COSTS	ANNUAL COSTS	Description and scale of key monetised costs by 'main affected groups'	
	One-off (Transition)	Yrs	There will be direct costs to retailers, distributors and manufacturers of Nicotine Inhaling Products (NIPs) who can no longer sell to the under 18 market. These costs are reduced however by redirecting spending on other goods and services. Costs to enforcement bodies of circa £20,000 in year one, and ongoing costs of circa £2,500 per year.
	£ 154,000		
	Average Annual Cost (excluding one-off)		
	£ 38,750		Total Cost (PV)
	Other key non-monetised costs by 'main affected groups'		

BENEFITS	ANNUAL BENEFITS	Description and scale of key monetised benefits by 'main affected groups'	
	One-off	Yrs	Increased profits for other industries from redirected consumer spending. Classified as an indirect impact.
	£ 6,000		
	Average Annual Benefit (excluding one-off)		
	£ 5,250		Total Benefit (PV)
	Other key non-monetised benefits by 'main affected groups'		
	Children do not start a life of nicotine addiction leading them to buy NIPs in the future which, given a fully informed decision as an adult they would not have chosen, but did choose when they were a child.		

Key Assumptions/Sensitivities/Risks

An assumption that the policy stops all sales to under-18s.

The probability that an under-18 will use a NIP will grow by 4% per year.

NIP use will grow more slowly with declining tobacco prevalence amongst children.

Retail profit margins will fall from 40% in year 1 to 10% in year 3, manufacturer margins from 18% to 11% - both more in line with returns from established and mature goods.

Price and NPV base is 2016; Year 1 is 2017 when the policy will come into effect.

Price Base Year 2016	Time Period Years 10	Net Benefit Range (NPV) £	NET BENEFIT (NPV Best estimate) £ -390,735
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What is the geographic coverage of the policy/option?	Northern Ireland
On what date will the policy be implemented?	December 2017
Which organisation(s) will enforce the policy?	District Councils
What is the total annual cost of enforcement for these organisations?	£19,138 in year one and an ongoing cost of £2,550 from year 2.
Will implementation go beyond minimum EU requirements?	Yes
What is the value of the proposed offsetting measure per year?	£ N/A
What is the value of changes in greenhouse gas emissions?	£ N/A
Will the proposal have a significant impact on competition?	No

Annual cost (£-£) per organisation <small>(excluding one-off)</small>	Micro	Small	Medium	Large
Are any of these organisations exempt?	N/A	N/A	N/A	N/A
Impact on Admin Burdens Baseline (2005 Prices)				(Increase - Decrease)
Increase of £	Decrease of £	Net Impact		£
Key:				Annual costs and benefits: Constant Prices (Net) Present Value

Scope of the paper

1. This paper sets out the net positive economic impact of the draft regulations on restricting the sale of nicotine inhaling products to adults and introducing an offence of proxy purchasing for these products by adults for children, under the Health (Miscellaneous Provisions) Act (Northern Ireland) 2016.

Purpose and intended effect of the measure

2. To reduce access by children and young people to nicotine inhaling products by restricting their sale to persons over the age of 18. The intended effect is to reduce nicotine addiction amongst young people and prevent NIPs being used as a gateway into tobacco smoking.

Legislative background

3. The increasing popularity of NIPs, the most common form of which are e-cigarettes, has led to concerns expressed about their use among children and young people. In 2014, England and Wales included regulation-making powers in the Children and Families Act to allow them to restrict the age of sale for these products to persons over the age of 18. The powers also extended to making it an offence to proxy purchase NIPs. Regulations in both jurisdictions were commenced in October 2015. Similar measures were introduced in Scotland from 1 April 2017 under the Health (Tobacco, Nicotine etc. and Care) (Scotland) Act. The Scottish Government also introduced a requirement for all retailers of e-cigarettes to register on a central public-facing website.
4. In order to ensure that young people in Northern Ireland are offered the same level of protection as those in the rest of the UK, the Department of Health took the opportunity offered by the Health (Miscellaneous Provisions) Act (Northern Ireland) 2016 to include regulation-making powers around the age of sale for NIPs as well as an offence of proxy purchasing. The proposed powers were consulted on in 2015 as part of the wider measures in the Act and no specific objections were raised by respondents. The Department did, however, also commit to consult on the detailed regulations.

Detail of the regulations

5. In line with England and Wales, the Department of Health in Northern Ireland proposes to introduce an age of sale requirement for “nicotine inhaling devices” which would include nicotine inhaling products such as electronic cigarettes. Given that e-cigarettes are by far the most popular type of NIP, this term is used

throughout the impact assessment and is intended to encompass all NIPs. The age of sale requirement will apply to disposable and rechargeable devices and their refills (such as pre-filled refill cartridges and nicotine liquids). The device will still be covered by the regulations even if the user intends it for the purposes of inhaling non-nicotine containing e-liquids.

6. The draft regulations, made under the Health (Miscellaneous Provisions) Act (Northern Ireland) 2016, make it an offence for a retailer to sell NIPs (and related products) as defined by the draft regulations to a person under the age of 18. This brings NIPs into line with other age-restricted products such as alcohol and tobacco.
7. An exception is made for NIPs which are licensed by the UK-wide Medicines and Healthcare Products Regulatory Agency (MHRA). These products would only be made available to children either on prescription or if the product's medicine marketing authorisation provides that it is indicated for use by under 18s.
8. A retailer convicted of selling a nicotine inhaling product to a person under the age of 18 years would be liable on summary conviction to a fine not exceeding level 5 on the standard scale (currently up to £5,000). This level of fine is consistent with the corresponding tobacco age of sale offence. In addition, Restricted Sales Orders and Restricted Premises Orders (which came into force in Northern Ireland in July 2016), will be extended to include offences in relation to underage sales of NIPs. Such an Order, if granted by the court, could prohibit a named individual, or a named premises, from selling both tobacco and NIPs for a period of up to 3 years.
9. The draft regulations also amend Article 4A of the Health and Personal Social Services (Northern Ireland) Order 1978 (purchase of tobacco on behalf of persons under 18) so as to apply it to nicotine inhaling products.

Policy background

10. Electronic cigarettes have been available in Europe since 2005 and are becoming increasingly popular as they can be used in many areas where tobacco smoking is banned. E-cigarettes are battery powered devices which work by heating a nicotine-containing liquid into a vapour which can then be inhaled. In addition to nicotine, the liquid will usually contain water, propylene glycol and glycerine and may also contain flavourings such as vanilla or chocolate.
11. The devices have evolved and become more efficient as they have gained in popularity. The first generation devices were disposable and resembled cigarettes in design. These were followed by e-cigarettes which could be recharged and refilled with liquid cartridges. The third generation devices have

moved away from the “cig-alike” type design and in addition to being fitted with a more powerful, rechargeable battery, they contain a large tank-like container which can be refilled with nicotine liquid. The latter two devices allow for a more effective delivery of nicotine and are now more popular amongst users than the first generation devices. An ASH survey carried out in 2016 showed that the tank type device is the most popular choice of e-cigarette by both smokers and ex-smokers.

12. E-cigarettes are available for sale in a number of retail outlets including newsagents, petrol stations, supermarkets, chemists and standalone shops. While the Department does not have any concrete data in terms of the number of outlets where e-cigarettes are sold, there are around 2,600 registered tobacco retailers in Northern Ireland. It is estimated that the majority of these also sell e-cigarettes.

Current regulation of e-cigarettes

13. From 20 May 2016, all e-cigarette products containing under 20mg/ml of nicotine are regulated by the revised EU Tobacco Products Directive¹ (TPD). The Directive prohibits cross-border advertising of e-cigarettes and makes provision for a number of requirements in order to provide the consumer with assurances around the quality and safety of these products. In summary, under the TPD:

- e-cigarettes and their refills should be supplied in child and tamper-proof packaging;
- instructions for use as well as health warnings are to be provided;
- packaging should also display information on ingredients and nicotine content;
- there are limits imposed on the size of refill containers and disposable cartridges; and
- manufacturers and importers of e-cigarettes are required to notify MHRA of any products which they intend to place on the market and to provide an annual report on their products.

14. E-cigarette manufacturers of products containing more than 20mg/ml of nicotine, or those wishing to make health claims in relation to their products, can apply to the MHRA for medicines’ licensing. While costly and time-consuming, medicines’ licensing can offer benefits to both manufacturers and users. The level of testing involved offers reassurances to users in relation to the quality, safety and effectiveness of the products, whilst being a medicine allows the manufacturer to make claims around smoking cessation and removes many of the restrictions imposed by the EU TPD, including the ban on cross-border advertising and the limit on the strength of the liquid.

¹ Tobacco Products Directive (2014/40/EU)

E-cigarette use amongst adults

15. Available survey evidence shows that e-cigarette use is continuing to grow with ASH UK estimating that in Great Britain there are approximately 2.8 million adults currently vaping, up from 700,000 in 2012². Use continues to be almost exclusively limited to either current or ex-smokers with very few non-smokers appearing to adopt the habit.
16. In Northern Ireland, results from the Health Survey Northern Ireland 2015/16³ showed that approximately 16% of adults here had ever used an e-cigarette, which equates to around 235,000 people. Ever use appeared to be more common amongst the 16-24 year old age group surveyed.
17. In terms of current e-cigarette use, the figure is much lower at 6% with the vast majority of these users being either current (55%) or ex-smokers (41%). Respondents in the most deprived areas were more than twice as likely to currently use e-cigarettes (8%) than those in the least deprived areas (3%). The survey also attempted to determine intentions regarding long-term use of these products and revealed that of those who are currently using e-cigarettes, 36% had no plans to stop vaping, while over a fifth intended to quit in the next 6 months.

E-cigarette use amongst children and young people

18. The main source of information on *smoking* prevalence amongst young people in Northern Ireland is the Young Persons Behaviour and Attitudes Survey. This is a school-based survey conducted amongst 11-16 year olds every three years. Questions on e-cigarette use were included in this survey for the first time in 2016. The results, made available in June 2017⁴, showed that 20% of young people in Northern Ireland claimed to have used an e-cigarette at least once. Regular use amongst this age group was reported as being less common, with 2.5% using them at least once a week, and a further 2.2% less than once a week.
19. ASH UK has commissioned YouGov to carry out an annual survey to collect information on tobacco use by 11-18 year olds in Great Britain since 2013. This survey also includes questions on e-cigarettes. The key findings of this study show that regular use of e-cigarettes among children remains rare and, as is the case with adults, is most common amongst current and previous smokers⁵.

² ASH (Action on Smoking in Health) – May 2016 *Use of electronic cigarettes (vaporisers) among adults in Great Britain*

³ Department of Health – November 2016 - Health Survey Northern Ireland – 2015/16

⁴ NISRA – June 2017 - Young Persons Behaviour and Attitudes Survey 2016 – Topline Results

⁵ ASH – October 2016 – *Use of electronic cigarettes among children in Great Britain*

20. In terms of the percentage of young people in GB using e-cigarette products, 12% of 11-18 year olds reported having ever used an e-cigarette in 2016, up from 5% in 2013. Regular use (defined as once a month or more) was much lower at 2%. Fruit flavoured e-cigarette liquid is the most popular choice amongst this age group, over taking both tobacco flavour and menthol.
21. Higher levels of ever use of e-cigarettes were reported in a survey carried out in England in 2014⁶ among 11-15 years (22%) but this did not translate into corresponding higher rates of regular use with only 1% of respondents claiming to use them more than once a week. Similar high levels of ever use were reported in a study carried out among 13 to 15 year old school children in Scotland in 2015 (24%)⁷. The Scottish study revealed that e-cigarette use had increased among both boys and girls at all ages surveyed between 2013 and 2015. Regular use of e-cigarettes amongst non-smokers was the only area in which an increase wasn't observed.

Rationale for government intervention

22. E-cigarettes are relatively new products, and while an evidence review by Public Health England estimated that they are 95% less harmful than tobacco⁸, it will be many years before the long-term effects of e-cigarette use can be quantified. In addition to nicotine, a number of ingredients are added to e-cigarettes, such as formaldehyde, glycerine and flavourings. Many of these ingredients will be relatively harmless when inhaled, however, there may be health consequences of regular inhalation over a period of time.
23. Nicotine is a highly addictive substance, and while it is not a carcinogen, it is acknowledged that it may possibly promote cancerous tumours once initiated. The Department is willing to accept that there may be a harm reduction role for e-cigarettes in relation to supporting adult smokers to quit or at least reduce their tobacco consumption. However, there are concerns that the promotion of e-cigarettes and the variety of flavours available may lead children and young people into nicotine addiction before they are old enough to make an informed decision.
24. A report by the World Health Organisation expressed particular concern about the potential for adolescent nicotine exposure to have long-term consequences

⁶ Health and Social Care Information Centre – *Smoking, drinking and drug use among young people in England in 2014*.

⁷ Scottish Schools Adolescent Lifestyle and Substance Use Survey – Smoking among 13 and 15 year olds in Scotland 2015. October 2016.

⁸ Public Health England – *E-cigarettes: an evidence update*. August 2015

for brain development⁹. The report goes on to say that e-cigarette use “poses serious threats to adolescents...” and recommends that retailers should be prohibited from selling e-cigarettes to minors.

25. Furthermore, while evidence available to date suggests that e-cigarette use amongst children is largely restricted to those who have already experimented with tobacco, the Department is keen to ensure that it does not act as a gateway into smoking. The Department has made considerable inroads into reducing smoking prevalence amongst 11-16 year olds from 9% in 2007 to 4% in 2016, and does not wish to see this trend reversed as a result of young people having easy access to e-cigarette products.

Options

26. The options identified are:

Option 1 – Do nothing – continue to allow all nicotine inhaling products to be available for sale to under 18s

27. Under option 1, no legislative changes are required and young people will continue to be allowed to legally purchase nicotine inhaling products.

Option 2 – Introduce a minimum age of sale of 18 years for nicotine inhaling products together with an offence of proxy purchasing for such products

28. This option would bring nicotine inhaling products into line with other age-restricted products such as alcohol and tobacco. Retailers would no longer be legally able to sell NIPs to persons under the age of 18 and it would also make it an offence for an adult to purchase such a product on behalf of a minor.

Option 3 - Introduce a voluntary agreement with retailers that they will not sell nicotine inhaling products to persons under the age of 18.

29. Option 3 is non-regulatory and would involve the Department seeking the agreement of retailers that they will voluntarily opt out of selling NIPs to children and young people.

⁹ WHO – *Electronic Nicotine Delivery Systems* – September 2014

Detailed quantification of the preferred option – Option 2**Costs**

30. There is a lack of information on how many e-cigarettes users under the age of 18 there currently are in Northern Ireland. In the latest Young Persons' Behaviour & Attitudes Survey (YPBAS) for 2016,¹⁰ questions relating to e-cigarettes were included for the first time. This survey was carried out by 11-16 year olds in Northern Ireland. Assumptions from this survey will be used to help estimate how many under-18s use nicotine inhaling products (NIPS) in Northern Ireland.

31. As well as the YPBAS survey, in order to calculate the direct costs of the preferred option, Option 2 - Introduce a minimum age of sale of 18 years for nicotine inhaling products - a number of assumptions, based on previous Regulatory Impact Assessments (RIAs) completed for England and Wales¹¹ as well as Scotland¹² have been used. There is no equivalent assessment and hence no equivalent data for e-cigarettes use for the Republic of Ireland.

32. Using the results from the 2016 YPBAS survey and the assumptions, based on previous Regulatory Impact Assessments (RIAs) completed for England and Wales as well as Scotland, we will:

- estimate how many under-18s use NIPs;
- estimate how many NIPs these under-18s use in any one year;
- estimate how the above values will change over the next 10 years;
- estimate the profits that are generated by NIPs to firms in the supply chain; and
- calculate what proportion of these profits are made by UK-based businesses.

33. It must be noted that there is a large degree of estimation within the figures included in this document and a number of figures are based on very small sample sizes. Insofar as possible, central estimates have been presented throughout this document.

Market estimation (number of users)

34. The YPBAS survey undertaken across Northern Ireland by NISRA in 2016 included questions on e-cigarettes for the first time. The survey questioned a

¹⁰ YPBAS is a school-based survey conducted among 11-16 year-olds, *Young Persons' Behaviour & Attitudes Survey 2016*
<https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/YPBAS2016ToplineResults.pdf>

¹¹ http://www.legislation.gov.uk/ukia/2015/107/pdfs/ukia_20150107_en.pdf

¹² <http://www.gov.scot/Resource/0048/00482985.pdf>

sample of 3,041 young people aged 11-16 years on their knowledge and use of e-cigarettes. The survey noted that 92.9% of the 3,041 young people surveyed had heard of e-cigarettes while 558 of those young people surveyed had tried an e-cigarette.

35. Of those that had tried e-cigarettes, 1.4% (43 people) used e-cigarettes every day, 1.1% (34 people) used e-cigarettes at least once a week but not every day, 2.2% (66 people) used e-cigarettes less than once a week and 12.9% (392 people) no longer currently used e-cigarettes.¹³

36. For the basis of this analysis, and to keep in line with the survey undertaken across Great Britain by YouGov for ASH¹⁴ which was carried out in March and April 2016, those claiming to have used e-cigarettes are designated into one of three usage categories, as below:

- 'regular' ("every day/more than once a week")
- 'occasional' ("less than once a week / once a week but not every day")
- 'experimental' ("once or twice/ no longer currently use e-cigarettes")

37. Using these groupings and the results from the YPBAS, it can be assumed that of the 3,041 respondents aged 11-16 years, 1.4% used NIPs regularly i.e. "every day", 3.3% used them occasionally i.e. "at least once a week or less than once a week", and 12.9% had been experimental, i.e. "tried NIPs but do not use them now".

38. As individuals aged 17 years would be excluded from purchasing NIPs under the proposed regulation, they will be included in the analysis.

39. The latest mid-year population statistics relating to the Northern Ireland 11-17 year old population are from 2016.¹⁵ While there are no confirmed figures for 2017, onwards population estimates are provided.¹⁶

40. For 2017 it is estimated that there will be 159,000 people in Northern Ireland aged 11-17 years. This population estimate was applied to the proportions noted from the 2016 YPBAS, giving an estimated number of users in the 2017 population of:

- 2,226 Regular users
- 5,247 Occasional users

¹³ Note that this figure, relating to use of e cigarettes, is slightly different to the 558 who noted that they had tried e cigarettes above due to some respondents not answering this question

¹⁴ <http://casaa.org/wp-content/uploads/FS34Oct2016-ASH-UK-youth-use-stats.pdf>

¹⁵ <https://www.nisra.gov.uk/publications/2016-mid-year-population-estimates-northern-ireland>

¹⁶ <http://www.nisra.gov.uk/demography/default.asp20.htm>

- 20,511 Experimental users

41. It should also be noted that the estimated number of regular NIPs users under the age of 18 in Northern Ireland is based on a very small proportion of those surveyed who claimed to use NIPs more than once a week, thus there is a high degree of uncertainty within this estimate.
42. The impact assessments carried out elsewhere in the UK, which use the ASH/YouGov survey, note that it does not distinguish between nicotine and non-nicotine containing e-cigarettes. As with the other impact assessments, it is assumed all responses relate to nicotine containing products and consequently may overestimate NIP use.

Market estimation (number of NIPs)

43. As noted above, while there is a lack of detailed evidence on the number of people who use e-cigarettes in Northern Ireland, there is currently no data on the number of e-cigarettes consumed by 11-17 year olds in Northern Ireland. So whilst 1.4% of those surveyed (11-16 year olds in NI) use e-cigarettes regularly, it is not known if this means 1 puff or 100 puffs. Therefore, as per the English and Welsh impact assessment, adult data has been used to infer an estimate of quantity.
44. The Regulatory Impact Assessment carried out in England and Wales used data on NIP consumption among adults taken from the University College London Smoking Toolkit Study.¹⁷ (Using the same assumptions as the England and Wales RIA, it is assumed 1 NIP is the equivalent of 30 tobacco cigarettes). From this study, they calculated adult consumption of NIPs relative to tobacco cigarettes, split by smoking status (current smoker, former smoker). They then applied this ratio to tobacco consumption by 11-17 year olds, weighted by age, to produce an estimated average consumption of NIPs among under-18 regular NIP users, of approximately 21 NIPs per year.
45. Using the same rates for Northern Ireland results in an estimate that regular users (under-18s) consume around 46,746 NIPs per year (2,226 users multiplied by 21 NIPs per user).
46. The assumptions used in the England and Wales RIA, regarding the relative use of other usage categories ('occasional' and 'experimental' use), can also be applied.

¹⁷ West R, et al. (2014). Trends in electronic cigarette use in England, Smoking Toolkit Study.

47. The ASH survey does not estimate consumption rates within each grouping, and so it is assumed that ‘occasional’ users consume at a rate of approximately one quarter that of ‘regular’ users. Occasional users are thus estimated to consume 27,547 NIPs per year.
48. It is assumed that each ‘experimental’ user consumes the NIP equivalent of one full tobacco cigarette per year. Experimental users may not fully exhaust a device, but rather share with others who join together to purchase, or may try a smaller amount from a friend or relative who already uses a NIP. As it is assumed 1 NIP is the equivalent of 30 tobacco cigarettes, this means that each experimental user consumes 1/30th of a NIP per year. Given this assumption, consumption by this ‘experimental’ group of 20,511 users is estimated to be around 684 NIPs per year.
49. As referenced in the English and Welsh RIA, there are difficulties with comparing NIP and tobacco-cigarette consumption and equivalence; however this approach gives a credible estimate of usage.
50. The above usage estimates combine to a total of approximately 75,000 NIPs per year, mainly from ‘regular’ users. These calculations are shown in Table 1, below.

Table 1 – Estimated number of users in population and number of NIPs likely to be consumed in 2017

Usage	Proportion	Estimated Numbers	Numbers of NIPs consumed per year
Regular	1.4%	2,226	46,746
Occasional	3.3%	5,247	27,547
Experimental Users	12.9%	20,511	684
Total			74,977

Market growth projections (number of users, number of NIPs)

51. To calculate the impact of the policy, the costs and benefits arising over a 10-year period are assessed. To do this, the number of NIP users are forecasted and, from this, the number of NIPs affected by the policy is estimated.
52. The market for NIPs is relatively new and constantly changing. Given the lack of information available for Northern Ireland, once again, the assumptions applied in the RIA for England and Wales will be used.
53. It is noted that surveys of the adult and under-18 population have found that e-cigarette use is mostly concentrated among smokers and ex-smokers of tobacco.

Use by non-smokers is relatively small. Therefore, three main factors will determine the number of under-18 NIP users in the future:

- the number of new NIP users who are also tobacco smokers (since most NIP users are also tobacco users);
- the number of new NIP users who have never smoked tobacco; and
- population growth.

54. Latest data from the Smoking Toolkit Study shows that the proportion of adult smokers and recent ex-smokers who use e-cigarettes has remained constant from Quarter 3 2013¹⁸.

55. The findings from the England and Wales RIA showed that overall, after taking into account population growth and that there will be fewer tobacco smokers (who are more likely to be frequent users), the estimated number of NIPs consumed by 11 to 17 year olds will grow at an average annual rate of 4.0%.

56. Applying the same growth projections as used in the English and Welsh RIA, Table 2 below determines the projected number of NIPS consumed by 11-17 year olds over a ten-year period up to 2026¹⁹.

Table 2 – Projected number of NIPs consumed by 11 to 17 year olds

Year	Total NIPs consumed by 11-17 year olds.
2017	74,977
2018	77,976
2019	81,095
2020	84,339
2021	87,712
2022	91,221
2023	94,870
2024	98,665
2025	102,611
2026	106,716

Profits generated by NIPs

57. Any restriction on age of sale may have impacts on those making profits from NIP sales. To estimate the profits generated by NIPs, and consequently the potential profits lost as a result of the introduction of minimum age of sale legislation, the price of NIPs and the profit margins achieved by those in the supply chain, including manufacturers, distributors, and retailers must be considered.

¹⁸ <http://www.smokinginengland.info/latest-statistics/>

¹⁹ These projections are based on the growth projections used in the England and Wales RIA and will help determine the direct costs of any policy implication to ban sales of e-cigarettes to under 18's.

NIP types and pricing

58. The proposed regulations would apply to any device that can be used for inhaling nicotine, as well as to refill cartridges and nicotine liquids for those devices. These devices can cost various amounts. The RIA for England and Wales notes that disposable NIPs are priced between £1- £8 each, and are thought to be the equivalent of approximately 30 tobacco cigarettes.
59. The Scottish paper²⁰ on e-cigarettes notes that by using a range of the estimations of the value of the retail market for Nicotine Vapour Products (NVPs) in Scotland supplied by Ecig Intelligence, it is suggested that this loss to retailers could be between £232,000 and £324,500 in the first year. These estimations have a number of caveats. The market, and the estimation of its value, covers a diverse range of products with a very wide range of prices: from single cigalikes which retail for as little as £1, starter kits costing under £20, to sophisticated, refillable customisable tank systems which cost many times more. It is not known whether younger users would be more likely to use cheaper devices than other age groups. There is, however, an expectation that competition will have an impact on profit margins in the future as retailers increasingly compete on price.
60. The English and Welsh RIA also notes that refillable NIP packages (with a charger and nicotine cartridges) are priced between £30 and £50, with refill cartridges £2 - £17. As disposable NIPs are estimated to be the equivalent of 30 tobacco cigarettes in terms of number of puffs, they are approximately one-third as expensive as tobacco cigarettes. It is therefore assumed that younger users will be more likely to purchase disposable NIPs than cigarettes as they are less expensive and more readily accessible.

Retailer profit margins

61. The RIAs in England, Wales and Scotland assume retailers have a profit margin of around 40%. This paper will also adopt this assumption.
62. In projecting impacts over a ten-year period, the England and Wales assumptions will be applied. It is assumed that increased competition will place downward pressure on retail prices and consequently on profit margins, such that retailers would achieve a 40% margin in year 1, halving to 20% in year 2, and halving again to a 10% margin for year 3. The retail profit margin is held at 10% from year three onwards.

²⁰ Health (Tobacco, Nicotine etc. And care) (Scotland) Bill Business and regulatory Impact assessment August 2015

Distributor profit margins

63. The impact assessment carried out for England and Wales used evidence from ECigIntelligence²¹ to help with the understanding of the distribution network. From this, it is likely that the smaller retailers who are selling NIPs to under-18s will use a mix of distribution and delivery services, including parcel delivery companies, wholesalers, and direct distribution. An estimate of a profit margin for distributors of 3% was assumed which will be retained for the Northern Ireland RIA.

Manufacturer profit margins

64. In terms of the manufacturing effect, there is only a very small number of e-cigarette manufacturers located in Northern Ireland. The English and Welsh RIAs note that while the impact on manufacturers is similar to retailers, only 8% of this production is located within the UK and so the total UK loss would be relatively small. Based on this, the impact on Northern Ireland will be even smaller. The impact on the manufacturers was not recorded in the Scottish model.

65. The impact on manufacturers is therefore considered to be negligible in the Northern Ireland RIA.

Lost profits

66. The RIA produced for England and Wales is again used as the basis for assumptions to calculate the direct impact on NI business of the new policy. The profits margins for retailers and distributors are used as the basis to calculate the total profits foregone by removing under-18s from the NIP market.

67. The average profit per NIP for each sector as noted in the England and Wales RIA is shown in Table 3.

Table 3 – Profit per NIP by sector from 2017 to 2026

Year	Retail Profit Loss per NIP (£)	Distributor Profit Loss per NIP (£)
2017	1.60	0.07
2018	0.60	0.07
2019	0.25	0.07
2020	0.25	0.07
2021	0.25	0.07
2022	0.25	0.07

²¹ ECigIntelligence, 'In depth: e-cigs in the UK – market and regulatory analysis'. 26 October 2015. Currently available at; <http://ecigintelligence.com/in-depth-e-cigs-in-the-uk-market-and-regulatory-analysis/>

2023	0.25	0.07
2024	0.25	0.07
2025	0.25	0.07
2026	0.25	0.07

68. Combining these estimates with the projected number of NIPs consumed by 11-17 year olds in Northern Ireland, the estimated total lost profits are as given in Table 4.

Table 4 – Lost profits due to lower sales of NIPs by sector 2017-2026

Year	Retail Profit Loss (£)	Distributor Profit Loss (£)
2017	119,963	5,248
2018	46,786	5,458
2019	20,274	5,677
2020	21,085	5,904
2021	21,928	6,140
2022	22,805	6,385
2023	23,717	6,641
2024	24,666	6,907
2025	25,653	7,183
2026	26,679	7,470

69. Lost profits are anticipated to be felt most by retailers, which enjoy the highest profit margin of the sectors. Distributors are making a low margin (as they operate a high volume, low margin business, in a sector with very low barriers to entry and high levels of competition) and would be expected to lose less profits than retailers.

Cost of enforcement borne by retailers (the costs of identification document (ID) checks)

70. This option may cause an increase in the average time for retailers to serve customers, since more customers are likely to have to prove their age.

71. Based on the assumptions used for England and Wales, it is assumed that all those under-18s who would have obtained a NIP under Option 1 (do nothing option) try to buy one under Option 2 (minimum age of sale option). It is assumed that they have to prove their age, and are denied purchase. No other effects on retailers are taken into account.

72. Assuming it takes an average of 15 seconds per transaction to provide proof of age and taking the number of NIP sales to under-18s at around 75,000, it is estimated around 312 hours of retailer time per year would be spent proving customer's age.

73. There is uncertainty when assessing the value to retailers of any small amounts of extra time spent on tasks such as proof of age. On the one hand, there is an argument that most of these extra seconds are not likely to result in any extra costs, since the retailer could not have made productive use of these extra seconds of time. However, on the other hand, there is the chance that this extra time may have a disproportionate effect, since it may feed into wider step change decisions, such as employing another member of staff.
74. To illustrate this retail enforcement cost, a cost to retailers of £10 per hour is applied, the same as that used in the England and Wales RIA. Taking the above values gives an illustrative cost to retailers of £3,120 in year one.
75. As per the England and Wales RIA it must be noted that this estimate may be an overestimate for the following reasons:
- once the law is changed the number of children trying to buy NIPs may decrease;
 - many retailers already do not sell to children and these children may already be getting NIPs from adult friends and family;
 - it may take less than 15 seconds on average if a child cannot prove they are an adult, since they do not need to look for documentation that does not exist; and
 - children may dual purchase e-cigarettes with other age restricted products which are already being challenged.
76. Similarly it is noted that this estimate may be an underestimate for the following reasons:
- more adults may be asked for proof of age when buying NIPs;
 - children may be asked for proof of age, and be denied sale at more than one retailer;
 - it may take more than 15 seconds on average if a child cannot prove they are an adult, since they may argue over misleading documents or 'fakes' to falsely 'prove' they are adults;
 - if children falsely 'prove' they are adults, they may not be asked for proof of age for their next purchase;
 - compliance of retailers may not reach 100%.

Cost of staff training and awareness

77. It is anticipated that there will be a one-off cost for retailers in terms of training staff and raising awareness of the new age of sale restriction and the product range to which it applies. It is expected that there will be a low ongoing cost in terms of staff training and replacement especially as retailers are already familiar with the concept of age of sale across a range of products. These costs take into

account the costs to retailers of the additional time spent to make them aware of the new legislation.

78. The Scottish RIA noted that while *'It is anticipated that there will be some small one-off costs to retailers in relation to staff training and awareness for an age of sale restriction along with small on-going costs in relation to staff churn. Tobacco retailers are already familiar with age-restricted products and some private sector stakeholders confirmed during consultation that they do not foresee substantial costs in relation to this legislation. It is not possible to accurately quantify costs to businesses'*.

79. The English and Welsh RIA estimated there would be a one off cost of £3,000 for advisory visits to retailers in relation to staff training and awareness. Based on this information the England and Wales model assumed a cost in year 1 of £99,675. Applying a NI population pro rata of 3.2%²² would give an estimate of £3,200 for staff training and awareness costs (for retailers) in Northern Ireland.

Direct effects and net costs of the policy

Table 5 – Direct effects and net costs of the policy

Year	Distributor Profit Loss (£)	Retail Profit Loss (£)	Retail Familiarity Costs (£)	Retailer costs of lost time (ID checks) (£)	Total (£)
2017	5,248	119,963	3,200	3,124	131,535
2018	5,458	46,786	-	3,249	55,493
2019	5,677	20,274	-	3,379	29,330
2020	5,904	21,085	-	3,514	30,503
2021	6,140	21,928	-	3,655	31,723
2022	6,385	22,805	-	3,801	32,991
2023	6,641	23,717	-	3,953	34,311
2024	6,907	24,666	-	4,111	35,684
2025	7,183	25,653	-	4,275	37,111
2026	7,470	26,679	-	4,446	38,595
Total	63,013	353,556	3,200	37,507	457,276

Other (Non-business) Costs

Cost of enforcement by District Councils

80. The RIA for England and Wales as well as the Scottish Impact Assessment noted additional enforcement costs for Local Authority Trading Standards. In Northern

²² Pro rata rate based on population data. Northern Ireland population is 3.2% of the England and Wales population based on Mid point 2015 statistics.

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalescotlandandnorthernireland>

Ireland, there will be costs to District Councils as monitoring and enforcement is likely to fall to tobacco control officers (TCOs) in environmental health teams. Although the proposal for NIPs is similar to existing legislation on tobacco, the preferred option will add to the work of the environmental health service. In terms of the cost of enforcement in relation to Northern Ireland, there is little information presently available.

81. The TCOs are currently funded by the Public Health Agency (PHA). An annual plan of activity is agreed between the councils and the PHA as part of contractual arrangements associated with this funding. It is possible that enforcement of the new legislation can be agreed as part of future plans of activity and within existing resource provision.

82. The NIP market is still maturing and there is not enough robust data to determine an accurate figure on these costs. As a result, we will use a pro rata of the costs noted in the England and Wales RIA. It assumed a cost in year 1 of £598,051 and an ongoing cost of enforcement falling on Trading Standards of £79,740 per year. Based on this, the cost for Northern Ireland would be £19,138 in year one with an ongoing cost of enforcement of £2,552 per year²³. As noted above, these costs will apply to District Councils, as monitoring and enforcement is likely to fall to TCOs in environmental health teams.

Cost of communication

83. In terms of communicating the changes to retailers, it is assumed that TCOs/EHOs will raise awareness with retailers on routine visits in advance of the legislation being introduced to let them know that the law will be changing and when. There may be a flyer and an accompanying letter from the Department which would be posted out to each of the retailers for which there are details. The Department will also issue press releases around the time the legislation is due to be introduced. It is estimated that this would cost in the region of £3,000 - £3,500. Therefore a cost of £3,500 will be included in year one of this RIA.

Cost falling to Department of Justice

84. The English and Welsh RIA estimated that there would be a small impact of around £5,000 per year falling on HM Courts & Tribunals Service (HMCTS), due to an increase in court cases following non-adherence to the proposed policies. Based on a pro rata basis, the judicial costs for Northern Ireland would be in the

²³ Pro rata rate based on population data. Northern Ireland population is 3.2% of the England and Wales population based on Mid point 2015 statistics.

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>

region of £160 per annum. As a result, these are determined to be negligible and have been excluded from the analysis.

Second-round business impacts

85. The RIA for England and Wales noted that the direct costs relating to loss of profits to retailers, distributors, and manufacturers from removing under-18s from the NIP market are likely to be partially offset by increased profits from redirected spending on goods and services elsewhere in the economy (although these are classes as indirect).
86. In the long run, it is expected that the profit margins and returns on capital equalise throughout the economy, and the long run effects of switching spending between goods and services would lead to no loss of output for the economy as a whole. NIPs presently attract a high profit margin, of around 40% to retailers, owing in part to them being a relatively new and novel product. Initially, any spending redirected to other goods and services would be likely to deliver lower profit margins.
87. The money not being spent on NIPs is assumed to be spent on other goods and services. The England and Wales RIA assumed that these goods attract a profit margin of 10%, equal to the rate NIPs might be expected to generate from year 3 (2019) onwards. In Net Present Value (NPV) terms, there is, therefore, a net cost to retailers in the first two years of the policy. Similarly, these extra goods need to be delivered to retailers, or pass through a distribution network. It was therefore assumed the direct cost on distributors of not delivering NIPs will be offset by the profits of delivering and distributing other goods and services. In NPV terms, there is, therefore, no effect on distributors.
88. As the NIP industry matures, it is assumed the profit margin made by manufacturers will reduce to a level commensurate with an economy-wide average return on capital employed. It is likely, however, that the loss of profits made by manufacturers in the early years of this policy will not be redistributed as in the short run this capital is likely to be tied up in the NIP industry.
89. As a result, it is assumed these same assumptions are applicable to Northern Ireland. For the indirect benefits of redirected spend the figures noted in the England and Wales RIA have been prorated (3.2%) for Northern Ireland.

Table 6 – Direct and indirect effects and net costs of the policy

	Direct Costs	Enforcement costs (£)	Communication costs (£)	Indirect benefits of redirected spend (£)	Net costs (£)	Discounted Net costs (£)
2017	131,535	19,138	£3,500	5,954	148,219	143,207
2018	55,493	2,552	-	4,792	53,253	49,712
2019	29,330	2,552	-	4,379	27,503	24,806
2020	30,503	2,552	-	4,727	28,328	24,686
2021	31,723	2,552	-	4,948	29,327	24,693
2022	32,991	2,552	-	5,189	30,354	24,693
2023	34,311	2,552	-	5,438	31,425	24,700
2024	35,684	2,552	-	5,691	32,545	24,715
2025	37,111	2,552	-	5,956	33,707	24,732
2026	38,595	2,552	-	6,178	34,969	24,790
Total	457,276	42,106	£3,500	53,252	449,630	390,734

The base year for the purpose of the NPV's (Year 0) is 2016 and a 3.5% discount rate has been used.

90. The discounted net cost of the policy over the 10 year appraisal period is £390,734. This is detailed in the Net Present Cost (NPC) table at Appendix 1 and is made up from a total cost (direct costs, enforcement costs and communication costs) in present value terms of approximately £434,760 and a total benefit in present terms of approximately £44,000.

Other benefits

91. As well as the benefits highlighted above, additional benefit areas must be considered.

Benefits to young people, to the Northern Ireland Government and the HSC

92. The Scottish RIA examines the benefits introducing a minimum age of sale of 18 years for nicotine inhaling products will have on young people and the NHS. It notes that the Scottish Government believes there is no reason for children to use NIPs and it is therefore acting to minimise the impact of several unknown consequences of the use of NIPs. The analysis within the Scottish RIA concludes that there are health benefits, and benefits to young people in general, of a minimum age of sale of e-cigarettes but that there is insufficient evidence to quantify these at this point in time.

93. However it is assumed the introduction of a minimum age of sale will reduce the possible negative health consequences of young people using NIPs containing nicotine and will reduce the possibility of young non-smokers becoming addicted to nicotine. It is thought that similar benefits will be realised, proportionately, in Northern Ireland.

Impact on small businesses

94. These proposals will apply to all businesses, including small retailers and newsagents, however it is envisaged costs to these businesses will not be significant and it is assumed that the proposals will not have a disproportionate impact on small businesses.

Rural Proofing

95. It is anticipated that raising the age of sale will have no disproportionate effects on the rural economy.

Equality

96. Equality screening has been carried out for the purposes of compliance with Section 75 of the Northern Ireland Act 1998 and the Department has decided on the basis of this exercise that an Equality Impact Assessment is not necessary.

Appendix 1 – NPC table

NPV @ 3.5% p.a.												
APPRAISAL DATE:												
OPTION NUMBER & TITLE:		Option 2										
YEAR :	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	TOTAL
CAPITAL COSTS (£ 000s)												
												0
Total Costs		154173	58045	31882	33055	34275	35543	36863	38236	39663	41147	502882
												0
A. Total Capital Costs (Annual)	0	154173	58045	31882	33055	34275	35543	36863	38236	39663	41147	502882
B. Total Capital Costs (Cumulative)	0	154173	212218	244100	277155	311430	346973	383836	422072	461735	502882	
REVENUE COSTS (£ 000s):												
												0
												0
C. Total Revenue Costs (Annual)	0	0	0	0	0	0	0	0	0	0	0	0
D. Total Revenue Costs (Cumulative)	0	0	0	0	0	0	0	0	0	0	0	
E. Total Costs (Annual) (=A+C)	0	154173	58045	31882	33055	34275	35543	36863	38236	39663	41147	502882
F. Total Costs (Cumulative) (=B+D)	0	154173	212218	244100	277155	311430	346973	383836	422072	461735	502882	
BENEFITS (£ 000s):												
												0
Indirect benefits of redirected spend		5954	4792	4379	4727	4948	5189	5438	5691	5956	6178	53252

ANNEX B

												0
G. Total Benefits (Annual)	0	5954	4792	4379	4727	4948	5189	5438	5691	5956	6178	53252
H. Total Benefits (Cumulative)	0	5954	10746	15125	19852	24800	29989	35427	41118	47074	53252	
NET UNDISCOUNTED COST* (=E-G)	0	148219	53253	27503	28328	29327	30354	31425	32545	33707	34969	449630
DISCOUNT FACTOR @ 3.5% p.a.	1.0000	0.9662	0.9335	0.9019	0.8714	0.8420	0.8135	0.7860	0.7594	0.7337	0.7089	
NET PRESENT COST* (Annual)	0	143207	49712	24806	24686	24693	24693	24700	24715	24732	24790	390734
NET PRESENT COST* (Cumulative)	0	143207	192919	217725	242411	267104	291797	316497	341212	365944	390734	
TOTAL NET PRESENT COST* =		390,734										

* A minus sign in these rows denotes a Net Present Value rather than a Net Present Cost.

Note 2016 is the base year. 2017 is year 1.