Evaluation of quit4u
Main report

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Contents

Acknowledgements ................................................................. i
Abbreviations and glossary ........................................................ ii
Executive summary ................................................................. iv
Background .............................................................................. iv
Aims and objectives ................................................................. iv
Method ....................................................................................... iv
Summary of main results ........................................................... iv
Effectiveness in encouraging take-up of cessation services .......... iv
Effectiveness in increasing quit rates .......................................... v
‘Mechanisms of change’ – key factors impacting on quit success or relapse ..... vi
Conclusions and recommendations ........................................... vii

1 Introduction ........................................................................ 1

1.1 Background ....................................................................... 1
1.2 Report structure ............................................................... 1
1.3 Aims and objectives ............................................................ 2
1.4 Policy and research context ................................................. 3
1.4.1 Smoking and smoking policy in Scotland ......................... 3
1.4.2 Smoking cessation services ............................................ 4
1.4.3 Using financial incentives in smoking cessation ................. 6
1.4.4 The contribution of quit4u to the evidence base ................. 8

2 Quit4u .................................................................................. 9

2.1 Smoking and smoking cessation in Tayside ......................... 9
2.2 The quit4u programme ...................................................... 9
2.3 Quit4u logic model ............................................................ 10

3 Research methods ............................................................... 12

3.1 Summary of research design .............................................. 12
3.1.1 Secondary analysis of smoking cessation data to assess
effectiveness and cost-effectiveness ........................................ 12
3.1.2 Primary research with quit4u participants ......................... 12
3.1.3 Primary research with professionals ................................ 12
3.2 Scope and limitations of the evaluation .............................. 13
3.2.1 Mixed method design .................................................... 13
3.2.2 Disentangling the role of incentives ................................. 13
3.2.3 Comparing data for quit4u with data for other NHS smoking
cessation services ............................................................... 14
3.2.4 Role of qualitative data ................................................... 16
3.2.5 Sample size for small-scale surveys of participants .......... 16

4 Effectiveness of quit4u in encouraging take-up of
cessation services .................................................................. 18

4.1 Overall take-up of quit4u .................................................... 18
4.1.1 Take-up among ‘social networks’ .................................... 19
4.2 Motivations to sign-up for quit4u ....................................... 20
4.3 Barriers to signing-up for quit4u ........................................ 21
4.4 Summary ........................................................................... 22

5 Effectiveness of quit4u in increasing quit rates ....................... 24
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Abbreviations and glossary

**Bupropion/Zyban** – Bupropion (brand name ‘Zyban’) is a non-nicotine based pharmacotherapy that reduces the urge to smoke and the symptoms of nicotine withdrawal.

**CHP** – Community Health Partnership. Subdivisions of Health Boards in Scotland, CHPs have responsibility for delivering certain primary care services in their area, working with social services to provide social care, promoting health improvement and influencing strategic planning.

**CO monitor** – Carbon Monoxide monitor. A machine that measures levels of toxic CO in the breath. Levels of CO below a lower cut off (six or less in quit4u) are taken as indicating that the person is not currently smoking.

**COPD** – Chronic Obstructive Pulmonary Disease. An umbrella term used to describe progressive lung diseases including emphysema, chronic bronchitis, refractory (non-reversible) asthma, and some forms of bronchiectasis. This disease is characterised by increasing breathlessness.

**DHLI** – Dundee Healthy Living Initiative. A large multi-agency, partnership funded project launched in March 2003, working in designated, disadvantaged communities across Dundee to tackle health inequalities in conjunction with other organisations and local people themselves. DHLI runs a variety of healthy activities, including smoking cessation groups.

**DEPCAT** – DEPCAT is used as an area-based measure of deprivation and is based on Carstairs scores derived from Census data. They are a composite measure of four variables: overcrowding, male unemployment, low social class and having no car. The Carstairs scores are used to define seven DEPCAT groups, from 1 (the most affluent) to 7 (the most deprived). (Definition taken from Mallam et al, 2004).

**HEAT targets** – Health Improvement, Efficiency, Access and Treatment performance management targets reflecting the Scottish Government’s key objectives for NHS Scotland.

**ISD** – Information Services Division of NHS National Services Scotland.

**NEC card** – National Entitlement Card. The National Entitlement Card (NEC) programme is a multi-application smartcard scheme run as a partnership between the Scottish Government, Scotland’s local councils and others to make it quicker and easier to access services (such as transport, cashless catering, library and leisure membership, payments, concessions, proof of age) using one card rather than many. See [http://www.entitlementcard.org.uk/](http://www.entitlementcard.org.uk/)

**NICE** – the National Institute for Health and Clinical Excellence. NICE publishes guidelines based on available evidence of efficacy and cost-effectiveness on the use of health technologies within the NHS, clinical
practice, and guidance for public sector workers on Health promotion and ill-health avoidance.

**NRT** – Nicotine Replacement Therapy. NRT is a type of pharmacotherapy that helps to reduce the withdrawal symptoms associated with quitting smoking. It is available in a variety of forms, including gum, spray, inhalator and tablets.

**Relapse** – in the context of smoking cessation, relapse indicates that someone has started smoking again.

**SIMD** – Scottish Index of Multiple Deprivation, an index for measuring area-level deprivation – see [http://www.scotland.gov.uk/Topics/Statistics/SIMD](http://www.scotland.gov.uk/Topics/Statistics/SIMD) for details.

**Varenicline/Champix** – Varenicline (brand name ‘Champix’) is a pharmacotherapy which alleviates symptoms of craving and withdrawal and also acts on the brain’s dopamine receptors to reduce the pleasurable effects of smoking.
Executive summary

Background
The evaluation of quit4u report presents the key findings from a three year independent evaluation of a smoking cessation scheme developed and led by NHS Tayside. Quit4u combines structured behavioural support and pharmacotherapy with financial incentives for each week (up to a maximum of 12 weeks) that participants remain quit, as verified by a carbon monoxide (CO) breath test. It was offered to all those living in deprived areas (DEPCATs 5, 6 or 7) of Dundee and aimed specifically to increase take-up of cessation support and quit rates among smokers in deprived areas.

Aims and objectives
The evaluation of quit4u had three key aims:

1. To assess the effectiveness, including the cost effectiveness of combining standard pharmacotherapy interventions with financial incentives and behavioural support in encouraging take-up and successful quit attempts among people in areas of deprivation.
2. To identify the ‘mechanism(s) of change’ – the key individual, social and contextual, service design and delivery or other factors contributing to take-up and quit rates (or drop out) at one-month post-quit date, three-months post-quit date and 12-months post-quit date.
3. To draw generalisable conclusions to inform the design and development of smoking cessation services.

Method
The evaluation design combined qualitative and quantitative methods and collected data from a range of stakeholders to explore the ways in which quit4u influenced smoking-related behaviour change and quit rates. Key elements included:

- secondary analysis of smoking cessation data to assess the effectiveness and cost effectiveness of quit4u in comparison with other NHS smoking cessation services.
- primary research with participants, including small scale surveys, repeat one-to-one in-depth interviews, and focus groups to explore their views and experiences of attempting to quit with quit4u.
- primary research with professionals involved in planning or delivering quit4u, to explore their perceptions of the programme and of the barriers and facilitators to achieving its objectives.

Summary of main results
Effectiveness in encouraging take-up of cessation services
Quit4u met and exceeded its target for recruitment, signing-up 2,042 smokers between its launch in March 2009 and the end of March 2011. Take-up of smoking cessation services in deprived areas of Tayside also increased
following the introduction of quit4u. However, other Health Board areas achieved similar increases in take-up among smokers in deprived areas with their own smoking cessation services over the same period. Thus while quit4u appears to have been effective in attracting smokers from deprived areas to sign up for smoking cessation support, it is not possible based on the available data to say whether or not it has been more successful in this respect than other approaches in other Health Board areas.

All the elements of quit4u appear to have played a role in attracting different participants to join the scheme. The small-scale survey of participants suggests that the financial incentives provided an additional motivation to sign up for a substantial minority of participants. For these participants, incentives may provide a trigger or ‘tipping point’ to (a) give up and (b) give up with support.

Finally, the evaluation provides some evidence to suggest that quit4u’s geographical focus was successful in encouraging people to join at the same time as their family, friends or neighbours. Given the importance of peer influences on people’s quit attempts, this may have been a contributing factor in participants’ quit success.

Effectiveness in increasing quit rates
Quit4u was associated with higher quit rates at one, three and 12 months compared with the average quit rates of other NHS cessation services in the rest of Scotland after adjusting for baseline differences in the characteristics of participants, such as deprivation and smoking intensity. It also represents a highly cost-effective use of NHS resources. However, the much higher levels of loss to follow-up in other smoking cessation services make the exact size of the difference in quit rates between quit4u and other NHS smoking cessation services difficult to quantify.

Quit4u appears to have had a particularly large impact on the effectiveness of pharmacy-based services compared to non-pharmacy-based services (mainly groups in the case of quit4u), particularly at one and three months. Participants’ accounts of the support received from pharmacies suggest that the CO tests may have helped to provide an additional focus for providing encouragement and support which may, in turn, have improved the intensity and nature of engagement between pharmacy staff and clients.

Given that previous research has indicated that group interventions are more effective in supporting people to quit smoking than one-to-one support (NHS Health Scotland and ASH Scotland, 2010), it is also important to note that quit4u makes relatively greater use of smoking cessation groups compared with other NHS cessation services. Within quit4u, while one month quit rates were in fact slightly higher for those who participated through a pharmacy, quit rates at three and twelve months were higher for those who took part through a group. Quit4u’s higher use of groups is therefore also likely to have contributed to its higher three and 12 month quit rates. However, the difference in average quit rates between quit4u and other cessation services is mainly driven by the higher quit rates achieved by pharmacies within quit4u.
Similarly, those quitting with quit4u were relatively more likely to use varenicline/Champix rather than other kinds of pharmacotherapy. As use of varenicline/Champix was associated with higher quit rates at one and three months, this may be another factor contributing to quit4u’s success.

Participants reported finding it easier to quit with quit4u in comparison with previous quit attempts. There was no consensus over which element of the programme had been most helpful in initiating or sustaining their quit attempt. Where participants felt the financial incentive had helped them maintain their quit attempt for longer, it was seen as providing a ‘bonus’ for quitting, ‘something to work towards’ and an encouragement to keep coming back for support. The perceived role of incentives in encouraging participants to ‘stick with’ support for longer was also highlighted by service providers.

The CO tests (provided they were viewed as accurate) gave participants an additional reason not to smoke which appeared to go beyond the desire to pass simply in order to claim the financial incentive. The tests were viewed as demonstrating the immediate health benefits of quitting or cutting down, providing an element of competition or reward, and creating an additional motivation around not wanting to fail a test.

Comments from both participants and professionals about the role of groups in supporting participants’ quit attempts highlight the advantages of rolling groups (where new people join at different points) over ‘closed’ group-based courses (where everyone starts their quit attempt together). In particular, being able to share the experiences, successes and tips of participants at different stages of their ‘quit journeys’ was viewed as motivational.

‘Mechanisms of change’ – key factors impacting on quit success or relapse
Participants’ motivations to quit were varied and often multifaceted. They encompassed motivations related to:

- health
- finance
- family and friends
- life stage
- cultural change
- the services offered by quit4u
- perceived ‘readiness’ to quit.

Discussion of reasons for relapsing mainly focused on individual and contextual factors (such as stress or the influence of family and friends), rather than elements of the support provided by quit4u. However, where quit4u was discussed, it was suggested that insufficient support, unsuitable or inflexible support, or problems with pharmacotherapy were factors associated with relapse for some participants.

The response of family and friends was viewed by participants as important in supporting their quit attempts. While attempting to quit generally appeared to be perceived as positive rather than unusual, participants nonetheless cited
examples of unsupportive behaviour or mixed messages from friends and family who continued to smoke – for example, continuing to smoke in front of them, or continuing to offer participants cigarettes.

Analysis of qualitative interviews suggest that ‘quit journeys’ are not always linear. Participants who would be classed in smoking cessation statistics as ‘relapsed’ at one and or three months may, nonetheless, have gone on to quit (and sometimes to relapse and quit again) since. This complexity is not captured in national measures of quit rates, but understanding it may help to focus and improve service delivery.

Conclusions and recommendations
There are some important qualifications to the detailed findings discussed above – particularly around the percentage of quit attempts ‘lost to follow-up’, which complicates comparisons between quit4u and other smoking cessation services and introduces uncertainty around the difference in quit rates. However, the evaluation indicates that quit4u provides an effective and cost-effective model for engaging and supporting smokers in deprived areas to quit.

The comparatively lower level of loss to follow-up in quit4u suggests that a key reason for its higher quit rates is likely to be its greater success in maintaining contact between services and clients. Both the quantitative and qualitative data provide further lessons about the elements of quit4u which contribute to the effectiveness of the model in keeping clients engaged and supporting them to quit successfully.

These include:

- the use of CO tests
- the use of (rolling) group support
- high quality pharmacy support (which may itself be enhanced by the structure of quit4u)
- greater use of varenicline/Champix
- the use of incentives.

In combination, these elements provide an effective model for engaging and supporting smokers in deprived areas to quit.
1 Introduction

1.1 Background
This report presents the key findings from a three year independent evaluation of quit4u, a smoking cessation scheme developed and led by NHS Tayside. Quit4u combines structured behavioural support and pharmacotherapy with financial incentives for each week (up to a maximum of 12 weeks available over 20 weeks1) that participants remain quit, as verified by a carbon monoxide (CO) breath test. It was offered to all those living in deprived areas (DEPCATs2 5, 6 or 7) of Dundee.

The evaluation was conducted by a team led by Rachel Ormston at ScotCen Social Research, working with Professor Amanda Amos (University of Edinburgh) and Dr Marjon van der Pol and Professor Anne Ludbrook (Health Economics Research Unit, University of Aberdeen). It was funded by NHS Health Scotland, in partnership with NHS Tayside and the Scottish Government.

1.2 Report structure
This report is intended to provide an overview of key findings from the evaluation of quit4u. It draws together data based on a range of different research methods, including quantitative secondary analysis of smoking cessation data, small scale surveys of participants, and qualitative research with participants, professionals and key stakeholders. More detailed findings from individual elements of the evaluation are provided in a series of supplementary Appendices to this report. The main report is structured as follows:

- The remainder of this introductory chapter sets out the aims and objectives of the evaluation and briefly summarises the research and policy context for the study.
- Chapter 2 introduces the quit4u programme in more detail, describing its key features and the reasons for its development.
- Chapter 3 summarises the research methods used in the evaluation and discusses the scope and limitations of the study.
- Chapters 4 to 6 present the key findings of the evaluation on the effectiveness and cost effectiveness of quit4u and on ‘mechanisms of change’ – that is, the key factors impacting on participants’ quit success or relapse.
- Chapter 7 discusses the implications of the findings for smoking cessation services more generally.

1 That is, participants can claim up to 12 weekly incentives in total, but these 12 payments can be claimed over a maximum of 20 weeks, so that if participants do not quit for the first few weeks after signing up for quit4u, they can still claim 12 weekly payments from the point at which they do quit.
2 See Abbreviations and glossary.
Appendices 1 – 7 provide more detail on:
- the research methods (Appendix 1) and materials used (Appendix 7)
- quantitative analysis of the effectiveness and cost effectiveness (Appendix 2) of quit4u
- qualitative research on participants’ views and experiences of quit4u (Appendix 3)
- findings from two small scale surveys of quit4u participants (Appendix 4)
- qualitative research with professionals involved in delivering quit4u (Appendix 5) and with key stakeholders involved in the development of quit4u (Appendix 6).

1.3 Aims and objectives
The evaluation of quit4u had three key aims:

1. to assess the effectiveness, including the cost effectiveness of combining standard pharmacotherapy interventions with financial incentives and behavioural support in encouraging take-up and successful quit attempts among people in areas of deprivation
2. to identify the ‘mechanism(s) of change’ – the key individual, social and contextual, service design and delivery or other factors contributing to take-up and quit rates (or drop out) at one-month post-quit date, three-months post-quit date and 12-months post-quit date
3. to draw generalisable conclusions to inform the design and development of smoking cessation services.

More specific objectives, set out in the research brief prepared by NHS Health Scotland, were to:

- assess the reach and uptake of quit4u within and across the target group, including identifying any sub-groups that the service does, or does not reach, and the reasons, including individual, social, contextual or service design or delivery factors for any differential distribution
- assess the effectiveness of the model of intervention within and across the target group, including any differential impacts by sub-groups, in achieving successful quit rates at one-month post quit date, at three months post quit date and at 12-months post quit date
- identify the ‘mechanism(s) of change’ - the individual, social and contextual, service design and delivery or other factors contributing to engagement and quit rates at one-month post quit date (or drop out) and at three months and 12-months post quit date
- assess the cost-effectiveness of this model of intervention.
- work with NHS Tayside throughout the course of the evaluation, including feeding back findings as they emerge
- draw generalisable conclusions as to the effectiveness of the smoking cessation service model using financial incentives, including the key change mechanisms, in improving levels of engagement and quit rates within and across the target group.
1.4 Policy and research context

1.4.1 Smoking and smoking policy in Scotland

Smoking is a leading cause of preventable death and ill health in Scotland. It is estimated that over 13,000 deaths a year in Scotland are attributable to smoking (Whyte et al (eds.), 2007 and Boreham, 2010), while the links between smoking and diseases like lung cancer, Chronic Obstructive Pulmonary Disease (COPD) and cardiovascular disease are well documented. Overall, smoking among adults in Scotland has fallen over the last 15 years (Bromley and Given (eds.), 2011, Scottish Government, 2011). However, smoking remains more widespread in Scotland than in England (Bromley and Shelton, 2010) and there remain significant socio-demographic inequalities in the distribution of smoking. For example, in 2010, 42 per cent of adults in the 15 per cent most deprived areas in Scotland were smokers, compared with 21 per cent in the rest of Scotland (Scottish Government, 2011). Smoking prevalence also varies with age, declining steadily after people reach their mid-50s and early 60s (Bromley and Given (eds.), 2011, Scottish Government, 2011).

The importance of reducing smoking to improving the health of people in Scotland has been reflected in a number of key Scottish Government and NHS policies and targets in the past decade. These include:

- introducing a ban on smoking in public places in 2006 (making Scotland the first part of the UK to introduce such a ban)
- raising of the legal age for purchasing tobacco from 16 to 18 in 2008.
- the publication of the tobacco control action plan (‘A Breath of Fresh Air for Scotland’) in 2004 and the smoking prevention action plan (‘Scotland’s Future is Smoke Free’) in 2008
- setting a national indicator target to reduce the percentage of adults who smoke³
- setting HEAT (Health Improvement, Efficiency, Access and Treatment) targets for NHS Boards to (a) support 8 per cent of their smoking population to successfully quit (at one month post quit) over the period 2008/2009 to 2010/2011, and (b) to deliver universal smoking cessation support leading to 80,000 successful quits (at one month post-quit), including 48,000 in the 40 per cent most deprived areas within Boards, over the three years ending March 2014.⁴

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³ See http://www.scotland.gov.uk/About/scotPerforms/indicator/smoking for details
⁴ See http://www.scotland.gov.uk/About/scotPerforms/partnerstories/NHSScotlandperformance/smokingcessation or http://www.scotland.gov.uk/Topics/Health/NHS-Scotland/17273/targets for details
1.4.2 Smoking cessation services

Since 1999, all regional Health Boards in Scotland have been required to establish smoking cessation services to support smokers who wish to quit. The precise form such services take varies between boards, for example in terms of the balance of group and one-to-one support offered, or whether support is primarily provided by community pharmacy staff or specialist smoking cessation workers. However, all boards are expected to offer ‘an NHS supported service with staff who have nationally recognised training and dedicated time for group and one-to-one support for a series of planned sessions where the client is followed up at one month, three months and one year post quit-date and the data is recorded’ (NHS Health Scotland and ASH Scotland, 2010).

The ‘Guide to smoking cessation in Scotland’ (NHS Health Scotland and ASH Scotland, 2010) also emphasises that ‘available evidence continues to suggest that the most effective smoking cessation approach is a combination of intensive support and pharmacotherapy’. Services therefore typically offer patients NRT, varenicline/Champix or bupropion/Zyban5 in combination with structured one-to-one or group support and advice offered over a period of weeks or months.

Take-up of NHS smoking cessation services has increased dramatically in Scotland in recent years. In 2010, an estimated 7.4 per cent of smokers in Scotland attempted to quit using NHS smoking cessation services. 79,672 quit attempts were recorded in total – up from 41,424 in 2007 (Galbraith and Hecht, 2011, Galbraith and Heeley, 2008).

There is growing research evidence of both the effectiveness and cost effectiveness of specialist smoking cessation support. Between April 2008 and March 2011, NHS Scotland smoking cessation services reported that they had supported 89,075 people to successfully quit smoking (self-reported quit at one-month post-quit date, ISD, 2011). This exceeded the target for this period for the NHS as a whole (83,975), although some individual Health Boards did fall short of the specific targets for their area. Bell et al (2006) reviewed 32 studies of NHS smoking cessation services in England and concluded that such services were both effective in the short term and reasonably effective in the long-term, with between 13 per cent and 23 per cent of successful short-term quitters self-reporting as still quit at 52 weeks. However, they also raised questions about the quality of much of the evidence on smoking cessation schemes to date and suggested that much of this had to be regarded as indicative rather than definitive. A particular issue is the number of quit attempts ‘lost to follow-up’, meaning that no data are available to say whether or not they have remained quit (see further discussion of this issue in relation to this evaluation in Chapter 3).

5 See Abbreviations and glossary for more information about these different types of pharmacotherapy.
The expansion of smoking cessation services in Scotland over the last decade is also premised on the argument that these services are considerably more cost-effective than most medical interventions. Interventions tend to be recommended to the NHS by NICE if the additional costs are less than £20,000-£30,000 per Quality Adjusted Life Year (QALY) gained. The additional costs of providing behavioural support and pharmacotherapy are estimated to be well below this figure, at around £1,000 per QALY (NHS Health Scotland and ASH Scotland, 2010). As such, it is argued that smoking cessation interventions ‘are among the most cost-effective interventions available in preserving life’ (NHS Health Scotland and ASH Scotland, 2010). Moreover, if the future treatment costs of smoking-related diseases are factored in to the calculation, smoking cessation interventions result in overall cost savings to the NHS (see NHS Health Scotland and ASH Scotland, 2010, McEwen and Vangeli, 2008, and Flack et al, 2006).

In terms of the factors associated with the most successful smoking cessation interventions, research shows that, broadly speaking, more intensive support programmes are more effective than very brief advice (NHS Health Scotland and ASH Scotland, 2010; Bell et al, 2006). There is also a growing body of evidence to suggest that group interventions are more effective in supporting people to quit than one-to-one support (Brose et al, 2011, Bell et al, 2006, Bauld et al, 2009), while quit rates tend to be lower for people attending pharmacy-based services (32 per cent at one-month, compared with 52 per cent for non-pharmacy services (Galbraith and Hecht, 2011)).

In terms of individual demographic and socio-economic factors, there is evidence to suggest that quit success varies with gender, age and deprivation.

- While women set more quit dates than men (Bromley and Given (eds.), 2011), Bell et al (2006) found that they were less likely to succeed in quitting.
- Older smokers of both sexes are more likely to quit successfully than younger smokers (Galbraith and Hecht, 2011), while smokers aged under 18 are also less likely to attempt to quit in the first place (Bell et al, 2006)
- Smokers’ attempts to quit and their desire to stop smoking does not appear to vary by area deprivation (Bromley and Given (eds.), 2011). Moreover, in 2010, those living in the most deprived areas of Scotland (SIMD 1 and 2) accounted for 31 per cent of smokers in Scotland but 37 per cent of quit attempts (Galbraith and Hecht, 2011). However, Galbraith and Hecht (2011) and Bell et al (2006) show that smokers in disadvantaged or deprived groups are less likely to quit successfully at four weeks than smokers in less deprived areas. They are often more highly addicted, smoking both more and from a younger age – both factors which on their own are barriers to quitting. It has also been argued that smokers in deprived areas may face particular social and

6 The National Institute for Health and Clinical Excellence
economic barriers associated with smoking being perceived as ‘the norm’ locally (Martin et al, 2008), leading to a lack of a ‘culture of quitting’.

1.4.3 Using financial incentives in smoking cessation

The use of financial incentives to encourage people to make positive changes to their health behaviours has been a subject of increasing interest in the UK and elsewhere in recent years. Debate centres on both the effectiveness of using incentives to promote changes to complex and long-standing behaviours, and on the potential ‘moral hazards’ involved in doing so.

There are two main ways in which incentives might improve the effectiveness of a smoking cessation service. First, they might increase take-up of the service. Provided incentives do not also have a negative effect on quit rates, this greater take-up should result in a larger number of successful quit attempts. Second, incentives might improve the quit rates achieved by a service. If this were the case, then even if exactly the same number of people sign up, the number who successfully quit will be higher. Of course, the ideal in terms of maximising the number of successful quitters would be to increase both take-up of smoking cessation services and their associated quit rates.

The most recent systematic review of the evidence for the effectiveness of financial incentives in smoking cessation (Cahill and Perera, 2011) found that there was some evidence that incentives increased overall numbers of participants in cessation schemes. However, the evidence for the impact on quit rates was far weaker. Only one trial of the 19 included (Volpp et al, 2009) found statistically significantly higher quit rates six months after enrolment in the scheme. In other studies, encouraging early higher quit rates disappeared at longer-term (six to 12 months) follow-up. Cahill and Perera conclude that incentives do not generally appear to enhance long-term cessation rates, but that they may nonetheless have potential to deliver an increase in overall numbers of quitters (via their impact in increasing numbers of participants). They also suggest that ‘incentives may have value as a mechanism for cessation induction, as distinct from their role in aiding or enhancing the cessation process’ – in other words, they may act as a ‘hook’ to encourage smokers to engage with cessation support.

Jochelson (2007) reviewed the evidence on the use of financial incentives in encouraging healthy behaviours more generally. She found that while incentives were often effective in encouraging people to perform simple, clearly defined, time limited tasks (like getting an immunisation or attending an appointment), they were much less effective in encouraging ‘complex’ behaviour change, such as stopping smoking or exercising more. ‘Complex’ behaviours are defined as ‘lifestyle’ behaviours which are ‘habitual and ingrained in the texture of people’s lives’.

Like Cahill and Perera, Jochelson concludes that while incentives aimed at changing these types of behaviour may be successful in increasing initial participation in schemes, once the interventions and incentives ceased, participants tended to relapse. She argues that this may in part be because
the use of incentives replaces people’s intrinsic motivations to change (as a
desirable end in itself) with an extrinsic motivation (payment). Once this
extrinsic motivation is removed, participants may lack the intrinsic motivation
to continue with the behaviour.

A more recent, non-systematic review of literature from the last five years
(Lynagh et al., 2011) is more positive, suggesting that ‘when supported with
other intervention strategies such as social support and skill training, personal
financial incentives can be effective in changing more complex behaviours
such as reducing smoking’. This additional support may help ensure that
intrinsic motivations to quit are reinforced, at the same time as an additional,
extrinsic motivation is provided.

Both Jochelson (2007) and Lynagh et al (2011) identify a number of features
that may contribute to the success of schemes which use incentives. As
discussed, ensuring that incentives are combined with behavioural support to
reinforce participants’ motivation to quit was seen as key. Other suggestions
include:

• focusing on more disadvantaged populations. Lynagh et al (2011)
argue that the evidence suggests socially disadvantaged groups tend
to be the most amenable to incentive-based schemes. Moreover, given
the social patterning of smoking (discussed above), from an equality
perspective it may be considered desirable to focus incentives on
increasing quit attempts among those in more disadvantaged groups,
who are more likely to smoke in the first place.

• incentives that are sufficient in size to be attractive to the group at
which they are aimed. Cahill and Perera (2011) note that the only trial
in their review which showed higher long-term quit rates offered very
substantial incentives (up to US $750) for quitting, while Lynagh et al
(2011) argue that while low-value incentives have shown some
success, ‘the greater the reward, the greater the effect’.

• frequent and timely rewards. Lynagh et al (2011) suggest that while
one-off payments may work for one-off, simple behaviours, more
complex behaviours need a schedule of incentives to maintain the
change. Both Jochelson (2007) and Lynagh et al (2011) argue that the
reward needs to be given as close as possible to the time of the
behaviour change in order to be effective.

• addressing the social context of smoking. Jochelson (2007) notes that
most incentive schemes focus on the individual, but argues that
schemes ignore the social context in which health behaviours occur at
their peril. Some incentive schemes have tried to build in a social
element – for example, providing vouchers to pregnant women and
their supporter for each month they remain smoke free. However,
Jochelson also reports that group incentives can backfire – for
example, a workplace intervention which penalised the group for
individual failures led to friction in the team and in some cases
appeared to confirm people’s desire to continue smoking.
1.4.4 The contribution of quit4u to the evidence base

‘A Guide to Smoking Cessation in Scotland’ (2010) reiterates previous editions which recommended that in order to produce cost effective and significant health gain in the population, planners and commissioners of health services should focus on ‘evidence-based smoking cessation interventions’.

Quit4u is premised on the assumption that while financial incentives alone may be ineffective in increasing sustained quit attempts, when offered in combination with both pharmacotherapy and structured behavioural support it may reinforce the motivation to quit (an assumption supported by Lynagh et al, 2011, discussed above). This evaluation thus focuses not on the effectiveness of financial incentives, but on the effectiveness of a scheme which combines financial incentives with behavioural support and pharmacotherapy. It is hoped that the findings will make a substantial contribution to the evidence on what works in smoking cessation support, particularly for smokers in deprived areas.
2 Quit4u

2.1 Smoking and smoking cessation in Tayside

In 2007/2008, immediately prior to the establishment of quit4u, 26.4 per cent of adults in Dundee smoked (Scottish Household Survey Local Authority web tables\(^7\)). This was just above the national average for the same period (25.4 per cent). However, Dundee’s smoking population is particularly heavily concentrated in deprived areas, since over half of Dundee’s population lives in areas in DEPCATs 6 and 7 and smoking rates are higher within these areas (Easton, 2006, Scottish Household Survey Local Authority web tables). Moreover, take up of smoking cessation services in Dundee was comparatively low – in 2007, an estimated 2.6 per cent of Dundee CHP’s smoking population accessed smoking cessation support, compared with 5.5 per cent in Angus and 3.2 per cent in Perth and Kinross\(^8\) (Galbraith and Heeley, 2008).

To meet the HEAT target (to support 8 per cent of their smoking population to successfully quit, as measured at four weeks post-quit date, between 2008 and 2011), NHS Tayside estimated that it needed to support an additional 900 smokers in Dundee to successfully quit. Quit4u was developed to try and achieve this aim by increasing the number of smokers in Dundee engaging with NHS smoking cessation services and going on to successfully quit. Given the concentration of smokers in deprived areas of Dundee, quit4u focused specifically on engaging smokers from these areas.

Smoking cessation services in Dundee are provided by a mixture of staff and in a variety of venues, including GP surgeries and hospitals. However, the majority of the support is provided either by community pharmacies (on a one-to-one basis) or by specialist smoking cessation advisors, who run a number of smoking cessation groups across Dundee, particularly through the Dundee Healthy Living Initiative (DHLI). Since May 2008, smoking cessation groups in Dundee have been run on a ‘rolling’ or ‘open’ basis, where participants can leave and join at any time (as distinct from ‘closed’ groups, where participants join at the same time and attend for a fixed period). This means that groups typically include people at different stages of their quit attempts.

2.2 The quit4u programme

Quit4u was developed and implemented by NHS Tayside in partnership with other key stakeholders, particularly Dundee City Council and the DHLI. The scheme was initially targeted at adult smokers, aged 16 and over, living in the most deprived areas (DEPCATS 5, 6 and 7) of Dundee. Its key features are:

- a financial incentive of up to £150 in total to spend in ASDA stores, delivered in £12.50 weekly payments. Payments are made for each week the participant is verified as ‘smoke free’ via a carbon monoxide

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8 Tayside Health Board includes three CHPs – Dundee, Angus and Perth and Kinross.
(CO) test at a community pharmacy or smoking cessation group, up to a maximum of 12 weeks across a 20 week period from when they first register. Incentives are delivered via an ASDA card, linked to a National Entitlement Card (NEC) provided by Dundee City Council on verification of the participant’s identity and address

- behavioural support, delivered either in groups (run by the Dundee Healthy Living Initiative (DHLI), NHS Tayside smoking cessation staff, or practice nurses), or one-to-one (primarily by community pharmacists)
- pharmacotherapy (Nicotine Replacement Therapy, Bupropion/Zyban or Varenicline/Champix).

Quit4u aimed to build on the learning from ‘Give it up for Baby’, another NHS Tayside scheme which combined financial incentives (again, money credited to a card which could be spent at local ASDA stores) with pharmacotherapy and behavioural support for pregnant women up to three months after birth. The scheme had attracted 140 women by the end of September 2008, with around half of these still quit at four weeks – a reversal of Tayside’s previously unsuccessful attempts to engage pregnant smokers with smoking cessation services (Radley, 2008).

The key features of quit4u have remained constant since it was launched in March 2009. However, the implementation and development team have adjusted some aspects of the application process as the programme developed.\(^9\) NHS Tayside also took the decision to extend quit4u to smokers living in deprived areas in Perth and Kinross (from November 2010) and Angus (from August 2011).\(^10\)

### 2.3 Quit4u logic model

The diagram below shows key stakeholders’ initial expectations about how the quit4u programme might work in terms of the expected inputs, outputs and outcomes. It also summarises stakeholders’ views of the assumptions underpinning the links between these inputs, outputs and outcomes, and the risks to achieving them. The model was developed in mid-2009, at the start of the evaluation, in discussion with stakeholders from NHS Tayside, Dundee City Council and the DHLI. Revisiting the model with stakeholders drawn from the same organisations in early 2012 suggested that this model remained a reasonably accurate reflection of key stakeholder perceptions of the operation of quit4u.

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\(^9\) In particular, the NEC and quit4u application forms were combined to reduce the risk that the amount of paperwork deters people from applying.

\(^10\) Data on quit rates at one month presented in this report includes 26 quit4u participants in Perth and Kinross, but the evaluation’s primary research with participants focused on Dundee only.
Figure 1: Draft logic model diagram
(U) indicates that the input is ‘unique’ or new to quit4u. (I) that quit4u requires an increase in this input.

**INPUTS**
- Staff resources:
  - q4u Admin (U)
  - NEC admin (I+U)
  - Leadership (U)
  - Liaison between services (I+U)
  - CO monitoring (U)
  - Volunteers (I)
  - Briefing customer services (I)
  - SS advisors/support workers/coordinator (I)
  - CP role (I)
  - Health workers/comm. Ed (I)
- Funding (I)
  - Incentives, increased number of classes, GP letters, additional CO monitoring
- Training
  - Health workers/SS workers on q4u (U)
- Other
  - Give it up for Baby (U)
  - Advertising (U)
  - q4u lit & documentation (U)
  - Facilities/venues (I)
  - Materials from drug reps

**OUTPUTS**
(Activities)
- Number of sign-ups to quit4u
- No. of CO tests/contacts with services
- No. groups sessions/1-1 sessions attended
- No. of groups running
- No. of meetings among prof partners
- Increased prescribing rates for NRT/Champix/Zyban
- Increase number of NEC cards
- Literature and advertising resources produced by q4u
- Qui4u participants
  - Pharmacists
  - DHLI
  - Weight watchers
  - Active for life
  - Qui4u participant contacts (Partners, Children, Siblings, Friends, Parents, Pets and animals)
  - Smoking cessation
  - Group members
- Primary care (G.Ps, Practice Nurses)
- Acute services
- Educational/teaching
- Employers
- NEC card holders (library services, etc)
- Asda/Shops/supermarket
- Wider community
- General population
- Scottish Government
- NHS Tayside, Public Health, CHPs, NHS Scotland, Other Health Authorities

**REACH**
- Short
  - Number of sign-ups to quit4u
  - No. of CO tests/contacts with services
- Medium
  - Number of sign-ups to quit4u
  - No. of CO tests/contacts with services
- Long-term
  - Number of sign-ups to quit4u
  - No. of CO tests/contacts with services

**OUTCOMES**
- Individuals
  - Awareness of availability of support
  - Improved self-esteem
  - BUT also:
    - Stigma?
    - Participatory fraud?
    - Community tension?
- Orgs/professionals
  - Improved info exchange
  - Collection of individual quitter stories
  - BUT also:
    - Reduce participation due to postcode restrictions?
- Other
  - Increased ASDA profits

**ASSUMPTIONS**
- There are people who want to give up; Incentive is attractive and will increase sign-up; Increased participants will lead to increased numbers of quitters; Incentive may be tipping point for quitting; quit4u is targeting motivations of smokers; Requiring people to come to classes/see CP regularly leads to more successful quit attempts; CO monitoring itself is good motivator; Media and advertising increase awareness; Success stories will increase profile; Targeting DEPCAT areas will engage more smokers from deprived backgrounds.

**RISKS**
- Co-ordinator’s workload;
- HLI funding/core funding;
- G.Ps’ engagement with q4u;
- Pharmacies withdrawing;
- Pharmacists being moved around;
- Loss of leadership;
- Quality of services impacted on by demand;
- Accuracy of assumptions about number of people who want to quit;
- Risks around incentive (fraud, success after incentive withdrawn, would participants have given up without it? Is it enough?); Emphasis on classes undermining of role of individual will power?; Timing of CO monitoring – if not instant, undermining motivation?; Who signs up? Risk it’s the more advantaged people in q4u areas; Focus on disadvantaged areas where smoking more entrenched – harder to convert people to successful quitters.
3 Research methods

3.1 Summary of research design
The evaluation of quit4u combined qualitative and quantitative methods and collected data from a range of stakeholders to explore the ways in which quit4u influenced smoking-related behaviour change and quit rates. The research design is briefly summarised below. More detail is provided in Appendix 1, while the instruments used to collect the primary data discussed in this report are provided in Appendix 7.

3.1.1 Secondary analysis of smoking cessation data to assess effectiveness and cost-effectiveness
- Quantitative analysis of take-up and quit rates – the number and profile of quit4u quit attempts was examined, and the effectiveness of quit4u estimated by comparing quit4u quit rates at one, three and 12 months with quit rates for a comparison sample of quit attempts among people who used other NHS smoking cessation services, either in Tayside or elsewhere in Scotland.
- Cost effectiveness analysis – an economic evaluation was performed to assess the cost-effectiveness of quit4u compared to self-quit and other NHS smoking cessation services from the perspective of the public sector.

3.1.2 Primary research with quit4u participants
- Small-scale surveys of quit4u participants – a semi-structured telephone survey with a random sample of 130 quit4u recruits was conducted by interviewers from ScotCen Social Research within two weeks of sign-up for quit4u. A follow-up interview was conducted 12 months later with as many of the same individuals as it was possible to re-contact (n = 79).
- Repeat in-depth, one-to-one interviews with a panel of quit4u participants – a purposive panel of 40 quit4u participants was selected from the survey respondents and interviewed in greater depth about their experiences of attempting to quit three months after their initial recruitment to quit4u. Panel members who were still quit at three months were then re-interviewed 12 months post-recruitment to quit4u (n = 23).
- Focus group discussions – four focus group discussions were convened with quit4u participants and their respective social networks or smoking circles, in order to explore social and contextual issues around quitting smoking.

3.1.3 Primary research with professionals
- Stakeholder interviews – stakeholders’ expectations and views about how quit4u would work in practice were explored via semi-structured telephone interviews and face-to-face discussions with senior staff
involv...ed in service planning and delivery at an early phase of the evaluation (April/May 2009).

- Logic modelling event and discussion – a one day event was held shortly after the evaluation commenced with the professional stakeholders most closely involved in the development and delivery of quit4u in order to develop a logic model to show how quit4u was expected to work. This stakeholder group was reconvened in early 2012 to discuss the emergent findings from the evaluation and to revisit their early assumptions and expectations about quit4u.

- Interviews with professionals involved in delivering quit4u – four individual interviews with pharmacists and a focus group with DHLI staff who run smoking cessation groups were conducted in Summer 2010.

3.2 Scope and limitations of the evaluation

It is important in reading the findings from any research to be aware of the scope of the study and any potential limitations and bias. This section summarises particular challenges and limitations associated with this evaluation. Further details of these are discussed in relevant Appendices to this report.

3.2.1 Mixed method design

The mixed method design of the quit4u evaluation was necessitated by the research aims and objectives. While quantitative data were clearly needed to measure the effectiveness of quit4u, qualitative methods were required to explore in more detail issues around ‘mechanisms of change’. However, the use of different methods can also provide different perspectives on the same research questions. In this report, the evaluation team has sought to integrate the findings from across different elements of the research design in order to provide a fuller picture of the operation and impact of quit4u.

3.2.2 Disentangling the role of incentives

The key aim of the quit4u evaluation was to assess the effectiveness of combining standard pharmacotherapy interventions with financial incentives and behavioural support in encouraging take-up and successful quit attempts. It was not, therefore, intended to be a simple evaluation of the effectiveness of financial incentives but an evaluation of a complex programme which included incentives as one component. However, there is clearly considerable interest in Scotland and elsewhere in the role and impact of incentives and their potential to improve the ability of services to reach smokers, particularly in disadvantaged areas.

It is therefore important to be clear about the limitations on what the evaluation can say in this respect. In particular, the quantitative analysis of effectiveness cannot separate the impact of the incentives from the impact of other elements of quit4u in explaining any differences in quit rates between quit4u and comparison areas. Moreover, there were other significant differences between the quit4u programme and smoking cessation services in other areas, beyond the use of incentives, which confound any attempt to attribute differences in success solely to the use of financial incentives. In
particular, the use of group rather than one-to-one support was higher in quit4u, as was the use of Varenicline/Champix compared with other forms of pharmacotherapy.

Participant, professional and stakeholder views of quit4u do allow for exploration of perceptions of the role of financial incentives in participants’ quit attempts. However, as discussed below, it is not appropriate to make quantitative inferences about the impact of incentives based on qualitative data, while the confidence intervals for figures based on the small-scale surveys are relatively wide in statistical terms. Moreover, there are clearly some challenges associated with assuming that participants’ perceptions of the role of incentives necessarily provide a completely accurate picture of their actual impact.

In some cases, participants may be unwilling to admit, or are unconscious of, the impact incentives had on their participation in the scheme. As such, while the evaluation’s primary research with participants and professionals provides valuable evidence about how incentives appear to influence people’s decision-making and engagement with quit4u, it cannot be used to provide robust estimates of their precise impact on take-up or quit rates.

3.2.3 Comparing data for quit4u with data for other NHS smoking cessation services

There are three main challenges associated with comparing quit4u quit rates at one, three and 12 months with quit rates for other NHS smoking cessation services:

- differences in the characteristics of those participating in quit4u and those taking part in other smoking cessation services
- differences in the proportion of attempts ‘lost to follow-up’ in other services compared with quit4u
- the large variation in how other smoking cessation services are delivered across Scotland.

Quit4u focuses on individuals living in deprived areas. However, as discussed in Chapter 1, people in deprived areas are less likely to give up smoking successfully. If the evaluation simply compared quit attempts made through quit4u with attempts made through other NHS smoking cessation services without taking this into account, it would risk underestimating the effectiveness of quit4u, since quit4u is aimed at a group for whom quit rates are known to be lower. The characteristics of people participating in quit4u might be different in other ways too – for example, those participating in quit4u might be more addicted to smoking. Again, if the evaluation did not take account of such differences, it might significantly underestimate the effectiveness of quit4u. The solution to this issue is to use a statistical technique called propensity scoring to adjust for any differences between quit4u quit attempts and quit attempts made through other NHS smoking cessation services on key demographic characteristics (like age, area deprivation and employment status) and on characteristics related to smoking history and dependence (for example, how soon after waking they have their first cigarette). This approach
means that the analysis is comparing like with like, and is not unfairly comparing quit4u with quit attempts among (for example) people in relatively less deprived areas, or relatively less addicted groups of smokers.

The second challenge relates to the relatively poorer quality of the data available for the comparator group of quit attempts made through other smoking cessation services compared with the data available for quit4u. The main issue here is the high proportion of cases ‘lost to follow-up’ in the Scottish National Smoking Cessation Database – that is, smokers who signed up for a smoking cessation service and for whom initial data were collected, but for whom follow-up data on their quit status at one, three or 12 months were not available. In their report on smoking cessation in Scotland in 2010, Galbraith and Hecht (2011) report that 44 per cent of quit attempts were lost to follow-up at one month (55 per cent lost to follow-up in pharmacy services and 25 per cent in non-pharmacy services), while among quit attempts in 2009, 68 per cent were lost to follow-up by 12 months. In comparison, loss to follow-up in the data for quit4u was much lower, particularly at one month where it was just 21 per cent. This higher follow-up rate suggests that quit4u has been more successful in maintaining contact between services and clients at one month, which in itself is likely to have improved effectiveness (since longer engagement with services is associated with higher quit rates (Hiscock et al, 2010)). However, the difference in loss to follow-up between quit4u and the comparison sample does create some analytical challenges in comparing data for quit4u with data for other services.

These challenges stem from the fact that there are two competing explanations for why some quit attempts are not followed up.

First, individuals attempting to quit may be lost to follow-up because they have relapsed and are therefore reluctant to feed back their smoking status. Second, individuals may be lost to follow-up because services used ineffective methods or did not invest sufficient resources into re-contacting them.

It is not possible to estimate for the comparison sample what proportion are lost to follow-up because they have relapsed, and what proportion are lost to follow-up because the administrative systems in place for following up participants are relatively weaker in other services compared with quit4u. A common assumption in analysis of smoking cessation data is that all individuals who are lost to follow-up have relapsed. However, this would be a very strong assumption to make in relation to the comparison sample here, given known differences in administrative systems for following up quit attempts across Scotland.

If the analysis included in this report was based entirely on the assumption that all those lost to follow-up had relapsed, it would leave the evaluation open to the potential criticism that it underestimated quit rates in the comparison sample and therefore over-stated the effectiveness of quit4u.
To avoid this possibility, the evaluation therefore carried out additional ‘sensitivity analysis’. This analysis tested whether the key findings about differences in quit rates between quit4u and other smoking cessation services still hold true across a number of scenarios where the difference in lost to follow-up are reduced.

A final challenge is that there are many variations in the ways in which other NHS smoking cessation services are delivered across Scotland – from the use of rolling or closed group support, to the level of use made of pharmacies, to the kinds of pharmacotherapy used. It is beyond the scope of this evaluation to compare the effectiveness of quit4u with every other model of NHS smoking cessation support operating in Scotland. Our main comparisons are with the average quit rates of services from across Scotland for smokers with similar characteristics to quit4u participants. We also compare the quit rates of quit4u with the average quit rates from across Scotland by pharmacy and non-pharmacy services. However, it is likely that there is further variation in quit rates within both pharmacy and non-pharmacy services in the rest of Scotland. Some of this variation may be geographic. For example, one month quit rates have been shown to vary across health boards (Galbraith and Hecht, 2011). This means that even though quit4u quit rates may be higher than the average quit rate of other NHS cessation services, around this average there is very likely to be a range of different quit rates across different areas, some higher and some lower. Due to small sample sizes in some areas, it is not possible to robustly explore such geographic differences within this report.

3.2.4 Role of qualitative data
As discussed above, primary data from quit4u participants, providers and stakeholders were collected primarily using a qualitative approach. Qualitative samples are generally small, and are designed to ensure the range of different views and experiences are captured. It is not appropriate given the number of interviews conducted to draw conclusions based solely on the qualitative data about the prevalence of particular views or experiences of quit4u. Given this, where possible quantifying language, such as ‘all’, ‘most’ or ‘few’, is avoided when discussing qualitative findings. It is also worth noting that interviews with participants and professionals focused on their perceptions of quit4u. These perceptions may not necessarily always completely agree with each other, or with the views of others on how the scheme works.

3.2.5 Sample size for small-scale surveys of participants
The purpose of the two small-scale surveys with quit4u participants was two-fold:

- to provide a sample frame from which to select the qualitative panel
- to provide more detail about the profile and experiences of a wider group of quit4u participants than it was possible to include in the qualitative panel.
The sample size for each survey was, however, small (n = 130 at baseline and n = 79 at follow-up). The findings should therefore be treated with some caution as the confidence intervals are relatively large. For example, for a sample size of 130, the 95 per cent confidence interval around a finding of 50 per cent would be +/- 8.6, meaning that the 'true' value is likely to fall somewhere between 41 per cent and 59 per cent. For a finding of 25 per cent or 75 per cent, the 95 per cent confidence interval would be +/- 7.4 and for a finding of 10 per cent or 90 per cent it would be +/-5.1. For the follow-up survey, the confidence intervals will be even larger. However, in conjunction with findings from the qualitative research with participants and the secondary analysis of data collected for all quit4u participants, the survey findings contribute to the overall picture of the characteristics of participants and their expectations about, engagement with and experience of quit4u.
4 Effectiveness of quit4u in encouraging take-up of cessation services

4.1 Overall take-up of quit4u

As discussed in Chapter 2, a key aim of the quit4u programme was to increase the take-up of smoking cessation services among smokers in deprived areas of Dundee, which had historically been low. More specifically, the programme aimed to engage 1,800 smokers by the end of March 2011 (the deadline for the 2008-2011 HEAT target on smoking cessation). Quit4u met and exceeded this target, signing up 2,042 participants between its launch in 2009 and the end of March 2011. Moreover, the number of quit attempts among people living in deprived areas of Tayside clearly increased after quit4u was launched (in March 2009). In 2007/2008, there were 2,372 quit attempts among smokers living in the most deprived areas of Tayside, while in 2009/2010 this increased to 3,421 (Table 4.1).

However, while quit4u may have contributed to the increased take-up of smoking cessation services among people in deprived areas in Tayside, it is important to note that other areas of Scotland also achieved substantial increases in recorded take-up of cessation services among those in deprived areas over the same period (Table 4.1). This probably reflects cessation services' increased activity to achieve the HEAT targets by the March 2011 deadline. It should also be noted that the total number of quit attempts does not provide any insight into reach (that is, the proportion of smokers in deprived areas who are using NHS cessation services). Reach could not be assessed as robust data on smoking prevalence by SIMD deciles within health boards are not available. It is likely to be easier to increase the absolute number of quit attempts in areas of Scotland where reach is initially low compared to areas where a larger part of the deprived community is already accessing cessation services.

11 Figures based on the quit4u database, maintained by NHS Tayside and provided in an anonymised form to the University of Aberdeen on 19th May 2011.
12 As measured by being in one of the three most deprived deciles on the Scottish Index of Multiple Deprivation – see http://www.scotland.gov.uk/Topics/Statistics/SIMD. Note that quit4u targets people in Carstairs DEPCATs 5, 6 and 7. While SIMD scores and DEPCATs are correlated, they do not match perfectly.
Table 4.1: Number of quit attempts within three most deprived SIMD (Scottish Index of Multiple Deprivation) deciles, by Health Board and year

<table>
<thead>
<tr>
<th>Health Board</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>% increase 2007-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayrshire</td>
<td>1687</td>
<td>1671</td>
<td>1846</td>
<td>2937</td>
<td>74%</td>
</tr>
<tr>
<td>Borders</td>
<td>175</td>
<td>231</td>
<td>301</td>
<td>284</td>
<td>62%</td>
</tr>
<tr>
<td>Dumfries &amp; Galloway</td>
<td>246</td>
<td>304</td>
<td>575</td>
<td>710</td>
<td>189%</td>
</tr>
<tr>
<td>Fife</td>
<td>1061</td>
<td>1135</td>
<td>1571</td>
<td>1874</td>
<td>77%</td>
</tr>
<tr>
<td>Forth Valley</td>
<td>551</td>
<td>782</td>
<td>1463</td>
<td>1297</td>
<td>135%</td>
</tr>
<tr>
<td>Fife</td>
<td>1061</td>
<td>1135</td>
<td>1571</td>
<td>1874</td>
<td>77%</td>
</tr>
<tr>
<td>Lanarkshire</td>
<td>3,174</td>
<td>3,674</td>
<td>6,848</td>
<td>6,236</td>
<td>96%</td>
</tr>
<tr>
<td>Lothian</td>
<td>1513</td>
<td>2120</td>
<td>3585</td>
<td>3510</td>
<td>132%</td>
</tr>
<tr>
<td>Islands</td>
<td>5</td>
<td>53</td>
<td>43</td>
<td>49</td>
<td>880%</td>
</tr>
<tr>
<td>Tayside</td>
<td>1093</td>
<td>1279</td>
<td>1568</td>
<td>1853</td>
<td>70%</td>
</tr>
</tbody>
</table>

Source: ISD National Smoking Cessation dataset

4.1.1 Take-up among ‘social networks’

Interviews with pharmacists and smoking cessation advisors delivering the quit4u scheme identified some resistance to the use of postcodes as an indicator of eligibility for a scheme that includes incentives. Perhaps inevitably, postcodes were perceived as mapping only imperfectly onto deprivation and as ‘unfairly’ excluding some people. This was reported as having the potential to have a detrimental impact on smoking cessation group dynamics where some people are eligible for the incentives and others are not.

However, a potentially positive impact from quit4u’s geographical focus on people living in DEPCATs 5, 6 and 7 relates to engaging groups of people from particular neighbourhoods. Stakeholders involved in planning and delivering the service felt that quit4u had been particularly effective in tapping into existing social networks while NHS Tayside’s own analysis of the postcodes of quit4u participants suggests that sign-up occurred in geographical ‘bursts’, with a number of people in specific streets or blocks signing up in close succession. Meanwhile, data from the small-scale baseline survey of quit4u participants showed that around half of respondents said they also knew someone else who had signed up for the service.

Unfortunately no comparison data are available on the extent to which smoking cessation services generally attract groups of family members,

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13 For a full breakdown of these figures by each SIMD decile, see Appendix 2.
friends or neighbours. However, given the importance of peer influences on people’s quit success (discussed in Chapter 6), it appears worthwhile for schemes that focus on specific postcode areas to consider how best to take advantage of this fact to encourage people to sign up with their friends, family and neighbours.

4.2 Motivations to sign-up for quit4u

Qualitative research with quit4u participants suggests that reasons for signing up for quit4u fell into four main categories:

- to receive the financial incentive offered by quit4u
- to receive pharmacotherapy (varenicline/Champix and nicotine patches were specifically mentioned)
- to receive structured support in general
- to receive particular support, such as group therapy and CO breath tests.

Thus all the elements of quit4u appear to have played a role in attracting different participants to join the scheme. Moreover, these categories were not mutually exclusive – for example, participants described being attracted by both the financial incentive and the structured support.

As discussed in Chapter 3, this is an evaluation of quit4u as a whole, and not an evaluation of financial incentives. However, given that the use of incentives was a particularly innovative element of quit4u, the qualitative and survey research with participants explored perceptions of the role of the incentives in encouraging sign-up for quit4u. Again, participants in the qualitative research fell into four distinct groups:

- those who described the incentive as their main reason for signing up
- those who said it was an important factor, but not the main reason for signing-up
- those who maintained that it had not been a reason for joining, but was a bonus of the programme
- those who insisted that it had not been a factor at all in the decision to join quit4u.

In terms of quantifying the proportion of participants who felt they were motivated to sign-up for quit4u by the incentive, around a third of respondents to the baseline survey said they were ‘really encouraged to register’ by quit4u’s offer of extra money to spend in ASDA, while around three in 10 respondents to the 12 month follow-up survey felt the incentive had been ‘very’ or ‘quite important’ in encouraging them to sign-up. This indicates that the incentives provided an additional motivation to sign-up for the scheme for some participants, but perhaps only for a minority (albeit a substantial one).

As discussed in Chapter 3, assessing people’s claims that they are not motivated by money can be problematic. People may understandably have concerns about appearing ‘mercenary’ and may, therefore, understate the extent to which the incentives were in fact an attraction of quit4u. However,
the group that insisted the incentives had not been a factor included people
who claimed they had not known about the incentive at the time they decided
to seek formal help, as well as people who said they had not tried to claim the
incentive. Both these factors suggest that, for these participants at least, the
incentive genuinely was not a reason for signing up for smoking cessation
support.

‘Well actually, I never knew anything about that. I knew people were getting
£12.50 payments, but I thought it was through doctors or through the hospital.
It must have been four weeks (after joining group) before I knew anything
about it. It’s not a thing I’m bothering about. It’s not the reason … I’m not really
interested in it to tell the truth.’
(Participant 99)

Moreover, the fact that the incentives did not necessarily dominate most
participants’ thinking about joining quit4u is indicated by the fact that while
only a third said they felt the extra money really encouraged them to register,
almost nine in 10 respondents to the baseline survey said they thought the
breath tests would motivate them to stay off smoking.

Participants who felt that the incentives had been either a primary or a
secondary reason for their signing-up for quit4u suggested that:

- it could encourage people to find out about quit4u in the first place
- it could provide the ‘tipping point’ for people who were already thinking
  about giving up
- it provided positive encouragement to quit, in contrast with other
  prompts to stop smoking (like TV adverts) which could be perceived as
  overly negative
- it provided something to work towards, which other smoking cessation
  schemes lacked.

‘Oh, that was, for me, what tipped the boat. I was sitting there thinking “Will I
stop? Will I not? Will I stop?” And my mother-in-law told me about this ... and I
went, “Oh. Oh. I’ll give that a go”. It does give you that extra push I think.’
(Participant 88)

These views were echoed by community pharmacists and smoking cessation
advisors, who felt that the incentives might be having a positive impact on
take-up of cessation services by:

- encouraging people to think about quitting, even if they are not ready to
do so immediately
- triggering them to actually sign up to try and quit with support.

4.3 Barriers to signing-up for quit4u

Neither the qualitative research nor the small-scale surveys with participants
identified any major barriers to eligible people signing up for quit4u – although
as the evaluation did not interview participants who considered joining but did
not sign-up, it is possible that there are additional barriers not captured here.
A potential issue identified by service designers and planners was whether the requirement to sign up for an NEC card would act as a disincentive to join quit4u. As already noted, the evaluation only has data on participants who did sign-up for quit4u. However, secondary analysis of the quit4u database found that whether or not participants already had a NEC card prior to signing up did not impact on their likelihood of taking any CO tests. The requirement to sign-up for a NEC card does not, therefore, appear to have had an impact on whether or not those who sign-up for the scheme actually go on to participate at all.

Responses to the small-scale baseline survey of participants suggested that participants did, however, perceive some problems with signing up for the NEC card, including:

- a perception that it had taken a long time to receive the card
- feeling they did not know much about the NEC card, what it was for or whether they were eligible
- problems with the requirement to obtain photos or get photos signed (including not having enough money to pay for photographs to be taken and having to wait for photos to be signed by officials)
- poor spoken English or reading and writing ability (in these cases the forms had either been filled in by a family member, the pharmacist or smoking cessation group leader).

Moreover, community pharmacists and smoking cessation advisors suggested that some people in the quit4u target group were deterred from applying for a NEC card (as well as from providing information for the national smoking cessation database) by concerns about confidentiality and how their data might be used.

‘A lot of people in the areas that we work in are in a lot of debt and they really don’t want their name circulated around the Council.’
(DHLI group)

As discussed, analysis of the quit4u database indicates that these issues do not appear to have impacted on (at least initial) engagement with the CO test and support element of quit4u. However, where schemes use NEC cards or a similar system to validate entitlement to incentives, it will be important to take account of these kinds of potential barriers to their take-up.

4.4 Summary

- quit4u met and exceeded its target for recruitment, signing-up 2,042 smokers between its launch in 2009 and the end of March 2011
- take-up of smoking cessation services in deprived areas of Tayside also increased following the introduction of quit4u.

14 As NEC cards are used to access other council services, particularly free bus travel for the over 60s, around 21 per cent of participants already had cards prior to joining quit4u.
other Health Board areas achieved similarly higher levels of take-up among smokers in deprived areas with their own smoking cessation schemes over the same period.

although focusing on specific postcode areas as a way of determining eligibility for incentives has the potential to cause some tensions, particularly within smoking cessation groups, there is also some evidence to suggest that quit4u’s geographical focus was successful in encouraging people to join at the same time as their family, friends or neighbours.

all the elements of quit4u appear to have played a role in attracting different participants to join the scheme.

the small-scale survey of participants suggests that the financial incentives provided an additional motivation to sign up for a substantial minority of participants. For these participants, the evaluation suggests that incentives may provide a trigger or ‘tipping point’ to (a) give up and (b) give up with support.

participants interviewed for the evaluation did not identify any major barriers to signing up for quit4u. There was some evidence that participants perceived some barriers to signing-up for a NEC card. However, the requirement to obtain a NEC card did not appear to be associated with a failure to take any CO tests, suggesting that these barriers did not deter people from at least starting the quit4u programme.
5 Effectiveness of quit4u in increasing quit rates

5.1 Quit rates at one, three and twelve months

The impact of quit4u on quit rates was assessed by comparing quit rates at one, three and 12 months for quit4u quit attempts with those for a matched sample of quit attempts among people using other NHS smoking cessation services in Scotland. This section summarises the findings from this analysis, details of which are provided in Appendix 2.

Quit4u is targeted on Dundee residents in deprived areas. Analysis thus unsurprisingly shows substantial differences in the distribution of quit4u quit attempts in 2009/2010 across DEPCATs compared with the profile of quit attempts for other smoking cessation services. There were also other statistically significant differences between quit attempts made through quit4u and non-quit4u services, including:

- age (quit4u attempts were made by, on average, slightly older smokers)
- employment status (a higher proportion of quit4u attempts were made by unemployed smokers)
- current smoking (a higher proportion of quit4u attempts were made by people who usually smoked their first cigarette shortly after waking, indicating a higher degree of addiction).

As discussed in Chapter 1, quit success varies significantly with factors like deprivation and age. Smoking history and level of addiction are also known to affect quit rates (Kotz and West, 2009). If the evaluation simply compared quit rates for quit4u with quit rates for other smoking cessation services this might underestimate the impact of quit4u, since quit4u supports a group of smokers whose quit rates are, on average, lower.

As described in Chapter 3, the evaluation used a statistical technique called propensity scoring to overcome this problem. This technique is used to adjust the comparison of quit rates for any differences between quit4u attempts and quit attempts made through other smoking cessation services on key demographic characteristics (like age, area deprivation and employment status) and on characteristics related to smoking history and dependence (for example, how soon after waking they had their first cigarette).

Table 5.1 shows quit rates at one, three and 12 months for quit4u attempts in 2009/2010 compared with average quit rates for attempts using other NHS smoking cessation services. These quit rates are based on the assumptions adopted by ISD in calculating quit rates across Health Boards in Scotland –

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15 12 month quit rates are estimated using data on quit attempts in 2009. Three-month quit rates are estimated using data on quit attempts between January 2009 and end of September 2010.
that is, the definition of ‘quit’ is based on the Russell standard\textsuperscript{16}, and all participants who were lost to follow-up are assumed to have relapsed. They are calculated using self-reported smoking status in the ISD dataset. Through the weekly CO tests, more robust and more detailed information on smoking status is available for quit4u. However, this additional information cannot be used in the comparison as equivalent information is not available in other cessation services.\textsuperscript{17}

Table 5.1 shows that 50 per cent of quit4u attempts were quit at one month, 31 per cent at three months and 9 per cent at 12 months. At each point in time, the quit4u quit rate was significantly higher than that estimated for attempts using other NHS smoking cessation services (other SCS). For example, at one month, the quit4u quit rate was 16 percentage points higher than that for other services (50 per cent compared with 34 per cent). While quit rates in both quit4u and other services fall off sharply between three and 12 months, the estimated quit rate for quit4u remains higher than that for other services (9 per cent compared with 7 per cent).

Table 5.1: Self-reported quit rates (Russell standard) at one, three and 12 months: quit4u (2009/2010) compared with matched sample for other smoking cessation services\textsuperscript{18}

\begin{tabular}{|c|c|c|}
\hline
 & 1 month & 3 months & 12 months \\
\hline
\textbf{quit4u (ALL)} & 49.9\% & 30.7\% & 9.3\% \\
\textbf{Non-quit4u (other SCS)} & 33.7\% & 14.2\% & 6.5\% \\
\textbf{Significance of difference (p-value)} & 0.00 & 0.00 & 0.00 \\
\hline
\end{tabular}

Source: ISD National Smoking Cessation dataset

One possible reason for quit4u’s overall higher quit rates is the fact that it makes much greater use of group-based support. As discussed in Chapter 1, group interventions tend to be associated with higher quit rates than one-to-one support (which will include one-to-one support in pharmacies). However, as indicated in Table 5.2, quit rates in quit4u are higher for both pharmacy and non-pharmacy (primarily group-based) support. The differences in quit rates are, however, much smaller for non-pharmacy and not significant at one and 12 months. The impact of quit4u in terms of increased effectiveness thus

\textsuperscript{16} The Russell standard defines people as quit if they have not smoked, even a puff in the last two weeks (1 month quit) or they have not smoked more than five cigarettes since the 1-month follow-up (3 and 12 month quit). See West (2005).
\textsuperscript{17} The national cessation services monitoring does include CO validation (at one month only) but there are a relatively high proportion (around 80 per cent) of cases where a reading was not taken or is unknown.
\textsuperscript{18} For further details, see Appendix 2.
seems to be mainly driven by the results found in pharmacy-based services. For example, at one month the quit rate for pharmacy-based attempts within quit4u was 50.7 per cent compared with a quit rate of 26.4 per cent for pharmacy-based attempts in other smoking cessation services in Scotland. Some caution needs to be applied in extrapolating from these results, as the quality of pharmacy data for other (non-quit4u) smoking cessation services is poor in comparison with that for either group interventions or for quit4u (due, for example, to non-submission, late submission or poor completion of dataset forms). However, the findings suggest that quit4u has been particularly effective in increasing the comparative quit rates for attempts undertaken through pharmacies. Thus while one reason for quit4u’s overall high quit rate may be its greater use of (more effective) group support, quit4u also appears to have been successful in significantly increasing quit rates for pharmacy based support.

Table 5.2: Self-reported quit rates (Russell standard) at one, three and 12 months: quit4u (2009/2010) compared with matched sample for other smoking cessation services, pharmacy and non-pharmacy services

<table>
<thead>
<tr>
<th></th>
<th>1 month</th>
<th>3 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pharmacy services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quit4u</td>
<td>50.7%</td>
<td>29.3%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Non-quit4u (other SCS)</td>
<td>26.4%</td>
<td>10.2%</td>
<td>4.3%</td>
</tr>
<tr>
<td><strong>Significance of difference (p-value)</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Non-pharmacy services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quit4u</td>
<td>48.0%</td>
<td>31.2%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Non-quit4u (other SCS)</td>
<td>46.9%</td>
<td>21.5%</td>
<td>9.9%</td>
</tr>
<tr>
<td><strong>Significance of difference (p-value)</strong></td>
<td>0.54 (not significant)</td>
<td>0.00</td>
<td>0.56 (not significant)</td>
</tr>
</tbody>
</table>

Source: ISD National Smoking Cessation dataset

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19 The proportion of pharmacy-based attempts with other (non-quit4u) services that were lost to follow-up at three months was 73 per cent. This compares with 42 per cent loss to follow-up for quit4u pharmacy-based services. It is also higher than the figure for non-pharmacy based support (50 per cent for other, non-quit4u, services).
In terms of the relative effectiveness of quit4u for different groups of participants, quit rates were higher for men and older participants. However, quit rates within quit4u did not vary significantly by deprivation category – there was no evidence that attempts among those living in DEPCAT 7 were any less likely to succeed than attempts among those living in DEPCAT 5. Use of varenicline/Champix rather than other kinds of pharmacotherapy is also associated with higher quit rates at one and three months. This is supported both by existing research (see NHS Health Scotland and ASH Scotland, 2010) and by analysis of differences in quit rates between those using different types of pharmacotherapy within quit4u (see Table A2.9a in Appendix 2). As use of varenicline/Champix was higher within quit4u compared with other smoking cessation services (18 per cent versus 11 per cent), this may also have contributed to quit4u’s comparatively higher one and three month quit rates.20

5.1.1 Sensitivity analysis

As discussed in detail in Chapter 3, a possible criticism of this comparison of quit4u with standard smoking cessation services is that the proportion of individuals lost to follow-up at one month was almost twice as high for non-quit4u services compared with quit4u.21 The lower level of loss to follow-up is an achievement for quit4u, reflecting greater continued contact between services and clients, which in turn is likely to have improved quit rates. However, it also introduces some analytical challenges, since it could be argued that the assumption that all those lost to follow-up have relapsed is likely to underestimate quit rates for the comparison sample.

Given this issue, it was crucial that the evaluation test the robustness of the above findings. This was done in three ways, all of which are attempts to reduce the difference in the proportion lost to follow-up between the quit4u and non-quit4u data. First, the comparisons were run separately for 2009 and for 2010, as the differences in lost to follow-up between quit4u and standard smoking cessation services were smaller in 2009. Second, the comparison of three and 12 month quit rates was repeated, but this time excluding those who were missing at one month (as the biggest difference in the proportion lost to follow-up is at one month). Third, the comparison of one and three month quit rates was repeated using the 2009 data initially provided by Tayside to ISD prior to supplementing missing quit4u self-reported smoking status at one and three months in the ISD data with CO readings.22 Loss to follow-up for quit4u and other smoking cessation services was similar prior to

20 It is also worth noting that the level of missing data on pharmacotherapy was higher for both Tayside and for quit4u compared with other smoking cessation services in the rest of Scotland (see Appendix 2, Table A2.5c). It is therefore likely that the level of use of varenicline in quit4u is in fact even higher than 18 per cent (since some of the 20 per cent of participants for whom data on pharmacotherapy is not available are likely to have used varenicline).
21 Loss to follow-up at one month was 20.9 per cent for quit4u, compared with 50.2 per cent for non-quit4u attempts.
22 Where participants had not provided self-reported quit status at four or twelve weeks, but quit4u had CO readings for them, the self-reported quit data submitted to ISD was updated with the results from these CO tests.
This manual updating,\textsuperscript{23} so again this comparison avoids issues over interpreting differences in lost to follow-up.

These additional analyses (described in detail in Appendix 2) all still show that quit4u quit rates are higher than other smoking cessation quit rates. This analysis therefore gives us greater confidence in concluding that quit4u is effective. However, the size of the differences in quit rates between quit4u and other smoking cessation services are somewhat smaller. Given the difficulties with assuming that all those lost to follow-up in the comparison sample have in fact relapsed, there is therefore some uncertainty about the exact size of the difference in quit rates between quit4u and non-quit4u services, especially at 12 months.

5.2 Cost effectiveness of quit4u

The cost-effectiveness of quit4u was assessed by comparing the costs and benefits of quit4u with the cost and benefits of self-quit and of other NHS smoking cessation services (other SCS). A cost-utility analysis (incremental cost per Quality Adjusted Life Year (QALY)) was undertaken from the perspective of the public sector. The 12-month quit rates were extrapolated to longer term costs and QALYs. The costs of the quit4u intervention included the financial incentives, the administrative costs and the costs of other smoking cessation services including pharmacotherapy.

The average total cost per attempt was estimated at £191 for quit4u and £98 for other SCS. In comparison with self-quit (assuming 1 per cent quit rate (Godfrey et al., 2005), quit4u cost an additional £2296 per 12-month quitter whilst other NHS cessation services on average cost an additional £1797 per 12-month quitter. The incremental cost per QALY is around £1706 for quit4u compared to self-quit and £1293 per QALY for other smoking cessation services compared to self-quit.

It can be concluded that quit4u is highly cost-effective at the conventional threshold of £20,000 to £30,000 per QALY. When including the future NHS cost of treating smoking related diseases both quit4u and other smoking cessation services become dominant, that is they are both more effective and reduce overall NHS costs when compared to self-quit.

5.3 Perceptions of the role of quit4u in sustaining quit attempts

In addition to analysing ‘hard outcomes’ in terms of quit rates, the evaluation also explored participants’ perceptions of whether or not they felt attempting to give up with quit4u had been different. A majority (eight in 10) of respondents to the small-scale follow-up survey of quit4u participants reported that they had found trying to quit with quit4u easier than other times when they had tried to give up smoking. Participants in the qualitative research discussed the ways in which they felt this quit attempt had been different, including: (i) the nature and extent of the support they received from quit4u

\textsuperscript{23} Loss to follow-up at one month was 49.4 per cent for quit4u, compared with 52.6 per cent for non-quit4u attempts.
(service design factors), (ii) the perceived strength of their own motivation to quit this time (individual factors) and (iii) the level of informal support they received from family and friends (social and contextual factors). Individual and social and contextual factors influencing participants’ quit attempts are discussed in the following chapter. Here, we focus on participants’ accounts of the role of quit4u as a whole and of individual elements of the service in contributing to their success or otherwise in quitting smoking.

5.3.1 The ‘whole package’
There was no consensus among quit4u participants interviewed for either the survey or qualitative research over what had been the most helpful element of quit4u. Although different individual components were singled out by individual participants, there was also a view that it was ‘the whole package’, or the overall ‘structure’ of quit4u which had helped. This view was shared by both successful quitters and people who had subsequently relapsed.

‘Oh! It’s hard to say. Definitely going down to see the girl at the chemist. That definitely helped … and obviously the inhalator even months after not seeing the girl down at the chemist … and obviously my family … you were always getting praise from the kids – you know what I mean?’
(Participant 77)

5.3.2 The financial incentive
Participants’ views of the role of the incentive in helping them successfully maintain their quit attempt divided into three main groups:

- those who believed the financial incentive had been the main factor in their success in staying quit (for whatever period they had managed this for)
- those who felt it had been a secondary or additional factor in comparison with either their own determination to quit, or other service-related factors (like behavioural support, pharmacotherapy, or the CO test)
- those who maintained the incentives had not been a factor at all, either in their continuing with quit4u or in maintaining their quit attempt.

These three groups were not neatly segmented in relation to the success or otherwise of their quit attempts – participants who had quit and remained quit for a full 12 months differed in whether or not they felt the incentive had been a factor, as did those who had started smoking again between three and 12 months.

Among those who felt it had been a factor in encouraging them to stay quit for longer, the incentive was viewed as:

- a ‘reward’, ‘bonus’ or ‘wee treat’ for quitting
- a ‘wee bit extra to keep you going’ with the quit attempt, providing ‘something to work towards’
• a reason to stick with the programme or to keep going back to the chemist.

‘I was going to stop anyways. (It was) just a, certainly a bonus having that there like. I reckon it would probably encourage you to keep going back to the chemist.’

(Participant 209)

These views were echoed in those of service providers, who suggested that the incentive encouraged participants to stick with formal support for longer – which in turn increased their chances of quitting successfully. It was also suggested that the financial incentive might encourage participants to come back for support, even if they relapsed at some point.

‘I think it’s probably quite positive for the Smoking Cessation Scheme, because it’s always that extra incentive to actually get people to either get on the scheme or even just thinking about actually giving up smoking …it’s also an incentive to come back as well to the pharmacy, even if they have sort of failed in the first couple of weeks – again, you just use that to actually reinforce that “OK, it’s difficult to start with, but there’s also £12.50 a week if you do sort of come a bit better towards the end.”

(Pharmacist 1)

Participants who felt that the incentives had not been a factor in their staying quit believed that it was other individual motivations (such as health, or a strong desire to quit), support from friends and family, or other elements of quit4u that had helped them maintain their quit attempt.

The small scale follow-up survey of quit4u participants suggests that participants were more likely to say that the financial incentive was helpful in encouraging them to stay quit than to say it was a reason for signing-up to quit4u in the first place. Of the 62 respondents to the follow-up survey who had received any payments to their ASDA card, around seven in 10 felt these had been ‘very’ or ‘quite useful’ in helping them stay quit. In contrast, as discussed in Chapter 4, only around three in 10 felt the incentive had been a very or quite important factor in encouraging them to sign-up for quit4u.

These findings suggest that the incentive may often be viewed as playing a role in encouraging participants to continue with their quit attempt. However, it is striking that no respondents to the follow-up survey identified the incentive as having been the most useful component of quit4u: pharmacotherapy, behavioural support, CO tests or some combination of different elements of quit4u were identified as more important in both helping participants quit initially and in helping them to stay quit. Again, this finding is reflected in the views of providers, who suggested that the financial incentive in itself is not the key to quitting successfully. Rather, it was the support (both pharmacological and personal) that was believed to make the difference. The financial incentive was viewed as helpful simply in engaging more people with this support, over a longer period.
‘I think the payment incentivises people to get in the door and get(s) them (to) keep coming in the door, but I think probably getting them onto the NRT, providing the support and getting them through that initial 12 weeks is the most important thing … yes, the financial incentive is great for them, but it’s the support and the product that’s the main thing.’
(Pharmacist 2)

5.3.3 CO tests
The weekly carbon monoxide tests appeared to be regarded by participants as a novel and important part of quit4u. Participants described how the test not only validated their quit status, but also provided an additional reason for not starting to smoke again (not wanting to fail a test). For some, this was related to wanting to pass the tests to receive the financial incentive. However, for others, passing the tests appeared to provide a motivation to continue with the quit attempt in itself, irrespective of their link to the financial incentive.

‘It was good getting the breathalysers … That made my day for some reason! What wasnae, I wouldnae say was a … a great factor, was the money side o’ things. That didnae really … it didnae help me.’
(Participant 212)

The tests were also viewed as useful – by both participants and providers – in demonstrating that participants were getting immediate health benefits from quitting or cutting down (echoing findings from Hametz et al, 2011). Participants described looking forward to having the test, viewing it as a reason to attend the weekly behavioural support sessions. In a group setting, the tests were also described as providing a competitive element (to see who got the lowest score), which could be an incentive to continue with the quit attempt for some participants. The use of CO tests may thus help increase commitment to attending behavioural support. The test’s perceived accuracy was important and was contrasted with previous experiences of NHS smoking cessation support, where participants reported feeling they could deceive the person providing them with support by misreporting their smoking status.

There were, however, also some more negative comments about the accuracy of the equipment. Participants described either being able to smoke and continue to pass the tests (providing they did not smoke on the morning of the test), or having failed the test or received a higher reading than they expected in spite of not having smoked. The former obviously constitutes a minor fraud, while the latter could prove disappointing for participants who believed they were doing well with their quit attempt. Providers also suggested that it would be helpful to receive a regular reminder about calibrating the equipment to ensure its continued accuracy.

5.3.4 Behavioural support
Just under half (47 per cent) of quit4u participants took part in group support sessions, while 51 per cent received support in a pharmacy, which is
delivered on a one-to-one basis (source: quit4u database). Qualitative research with participants explored views of both pharmacy and group support.

In many respects, the views of quit4u participants who attended smoking cessation groups were similar to those found in previous studies exploring perceptions of group support (Ritchie et al, 2007, Springett et al, 2007). In general, being able to share the experience of quitting with others in a similar position, as well as the tips and advice received from group leaders and fellow quitters, was considered helpful and motivating. As described in Chapter 2, NHS Tayside operates rolling groups (where new people join at different points). These were seen as (more) beneficial than ‘closed’ groups (where everyone starts together) because they included people who had already been through the stage of quitting that other participants were currently experiencing, and who could share their experiences, advice and tips. Seeing the success of other group members, as well as being able to provide encouragement and support to those at an earlier stage of their quit attempt themselves, were both viewed as motivational by participants and providers.

The group leaders were also praised for their non-judgemental and supportive attitudes. Finally, as discussed above, the use of CO tests within quit4u groups was perceived as beneficial in terms of introducing both an element of healthy competition and enhancing feelings of obligation to the group to continue with the quit attempt (wanting to pass to avoid ‘letting the group down’).

Where participants made more negative comments about smoking cessation groups, these related primarily to the timing of groups. In particular, the break in sessions over Christmas was identified as a problem by participants since this was a particularly stressful time when the risk of relapse was high.

While participants’ accounts of the level and quality of the support they received from pharmacy staff varied, these did include some very positive comments about the support received. In some cases, this was contrasted with previous experiences of smoking cessation support, where participants reported that they had just been given their pharmacotherapy and perhaps a leaflet, with little in the way of behavioural support or encouragement. In part, this may reflect a growing familiarity and comfort among pharmacy staff with their involvement in smoking cessation support since the Public Health Service element of the Community Pharmacy Contract was introduced in 2008 (see Hametz et al, 2011). Participants’ accounts also suggested that the CO test may have helped provide a focus for encouragement, praise and support.

24 The remaining 2 per cent received telephone support, couple/family based support or other support.
'She made it good to go in there and ... you know, breath into your wee machine ... And she got just as excited as you when it was just on the little ‘1’ thing.'

(Participant 88)

Participants commented on the positive and interested attitude of pharmacy staff, their level of knowledge (which could be helpful if there were problems with the pharmacotherapy such as side-effects) and the time that they gave to explaining different pharmacotherapy options, encouraging participants, and talking to them about how they were getting on.

Community pharmacies engagement with quit4u was supported by inviting a member of the pharmacy contractors committee to work with NHS Tayside on the project implementation group, providing pharmacies with project information packs, and visiting pharmacies to increase their understanding of the scheme. This support may have contributed to staff engagement with the scheme, which may in turn have been reflected in clients’ experiences of the support they received.

More negative perceptions or experiences of pharmacy support were also discussed, however, relating to:

- difficulties obtaining convenient appointment times
- lack of privacy when taking the CO tests (where this was carried out by the counter rather than in a consulting room). While 90 per cent of pharmacies in Tayside do in fact have a consultation room, NHS Tayside reports that these rooms are often heavily used because of the growing range of activities pharmacies undertake with patients.
- feeling that the support was rushed, and largely consisted of the CO test and handing over the pharmacotherapy (a finding reflected to some extent in the response of pharmacists, who acknowledged that having enough time to provide one-to-one support for each participant could be challenging when working in a busy store).
- feeling the pharmacist’s manner was ‘condescending’.

5.3.5 Pharmacotherapy

Most participants in the qualitative and survey research had used pharmacotherapy in some form for previous quit attempts. Use of pharmacotherapy in itself was not, therefore, generally cited as something that made quit4u different from previous quit attempts, except insofar as participants had either not used pharmacotherapy previously, or felt that the particular pharmacotherapy they had used this time was more effective. It was however, suggested that quit4u had provided participants with more information and choice about the type of products available, and that participants were able to go back to quit4u smoking cessation groups or pharmacies if they had problems, for advice, and in some instances, changes in medication.

25 81 out of 91 pharmacies
5.4 Suggestions for improving quit4u
Quit4u participants and service providers discussed various ideas for improving the quit4u scheme. Suggestions included:

- More or better publicity for the scheme – although conversely smoking cessation advisors interviewed for the evaluation queried whether publicity exercises were really a good use of money, since in their view word of mouth had been key to attracting people to quit4u.
- Providing information about quitting in alternative formats (on CD or DVD rather than in leaflets).
- Increasing the frequency of CO tests and behavioural support (to more than once a week), or increasing the number of weeks over which these were offered. One view among providers was that allowing participants to claim all their payments within a 12 month, rather than a 20 week, period might better reflect the patterns of some people’s quit attempts (see further discussion of ‘quit journeys’ in Chapter 6).
- Ensuring that all staff delivering support receive sufficient training and are able to devote sufficient time to giving participants support. As noted above, there remained some more negative comments in relation to the support provided in pharmacies in particular in this respect.
- Improving the accuracy of the CO monitor readings.
- Providing more privacy when taking CO tests and getting advice in pharmacies.
- Simplifying the process of obtaining a NEC card. Dundee City Council has taken steps to make this as simple as possible, including combining the quit4u and NEC forms so that applicants do not need two separate application forms. However, the need to obtain signed photographs for the NEC card was still perceived to be off-putting for some participants, particularly if they did not know any professionals who would sign photos for them free of charge.
- Changes to the financial incentive element. Suggestions in relation to the financial incentive ranged from dropping this element altogether (usually because the participant or provider had moral objections to incentivising people to quit smoking in this way), to making it available to all quitters, regardless of where they live (dropping the focus on more deprived areas). At a practical level, it was suggested that the test results could be processed more quickly so that participants received their incentives more quickly. One view was that where participants experienced delays in receiving test results, the £12.50 weekly payment did not work particularly effectively as a reinforcement of the quit attempt:

‘And remember over Christmas time, there was like four weeks where they didn’t bother doing it – the pharmacist sending it off or whatever – ‘cos they were on holiday … and it just all suddenly appeared at the start o’ January. ... If you're expecting people to like have a cause and effect: “I didn't smoke this week, therefore I have £12.50 on a card to spend”, that's not exactly happening.’
While providers interviewed for the evaluation felt that the payments process had improved since the start of quit4u, they still felt that the number of stages and people involved in processing test results and payments could lead to delays. Those involved in planning and administering quit4u noted, however, that such delays may also be a result of factors outwith quit4u’s control, such as clients providing insufficient details to issue a NEC card.

5.5 Summary

- Quit4u was associated with higher quit rates at one, three and 12 months compared with average quit rates of other NHS smoking cessation services in Scotland (after adjusting for differences in deprivation and other differences in the baseline characteristics of quit attempts).
- There is, however, some uncertainty surrounding the exact size of the difference in quit rates, particularly at 12 months. This is due to higher levels of loss to follow-up in the comparison sample, which may lead to an underestimation of quit rates in other smoking cessation services.
- Quit4u appears to have had a particularly large impact on the effectiveness of pharmacy-based services, especially at one and three months. The differences in quit rates between non-pharmacy services in quit4u and other non-pharmacy services were much smaller and were not significant at one and 12 months.
- However, as shown by previous research, group support is generally more effective than one-to-one support. It is therefore also important to note that quit4u makes relatively greater use of smoking cessation groups than do other NHS services. This greater use of group support is therefore also likely to have contributed to its higher quit rates, alongside the higher quit rates achieved by pharmacies within quit4u.
- Quit4u’s relatively higher use of varenicline/Champix (associated with higher quit rates at one and three months) may be another factor contributing to its success.
- Quit4u represents a highly cost-effective use of NHS resources.
- Participants reported finding it easier to quit with quit4u in comparison with previous quit attempts. There was no consensus over which element of the programme had been most helpful in initiating or sustaining their quit attempt.
- Where participants felt the financial incentive had helped them maintain their quit attempt for longer, it was seen as providing a ‘bonus’ for quitting, ‘something to work towards’ and an encouragement to keep coming back for support. The perceived role of incentives in encouraging participants to ‘stick with’ support for longer was also highlighted by service providers.
- The CO tests (provided they were viewed as accurate) gave participants an additional reason not to smoke which appeared to go beyond the desire to pass simply in order to claim the financial incentive. The tests were viewed as demonstrating the immediate
health benefits of quitting or cutting down, providing an element of competition or reward, and creating an additional motivation around not wanting to fail a test.

- Comments about the role of groups in supporting participants’ quit attempts highlight the advantages of rolling groups over ‘closed’ group-based courses.

- Participants’ accounts of the support received from pharmacies suggest that the CO test may to some extent have helped to provide an additional focus for providing encouragement and support.

- Suggestions for improving quit4u related to:
  - publicity and information
  - frequency or duration of support
  - staff training and time available for delivering support
  - the accuracy of CO monitors
  - privacy when receiving support in pharmacies
  - the process of obtaining a NEC card
  - the use of financial incentives
  - the speed of delivering the incentive payments.
6 ‘Mechanisms of change’ – key factors impacting on quit success or relapse

In addition to exploring the effectiveness of quit4u in increasing take-up and quit rates, the evaluation also explored the ‘mechanisms of change’ associated with people’s quit ‘journeys’, from deciding to quit, through participation in quit4u, to subsequent maintenance or relapse. In addition to service design factors – discussed in more detail in the previous two chapters – individual and social factors were also examined, primarily in the qualitative research with participants. While more traditional theories of health behaviour change (Prochaska and DiClemente, 1982) tend to focus on individual factors that might impact on people’s behavioural intentions and actions, more recent research on smoking has highlighted the importance of social networks in reinforcing people’s smoking or non-smoking status (Christakis and Fowler, 2008, Platt et al, 2009).

6.1 Motivations to quit smoking

As might be expected, participants’ accounts of their motivation to quit smoking were varied and often multifaceted. Seven key themes emerged:

- health
- finance
- motivations associated with family and friends
- life stage
- cultural change
- the services offered by quit4u
- ‘readiness’ to quit.

6.1.1 Health

Unsurprisingly, health reasons were identified as a major factor in the decision to quit smoking. However, participants varied in terms of whether they were motivated by specific, current health issues, or by general or future health concerns. Specific current health issues that had motivated people to quit ranged from explicit diagnoses of disease, to more general symptoms, like wheezing, coughs or leg pain. Participants also expressed more general concerns about the impact of smoking on their health in terms of being unfit or unhealthy. These were sometimes related to concerns about future risk of developing disease, either because of a general knowledge of the link between smoking and ill health, because of a family history of smoking-related illness, or because of receiving specific advice from a doctor or nurse that they were at high risk of developing future problems.

6.1.2 Financial reasons

Stopping smoking for financial reasons also featured strongly in terms of participants’ motivations to quit – though this was primarily framed in terms of saving money from stopping smoking, rather than receiving the financial incentive from quit4u. A perceived need for more money in retirement, wanting more money for food, and changes of circumstances, such as losing
a job or divorcing, were all factors that added to the financial motivation to quit.

6.1.3 Motivations associated with family and friends
Participants mentioned a range of direct and indirect, and positive and negative ways in which family and friends had influenced their decisions to quit. Direct pressures from family and friends included partners, children and grandchildren encouraging or ‘nagging’ participants to quit, expressing concerns about their health or complaining about the smell of tobacco smoke. Indirect pressures were also evident in terms of wanting to give up in order to live longer for children or grandchildren, or to be fitter and able to be play with them more.

The experiences of family and friends could also be a positive trigger or a negative warning to quit. Participants described feeling encouraged by other people’s success in quitting or by their quitting at the same time, and by seeing the improvements to family members’ or friends’ health when they stopped smoking. However, seeing other people’s (particularly parents’) health deteriorate because of smoking also appeared to be a powerful motivator.

6.1.4 Life stage
Reaching a particular life stage or key event – including ‘landmark’ birthdays, upcoming weddings, wanting to conceive, retirement and becoming a grandparent – could be a trigger for deciding to quit at a particular point in time. This was often – though not always – associated with underlying health or financial concerns associated with that particular life stage:

‘I think a lot was to do with hitting forty. My dad, he had a massive heart attack when he was fifty-one, and his father before him around about that age, and his father before him. So it looked like it was running in the family.’
(Participant 155)

6.1.5 Cultural change
Although cultural factors did not feature as strongly in participants’ accounts of their motivations for quitting as health, finance and family and friends, where these were discussed people commented on the impact of the smoking ban26 in particular on their status as smokers. Participants described how it had become more difficult to smoke at work and that having to go outside to smoke was a nuisance or reduced their enjoyment of smoking.

6.1.6 Services offered by quit4u
In general, the services offered by quit4u were not described as the only or main factor that motivated participants to try and quit. However, as discussed in Chapter 4, hearing about the programme in general, or about a specific

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26 Smoking in enclosed public spaces was banned in Scotland in March 2006, following the passing of the Smoking, Health and Social Care (Scotland) Act 2005. This is commonly referred to as ‘the smoking ban’.

38
aspect of the programme (varenicline/Champix or the financial incentive) could be a trigger for attempting to quit at that particular point in time.

6.1.7 Readiness to quit this time
Alongside external influences or specific concerns motivating people to quit was a belief that participants were simply ‘ready to quit’ or determined to quit at that time – although of course the factors underpinning this determination might reflect the kinds of health reasons, social pressures and other factors discussed above.

6.2 Factors associated with relapse
Where participants had relapsed after joining quit4u, the qualitative and follow-up survey interviews explored the reasons for this. Discussion of reasons for relapsing tended to focus primarily on individual and contextual factors, rather than on elements of the service provided by quit4u. Those who had relapsed by the time of their first panel interviews, within three months of signing up for quit4u, identified a range of different factors they felt had triggered or contributed to this, including:

- stressful events or new circumstances (including family illness, redundancy, holiday flights being cancelled, exams, and an impending court case)
- on-going problems which created stress and were perceived to have affected self-control in relation to smoking
- boredom (attributed to unemployment or the Christmas break, for example)
- socialising with family and friends who smoke (over a drink, at parties, at a funeral)
- over-confidence (which was sometimes associated with believing they had stopped pharmacotherapy too early).

Late relapsers, who had started smoking again between their three and 12 month interviews, cited a similar range of triggers. They also mentioned:

- stress at work
- bereavement
- being on holiday and having a few cigarettes, which acted as a 'catalyst' to relapse
- believing that their health had become worse when they stopped smoking.

Late relapsers also discussed having convinced themselves that they had broken the habit and could have a few cigarettes without starting smoking ‘properly’ again, which then acted as a trigger for complete relapse as soon as they experienced significant stress in their lives.

‘I was like ... kidding myself, “I'll just go back to 10 a day”, you know? or “I'll try and get down to five a day.” And it was working. Four a day – it was working.
… And then, before you know where you are, I was right back right on to 30, 40 a day, and it's just so easy just to go back into it.'

( Participant 83)

Where participants in the panel interviews and survey research did identify elements of quit4u as reasons for early relapse or dropping out of the programme, these included:

- Insufficient support – either in general, or at specific times. It was suggested that the break in group support over Christmas (especially where this had been a particularly stressful time) had led several people to relapse and drop-out. It was also suggested that 12 weeks had not been long enough, either in terms of pharmacotherapy, support or both.

- Unsuitable or inflexible support – one respondent to the follow-up survey said they had dropped out because they did not like the groups and needed one-to-one support. Another dropped out because they felt they had difficulties engaging with the group because of a disability (though they reported that they had subsequently managed to quit by themselves). Another did not like attending for breath tests in a pharmacy ‘where drug addicts got their methadone’. Groups being held at times or venues that were perceived as inconvenient was also cited as a reason for dropping out. Being told by a pharmacist that if the participant missed one appointment without good reason then they could not come back was mentioned in the qualitative interviews as a reason for dropping out.

- Problems with pharmacotherapy - feeling their pharmacotherapy was not working or was having side effects.

6.2.1 Role of social support in quitting and relapsing

The response of family and friends was viewed as important in supporting participants’ quit attempts. Indeed, one view was that informal support was as important as formal support, while poor support appeared to be an important factor in relapse. Attempting to quit did not appear to be perceived by quit4u participants or their peers as unusual, but rather as something that most smokers wanted to achieve. However, they nonetheless described examples of unsupportive behaviour or mixed messages from family and friends who still smoked, including:

- being verbally supportive but continuing to smoke in front of them
- being verbally supportive, but continuing to offer cigarettes or give them a cigarette if asked
- negative comments about their quit attempt (such as ‘You must be mad’).

In combination with other stresses that might already be tempting them to smoke, this kind of behaviour could act as a trigger for relapse:
'My brother went out for a cigarette about half an hour after she died ... when the undertakers came and took her away. And I just went out and I just asked him for a cigarette ... and that was it. That was me back on them again.' (Participant 167)

In contrast, participants who had joined quit4u as a family group described this decision (to quit together) as having been central to the success of all their quit attempts. Focus group discussions also suggested that for participants who do not know others who are trying to quit, smoking cessation groups provide much valued social support with quitting that they would not otherwise have had.

6.3 Quit ‘journeys’

The standard measure used by the NHS to define a successful quit, known as the Russell standard, defines people as (self-reported) quit if:

- they have not smoked, even a puff in the last two weeks (one month quit)
- they have not smoked more than five cigarettes in the past 50 weeks (12 month quit).

This definition was introduced in order to try and reduce variation in the standards used to assess smoking cessation interventions and has been adopted to assess NHS cessation services (West, 2005). The quantitative analysis of quit rates conducted for this study and reported in Chapter 5 has, as far as possible, followed this definition of quit. However, part of the reason for conducting qualitative interviews with a sub-sample of participants was to facilitate a more in-depth exploration of the complex routes people’s quit journeys sometimes take. This complexity may not be fully captured in standard quit statistics which focus on ‘quit attempts’, rather than on individual clients who may make numerous quit attempts over a particular period.

Based on analysis of both the three and 12 month qualitative interviews, participants could be categorised into at least six groups according to the nature of their quit journey (see Appendix 3 for case studies illustrating these different groups in more detail):

- ‘Linear quitters’. This group quit on or near their target quit date and remained quit, with no relapses (or only very minor relapses of one or two cigarettes), at the time of their 12 month interviews. These participants viewed themselves as quit and would also be considered quit at 12 months according to the ‘Russell standard’.
- ‘Early relapsers’. Participants who quit for a short period of time after signing-up for quit4u, but had relapsed within around four weeks and were smoking at the time of the three month panel interviews.
- ‘Late relapsers’. Those who were quit for three months or more with quit4u, but had relapsed between three and 12 months and were still smoking at the time of their 12 month interview.
• ‘Serial relapsers’. This group had relapsed, quit again, and relapsed again at least once since signing up for quit4u, sometimes multiple times.
• ‘Serial quitters’. Like ‘serial relapsers’, this group had relapsed at least once after signing up for quit4u. However, they were quit again at the time of their 12 month interview. Given that a number of the ‘serial relapsers’ expressed a desire to quit again, they may move into the ‘serial quitter’ group at some point in the future.
• ‘Never quit’. While these participants might have managed to cut down the amount they smoked, they had never completely quit while on quit4u. As discussed below, it is not possible to quantify the proportion of participants in quit4u who fall into each of these groups. However, it is perhaps worth noting that according to the quit4u database, 19 per cent of participants signed-up but then did not take any CO tests. This may be an indication that they were unable to quit, even for a short period.

There is clearly a need for national measures of smoking cessation to continue the consistent approach in comparing quit rates across Scotland. However, these findings highlight the fact that such measures do not capture the complexity of people’s quit journeys. Understanding this complexity is arguably important in terms of effective service delivery. A focus on different types of smoker and different ‘quit journeys’ may help enhance opportunities to intervene and to tailor support towards preventing short or longer-term relapse.

Significant caution should be applied in drawing wider inferences about what types of people are more likely to fall into particular groups from a relatively small qualitative sample. However, participants’ accounts suggest a number of factors that appeared to be particularly associated with either early relapse, or with a relatively ‘linear’ quit attempt. In particular, those who had relatively linear quit trajectories were older, had a strong intrinsic motivation to quit (usually connected with a specific health issue), and had good social support from friends and family in relation to their quit attempt. In contrast, early relapsers of all ages appeared to have weaker social support – reporting, for example that their family or friends had continued to give them cigarettes while they were trying to quit, that their partner still smoked, or that they simply felt their peer group had been unsupportive of their quit attempt.

These findings have potential implications for both future research and practice. For example, future quantitative studies of smoking cessation may wish to consider devising questions that would more accurately capture these different possible quit ‘journeys’ and more robustly assess the factors associated with them. Understanding in more detail the characteristics associated with different quit trajectories might, in turn, enable the NHS to better tailor services and support to the needs of different quitters – for example, by encouraging those identified as potential ‘early relapsers’ to try and stop smoking with a friend or family member, or by offering additional, longer-term follow-up support to those smokers identified as potential serial relapsers.
6.4 Summary

- Participants’ motivations to quit were varied and often multifaceted, encompassing motivations related to:
  - health
  - finance
  - family and friends
  - life stage
  - cultural change
  - the services offered by quit4u
  - perceived ‘readiness’ to quit.
- Discussion of reasons for relapsing tended to focus on individual and contextual factors, rather than elements of the support provided by quit4u. However, where quit4u was discussed, it was suggested that insufficient support, unsuitable or inflexible support, or problems with pharmacotherapy were factors associated with relapse for some participants.
- The response of family and friends was viewed as important in supporting participants’ quit attempts. While attempting to quit generally appeared to be viewed positively rather than as unusual, participants nonetheless cited examples of unsupportive behaviour or mixed messages from friends and family who continued to smoke.
- Analysis of the qualitative interviews suggest that ‘quit journeys’ are not always linear, with participants falling into at least six groups: linear quitters; early relapsers; late relapsers; serial relapsers; serial quitters; and those who never quit. This complexity is not captured in national measures of quit rates, but understanding it may help to focus and improve service delivery.
7 Conclusions and recommendations

The evaluation of quit4u had three key aims:

1. To assess the effectiveness, including the cost effectiveness of combining standard pharmacotherapy interventions with financial incentives and behavioural support in encouraging take-up and successful quit attempts among people in areas of deprivation.
2. To identify the ‘mechanism(s) of change’ – the key individual, social and contextual, service design and delivery or other factors contributing to take-up and quit rates (or drop out) at one-month post-quit date, three-months post-quit date and 12-months post-quit date.
3. To draw generalisable conclusions to inform the design and development of smoking cessation services.

The findings presented in this report show that quit4u is more effective than average quit rates for other NHS smoking cessation services in similarly deprived areas, in particular at one and three months and in particular within the pharmacy setting. This is reflected in higher one, three and 12 month quit rates. Quit4u also exceeded its target number of participants, indicating that it is effective in engaging participants in deprived areas. Finally, quit4u appears to be a highly cost effective use of NHS resources.

There are, however, a few important qualifications to these conclusions. First, there are many models of smoking cessation support in Scotland. While quit4u quit rates are higher when compared with smoking cessation services across Scotland as a whole, it is possible that within Scotland there are specific services that are equally as effective as quit4u. Second, while quit4u clearly contributed to the increase in take-up of smoking cessation services in deprived areas of Tayside, again it is not possible on the basis of the available data to say that quit4u is better than approaches in other Health Boards at increasing take-up of services in deprived areas. Finally, although all our analyses suggest that quit4u quit rates are higher than those for other smoking cessation services, there is some uncertainty about the exact size of these differences. This uncertainty results from the relatively poor quality of the follow-up data for some other smoking cessation services (particularly some pharmacy cessation services) in comparison with the data available for quit4u, which complicates comparisons between the two.

However, none of these qualifications should detract from the overall conclusion that quit4u offers an effective model for engaging and supporting smokers in deprived areas to quit. The comparatively lower level of loss to follow-up in quit4u suggests that a key reason for its higher quit rates is likely to be its greater success in maintaining contact between services and clients. As discussed in Hiscock et al (2010), a key reason that quit rates are often lower among those living in deprived areas, even when they access services, is that they tend to attend fewer support sessions and take medication for fewer weeks than those in less deprived areas. Finding ways of maintaining engagement with services is thus key to supporting smokers in deprived areas to quit successfully. Both the quantitative and qualitative data provide
further lessons about the elements of quit4u which contribute to the effectiveness of the model in keeping clients engaged and supporting them to quit successfully. These include:

- the use of CO tests. CO tests appeared to provide an additional motivation for clients both to continue attending for support and to remain quit. Participants’ accounts suggest that this motivation went beyond the desire simply to pass the tests in order to gain the financial incentive. The CO tests also provided an element of competition (with oneself or other smoking cessation group members), evidence of the immediate and ongoing health benefits of quitting, and an associated reinforcement or reward (seeing your reading ‘come down’) for continuing with the quit attempt.

- the use of (rolling) group support. Quit4u makes greater use of group support in comparison with other cessation support across Tayside and the rest of Scotland. As group support is generally associated with higher quit rates in comparison with one-to-one support, this contributes to quit4u’s greater effectiveness (particularly at three and 12 months). The fact that all groups were ‘rolling’ or ‘open’ was viewed as best practice by professionals and participants in terms of the positive impacts of being able to share the experiences of people at different stages of quitting.

- high quality pharmacy support. Although the higher use of group support appears to have contributed to quit4u’s high overall effectiveness, a key finding from the evaluation is that pharmacy support within quit4u appears to have been relatively more effective than pharmacy support in other smoking cessation services. The qualitative research suggests that the structure of quit4u may have helped to improve the intensity and quality of pharmacy support. In particular, the CO tests appear to have provided a focus for encouragement, praise and support which may have improved the level and nature of engagement between pharmacy staff and clients.

- greater use of varenicline/Champix. Participants in quit4u were relatively more likely to have used varenicline/Champix rather than other kinds of pharmacotherapy. As quit rates within quit4u were significantly higher for those using varenicline, this is also likely to have contributed to its overall higher quit rates.

- the use of financial incentives. Although this evaluation cannot quantify the additional impact of the use of incentives in quit4u in terms of quit rates, findings from the qualitative research and small scale surveys of participants suggest that they did play a role for at least some participants. For these participants, the incentives appear to have provided a ‘tipping point’ to quit, or to quit with support, or an encouragement to ‘stick with’ support for longer.

The evaluation suggests that, in combination, these elements provide an effective model for engaging and supporting smokers in deprived areas to quit.
References


Galbraith, L. and Hecht, G. (2011). *NHS Smoking Cessation Service Statistics (Scotland) 1 January to 31 December 2010*. ScotPHO.


ISD (2011). NHS Smoking Cessation Services Statistics (Scotland) 1 April 2008 to 31 March 2011, Edinburgh: NHS ISD.


