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Roll your own cigarettes

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Roll Your Own Cigarettes in Ireland

Key Patterns and Trends



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



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National Tobacco Control Office, Health Service Executive.**

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Executive Summary

It is recognised that there is a need to further reduce smoking prevalence in Ireland. A target prevalence of less than 5% has been set by the government to achieve by 2025. To help inform policy and develop future initiatives, this study focuses on 'Roll your own' (RYO) cigarette consumption, an area where there had been little previous research undertaken in Ireland in terms of prevalence. As RYO is taxed differently, trends and patterns are important in terms of developing future policy.

The study employed data from the HSE's Environmental Health Service National Tobacco Control Office (NTCO)'s monthly survey of smoking prevalence. Data for 2014 and for 2003-2014 were analysed to determine prevalence, socio-demographic patterns, and overall trends.

Key findings from the study can be summarised as follows:

- ▶ Of the 19.5% of respondents that smoked in 2014, 24.6% reported smoking RYO cigarettes.
- ▶ A higher proportion of male smokers (31.8%) smoked RYO cigarettes than female smokers (16.3%).
- ▶ The age group with the highest prevalence of RYO smokers were those under 25 years (45%).
- ▶ Almost half of those smoking RYO (46%) are from the DE group.
- ▶ 39.5% of smokers who were unemployed smoked RYO compared to 21.8% for other employment categories.
- ▶ From multivariate analysis, the strongest factors associated with smoking RYO cigarettes were if a smoker was under 25 years of age, male, and lower SEG:
 - ▶ those under 25 years of age were over three times more likely to smoke RYO cigarettes.
 - ▶ those from a low SEG (controlling for unemployment) were almost three times more likely to smoke RYO.
 - ▶ male smokers were more than two and a half times more likely to smoke RYO cigarettes than female smokers.
- ▶ The proportion of smokers using RYO cigarettes has increased significantly from 3.5% in 2003 to 24.6% in 2014.

The study provides a useful insight into patterns of RYO consumption.

The following recommendations have been made:

1. In accordance with Tobacco Free Ireland¹ the Tobacco Free Ireland Action Plan,² taxation policy on RYO cigarettes should be reviewed to minimise the price differential between RYO and manufactured cigarettes. This should form part of an action plan to meet Healthy Ireland's³⁰ strategic goal of reducing health inequalities.
2. Gender and age specific health promotion initiatives should be developed targeting younger age groups to reduce the current high RYO prevalence among young males and also to prevent RYO initiation among young females. These should expand the current initiatives recommended in the Tobacco Free Ireland Action Plan.²
3. The utility of collecting detailed surveillance data on smoking patterns should be established to facilitate the development of targeted interventions to help reduce smoking prevalence.
4. The comparability of the NTCO smoking prevalence survey (and other on-going systems of tobacco monitoring in Ireland) with international surveys should be determined.

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1. Introduction

1.1 Background

In the last decade, Ireland has made significant advances in terms of reducing the impact of smoking on health. During this period, a number of key policies have been introduced such as the indoor workplace smoking ban, a ban on tobacco advertising, and increases in tobacco taxation. Smoking prevalence has reduced from 29% in 2006³ to 19.5% in 2014⁴ and Ireland is recognised as a world leader in tobacco control.⁵ While these patterns are promising, there remains a need for further reductions in smoking prevalence. Death rates from smoking related diseases remain 9% higher than the European average.⁶ Almost one in five (19%) deaths in Ireland are tobacco related.¹ Tobacco is also the leading cause of preventable death with approximately 5,200 people dying annually in Ireland from smoking related diseases.¹ There are also health inequalities associated with smoking, with prevalence higher in lower socio-economic groups (SEGs)⁴, which may contribute to the significant gradient in mortality rates by SEG.⁷ The need for further reductions in smoking prevalence has been recognised by the government. In its national strategy, "Tobacco Free Ireland," it has set a target to reduce smoking prevalence to less than 5% by 2025.¹

To help inform policy and monitor progress against targets, the HSE Environmental Health Service National Tobacco Control Office (NTCO) undertakes a monthly smoking prevalence survey. Overall patterns from the survey are published on the HSE website and also in report format.⁴ However to date, detailed analysis has not been examined. The need for comprehensive tobacco monitoring is stressed in "Tobacco Free Ireland."¹ As such, it was decided to undertake a detailed analysis in terms of specific topic areas that may inform policy. This report focuses on 'roll your own' (RYO) cigarettes. These are cigarettes that are made by hand or with a rolling machine from loose tobacco. RYO tobacco is taxed at a lower rate than manufactured cigarettes in many countries.⁸ This difference in tax policy may impact on the effectiveness of tax increases on tobacco products. Rather than give up smoking, some smokers may choose to smoke RYO as a cheaper alternative to manufactured cigarettes. Studies from other countries have shown that RYO consumption is increasing.⁹ In Ireland, although there has been a study undertaken on excise duty from RYO,¹⁰ little research has been undertaken on RYO prevalence. It was against this background that the current study was undertaken.

1.2 Aims and Objectives

The study aimed to determine the prevalence of RYO cigarette consumption in Ireland. More specifically, the objectives of the study are to:

1. Determine the demographic profile of RYO smokers.
2. Identify factors associated with smoking RYO among current smokers.
3. Analyse trends in RYO prevalence.

2. Method

2.1 Background to Survey of Smoking Prevalence

The HSE NTCO undertakes a monthly telephone survey of smoking prevalence ('tracker survey'). A nationally representative random sample of 1000 people (aged 15 years and over) are selected every month to participate in a telephone survey. Data on smoking behaviour and key socio-demographic information are collected. The data are weighted by gender, age, socioeconomic group (SEG) and region using estimates from the Central Statistics Office. The survey (see appendix 1) is undertaken for the HSE by Ipsos MRBI.

The survey of smoking prevalence has been undertaken since 2002. The sampling was modified in May 2008 to include both landline and mobile telephone users. Data prior to May 2008 was subsequently recalibrated to control for the impact of the change in methodology on smoking prevalence. The database provides representative national data on smoking patterns that can be monitored over time, and can also be used to assess whether government targets to reduce consumption are being met. It must be noted however that the data is limited in that it cannot be disaggregated at a Community Health Organisation (CHO) or Hospital Group level. In addition, the depth of information gleaned from respondents is somewhat limited by the employment of telephone surveys. Nevertheless, the 'tracker survey' provides a valuable insight into smoking patterns in Ireland and has been used since its inception to inform policy making within the HSE.

2.2 Prevalence and Patterns of RYO Consumption

Data from January-December 2014 were analysed to determine overall and socio-demographic patterns in RYO consumption. The analysis was undertaken on all current smokers surveyed between January and December 2014 (2,344 out of 12,000 respondents interviewed during this period).

2.3 Trends in RYO Consumption

Trends in RYO consumption from 2003-2014 were analysed to determine changes in terms of overall prevalence. As such, the analysis was undertaken on all smokers surveyed between January 2003 and December 2014 (33,478 out of 142,973 respondents interviewed during this period).

2.4 Statistical Analysis

The data were analysed in SPSS version 21. Prevalence rate and rate differences were calculated using chi-squares tests. T-tests were used to compare means. Uni-variate, multi-variate and regression analyses were performed to identify both risk factors and protective factors associated with smoking.

3. Patterns of RYO Consumption 2014

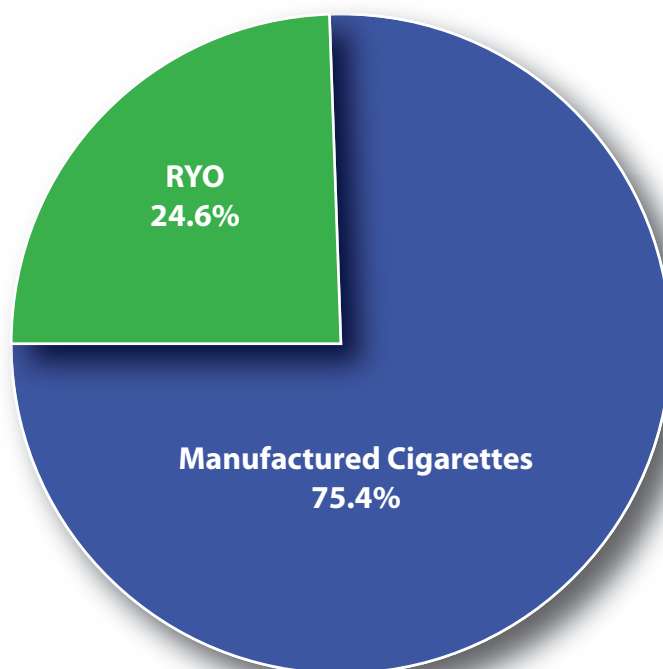
3.1 Introduction

In this section, data are presented for 2014 to determine key patterns in RYO consumption.

3.2 Overall Prevalence

Of the 19.5% of respondents that smoked in 2014, 24.6% reported smoking RYO cigarettes with 75.4% smoking manufactured cigarettes (figure 3.1).

Figure 3.1: Type of Cigarette Smoked



3.3 Age and Gender

Table 3.1 shows that a greater proportion of smokers under 25 years smoke RYO cigarettes (44.9%) compared to other age groups (8-24%). Those under 25 years of age were three times more likely to smoke RYO cigarettes compared to those aged 25 or older (OR = 3.0, 95% CI 2.3-3.8, $p < 0.001$).

Table 3.1: RYO and Manufactured Cigarette Consumption by Age

Age group	RYO		Manufactured cigarettes		Total	
	No.	%	No.	%	No.	%
Under 25	153	44.9	188	55.1	341	14.9
25-34	152	23.9	484	76.1	636	27.8
35-44	109	22.5	376	77.5	485	21.2
45-54	92	24.0	291	76.0	383	16.8
55-64	44	17.1	214	82.9	258	11.3
65+	15	8.2	167	91.8	182	8.0

In terms of gender, a higher proportion of male smokers (31.8%) smoked RYO cigarettes than female smokers (16.3%). This pattern was statistically significant with male smokers almost two and half times more likely to smoke RYO cigarettes compared to females (Odds ratio (OR) = 2.4, 95% CI = 2.0-3.0, $p < 0.001$).

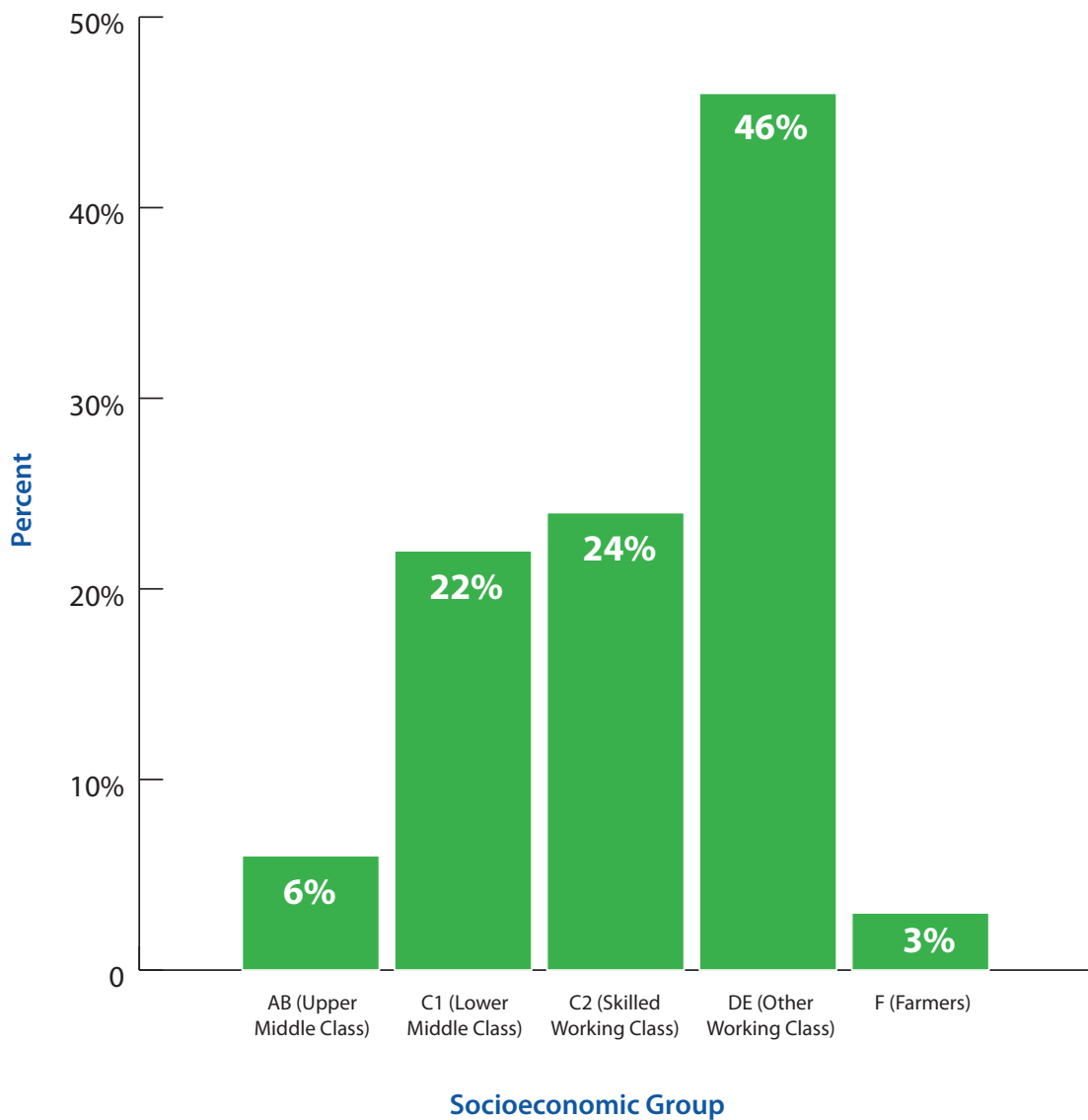
3.4 Socioeconomic Group (SEG)

Smoking prevalence is highest among the DE (Other Working Class) SEG (24% compared to 19.5% for the population overall). It can be seen from table 3.2 that the proportion of RYO smokers among the DE group was 29% compared to 15-24% for other SEGs. These differences are statistically significant. Almost half of those smoking RYO (46%) are from the DE group (figure 3.2). Smokers who were from the DE group were 1.5 times more likely to smoke RYO cigarettes than smokers from the other SEGs combined (OR = 1.5, 95% CI 1.2-1.8, $p = 0.001$).

Table 3.2: RYO Cigarette Consumption by SEGe

SEG	RYO		Manufactured cigarettes		Total	
	No.	%	No.	%	No.	%
AB (Upper Middle Class)	33	15.2	184	84.8	217	9.4
C1 (Lower middle Class)	124	22.5	428	77.5	552	24.0
C2 (Skilled working Class)	137	24.4	424	75.6	561	24.4
DE (Other Working Class)	258	29.0	631	71.0	889	38.6
F (Farmers)	14	16.9	69	83.1	83	3.6

Figure 3.2: RYO Cigarette Consumption by SEG



3.5 Employment Status

In terms of employment status, a significantly higher proportion of smokers who were unemployed smoked RYO cigarettes compared to smokers in other employment categories (39.5% compared to 21.8%). (Pearson's $\chi^2 = 52.5$, $df = 1$ $p < 0.001$). Unemployed smokers were 2.3 times more likely to smoke RYO (OR = 2.3, 95% CI 1.9-3.0, $p < 0.001$). Those unemployed are more likely to be from the DE SEG. (Spearman's correlation = 0.531, $t = 0.29.67$, $p < 0.001$). This relationship is taken into consideration in determining the factors associated with smoking RYO (section 3.6).

3.6 Factors Associated with Smoking RYO

Multivariate logistic regression was undertaken to determine the key factors associated with smoking RYO cigarettes. Factors that showed an individual association were entered into the model (age < 25, male, and low SEG (DE), and unemployment). As SEG and unemployment are correlated (section 3.5), the model controlled for the interaction between these factors. As shown in table 3.2, the strongest factor associated with smoking RYO cigarettes compared with smoking manufactured cigarettes was being a younger smoker with those under 25 years of age over three times more likely to smoke RYO cigarettes (OR = 3.3). Those from a low SEG (controlling for unemployment) were almost three times more likely (OR = 2.8) to smoke RYO cigarettes. Being a male smoker was also strongly associated with smoking RYO cigarettes, with male smokers more than two and a half times (OR = 2.6) more likely to smoke RYO cigarettes than female smokers.

Table 3.3: Binary Logistic Regression of Factors Associated with smoking RYO cigarettes.

Explanatory variables	Odds ratio (OR)	95% CI FOR Odds Ratio		S.E.	Wald Statistic	p-value
		Lower	Upper			
Young age (<25 years)	3.311	2.582	4.245	.127	89.068	<0.001
Low SEG (controlling for interaction with unemployment)	2.835	2.225	3.614	.124	70.944	<0.001
Male	2.555	2.048	3.186	.113	69.245	<0.001
Constant	.122			.105	398.857	<0.001

3.7 Trends in RYO Consumption

Figure 3.3 and 3.4 show that the proportion of smokers using RYO cigarettes has increased significantly from 3.5% in 2003 to 24.6% in 2014 with a statistically significant upward linear trend present. (Cuzick Trend's analysis, $p < 0.001$). By comparison, the proportion of smokers using manufactured cigarettes has declined from 96.5% in 2003 to 75.4% in 2014.

Figure 3.3: Trends in the proportion of Smokers using RYO Cigarettes (with 95% confidence intervals)

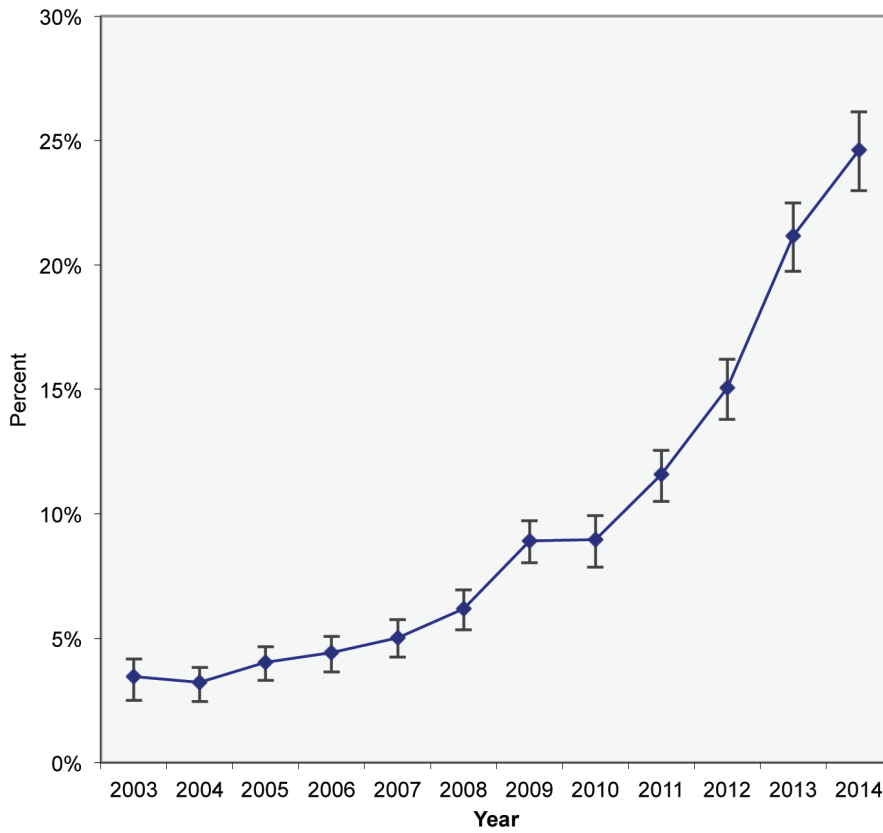
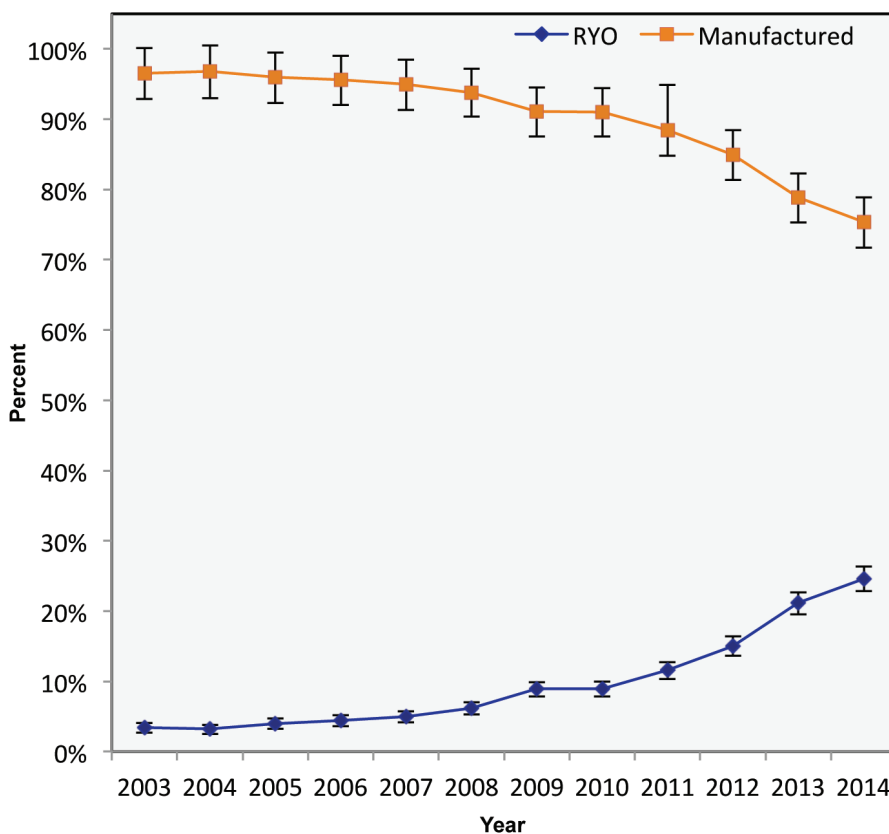


Figure 3.4: Trends in the proportion of Smokers using RYO Cigarettes (with 95% confidence intervals)



4. Discussion

4.1 Introduction

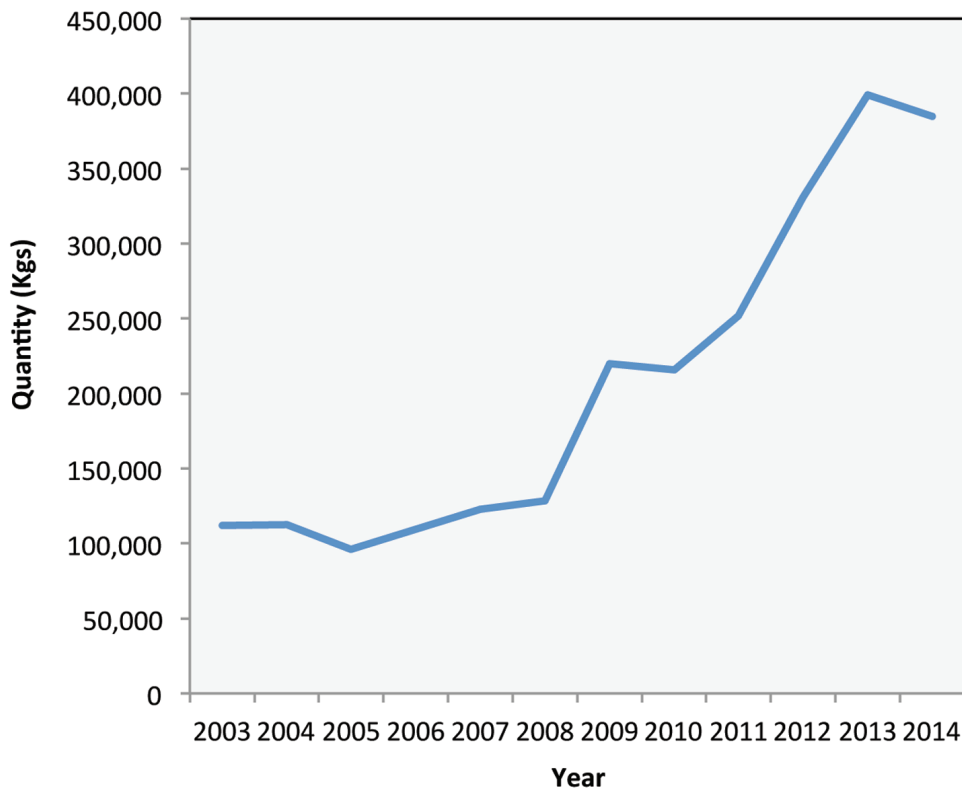
The consumption of RYO cigarettes is a significant public health issue as they expose smokers to similar levels of carcinogens as manufactured cigarettes.⁹ There is also evidence to show that risks are higher for RYO smokers in terms of particular cancers such as cancer of the oesophagus,¹¹ mouth, pharynx and larynx.¹² Although price has been shown to be the main reason for smoking RYO,¹³ they are also chosen as they are thought to be healthier than manufactured cigarettes¹³ with less risk.¹⁴ This report provides an up to date insight into patterns of RYO smoking consumption in Ireland. Key issues arising from the data will now be discussed.

4.2 Overall Prevalence and Trends

The study has shown that in 2014 a quarter of all smokers (24.6%) reported smoking RYO cigarettes. This compares to 22% in the Healthy Ireland 2015 Survey.¹⁵ Comparisons with other countries are difficult as studies cover different time periods. However it is clear that RYO prevalence does vary considerably by country. In 2008 (where the prevalence in this study was 6.2%), it was 8.8% in Canada, 5.7% in the US, and 15.4% in Australia.⁸ In 2010 (where the prevalence in this study was 9.0%) it was 32.7% in the UK and 34.3% in the Netherlands.¹⁶ In 2011 (where the prevalence in this study was 11.6%) it was 18.6% in Germany; and in 2012 (where the prevalence in this study was 15.1%), it was 19.1% in France.¹⁶ Blecher et al¹⁷ note that there is significant variation in cigarette prices and taxes across the European Union. This may help explain variation in RYO prevalence between countries. The complexity of comparing RYO prevalence between countries has been highlighted by Young et al¹⁸ who state that a systematic approach is required, examining factors such as tobacco control policies, tobacco industry strategies, and cultural norms.

In examining RYO consumption since 2003, it can be seen that there was a significant upward trend, with the prevalence increasing from 3.5% in 2003 to 24.6% in 2014. Whilst acknowledging that comparisons are difficult with other countries (as with overall prevalence), it is worth noting that while a significant upward trend has also been experienced in the UK (2007-2011), France (2006-2012), and Germany (2007-2011),¹⁶ the upward trend in Ireland (2003-2014) appears more dramatic. Ireland has changed from a country where RYO consumption was traditionally uncommon¹⁹ to one where it is consumed by one in four smokers. The findings are also broadly consistent with data provided by Revenue on quantities of RYO retained for home use (figure 4.1). In addition to the risk of cancers^{9, 11, 12} this pattern is also concerning as it has been shown that RYO smokers are more likely to experience mental health illnesses, hazardous drinking, and drug addiction.¹⁹ Leatherdale and Burkhalter²⁰ found that young people who smoke RYO are more likely to smoke cannabis. Data from Northern Ireland and the Republic of Ireland shows that cannabis use has increased since 2002, particularly among young adults.²¹ This association warrants further investigation and consideration when developing tobacco control measures.

Figure 4.1: Quantities of RYO (fine cut tobacco) Retained for Home use (2003-2014*)



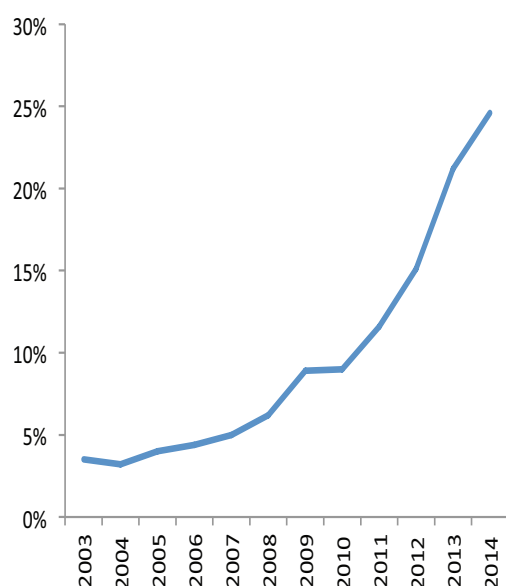
* data supplied by Revenue

In terms of determining the underlying reason for the growth in RYO, studies have shown that the price of RYO compared to manufactured cigarettes is a key factor.^{8, 22, 23} In Ireland, RYO and manufactured cigarettes are taxed differently. The excise duty on manufactured cigarettes is €289.98 per 1000 cigarettes whereas for RYO it is €273.177 per kilogramme of RYO tobacco.²⁴ Whilst it is difficult to determine the number of RYO cigarettes that can be made from a kilogramme of RYO tobacco, a US study of 80 RYO smokers found the median weight of home and laboratory made hand rolled RYO was 0.45 and 0.43 grams and the corresponding median weight using a RYO rolling machine was 0.97 and 0.95 grams respectively. A study by Gallus et al²⁵ of RYO smokers from 18 countries estimated the median weight of a RYO cigarette was 0.75 grams which means that 1333 RYO cigarettes can be made per kilogramme. Similarly, the Department of Finance Tax Strategy Group²⁶ have estimated that 1320 RYO cigarettes can be made from a kilogramme of tobacco. Based on the Department of Finance estimate, the current excise duty on RYO tobacco equates to €206 per 1000 RYO cigarettes, which is 24.6% less than the excise duty on manufactured cigarettes. This contributes to a lower retail price for RYO cigarettes. For example, a **discount** brand packet of 20 cigarettes typically costs €8.35²⁷ whereas a 12.5 gram **premium** brand pouch of RYO costs €6.20²⁸ (or €7.20 for enough tobacco to make 20 RYO cigarettes using Department of Finance estimates²⁶).

The difference in the way RYO and manufactured cigarettes are taxed is contributing to the lower cost of RYO. Data from the Department of Finance Tax Strategy Group²⁹ shown in figure 4.2 demonstrates that manufactured cigarette are taxed more with the tax difference increasing from 2003-2012. Since 2012, excise duty on RYO has been increased.²⁹ Nevertheless, a significant differential remains and the proportion of RYO smokers has continued to increase (figure 4.2). This needs to be addressed to facilitate further reductions in smoking prevalence and the achievement of targets set in Healthy Ireland.³⁰

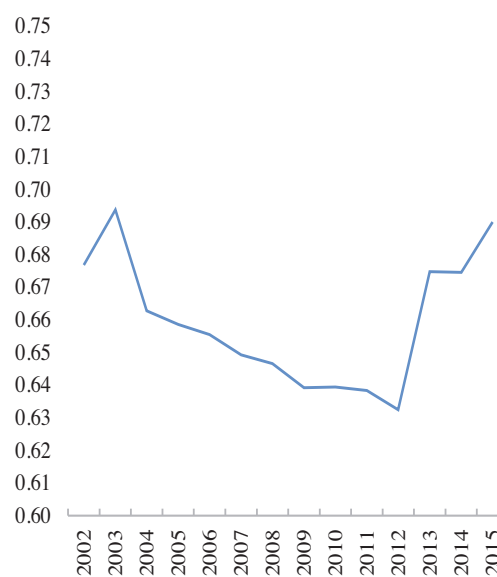
Figure 4.2: Trends in proportion of RYO Smokers and the Ratio of Excise Duty on RYO to Manufactured Cigarettes

Proportion of RYO Smokers 2003-2014



Source: HSE survey of smoking prevalence

Ratio of excise duty on RYO tobacco to manufactured cigarettes



Source: Department of Finance Tax Strategy Group²⁹

The lower cost of RYO compared to manufactured cigarettes is a particular concern due to the effect of price on the demand for tobacco products, particularly among the young and lower SEGs.^{31, 32} In Ireland, data on the impact of price on demand has been inconsistent.^{33, 34} Calculating price elasticities has been problematic due to difficulties including the estimation of the impact of tax avoidance and evasion on consumption.³³ A detailed calculation of price elasticities using six econometric models has been undertaken by the Revenue Commissioners.³⁵ This utilised an annual survey of the illicit tobacco trade in Ireland³⁶ and found an average price elasticity of taxed cigarette demand of -1.8. This equates to a reduction in demand of 18% with a price increase of 10%. By comparison, a study of high income countries found a 4% reduction in demand with a 10% price increase (elasticity = -0.4).³¹ This shows that cigarette consumption in Ireland is elastic and is highly responsive to price changes. However such reductions in consumption may not be fully achieved if RYO remains significantly cheaper than manufactured cigarettes. Studies have shown that a reduction in the use of one tobacco product will be offset by increased use of other tobacco products (such as RYO) if the prices of these products are not also increased.^{31, 37} This stresses the importance of ensuring that any price increases are applied to all tobacco products, and that price differentials are minimised. This will facilitate the achievement of the maximum public health benefit such as reduced consumption and prevalence, preventing initiation and uptake among young people, and promoting cessation.³⁸

The Department of Finance Tax Strategy Group²⁶ recognise that the tax burden on RYO tobacco is substantially less than manufactured cigarettes. Tax differences for RYO are also experienced in the UK which also has a high prevalence of RYO consumption.³⁹ There is a clear need to examine taxation policy for different tobacco products. It would be important to maximise the impact of tax increases by reducing the extent to which cheaper alternatives to manufactured cigarettes are available. Increasing excise duty on RYO is recommended by Tobacco Free Ireland¹ and it is also listed as a key action in the Tobacco Free Ireland Action Plan² (to reduce the price differential between RYO and manufactured cigarettes). This should now be fully implemented as a matter of urgency. In New Zealand, increasing excise duty on RYO has coincided with declining RYO sales, and also reduced usual RYO use among 14-15 year olds that source tobacco from caregivers or friends.⁴⁰

The growth in RYO consumption has also been fuelled by the tobacco industry who have introduced a number of new RYO products in recent years such as combination packs (including tobacco, filters, papers, rolling machines, tubes containing filters etc.), different sized products ranging from 9-25 gram, and the introduction of RYO versions of premium brand manufactured cigarettes.⁴¹ These products are often marketed to highlight the value they offer to consumers.⁴² The EU Tobacco Products Directive (2014/40/EU)⁴³ requires that unit packs of RYO products should not weigh less than 30 gram. When fully implemented (May 2017), this should help counteract such marketing strategies.

4.3 Age

In terms of age, our study found that RYO were smoked by significantly more younger smokers. Those under 25 years of age are over three times more likely to smoke RYO cigarettes. This has also been shown in other studies.^{19,39} Leatherdale and Burkhalter²⁰ suggest that RYO may have a role in smoking initiation among young people. Young et al¹⁴ point out that RYO manufacturers are now targeting the younger age groups in their marketing campaigns. Although the number of 15-17 year olds smoking in our study is small (n = 38), it is alarming that 84% of them smoke RYO cigarettes. Leatherdale and Burkhalter²⁰ for example highlight that studies have shown that RYO smokers are more addicted, less likely to attempt to quit or quit in the future and as such may be at increased risk in terms of morbidity and mortality. This suggests that there is a need to develop specific health promotion and other interventions aimed at reducing RYO consumption among younger age groups. Specific health promotion initiatives for targeted groups are recommended in the Tobacco Free Ireland Action Plan,² and these should be expanded to include initiatives for RYO. In addition, the implementation of the EU Tobacco Products Directive (2014/40/EU)⁴³ which prohibits RYO packets weighing less than 30g should also discourage consumption among younger age groups.

4.4 Gender

The study found that male smokers are approximately two and a half times more likely to smoke RYO cigarettes compared to females. This pattern has also been found in a study of 18 European countries²⁵ and a worldwide study of 48 countries.⁴⁴ It is not clear why there are such gender differences, particularly when the overall gender difference in overall smoking prevalence is relatively small (17.6% for females compared to 21.6% for men).⁴ It would be important that initiatives are developed that discourage RYO tobacco use among men. In addition, female specific initiatives may also be required, as women could be targeted in the future by the tobacco industry. Figure 4.3 for example shows a rolling paper currently available which is specifically targeting women.

Figure 4.3: Example of Rolling Paper Targeting Females



Source: <http://asiansmokeshop.com/store/janes-1-1-4-rolling-paper.html>

4.5 Addressing Health Inequalities

It is well established that there are socioeconomic differences in smoking prevalence worldwide⁴⁵ and this is also the case for Ireland.⁴ Our study has highlighted that RYO consumption could be a key factor in the maintenance of existing smoking patterns among lower SEGs. RYO cigarettes were smoked significantly more by lower socioeconomic groups with those from the lowest SEG (DE) being almost three times more likely to smoke RYO cigarettes. This pattern has also been found in other studies of socioeconomic^{8,16} and disadvantaged⁴⁶ groups. It appears that the price difference between RYO and manufactured cigarettes may be promoting RYO use among lower SEGs. Smoking prevalence reduces far more with price increases for low income smokers.⁴⁷ However the price difference between manufactured cigarettes may be counteracting this effect, thus contributing to the maintenance of health inequalities. Healthy Ireland,³⁰ (the Government's framework for improving health and wellbeing) has set the reduction of health inequalities as one of its strategic goals.³⁰ To help achieve this, RYO taxation policy needs to be changed to eliminate or minimise the price differential between RYO and manufactured cigarettes. This is supported by Brown et al who conclude that tax regulation is required throughout the European Union.¹⁶ This (in addition to developing initiatives to reduce overall smoking prevalence among lower SEGs) should form part of an action plan to meet Healthy Ireland's³⁰ strategic goal of reducing health inequalities.

4.6 Information and Research

The NTCO smoking prevalence database contains valuable information on tobacco use, enabling patterns over time to be monitored. However it is somewhat limited in terms of the provision of detailed information. For example, tobacco policy could be enhanced if surveillance information was available on those who have recently started smoking, those who have recently quit smoking, and those who have switched tobacco product or their pattern of consumption. Information on the illicit trade could also be included to facilitate the monitoring of price elasticity of demand. Responses to hypothetical changes such as in price, packaging, and availability would also be beneficial in developing policy. The utility of collecting detailed surveillance data on smoking patterns should be established to facilitate the development of targeted interventions to help reduce smoking prevalence. It would also be useful to determine the comparability of the NTCO smoking prevalence survey (and other on-going systems of tobacco monitoring in Ireland such as the Healthy Ireland Survey¹⁵) with international surveys to help ensure comparable data is being collected.

5. Conclusions and Recommendations

5.1 Conclusions

The study represents the first detailed examination of RYO tobacco consumption from the NTCO's monthly survey of smoking prevalence. It provides a useful insight into patterns of RYO consumption. It is clear that action needs to be taken if the current upward trend is to be reversed.

5.2 Recommendations

The following recommendations have been made:

5. In accordance with Tobacco Free Ireland¹ the Tobacco Free Ireland Action Plan,² taxation policy on RYO cigarettes should be reviewed to minimise the price differential between RYO and manufactured cigarettes. This should form part of an action plan to meet Healthy Ireland's³⁰ strategic goal of reducing health inequalities.
6. Gender and age specific health promotion initiatives should be developed targeting younger age groups to reduce the current high RYO prevalence among young males and also to prevent RYO initiation among young females. These should expand the current initiatives recommended in the Tobacco Free Ireland Action Plan.²
7. The utility of collecting detailed surveillance data on smoking patterns should be established to facilitate the development of targeted interventions to help reduce smoking prevalence.
8. The comparability of the NTCO smoking prevalence survey (and other on-going systems of tobacco monitoring in Ireland) with international surveys should be determined.

6. References

1. Department of Health, Tobacco Free Ireland, Report of the Tobacco Policy Review Group, 2013: Dublin.
2. Department of Health, Tobacco Free Ireland Action Plan, 2015: Dublin.
3. Morgan, K., McGee, H., Watson, D., Perry, I., Barry, M., Shelley, E., Harrington, J., Molcho, M., Layte, R., Tully, N., SLAN 2007: Survey of lifestyles, attitudes and nutrition in Ireland: Main report. Dublin: Department of Health and Children, 2008.
4. Hickey, P., Evans, D.S., Smoking in Ireland 2014: Synopsis of Key Patterns, 2015. National Tobacco Control Office.
5. Studlar, D.T., Punching Above Their Weight Through Policy Learning: Tobacco Control Policies in Ireland. *Irish Political Studies*, 2015. **30**(1): 41-78.
6. Department of Health, Health in Ireland, Key Trends 2013, 2013: Dublin.
7. Layte, R., Banks, J., Walsh, C., McKnight, G., Trends in socio-economic inequalities in mortality by sex in Ireland from the 1980s to the 2000s. *Irish Journal of Medical Science*, 2015. **184**: 613-621.
8. Young, D., Yong, H.-H., Borland, R., Shahab, L., Hammond, D., Cummings, K.M., Wilson, N., Trends in roll-your-own smoking: findings from the ITC Four-Country Survey (2002–2008). *Journal of Environmental and Public Health*, 2012. **2012**.
9. Shahab, L., West, R., McNeill, A., A comparison of exposure to carcinogens among roll-your-own and factory-made cigarette smokers. *Addiction Biology*, 2009. **14**(3): 315-320.
10. Cornelsen, L., Normand, C., Is roll-your-own tobacco substitute for manufactured cigarettes: evidence from Ireland? *Journal of Public Health*, 2014. **36**(1): 65-71.
11. Tuyns, A.J., Esteve, J., Pipe, commercial and hand-rolled cigarette smoking in oesophageal cancer. *Int J Epidemiol*, 1983. **12**(1): 110-113.
12. De Stefani, E., Oreggia, F., Rivero, S., Fierro, L., Hand-rolled cigarette smoking and risk of cancer of the mouth, pharynx, and larynx. *Cancer*, 1992. **70**(3): 679-682.
13. Edwards, R., Roll your own cigarettes are less natural and at least as harmful as factory rolled tobacco. *BMJ*, 2014. **348**: f7616.
14. Young, D., Borland, R., Hammond, D., Cummings, K., Devlin, E., Yong, H., O'Connnor, R., Prevalence and attributes of roll-your-own smokers in the International Tobacco Control (ITC) Four Country Survey. *Tobacco Control*, 2006. **15**(suppl 3): iii76-iii82.
15. Ipsos MRBI, Healthy Ireland Survey 2015, Summary of Findings, 2015: Dublin.
16. Brown, A.K., Nagelhout, G.E., van den Putte, B., Willemsen, M.C., Mons, U., Guignard, R., Thompson, M.E., Trends and socioeconomic differences in roll-your-own tobacco use: findings from the ITC Europe Surveys. *Tobacco Control*, 2015. **24**(Suppl 3): iii11-iii16.
17. Blecher, E., Ross, H., Stoklosa, M., Lessons learned from cigarette tax harmonisation in the European Union. *Tobacco Control*, 2014. **23**: e12-e14.

18. Young, D., Yong, H.-H., Borland, R., Shahab, L., Hammond, D., Cummings, K.M., Wilson, N., Trends in roll-your-own smoking: findings from the ITC Four-Country Survey (2002-2008). *Journal of environmental and public health*, 2012. **2012**(ID 406283).
19. Young, D., Wilson, N., Borland, R., Edwards, R., Weerasekera, D., Prevalence, correlates of, and reasons for using roll-your-own tobacco in a high RYO use country: findings from the ITC New Zealand survey. *Nicotine & Tobacco Research*, 2010. **12**(11): 1089-1098.
20. Leatherdale, S.T., Burkhalter, R., Roll-your-own tobacco use among Canadian youth: is it a bigger problem than we think? *BMC Public Health*, 2012. **12**(1): 557.
21. National Advisory Committee on Drugs and Alcohol, Drug use in Ireland and Northern Ireland 2010/11 drug prevalence survey: cannabis results, Bulletin 3, 2013. National Advisory Committee on Drugs and Alcohol: Dublin.
22. Rothwell, L., Britton, J., Bogdanovica, I., The relation between cigarette price and hand-rolling tobacco consumption in the UK: an ecological study. *BMJ open*, 2015. **5**(6): e007697.
23. Wilson, N., Thomson, G., Edwards, R., Use of four major tobacco control interventions in New Zealand: a review. *The New Zealand Medical Journal*, 2008. **121**(1276): 71-86.
24. Revenue Irish Tax and Customs. Excise Duty Rates. 2015 [04/08/2015]; Available from: <http://www.revenue.ie/en/tax/excise/duties/excise-duty-rates.html>.
25. Gallus, S., Lugo, A., Ghislandi, S., La Vecchia, C., Gilmore, A.B., Roll-your-own cigarettes in Europe: use, weight and implications for fiscal policies. *Eur J Cancer Prev*, 2014. **23**(3): 186-192.
26. Department of Finance Tax Strategy Group, General Excise Duties (Tobacco, Alcohol, Betting and Others), 2014. Department of Finance.
27. Retail News. June 2015, p21; Available from: http://issuu.com/retailnews/docs/retail_news_june_2015/1.
28. Retail News. June 2015, p2; Available from: http://issuu.com/retailnews/docs/retail_news_june_2015/1.
29. Department of Finance Tax Strategy Group, General Excises Paper- Tobacco Products Tax, Alcohol Products Tax and Tax on Sugar-Sweetened Drinks, 2016. Department of Finance: Dublin.
30. Department of Health, Healthy Ireland, A Framework for Improved Health and Wellbeing 2013. Department of Health: Dublin.
31. International Agency for Research on Cancer, IARC Handbooks of Cancer Prevention, Tobacco Control, Volume 14: Effectiveness of Tax and Price Policies in Tobacco Control, 2011. IARC: Lyon.
32. World Health Organization, WHO Report on the Global Tobacco Epidemic, 2015: Raising taxes on Tobacco, 2015.
33. Chaloupka, F.J., Tauras, J.A., The demand for cigarettes in Ireland, 2011. University of Illinois at Chicago, National Bureau of Economic Research
34. Reidy, P., Walsh, K., Economics of Tobacco: Modelling the Market for Cigarettes in Ireland, 2011. Office of the Revenue Commissioners, Research and Analytics Branch: Dublin.
35. Kennedy, S., Pigott, V., Walsh, K., Economics of Tobacco: An Analysis of Cigarette Demand in Ireland, 2015. Revenue Irish Tax and Customs, Statistics and Economic Research Branch: Dublin.

36. Office of the Revenue Commissioners, Ipsos/MRBI, National Tobacco Control Office, *Illegal Tobacco Products Research Surveys 2015, 2016*: Dublin.
37. Ross, H., Blecher, E., Yan, L., Hyland, A., Do cigarette prices motivate smokers to quit? New evidence from the ITC survey. *Addiction*, 2011. **106**(3): 609-619.
38. Chaloupka, F.J., Straif, K., Leon, M.E., Effectiveness of tax and price policies in tobacco control. *Tobacco Control*, 2010. **20**: 235-238.
39. Gilmore, A.B., Tavakoly, B., Hiscock, R., Taylor, G., Smoking patterns in Great Britain: the rise of cheap cigarette brands and roll your own (RYO) tobacco. *Journal of Public Health*, 2015. **37**(1): 78-88.
40. Healey, B., Edwards, R., Hoek, J., Youth Preferences for Roll-Your-Own Versus Factory-Made Cigarettes: Trends and Associations in Repeated National Surveys (2006-2013) and Implications for Policy. *Nicotine & tobacco research*, 2015. **18**(5): 959-965.
41. *Smoke Signals, Retail News*. April 2015, p49-55; Available from: http://issuu.com/retailnews/docs/retail_news_april_2015/1.
42. *Retail News*. July/Aug 2015, p60; Available from: http://issuu.com/retailnews/docs/retail_news_jul.aug_2015/1.
43. The European Parliament and the Council of the European Union, Directive 2014/40/EU of the European Parliament and of the Council of 3 April 2014 on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC. *Official Journal of the European Union*, 2014. **L127/1**(April 2014).
44. Ansara, D.L., Arnold, F., Kishor, S., Hsia, J., Kaufmann, R., *Tobacco use by men and women in 49 countries with Demographic and Health Surveys, 2013*. ICF International: Calverton, Maryland, USA.
45. Laaksonen, M., Rahkonen, O., Karvonen, S., Lahelma, E., Socioeconomic status and smoking Analysing inequalities with multiple indicators. *The European Journal of Public Health*, 2005. **15**(3): 262-269.
46. Ayo-Yusuf, O.A., Olutola, B.G., 'Roll-your-own' cigarette smoking in South Africa between 2007 and 2010. *BMC Public Health*, 2013. **13**(1): 597.
47. Siahpush, M., Wakefield, M.A., Spittal, M.J., Durkin, S.J., Scollo, M.M., Taxation reduces social disparities in adult smoking prevalence. *American journal of preventive medicine*, 2009. **36**(4): 285-291.

Appendix 1

National Tobacco Control Office

And moving on again.....

ASK ALL RESPONDENTS 15+

Q.1 Do you smoke one or more cigarettes each week, whether packaged or roll your own? **SINGLE CODE.**

Yes.....	1	GO TO Q.2
No	2	GO TO Q.4
Don't know/No answer	3	

IF YES ASK

Q.2 Which brand of cigarettes do you smoke most often? **SINGLE CODE ONLY. PROBE FULLY FOR BRAND NAME AND VARIANT (100'S ETC.) IF APPLICABLE.**

Benson & Hedges	1
Benson & Hedges Lights	2
Benson & Hedges Silver	3
Benson & Hedges Gemini.....	4
Benson & Hedges Graphite	5
Benson & Hedges Black	6
Berkley Superkings	7
Berkely Superkings Blue (Lights).....	8
Berkley Superkings Menthol (Green).....	9
Carrolls No 1	10
Carrolls Blue (Lights)	11
Dunhill International	12
Dunhill Button Blue (Lights)	13
Dunhill Button Green (Menthol)	14
Dunhill Button Red	15
Dunhill Essence Red.....	16
Dunhill Essence Gold.....	17
John Player Blue.....	18
John Player Bright Blue (Lights)	19
John Player Twin Pack	20
Kent Gold (Lights).....	21
Kent Blue	22
Kent Silver.....	23
Lambert & Butler Gold (Lights)	24
Lambert & Butler Silver	25
Mayfair Kingsize.....	26
Mayfair Kingsize Smooth	27
Mayfair Kingsize Menthol (Green)	28
Mayfair Superking	29
Mayfair Superkings Menthol (Green).....	30
Mayfair Superkings Smooth.....	31
Major	32
Marlboro Red	33
Marlboro Gold (Lights)	34
Marlboro Menthol (Green).....	35

Rothmans Kingsize	36
Rothmans Lights	37
Silk Cut Gemini	38
Silk Cut Blue (Extra Mild)	39
Silk Cut Purple (Mild)	40
Silk Cut Red	41
Silk Cut Silver (Ultra)	42
Silk Cut Slims	43
Superkings Black	44
Superkings Blue	45
Superkings Menthol (Green)	46
Superkings White	47
Winfield Blue (Lights)	48
Winfield Red	49
Camel Filters	50
Camel Subtle Flavour Blue	51
Lucky Strike Silver (Lights)	52
Lucky Strike Red	53
Players	54
Richmond Kingsize	55
Sweet Afton	56
Woodbines	57
Vogue Superslim Arome	58
Vogue Superslim Bleue	59
Vogue Superslim Menthol (Green)	60
Pouch Tobacco	61 PROBE FOR BRAND:
Cigars	62
L&M Red	63
L&M Blue	64
Pall Mall Red	65
Pall Mall Blue	66
Other (Please specify _____)	67
Refused	68
Don't know	69

Amber Leaf Blonde	01
Benson & Hedges RYO Silver	02
Camel RYO	03
Drum Original	04
Drum Bright Blue	05
Eastenders	06
Golden Virginia Classic (Green)	07
Golden Virginia Yellow	08
GV Smooth	09
John Player Blue Pouch Tobacco	10
Old Holborn	11
Pall Mall Roll Your Own	12
Cutters Choice	13
Samson Original Blend	14
Other (Specify _____)	15

Q.3 How many cigarettes do you smoke each day, on average? **PROBE FOR A PRECISE NUMBER OF CIGARETTES.**

--	--	--

Don't know = 999

Less than 1 = 00

Q.3(a) And can I just confirm that you smoke _____ cigarettes per day? **SINGLE CODE.**

Yes 1
No 2

ASK ALL NON-SMOKERS (CODE 2 AT Q.1)

Q.4 Did you ever smoke one or more cigarettes each week whether packaged or roll your own? **SINGLE CODE.**

Yes 1
No 2

ASK ALL

Q.5 Which of the following statements best applies to you? **READ OUT. FLIP SCALE. SINGLE CODE.**

I have never heard of e-cigarettes and I have never
tried them 1
I have heard of e-cigarettes but I have never
tried them 2
I have tried e-cigarettes but I do not use
them anymore 3
I have tried e-cigarettes and still use them on a daily
basis 4
I have tried e-cigarettes and still use them less
than daily 5
Don't know 6

Classification Section

FOR ALL CONTACTED ON THEIR MOBILE AND LIVING IN DUBLIN ASK

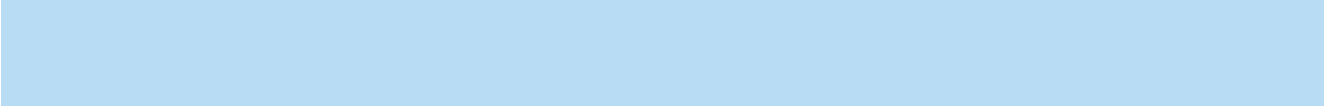
Q.1 Please can you tell me the postcode for the area in Dublin in which you live? **SINGLE CODE. IF THERE IS NO POSTCODE FOR THE AREA PROBE FOR WHETHER IT IS NORTH COUNTY DUBLIN OR SOUTH COUNTY DUBLIN.**

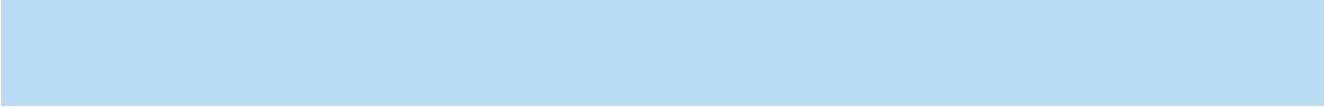
Dublin 1.....	1
Dublin 2.....	2
Dublin 3.....	3
Dublin 4.....	4
Dublin 5.....	5
Dublin 6.....	6
Dublin 6W.....	7
Dublin 7.....	8
Dublin 8.....	9
Dublin 9.....	10
Dublin 10.....	11
Dublin 11.....	12
Dublin 12.....	13
Dublin 13.....	14
Dublin 14.....	15
Dublin 15.....	16
Dublin 16.....	17
Dublin 17.....	18
Dublin 18.....	19
Dublin 20.....	20
Dublin 22.....	21
Dublin 24.....	22
No postcode - South County Dublin.....	23
No postcode - North County Dublin.....	24
Don't know.....	25

FOR ALL CONTACTED ON THEIR MOBILE AND LIVING IN TIPPERARY ASK

Q.2 You mentioned earlier that you live in Tipperary, do you live in North Tipperary or South Tipperary?

North Tipperary.....	1
South Tipperary.....	2
Don't know.....	2







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