

Comparing Models of Smoking Treatment in Glasgow: interim report

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**Linda Bauld, Andy Briggs, Kathleen Boyd,
John Chesterman, Janet Ferguson,
Ken Judge and Marsha Wilson**



**UNIVERSITY
of
GLASGOW**

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INTRODUCTION

This report describes preliminary results from a study comparing models of smoking treatment in Glasgow. The study is funded by the Glasgow Centre for Population Health, NHS Greater Glasgow and Clyde and Health Scotland. The research builds on an earlier evaluation of local smoking cessation services (Bauld et al, 2004). The current study examines in more detail the two main elements of smoking treatment offered in Glasgow– group-based support coordinated by Smoking Concerns and the Starting Fresh pharmacy-based service. It aims to address the following research questions:

- What short (4 week) and longer term (52 week) outcomes are associated with each model of service?
- What factors (client and/or service characteristics) influence outcomes?
- What is the relationship between costs and outcomes for the two models of service?
- How effective are the services in reaching and treating clients from disadvantaged parts of the city?
- What are clients' views regarding services and what factors influence cessation outcomes from the client perspective?

While the study as a whole explores short and longer term outcomes associated with each model of treatment, this report is limited to initial (4 week) results.

The Services

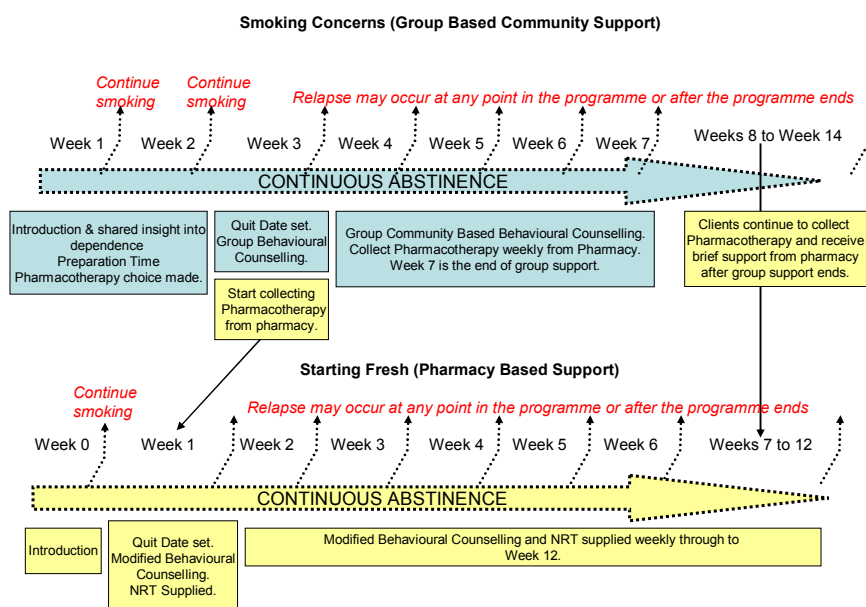
Before outlining preliminary findings from each component of the study, it is important to briefly describe the two models of service that are being investigated. Group and pharmacy-based provision in Glasgow are two components of wider efforts to reduce smoking in the NHS Greater Glasgow and Clyde area. These wider efforts are underpinned by a tobacco strategy (Glasgow Alliance, 2005). A key part of this strategy is the development of services to encourage smoking cessation. These services include a range of models of intervention coordinated by Smoking Concerns – including a specialist service for pregnant women (the 'breathe' service), smoking cessation in secondary care, a very small number of one-to-one interventions in a range of community settings, and the group-based service that is the focus of this study. The Starting Fresh scheme involves a large network of pharmacies that deliver one to one smoking cessation support. In 2008, Smoking Concerns and Starting Fresh integrated their functions to become the NHS Greater Glasgow and Clyde 'Smokefree Services'. For the purposes of this report, however, the names Smoking Concerns and Starting Fresh are used throughout.

The stop smoking groups coordinated by Smoking Concerns are delivered by Community Health & Care Partnerships (s) across Glasgow. At the time of the study, the service treated around 1500 clients per year. The intervention is based on the 'Maudsley model' of treatment that involves seven weeks of structured behavioural support delivered to a group of smokers by a trained adviser. Behavioural support is combined with access to one of three types of smoking cessation medication (a range of nicotine replacement products, bupropion or varenicline). Advisers will inform clients about the medications that are available and help the client to choose which one to use. Prescriptions for bupropion or varenicline are obtained from the

client's GP whereas the advisers will provide clients with a voucher for NRT which can be redeemed at any of the pharmacies participating in the Starting Fresh scheme. The NRT is free to those who are eligible for free prescriptions, otherwise clients pay a prescription charge for 4 weeks supply. At the time of the study, the majority of Smoking Concerns clients were using NRT. Clients attend the group for seven weeks. After that point, if they are still abstinent, they can continue to redeem their vouchers for NRT and receive some one to one behavioural support up to week 12 from their local Starting Fresh pharmacy.

At the time of the study, there were over 200 pharmacies (90% of pharmacies within the original Glasgow Health Board area) participating in Starting Fresh, making it the largest pharmacy-based smoking cessation service in the UK. Trained pharmacists and their assistants are treating over 12,000 smokers each year. The Starting Fresh model involves up to twelve weeks of one to one support combined with the direct supply of NRT (in most cases the 16 hour Nicorette patch). At the time of the study, bupropion and varenicline were not used by Starting Fresh clients. The behavioural support that is provided is more than a brief intervention (NICE, 2006) but is of a much shorter duration than the more intensive group-based service. Figure 1 shows the client pathway for Smoking Concerns groups and Starting Fresh.

Figure 1: Client Pathways



First, the two services provide slightly different pathways through the process of smoking cessation, but do not operate in isolation from one another.

As Figure 1 shows, the starting point for the two models is slightly different. Those clients who attend Smoking Concerns groups set a quit date for week 3 (weeks 1 and 2 are general registration and information provision sessions) with four week outcomes measured at week 7. Starting Fresh clients set a quit date for week 1, after attending an initial information session which is described as 'week 0'. Starting Fresh four week outcomes are measured on or around week 5.

Figure 1 also illustrates how the two models of treatment are connected. Both Smoking Concerns and Starting Fresh clients collect their pharmacotherapy from a Starting Fresh pharmacy. In addition, Starting Fresh delivers support to all abstinent clients, including those who started treatment through the Smoking Concerns Groups, from weeks 8-12.

The remainder of this report sets out preliminary findings from our exploration of the performance of these two models of smoking treatment. It is divided into four main sections:

- Four week cessation outcomes
- Economic evaluation
- Client views
- Next steps

FOUR WEEK CESSATION OUTCOMES

This section of the report describes preliminary findings from the assessment of short-term (four week) outcomes for clients accessing Smoking Concerns (SC) and Starting Fresh (SF) services during the study period. It describes the methods used for this component of the study and four week results.

Methods

We describe here the research setting, data collected, the measures used and the statistical methods employed during our analysis.

Research Setting

The four week outcomes element of the study centred around the collection of data from clients attending either Smoking Concerns (SC) groups or Starting Fresh (SF) one to one pharmacy-based support.

Client data was collected as part of an enhanced monitoring system. This involved the development of a client questionnaire that built on data already collected by the group and pharmacy-based services as part of the ISD Scotland minimum data set. The monitoring form and protocols for their use were developed with managers from both services and piloted on a small group of Starting Fresh clients in the first instance. Smoking Concerns had used an almost identical form during a previous evaluation and therefore it was decided that no piloting was required (Bauld et al, 2004). Training of staff in the use of the form was led by a member of the research team, Janet Ferguson, but cascaded via pharmacy facilitators for Starting Fresh and by the lead coordinator, Roisin Lynch for Smoking Concerns. Each then supported their services via visits and calls once the research period commenced, to ensure monitoring forms were being completed and advising staff how to handle client questions.

Monitoring forms were completed for each smoker who contacted either service and set a quit date. Cessation outcomes were recorded at four weeks (and will also be recorded later in the study, at one year). Forms were returned so they could be entered onto the database for later export to the research team for cleaning and analysis. In spite of pharmacy facilitator support, some pharmacies continued to use the old monitoring forms so the central staff had to follow up some clients by telephone in order to collect additional information, but it still meant that some records were incomplete and therefore it was not possible to include them in the analysis. The central services were also given some additional money to recruit additional administrative help. Unfortunately the person recruited did not stay very long and subsequent temporary staff were unreliable. In spite of this, service staff managed to complete data entry efficiently and on time. The database was modified by the database designer to record the additional data. He then exported data to the research team in an anonymised form.

Data

The study questionnaire was completed by the client and the smoking cessation service adviser. The questionnaire was more detailed than that normally used by the services and covered personal details, ethnicity, referral source, education, employment and household circumstances, smoking history, smoking status and some details of the intervention received at four week follow up. Data were collected for users first attending the service between 1st April 2007 and 31st May 2007 (SF) and between 14th March 2007 (No Smoking Day) and 31st May 2007 (SC). The SC data collected in March took advantage of the extra referrals arising from No Smoking Day as a means of increasing the SC sample size, which was rather smaller than the SF sample. This later required allowance being made for any systematic difference of the March cases in the modelling.

It is important to emphasise that we were not able to collect as much information as we would have liked; for example in such areas as occupational class and household income. The type of additional data collected had to be negotiated, depending on what co-ordinators felt able and willing to collect, given the considerable demands on their time and their perception of how much the client would be willing to divulge.

Data supplied to the research team were kept anonymous, while including information about the deprivation category of users' place of residence, which was derived from postcodes. In order to avoid a breach of confidentiality postcodes were not provided directly to the research team, since in some circumstances these could allow the identification of individual users.

In Table 1, the initial sample of 1508 records (SF) and 471 records (SC) represents the total number of records of cases who began attending the service in the required time intervals. When cases who withdrew before the week normally used as quit date are excluded, the number of cases reduces to 1375 (SF) and 413 (SC). The few cases who subsequently failed to set a quit date were also excluded, leaving a final sample size of 1374 (SF) and 411 (SC). The 134 Starting Fresh case and 60 Smoking Concerns cases who were already excluded were compared with the remainder of their groups on a few basic characteristics (gender, age, extreme determination to quit, smoking first cigarette within 5 minutes of waking and permanently sick/disabled/unemployed). There was no statistically significant difference at the 5% level between the groups of excluded cases and the remaining groups for any of these characteristics.

Table 1: Sample of records for each service

Sample	Number of Records	
	Starting Fresh	Smoking Concerns
Initial sample of clients who accessed the services during the study period ¹	1508 ³	471 ²
Drop clients who withdrew before the quit date	1375	413
Drop clients who failed to set a quit date	1374	411

Notes: 1. Includes adults who accessed the services between 1st April 2007 and 31st May 2007 (SF) and between 14th March 2007 (No Smoking Day) and 31st May 2007 (SC)

2. 2 children aged under 16 were excluded from this sample, together with a further 35 service users who refused to consent to their data being used for research purposes.

3. 22 smokers who merely attended Starting Fresh pharmacies to collect varenicline following GP prescription, but did not receive the behavioural support element of the programme, were excluded from this sample.

Measures

Personal and service characteristics

From the routinely collected data a wide range of descriptive indicators was available, shown in Table 3. Socio-economic status was defined by scoring one for each of the following six criteria that applied: education finished by 16; single parenthood; rented housing; unemployed or permanently sick or disabled; whether eligible for free prescriptions and aged under 60; resident in the most disadvantaged Scottish deprivation decile. Due to small numbers, the two highest scores were combined. Then, for convenience, one was added to the score, giving a range of values from 1-6, the highest value indicating greater disadvantage.

Outcomes

Users were followed up four weeks after setting a quit date. This therefore took place on week 5 (SF) and on week 7 (SC). Users were asked if they had smoked in the last 2 weeks to determine their quit status. When this was not possible the advisor contacted them by telephone up to 6 weeks post quit date. If the advisor failed to contact them after 3 attempts the users were classified as lost to follow up. A user was counted as having successfully quit smoking at the 4 week follow up if they had not smoked at all in the previous two weeks (not even a puff). When users reported having quit, CO-validation was conducted wherever possible on the basis that abstinence assumes a CO reading of 10ppm or less. These criteria for judging whether a user had self-reported as having quit at 4 weeks, and whether this was CO-validated, were designed to be consistent with the Russell Clinical Standard (West, 2005). This aim was not quite met in the CO-validation criteria, since the Russell Standard requires a CO reading of 9ppm or less. We were unable to meet this since the SF CO readings had been recorded in 5 ppm bands, so self-report quit cases with CO readings in the range 0 to 5 or 6 to 10 were regarded as CO-validated. To avoid bias, we used the same criterion for SC service users. Since only a minority of users who were CO-validated had readings between 6 and 10 (less than 10 per cent), the number with a reading of 10 is likely to have been negligible.

Smoking status could then be classified into four possible outcomes: 'CO-validated quitters— CO reading of 1 - 10'; 'self-reported quit without validation'; 'non-quitters'; and 'lost to follow up'. Cases were defined as lost to follow up if they had withdrawn during weeks 3 to 6 (SC) or 1 to 4 (SF). From this overall outcome, the variable 'Whether CO-validated quitter' was derived.

Predictors used in modelling

Each characteristic listed in Table 3 was used in obtaining a pool of predictor variables. When a variable was included in computing the socio-economic status score, it was excluded as a separate predictor. All categorical variables are recoded as a number of (n-1) dummy (two value) variables. Missing values for dummy variables were assigned the most frequent value (normally 0). In view of the very small proportion of missing values, this is unlikely to bias the models. For each variable, a separate dummy was included in the pool indicating when this variable was missing, when there were at least 1 per cent missing values. Age was the only predictor which was retained as a continuous variable.

It was not always possible for the service to collect the data contained in the additional questionnaire, whose variables have been flagged in Table 3. This was relatively unimportant in the case of SC, for which only 5 cases (1.2 per cent) had

missing additional questionnaires, though a major factor for SF, with 385 cases (28.0 per cent) missing additional questionnaires. When computing missing value dummies, those cases resulting from a missing additional questionnaire were excluded. A separate dummy was introduced indicating whether the additional questionnaire was missing.

A decision had to be reached as to whether the final samples of SF and SC cases should include the SC cases with quit dates in March and the cases with additional questionnaires missing. Including the March SC cases would improve the sample size for that group but these March cases might not be sufficiently representative of the SC group as a whole. Including cases with missing additional questionnaires would make the groups of cases more representative, though would result in a large proportion of missing values for some key variables, which might bias these variables. It was decided to initially include both March SC cases and cases with the additional questionnaire missing, and then carry out sensitivity tests to investigate the effects of omitting these two groups of cases.

Statistical Methods

First, for each service in turn, bivariate relationships were examined between the dependent variable (CO-validated 4 week quit) and the socio-demographic and dependency factors associated with users and the characteristics of services. Frequency distributions were used to describe each sample and the mean values of the CO-validated cessation rates associated with each factor were calculated. Significance tests for these mean values were of three types depending on the variable. In the case of dummy (two value) variables, a chi square test with continuity correction was applied. For (quasi-)continuous variables, a one-way analysis of variance was used. When a (quasi-) continuous variable has been categorised, a one-way analysis of variance on the original (quasi-) continuous variable was applied. In addition, relationships were derived when deprivation and age category were broken down by 'whether CO-validated quit' and 'gender', when significance testing involved a two-way analysis of variance. Also results for the Scottish and Glasgow deprivation quintile were presented separately.

Secondly, a multivariate approach to the relationship between the dependent variable and case characteristics was adopted. The relationships between CO validated cessation rate and personal/service characteristics were investigated using logistic regression analysis, combining the data for the two schemes and including a dummy in the predictor pool to indicate which scheme each case belongs to. Initially sensitivity tests were carried out to explore the robustness of models with respect to including or excluding the SC cases with quit dates in March and the cases with a missing additional questionnaire. This was achieved by comparing results from two samples: those including all cases, and those excluding both March cases and those with missing additional questionnaires. To begin with only the scheme dummy was allowed to enter each model, then the effect of adding one other predictor variable was examined. In the main analysis, which again used both sample sizes, a full range of predictors was allowed to enter, with statistically significant variables identified using forward stepwise logistic regression after being entered in two blocks: personal characteristics, then type of intervention (including referral type). The analysis was repeated entering all variables simultaneously and then using backward stepwise logistic regression analysis, to assess whether the model could be improved. The statistical significance and odds ratio of the scheme dummy helps to shed light on the relative success of the two schemes in achieving a 4 week CO-validated quit.

Thirdly, for the purposes of multivariate analysis, the cases in the Smoking Concerns (N=411) and Starting Fresh (N=1374) databases were combined, in order that a comparison between the two schemes could more readily be made. There were two features of the resulting sample of 1785 cases which required consideration. Firstly, the Smoking Concerns cases included 29 who started attending in March 2007, mainly attracted to the scheme through 'No Smoking Day'. It is possible that these cases may not be representative of Smoking Concerns cases during the main study period, defined by attendance starting in April and May. Secondly, 390 cases were lacking an additional questionnaire, all but 5 of these cases receiving services from Starting Fresh. This meant that user characteristics specified on the additional questionnaire had at least 22% missing values. This could affect results, particularly since the cases without an additional questionnaire had a greater proportion of cases who failed to quit at 4 weeks. Sensitivity analyses were therefore carried out in which modelling involved two alternative sample sizes, the first including all cases (N=1785) and the second excluding both cases starting attendance in March and those with a missing additional questionnaire (N=1366).

Results

Preliminary results from the analysis of client data at four weeks are shown in this section. To begin, Table 2 shows overall smoking cessation outcomes for both services four weeks after the quit date.

Table 2: Smoking status at 4 weeks after quit date

Smoking status	STARTING FRESH		SMOKING CONCERNS	
	N	%	N	%
CO-validated quitter: CO reading of 1 – 10	255	18.6	146	35.5
Unvalidated quitter ¹	127	9.2	24	5.8
Smoker ²	205	14.9	70	17.0
Lost to follow-up ³	787	57.3	171	41.6
Total	1374	100.0	411	100.0

Notes:

1. Unvalidated quitter excludes self-report quit when refuted by CO-reading of 11 or over.
2. Smoker includes self-report quit refuted by CO-reading of 11 or over.
3. Lost to follow-up is defined as withdrawing from service during first 4 weeks.

As Table 2 shows, the smoking status of respondents varied between the two services at 4-week follow-up. In the Starting Fresh sample nearly one user in five (18.6%) was CO-validated as a successful quitter at 4 weeks (the primary outcome measure), rising to 27.8% when self-reported cases not receiving a CO-validation test were included. There were 14.9% non-quitters (including 1.2% whose self-reported quit was refuted by CO > 10 p.p.m.), with a further 57.3% lost to follow-up. In the Smoking Concerns group almost double the proportion of users (35.5%) were CO-validated as successful 4 week quitters, rising to 41.3% when self-reported cases not receiving a CO-validation test were included. There were 17.0% non-quitters, with a further 41.6% lost to follow-up.

Table 3 (presented in a series of tables numbered 3a-c) illustrates how the basic characteristics of smokers were associated with cessation outcomes at the bi-variate level. Key results are highlighted following Table 3.

Table 3a: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: basic characteristics(I)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p ¹)	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p ¹)
<i>Gender</i>						
Male	598	43.5	17.2	142	34.5	37.3
Female	776	56.5	19.6	269	65.5	34.6
<i>Total</i>	1374	100.0	18.6	411	100.0	35.5
			(p=.295)			(p=.199)
<i>Age</i>						
16 - 40	612	44.5	13.4	100	24.3	32.0
41 – 60	563	41.0	19.9	221	53.8	34.8
61 and over	199	14.5	30.7	90	21.9	41.1
<i>Total</i>	1374	100.0	18.6	411	100.0	35.5
			(p<.0005 ²)			(p=.249 ²)
<i>Male</i>						
16 - 40	293	49.0	11.3	34	23.9	32.4
41 – 60	238	39.8	19.3	78	54.9	37.2
61 and over	67	11.2	35.8	30	21.1	43.3
<i>Total</i>	598	100.0	17.2	142	100.0	37.3
<i>Female</i>						
16 - 40	319	41.1	15.4	66	24.5	31.8
41 – 60	325	41.9	20.3	143	53.2	33.6
61 and over	132	17.0	28.0	60	22.3	40.0
<i>Total</i>	776	100.0	19.6	269	100.0	34.6
			(p _a <.0005 ³)			(p _a =.198 ³)
			(p _b =.296 ³)			(p _b =.934 ³)

Table 3a: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: basic characteristics (II)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)
<i>Deprivation decile</i>						
(a) Scottish						
1 Relatively disadvantaged	566	41.2	15.0	129	31.4	34.9
2	230	16.8	21.7	58	14.1	34.5
3	129	9.4	19.4	34	8.3	23.5
4	123	9.0	21.1	34	8.3	32.4
5	78	5.7	23.1	24	5.8	20.8
6	67	4.9	19.4	23	5.6	34.8
7	40	2.9	20.0	16	3.9	37.5
8	50	3.6	20.0	34	8.3	38.2
9	51	3.7	21.6	28	6.8	53.6
10 Relatively advantaged	39	2.8	23.1	31	7.5	48.4
Total	1373	100.0	18.6	411	100.0	35.5
			(p=.053 ²)			(p=.058 ²)
(b) Glasgow						
1 Relatively disadvantaged	263	19.2	13.3	62	15.1	32.3
2	229	16.7	18.3	53	12.9	40.0
3	210	15.3	17.1	45	10.9	31.1
4	135	9.8	22.2	34	8.3	38.2
5	148	10.8	18.9	35	8.5	20.0
6	126	9.2	22.2	45	10.9	31.1
7	94	6.8	19.2	32	7.8	34.4
8	72	5.2	23.6	38	9.2	31.6
9	55	4.0	20.0	35	8.5	51.4
10 Relatively advantaged	41	3.0	24.4	32	7.8	50.0
Total	1373	100.0	18.6	411	100.0	35.5
			(p=.015 ²)			(p=.134 ²)

Table 3a: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: basic characteristics (III)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)
<i>Deprivation quintile</i>						
(a) Scottish						
1 Relatively disadvantaged	796	58.0	17.0	187	45.5	34.8
2	252	18.4	20.2	68	16.5	27.9
3	145	10.6	21.4	47	11.4	27.7
4	90	6.6	20.0	50	12.2	38.0
5 Relatively advantaged	90	6.6	22.2	59	14.4	50.9
Total	1373	100.0	18.6	411	100.0	35.5
			(p=.053 ⁴)			(p=.058 ⁴)
Male						
1 Relatively disadvantaged	331	55.4	15.1	63	44.4	36.5
2	123	20.6	17.9	19	13.4	31.6
3	68	11.4	23.5	17	12.0	17.7
4	38	6.4	15.8	17	12.0	58.8
5 Relatively advantaged	37	6.2	24.3	26	18.3	42.3
Total	597	100.0	17.3	142	100.0	37.3
Female						
1 Relatively disadvantaged	465	59.9	18.3	124	46.1	33.9
2	129	16.6	22.5	49	18.2	26.5
3	77	9.9	19.5	30	11.2	33.3
4	52	6.7	23.1	33	12.3	27.3
5 Relatively advantaged	53	6.8	20.8	33	12.3	57.6
Total	776	100.0	19.6	269	100.0	34.6
			(p _a =.042 ³) (p _b =.322 ³)			(p _a =.086 ³) (p _b =.228 ³)

Table 3a: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: basic characteristics (IV)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)
<i>Deprivation quintile</i>						
(b) Glasgow						
1 Relatively disadvantaged	492	35.8	15.7	115	28.0	35.7
2	345	25.1	19.1	79	19.2	34.2
3	274	20.0	20.4	80	19.5	26.3
4	166	12.1	21.1	70	17.0	32.9
5 Relatively advantaged	96	7.0	21.9	67	16.3	50.8
Total	1373	100.0	18.6	411	100.0	35.5
			(p=.015 ⁴)			(p=.134 ⁴)
Male						
1 Relatively disadvantaged	198	33.2	12.6	38	26.8	36.8
2	153	25.6	19.0	25	17.6	36.0
3	135	22.6	18.5	26	18.3	26.9
4	70	11.7	20.0	26	18.3	42.3
5 Relatively advantaged	41	6.9	24.4	27	19.0	44.4
Total	597	100.0	17.3	142	100.0	37.3
Female						
1 Relatively disadvantaged	294	37.9	17.7	77	28.6	35.1
2	192	24.7	19.3	54	20.1	33.3
3	139	17.9	22.3	54	20.1	25.9
4	96	12.4	21.9	44	16.4	27.3
5 Relatively advantaged	55	7.1	20.0	40	14.9	55.0
Total	776	100.0	19.6	269	100.0	34.6
			(p _a =.013 ³) (p _b =.251 ³)			(p _a =.168 ³) (p _b =.381 ³)

Table 3a: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: basic characteristics (V)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values		4-week CO-validated cessation rate (%) (significance level, p ¹)	Valid values		4-week CO-validated cessation rate (%) (significance level, p ¹)
	N	% of valid values		N	% of valid values	
<i>Age finished full-time education⁶</i>						
15 or under	324	32.9	25.9	159	39.4	31.5
16	365	37.0	14.5	107	26.5	46.7
	274	27.8	22.6	133	32.9	31.6
<i>17 or over</i>						
Not yet finished	23	2.3	13.0	5	1.2	60.0
<i>Total</i>	986	100.0	20.5 (p=.848 ⁴)	404	100.0	35.9 (p=.755 ⁴)
<i>Employment status</i>						
In paid employment	527	41.5	20.9	224	54.8	35.7
Retired	167	13.1	33.5	87	21.8	42.5
Permanently sick/disabled, unemployed	451	35.5	12.9	68	16.6	26.5
Other	125	9.8	10.4	30	7.3	33.3
<i>Total</i>	1270	100.0	18.7 (p<.0005 ⁵)	409	100.0	35.5 (p=.407 ⁵)
<i>Housing status⁶</i>						
Owner occupier: owned outright	133	13.5	23.3	80	19.8	50.0
Owner occupier: buying on a mortgage	274	27.8	21.5	170	42.0	34.7
Renting	561	56.8	18.9	153	37.8	30.1
Other	19	1.9	26.3	2	0.5	0.0
<i>Total</i>	987	100.0	20.4 (p=.197 ²)	405	100.0	35.8 (p=.004 ²)
<i>Eligible for free prescription and aged under 60</i>						
Yes	761	66.6	14.2	127	40.3	33.1
No	382	33.4	19.1	188	59.7	34.0
<i>Total</i>	1143	100.0	15.8 (p=.039)	315	100.0	33.7 (p=.954)

Table 3a: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: basic characteristics (VI)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p ¹)	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p ¹)
<i>Socio-economic group score^{6,7}</i>						
1, 2 Least deprived	290	29.3	25.2	198	48.8	35.4
3, 4	364	36.8	21.7	142	35.0	41.6
5, 6 Most deprived	335	33.9	14.9	66	16.3	24.2
<i>Total</i>	989	100.0	20.4	406	100.0	35.7
			(p=.001 ⁴)			(p=.254 ⁴)
<i>Number of adults aged 16+ (including self) in household⁶</i>						
1	349	35.6	20.6	139	34.5	34.5
2	428	43.6	20.8	162	40.2	34.6
	204	20.8	18.1	102	25.3	40.2
3 or more						
<i>Total</i>	981	100.0	20.2	403	100.0	36.0
			(p=.337 ²)			(p=.793 ²)
<i>No. of children in household⁶</i>						
0	627	63.7	23.4	309	76.7	35.6
1	179	18.2	16.8	58	14.4	31.0
	178	18.1	13.5	36	8.9	47.2
2 or more						
<i>Total</i>	984	100.0	20.4	403	100.0	36.0
			(p=.003 ²)			(p=.282 ²)
<i>Lives with spouse/partner⁶</i>						
Yes	481	48.8	21.6	212	52.3	40.6
No	504	51.2	19.1	193	47.7	30.6
<i>Total</i>	985	100.0	20.3	405	100.0	35.8
			(p=.355)			(p=.046)
<i>Anyone to support client to quit smoking?⁶</i>						
Yes	750	75.9	21.2	345	85.0	36.2
	238	24.1	18.1	61	15.0	32.8
No						
<i>Total</i>	988	100.0	20.5	406	100.0	35.7
			(p=.341)			(p=.709)

Table 3b: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: smoking history (I)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p)
<i>Cigarettes smoked daily⁶</i>						
20 or under	591	59.9	22.0	237	58.4	37.6
21 or over	396	40.1	18.2	169	41.6	33.1
Total	987	100.0	20.5 (p=.441 ⁴)	406	100.0	35.7 (p=.155 ⁴)
<i>Time elapsed between waking and first cigarette</i>						
Within 5 minutes	799	59.2	16.7	213	53.0	34.7
6 – 60 minutes	467	34.6	21.2	168	41.8	35.7
	84	6.2	25.0	21	5.2	47.6
<i>More than 60 minutes</i>						
Total	1350	100.0	18.7 (p=.023 ⁴)	402	100.0	35.8 (p=.235 ⁴)
<i>How easy is it to go a whole day without smoking?</i>						
Very/fairly easy	164	12.3	22.0	50	12.3	32.0
Fairly difficult	413	31.0	18.9	189	46.7	38.6
Very difficult	756	56.7	17.9	166	41.0	33.7
Total	1333	100.0	18.7 (p=.321 ⁴)	405	100.0	35.8 (p=.756 ⁴)
<i>Determination to quit⁶</i>						
Not at all/quite determined	199	20.2	17.1	80	19.7	31.3
Very determined	442	44.8	20.1	173	42.6	32.4
Extremely determined	346	35.1	22.8	153	37.7	41.8
Total	987	100.0	20.5 (p=.072 ⁴)	406	100.0	35.7 (p=.092 ⁴)

Table 3b: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: smoking history (II)

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p ¹)	Valid values N	% of valid values	4-week CO- validated cessation rate (%) (significance level, p ¹)
<i>Number of previous quit attempts in past year</i>						
0	644	48.2	19.3	123	30.5	35.8
1	410	30.7	19.3	130	32.3	30.8
2,3	228	17.1	14.5	103	25.6	33.0
	55	4.1	21.8	47	11.7	57.5
4 or more						
<i>Total</i>	1337	100.0	18.6	403	100.0	36.0
			(p=.410 ²)			(p=.071 ²)
<i>Do you smoke mainly for pleasure or to help you cope?⁶</i>						
	308	31.7	24.7	124	30.8	42.8
Mainly for pleasure						
About equally	453	46.6	18.1	211	52.4	31.8
	211	21.7	19.4	68	16.9	36.8
Mainly to cope						
<i>Total</i>	972	100.0	20.5	403	100.0	36.0
			(p=.097 ²)			(p=.229 ²)
<i>Does anyone with you smoke?⁶</i>						
Yes	433	43.9	20.8	168	41.9	37.5
No/does not apply to me	553	56.1	20.3	233	58.1	34.8
<i>Total</i>	986	100.0	20.5	411	100.0	35.9
			(p=.900)			(p=.647)
<i>Health in last 12 months⁶</i>						
Good	330	33.4	20.9	114	28.4	41.2
Fairly good	408	41.3	19.1	170	42.3	34.7
Not good	250	25.3	22.0	118	29.4	32.2
<i>Total</i>	988	100.0	20.5	402	100.0	35.8
			(p=.807 ²)			(p=.154 ²)

Table 3c: Frequencies of characteristics of smokers and CO-validated 4 week cessation rates: smoking intervention

<i>Characteristic</i>	STARTING FRESH			SMOKING CONCERNS		
	Valid values		4-week CO-validated cessation rate (%) (significance level, p)	Valid values		4-week CO-validated cessation rate (%) (significance level, p)
	N	% of valid values		N	% of valid values	
<i>Referral source</i> ⁶						
Self referral	733	74.1	20.5	148	39.2	33.8
GP	150	15.2	16.0	116	30.7	40.0
Practice nurse	20	2.0	20.0	34	9.0	29.4
	86	8.7	27.9	80	21.2	41.3
<i>Other</i>						
Total	989	100.0	20.4 (p=.768 ⁵)	378	100.0	36.8 (p=.717 ⁵)
<i>Type of pharmacotherapy</i>						
NRT only	1374	100.0	35.5	343	83.5	35.6 (p=1.000)
Bupropion ⁸				13	3.2	23.1 (p=.510)
Varenicline ⁹				55	13.4	38.2 (p=.771)
Total	1374	100.0	35.5	411	100.0	35.5

Notes on Tables 3a – 3c:

1. Significance level, p, refers to a chi square test with continuity correction unless otherwise stated.
2. Significance level, p, refers to a one-way analysis of variance on the (quasi-)continuous variable.
3. Significance levels p_a , p_b refer to a two-way analysis of variance broken down by 4 week cessation rate and gender.
4. Significance level, p, refers to a one-way analysis of variance on the (quasi-)continuous variable before it was categorised.
5. Significance level, p, refers to a chi square test.
6. This characteristic was asked about on the additional questionnaire, of which 385 were missing (Starting Fresh) and 5 were missing (Smoking Concerns).
7. Socio-economic group is a summary measure based on whether education finished by 16, single parent, rented housing, unemployed or permanently sick/disabled, whether eligible for free prescriptions and aged under 60, lowest Scottish deprivation decile: range 1 (least deprived) to 6 (most deprived).
8. The 13 Smoking Concerns cases receiving bupropion include 2 cases who subsequently changed to NRT.
9. The 55 Smoking Concerns cases receiving varenicline include 2 cases who subsequently changed to NRT and 2 cases who started with NRT and changed to varenicline.

As Tables 3a-c show, a large number of characteristics of users were associated with cessation at the bivariate level. Distributions of each of the factors, together with a breakdown of CO-validated success rates, are shown in the tables. For example, Starting Fresh treated a greater proportion of female users (56.5%) than males (43.5%). However, the CO-validated cessation rates for females (19.6%) and males (17.2%) were very close, the difference being statistically insignificant (p=.295). A significantly higher proportion of females (65.5%) attended Smoking Concerns

($p=.001$), almost double that for males (34.5%), though the cessation rates for females and males were again very close, the difference again being statistically insignificant ($p=.199$).

A larger proportion of younger people in the 16 – 40 age range attended Starting Fresh (44.5%) than Smoking Concerns (24.3%). Although the cessation rate for Starting Fresh increased sharply with age from 13.4% for age 16 – 40 to 30.7% for age 61 and over ($p<.0005$), the corresponding increase for Smoking Concerns was much less and statistically insignificant ($p=.249$).

A high proportion of users in both groups were from disadvantaged areas, with over half (58.0%) of Starting Fresh cases in the bottom Scottish deprivation quintile, this being a somewhat lower proportion (45.5%) in Smoking Concerns. Examining the two highest (relatively advantaged) deprivation quintiles, the proportion in Smoking Concerns (26.6%) was approximately double that in Starting Fresh (13.2%). Because of the high proportion of cases in the bottom deprivation quintile, use of the Glasgow specific deprivation quintile was able to show more clearly how cessation rate varied with deprivation quintile, increasing for Starting Fresh from 15.7% for the bottom relatively disadvantaged Glasgow quintile to 21.9% for the top relatively advantaged quintile ($p=.015$). However, no corresponding significant trend was found for Smoking Concerns ($p=.134$).

Other aspects of deprivation are shown by age finished full-time education, employment status and housing status. Approximately one third of cases in each service had finished education by the age of 15. The surprisingly high cessation rate for this category in Starting Fresh (25.9%) can be accounted for in terms of their relatively high age (54.5), which we, and other studies, have shown to be associated with a higher cessation rate. Perhaps partly for this reason, age finishing full-time education was not associated significantly with increased cessation rate in either service.

Examining employment status, over one third of users attending Starting Fresh were permanently sick/disabled or unemployed (35.5%), more than twice the proportion in Smoking Concerns (16.6%). The cessation rate of these cases was relatively low for each service. The proportion in rented housing was much greater for those attending Starting Fresh (56.8%) than those attending Smoking Concerns (37.8%). These cases had lower cessation rates in each service, though the overall trend of cessation rate in moving from 'owner occupier: owned outright' to 'renting' was only significant for Smoking Concerns ($p=.004$). A greater proportion of users were eligible for free prescriptions and aged under 60 in Starting Fresh (66.6%) than in Smoking Concerns (40.3%), though this category only had significantly lower cessation rates in the case of Starting Fresh ($p=.039$). In each service cases in socio-economic groups 5 and 6 had lower cessation rates, though the trend relating socio-economic score to cessation rate was only significant for Starting Fresh ($p=.001$).

In Starting Fresh a significantly greater proportion of users had children (36.3%), and only in this service was the number of children associated with significantly lower cessation rates ($p=.003$). Only in Smoking Concerns was living with spouse/partner associated with significantly higher cessation rates ($p=.046$).

Examining smoking behaviour, it is clear that both services were treating a large number of clients who were heavily addicted smokers. For example, over half the users attending each service smoked their first cigarette within 5 minutes of waking, though only for Starting Fresh was the time which elapsed between waking and smoking first cigarette significantly associated with cessation rate ($p=.023$). In both

services, over one third of cases were extremely determined to quit smoking, and determination to quit was associated with higher cessation rates in both groups, though this was not quite statistically significant: $p=.072$ (Starting Fresh) and $p=.092$ (Smoking Concerns).

The next table, Table 4, acts as a link between the bivariate relationships in Table 3 and the preliminary results from multivariate analysis of four week outcomes for both services, shown in Table 5.

Table 4: Relating CO-validated 4 week quit rates to odds ratio for type of service

Outcome	N = 1785		N = 1366	
	Starting Fresh	Smoking Concerns	Starting Fresh	Smoking Concerns
(1) Not Quit	1119 (81.4%)	265 (64.5%)	787 (79.6%)	244 (64.7%)
(2) Quit	255 (18.6%)	146 (35.5%)	202 (20.4%)	133 (35.3%)
(3) Total	1374 (100%)	411 (100%)	989 (100%)	377 (100%)
Odds of Success ¹	22.79	55.09	25.67	54.51
Quit Ratio	1.91		1.73	
Odds Ratio	2.42		2.12	

Notes:

1. Row 2 divided by Row 1 x 100

Table 5: Multivariate analysis: modelling 4 week quit rate for larger and smaller samples

	N=1785 ¹			N=1366		
	B	Sig ²	Odds Ratio	B	Sig ²	Odds Ratio
Model 1: just scheme dummy allowed to enter						
Whether service offered by Smoking Concerns	0.883	<.0005	2.418	0.753	<.0005	2.124
Model 2: also age and gender allowed to enter						
Whether service offered by Smoking Concerns	0.765	<.0005	2.194	0.647	<.0005	1.910
Age (years)	0.024	<.0005	1.025	0.023	<.0005	1.023
Model 3: also socio-economic group dummies allowed to enter						
Whether service offered by Smoking Concerns	0.606	<.0005	1.833	0.598	<.0005	1.818
Age (years)	0.022	<.0005	1.022	0.020	<.0005	1.020
Socio-economic group score of 5 or 6 (high need)	-0.434	.006	0.648	-0.454	.004	0.635
Whether additional questionnaire missing	-0.585	.001	0.557			
Model 4: also all remaining predictors allowed to enter ³						
Whether service offered by Smoking Concerns	0.639	<.0005	1.894	0.612	<.0005	1.843
Age (years)	0.024	<.0005	1.024	0.022	<.0005	1.022
Socio-economic group score of 5 or 6 (high need)	-0.364	.017	0.695	-0.412	.009	0.662
<i>Addiction/smoking behaviour predictors</i>						
Between 1 and 20 cigarettes smoked daily	0.293	.015	1.340	0.257	.055	1.293
Extremely determined to quit smoking	0.415	.001	1.514	0.348	.010	1.416
Smokes mainly for pleasure	0.377	.004	1.458	0.357	.010	1.429

Notes:

1. The dummy variable 'Whether additional questionnaire missing' was allowed to enter models 3 and 4 using the larger sample, to control for systematic differences of this sub-group once variables drawn from the additional questionnaire entered the model.
2. Significance of change in $-2 \log$ likelihood.
3. The three addiction/smoking behaviour predictors entering the model had the effect of allowing 'Whether additional questionnaire missing' to drop out of the model.

It is useful to start with the simplest of relationships between user characteristics and the 4 week CO-validated quit rate and then elaborate in stages. Table 4 shows numbers quitting or failing to quit broken down by scheme (SF or SC) for the larger and smaller samples, and excludes all other user characteristics. Row (2) shows the CO-validated 4 week quit rates (risks of success) in parenthesis; for example, for the larger sample this works out to be 18.6% for Starting Fresh and nearly twice this (35.5%) for Smoking Concerns. The slightly higher quit rate of 20.4% for Starting Fresh using the smaller sample reflects the exclusion of cases with a missing additional questionnaire for which cessation rates were lower.

The odds of success are obtained by dividing the number quitting by the number not quitting and multiplying by 100. Using the larger sample, the odds of success for Smoking Concerns of 55.09 was more than twice that for Starting Fresh (22.79). The quit ratio, shown near the foot of the table, is a measure of the relative success of Smoking Concerns over Starting Fresh in enabling cases to quit at 4 weeks, and is obtained for the larger sample by dividing the quit rate for Smoking Concerns (35.5%) by that for Starting Fresh (18.6%), giving 1.91. The value for the smaller sample of 1.73, although somewhat smaller, is still substantial. Finally, the odds ratio shown in the bottom row is obtained for the larger sample by dividing the odds of success for Smoking Concerns (55.09) by that for Starting Fresh (22.79), giving 2.42. The value for the smaller sample of 2.12, although slightly less, is still over 2 and substantial.

Another way of deriving the odds ratio is by treating the relationship between 4 week quit rate and scheme as a simple multivariate model, in which there is only one predictor, namely scheme. In Model 1 of Table 5, this works out to be the same (2.42 for the larger sample and 2.12 for the smaller sample) as was found in the bottom row of Table 4. This provides a useful link between the simple contingency table relating scheme to numbers quitting/not quitting (Table 4) and a set of increasingly elaborate multivariate models (Table 5).

In Model 2 in Table 5 age and gender are also allowed to enter, and although age enters extremely significantly, gender would not enter. In the case of the larger sample, the odds ratio of 1.025 implies that the probability of quitting over not quitting increased by 1.025 times (ie 2.5%) for each additional year of age.

Model 3 in Table 5 allows socio-economic group dummies to enter the previous model. Because socio-economic group is based on variables in the additional questionnaire, the dummy 'whether additional questionnaire missing' was also allowed to enter the model for the larger sample to control for differences in this sub-sample. Only the socio-economic group dummy for scores of 5 or 6 (highest need) would enter the models, the 'whether additional questionnaire missing' dummy also entering the model for the larger sample.

Model 4 allows all remaining predictors to enter the models. Just 3 entered both models significantly, all describing the service user's addiction or smoking behaviour. Users were more likely to quit if they smoked no more than 20 cigarettes daily, were extremely determined to quit smoking and smoked mainly for pleasure. In the larger sample the introduction of these three variables allowed the 'whether additional questionnaire missing' dummy to be dropped from the model.

Comparing the models for the smaller and larger sample sizes, there is little evidence for any noticeable systematic differences. The variables entering the models at each stage were the same, except for the 'whether additional questionnaire missing' dummy entering model 3 in the case of the larger sample. The sizes of the B

coefficients and odds ratios were also fairly similar, including the odds ratios for the scheme dummy. In model 1 these came to 2.418 for the larger sample and 2.124 for the smaller sample. These odds ratios showed only a moderate decrease when compared with those for the full model (1.894 and 1.843 respectively), and this scheme difference was always significant at $p < .0005$. In other words, the Smoking Concerns cases were always significantly more likely to quit than those from Starting Fresh, even after controlling for differences in the characteristics of cases taken on by the two schemes. In the case of the larger sample, the odds ratio of 1.894 for the scheme dummy in model 4 implies that the probability of quitting over not quitting was 1.894 times as great for Smoking Concerns cases.

Table 6: Illustrative Caricatures

Characteristic ¹	First hypothetical example: generally favourable circumstances	Second hypothetical example: generally unfavourable circumstances
Age	Aged 50	Aged 35
Socio-economic group	1 to 4 (relatively advantaged)	5 or 6 (relatively disadvantaged)
Extremely determined to quit	Yes	No
Smokes mainly for pleasure	Yes	No
Cessation rate predicted from model (a) Starting Fresh	36.4%	11.2%
(b) Smoking Concerns	52.0%	19.3%
N=1785		

Notes:

1. Number of cigarettes smoked daily was 20 or fewer in each example.

To give an impression of how the individual circumstances of clients can affect cessation rate, two illustrative caricatures derived from the results in Table 5 (larger sample) are shown in Table 6. In the first example the other circumstances are generally favourable and the cessation rate is estimated to be 36% for Starting Fresh and 52% for Smoking Concerns. In the second case the wider circumstances are generally unfavourable and the cessation rate is just 11% for Starting Fresh and 19% for Smoking Concerns. A wide range of smoking outcomes can be predicted, depending on the circumstances of the service user, but with Smoking Concerns clients being substantially more likely to quit than those with similar characteristics attending Starting Fresh.

Further Analysis

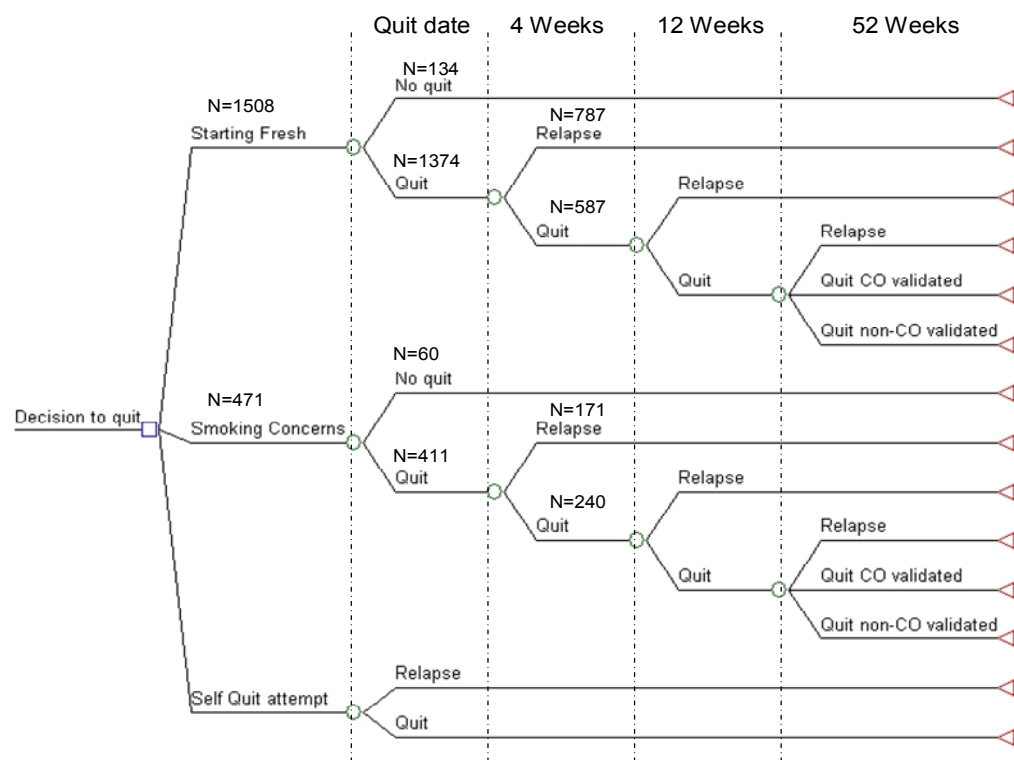
The basic analysis of four week results has been completed, as outlined above. However, the research team have not yet had the opportunity to fully consider the implications of these results or, indeed, to compare them with the relevant elements of the 2004 study. This work will be completed while producing a paper for publication.

ECONOMIC EVALUATION

The cost effectiveness analysis will evaluate both short term and long term outcomes from the Starting Fresh and Smoking Concerns interventions compared with a baseline 'self-quit' scenario. The short term model uses study data and cost information to establish the cost per quitter outcome at 52 weeks, while the longer term analysis uses the study results to model the lifetime outcomes. Cost per QALY (Quality Adjusted Life Years) will be established to account for the long term gain quitters will receive in terms of extended life years and improvements in quality of life.

The short term model has been determined and an interim economic analysis is presented in this section using 4 week data from the study and cost information. The decision tree below illustrates the alternative pathways taken by clients undertaking a quit attempt, and the short term outcomes. The tree demonstrates the alternative routes someone who has decided to quit can take, whether that is through NHS services, in this analysis limited to either Smoking Concerns or Starting Fresh, or alternatively undertaking their quit attempt without any advice or help from the NHS. The interim results have been inserted into the decision tree, showing those who have relapsed and those who remain in the program four weeks after the quit date. Participants who enter the Starting Fresh and Smoking Concerns interventions complete an introductory stage whereby a quit date is set and it is only after this date that the quit attempt is undertaken. The tree below incorporates this and it can be seen that some participants withdraw from the service before their quit date.

Decision Tree: Smoking Treatments in Glasgow



Costs

The cost effectiveness analysis is undertaken from the NHS perspective, and therefore the relevant costs are those incurred by NHS Greater Glasgow for the two interventions Starting Fresh (pharmacy) and Smoking Concerns (group). Cost and price information was obtained from NHS Greater Glasgow for the resources used in both interventions and patient data on resource use was collected at weekly intervals. For the control scenario, self-quit attempts, it is assumed there is no cost to the NHS.

The costs for each intervention are attributed to four main areas: nicotine replacement therapy (NRT), professional time, the materials used and overheads. Table 7 below presents information on the set costs incurred by the two services, while Tables 8a and 8b illustrate the cost of each intervention based on resource use at 4 weeks from quit date. As shown in Table 7 the weekly cost of NRT is set per client while professional time fees are dependent on the service and vary by week of participation, therefore the costs incurred at 4 weeks from the quit date are dependent on the number of clients participating at each week. The overhead and material costs are fixed. They have been calculated on an annual basis with the average costs per patient (detailed in Tables 8 a & b) based on the number of clients using each service per annum at the time of study; 12,000 for starting Fresh and 1,500 for Smoking Concerns (Bauld, L. 2007). Further specifics relating to the four main cost areas are discussed below.

Table 7: Set Costs

Item	Unit of cost	Cost to NHS
First line NRT - Nicorette 16 hour patch.	Weekly cost per person	£ 9.98
CO Monitors	Cost per monitor	£ 132.00
Starting Fresh Pharmacy Fee Wk 0	Fee paid per client	£ 5.00
Starting Fresh Pharmacy Fee Wk 1-4	Fee paid per client	£ 14.00
Starting Fresh Pharmacy Fee Wk 5-8	Fee paid per client	£ 10.00
Starting Fresh Pharmacy Fee Wk 9-12	Fee paid per client	£ 6.00
Starting Fresh Pharmacy Advisors	Hourly wage rate	£ 19.27
Starting Fresh Update Training - venue & materials	Cost per training event	£ 732.00
Starting Fresh Training - Pharmacist reimbursement 1 full day	Fee paid per pharmacist	£ 175.00
Starting Fresh Training - Pharmacy Assistant reimbursement 1 full day	Fee paid per assistant	£ 65.00
Smoking Concerns Pharmacy Fee Wk 3-6	Fee paid per client	£ 5.00
Smoking Concerns Pharmacy Fee Wk 7-10	Fee paid per client	£ 5.00
Smoking Concerns Pharmacy Fee Wk 11-14	Fee paid per client	£ 5.00
Smoking Concerns Facilitator Fee	Hourly fee	£ 15.00
Smoking Concerns venue opportunity cost	Cost per session	£ 50.00
Smoking Concerns Refresh Training - opportunity cost	Cost per training event	£ 100.00

Table 8a: Starting Fresh resource use & costs

Item	Total 4 week quit cost	Average cost/ participant	Description
Nicotine Replacement Therapy	£ 39,071.70	£ 25.91	First line NRT, 16 hour Nicorette patch. Sum of the weekly cost £9.98 x n quitters @ each week
Professional Time - pharmacy fee	£ 19,906.00	£ 13.20	Pharmacist fee, max £30 per quitter. Sum of the relevant fee x n quitters @ each week
Overhead - Project Officer	£ 3,062.42	£ 2.03	80% FTE £25'175/annum + 21% on-cost. NHS Pay Rates April 07, Band 6, point 25. PSSRU 2007.
Overhead - Project Assistant	£ 1,516.45	£ 1.01	70% FTE. £14,247/annum + 21% on-cost. NHS Pay Rates April 07, Band 3, point 7. PSSRU 2007.
Overhead - Pharmacy Advisors	£ 5,036.92	£ 3.34	10 advisors, 4hrs each per week, 52 weeks/annum £19.27/hr.
Overhead – Advertisement	£ 18.85	£ 0.01	Advertisement: Smoking Concerns flyers, Starting Fresh flyers and posters & other GG&C NHS smoking cessation advertising. Attribute £150 to each service annually.
Overhead - Update Training	£ 7,224.45	£ 4.79	Biannual training for pharmacists and pharmacy assistants: Venue & material costs including; room hire, flip charts and catering. Reimbursement of pharmacist and pharmacy assistant time per day of attendance. Assume 270 pharmacists and 135 assistants attend per annum. Fee for trainers incorporated in salary for Project Officers salaries.
Materials - CO Monitors	£ 4,478.76	£ 2.97	270 pharmacies at £132 per monitor.
Materials - CO Monitors Misc	£ 62.83	£ 0.04	Annual maintenance and mouth piece costs £500.
Materials - Stop Smoking Book	£ 12.57	£ 0.01	Booklet distributed to all NHS smoking cessation services. Attribute £100 to each service annually.
TOTAL	£ 80,390.95	£ 53.31	

Table 8b: Smoking Concerns resource use & costs

Item	Total 4 week quit cost	Average cost/ participant	Description
Nicotine Replacement Therapy	£ 13,303.34	£ 28.24	First line NRT, 16 hour Nicorette patch. Sum of the weekly cost £9.98 x n quitters @ each week
Professional Time - pharmacy fees	£ 2,055.00	£ 4.36	Pharmacist fee max £15 per quitter. Sum of the relevant fee x n quitters @ each week
Professional Time - facilitator fees	£ 8,670.00	£ 18.41	Hourly fee of £15 x number of facilitator hours. Groups with 1 facilitator incur 17hrs over the 7 sessions while groups with 2 facilitators incur 34hrs.
Overheads - Cessation Advisor	£ 8,478.36	£ 18.00	100% FTE £22,315/annum + 21% on-cost. NHS Pay Rates April 07, Band 6, 1st grade. PSSRU 2007.
Overheads - Coordinators	£ 73,328.88	£ 155.69	Total coordinator salaries across all 9 CH(C)Ps. Adjusted to appropriate FTE % as required per CH(C)P + 21% on-cost.
Overheads - Health Promotions Officer	£ 5,008.60	£ 10.63	60% FTE £21,971/annum + 21% on-cost. NHS Pay Rates April 07, Band 5, midpoint (21). PSSRU 2007.
Overheads - Senior Health Promotions Officer	£ 6,182.38	£ 13.13	60% FTE £27,120/annum + 21% on-cost. NHS Pay rates April 07, Band 6, midpoint (27).
Overheads - Administration Salaries	£ 28,140.26	£ 59.75	Total cost administration salaries for the 9 CH(C)Ps + 21% on-cost for NHS.
Overheads – Room Hire	£ 12,089.00	£ 25.67	Opportunity cost for venue, normally held in 'free' Health Centres. £50 per session, £350 per group. Approximately 110 groups per year, with an average of 14 people per group.
Overheads - Advertisements	£ 47.10	£ 0.10	Advertisement: Smoking Concerns flyers, Starting Fresh flyers and posters & other GG&C NHS smoking cessation advertising. Attribute £150 to each service annually.
Overhead - Refresh Training	£ 62.80	£ 0.13	Biannual training (information updates & phone counseling) for facilitators undertaken in-house. Opportunity cost for venue and resource use £100 per training event. Fee for trainers incorporated in salary for SHPO and HPO.
Materials - CO Monitors	£ 1,865.16	£ 3.96	45 monitors at £132 each. Attribute 45 monitors amongst the nine CH(C)P's: (6 for 6 large CH(C)Ps, 3 for 3 small CH(C)Ps).
Materials - CO Monitors Misc	£ 157.00	£ 0.33	Annual maintenance and mouth piece costs £500.
Materials - Refreshments	£ 31.40	£ 0.07	£100 annual expenditure on refreshments.
Materials - Stop Smoking Book	£ 31.40	£ 0.07	Booklet distributed to all NHS smoking cessation services. Attribute £100 to each service annually.
TOTAL	£ 159,450.68	£ 338.54	

NRT

The cost of NRT is based on the first line product offered by NHS Greater Glasgow which is Nicorette 16hr patches. At the time of study¹ 95% of patients received this form of NRT and therefore costs have been calculated based on the weekly price of this for all patients receiving NRT in both interventions². The NRT is dispensed through a pharmacy in weekly packs of seven patches for a maximum of twelve weeks in both interventions. NRT provision is abstinence contingent and therefore the total cost of NRT for each intervention is dependent on the number of weeks each patient participates (remains a quitter).

Professional Time

Professional time reflects the cost of pharmacist and group facilitator's time incurred directly through providing the services. This cost would typically be calculated based on the hourly wage rate for a pharmacist or pharmacy assistant and the number of hours each has spent with smoking cessation patients, however, in these two interventions the pharmacy is paid a fee by NHS Greater Glasgow as reimbursement for their time and use of their premises. Table 7 details the variety of fees that are paid. The fee is dependent on which intervention the patient belongs to and the duration of their quit attempt. In Starting Fresh a fee of £5 is paid for patients who participate for week zero only and thereafter do not set a quit date. The pharmacy will receive a maximum of £30 per patient for those who complete the full thirteen week duration and for Smoking Concerns the pharmacy will receive a maximum of £15, again for those patients who complete the full 14 week duration.

The Smoking Concerns intervention also involves seven weekly counselling sessions per group. Facilitators are paid an hourly rate for their time involved in preparing for and running groups. Groups run by two facilitators are more expensive than those run jointly by a facilitator and a cessation coordinator, as the coordinator is paid a salary rather than an hourly fee. Salary costs for coordinators are included as an overhead cost in this analysis, as running group counselling sessions is only one aspect of their role.

Overheads

The annual overhead costs include salaries, venue costs, advertising and update or refresh training. The Starting Fresh intervention mainly consists of salary costs, an 80% FTE salary for the project officer, a 70% FTE salary for the project assistant and the cost of ten pharmacy advisors working 4hrs a week on an hourly rate throughout the year. The venue cost for the pharmacy premises is incorporated in the pharmacist 'professional time' fee. The Smoking Concerns intervention consist of 100% FTE salary for the smoking cessation advisor, 60% FTE salaries for a health promotions officer and a senior health promotions officer, salaries for nine smoking cessation co-ordinators and the administration salaries for each of the nine CH(C)P's. All salaries an additional 'on-cost' of 21% of salary costs to the employer, representing the cost of superannuation and national insurance fees incurred, in this case by the NHS. The venue cost for Smoking Concerns is minimal as most group sessions are held in health centres where there is no charge to the NHS for their use;

¹ Since the study period Varenicline has become available on prescription and approx 30-40% of GGCHB smoking cessation patients now receive this. The sensitivity analysis will incorporate the effect this will have on costs and quit rates for both interventions.

² In certain cases participants in the Smoking Concerns intervention can receive two forms of NRT simultaneously. This additional cost to Smoking Concerns will be incorporated in the 52 week analysis.

however, an opportunity cost has been attributed to reflect the cost of an alternative use of the venue.

Both interventions provide biannual 'update' or 'refresh' training, given by the services' project officers. Starting Fresh incurs the costs of external venue hire and the pharmacists and pharmacy assistants are reimbursed for their time. Smoking Concerns facilitators also receive training, but their time is not reimbursed and as the training takes place in-house, an opportunity cost has been assigned to reflect the cost of venue and resource use.

Both Starting Fresh and Smoking Concerns interventions are advertised simultaneously under NHS Greater Glasgow smoking cessation advertising. The annual cost includes production of fliers and posters for both interventions and therefore an annual sum has been attributed to each.

Materials

The materials used include carbon monoxide (CO) monitors, handouts, stationery and refreshments. CO monitors are not only used to validate self-reported quitting throughout both interventions, but are also considered to be a motivational tool. Each of the 270 participating pharmacies is provided with a CO monitor while the numbers required for group counselling sessions varies between the nine CH(C)P's. It has been estimated that a total of 45 CO monitors are required annually for Smoking Concerns; CH(C)P's with larger populations receive an average of six and those with smaller populations receive an average of three. Annual maintenance and miscellaneous costs are also incurred for CO monitors and a set cost has been applied to both interventions. The handouts provided include the Starting Fresh flier (which was incurred as an advertising cost in the previous section) along with the "How to stop smoking" booklet and the "Fresh Start" quitters diary. The quitter's diary is an additional material used in both interventions which is provided to NHS Greater Glasgow by Nicorette. The "How to stop smoking" booklet is distributed to all NHS Glasgow Smoking cessation services, and therefore a set cost has been attributed to both interventions to reflect the cost of this material. Refreshments are not provided in the pharmacy service, but an annual 'refreshments' sum is attributed to Smoking Concerns.

Four Week Cost Effectiveness Analysis

The preliminary study outcomes are detailed in the previous section and have been used here to determine the cost per participant and number of quitters. Quit rates in the previous section were based on the number of participants who actually set a quit date, which is in compliance with Russell Standard recommendations; however, a slightly different approach is required for the economic analysis. Both Starting Fresh and Smoking Concerns commence with 'introductory' weeks prior to the quit date which both incur costs to the NHS. The economic analysis must incorporate these costs and therefore calculations and the cost per participant outcome is based on the initial sample of participants in each intervention, 1508 for Starting Fresh and 471 for Smoking Concerns.

The classification of quitters for the economic analysis incorporates both CO validated and self-reported quitters, while all participants who have left the cessation service, or are lost to follow up are considered to have relapsed. At this interim stage there is also a category of 'non-quitters' or 'smokers' representing a small number of

service users who have had a temporary relapse, but nevertheless remain in the study as service users who intend to quit. Such cases still incur a cost to the services and may eventually result in a successful quit in the 52 week analysis, so it would be misleading to exclude such cases from the cost-effectiveness analysis at this stage. Therefore, this group which have been classified as 'smokers' in Table 2, remain in the sample and are included in the numbers presented in Figure 1, however, the probability of quitting is based solely on the number of CO validated and self-reported quitters. On this basis, the numbers of quitters at 4 weeks are 382 for Starting Fresh and 170 for Smoking Concerns, with resultant 4 week quitter probabilities of 25% and 31% respectively when using the initial sample of participants. The cost per participant and probabilities of quitting for each intervention are detailed in Table 9 along with estimates for the self-quit scenario.

It is assumed there is no cost to the NHS for self-quit attempts and the number of quitters for this scenario can be estimated based on population¹ and smoking population² estimates for Glasgow, the annual percentage of smokers making quit attempts³ and estimates of the success of these self-quit attempts⁴. There is considerable uncertainty surrounding the estimate for 4 week self-quitters as the literature mainly report annual estimates for this natural or background quit rate, ranging from 1 to 10% of the smoking population. For the purposes of this interim analysis a 4 week success rate of 10% has been applied, and assuming a 75% relapse rate between 4 and 52 weeks (Ferguson, et al. 2005), this estimate coincides with an annual self-quit success rate of approximately 2.5%. Estimates of the self-quit success rate will be explored further in the 52 week analysis and uncertainty investigated through sensitivity analysis.

Table 9: Outcomes for Quitters at 4 Weeks

Intervention	Cost per participant	Probability of quit (CO validated & self-reported)	Incremental cost per quitter
Self-quit	£ -	0.10	-
Starting Fresh	£ 53.31	0.25	£ 347.71
Smoking concerns	£ 338.54	0.36	£ 1,297.40

Table 9 shows that the Smoking Concerns intervention has the greatest probability of achieving 4 week quitters, however, it also has the greatest cost per participant. This is mainly attributable to the significantly higher overhead costs involved with Smoking

¹ Director of Public Health Report, (2008), 'A Call to Debate: A call to Action – A Report on the Health of the Population of NHS Greater Glasgow and Clyde 2007-2008', Department of Health, 2008.

² Director of Public Health Report, (2008), 'A Call to Debate: A call to Action – A Report on the Health of the Population of NHS Greater Glasgow and Clyde 2007-2008', Department of Health, 2008

³ Gosling, R., 2006, Health Education Population Survey, NHS Health Scotland, May 2006.

⁴ Annual estimates range from 1-10% from literature review of 'cost effectiveness of smoking cessation interventions'. Point estimate of 10% assumed for 4 week success rate.

Concerns which are detailed in Table 8b. As the two interventions attract different types and populations of smokers, the cost-effectiveness analysis compares each intervention incrementally to the baseline 'self-quit' scenario, rather than with each other. Both Starting Fresh and Smoking Concerns are more expensive and more effective than the self-quit scenario. The incremental cost per quitter results show that in comparison to the 'self-quit' option, the Starting Fresh service provides an additional four week quitter at a cost of £347.71, while the Smoking Concerns service produces an additional quitter at a cost of £1297.40 compared with a 'self-quit' attempt. These incremental 'cost per quitter' ratios compare favourably with other NHS smoking cessation interventions⁵ and at this interim stage both interventions appear to be good value for money.

⁵ Flack, Taylor & Trueman (2006) 'A Rapid Review of: The Cost-Effectiveness of National Health Services Treatments for Smoking Cessation in England'. NICE

CLIENT VIEWS

One component of the study involved examining the views of clients accessing Smoking Concerns and Starting Fresh services in Glasgow. This work took place between September 2007 and February 2008 and involved mixed methods – qualitative research in the form of focus groups and one to one interviews with smokers who attended the group service, and a postal questionnaire of Starting Fresh clients. Choices about methods were made following discussions with service staff and the study steering group.

Smoking Concerns

The stop smoking groups co-ordinated by Smoking Concerns provide smokers with the opportunity to meet with trained smoking cessation advisors as part of a group, for an hour a week over seven weeks. Group therapy offers smokers motivational information for smoking cessation and mutual support from group participants as well as information about, and support in using, different smoking cessation medications.

Typically, participants are still smoking when they start the group programme. Weeks one and two are spent finding out about treatments and preparing to quit. Week three is the quit date and weeks four to seven involve group discussions about giving up smoking and tips on how to cope, as well as carbon monoxide readings and some individual time with an advisor.

Methods

A qualitative approach was used for this part of the research, which sought to gain an insight into clients' perceptions of smoking cessation interventions that are organised and delivered through Smoking Concerns.

Ethical approval was obtained from the Glasgow Primary Care Trust ethics committee before the start of the study. For ethical and practical reasons recruitment was initiated through smoking cessation facilitators. Discussions were held with facilitators because they had contact with clients of the service. Written and oral information was provided to them, and they were given the opportunity to ask questions. It was agreed with the facilitators that they would also discuss and distribute information about the research to clients between week 1 and 3 in order that clients were aware that a researcher may visit the group in week 5 or 6. Written and oral information was also provided to clients by the researcher at the time of the focus group. Permission was granted to tape record the focus group interviews, which were then transcribed verbatim. Written consent for interview and audio-taping was obtained from participants and each participant received a shopping voucher worth £5 to thank them for their participation.

Moreover, because we were also interested in following up clients, whether or not they continued to attend the support groups, clients were asked to indicate if they would be happy to talk to a researcher who would contact them by telephone. Clients who were contacted by telephone were also asked to give their permission to tape record the telephone interviews, which were later transcribed verbatim.

Interview process

Meetings and discussions with service staff were invaluable in shaping the design of the study in terms of influencing the methods used and themes to be explored. It was agreed that interviews with clients would aim to discuss their experiences and expectations of services. Clients were asked a number of questions relating to their engagement with smoking cessation services in terms of:

- accessibility and convenience
- acceptability
- usefulness

Five focus group interviews and sixteen semi-structured telephone interviews were conducted with Smoking Concerns clients during November/December 2007 and January 2008. A total of 26 people took part in the focus group interviews and the people interviewed had a wide range of smoking patterns. The focus group interviews lasted between 20 to 40 minutes in length and they took place at one of the weekly cessation group sessions in the following areas and settings:

- The Pearce Institute, Govan
- The Beacon Centre, Cranhill
- Townhead Clinic, Kirkintilloch
- Tollcross Community Hall, Parkhead
- Clydebank Health Centre, Clydebank

Participants were interviewed during week 5 and 6 of the programme. The group facilitators chose these time points for two main reasons: to avoid researcher intrusion during the early weeks when the group was bonding and to ensure that there was sufficient time for the group intervention to have some impact on cessation in order to capture participants' experience of the intervention. Although by week 5 and 6 a number of participants had dropped out of the cessation groups, those who did participate were clearly comfortable enough with each other to discuss their experiences openly within the group.

A follow up telephone interview was then conducted with 16 people who had attended one of the focus groups. The telephone interviews took place at the end of the treatment period – between weeks 12-15 after the quit date. These interviews were brief, lasting between 5 and 15 minutes. Ten of the interviewees had completed the group programme, while six of them had stopped attending the group sessions between the second and sixth week. Only three of the interviewees were male and this mirrored the gender mix of the focus groups in which the majority of participants were female. The follow-up interviews enabled participants to talk individually about their perceptions and experiences of the group sessions. However, it became obvious from the telephone interviews that three people who had given up were struggling to maintain their non-smoking status and seven of the interviewees had relapsed. One of the interviewees who had not given up smoking was managing to smoke less, and was currently trying to take some action to quit. The other six who had relapsed had returned to previous patterns of tobacco use. The researcher therefore took the opportunity to explain that most people make repeated attempts to quit smoking before they are successful and the researcher also encouraged participants to re-contact their doctor, Smoking Concerns or their smoking cessation advisor when they wanted to make another quit attempt.

The interviews and analysis involved a thematic approach that focused on participants' perceptions about accessing the service, and their opinions about the group process and benefits. The transcribed interviews were coded according to the

themes that emerged during data collection and analysis, as well as those that were identified before the fieldwork.

Findings

Reasons for participation

Various factors influenced participants' present cessation attempts, including ill health, financial considerations, and a growing awareness of the social stigma of smoking. Certain factors also helped shaped individuals initial decisions to become involved in the group cessation programme. A small number of the participants became involved because of mass media promotion campaigns, for example. Most, however, either actively sought advice and information from clinicians or were encouraged to become involved in smoking cessation group therapy by health professionals, particularly general practitioners, on the basis of recognition of the potential health risks of tobacco use. Moreover, some took part due to the decision by some general practitioners to prescribe certain pharmacological treatments such as varenicline on the basis that individuals were also to become involved in group programmes. However, the decision to continue or discontinue the group was also influenced by issues of access, timing and acceptability of services. Analysis therefore focused on what the participating clients thought were important aids to the use and efficacy of smoking cessation groups.

The importance of willpower and timing

Many of the participants had started smoking in their early teens and a number of them described themselves as 'serial quitters'. Participants knew that quitting was difficult and most had at sometime tried unsuccessfully to quit without the assistance of any treatment or therapy. Many had also used a variety of products and treatments, including nicotine replacement therapy, hypnotherapy, acupuncture and laser treatment without sustained success in the past. Despite this, all participants thought that treatments like NRT could be effective and that they would have a better chance of succeeding with the aid of cessation products and services.

It was difficult to assess why clients did not quit in past or why some participants were not successful in their present quit attempts. However, the idea that willpower and appropriate timing underpinned successful cessation was evident in the focus group discussions and follow up interviews. Many participants thought that it was difficult to give up smoking, or remain quit, if the timing was wrong or difficult. A few of the participants had for instance given up smoking for years but relapsed at times of increased stress and anxiety. Five of the six clients who had dropped out of the group support services reported at follow up interviews that they had found it difficult to quit because of adverse circumstances, including illness of family members and stress. Consequently, quitting was postponed until some point in time when circumstances improved. However, in general, those who had not succeeded in quitting did not fault the group service and hence they would be willing to try cessation services and treatments again. The following extracts highlight these points:

When I first went I suppose I was determined to stop smoking but then things happen. There was just too much going on. I know that it is not an excuse, but it is my excuse...I think it is a good idea to go along every week, it just wasn't the right time for me.

(Telephone Interview 1)

I first went to a group a couple of years ago and I managed to get off them for weeks. But I am an alcoholic as well and I decided to give up the drink and they told me at AA not to try and do the two things at the same time. That was too much and it just wasn't the right time to try and give up the fags as well so I started smoking again.

(Telephone Interview 8)

I had used the patches before, quite successfully, so I knew they worked – it was just not the right time for me then. And I think that is the thing – it has to be the right time.

(Participant, focus group 4)

Several participants spoke of previous quit attempts that were initially successful but difficult to maintain in the long term. Participants understood that they were addicted to nicotine and consequently believed that there was always the potential that they might smoke again. There was a general awareness of the potent nature of smoking and taking just one cigarette was seen as having a negative impact on cessation. There was also a general feeling that cessation treatment and services could assist clients but that these were not a substitute for the will that was needed to maintain cessation:

This is my second group. Last year I went to ... and I was off them for four and a half months and I really liked the group. I need the structure. It works for me...I have just got to learn that I cannae take one cigarette...If I have one I will have twenty.

I would be scared to touch that one because if I touch that one I would probably go back on them, I know myself that I probably would.

I would go back on them; there are no two doubts about it.

I would, aye, because I still have urges in the morning. I take the dog out and I go to the shops and I think I could go a fag, but I think don't bother.

(Participant discussion, focus group 4).

So when you come off the tablets then you should be ready to come off the tablets?

Well, that is the principle behind it all, but obviously that doesn't apply to every person. But you become more proud of yourself, you become healthier – there are the financial aspects. Somewhere something has to take over from the tablets and the most likely thing is you.

(Participant discussion, focus group 3).

The importance of early and equal access

Group discussions and follow up interviews indicated that most participants thought the groups that they attended were easily accessible and that the facilities were adequate. Only a small minority had difficulty accessing a group at a location and time that was entirely suitable. There was also good awareness that people could access cessation services through their GPs and health centres or via national help lines, but many felt that more could be done to highlight the availability of services in local areas. Obtaining early access to group services was also seen as helpful to the cessation process, whereas delays to access were seen as off-putting. Several of the participants described how they had to wait a number of weeks for a group to start after deciding to try and quit. Others were able to join a group immediately. Although participants appreciated that groups needed a certain number of people and did not

run all the time, clients nonetheless may hold off joining a group because of these delays:

That was a surprise to me that you have to wait to join. I would never have been. ...if I had to wait four weeks or anything, I hold my hand up, I don't think I would have been.

(Participant, focus group 4)

Few of the focus group participants had experience of attending smoking cessation groups in the past. Expectations were generally guided by the views of others and few of the participants had any expectation of the service, other than it was somewhere to come and talk about smoking. Participants were not generally concerned about the group support that they received. All of the participants felt that they were given adequate information about the products to make an informed choice, as well as the opportunity to ask questions from the advisors and only a few participants expressed any doubts about the structure and focus of the group discussions. Accordingly:

The group tended to go on and on. It was the same thing every week. The same person said the same thing every week and you kind of switch off.

(Telephone Interview 6)

I feel for them at times because they lose control of the group and then I get quite frustrated, because I am trying to listen to them and then I hear a wee bit there and then I forget. I think maybe the lassies need to give us a clearer format and have more structure.

(Participant, focus group 4).

Several participants did express some concerns about the variations in advice and support that they received from other service providers such as general practitioner and pharmacy services. Although a number of the clients valued the advice and support received from these services, other participants identified problems. A few of the participants were anxious about the lack of privacy at the pharmacy that they attended to collect their prescription and receive support from weeks 8-12, and felt that this could be off putting. Many participants also said they had received little or no support or encouragement from their GP and/or pharmacist. Participants said that some people had received prescriptions from their GPs for anti-smoking treatments without having to attend cessation support services. For others, attendance at the group programme was a condition of receiving a prescription for varenicline. Many participants also reported variations in their treatment prescriptions. Some participants had to attend their pharmacist on a weekly or fortnightly basis to receive their treatment; others said that they were given a three months supply of the treatment on their first visit to the pharmacist and therefore did not go back to their pharmacy for any support or advice. This finding is slightly worrying, as it suggests that some Smoking Concerns clients are not receiving the support that they are supposed to be entitled to from Starting Fresh pharmacies following the end of the group sessions.

Moreover, although it is difficult to assess participants' level of awareness and understanding of NRT and anti-smoking drugs such as bupropion and varenicline, a number of the interviewees were not using their medication as prescribed. Participants were often following the advice of fellow group members rather than health professionals.

In addition, at the follow-up interview a number of the clients said they were still using anti-smoking treatments after the twelve-week period. Several clients had failed to quit and had dropped out of the cessation support service but still had access to these treatments because they had been given a three month supply. Others had been taking one tablet or half a tablet per day rather than two and said at the follow-up interview that they were still using them. These themes are highlighted in the following extracts:

I have still got some of the pills left. One of the men in the group said you are getting too much nicotine. So I have been trying to take a half of them in the morning.
(Telephone Interview 6)

My chemist didn't ask me anything, they just gave me my prescription. So there is no support.

...The doctors are dispensing it without going to smoking cessation classes. I have spoken to people who are on them.

One of the girls that came said that she takes a half, so I tried it. I felt a bit nauseated on them, so I tried it and it did help.

But they say not to take half the tablet in the leaflet...

I know, but that is what she did
(Participant discussion, group 3)

The importance of being there and being in the same boat

It was evident from discussions that clients derived a lot of personal satisfaction and a sense of achievement from continuing to be there at the group week on week. Being at the group and being able to see week to week improvements in carbon monoxide readings served as an influential motivational tool for most of the participants. A number of participants (all male) seemed to suggest that their commitment and motivation to quit and attend the group was heightened by others not being there, or by others being there but not doing as well as they were. This issue is raised in the following extract from a participant who is describing how knowing that others have smoked can be an incentive to him.

Knowing how folk are doing gives you a boost, if you know what I mean. I think it is the competition – you know if they have smoked you think that's great I'll show them, and make sure that you have not smoked. That and the monitoring. Knowing that you are doing better than others, knowing that you are doing better week by week. It is these kinds of things that give you an incentive.
(Telephone Interview 9)

A number of the participants made reference to it being 'a good group' and further analysis suggested that the role of the advisor and the peer support from others were crucial to this. Advisors were able to help clients by providing practical advice, motivational information and by helping to provide strategies for managing difficult situations. It was for instance evident from observation of the group discussions that participants were encouraged to identify some of the potentially negative effects of smoking and indicate why quitting was personally relevant. Participants were able to identify some the risks associated with smoking and a number of the potential rewards that could be gained from quitting. Personal roadblocks such as withdrawal

symptoms, enjoyment of smoking, fear of weight gain, and lack of encouragement and support were also discussed.

Participants also spoke of the importance of the advisor being there for them, and this included the advisor being available to discuss issues on a one-to-one basis. The importance of the advisor appeared significant for a number of reasons. A number of participants remarked on the friendliness and helpfulness of the advisors and how this contributed to the group experience. More generally, participants stated that the advisors maintained a supportive environment, which was characterised by their being interested in their attempts to quit when no one else would be, and by advisors being non-judgemental about any difficulties and relapses that they were experiencing. The feeling that clients experienced genuine interest from the advisor is captured in the following statements:

She was really good at taking time to ask us how we were getting on individually but, as I said, she didn't make you feel bad about anything, so you could be honest with her.

(Telephone Interview 5).

You are just accepted, no matter what you do. And they will really try and find you an alternative. I couldn't persevere with the Champix and I thought this is hopeless but I have now set another quit date and I will go on the patches. So you get an alternative and you get the encouragement. It just seems to work.

(Participant, focus group 4)

The idea of 'being in the same boat' was a common theme recorded in the focus group discussions and descriptions from participants suggested that a shared understanding and empathy helped define the support that participants received from one another. The support that they received from each other and from the advisors was all the more appreciated because some participants perceived family and friends as being a limited resource. Indeed, several participants reported that families and friends did not always have the knowledge or understanding to help. In some instances family and friends may not be interested in helping and may even exert a negative effect on participants' attempts to quit smoking. The following extracts highlight this point:

I have had a lot of pressure from home because my mother has had a couple of strokes and, oh! don't end up like me. My partner doesn't smoke – he is asthmatic ... but it doesn't help anybody them nagging at you.

(Participant, focus group 4).

My wife is just likeyou, I am lighting up.

When I am on a back shift and she is out the house and I am left emptying the ashtray. But I would rather that she got out my face with it. Lying in bed smoking.

(Participant, focus group 2)

The importance of a 'safety net'

All of the focus group discussions indicated that clients feel supported by the group and in knowing that an advisor is there to help if problems occur. Many participants therefore worried that they would find it difficult to remain quit without the safety net of support and structure of the weekly group sessions, and many of the participants said that they would prefer the group service to run longer. Several said that they would prefer the groups to run for twelve weeks instead of seven and a number of

participants also wished to see the availability of the drop-in provision extended. There was a general feeling that you should be able to receive group support for as long as you are receiving treatment. This appeared to be particularly acute with participants who were using varenicline. A number of the participants who were using varenicline believed that it blocked the urge to smoke. Consequently, however, there was a lack of self-assurance from some of the participants that they would have the will to maintain cessation without the aid of this product and/or support.

I think these groups should go on longer especially as you are on these tablets for three months. It seems rather strange that you wouldn't be supported for that length of time. Especially these new tablets, we had spoke about this at the group that we weren't sure how we would feel coming off them and that maybe that was when we would need more support.

(Telephone Interview 5)

Unfortunately this participant relapsed and she went on to explain how she felt that she would have benefited from the group running longer:

You see for me anyway it was the group that you miss – you know, talking to the others to see how they were coping without the tablets and if they felt good or felt like a fag, that sort of thing. That's why I think it is the group that you need to go on a bit longer. It is that support that you are used to and are missing. Well that is what I think anyway. For me, I think it would have been better if the group had went on a bit longer.

(Telephone Interview 5)

Conclusion

Behavioural support in the form of a structured group programmes is a key strategy in smoking cessation. This analysis focused on clients' experiences of group treatment. Few concerns were raised in the current study about the group process, other than some clients felt that the group discussions lacked structure and direction. If anything, most clients would seem to prefer the group to be extended to twelve weeks. However, if this change in format is to be explored, problems about access and attendance would have to be addressed. Some of the groups were, for instance, quite fractured and experienced a high drop out. Only a small number of these clients were followed up and these clients reported that they had not dropped out as a consequence of the group itself but because it the timing wasn't right for them to stop smoking.

More often the group was seen as instrumental to cessation and for preventing relapse. For interviewees, both the advisors and other clients were important sources of support and information. Advisors were praised for their practical advice and their therapeutic role. Additionally, the support that clients received from each other provided a much needed source of social support. However, the potential for other clients to provide incomplete or inappropriate information relating to smoking cessation medications in particular was raised by interviewees. Therefore, more work is needed to identify the extent to which the support and information that clients provide to each other has a beneficial or detrimental effect on treatment compliance and outcomes. Additional research is also needed to see how the process of support might best be recorded by advisors. Some doubts about the fairness and appropriateness of the way cessation medications are prescribed and distributed by GPs and pharmacists was also raised by clients in this study. As the group support provided by Smoking Concerns is only one part of a wider 'system' for smoking

cessation in Glasgow, this qualitative work with clients suggests that more work may be needed to ensure that all parts of this system are working in efficient and consistent ways to provide maximum support to smokers trying to quit.

Starting Fresh

In addition to the qualitative work conducted with Smoking Concerns clients, a postal survey was undertaken to explore the views of Starting Fresh clients. The analysis of this survey is ongoing and some remaining follow-up work (a small number of telephone interviews with clients who relapsed) has not yet been completed. Findings described in this section should therefore be regarded as preliminary and more detail will be included in the final study report.

Methods

As Starting Fresh treats a large number of clients on a one-to-one basis in around 200 separate pharmacies, it was decided that the best way to explore the views of a cross-section of these clients would be via a postal questionnaire. A short questionnaire including 13 questions was designed by the research team in consultation with Starting Fresh managers. The first two questions asked clients about their current smoking status and previous quit attempts. The remaining questions asked about:

- Motivation to stop smoking when they joined Starting Fresh
- How they heard about the service
- Why they chose the service
- What they expected from the service and what happened in practice
- Whether the instructions on NRT use were clear or not
- Any problems experienced with the service
- Level of satisfaction and whether they would recommend the service
- Any changes they would suggest to the service

Clients were also asked if they would consent to be contacted by telephone to explore their views further.

The questionnaire was posted to all clients (n=1405) who accessed Starting Fresh during the study period (April 1st-May 31st, 2007). Names and addresses were obtained from the service database and the questionnaire was printed and posted by the Starting Fresh team in September 2007. A freepost envelope was provided along with the questionnaire and clients were asked to return it within a two week period. Because of the large volume of questionnaires and limited time and resources for the study it was not possible to issue a reminder letter. As a result the researchers were aware that the response rate was likely to be low.

Results

Of the 1405 clients who were sent a questionnaire, 170 returned the form, a 12% response rate. Because of this very low response rate it is unlikely that the responses received are in any way representative of Starting Fresh clients as a whole. Nevertheless, the answers provided to shed some light on how the service is perceived by those who use it, and highlights some potential issues for future development.

Table 10: Current smoking status

Description	No.	%
Successfully stopped with no intention of starting again	56	33
Smoking but intending to stop	102	60
Smoking with no intention of stopping	3	2
Other	9	5
TOTAL	170	100

The questionnaire began by asking clients if they were currently smoking. One third of respondents (33%) said that they had successfully stopped smoking and had not intention of starting again. Nearly two-thirds (60%) said that they were still smoking but were intending to stop, and 3 people said that they had no intention of stopping. There were 9 other responses including two people who reported a relapse, two who reported adverse effects and one who said they had cut down.

Table 11: Previous quit attempts

Method	No.	% of cases
Group support	17	12
Nicotine Replacement Therapy	110	77
Practice nurse/GP support	19	13
Starting Fresh support	32	22
Other	13	9
Total (multiple responses)	191	134

n=143

Of the 143 respondents (84% of the whole sample) who reported making one or more previous attempts to quit, over three quarters (77%) had used Nicotine Replacement Therapy and 22% had Starting Fresh support. Some had done so with group support, or the support of a practice nurse or GP (13% and 12% respectively). Other attempts to quit included using hypnotherapy, laser treatment and nicotine gum, or stopping by themselves without support.

Table12: Desire to stop smoking

	No.	%
Yes	164	96.5
No	6	3.5
TOTAL	170	100

The vast majority of respondents, almost 97%, said that they did really want to quit when they joined the pharmacy service. This suggests that amongst those who responded to the questionnaire, levels of motivation were high.

Table 13: How people found out about the pharmacy service

Source	No.	%
GP	61	36
Pharmacist	39	23
Poster/leaflet	17	10
Friend/family	25	15
Other	28	17
TOTAL	170	100

Just over a third (36%) of respondents found out about the pharmacy service from their GP, and just under a quarter (23%) from their pharmacist. Of the remainder 15% found out about it from a friend or family member, and 10% from a poster or leaflet. Around 10% had heard about it from a combination of sources including their GP, pharmacy, hospital, practice nurse and/or leaflets. Others had previous contact with the service, or a stop smoking group.

Table 14: Reason for deciding to use the pharmacy service

Reason	No.	%
No appointment needed	44	27
Go there anyway to collect prescriptions etc	45	27
GP advised me to go	34	21
I see the pharmacist as a doctor on the high street	10	6
Other	33	20
TOTAL	166	100

Over a quarter (27%) said that the main reason they decided to use the pharmacy service was that they were going there anyway, and nearly the same number said that the reason was that no appointment was needed. 21% went because their GP had advised them to, and 6% said that they saw the pharmacist as a 'doctor on the high street'. Of those who gave other responses 16% gave a combination of the above reasons. 2% reported a financial incentive in terms of the service being cheaper than stopping smoking on their own (ie through the provision of NRT on prescription).

Table 15: Expectations of the pharmacy service

Expectations	No.	%
5-10 minutes support sessions	19	12
One week's supply of NRT at a time	115	71
Other	27	17
TOTAL	161	100

Nearly three quarters (71%) of those who responded said that before they stated their sessions they had expected to receive one week's supply of NRT at a time. 12% said that they had expected 5-10 minute support sessions, and a further 12% had expected a combination of the two. A small number (2%) said they had not been sure what to expect.

Table 16: What happened at the first session

Action	No.	%
Details were recorded	141	86
Different types of NRT were discussed	82	50
Appointment made for following week	28	17
Leaflets were given	99	60
Told about stop smoking groups as alternative	92	56
<i>Total (multiple responses)</i>	<i>469</i>	<i>284</i>

n = 165

When they attended their first session at the pharmacy 86% of respondents said that their details were recorded and 60% reported being given leaflets. Just over half (56%) were told about stop smoking groups as an alternative to Starting Fresh, and half (50%) said that different types of NRT were discussed with them. 17% said an appointment was made for them the following week. Just 3% did not say what had happened at the first session.

Table 17: Instructions for use of NRT product

Degree of difficulty	No.	%
Very easy	122	74
Fairly easy	23	14
Neither easy nor difficult	10	6
Fairly difficult	7	4
Very difficult	3	2
TOTAL	165	100

When asked how easy or difficult they found the instructions for using the NRT product prescribed by the pharmacist, just under three quarters (74%) said that they found them very easy. 14% found them fairly easy, 6% neither easy nor difficult, and another 6% either fairly or very difficult.

Table 18: Problems experienced

Problem	No.	%
Not enough time at sessions	13	14
Not enough information about NRT	14	16
Not enough privacy	35	40
Not enough advice given to cope with quitting	43	48
Not suitable time	16	18
Other	17	19
<i>Total (multiple responses)</i>	<i>138</i>	<i>153</i>

n=90

Of the 90 people who reported experiencing one or more problems, nearly half (48%) said that they did not receive enough advice in order to cope with quitting, and 40% said that they did not have enough privacy. 18% said that the sessions were not at a suitable time, 16% did not receive enough information about NRT, and 14% that they did not have enough time at the sessions. 20% mentioned other problems they had experienced.

Table 19: Satisfaction with support

Degree of satisfaction	No.	%
Very satisfied	78	47
Fairly satisfied	43	26
Neither satisfied nor dissatisfied	32	19
Fairly dissatisfied	7	4
Very dissatisfied	6	4
	166	100

Nearly half (47%) of respondents were very satisfied with the Starting Fresh service, and just over a quarter (26%) were fairly satisfied. 19% were neither satisfied nor dissatisfied, and 8% were either fairly or very dissatisfied.

Table 20: Satisfaction with service, by current smoking status

Current smoking status	Very satisfied	Fairly satisfied	Neither	Fairly dissatisfied	Very dissatisfied	Total n=
Successfully stopped with no intention of starting again	41 (75%)	9 (14%)	3 (6%)	1 (2%)	1 (2%)	55
Smoking but intending to stop	31 (31%)	31(31%)	27(27%)	6(6%)	5 (5%)	100
Smoking with no intention of stopping	2 (67%)	1(33%)	0	0	0	3
Other	4 (50%)	2 (25%)	2 (25%)	0	0	8
<i>Total</i>	78	43	32	7	6	166

In this preliminary analysis we also explored the relationship between satisfaction levels and smoking status. Of those who had successfully stopped smoking and did not intend to start again, three quarters (75%) were very satisfied with the service and 14% were fairly satisfied. 5 people were either dissatisfied or neither.

Of those who were still smoking but were intending to stop, nearly a third (31%) were very satisfied and the same number were fairly satisfied. 27% were neither satisfied nor dissatisfied, 6 % were fairly dissatisfied, and 5% were very dissatisfied.

Clients who responded to the questionnaire were also asked if they would recommend Starting Fresh to others who are wishing to stop smoking. The vast majority of respondents said they would (91%). We also examined the relationship between response to this question and current smoking status

Table 21: Recommendation to others, by current smoking status

Current smoking status	Would recommend	Would not recommend	Total
Successfully stopped with no intention of starting again	53 (98%)	1 (2%)	54
Smoking but intending to stop	86 (87%)	13 (13%)	99
Smoking with no intention of stopping	3 (100%)	0	3
Other	7 (100%)	0	7
Total	149	14	163

Of those who had successfully stopped smoking and did not intend to start again, 98% would recommend the service to others. Of those who were still smoking but were intending to stop 87% would recommend the service, and 13% would not.

Conclusion

As the analysis of the postal questionnaire has very recently been undertaken, it is not possible at this stage to discuss the results in detail or comment on common themes between these findings and the qualitative work conducted with Smoking Concerns clients. It was also not possible, because of staff illness during the short period allocated for the client views work, to complete the small number of telephone interviews with Starting Fresh clients that were originally planned. These are now being completed by a colleague working with the Starting Fresh team. Further analysis of the client views material will be included in the final report.

NEXT STEPS

This interim report has outlined preliminary findings from the comparing models of smoking treatment in Glasgow study. As the report demonstrates, good progress has been made in collecting and analysing client data from each service and examining four week outcomes. Likewise the economic evaluation is well underway and emerging results have been included here. The client views component of the study is now almost complete, albeit in a more modest form that originally anticipated.

The study has faced a number of challenges that reflect, at least in part, the nature of conducting an observational study within the NHS and in the community rather than collecting data in a more controlled environment. The study's focus on examining two distinct models of treatment that also overlap at a number of points has made the research particularly complex. The most significant challenges faced to date have included: barriers to collecting full client data in some Starting Fresh pharmacies (resulting in missing data for a number of clients); identifying which clients received what combination of service inputs; staffing problems experienced by the services with admin support intended to support elements of the study; a complex process of cleaning the data once it was transferred from the service databases to the research team; and staff illness in the research team that affected one element of the study (the client views component).

Despite these challenges, the study has progressed more or less as planned, due in no small measure to the considerable efforts of NHS Greater Glasgow and Clyde staff. The study is now in its second phase, which involves 52 week follow-up.

As the original study proposal outlined, all clients who were recorded as self-report or CO validated quitters at 4 weeks will be followed up at one year. This component of the study is being conducted by the research team in partnership with Starting Fresh managers and support staff. The 52 week follow up involves the following steps:

- Letters have been sent to all 4 week quitters inviting them to either fill in a questionnaire or ask for a call to record their smoking status at 52 weeks.
- Those clients who return the questionnaire or call the phone line will be sent a £5 shopping voucher.
- All those that respond and claim abstinence will be asked to attend their local Starting Fresh pharmacy to have their smoking status validated by CO monitoring. Those that attend will receive an additional £10 shopping voucher.
- Those that fail to respond will receive a follow-up phone call from Essentia, the Scottish smokeline provider.
- Data from all 52 week responses will be entered onto a spreadsheet by the Starting Fresh team and transferred to the researchers who will be able to link it to the original dataset.

Following the receipt of 52 week data, the research team will work together to analyse the data, including using client outcomes to inform the final health economic analysis. The final report is due at the end of December 2008.

In addition to the 52 week follow-up, the researchers will prepare a paper(s) for publication based on the 4 week outcomes and intend to disseminate the results at a small number of academic conferences and meetings.

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