
Cost effectiveness of smoking services in Wirral

2015 Update

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Version History

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0.7	29 th April 2015	Brendan Collins	Becky Mellor Sarah Kinsella	Made some changes and additions and corrected some typos.
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Summary & Recommendations

- NICE recommend that smoking cessation programmes should engage with at least 5% of smokers and achieve a 4 week quit rate of greater than 35%, both of which services in Wirral have consistently achieved. In most years, stop smoking services in Wirral have engaged with around 1 in 9 smokers in the population.
- Nearly 1 in 5 adults in Wirral smoke, and smoking causes around 1 in 5 deaths (these deaths are a consequence of higher and heavier smoking years ago). Public health and partners should reinforce the fact that smoking is still the biggest lifestyle cause of ill health and early death, and helping people to quit smoking is one of the most cost effective public health interventions. Smoking exacerbates health inequalities that occur as a result of complex physiological processes as a result of individual status in the social hierarchy—the Whitehall study on inequalities found that if a rich person and a poor person both smoke 20 cigarettes a day, the poor person will lose more years of healthy life than the rich person. Helping adults who are disadvantaged to quit smoking must be a priority.

- Wirral should agree aspirations across the health economy for smoking cessation and prevention.
- The most successful years for smoking cessation services were 2010/11 and 2011/12 when a high level of investment and several innovative social marketing campaigns led to over 3000 quits per year, which was associated with a measurable drop in smoking prevalence of around 15%.
- Smoking services are still cost effective in Wirral, but since 2011/12, total costs including CCG prescribing have fallen by 20% while the number of quitters using services has fallen by 50%.
- The most important recommendation for services is for them to really know their population groups and to match up with each mechanism or trigger which are most successful in reducing smoking uptake and helping smokers to quit tobacco and become nicotine free.
- Making systems as seamless as possible and as efficient as possible is important, so services should be making it possible for healthcare workers to book a smoker's first appointment with stop smoking services, having NRT available in healthcare settings, making every contact count, and using NHS Healthchecks as an opportunity to motivate smokers to quit. So far the number of referrals to stop smoking services from Healthchecks has been very low which indicates an opportunity for GPs to refer more patients. System motivators to improve the health of the disadvantaged should be further explored. Primary care and GP registers should be used to identify smokers who are disadvantaged and at risk of premature death from CVD.
- GPs in Wirral have performed well on the QOF measures around smoking cessation although there are some with high numbers of smokers and lower numbers who have been offered support. At the moment the QOF indicators may not be sufficiently ambitious in driving activity into smoking cessation so locally agreed ambitions could augment the QOF indicators.
- All front line health staff should be trained to deliver very brief advice & interventions.
- Electronic cigarettes have sent a shock through the tobacco control landscape which is still having an effect on people's smoking behaviour and quit rates. As e-cig use continues at around 15% of smokers, decision making needs to focus on the opportunities and threats related to e-cigs. This could mean that e-cig vendors and stop smoking services need to work together, but also means that services need to promote being nicotine free as an important outcome as well as being tobacco free. In future service outcomes should include whether someone has moved to e-cigs or whether they are nicotine free, and also their services could look at specific interventions to move e-cig only clients to being nicotine free.

- Locally there is anecdotal evidence of an increase in use of chewed tobacco (paan) including an increase in young people and women; there needs to be education and awareness raising across services.
- Wirral have not implemented much in the way of the harm reduction approaches which have been recommended by NICE. These are likely to be less cost effective than helping people to quit outright, but should be considered.
- Services should do more to try to monitor whether individuals have quit at 12 months. Most of the uncertainty around the cost effectiveness is around whether people do quit successfully at 12 months; most people who reach 12 months without nicotine will become lifetime quitters. If we can be certain that at least 5% of 4 week quitters (or 2% of service users) go on to become long term quitters then the service should be cost effective.
- Wirral has proposed to implement a Patient Group Direction (PGD) so that pharmacists can prescribe Champix, which is more expensive but more effective than other quit methods, with a 4 week quit rate of 60% compared to 30-40% for most other quit methods.
- Preventing and delaying tobacco uptake in young people needs to be a high priority. Wirral Community Trust is developing interventions to prevent tobacco uptake as part of the 0-19s contract. These need to be well planned and based on best evidence and co-ordinated with regional and national programmes of work/campaigns. Trading Standards deliver underage sales checks to monitor compliance with age of sale legislation and are proactive in taking action to improve compliance.
- Interventions could be developed that focus on looked after children and troubled families where smoking prevalence is very high.
- Having interventions for men is important as smoking prevalence has fallen less in men than in women in the last 5 years. Making it easy for working men to access services and NRT is important.
- The quit rate for pregnant women has increased over the last few years, but the service is paid at a high tariff cost per quitter. Weighting the payment so that services are paid the full tariff when a woman has quit 2 months post pregnancy could drive more value.
- Making smoking less socially acceptable is important in motivating people to quit and reducing uptake. Measures to do this can include promoting smokefree spaces and workplaces where possible, enforcing the ban on smoking on council premises and trying to deter people from smoking around parks and areas where children play. Smokefree places have been implemented in New York and South Australia, and there was a pilot of voluntary smokefree public squares in Bristol.

- Pushing for smokefree homes is important; many adults still smoke in homes where children are present and should be educated about 'third hand smoke'.
- As the price of tobacco has increased, this reduces the amount of tobacco consumed by smokers through giving a financial motive to quit. Working with Trading Standards to reduce supply of illegal and illicit tobacco means that these price measures have their desired effect maximised.
- Wirral should develop and deliver communication strategies with local partners to support the delivery of stop smoking services, telephone quitlines, school based interventions, tobacco control policy changes and other activities designed to help people to stop using tobacco. Ensure that anything local compliments regional and national communications.
- Wirral should push for national policy measures which have the capacity to have the highest impact, such as raising the age at which people can buy tobacco to 21. Local 'Challenge 25' for buying tobacco should be given a greater emphasis.
- Wirral should push for an upscale of the focus given to smoking cessation as being part of routine clinical care for all hospital and community healthcare pathways. Healthcare workers should ask about smoking at every opportunity and treat it as a health problem in itself.
- The Quit with Us database used by smoking services in Wirral is better than those for many other public health services, so this richness of data needs to be preserved. Also services need to accurately record whether clients are using mono or combination NRT.

1. Background

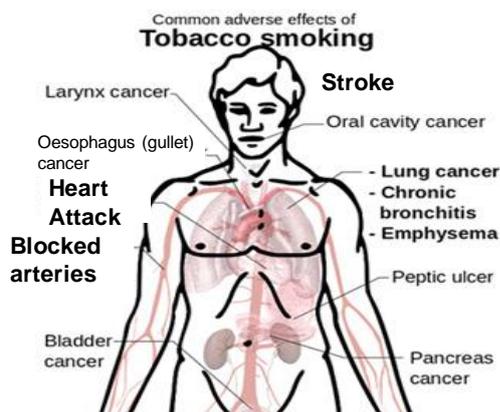
In 2013 we carried out a comprehensive cost effectiveness analysis of smoking services in Wirral looking at data for 2011/12 financial year. This found that smoking services were highly cost effective, producing 3,379 four week quitters. In 2014 we refreshed the model and found that the number of people setting a quit date in 2012/13 was 5,403 of whom 42% quit at four weeks. The number of quits in 2012/13 was 2,259 compared with 3,379 the year before (so was one third lower). The number of quits in pregnant women had risen significantly from 21 in 2011/12 to 69 in 2012/13. The costs of the service, including NRT and drug costs, were 15% lower than the year before. This report aims to give a more comprehensive update, using data to understand the current landscape around tobacco in Wirral.

2. The existing policy context

Smoking is still the biggest cause of health inequalities in the UK.

There were 658 smoking-related deaths per year in Wirral (2008-2010).

This was one in five deaths.



National policy measures



The most successful recent national policy measure was the ban on smoking in public places in 2007 which resulted in a 10% drop in smoking prevalence nationally (from 24.2% to 22% of adults).

The Impact of Smoking Cessation

The potential impacts of smoking cessation across the life course were outlined in the **Marmot review 'Fair Society, Healthy Lives'** and included improvements in:

- **Child development:** Sudden Infant Death Syndrome (SIDS) and other childhood illnesses such as asthma and otitis media (glue ear) are associated with parental smoking. Children of smokers are more likely to smoke themselves, so parents quitting smoking breaks that link as well as providing immediate benefits to their child's health.
- **Schooling:** Children of smokers are more likely to miss school through sickness and teenagers leaving school premises to smoke create an extra burden on teacher time. Nine out of ten of smokers start before the age of 18.

- **Employment:** Smoking interventions benefit employers and employees through improved productivity, reduced absenteeism caused by smoking related diseases and reduced fire risk.

- **Income and benefits:** Smoking affects people's income due to money spent on cigarettes and lost income (smokers are more likely to be ill and off work). Up to 15% of the disposable income of smokers is spent on tobacco, so helping people to quit will ease financial pressures.

- **Healthy environment and green spaces:** A large proportion of litter is tobacco related, so reducing smoking prevalence not only reduces litter, it can also reduce the need for street cleaning when streets are only cleaned on demand. It also frees up resources to improve the living environment in other ways.

- **Transport:** There is evidence that smoking while driving contributes to traffic accidents and that people who smoke are less likely to wear seatbelts. The **British Medical Association** has called for smoking in cars to be banned. The Government have recently legislated to ban smoking in cars with children.

- **Safety and crime:** Around 1 in 10 (11%) cigarettes smoked are smuggled into the UK illegally and the figure is much higher for hand rolled tobacco. Reducing smoking prevalence should therefore reduce spend on policing illegal tobacco sales. Helping young people to quit or not take up smoking could reduce the amount of money spent on policing underage sales.

The Public Health Outcomes Framework (PHOF)

The Public Health Outcomes Framework was first published in January 2012, which is a set of indicators around public health and health inequalities which will be measured from 2013-2016. In the Public Health Outcomes Framework there are three target domains around smoking, wherein local authorities will be measured on their performance in reducing smoking prevalence in 15 year olds, adults, and pregnant women. The domains are;

- **2.3** Smoking status at time of delivery per 100 maternities (National target is to reduce from a 2010 baseline of 14% to 11% or less by 2015, most recent for Wirral is around 12%, although Wirral has data quality issues)
- **2.9** Prevalence of smoking among 15 year olds (National target is to reduce from a 2010 baseline of 15% to 12% or less by 2015 – not currently measured at LA level but most recent national prevalence is 8% regular smokers)
- **2.14** Prevalence of smoking among persons aged 18 years and over (National target is to reduce from a 2010 baseline of 21.2% to 18.5% or less by 2015, currently for Wirral prevalence is 18.4% so Wirral is on course to exceed this target, although prevalence estimates do fluctuate).

These targets came from 'Healthy Lives, Healthy People, and a Tobacco Control Plan for England' (2011)¹.

¹ http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132358

PHE Tobacco Profiles

PHE produce tobacco profiles with data for each local authority area in England.² These profiles include smoking prevalence, smoking quitters data, mortality, hospital admissions and revenue from tobacco sales and are a useful resource in monitoring the tobacco landscape at a local authority level.

Wirral Smoking Cessation Performance

Figure 1 shows the performance of North West local authorities for 4 week quits for 2013/14. Wirral is coloured amber, and has a slightly higher quit rate than the national and North West average. Knowsley, Sefton and Wigan had particularly high quit rates compared to other local authorities in the North West while Bury and Trafford had particularly low quit rates.

Figure 1. North West of England local authorities, 4 week quit rate per 100,000 smokers, 2013/14.

Successful quitters at 4 weeks 2013/14

Area	Count	Value
England	300,539	3,524
North West	42,879	3,449
Blackburn with Darwen	970	3,321
Blackpool	1,350	3,951
Bolton	1,299	2,558
Bury	445	1,433
Cheshire East	1,289	2,584
Cheshire West and Chester	1,595	3,888
Cumbria	2,994	3,445
Halton	643	2,815
Knowsley	1,593	5,739
Lancashire	5,926	2,975
Liverpool	4,232	4,412
Manchester	3,764	3,703
Oldham	1,301	3,004
Rochdale	1,049	2,619
Salford	1,604	3,167
Sefton	2,451	5,485
St. Helens	1,121	3,369
Stockport	1,100	2,446
Tameside	1,258	2,832
Trafford	541	1,424
Warrington	870	2,941
Wigan	3,757	6,617
Wirral	1,727	3,606

Source: PHE - Knowledge and Intelligence Team London

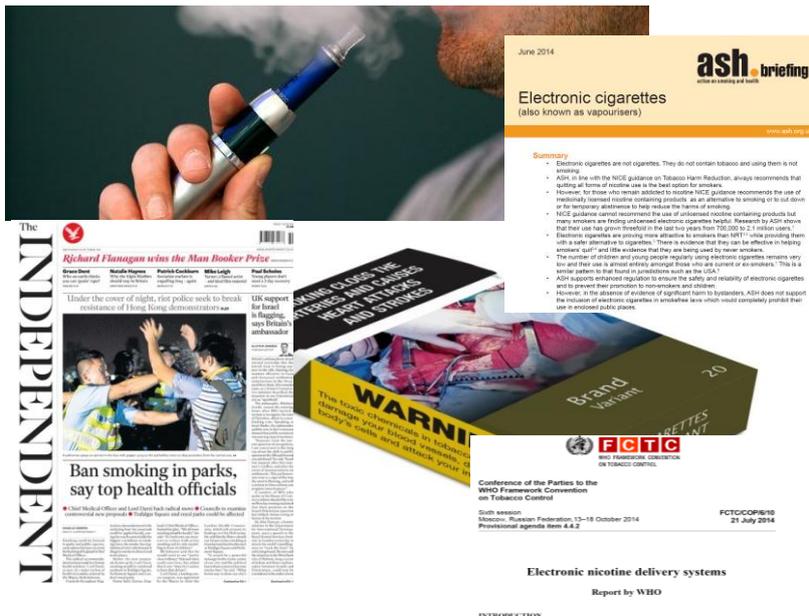
²<http://www.tobaccoprofiles.info/profile/tobacco-control/data#gid/1000110/pat/6/ati/102/page/0/par/E12000002/are/E08000015>

Future policy measures

In 2015 the Coalition Government legislated to bring in standardised packaging for tobacco products and to ban smoking in cars with children aged under 18. There has been discussion about other policy measures such as banning smoking in parks. In Singapore there has been discussion about banning smoking in people born after the year 2000.

Electronic cigarettes

Widespread use of e-cigarettes has sent a shock to the smoking policy landscape. E cigarette use seems to have plateaued at around 16% of smokers nationally. The WHO has come out against them, but a lot of UK smoking policy experts believe they have potential to be a less harmful alternative to smoking. This is not an incompatible position as the WHO represents the whole world and regulation of e-cigarettes may mean that they are safe in the UK but less safe in poorer countries with less regulation. E cigarette manufacturers have positioned themselves as providing a harm reduction product. The NCSCT [National Centre for Smoking Cessation Training] have said that stop smoking services can provide behavioural support to clients who are using electronic cigarettes and can include these clients in their national data returns. Stop smoking services do not currently get measured on whether they move non-smokers from e cigarettes to being nicotine-free. From 2016 e-cigarette products will be regulated by the MHRA (Medicines and Healthcare Products Regulatory Agency) so will be subject to more strict regulation. This increased regulation may hand more of the market to big tobacco companies – e-cigarettes are still made from tobacco. If e-cigarettes prove to be a safer form of nicotine then it may be that in future tobacco could be banned completely as people have the option to use e cigarettes if they wish to use a nicotine produce. There is a counter argument about the risk of e-cigarettes normalising smoking behaviours and there is conflicting evidence on whether e-cigarettes will expose a new generation to nicotine, with a recent study finding that many teenagers had tried e-cigarettes³.

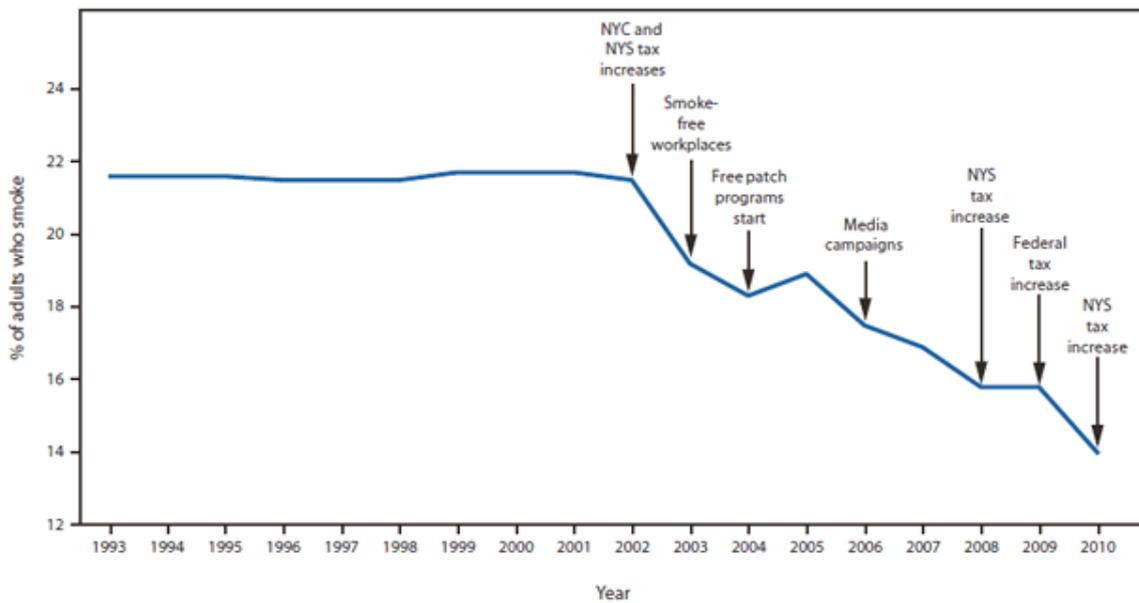


³ Hughes, K., Bellis, M. A., Hardcastle, K. A., McHale, P., Bennett, A., Ireland, R., & Pike, K. (2015) Associations between e-cigarette access and smoking and drinking behaviours in teenagers. *BMC public health*, 15(1), 244.

What is achievable with strong policy measures?

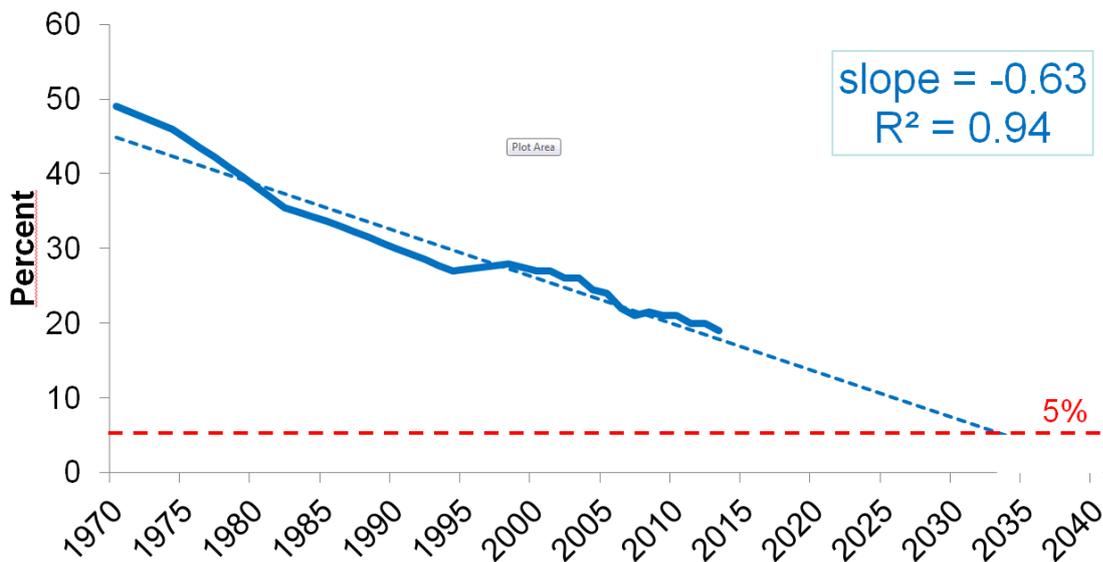
Smoking prevalence in New York City has fallen from 21% in 2001 to 14% in 2010. This may be partly down to gentrification as housing has become less affordable for people on low incomes who are more likely to smoke, but policy measures seem to have had a big impact. A more recent disinvestment in tobacco control has seen smoking rates increase again in NYC.

Figure 2: Smoking trend in New York City, shown with policy interventions.



In England it is estimated that smoking could fall to around 5% in 2035, based on trends since the 1970s, but it may be that with stronger policy measures this decrease could happen sooner (Figure 3). Instead of accepting the current rate of decrease in smoking prevalence, there needs to be an injection of urgency.

Figure 3: Trend in smoking prevalence in England, 1970-2015. Source: Professor Robert West, based on data from ONS & smoking toolkit study.



The NCSCT

Smoking cessation services are monitored and have standards of delivery determined by the National Centre for Smoking Cessation & Training ([NCSCT](#)). They provide training and audit to ensure that smoking cessation services are based on the best evidence. They produce briefings on a number of different issues/topics for example cost effectiveness of Champix and NRT voucher schemes.

NICE Guidance

NICE (the National Institute for Health & Care Excellence) recommend programmes and interventions to the NHS and to Local Authorities. Smoking has been a priority area in terms of their public health guidance and they have produced ten sets of guidance (some of which supersede each other) around smoking, which are listed in [Appendix 2: NICE Guidance around smoking & tobacco](#).

In terms of smoking cessation, NICE recommend that programmes should engage with at least 5% of smokers and achieve a 4 week quit rate of greater than 35%, both of which Wirral has consistently achieved.

NICE have produced guidance PH45, recommending a harm reduction approach for some smokers who cannot quit suddenly. This has not been implemented in Wirral as yet but there are plans to pilot with a specific cohort of smokers. This approach has the potential to get more smokers engaged with services, but also could be potentially less cost effective, as people would not be getting all the benefits they would if they stopped completely. One element with good evidence is temporary abstinence particularly for people who have been admitted to hospital; Wirral Public Health are currently working with Wirral University Teaching Hospital and Cheshire and Wirral Partnership Trust on helping to support staff and patients to abstain from smoking while in hospital.

3. Smoking Prevalence

There are currently two main sources for smoking prevalence. The integrated household survey (IHS) is commissioned nationally by ONS and measures smoking prevalence for all adults and for routine and manual groups in Wirral. There have also been locally commissioned smoking surveys which include an estimate of overall smoking prevalence as well as looking specifically at the most deprived areas of Wirral.

Based on the IHS, smoking prevalence has dropped substantially in the last 4 years data by around 15% or 3.3 percentage points, and was 18.4% in 2013 ([Figure 4](#)). However this is an estimate and is subject to a degree of uncertainty. Based on the data from the ASH ready reckoner, this change in smoking prevalence will have saved the Wirral economy around £13-14million per year in 2012 and 2013 compared with 2010 and 2011. Based on the results from the NICE tool, over time this change in prevalence will have saved 9,469 GP consultations; 2,858 practice nurse consultations; 1,690 outpatient visits; 338 hospital admissions; and 5,357 prescriptions. 2010 and 2011 were the two most successful years in terms of smoking quitters, with several social marketing interventions used, so this is evidence that stop smoking services have a direct effect on prevalence. Smoking in routine and manual groups is higher than the general population ([Figure 5](#)).

Figure 4: Smoking Prevalence from Integrated Household Survey, 2010-2013. Shown with 95% confidence intervals.

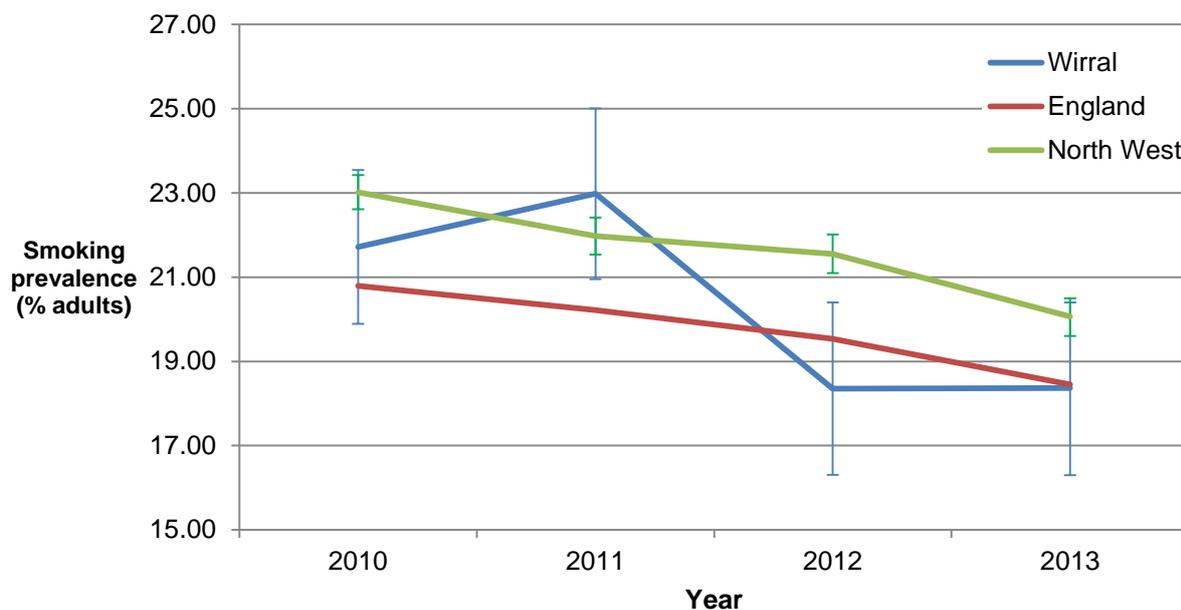
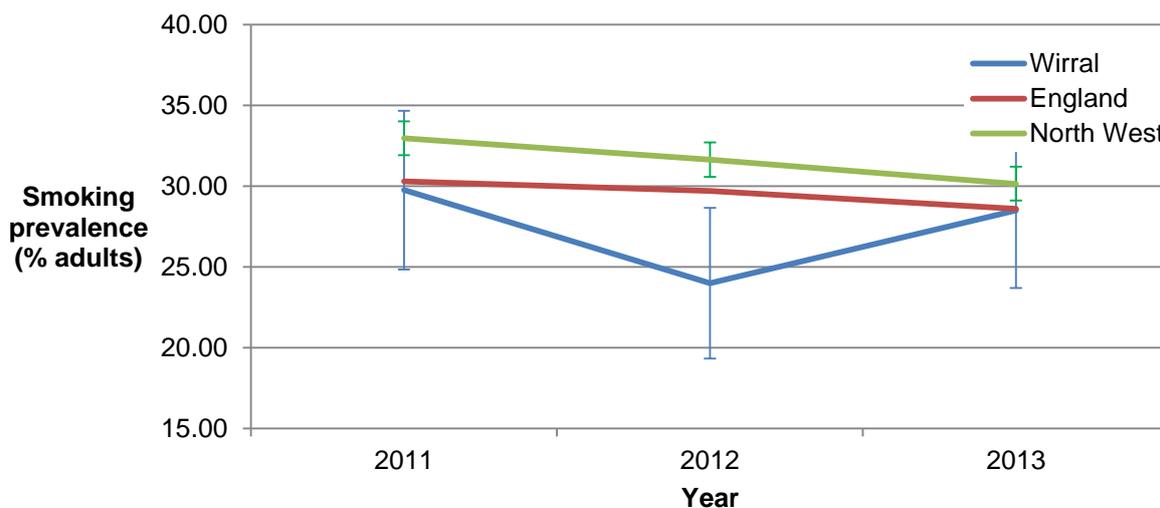


Figure 5: Routine & Manual Groups – Smoking Prevalence, 2011-2013. Shown with 95% confidence intervals.



Wirral has periodically commissioned local prevalence surveys. Before the public health outcomes framework was brought in 2012, there was little accurate smoking prevalence data available at local authority level. The local surveys have been useful in focusing on the most deprived areas, providing data about tobacco products used and their frequency, quit attempts and abstinence, access to counterfeit or duty free cigarettes, smoking in the car and the home, and cannabis usage. Prevalence in this survey for 2012 was 31.4% of the population surveyed, however because the survey is focused in the most deprived areas this is not indicative of the whole Wirral population. This survey found that smoking prevalence had fallen since 2009 significantly in women but not in men. This chimes with both national data and the fact that in Wirral more women have quit with stop smoking services than men (see [Table 1](#)). Overall the survey found that around 60% of quitters use stop smoking services, while around 40% do it using their own willpower and resources.

Table 1: Results from Wirral local smoking prevalence survey, 2009-2012. Smoking prevalence in most deprived areas of Wirral.

Classification [Sample size, 2012]	2009	2010	2011	2012	+/- Variation 2009 – 2012	95% C.I.	Statistically significant change?
Overall Smoking Prevalence	34.7%	34.5%	33.2%	31.4%	- 3.3%	+/- 1.55	Yes
Male [1381]	35.1%	35.5%	35.3%	36.2%	+1.1%	+/- 2.53	No
Female [1998]	34.5%	33.8%	31.7%	28.9%	-5.6%	+/- 1.99	Yes

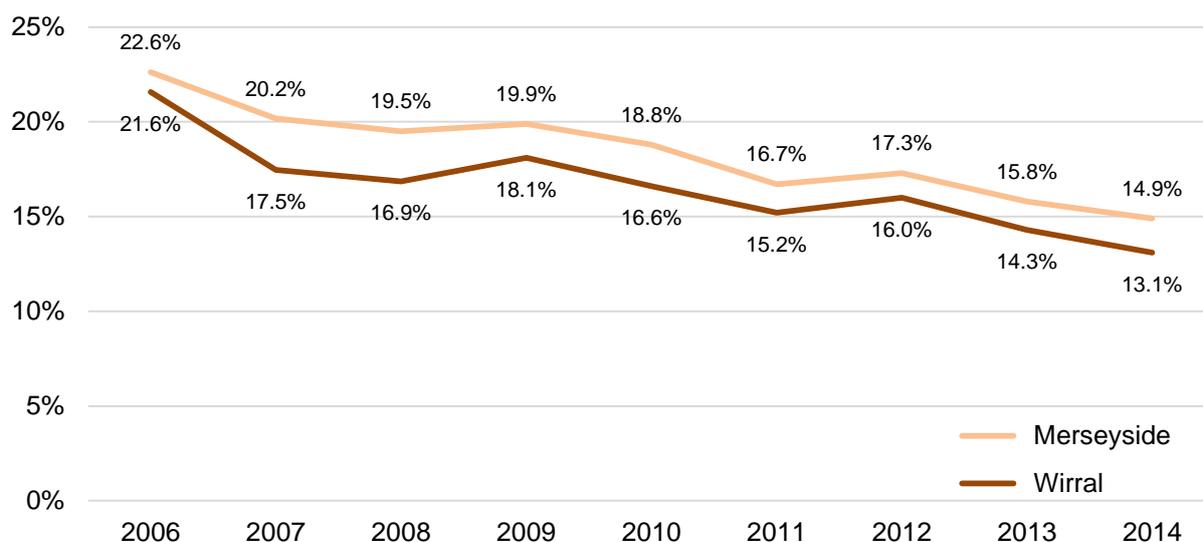
The local survey found that smoking prevalence was highest in routine and manual groups (33%) than other groups (26%) and was higher in White British groups (32%) than Black and Minority ethnic groups (18%). The average smoker had smoked for 24 years. To reduce inequalities, we need to do better at reducing the smoking rates in these groups. The survey also found that smoking had fallen most significantly in 20-24 year olds and 35-49 year olds ([Table 2](#)). The fact that smoking has fallen in younger age groups is positive as it indicates that fewer young people are taking up smoking.

Table 2: Smoking prevalence by age, Wirral most deprived areas, 2009-2012 from local prevalence survey.

Classification	2009	2010	2011	2012	+/- Variation 2009 – 2012	95% C.I.	Result
16 – 19 [95]	38.3%	30.3%	35.8%	31.6%	- 6.7%	+/- 9.35	Not Significant
20 – 24 [213]	38.9%	36.9%	31.4%	31.0%	- 7.9%	+/- 6.21	Significant
25 – 34 [556]	43.2%	38.7%	40.5%	38.5%	- 4.7%	+/- 4.04	Not Significant
35 – 49 [878]	42.2%	41.0%	40.4%	37.2%	- 5.0%	+/- 3.20	Significant
50 – 59 [555]	37.1%	40.1%	34.5%	35.5%	- 1.6%	+/- 3.98	Not Significant
60+ [1129]	24.2%	25.5%	24.4%	21.8%	-2.4%	+/- 2.41	Not Significant

Smoking prevalence has also been collected by the fire brigade as part of local fire safety checks. The prevalence as measured on these checks is lower than other smoking prevalence but there may be a question about whether they represent a random sample of the population, thinking about which groups are most likely to get fire safety checks, so are they more likely to own their own homes or be more safety conscious and risk averse and therefore less likely to smoke, or who is likely to be at home etc. The sample size is very impressive (21,395 for Wirral in 2014) which would indicate that it should represent a reasonable cross section of the population. The most recent adult smoking prevalence based on this was 13.1% for Wirral ([Figure 6](#)).

Figure 6: Smoking prevalence from Fire Safety Checks. Source: Merseyside Fire & Rescue Service.



Smokefree Homes

The more that people see having a smokefree home as the norm, the more upstream the tobacco control programme will become. There is an increasing body of evidence around the effects of ‘thirdhand smoke’ where tobacco toxins are stored in fabrics and furnishings and are released slowly back into the atmosphere.⁴ A Scottish study found that children’s exposure to second hand smoke fell 39% since smokefree legislation.⁵ In Wirral 50% of smoking clients were recorded as to whether they smoke in the home, and of these, 29% did smoke in the home. For clients who lived with children, 45% smoked in the home. This has fallen from 2011/12 when 63% of clients with children smoked in the home.

Table 3: Numbers of smoking cessation clients by whether live with children and smoke in the home, 2013/14 data. Source: Quit with Us database.

	Live With Children	
	False	True
Smoke In Home		
False	1347	96
True	531	80
Total	1878	176
% who smoke at home	28%	45%

No data = 2046.

A study that looked at mothers in Liverpool who smoked in the home found that many believed that environmental factors outside the home or genetics were more likely to be linked to childhood illnesses than their own smoking.⁶ Smokefree homes interventions need to tackle this denial with measures like measuring environmental, urine or saliva cotinine levels to give parents proof of the effect their smoking is having on their children’s health. An

⁴ Matt, G. E. (2013). Thirdhand tobacco smoke: emerging evidence and arguments for a multidisciplinary research agenda. *Environmental Health Perspectives*, 119, 1218-1226, 10/1/2011.

⁵ Akhtar P, Currie DB, Currie C, Haw SJ. Changes in child exposure to environmental tobacco smoke (CHETS) study after implementation of smoke-free legislation in Scotland: national cross sectional survey. *BMJ*. 2007 Sep 15;335(7619):545.

⁶ Robinson J and Kirkcaldy A (2007) 'You think I'm smoking and they're not': why mothers still smoke in the home. *Social Science & Medicine* vol 65 pp 641-652.

Italian study demonstrated that urine cotinine levels are directly related to parents smoking⁷. A qualitative study looked at barriers and facilitators to smokefree homes for disadvantaged caregivers in Nottingham, the results are in [Table 4](#).⁸

Table 4: Barriers and facilitators to a smokefree home, from Jones et al. (2011)

Barriers	Motivators
Influence on relationships	House decor
Space restrictions	Children's health
Conflict of being a smoking caregiver	Pet's health
Conflict between coping and caring	Improved health of caregiver
Stress	Increased life expectancy of caregiver
Habit, addiction, boredom	Ability to care for children as they get older
Abuse of other addictive substances	Reduced risk of children becoming smokers
Desire to smoke in comfort, privacy, and in a safe environment	Influence of partner, family & friends
Lazy, lack of willpower	Guilt
Tobacco use low on priority list	Desire to quit smoking
Personal choice	Legal or rental restrictions
Social & peer pressure	
Lack of autonomy, culture, hospitality	

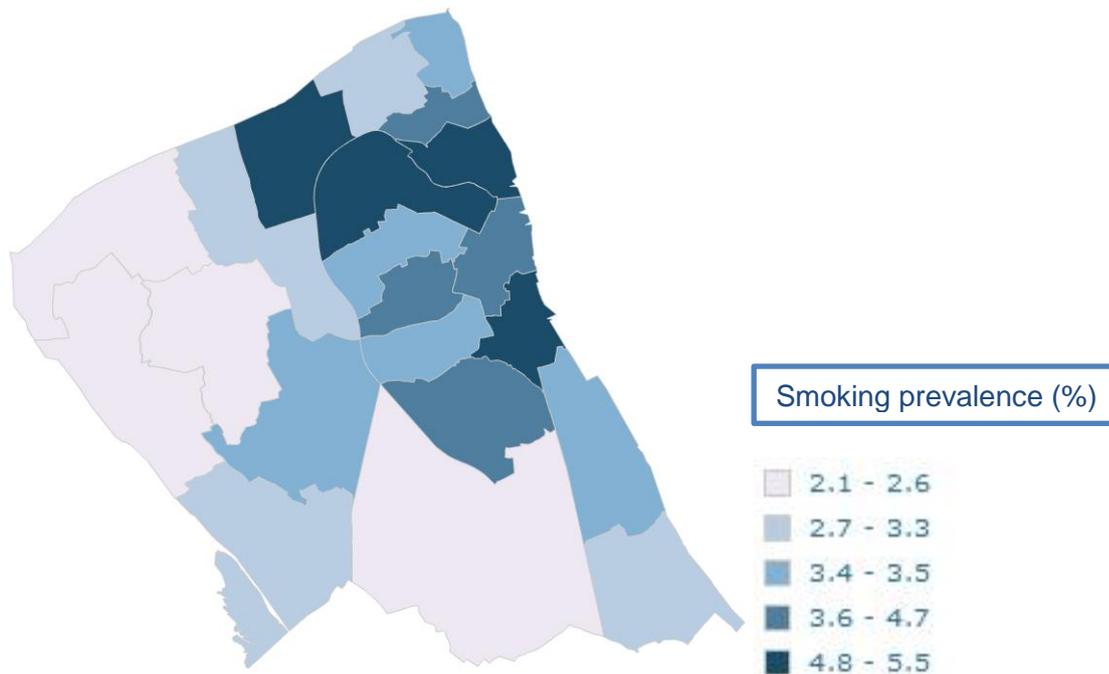
Smoking in Young People

There are estimates of smoking in 11-15 year olds and 16-17 year olds. It is estimated that 3.8% of 11-15 year olds and 17.3% of 16-17 year olds are regular smokers. [Figure 7](#) shows the estimated smoking prevalence in 11-15 year olds by ward in Wirral. There is a clear link between smoking in young people and deprivation. Delivery of evidence-based smoking prevention interventions should be in all schools and other educational establishments and should be linked to their smokefree policy.

⁷ [Olivieri M, Bodini A, Peroni DG, Costella S, Pacifici R, Piacentini GL, Boner AL, Zuccaro P.](#) (2006) Passive smoking in asthmatic children: effect of a "smoke-free house" measured by urinary cotinine levels. [Allergy Asthma Proc.](#) 2006 Jul-Aug;27(4):350-3.

⁸ Jones, L. L., Atkinson, O., Longman, J., Coleman, T., McNeill, A., & Lewis, S. A. (2011). The motivators and barriers to a smoke-free home among disadvantaged caregivers: identifying the positive levers for change. *Nicotine & tobacco research*, ntr030.

Figure 7: Estimated smoking prevalence (regular smokers) by ward in 11-15 year olds, Wirral, estimate for 2009-2012.



Source: PHE (2015).

Smoking in Pregnancy

Smoking in pregnancy is related closely to deprivation, and being single, or having a partner who also smokes. Smoking while pregnant increases the risk of ectopic pregnancy, spontaneous abortion, placenta previa, abruptio placenta, preterm premature rupture of membranes, although decreases risk of preeclampsia and gestational hypertension. It also increases the risk for the infant of low birthweight, infant mortality, infections, asthma, and sudden infant death syndrome (SIDS). Making the financial case to the NHS and maternity hospitals is important as smoking is the biggest cause of intrauterine growth restriction, and is the biggest casual factor for women needing additional ultrasound and Doppler scans. A successful pilot intervention developed by Lisa Fendall in Rotherham reinforces smoking as a health problem in pregnancy and uses a 'risk perception' tool to engage with hard to reach women.⁹ Smoking runs in families so when parents quit it helps to break the cycle. Champix and Zyban are not licensed for use during pregnancy, but some NRT products can be used (80 out of 90 pregnant clients for Wirral were recorded as using NRT). Interventions for smoking in pregnancy need to focus on partners if they smoke as well. A Cochrane review in 2011 found that the evidence around incentives for smoking cessation was mixed. Financial incentives have been found to be successful in some trials in helping pregnant women to quit smoking.

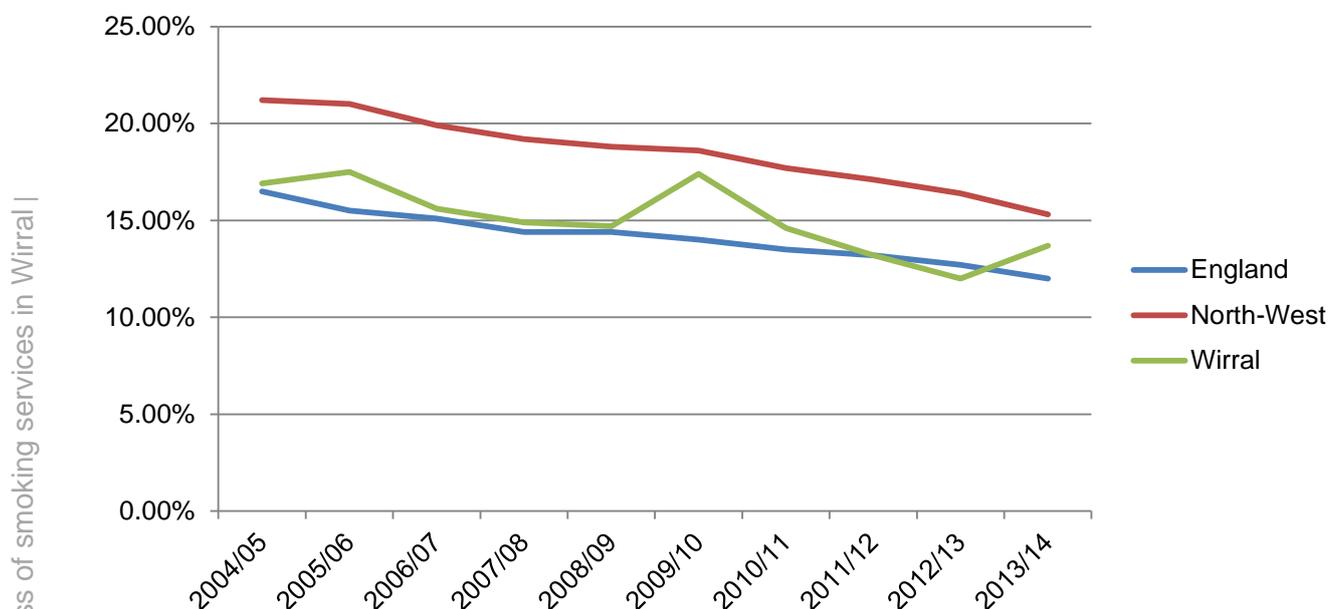
A paper by the Public Health Research Consortium (PHRC) published in 2010 put the NHS costs of maternal increased complication risk as a result of smoking at £8-64million, and infant increased illness risk as £12-23.5million. This paper estimated that spending £13.60-£37.00 per pregnant smoker would yield positive cost savings for the NHS. However this is not particularly useful as real costs of smoking cessation are a lot higher than this. Based on

⁹ http://www.uknsc.org/uknsc2012_presentation_168.php

NICE's model, accounting for early mortality, the child of a quitting mother is likely to experience 23.56 discounted QALYs, compared to 23.54 for the child of a non-quitting mother. This difference is purely accounted for by the total number of life years lost due to premature death. Also the child of a smoking mother is estimated to cost around £371 more on average in health costs than the child of a quitting mother. The NICE model estimated that an expectant mother quitting would produce on average £371 in cost savings and 0.02 incremental QALYs gained. That means that to be considered cost effective (at a cost per QALY of less than £30,000) any intervention would need to cost less than £971 per quitting mother, not taking into account any additional weighting for deprivation. The service in Wirral costs around £1,100 per pregnant smoker who quits at 12 weeks, which may be cost effective once deprivation is taken into account, as pregnant smokers are more likely to be from deprived backgrounds.

Wirral's smoking at time of delivery (SATOD) data has not been published nationally for 2013/14 because the number of maternities has been under-reported, probably due to homebirths, 1 to 1 midwives, or births in hospitals outside of Wirral being missing from the datasets. But based on the data collected for 2013/14 the proportion of mothers smoking at time of delivery was 13.7% while for quarters 1-3 of 2014/15 the proportion was 11.7%. There is a national target to reduce smoking in pregnancy to 11% or less by 2015 and for every midwife in England who conducts antenatal appointments to take a carbon monoxide reading. Services in Wirral have seen an increase in the number of pregnant women quitting smoking over the last three years.

Figure 8: Trend in women smoking at time of delivery (%), Wirral, North West, and England. 2004/05 – 2013/14.



Note: Wirral 2013/14 data was not published nationally due to data quality issues.

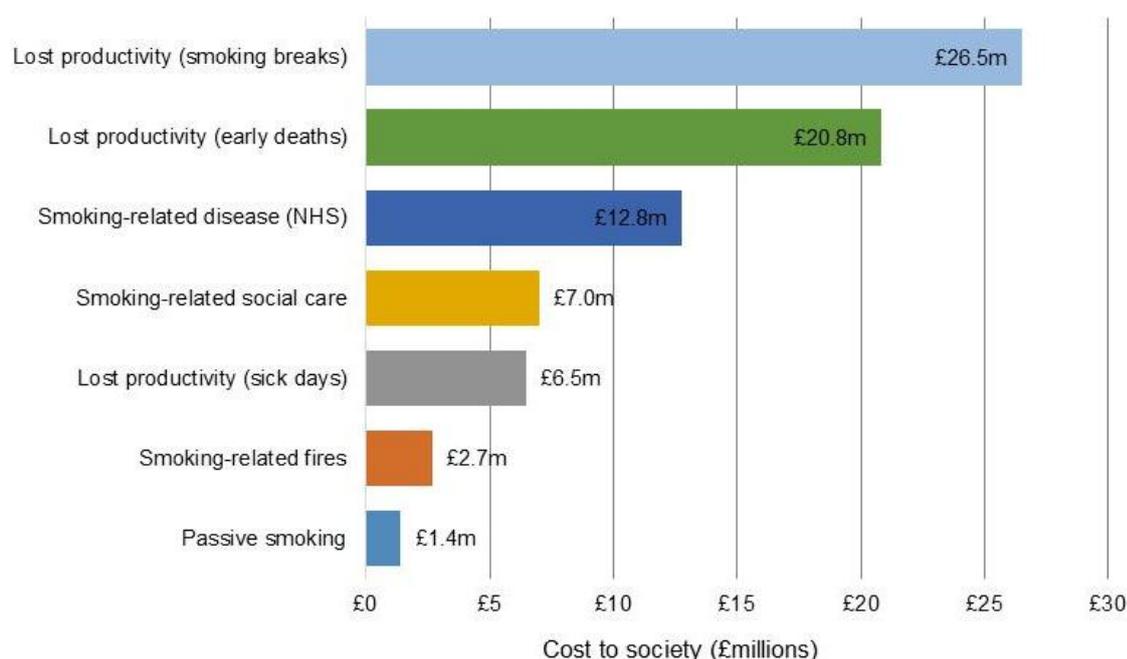
Cannabis Smoking

Many young people smoke cannabis, which is often mixed with tobacco. The international policy environment around cannabis is changing, with it becoming legal in several US states and some countries like Uruguay. Cannabis is not a safe substance and is a risk factor for psychosis and schizophrenia¹⁰ as well as psychosocial problems.¹¹ Lifestyle services should make sure there is a realistic assessment of the risks of smoking cannabis, which can cause cancer on its own, but has an even higher chance of causing cancer and becoming addictive¹² when combined with tobacco.¹³ Previous evidence from Wirral suggested that people who regularly smoke cannabis have lower levels of health and wellbeing than other people of the same age. Previously Wirral commissioned a post to specifically target smoking interventions at young people who may be cannabis users. Smoking shisha products has become more popular with young people in some areas as well.

4. The Cost of Smoking

This information is from the ASH [Action on Smoking and Health] Ready Reckoner. The total cost to society of smoking in Wirral is estimated as £77.6m. Smokers pay an estimated £53.4m in duty to the exchequer, although when people quit smoking this money is not completely lost to society as it will be spent on other goods or services. The biggest costs are through lost productivity, NHS costs, passive smoking and smoking related fires. Locally around 60% of fatalities in residential fires involved smoking materials. There is also a cost of litter produced by smoking materials. [Table 5](#) shows the results by constituency in Wirral.

Figure 9: Estimated costs of smoking in Wirral per year (£millions)



¹⁰ Jonsson, A. J., Birgisdottir, H., & Sigurdsson, E. (2014). [Does the use of cannabis increase the risk for psychosis and the development of schizophrenia?]. *Laeknabladid*, 100(9), 443-451.

¹¹ Degenhardt, L., Coffey, C., Carlin, J.B., Swift, W., Moore, E., Patton, G.C. (2010) Outcomes of occasional cannabis use in adolescence: 10-year follow-up study in Victoria, Australia. *British Journal of Psychiatry* 196:290-295

¹² Bélanger, R.E., Akre, C., Kuntsche, E., Gmel, G., Suris, J.C. (2011) Adding Tobacco to Cannabis—Its Frequency and Likely Implications. *Nicotine & Tobacco Res* (2011) 13(8): 746-750

¹³ Aldington, S., Harwood, M., Cox, B., Weatherall, M., Beckert, L., Hansell, A., ... & Beasley, R. (2008). Cannabis use and risk of lung cancer: a case-control study. *European Respiratory Journal*, 31(2), 280-286.

Table 5: ASH Ready Reckoner results by constituency in Wirral.

Data	Constituency				Wirral Total
	Birkenhead	Wallasey	Wirral South	Wirral West	
Number of smokers from ASH tool	13,155	13,096	10,338	9,765	46,354
Contribution in tobacco duty (£m)	15.2	15.1	11.9	11.2	53.4
Total cost of smoking (£m) - consisting of;	22.0	21.9	17.3	16.4	77.7
Lost productivity (smoking breaks)	7.5	7.5	5.9	5.6	26.5
Lost productivity (early deaths)	5.9	5.9	4.6	4.4	20.8
Smoking-related disease (NHS)	3.6	3.6	2.9	2.7	12.8
Smoking-related social care	2.0	2.0	1.6	1.5	7.0
Lost productivity (sick days)	1.8	1.8	1.4	1.4	6.5
Smoking-related fires	0.8	0.8	0.6	0.6	2.7
Passive smoking	0.4	0.4	0.3	0.3	1.4

5. General Practice Quality and Outcomes Framework (QOF) Smoking Prevalence and Activity Data

NHS General Practices (GPs) are paid based on the number of QOF points they earn. This is a way of incentivising activity. Some of these points are awarded for smoking related activity. This money comes from NHS England and the QOF indicators are determined by NICE. [Table 6](#) shows the QOF indicators; these are for measuring smoking prevalence in people with long term conditions and offering support every 12 months, and measuring smoking prevalence in the total population aged 15 and over, and offering support every 24 months. Smoking prevalence is also measured in GP surveys which are carried out each year; in 2013/14 10% of adults reported being regular smokers and 7% occasional (this is also available at practice level but the sample size gets quite small so is subject to a lot of uncertainty). This prevalence is lower than other estimates.

Table 6: QOF Indicators, 2013/14.

Indicator	Description
SMOK002: status recorded in last 12 months (certain conditions) Wirral performance 2013/14 – 95.3%	The percentage of patients with any or any combination of the following conditions: coronary heart disease, PAD, stroke or TIA, hypertension, diabetes, COPD, CKD, asthma, schizophrenia, bipolar affective disorder or other psychoses whose notes record smoking status in the preceding 12 months; NICE 2011 menu ID: NM40
SMOK005: cessation support and treatment offered (certain conditions) Wirral performance 2013/14 – 91.8%	The percentage of patients with any or any combination of the following conditions: coronary heart disease, PAD, stroke or TIA, hypertension, diabetes, COPD, CKD, asthma, schizophrenia, bipolar affective disorder or other psychoses who smoke whose notes contain a record of an offer of support and treatment within the preceding 12 months; NICE 2011 menu ID: NM39
SMOK001: record of smoking status in last 24 months (15+ y) Wirral performance 2013/14 – 86.7%	The percentage of patients aged 15 years and over whose notes record smoking status in preceding 24 months
SMOK004: record of offer of support and treatment (15+, last 24 months) Wirral performance 2013/14 – 82.0%	The percentage of patients aged 15 years or over who are recorded as current smokers who have a record of an offer of support and treatment within the preceding 24 months. NICE 2011 menu ID: NM40

In general most practices perform above 85% in terms of measuring smoking status in the last 24 months, and offering support to smokers. There are four practices that have high estimated smoking rates, but lower rates of support being offered to smokers; these are Devaney MC, Egremont MC, Gladstone MC and Woodchurch MC. These practices could be given more support around referring their smokers into services.

Table 7: Wirral GP Practice Performance on population QOF targets, average of 2012/13 and 2013/14.

Code	Practice	Smoking prevalence from GP survey (%) (average of 2 years 2012-14)	QOF SMOK001: Smoking prevalence measured (%) (average of 2012-14)	QOF SMOK004: Support offered to smokers (%) (average of 2012-14)
N85003	ALLPORT MEDICAL CENTRE - WALTON H	15.4	88.4	88.6
N85648	BLACKHEATH MED CENTRE - QUINN BNE	13.3	91.4	91.4
N85017	CAVENDISH MEDICAL CENTRE - MELVILLE JA	30.1	87.5	89.3
N85027	CENTRAL PARK MEDICAL CENTRE - MUKHERJEE SK	23.0	44.4	73.5
N85633	CHURCH ROAD MEDICAL CENTRE	17.7	91.0	89.5
N85006	CIVIC MEDICAL CENTRE - PILLOW SJ	4.9	88.3	73.3
N85044	CLAUGHTON MEDICAL CENTRE	12.7	85.6	74.7
N85009	COMMONFIELD RD SURGERY - BRODBIN C	19.9	87.9	80.8
N85015	DEVANEY MED CENTRE - BATES JW	32.1	86.4	81.1
N85005	EASTHAM GROUP PRACTICE - BUSH KJ	9.0	85.4	88.9
N85629	EGREMONT MED CENTRE - HICKEY JJM	31.8	87.8	83.7
N85029	FENDER WAY HEALTH CENTRE - REAM JE	17.3	71.8	64.1
N85053	FIELD RD HEALTH CENTRE - DOWNWARD DC	18.4	87.8	82.9
N85031	GLADSTONE MED CENTRE - SALAHUDDIN M (QOF data for 2013/14 only)	36.6	84.2	81.4
N85032	GREASBY GROUP PRACTICE - COPPOCK PJ	9.3	83.1	65.6
N85041	GREENWAY SURGERY	23.5	86.8	77.9
N85620	GROVE MED CENTRE - ROBERTS A	23.3	89.4	87.4
N85052	GROVE RD SURGERY - TANDON R	11.0	90.6	99.0
N85021	HAMILTON MED CENTRE - JAYAPRAKASAN CA	29.2	91.0	91.6
N85037	HEATHERLANDS MED CENTRE - CAMPHOR IA	26.9	93.5	92.6
N85007	HESWALL & PENSBY GROUP PRACTICE - RULE EM	4.0	76.4	93.9
N85022	HOLMLANDS MED CENTRE - JOSHI VK	18.8	92.3	90.4
N85059	HOYLAKE & MEOLS MEDICAL CENTRE - WIGHT JA	12.3	87.2	88.1
N85046	HOYLAKE RD MED CENTRE - ALI A	14.0	88.9	76.1
N85054	KINGS LANE MED CENTRE - KERSHAW D	13.5	87.0	71.7
N85640	LEASOWE PRIMARY CARE CENTRE - SWIFT ND	19.6	79.1	74.7
N85616	LISCARD GROUP PRACTICE - STAPLES B	20.9	84.6	78.1
N85023	MANOR HEALTH CENTRE - MAGENNIS SPM	17.8	94.4	77.1
N85625	MANTGANI AB & PARTNERS (MIRIAM-PC892)	29.4	91.2	92.4
N85619	MANTGANI AB & PARTNERS(EARLSTON-PC913)	18.8	90.6	90.4
N85028	MORETON CROSS GROUP PRACTICE - ALMAN R	20.7	83.5	73.2
N85040	MORETON HEALTH CENTRE - WRIGHT JEM	16.4	86.7	77.9
N85048	MORETON MEDICAL CENTRE - PEREIRA A	20.7	90.5	83.2
N85047	ORCHARD SURGERY - LANNIGAN BG	6.7	79.1	98.6
N85034	PARKFIELD MED CENTRE - HAWTHORNTHWAITA EM	13.7	88.2	78.2
N85051	PARKFIELD MEDICAL CENTRE	16.3	93.6	87.1
N85643	PRENTON MEDICAL CENTRE MURUGESH V	7.8	90.6	97.8
N85016	RIVERSIDE SURGERY - WILLIAMS RM	25.0	81.9	76.1
N85058	SILVERDALE MED CENTRE - HENNESSY TD	10.1	89.4	93.3
N85024	SOMERVILLE MED CENTRE - SMYE RA	23.8	90.7	90.9
N85617	SPITAL SURGERY - FRANCIS GG	6.8	89.0	94.4
N85025	ST HILLARY GROUP PRACTICE	13.0	86.6	80.0
N85012	ST.GEORGES MED CTR - RUDNICK S	20.3	86.1	89.1
N85057	TEEHEY LANE SURGERY - SAGAR A	15.2	91.5	83.6
N85001	THE MEDICAL CENTRE	9.4	91.4	84.7

Code	Practice	Smoking prevalence from GP survey (%) (average of 2 years 2012-14)	QOF SMOK001: Smoking prevalence measured (%) (average of 2012-14)	QOF SMOK004: Support offered to smokers (%) (average of 2012-14)
N85014	TOWNFIELD HEALTH CENTRE	15.1	88.1	92.8
N85013	UPTON GROUP PRACTICE_LARKIN PS	13.3	84.9	82.7
N85020	VICTORIA PARK HEALTH CENTRE - FREEMAN MJ	22.9	77.6	80.7
N85018	VILLA MED CENTRE - COOKSON NMP	8.1	92.0	89.2
N85634	VITTORIA MED CENTRE - MURTY KS	28.3	91.8	90.0
N85038	VITTORIA MEDICAL CENTRE - EDWARDS RW	34.3	90.5	95.6
N85056	WALLASEY VILLAGE GROUP PRAC - CAMERON EF	17.4	87.5	78.7
N85002	WEST KIRBY HEALTH CENTRE - WELLS SM	15.0	85.4	93.6
N85008	WEST WIRRAL GROUP PRACTICE - JOHNSTON AR	9.7	85.6	85.0
N85019	WHETSTONE LANE MED CENTRE - PLEASANCE CM	28.6	84.0	91.0
Y02162	WOODCHURCH MED CTR_MARTIN-HIERRO ME	31.2	83.9	80.2
	Wirral total	18.1	85.2	84.4

Data from Public Health England <http://fingertips.phe.org.uk/profile/general-practice>

6. Structure of Services & Spend

Wirral has an integrated local model that attempts to focus on a systems approach for tackling tobacco; shown in

: This model includes efforts to normalise smokefree lifestyles, monitoring and evaluation, and enforcement to tackle illegal and illicit tobacco and underage sales. The majority of spend is currently on stop smoking services which include psychosocial support and pharmacotherapy. Wirral was recently visited by CLear who have a model of tobacco control. The recommendations from this peer visit will be available on the JSNA in June 2015, shown in [Figure 11](#). Wirral Council is working towards promoting all of its premises as being smokefree.

Figure 10: Wirral model for tackling tobacco.



Figure 11: CLeaR Tobacco Control model.

CLeaR stands for the three linked domains of the model:



Challenge for your existing tobacco control services – based on evidence of the most effective components of comprehensive tobacco control, as outlined in NICE Guidance and *“Healthy Lives, Healthy People, a Tobacco Control Plan for England”*.

Leadership for comprehensive action to tackle tobacco.

Results demonstrated by the outcomes you have delivered against national and local priorities.

Wirral has one main specialist provider for stop smoking services, Wirral Community Trust (CT), as well as many third sector providers who are paid on a payment by results (PbR) basis, for achieving 4 week quits as well as 12 week quits. The overall spend by Wirral Council was around £1.57million in 2013/14. This cost may not include all of the overheads as well as activity from Health Action Areas and by Health Trainers who may signpost or support clients through their journey with smoking cessation services. Stop smoking advice is provided in a range of venues including pharmacies and community venues, and is delivered in one to one, couples, groups, drop in, and over the telephone. This spend includes NRT that is given out by services commissioned by Wirral Council. Individuals can also buy their own NRT products in shops or over the counter in pharmacies.

Table 8: Public Health Spend on smoking and tobacco control, Wirral, 2013/14 financial year.

Category	Total spend	% of total public health spend
Smoking and tobacco - Stop smoking services and interventions	£1,534,826	6.7%
Smoking and tobacco - Wider tobacco control	£2,500	0.01%

The stop smoking services give out nicotine replacement therapy (NRT) but do not prescribe other pharmacological agents, Champix and Zyban, which currently need to be prescribed by a General Practitioner or Nurse Prescriber so fall under the Wirral CCG budget. Zyban is an antidepressant type drug which relieves the withdrawal symptoms from quitting smoking. Zyban has fallen out of use since Champix came onto the market in 2006 as Champix is more effective on average. Champix is a drug which partially blocks the nicotine receptor in the brain, reducing the effects of nicotine withdrawal while also blocking some of the pleasurable effects of smoking. Champix is effective but often has side effects, most

commonly nausea and sleep disorders. There is a drug, Cytisine, which is similar in action to Champix, possibly with fewer side effects, which if it was licensed, could be a very cheap alternative to Champix and make cost less of an issue.¹⁴

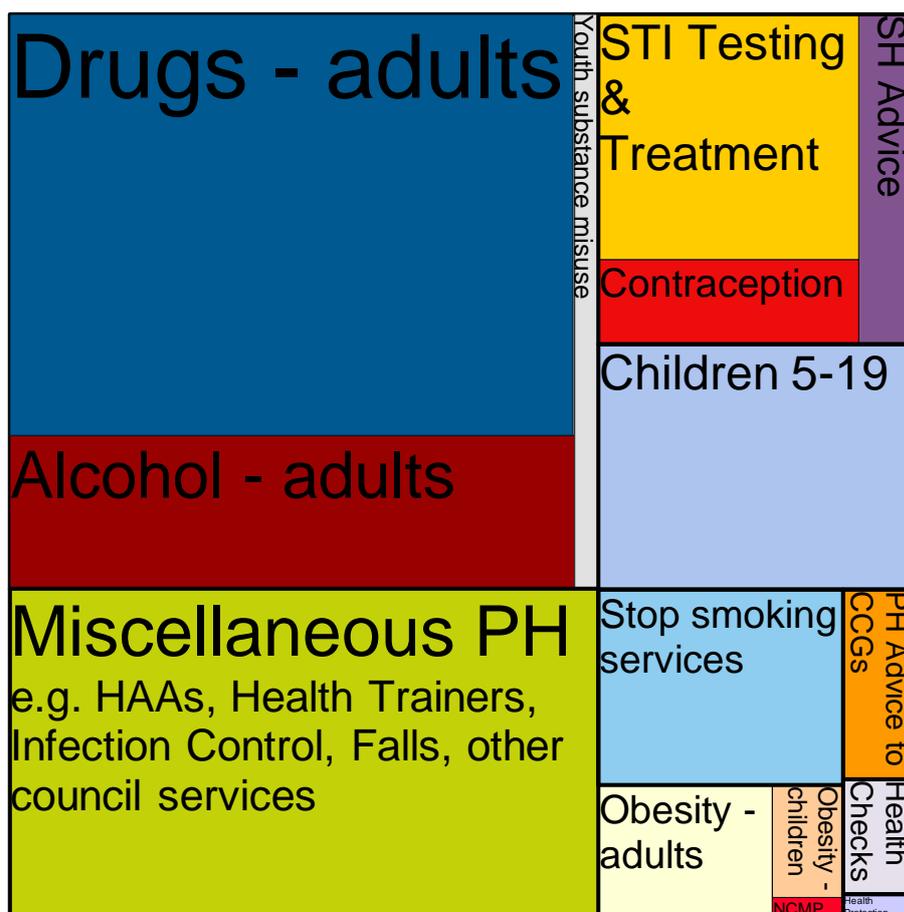
Table 9: Wirral CCG Prescribing of smoking cessation agents, 2013/14

Agent	Number of items	Cost	Average cost per item
Bupropion [Zyban]	72	£2,512	£34.88
Nicotine products	1,941	£39,905	£20.56
Varenicline [Champix]	8,654	£243,518	£28.14

7. Benchmarking Public Health Spend on Smoking & Tobacco Control

In 2013/14 Wirral Council spent around £1.57million on smoking & tobacco control which was around 6% of the total public health spend, and a spend per head of £4.80 per head of population. Wirral’s total public health spend per head is significantly higher than England.

Figure 12: Chart showing total expenditure on public health categories. Area = proportion of spend, 2013/14.



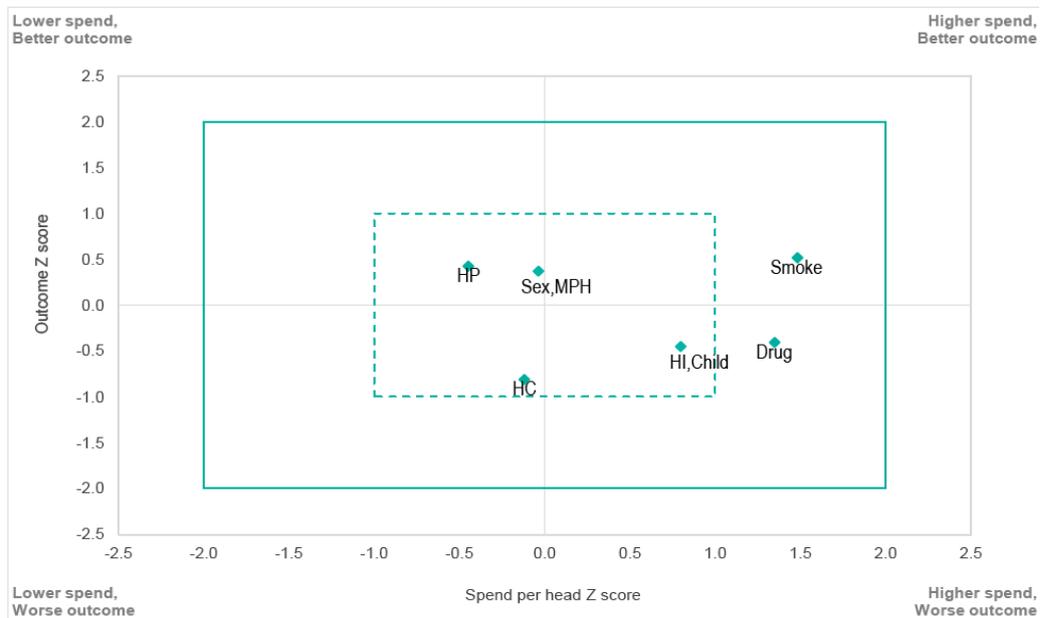
¹⁴ Leaviss, J., Sullivan, W., Ren, S., Everson-Hock, E., Stevenson, M., Stevens, J. W., ... & Cantrell, A. (2014). What is the clinical effectiveness and cost-effectiveness of cytisine compared with varenicline for smoking cessation? A systematic review and economic evaluation. *Health Technol. Assess.*, 18(1).

PHE Spend & Outcome Tool

PHE published a [spend and outcome tool for local authorities](#) in August 2014. Previously similar tools have been published for CCGs and for PCTs. The tool supports understanding of the overall relationship between spend and outcomes, by identifying areas of significant variance which are likely to require more in-depth analysis. It includes all areas of local authority spend but focuses on public health in more detail. The outcomes data comes from a range of sources including PHOF (Public Health Outcomes Framework), ASCOF (Adult Social Care Outcomes Framework), HSCIC (Health and Social Care Information Centre), DEFRA, and CLG etc. The public health spend data is based on total net spend from the first cut of data submitted to DCLG although is categorised into smaller programme budgeting categories.

The main outcome in the tool is adult smoking prevalence although it also looks at routine & manual smoking prevalence and pregnant women smoking at time of delivery. Tobacco control and smoking was classed as having higher spend and better outcomes; this was because smoking prevalence in Wirral was lower than average ([Figure 13](#)).

Figure 13: Quadrant Chart from PHE Public Health Spend and Outcome Tool.



Z score:

A z score essentially measures the distance of a value from the mean (average) in units of standard deviations. A positive z score indicates that the value is above the mean, whereas a negative z score indicates that the value is below the mean. A z score below -2 or above +2 may indicate the need to investigate further. Each dot represents a programme budget category.

Public health quadrant chart key	
Child	Child PH
Drug	Justice PH
HC	Healthcare PH
HI	Health Improvement
HP	Health Protection
MPH	Mental PH
Sex	Sexual Health
Smoke	Tobacco Control

8. Number of service users and quitters by year

Services in Wirral have had over 70,000 clients and over 29,000 quitters in the first 15 years of the millennium. Unfortunately 2013/14 was the least successful year for ten years in terms of numbers of quitters using services. In 2010/11 Wirral had a social marketing campaign, 'Your Reason Your Way', which produced a lot of quit attempts but a lower quit rate. The

most successful year was 2011/12 which had 'Your Reason Your Way' integrated with the 'Quit Stop' campaign which had an outreach campaign on a van.

Table 10: Number of quit dates and quit rate by year, Wirral

Time Period	Numbers Of Quit Dates Set	Numbers Of Clients Quitting After 4 Weeks	Quit Rate %
2000/2001	791	507	64.1
2001/2002	909	497	54.7
2002/2003	3,688	1,709	46.3
2003/2004	4,507	1,991	44.2
2004/2005	5,506	2,533	46.0
2005/2006	5,637	2,383	42.3
2006/2007	5,675	2,203	38.8
2007/2008	6,087	2,188	35.9
2008/2009	5,271	2,359	44.8
2009/2010	6,624	2,812	42.5
2010/2011	8,738	3,101	35.5
2011/2012	8,121	3,377	42.0
2012/2013	5,268	2,183	41.4
2013/2014	3,982	1,727	43.4

9. Service Activity 2013/14

This analysis is all based on data from the Quit with Us database.

Source of Referrals

The majority of referrals were recorded as self-referrals, followed by GPs and midwives. Based on health checks data (year to date for 2014/15) there were 36 referrals to stop smoking services as a result of health checks. There may be some coding issues or some GPs who have not submitted their data but the overall number seems to be quite low.

Table 11: Smoking clients by source of referral, Wirral, 2013/14

Source	Number	%
Self	3407	83.1%
GP	142	3.5%
Midwife	133	3.2%
Wirral Change	133	3.2%
Walk In	34	0.8%
Stoptober	31	0.8%
Pharmacy	24	0.6%
LTC PROJECT	23	0.6%
Practice Nurse	22	0.5%
Stoptober2013	17	0.4%
Health Trainer	14	0.3%
Other (including unspecified)	120	2.9%
Total	4100	100.0%

Number of Quitters by Provider

Overall 4 week quit rates were slightly higher for the third sector providers (44.1%) than for Wirral CT (41.5%). Wirral CT has a higher target quit rate than the third sector providers. The service for pregnant women, MeTime, had a particularly high quit rate (57%, 71 quitters) although this is more intensive than other services and has a higher cost per client, at around £1,100 per client.

Based on the Quit With Us data third sector providers had a higher proportion of quits that were confirmed with carbon monoxide (CO) readings (97%) than WCT (74%). The overall rate was 79%.

Client Characteristics & Quit Methods Influence on Quit Rates

In a regression analysis type of referral, age group, ethnicity, CVD and COPD status, quit method, and specifically Champix use were all significant predictors of whether or not somebody quit, although the overall impact of each of these factors was small.

Quit rates by type of intervention

Telephone support had the highest quit rate but most were self-reported rather than CO validated. Telephone support may be less intensive than other forms of support, although may attract people who are better motivated to quit.

Table 12: Quit rates by type of intervention, Wirral, 2013/14.

Type of intervention	Number of 4 week quits	Number of Unsuccessful quit attempts	Total clients	Quit (%)	Quits that were CO validated (%)
Closed Groups	80	89	169	47%	93%
Drop In	272	294	566	48%	74%
Family/Couples	7	7	14	50%	100%
One To One	1272	1903	3175	40%	83%
Open Groups	39	42	81	48%	82%
Telephone Support	56	39	95	59%	11%
Grand Total	1,726	2,374	4,100	42%	80%

Quit rates by quit method

Champix [Varenicline] had a much higher success rate than any of the other major quit methods. Although Champix is much more expensive (the cost is quoted as £164), this higher quit rate would suggest that the additional investment is worth it and that it should be recommended to all smokers who are eligible and willing to try it. Like any pharmacological agent Champix has side effects and contraindications. The database does not have fields to accurately record whether people are using combination NRT or mono NRT. The evidence is that combination NRT has a higher quit rate, although for the small number of people in Wirral that were definitely using combo NRT the quit rate was actually lower than average. We know that Public Health were billed for 9,452 NRT vouchers in 2013/14 but we do not know how many people had the same type of NRT more than once, and how many had more than one at the same time which is more effective for people with a high level of dependence. Based on speaking to local services it is estimated that around 75% of clients use combo NRT, with the most popular combination being patches and an inhalator,

followed by patches and gum. Zyban [Bupropion] is not used very often any more but had a high quit rate for those who used it.

Table 13: Quit rates by method, Wirral, 2013/14.

Quit Method	Number of 4 week quits	Number of Unsuccessful quit attempts	Total clients	Quit (%)
Champix	627	419	1046	60%
Combo NRT	12	51	63	19%
NRT [unspecified]	987	1714	2701	37%
Other	91	185	276	33%
Zyban	9	5	14	64%
Total	1,726	2,374	4,100	42%

Clients by Fagerström Nicotine Dependence Test Score

Fagerström nicotine dependence scale was measured for 50% of clients using services in Wirral. This assesses how dependent someone is on nicotine by asking questions about smoking behaviour, such as whether someone smokes within the first 5 minutes of waking, or whether someone continues to smoke when they are sick in bed, and how many cigarettes someone smokes per day. Over the last 10 years, in addition to fewer people smoking overall, the level of dependence of people who continue to smoke has dropped. Fagerström dependence scale is useful in understanding how strong someone's urge to smoke is, and can be used in formulating how much NRT to give. Most clients in stop smoking services had a low level of dependence while only 2.4% had high dependence. The group with highest level of dependence had the highest quit rate but these differences were not statistically significant. I would like to recommend here doing a case analysis on those with high dependency who quit to understand their triggers/motivations to quit

Table 14: Proportion of clients recorded and 4 week quit rate, Wirral, 2013/14.

Group	Fagerström Group	Quit	Didn't quit	Total	Proportion of clients who had Fagerström measured (%)	Quit rate (%)
1	low dependence	578	818	1396	68.0%	41%
2	low-mod dependence	189	251	440	21.4%	43%
3	moderate dependence	69	100	169	8.2%	41%
4	high dependence	23	26	49	2.4%	47%
	Total with Fagerström measured	859	1195	2054	100.0%	42%

Quit rates by age and gender

The average age of service users was 43 years. There were 2,309 females and 1,784 males in the service (7 with no gender recorded). The biggest age/gender groups were females 18-34 and 45-59. The highest quit rate was in women aged over 45 and men aged over 35 while younger groups had lower quit rates.

We used estimated smoking by age group and gender from the North West wellbeing survey and compared it to quits in 2013/14. Estimated smoking rates were higher in younger females than males, and were much higher for older males than older females. There is a healthy survivor effect in the older age group, with smokers less likely to survive as long as non-smokers or ex-smokers.

Table 15 Estimated smoking prevalence by age and gender in Wirral.

Age Group	Females	Males
18-34	31.36%	24.63%
35-44	33.18%	35.66%
45-59	21.94%	26.49%
60+	9.26%	21.92%
Grand Total	21.85%	26.01%

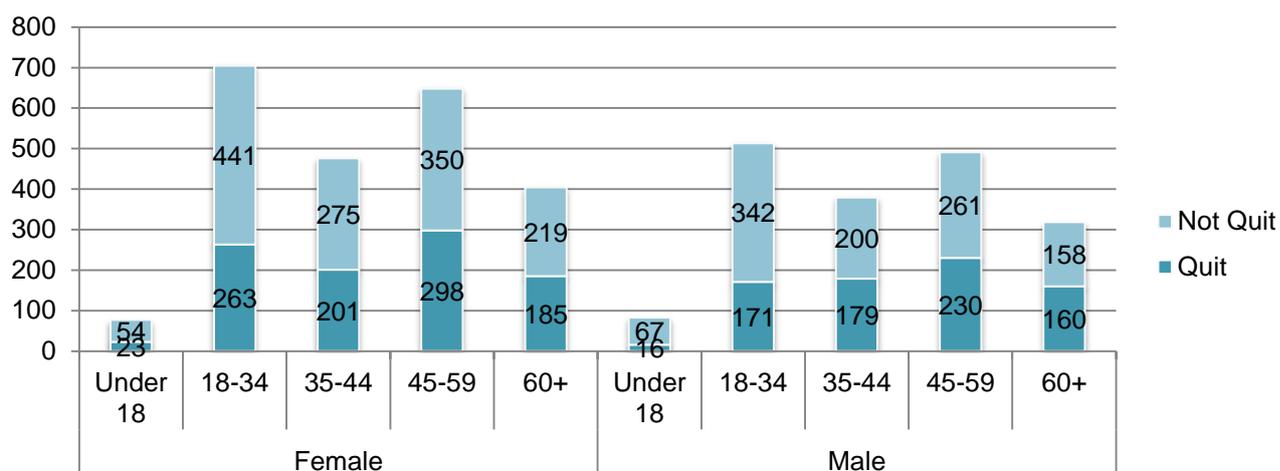
The age group with most quits per smoker is females aged 60+, while the age group with fewest quits per smoker is males aged 60+. This indicates that maybe more needs to be done to get older men into smoking cessation. For younger men aged 18-34 there was a high rate of attempts but a lower rate of successful 4 week quits so more tailored support needs to be offered to this group to retain their motivation to quit.

Table 16: Estimated number of smokers, smoking prevalence and quits per 100 smokers, by age and gender in Wirral. Based on Quit with Us Data for 2013/14 financial year

Gender	Age group	Population	Estimated Number of smokers	Number of quit attempts	4 week quits	Attempts per 100 smokers	Quits per 100 smokers
Females	18-34	31033	9731	704	263	7.2	2.7
Females	35-44	20953	6953	476	201	6.8	2.9
Females	45-59	35004	7681	648	298	8.4	3.9
Females	60+	46253	4282	404	185	9.4	4.3
Males	18-34	29732	7322	513	171	7.0	2.3
Males	35-44	19276	6873	379	179	5.5	2.6
Males	45-59	32550	8624	491	230	5.7	2.7
Males	60+	37786	8282	318	160	3.8	1.9

Quit attempts with no age or gender recorded have been excluded.

Figure 14: Number of smoking service users and quitters by age group and gender, Wirral, 2013/14.



Quit rates by ethnic groups

Table 17 shows quit rates by ethnic groups. Some groups had low numbers using the services (less than 10) so making any strong judgment on the quit rates in these groups may not be useful. But in general it seems that overall, Asian groups have similar quit rates to White British groups while 'Other White' background and 'White Irish' groups have low quit rates, and 'Chinese' and 'any other ethnic group' have particularly low quit rates.

Table 17: Smoking quit rates by ethnic groups, 2013/14.

Ethnic Group	Low numbers (less than 10 service users) – use with caution	Quit rate
Any other Asian background		39.6%
Any other Black background	Y	25.0%
Any Other Ethnic Group		13.3%
Any Other Mixed Background	Y	60.0%
Any Other White Background		29.2%
Asian or Asian British Bangladeshi		40.9%
Asian or Asian British Indian	Y	50.0%
Asian or Asian British Pakistani	Y	66.7%
Black or Black British – African	Y	25.0%
Mixed White and Black African	Y	80.0%
Mixed White and Black Caribbean	Y	16.7%
Not Stated		35.2%
Other Ethnic Groups Chinese		19.0%
White and Asian	Y	25.0%
White British		43.8%
White Irish		29.0%
Grand Total		42.1%

CVD & COPD

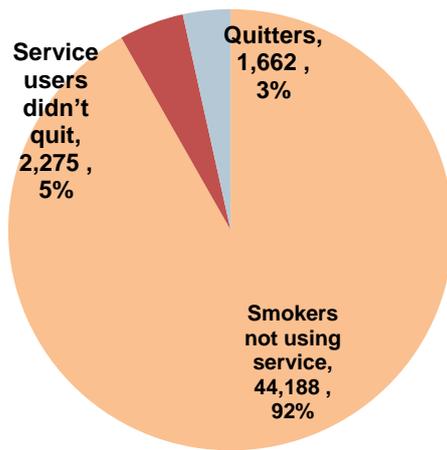
Individuals who had either CVD [cardiovascular disease e.g. coronary heart disease or stroke,], COPD [chronic obstructive pulmonary disease or chronic lung disease] or had both

diseases had slightly higher quit rates than other smoking service users, at around 46% quitting at 4 weeks, however their quit rates were similar to other people in the same age groups. CVD can often be caused partially or wholly by smoking, while around 98% of COPD is caused by long term smoking.

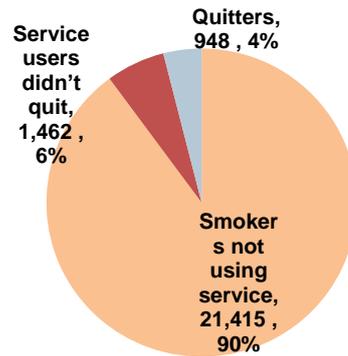
Quitters as a Proportion of Smokers

This series of pie charts show the estimated number of smokers in each category, with the number of service users who did not quit and the number who did quit. There will be some cross over between groups, i.e. someone could be from a routine and manual employment group, as well as being from a BME group, in the most deprived quintile, and a pregnant woman. The pregnant women estimate is based on the number of maternities in a year in Wirral. With pregnant women estimating the actual population is complicated because a proportion of women will become pregnant in any given year and there will be miscarriages, terminations and premature births. These charts show that BME groups and young people have a high proportion of people in service who do not successfully quit for 4 weeks.

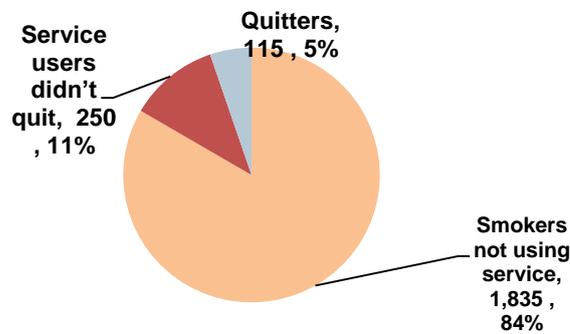
1. All adult smokers



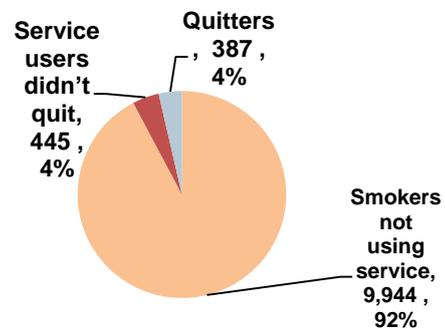
2. Most Deprived Quintile Nationally



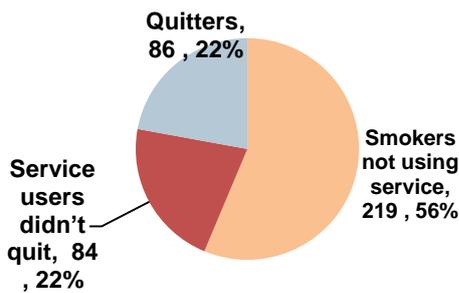
3. BME Groups



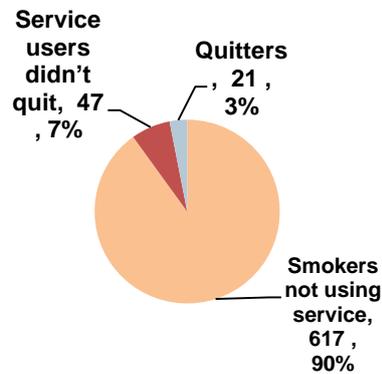
4. Routine & Manual Groups



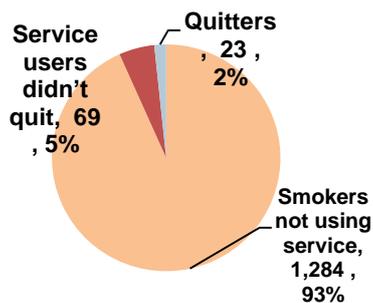
5. Pregnant Women



6. Young People Aged 11-15



7. 16-17 year olds



Mosaic Public Sector Analysis

Mosaic is a geo-demographic population classification tool used to segment the population according to the type of neighbourhood in which they live. It is constructed from a range of data sources including the Census, consumer behaviour and lifestyle factors and is a useful tool for gaining more in-depth population insight. Mosaic segments the population into 15 Groups and 66 Types based on postcode and can indicate areas where certain issues are more prevalent. A [profile of Wirral by Mosaic](#) is available on the Wirral JSNA. A piece of work was carried by Sarah Kinsella from Wirral Council which looked at smoking cessation uptake and success by Mosaic Group.¹⁵

This found that the largest percentages of smokers accessing services came from the most deprived Mosaic Groups where smoking is most prevalent (e.g. Groups M, N and O). However, there are other Mosaic Groups with large numbers of smokers, who do *not* appear to be accessing the service in the numbers that may be expected, namely Groups H and E ([Table 18](#)), who are actually likely to quit when they do access services.

The groups with the highest numbers of smokers are likely to rent property in terraced streets or social housing and are likely to be on low to middle incomes, in routine and manual jobs, and use short term debt solutions like payday loans, so have a lot of potential to benefit financially from quitting smoking. These groups often do not have landline phones and are low users of technology but use mobile phones and shop in local shops rather than online.

Table 18: Estimated number of smokers and uptake of stop smoking services by Mosaic Groups.

Mosaic Group	Population in Wirral (aged 15+)	All smokers (aged 15+)	Stop Smoking Service clients (no.)	% of smokers using Stop Smoking Service
A Country Living	909	87	1	1.1%
B Prestige Positions	28,001	2,079	62	3.0%
C City Prosperity	1	0	0	0.0%
D Domestic Success	17,683	2,105	79	3.8%
E Suburban Stability	34,065	5,416	204	3.8%
F Senior Security	35,469	3,023	205	6.8%
G Rural Reality	294	46	3	6.5%
H Aspiring Homemakers	30,397	5,937	325	5.5%
I Urban Cohesion	2,002	349	25	7.2%
J Rental Hubs	6,957	2,183	152	7.0%
K Modest Traditions	20,584	4,841	326	6.7%
L Transient Renters	25,738	9,387	837	8.9%
M Family Basics	27,912	9,079	889	9.8%
N Vintage Value	22,368	4,245	457	10.8%
O Municipal Challenge	12,757	5,025	452	9.0%
Total	265,137	53,802	4,017	7.5%

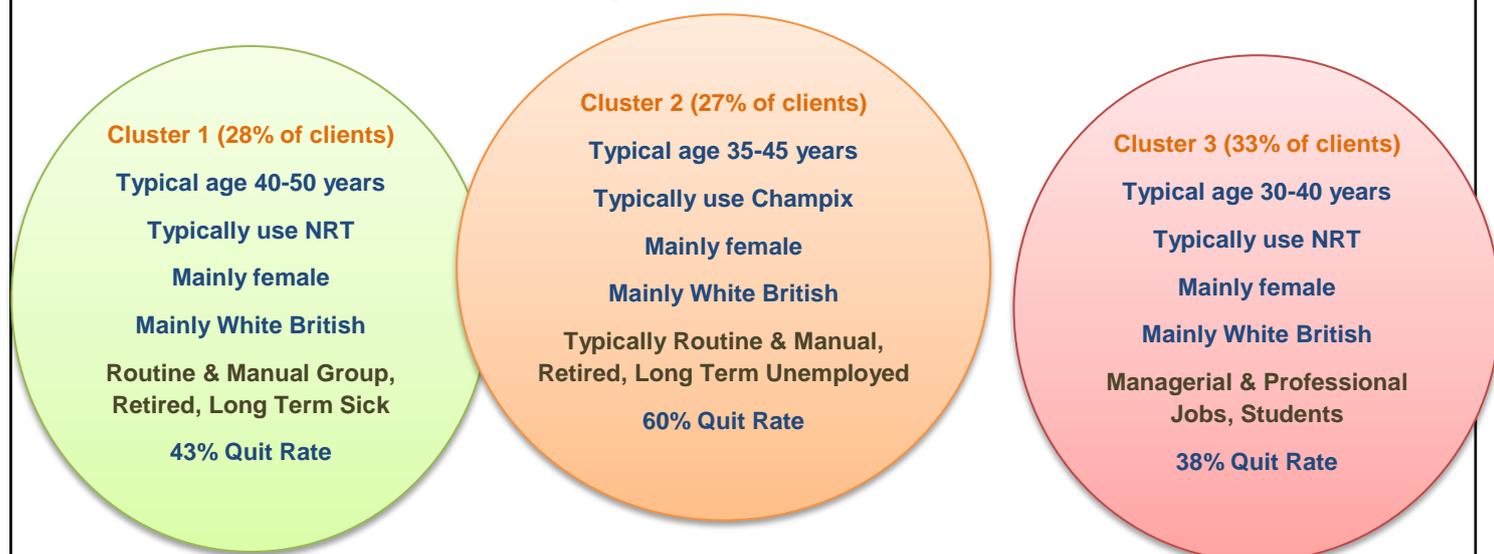
Source: Mosaic TGI data, 2014

¹⁵ Available at: http://info.wirral.nhs.uk/document_uploads/sarah-kinsella/Comparing_Smoking_service_users_to_4wk_quitters_using%20Mosaic_January_2015.pdf

Cluster Analysis

A cluster analysis was carried out in SPSS to see if certain characteristics of smoking clients from 2013/14 clustered together and whether these clusters were associated with differences in quit rates. The clusters generated were not statistically significant but may still be useful in thinking about a 'typical' smoking service client. It may actually be that a 'typical' client does not exist.

Three clusters accounted for around 87% of clients. The description of the clusters describes a typical client in each cluster; clearly there will be a level of diversity underneath this; for instance each cluster is mainly female but we know that 43% of service users were male. The main factor in terms of predicting quit rate is use of Champix.



10. Equity Impact Analysis

An equity impact analysis is looking at uptake of services compared with need, taking into account Marmot's idea of 'proportionate universalism' that services should be universal, but with a scale and intensity that is proportionate to the level of disadvantage.

We estimated smoking prevalence by deprivation quintile using estimated 16+ populations by LSOAs (2011 Census). For smoking prevalence we used smoking by deprivation quintile data for Wirral from the North West Wellbeing Survey, 2013. This is shown in [Table 19](#).

Table 19 Smoking prevalence by deprivation quintile in Wirral

	Deprivation Quintile	Current smoker	Ex-smoker	Non smoker	Total
1	Most deprived	37%	29%	34%	100%
2	Second most deprived	21%	35%	44%	100%
3	Third most deprived	29%	38%	33%	100%
4	Fourth most deprived	14%	25%	61%	100%
5	Least Deprived	6%	27%	67%	100%

This was then used to calculate estimated number of smokers by LSOA in Wirral, and gave a total number of smokers of 54,684 (21% of the adult population) which is in the same ballpark as other estimates which are generally between 18-23% of the population. For each LSOA the number of quit attempts and number of 4 week quits was also matched up and the ratio of quit attempts and quits per 100 smokers was calculated.

Results

The results show that the most deprived wards have the highest ratio of quit attempts and quits per 100 smokers. The lowest ratios were for Hoylake and Meols and for Pensby and Thingwall. However the estimates for smoking prevalence are quite crude, so it may be that these wards have a lower number of smokers than these estimates suggest. These results may be used to see if more needs to be done to engage with smokers from Pensby & Thingwall. Evidence suggests that being from a more affluent background has a protective effect so that smokers from deprived areas are more like to die from smoking related diseases than affluent smokers, which means it is important to focus on smokers from deprived areas.

Table 20: Estimated number of smokers, smoking prevalence and quits per 100 smokers, Wirral wards. Based on Quit with Us Data for 2013/14 financial year

Ward	Estimated smokers	N	Estimated smoking prevalence	Sum of Clients	Sum of Quitters	Quit attempts per 100 smokers	4 week quits per 100 smokers
Bebington	2723		18%	137	65	5.0	2.4
Bidston and St James	3074		34%	342	141	11.1	4.6
Birkenhead and Tranmere	4289		34%	496	171	11.6	4.0
Bromborough	2856		24%	201	106	7.0	3.7
Clatterbridge	790		8%	29	14	3.7	1.8
Claughton	3642		29%	209	80	5.7	2.2
Eastham	1900		17%	164	88	8.6	4.6
Greasby, Frankby and Irby	1269		9%	43	21	3.4	1.7
Heswall	908		7%	40	20	4.4	2.2
Hoylake and Meols	1893		16%	47	18	2.5	1.0
Leasowe and Moreton East	2768		26%	267	126	9.6	4.6
Liscard	3352		26%	262	110	7.8	3.3
Moreton West and Saughall Massie	2854		23%	148	86	5.2	3.0
New Brighton	2899		25%	185	80	6.4	2.8
Oxton	1971		18%	122	57	6.2	2.9
Pensby and Thingwall	1834		20%	27	9	1.5	0.5
Prenton	2878		23%	234	90	8.1	3.1
Rock Ferry	3402		30%	336	121	9.9	3.6
Seacombe	3609		30%	349	130	9.7	3.6
Upton	2799		23%	159	53	5.7	1.9
Wallasey	2147		17%	101	55	4.7	2.6
West Kirby and Thurstaston	827		9%	39	21	4.7	2.5
Wirral	54684		21%	3937	1662	7.2	3.0

Quit attempts and 4 week quitters that could not be matched up to LSOAs have been excluded.

11. Smoking Cost Effectiveness based on local model

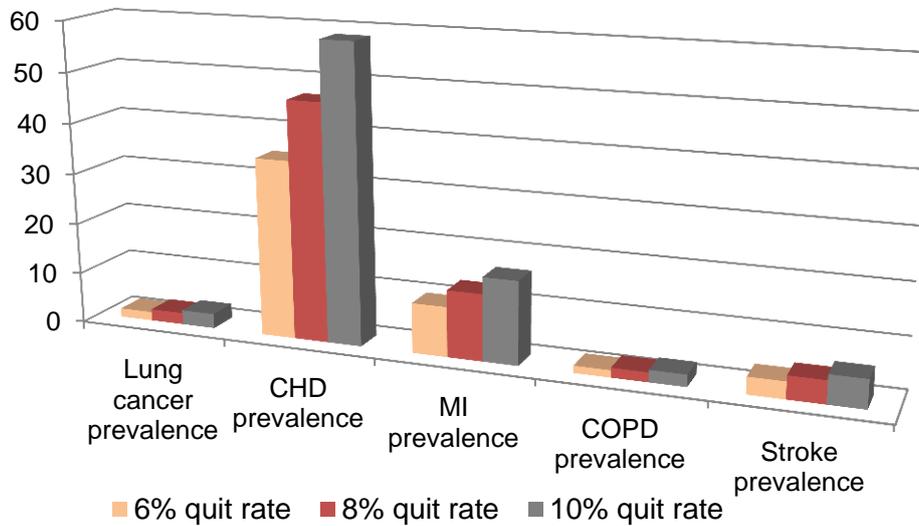
The local model produced looks at the QALYs gained from smoking in adults based on a reduction in risk of COPD, lung cancer and cardiovascular disease (heart disease and stroke) from individuals moving from being a current smoker to being an ex-smoker, modelled over 20 years. The model also considers gains from smoking cessation in pregnant women. The model assumes a central 8% long term quit rate which is much less than that in NICE ROI tool which is why the cost effectiveness comes out lower than with the NICE Tool. In Wirral there were 335 clients in 2013/14 who had 52 week quit status recorded, of which 302 had relapsed and only 2 reported they had still quit, which would equate to a long term quit rate of less than 1%, so there is uncertainty over what the actual long term quit rate is for smokers in Wirral. The overall central estimate of cost per QALY for services was £18,485, but this figure considers only the healthcare cost savings, not the productivity gains, and gains in terms of reduced need for social care for smoking related illnesses, and reduced litter and fires caused by cigarette butts.

Table 21: Results of local smoking economic model for Wirral, 2013/14 FY.

	Net effect over 20 years		
	6% quit rate	8% quit rate	10% quit rate
Total NHS disease costs saved	£84,285	£112,380	£140,475
QALYs gained through reduced smoking related disease	43	57	71
Additional child QALYs through pregnant mothers quitting	1.72	1.72	1.72
Additional cost savings from pregnant mothers quitting	£31,906	£31,906	£31,906
Total life years gained	32	42	53
Total QALYs through life years gained (valued at 0.7)	22	30	37
Total QALYs gained	67	88	110
Total NHS cost savings	£116,191	£144,286	£172,381
Total 4 week quitters	1753	1753	1753
Cost of programme	£1,778,343	£1,778,343	£1,778,343
Net cost per QALY	£24,909	£18,485	£14,591

Figure 15 provides a summary of the net result of smoking quitters over 20 years. The biggest change in number of cases is in CHD, followed by MI. Although ex-smokers have a lower risk of disease than smokers, they also have a lower risk of dying which means that more of them live to an older age to get diseases. So in terms of total disease prevalence this cancels out some of the effect of people quitting smoking. This is true for the cost savings as well, while people quitting smoking generates considerable cost savings, some of these costs are delayed or offset, so for instance people who quit smoking are more likely to live to an older age where they get dementia and generate costs to the health and social care system.

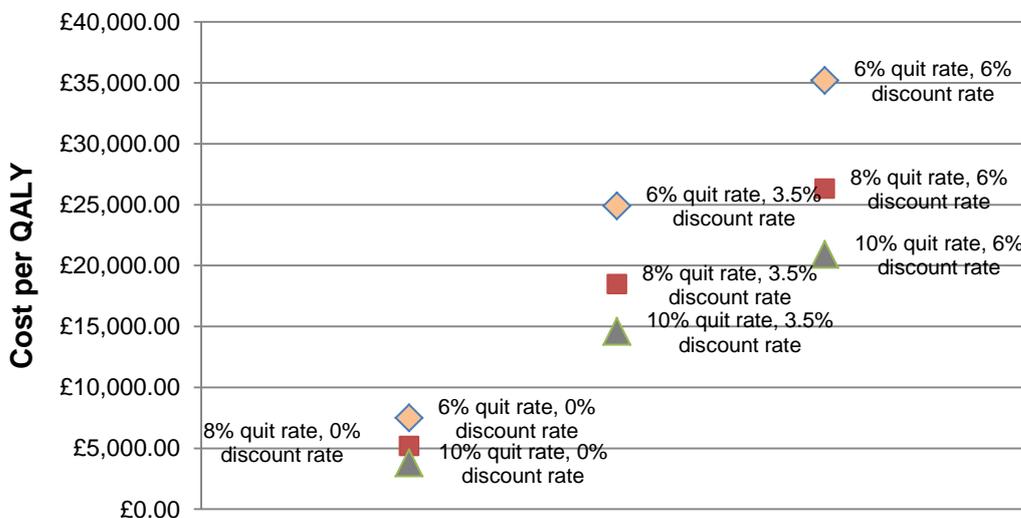
Figure 15: Net discounted reduction in disease cases over 20 years, as a result of smoking cessation activities in Wirral, 2013/14.



Sensitivity Analysis

The net cost per QALY (the cost per QALY after NHS cost savings) is heavily impacted by the quit rate and discounting rate chosen for the model. In their guidance for economic evaluation of public health interventions, NICE have stated that any sensitivity analysis should vary the discount rate between 0% and 6%. In the best case scenario (with discount rate at 0%, long term quit rate at 10%) the cost per QALY is £3,798 while in the worst case scenario (discount rate 6%, long term quit rate 6%); the cost per QALY is £35,197. The distribution of cost per QALYs gained for different quit rates and discount rates shown in [Figure 16](#). As with any public health intervention that have a long payback time the cost-effectiveness of anti-smoking interventions is very sensitive to the effects of discounting.

Figure 16: Difference in cost per QALY (cost utility) for different quit rates and discount rates. Wirral smoking economic model



12. Smoking Cost Effectiveness from NICE Return on Investment Tool

The cost effectiveness calculation from the NICE tool is mainly driven by the type of method used to quit as well as the costs and the number of clients using a service. It assumes 13% to 31% twelve month quit rates depending on the pharmacological agent used (Mono NRT, combo NRT, Champix or Zyban) and whether someone had one to one, group or drop-in support. The smoking database does not accurately record whether a client had mono (one type) or combo (more than one type) of NRT. The NICE tool does not directly consider the impact of local demographics like age, gender, deprivation level.

The results from the NICE Tool are shown in detail in [Appendix 1: Results from NICE ROI Tool with Wirral data for 2013/14](#). The NICE tool calculates costs based on an estimate of average costs applied to the spread of interventions which total £1,047,120 which is around one third lower (32% lower) than the actual costs for stop smoking services in Wirral of £1,534,826 or 42% lower than the cost of £1,778,343 including CCG prescribing. In the tool, the sub-national tobacco control programmes are defined as collective activities coordinated and implemented at sub-national levels to help promote increased cessation and prevent uptake of smoking, such as the FRESH programme in the North East¹⁶.

Even taking this into account, the service comes out as cost effective in the long term, with it being cost saving over a 20 year time horizon. This is good evidence for retaining an investment in stop smoking services.

13. Smoking Realist Evaluation – Context-Mechanism-Outcome Table

Realist evaluation is trying to evaluate programmes while accounting for the complexity that may be present in programmes. It is part of a family of ‘theory driven’ evaluation techniques – trying to understand the theory behind why something works and how differences in implementation change how successful a programme is. Realist evaluation recognises that interventions are implemented differently in different areas, not ‘one size fits all’.

Smoking cessation programmes can be described as complex interventions in complex systems. They are complex because they often provide a mixture of clinical interventions like offering NRT or Champix, and behavioural or psychosocial support, and these elements interact in different ways in different people. We do not always know what has been the crucial change in someone’s reasoning or resources that has enabled someone to maintain a situation where their resolve to quit is stronger than their urge to smoke. Smoking cessation programmes exist in a complex system because people’s success in giving up smoking is not driven only by physiological changes in the body; rather this success is driven by the policy and economic environment, the social environment, and people’s capabilities, opportunities and motivation to change their behaviour. This is why local tobacco control programmes also include prevention and enforcement as well as social marketing.

[Table 22](#) shows the smoking context-mechanism-outcome table. In a review of realist evaluations there was one published study around adding a nutritional intervention to smoking cessation (Mackenzie et al., 2009) but this majored on the nutritional element, and found one protocol for a realist evaluation of smoking services, by Douglas and colleagues (2010) who were planning to look at smoking cessation services for pregnant women and

¹⁶ In line with the Regional Tobacco Policy 2005. Includes: monitoring and enforcement of national legislations (e.g. smoke free, illicit tobacco sales, advertising bans), taking responsibilities for paid and unpaid mass media, evaluation and monitoring progress of control programme and advocacy work to influence national and possibly international actions (Trapero-Bertran, Pokhrel & Trueman 2011).

young people in North East Scotland. The CMO table has been put together by looking at policy documents around smoking, as well as the data collected by smoking services, and through talking to service providers and commissioners. By including this in the evaluation I am encouraging commissioners and providers to think particularly about the mechanisms that work to get people to successfully quit smoking so that they can think about services changes that get these mechanisms firing more often. This list does not claim to be exhaustive, and can only claim to be a 'middle range' theory. Some commentators have suggested that the context needs to be shifted so that treatment and substitution are a more routine part of the environment around smoking, so for instance in 'Cough Up' they suggest that all retailers should have NRT available next to tobacco products (although most now have electronic cigarettes at least).

The behaviour change cycle (which is similar to the trans-theoretical model) is seen as a useful tool in understanding how people feel about their behaviour and how ready they are to change. So understanding mechanisms within the behaviour change cycle is useful in thinking about what we want services and individuals to achieve. We ultimately want mechanisms that help people to become long term quitters, i.e. move to the maintenance stage, but along the way mechanisms may be moving people from one stage to the next in the behaviour change cycle so for example, a leaflet or a consultation may move someone from contemplation to preparation.

Figure 17: The Behaviour Change Cycle.

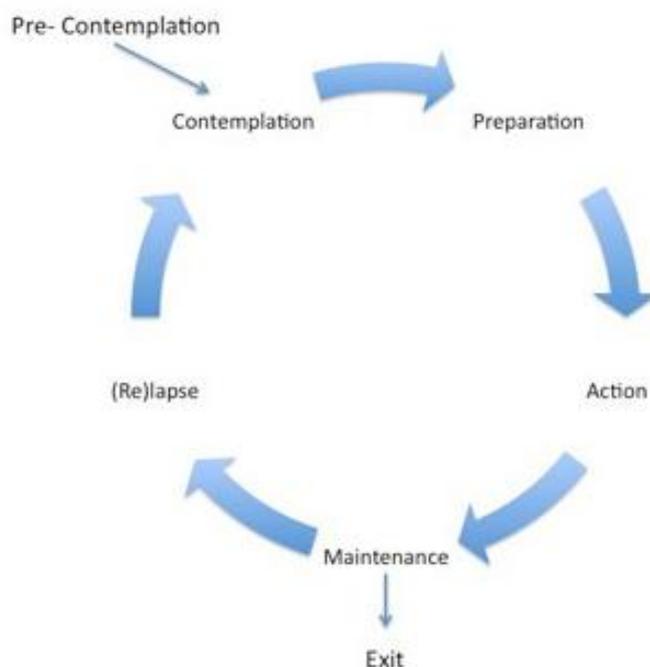


Table 22: Smoking cessation CMO Table

Group	Contexts	Mechanisms	Outcomes
Adult smokers	Wirral and the North West of England have a history of smoking culture. Although it has declined since the 1970s, smoking is still a fixture of working class culture.	People come to realise that they value their health and the opportunities that it gives them more than they value smoking.	Some people do not successfully quit smoking but they realise that services are free and approachable for when they are ready to try again; they may also recommend services to others.

Group	Contexts	Mechanisms	Outcomes
Adult smokers	Smoking was originally more popular in men and affluent groups but for the last 50 years it has become popular in women and in routine and manual groups.	Many people come to services as the result of a health shock, such as a diagnosis of CVD or COPD which puts them in a mindset where they are receptive to messages about change. Some people come as a result of being told by a health professional (GP) that they have to attend SSS. This presents a different scenario for the SSS as the client may still be in pre-contemplation stage for quitting.	Some people quit smoking, and get better health as a result as well as financial benefits. This can contribute to NHS cost savings, as well as savings to other public agencies and increased economic productivity. People who quit then contribute to smoking becoming less of a norm and less socially acceptable to their family, friends and neighbours.
Adult smokers	For many people in routine and manual groups, smoking is associated with work breaks, or socialising and drinking alcohol.	Many people will be pressured by family or friends to stop smoking or experience significant life changes e.g. new job or new baby.	
Adult smokers	Smokers from deprived areas spend 15% of their disposable income on tobacco.	People realise that spending a large proportion of their disposable income on cigarettes does not make sense.	When people quit there will be reduced revenue from tobacco sales but many people will spend the same money on other goods so it is not lost to the economy altogether.
Adult smokers	As well as routine and manual workers, certain groups like carers and people with mental health problems are more likely to smoke.	Group sessions can reinforce a sense of identity and group dynamic around the transition to being a non-smoker.	
Adult smokers	Smoking cessation has been available through the NHS since the 1990s and successive national policy measures have been brought in to make smoking more expensive and more difficult, such as increasing the age of buying tobacco from 16 to 18, and banning smoking in indoor public places.	Pharmacological therapies like NRT reduce the cravings, or Champix reduces cravings while also reducing the pleasure gained from smoking.	
Chewing tobacco users	Some stop smoking advisors are for specific groups e.g. chewing tobacco, illicit tobacco.	Advisors advocate giving up chewing tobacco during Ramadan where Muslims do not use it during the day so it is a good time to get people out of the habit. Advisors also push Muslims to quit smoking with quotes from religious leaders saying that quitting "will be an act of ibada (worship) that helps to keep you healthier."	

Group	Contexts	Mechanisms	Outcomes
Pregnant women	Wirral has historically high rates of smoking in pregnancy compared to other areas. It may be the case that smoking messages need to be delivered to mothers earlier, before they even get pregnant, for them to be most effective.	The implementation of Payment by Results (PbR) mechanisms has meant that services only get paid when pregnant women successfully quit.	The number of pregnant women quitting has increased considerably over the last 3 years.
The service	Mass media campaigns like Stoptober, which is deliberately timed so that smokers who have gone on holiday abroad in the summer and bought cheap cigarettes will have used them up by October.		
The service	E cigarettes have produced a sea change in culture. The number of people changing to e cigs has proven how many smokers want to have a healthier lifestyle. E cigs have split the academic and tobacco control community. Local leaders in Wirral recognise that e cigs have got a capacity to improve the health of many people but that surveillance and product regulation is needed.	Electronic cigarettes may be a stepping stone to some people becoming tobacco free, and can be a hook to get people into services. However it may be that they replace the need for traditional services.	Some people will quit tobacco with e cigs. There is a risk of young people taking up e cigarettes, and a risk that they might prolong dependence on nicotine.
The service	Stop smoking services are a big machine to move; everything has protocols and standards, which are based on years of research and evidence. However this can stifle innovation.		
The service	There is a lot of potential in self-care and digital support which may be a lot more efficient and fit in with an asset-based agenda. Locally it is believed that this potential is untapped.	The service could make better use of social media platforms such as Facebook; Twitter; Instagram. However it would have to ensure that this was done in a cost effective way.	
The service	In the past services offered 'Quit and Win' where smokers could win prizes, which was a financial incentive to quit. This is not currently offered. Under this system smoking advisors did not have to assess smoker's motivations to quit, which they usually have to do.	Financial incentives can work, with even small amounts of money. They give smokers an excuse to discontinue a behaviour that is part of their peer group. To some outsiders and non-smokers, these schemes can be seen as rewarding unhealthy choices however.	The financial incentives offered in Wirral were successful in increasing quit rates - there were some inappropriate referrals for people who were not ready to quit, but the overall quit rate was still reasonable and much better than without the intervention. There may be some potential for rewarding quitting with non-financial incentives.
The service	Stop smoking services have been around for so long it is difficult to keep them fresh.	Trading Standards have a commissioned programme of work (commissioned on activity) that covers Under Age sales and also working with local retailers re: illegal and illicit tobacco	Making better links with other services will improve outcomes.

Group	Contexts	Mechanisms	Outcomes
The service	New York has shown that smoking prevalence can be dramatically reduced to around 10%, possibly refuting the idea that eventually as prevalence decreases areas are left only with 'refuseniks' - hard-core smokers who will never quit.	This rapid improvement in New York reinforces the belief in people in tobacco control community that quick change is possible, although ASH have said that disinvestment in tobacco measures has led to an increase in smoking prevalence in New York.	
The service	The service has continuously met its target of reaching around 5% of smokers. There is always a compromise between getting a high volume of people through a service and getting a high rate of quitters.	The service is struggling to reach targets as fewer smokers are accessing it; this will be due to e-cig use, as well as there being fewer smokers, and the residual smokers being those who find it hardest to quit.	There are fewer people accessing the service than two years ago.
Young people	Most people took up smoking while they were still children.	People may realise that if they would not want their children and grandchildren to smoke, so they should not smoke themselves.	
Young people	Young girls often smoke because they think it helps them to control their weight.		
Young people	Young people are using rolled tobacco more, partly because they believe it is cheaper than cigarettes and possibly because it is being marketed to young people more, with 'funky packaging'. Some people incorrectly believe that hand rolled tobacco is a healthier option & more organic/natural.		There is a need to find ways to bust the myths around that exist around hand rolled tobacco.
Young people	Some people (mainly young people) smoke tobacco with cannabis. There is a culture around thinking that cannabis is not harmful and it is becoming decriminalised in parts of the USA.		
Young people	Young people are born into a world without tobacco advertising.	Many young people are very much psychologically against the idea of smoking, but there is less information about how people feel about vaping e cigarettes.	Young people are less likely to take up smoking when they have not encountered it.

Group	Contexts	Mechanisms	Outcomes
Young people	Anti-smoking programmes directed at children and young people have not been particularly effective so far. Wirral has used ASSIST which is a peer led intervention.	In the absence of any successful programmes, some young people may still be tempted to try smoking. Young people do not connect with long term health impacts re; tobacco use but they do connect with the negative practices of the tobacco industry e.g. issues such as child labour, deforestation, unethical marketing and media and advertising. This is important because the liquid in e cigarettes is still made from tobacco so causes a lot of the same global problems.	Some young people may still take up smoking, particularly in deprived communities.

Return on Investment tool for Tobacco Control v3.0

Headline Figures

Wirral

Model run on 03 Mar 2015 at 16:00

About this report

This report is based on your recent run of the NICE Tobacco Control ROI tool v3.0. You selected a population for which you wanted to analyse the return on investment (ROI) of your chosen package of tobacco control interventions. Using the figures included in this report, you will be able to answer the following questions:

- 1 How much is tobacco costing in Wirral (Baseline scenario)?
- 2 How much does your Current Package of interventions cost you?
What are the benefits of the Current Package? Are there any savings to be made by local businesses, health and social care sectors as well as by people who don't smoke (passive smokers)?
- 3 Does the benefit outweigh the costs? If so, at what time point? What is the ROI of the Current Package?
- 4 To what extent can the savings made by local businesses pay for investment in the Current Package?
- 5 At what time point can the investment in cessation programmes pay for itself?
- 6 What potential improvements could you make by altering your current service provision (Alternative Package)?
- 7

The interventions available to be included in packages are:

Individual-level Interventions for Adults:

Local Stop Smoking Service (LSSS) Interventions

- Mono NRT
- Combo NRT with Group support
- Varenicline with One-to-one support
- Bupropion Drop-in support
- All other LSSS interventions

Non-LSSS Cessation Interventions

- OTC Mono NRT
- Prescription Mono NRT
- Prescription Combo NRT
- Rx Varenicline
- Rx Bupropion
- Pharmacy one-to-one support
- Proactive telephone support
- Internet support
- Text to Stop
- Self-help books and booklets

Cessation Interventions for Adult Sub-populations

- Behavioural Support for Pregnant Women
- Incentives to Quit for Pregnant Women
- Rx Combo NRT for Pregnant Women
- Harm Reduction for Smokers Unwilling to Make Quit Attempts

In addition to the impact of providing individual-level interventions, two broader interventions are also available, the effects of which are additive when in combination with standard interventions:

- GP Brief Advice (all smokers except pregnant women)
- Subnational tobacco control programme (all smokers)

Understanding the context of Current Package

Your selected area is Wirral where the adult population (18+ years) is about 253,000, of whom roughly 46,000 (18.4%) are current smokers. Wirral has an ex-smoking rate of 32.7%. The average hourly wage rate in Wirral is assumed to be £10.86.

A total of 9.6% of adult smokers are allocated to individual-level smoking cessation interventions.

A breakdown of the Current Package for your adult population is as follows:

- 9.3% of smokers received Local Stop Smoking Service (LSSS) interventions;
- 0.0% received other, non-LSSS cessation interventions;
- 0.0% receive NRT to help them cut down;
- 32.6% of pregnant smokers received cessation interventions:
 - 32.6% received behavioural support
 - 0.0% received incentives
 - 0.0% received pharmacotherapies
- No smokers were allocated to Custom interventions;
- 26.0% of non-pregnant smokers receive GP Brief Advice;
- 0% of your total smoking population is also exposed to a subnational tobacco control programme.

The current burden of smoking in Wirral

How much is smoking costing in Wirral?

The total annual cost of smoking in Wirral is £15,520,876, which can be broken down as:

Costs to local economy (productivity losses):	£4,908,543
Social care costs to look after patients suffering from smoking-related strokes:	£4,242
Costs to non-smokers (passive smoking costs):	Adults: £522,603 Children: £113,780
Healthcare costs:	£9,971,708

How does tobacco affect the local economy?

The cost of productivity losses is the result of 59,459 days that smokers in Wirral were not able to work in the past year as a direct result of smoking-related sickness. In other words, these are the costs that could have been avoided by businesses if their employees had not smoked.

How does tobacco affect the local NHS?

The cost to the local health sector is the result of an additional:

- 53,472 GP consultations;
- 16,139 practice nurse consultations;
- 9,544 outpatient visits;
- 1,911 hospital admissions; and
- 30,252 prescriptions.

This amounts to an additional burden on the local NHS that could have been avoided if the patients in question had not smoked.

Investing in interventions

How much will you be required to invest in Wirral to implement the Current Package?

The savings, both to the local economy and to the wider health and social care sectors, cannot be realised without investing in an appropriate package of interventions.

The Current Package means that:

In the first year**, you will need to invest a sum of £1,047,120 for implementation. This can be broken down as:

For Adults:

Local Stop Smoking Services (LSSS) running costs:	£828,986
Non-LSSS cessation services costs:	£0
Harm reduction intervention:	£0
Costs of interventions targeted at pregnant smokers:	£28,346
Behavioural support:	£28,346
Incentives:	£0
Pharmacotherapy:	£0
Costs of custom interventions:	£0
GP brief advice running costs:	£189,789
Subnational tobacco control programme:	£0

**The benefits that follow are based on a one-off cost and one year success (quit) rate of interventions.

What are the benefits of the Current Package?

What is the extent of return on your investment in Wirral for the Current Package?

In the short term (first 2 years), the Current Package will save a total of £472,347. This is the potential (gross) saving and does not include the cost of implementing the Current Package.

The potential savings can be broken down as:

Local economy	Wider health and social care sectors
1,908 fewer lost days of working time	1,764 fewer GP consultations;
<i>translating to</i>	490 fewer practice nurse consultations;
£157,871 cost-savings to the local economy	293 fewer outpatient visits;
	55 fewer hospital admissions; and
	974 fewer prescriptions
	<i>translating to</i>
	£304,183 cost saving to the NHS
	£10,171
	0.08 fewer cases of the local authority caring for survivors of smoking-related strokes, at a further cost saving of:
	£122.75

What is the ROI of the Current Package?

Compared with the Baseline scenario, the return*** on investment for the Current Package can be summarised by the following ROI metrics - quasi-societal perspective (includes benefits and costs to local economy and wider healthcare sector)

Metric	2 years	5 years	10 years	Lifetime
Net present value (NPV): quasi-societal cost-savings	-£16.72	-£10.35	-£1.85	£17.41
Net present value (NPV): quasi-societal cost-savings and the value of health gains	-£3.30	£20.86	£59.55	£208.82
Benefit-cost ratio: quasi-societal savings	0.26	0.54	0.92	1.77
Benefit-cost ratio: quasi-societal savings and the value of health gains	0.85	1.93	3.64	10.26
Avoidable burden: number of QALYs per 1000 smokers	0.67	1.56	3.07	9.57
Incremental quasi-societal costs per smoking-related death averted	£463,987	£88,704	£7,009	Current Package dominates Baseline
Incremental quasi-societal costs per life year gained	£497,035	£40,729	£1,992	Current Package dominates Baseline
Incremental quasi-societal costs per QALY gained	£24,928	£6,633	£602	Current Package dominates Baseline

*** The term 'return' refers to the fact that both the costs of implementing your package of interventions and the benefits (health and non-health, including productivity losses and health and social care cost-savings from smoking attributable diseases) are included in the metrics.

**** A package dominates when it is both less costly and produces more benefits, compared to the baseline.

How do I interpret the ROI metrics for the Current Package?

Current Package vs Baseline

Compared with the Baseline scenario (i.e., no interventions), the Current Package is expected to:

- Cost an additional £16.72, £10.35 and £1.85 per smoker over 2 years and 5 years respectively but give a saving of £17.41 per smoker over Lifetime, net of package implementation costs if only quasi-societal savings are considered
- Cost an additional £3.30 per smoker over 2 years but give a saving of £20.86, £59.55 and £208.82 per smoker over 5 years, 10 years and Lifetime respectively, net of package implementation costs, if both quasi-societal savings and the value of health gains are considered
- Give a return of £0.26, £0.54, £0.92 and £1.77 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if only quasi-societal savings are considered
- Give a return of £0.85, £1.93, £3.64 and £10.26 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if both quasi-societal savings and the value of health gains are considered
- Result in a gain of 0.7, 1.6, 3.1 and 9.6 QALYs per 1,000 population over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if both quasi-societal savings and the value of health gains are considered

- Cost an additional £463,987, £88,704 and £7,009 per smoking-related death averted over 2 years, 5 years and 10 years respectively but cost less and save more lives over Lifetime
- Cost an additional £497,035, £40,729 and £1,992 per life year gained over 2 years, 5 years and 10 years respectively but cost less and save more lives over Lifetime
- Cost an additional £24,928, £6,633 and £602 per QALY gained over 2 years, 5 years and 10 years respectively but cost less and save more lives over Lifetime

What is the differential impact of the Alternative Package

In your analysis, you generated an Alternative Package of interventions based on alterations to the Current provision of services.

In the first year, the Alternative Package will require an additional £132,330 to implement compared with the Current Package.

This extra cost is generated by the following provision (comparison to Current Package in parentheses):

For Adults:

- Local Stop Smoking Services (LSSS) running costs: £828,986 (+£0)
- Non-LSSS cessation services costs: £0 (+£0)
- Harm reduction intervention: £0 (+£0)
- Costs of interventions targeted at pregnant smokers: £28,346 (+£0)
- Behavioural support: £28,346 (+£0)
- Incentives: £0 (+£0)
- Pharmacotherapy: £0 (+£0)
- Costs of custom interventions: £0 (+£0)
- GP brief advice running costs: £189,789 (+£0)
- Subnational tobacco control programme: **£132,330 (+£132,330)**

In the short term (first 2 years), the Alternative Package will save you an additional £1,404,669; this represents £932,322 greater savings than the Current Package. These are potential (gross) savings and do not include the cost of implementing the package.

The potential costs associated with the Alternative Package compared to Baseline can be broken down as follows (comparison to Current Package in parentheses):

Local economy	Wider health and social care sectors
5,539 fewer lost days of working time (+3,631)	5,021 fewer GP consultations (-3,257);
<i>translating to</i>	1,482 fewer nurse consultations (-991);
£457,833 cost-savings to the local economy	879 fewer outpatient visits (-585);
(+£299,962)	173 fewer hospital admissions (-118); and
	2,821 fewer prescriptions (-1,847)
	<i>translating to</i>
	£916,295 cost saving to the NHS
	(-£612,112)
	668 (-438) fewer individuals (adults and children) being regularly exposed to second hand smoke.
	The resulting reduction in passive smoking-related healthcare events will lead to a further cost saving to the NHS of:"

£30,157 (-£19,986)

0.24 (-0.16) fewer cases of the local authority caring for survivors of smoking-related strokes, at a further cost saving of:

£384.46

What is the ROI of the Alternative Package (compared to Baseline)?

Compared with the Baseline scenario, the return*** on investment for the Alternative Package can be summarised by the following ROI metrics - quasi-societal perspective (includes benefits and costs to local economy and wider healthcare sector)

Metric	2 years	5 years	10 years	Lifetime
Net present value (NPV): quasi-societal cost-savings	-£9.65	£12.83	£42.85	£110.67
Net present value (NPV): quasi-societal cost-savings and the value of health gains	£33.05	£117.51	£253.04	£777.52
Benefit-cost ratio: quasi-societal savings	0.62	1.50	2.69	5.36
Benefit-cost ratio: quasi-societal savings and the value of health gains	2.30	5.63	10.96	31.61
Avoidable burden: number of QALYs per 1000 smokers	2.13	5.23	10.51	33.34
Incremental quasi-societal costs per smoking-related death averted	£90,156	Alternative Package dominates Baseline	Alternative Package dominates Baseline	Alternative Package dominates Baseline
Incremental quasi-societal costs per life year gained	£96,577	Alternative Package dominates Baseline	Alternative Package dominates Baseline	Alternative Package dominates Baseline
Incremental quasi-societal costs per QALY gained	£4,520	Alternative Package dominates Baseline	Alternative Package dominates Baseline	Alternative Package dominates Baseline

What is the ROI of the Alternative Package (compared to the Current Package)?

Compared with the Current Package scenario, the return*** on investment for Alternative Package can be summarised by the following ROI metrics - quasi-societal perspective (includes benefits and costs to local economy and wider healthcare sector)

Metric	2 years	5 years	10 years	Lifetime
Net present value (NPV): quasi-societal cost-savings	£7.07	£23.18	£44.69	£93.26
Net present value (NPV): quasi-societal cost-savings and the value of	£36.35	£96.65	£193.49	£568.70

health gains				
Benefit-cost ratio: quasi-societal savings	1.28	1.91	2.76	4.67
Benefit-cost ratio: quasi-societal savings and the value of health gains	2.43	4.80	8.62	23.39
Avoidable burden: number of QALYs per 1000 smokers	1.46	3.67	7.44	23.77
Incremental quasi-societal costs per smoking-related death averted	Alternative Package dominates Current Package			
Incremental quasi-societal costs per life year gained	Alternative Package dominates Current Package			
Incremental quasi-societal costs per QALY gained	Alternative Package dominates Current Package			

*** The term 'return' refers to the fact that both the costs of implementing your package of interventions and the benefits (health and non-health, including productivity losses and health and social care cost-savings from smoking attributable diseases) are included in the metrics.

**** A package dominates when it is both less costly and produces more benefits than the comparator

How do I interpret the ROI metrics for the Alternative Package?

Alternative Package vs Baseline

Compared with the Baseline scenario (i.e., no interventions), the Alternative Package is expected to:

- Cost an additional £9.65 per smoker over 2 years but give a saving of £12.83, £42.85 and £110.67 per smoker over 5 years, 10 years and Lifetime respectively, net of package implementation costs if only quasi-societal savings are considered
- Give a saving of £33.05, £117.51, £253.04 and £777.52 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, net of package implementation costs, if both quasi-societal savings and the value of health gains are considered
- Give a return of £0.62, £1.50, £2.69 and £5.36 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if only quasi-societal savings are considered
- Give a return of £2.30, £5.63, £10.96 and £31.61 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if both quasi-societal savings and the value of health gains are considered
- Result in a gain of 2.1, 5.2, 10.5 and 33.3 QALYs per 1,000 population over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if both quasi-societal savings and the value of health gains are considered
- Cost an additional £90,156 per life year gained over 2 years but cost less and save more lives over 5 years, 10 years and Lifetime
- Cost an additional £96,577 per life year gained over 2 years but cost less and save more lives over 5 years, 10 years and Lifetime
- Cost an additional £4,520 per life year gained over 2 years but cost less and save more lives over 5 years, 10 years and Lifetime

Current Package vs the Alternative Package

Compared with the Current Package, the Alternative Package is expected to:

- Give a saving of £7.07, £23.18, £44.69 and £93.26 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, net of package implementation costs if only quasi-societal savings are considered

- Give a saving of £36.35, £96.65, £193.49 and £568.70 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, net of package implementation costs, if both quasi-societal savings and the value of health gains are considered
- Give a return of £1.28, £1.91, £2.76 and £4.67 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if only quasi-societal savings are considered
- Give a return of £2.43, £4.80, £8.62 and £23.39 per smoker over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if both quasi-societal savings and the value of health gains are considered
- Result in a gain of 1.5, 3.7, 7.4 and 23.8 QALYs per 1,000 population over 2 years, 5 years, 10 years and Lifetime respectively, for each pound spent on implementing the package, if both quasi-societal savings and the value of health gains are considered
- Cost less and save more lives over 2 years, 5 years, 10 years and Lifetime respectively
- Cost less and save more lives over 2 years, 5 years, 10 years and Lifetime respectively
- Cost less and save more lives over 2 years, 5 years, 10 years and Lifetime respectively

To what extent can the savings made by the local economy pay for investment in interventions?

In Wirral, 22.6% of the investment in the Current Package will be paid back by the savings generated in the local economy in the first 2 years of investment.

By contrast, 59.5% of the investment in the Alternative Package will be paid back by the savings generated in the local economy in the first 2 years of investment.

At what time point can investments in cessation programmes pay for themselves?

Current Package will pay for itself and make money over the lifetime of the cohort, just considering cash-releasing savings*.

The Alternative Package will start to pay for itself and make money by Year 5 of investment, just considering cash-releasing savings*.

*Cash-releasing savings do not include the value of QALY gains.

Disclaimer

This tool is intended to help users to understand the return on investment of their chosen package of interventions. Where relevant, the comparative figures are based on two different 'packages' of interventions, one of which could be 'baseline' defined as a hypothetical situation where 'there are no interventions' at present. It is left to the users to select which interventions will make up a package and decide which packages of interventions they would like to compare.

Readers are asked to read the accompanying User Guide and Technical Report before they use this tool.

NICE has provided this tool to aid decision-making. NICE cannot be held liable for any investment or other decisions that are made using information and results obtained from this tool. Implementation of NICE guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement NICE guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this tool should be interpreted in a way that would be inconsistent with compliance with those duties.

If one of more custom interventions are included in a package of interventions NICE recommend this be made clear in any communications regarding the results

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Any analysis based on this tool needs to acknowledge the use of this model as follows:

"This analysis is based on the NICE Return on Investment Tool for Tobacco Control, version 3.00"

and include the citation as:

Pokhrel, S., Owen, L., Lester-George, A., Coyle, K., Coyle, D., West, R., Trapero-Bertran, M., Meads, C. (2014). Tobacco Control Return on Investment Tool v3. London: National Institute for Health and Care Excellence.

15. Appendix 2: NICE Guidance around smoking & tobacco.

[Smoking cessation in secondary care: acute, maternity and mental health services.](#)

NICE public health guidance 48 (2013)

[Tobacco: harm-reduction approaches to smoking.](#) NICE public health guidance 45 (2013)

[Smokeless tobacco cessation: South Asian communities.](#) NICE public health guidance 39 (2012)

[Quitting smoking in pregnancy and following childbirth.](#) NICE public health guidance 26 (2010)

[School-based interventions to prevent smoking.](#) NICE public health guidance 23 (2010)

[Preventing the uptake of smoking by children and young people.](#) NICE public health guidance 14 (2008)

[Smoking cessation services.](#) NICE public health guidance 10 (2008)

[Smoking cessation: varenicline.](#) NICE technology appraisal guidance 123 (2007)

[Behaviour change: the principles for effective interventions.](#) NICE public health guidance 6 (2007)

[Workplace interventions to promote smoking cessation.](#) NICE public health guidance 5 (2007)

[Brief interventions and referral for smoking cessation.](#) NICE public health guidance 1 (2006)

[Smoking cessation: supporting people to stop smoking](#) NICE Quality Standard 43 (2013)

16. Appendix 3: Stop Smoking 'Ingredients' and their level of evidence. From Prof Robert West

Ingredient	Rating	Ingredient	Rating	Ingredient	Rating
In-person support	★★★	Abrupt stop	★★★	Deep breathing	★★
NRT (supported)	★★★	Identity change	★★	Exercise	★★
Champix	★★★	Avoiding smokers	★★	Isometric exercise	★★
Zyban	★★★	Avoiding alcohol	★★	Mental exercises	★★
Cytisine	★★★	Changing routine	★★	Healthy snacks	★
Quitline	★★	Keep busy	★★	Go to bed early	★
Internet	★★	One day at a time	★	Get rid of cigs	★
SMS support	★★	Tell others	★	Smartphone app	★
Book	★★	Quit together	★		
E-cigs	★★	Count savings	★		
Glucose	★★				

★★★ Strong evidence ★★ Moderate evidence ★ Some evidence