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Factors associated with differences in quit rates between 'specialist' and 'community' stop-smoking practitioners in the English Stop-Smoking Services

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Abstract

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Factors associated with differences in quit rates between 'specialist' and 'community' stop-smoking practitioners in the English Stop-Smoking Services

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Abstract

Introduction

Behavioral support improves smokers' chances of quitting but quit rates are typically lower for smokers supported by 'community practitioners' for whom smoking cessation is a small part of their job than for those supported by 'specialist practitioners' for whom it is the main role. This paper examined the factors that might contribute to this.

Method

A total of 573 specialist practitioners and 466 community practitioners completed a 42-item online survey that covered demographic and employment information, current practices, levels of training and 4-week CO-verified quit rates. Responses were compared for community and specialist practitioners. Mediation analysis was undertaken to assess how far 'structural' and 'modifiable' variables account for the difference in quit rates.

Results

Specialist practitioners reported higher 4-week CO-verified quit rates than community practitioners (63.6% vs. 50.4%, p<.001). Practitioners also differed significantly in employment variables, evidence-based practices and levels of training. Six 'modifiable' variables (proportion of clients using an 'abrupt' quit model, duration of first session, always advising on medications, number of days training received, number of sessions observed when starting work and having been observed in practice and received feedback) mediated the association between practitioners' role and quit rates over and above the 'structural' variables, explaining 14.3% to 35.7% of the variance in the total effect.

Conclusions

'Specialist' practitioners in the English stop-smoking services report higher success rates than 'community' practitioners and this is at least in part attributable to more extensive training and supervision and greater adherence to evidence-based practice including advising on medication usage and promoting abrupt rather than gradual quitting.

Introduction

The English National Health Service's (NHS) Stop Smoking Services (from hereon 'the services') were established in 1999. The services were developed from a strong evidence base (West, McNeill, & Raw, 2000) and have proven highly successful. Since their foundation they have helped over 625,000 people to stop smoking long term, saving an estimated 70,000 lives (Department of Health, 2011). The services were also a world first, and their 13 years of experience can provide important lessons for the establishment of treatment services across the world as specified in Article 14 of the WHO Framework Convention on Tobacco Control (World Health Organisation, 2003).

Initial guidance on the services recommended that the primary treatment model should be behavioral support delivered in a group setting combined with nicotine replacement therapy (NRT), delivered weekly across six weeks. This 'specialist support' was to be augmented by one-to-one support in community settings to allow services to reach a greater number of smokers (McNeill, Raw, Whybrow, & Bailey, 2005). However, one-to-one support delivered in community settings has become the norm so that in 2010-2011, only 5% of smokers setting a quit date at the services did so in a group, and less than a third (31%) did so at a specialist service (The NHS Information Centre, 2011). Thus the large bulk of the services are now delivered by *'community'* practitioners, who deliver them as part of, or in addition to, another role, e.g. as a pharmacist, practice nurse or midwife, (frequently in community settings, e.g. at GP surgeries, pharmacies, dentists, children's centres etc…) and only a minority of smokers are seen by *'specialist'* practitioners, employed primarily to deliver stop smoking interventions (typically directly by the service).

It appears that that support delivered by community practitioners may be less effective than that delivered by specialist practitioners. Bauld and colleagues (Bauld et al., 2011) compared an intensive group-based service delivered by specialist practitioners and a medium intensity, one-to-

one, pharmacy-based support, delivered by trained pharmacists and their assistants. All participants also received NRT. Those treated by specialist practitioners achieved a significantly higher 12-month quit rate than those treated by community pharmacists (6.3% vs. 2.8%). McEwen and colleagues (McEwen, West, & McRobbie, 2006) also compared a more intensive group support delivered by specialist practitioners with one to one support delivered by community practitioners within a single service, with all participants also receiving pharmacological treatment (NRT or bupropion). At four weeks, significantly more smokers who saw specialist practitioners were abstinent compared with those seeing community practitioners (30% vs 19%). However at least part of the difference in these studies could have been due to use of group versus individual support (Bauld et al., 2011; Brose et al., 2011; Lancaster & Stead, 2005; McEwen et al., 2006; Stead & Lancaster, 2005).

Brose and colleagues (Brose et al., 2011) found that support delivered in specialist clinics (and therefore by specialists) was more effective than that delivered in primary care, and in a survey of practitioners (McDermott, West, Brose, & McEwen, 2012), specialists reported higher quit rates than community practitioners. Success rates vary widely even among specialist practitioners (Brose, McEwen, & West, 2012) so the potential for differences in effectiveness between specialists and community practitioners is likely to be high.

Treatment manuals for services should be based on evidence-based national guidance (i.e. (Department of Health, 2011; National Institute for Health and Clinical Excellence, 2008). The evidence-base indicates the superiority of varenicline or combination NRT over other forms of pharmacology or no medication (Brose et al., 2011; Cahill, Stead, & Lancaster, 2007; Stead, Perera, Bullen, Mant, & Lancaster, 2008), the effectiveness of specific behavior change techniques (BCTs) used by practitioners during one-to-one support (West, Walia, Hyder, Shahab, & Michie, 2010) and

currently recommends abrupt over gradual cessation. ==Practice should follow these principles regardless of the status of the practitioner. Failure to do so may account for part of any difference observed between specialist and community practitioners.==

Other aspects of practitioners' roles that could contribute to differences in effectiveness include experience, as specialist practitioners are likely to treat much larger numbers of smokers, and the number of sessions and duration of each session, as community practitioners may spend less time with clients as they try to balance the demands of their different roles. Practitioners' ability to deliver high quality evidence-based support also depends on their being adequately trained. There are no requirements for stop smoking practitioners but current guidance (Department of Health, 2011), recommends that all practitioners are trained in accordance with the NCSCT Training Standard (NHS Centre for Smoking Cessation and Training (NCSCT), 2010).

Given the proliferation of stop smoking support delivered by community practitioners, and evidence to suggest that they may deliver less effective support than specialist practitioners, it is important to assess whether there are any differences in practices that can be addressed. The current study aimed to assess differences in demographic and employment variables, practices (primarily practitioners' adherence to the evidence base), and levels of training between specialist and community stop smoking practitioners and to examine the extent to which these variables mediate the association between practitioner type and quit rates.

Methods

Design and recruitment

An online survey was administered via a hyperlink sent out by email to three different groups: (a) all stop smoking service managers in the NCSCT database (n= 154) with a request that they forward it on to all staff who deliver stop smoking support; (b) all commissioners on the NCSCT database (n=138) with a request that they forward it to all those they commission to deliver stop smoking support, and (c) all those who had signed up for the online NCSCT Stage 1 Training Programme for stop smoking practitioners (more details on the programme can be found at (Brose, West, Michie, Kenyon, & McEwen, 2012)) and reported that they delivered support for an NHS provider (n=4230). Email reminders were sent at 10 and 20 days after the initial contact, with a final reminder sent 5 days preceding the survey's close. In addition, approximately 700 flyers were distributed at an annual educational and promotional event held in December 2011 in London for those working in smoking cessation (www.stopsmokinglive.org).

As an incentive, all respondents completing the survey were entered into a draw to win a prize of free registration, transport and accommodation at the UK National Smoking Cessation Conference (www.uknscc.org). The online survey was open between 30th November and 23rd December 2011.

Survey content

The first part asked for contact, demographic and employment details. To determine practitioners' role, we asked 'Are you employed as a *Specialist* stop smoking practitioner (working directly for the Stop Smoking Service primarily to deliver stop smoking support) or as a *Community* stop smoking practitioner (delivering support in the community, e.g. at GP surgeries, pharmacies, dentists, children's centres, as part of or in addition to your main role, e.g. as a pharmacist, practice nurse etc…)? Participants could respond with either: 'Specialist' stop smoking practitioner;

We also asked how many clients they had seen in the past 12 months (in increments of 10 on a scale ranging from 0 to 400) and what percentage of these clients were carbon monoxide (CO)-verified four-week quitters (in increments of 10%).

Following this we asked practitioners to detail their current practices. Specifically, we asked them to report the treatment models they offer, which specific medication, if any, they recommend to clients, how frequently they offer the abrupt quit model, the proportion of their clients that use the abrupt cessation model (in increments of 10%) and whether they have treatment manuals or protocols telling them how to deliver sessions for one-to-one stop smoking support. We also asked practitioners some specific questions about the one-to-one support they conduct, specifically how long their initial (assessment) and subsequent sessions last (in increments of 5 ranging from 0-120 minutes) and how many sessions with each client they have (in single increments ranging from 1 to 20). We also asked practitioners to rate the proportion of their clients with whom they had used each of 16 BCTs, the inclusion of which in treatment protocols was associated with short term quit rates (West et al., 2010), in one-to-one support over the previous three months, on a five point scale (1 = ‘None of them; 5 = ‘All of them’).

The survey then asked for details of practitioners’ levels of training, specifically how many days training they received when they started working (in single increments ranging from 1 to 10) how many stop-smoking sessions they had observed an experienced practitioner deliver before seeing clients of their own (in single increments ranging from 0-30), how often they attended update training (never, more than annually, annually and less than annually) and whether they had ever been observed in practice and received feedback on their performance whilst working as a

practitioner. Where participants were presented with a range of categories to choose from, a free-text 'other' option was also presented.

Data analyses

Respondents' free-text responses were subject to content analysis to assess the frequency of specific categories of response. Differences between specialist and community practitioners were assessed using chi-squared tests for categorical variables and independent samples t-tests for continuous variables using SPSS Statistics (Version 19). Analyses were restricted to those working at the services for at least three months for those items rating the frequency of BCT use and 12 months for analysis of the number of clients seen, the proportion of clients that were CO-verified 4-week quitters, frequency of attending 'off the job' update training and whether practitioners had been observed in practice and received feedback. As the modal response for all the BCTs was 'all clients', this variable was dichotomized to 'all clients' versus 'less than all clients'. A figure for the total number of BCTs each practitioner reported using with all clients was also calculated.

In order to determine which variables contributed to observed difference in the abstinence rates, mediation analyses were conducted. Rather than use the Baron and Kenny (Baron & Kenny, 1986) method, which has been criticized in recent years (Fritz & Mackinnon, 2007; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), we used structural equation modeling in conjunction with bootstrapping (Preacher & Hayes, 2008) using Mplus v 6.12 (Muthen & Muthen, 2004). Estimates of the indirect (mediated effect of the IV on the DV), direct (unmediated effect of the IV on the DV) and total effects (unmediated and mediated effects of the IV on the DV), were calculated. All continuous variables were categorized for consistency (categorizations are given under the tables). As Probit coefficients (B) may be unfamiliar we transformed these to approximate logistic coefficients (Odds Ratios) with OR $\sim \exp^{1.81B}$ (Guo, Aveyard, Fielding, & Sutton, 2009).

First single mediator models were fitted for each of the 'structural' variables (i.e. those variables that are non-modifiable (e.g. age, gender) or determined by practitioners' employing service (e.g. treatment models offered). (For a full list of the variables see the online supplementary file.) A 'structural' multi-mediator model was then developed using a forward selection method: variables were entered in order of the amount of variance they explained of the total effect, with the process terminated when the addition of new variables did not add significantly to the model. Single mediator models were then estimated for the 'modifiable' variables (e.g. practitioners' adherence to evidence-based guidelines, use of BCTs, training undergone). These were then added to the 'structural' multi-mediator model in order of the variance they explained in the indirect effect. Again the process was terminated when the addition of new variables did not contribute significantly to the model.

Rates of missing data varied between 0% and 15.9% per variable. Only one variable (number of days training received prior to starting work) had more than 10% missing data. A complete case analysis was used –no attempt was made to estimate missing values.

Results

A total of 1324 responses were recorded to the online survey. Of these, 76 reported that they did not see smokers on behalf of an NHS Stop Smoking Service <mark>in England</mark> and were excluded, as were a further 64 duplicate entries. A total of 42 entries were removed where respondents entered basic contact and demographic information only and 10 where respondents indicated that 0% of their current role involved delivering stop smoking support, leaving a final sample size of 1132. As we do not know how many practitioners were invited to participate by managers and commissioners, it is not possible to calculate an accurate response rate. Of those practitioners in the NCSCT database who reported that they delivered stop smoking support for an NHS provider (n=4230) the current survey received responses from 27%.

Demographic and employment characteristics

In total, 50.6% (n=573) of respondents were specialist practitioners and 41.2% (n=466) were community practitioners. A further 7.2% (n=82) were an 'other' type of practitioner and 1% (n=11) failed to report on their role and were excluded from comparisons between practitioner type. The most commonly reported primary roles for community practitioners were practice nurse (30.8%, n=135), health care assistant (14.8%, n=65), pharmacy assistant (10.7%, n=47) and community pharmacist (9.6%, n=42). Participants' demographic and employment variables are shown in Table 1. Specialist practitioners reported a significantly higher number of smokers setting a quit date with them, had been in role longer and reported having a significantly higher proportion of clients who were CO-verified as abstinent at four weeks than community practitioners.

Current work practices of stop smoking practitioners

Significant differences between specialist and community practitioners were found for six of the eight treatment models covered by the survey (Table 2). In each case, a greater proportion of

specialist practitioners reported offering the model. When asked to identify from a list of all stop smoking medications currently available in England, which, if any, specific medication they most frequently recommend, across all practitioners, the most cited responses were combination NRT followed by varenicline (Table 2). A significantly higher proportion of community practitioners reported recommending varenicline and a specific NRT product than specialist practitioners, whilst specialist practitioners were more likely to report not recommending any specific medication than community practitioners.

Less than half of all practitioners reported using the abrupt cessation model 'always'. Specialist practitioners were more likely always to use the model and had a higher proportion of their clients use the model than community practitioners. Specialist practitioners reported that on average the sessions they delivered for one-to-one support were longer and that they had significantly more sessions for one-to-one support than community practitioners (Table 2).

Significant differences in use between specialist and community practitioners were found for use of nine of the 16 evidence-based BCTs (Table 3). In each case specialist practitioners were more likely to report using the BCT with all of their clients than community practitioners. Specialist practitioners also had a greater total number of BCTs used with all of their clients than community practitioners.

Current training levels of stop smoking practitioners

Specialist practitioners reported a significantly greater number of days training prior to starting work and observing a greater number of sessions conducted by an experienced practitioner than community practitioners. There was a significant difference between practitioner type in frequency of update training: specialist practitioners were significantly more likely than community

practitioners to attend update training more than once a year. The majority of community practitioners reported attending update training once a year, that they had never been observed in practice and received feedback on their performance, nearly twice the proportion than specialist practitioners (Table 4).

Mediation analyses

Of the structural variables, offering one-to-one drop-in sessions, closed groups, and home visits, independently mediated between practitioners' role and proportion of clients CO-verified as quitters, explaining 21.4%, 50% and 50% of the variance in the total effect respectively. In a multi-mediator model one-to-one drop-in sessions, closed groups, home visits and practitioners' level of training were found to be significant mediators of the association between practitioners' role and the proportion of clients reported as CO-verified quitters (Combined Indirect Effect Estimate= -0.019; S.E= 0.003; $p<0.001$; CI= -0.025-(-)0.012 Weighted root mean square residual= 1.825). The concurrent direct effect was positive following the statistical removal of these mediational variables, indicating the presence of suppression (Direct Effect Estimate= 0.005; S.E= 0.003; $p=0.082$; CI= 0.000-0.010). This indicates that there are factors not considered in the current study which may increase quit rates in community compared with specialist practitioners.

Six of the modifiable variables independently partially mediated between practitioners' role and CO-verified quit rates: the proportion of practitioners' clients who use the abrupt quit model; mean length of 1st session; always using the BCT 'advise on stop smoking medications'; the number of days 'off the job' training received, the number of sessions conducted by an experienced practitioner observed when starting work and having been observed in practice and received feedback. These explained between 14.3% and 35.7% of the variance in the total effect. In the structural multi-mediator model the proportion of practitioners' clients who use the abrupt quit

model, mean length of 1st session, always using the BCT 'advise on stop smoking medications'; the number of days 'off the job' training received when starting work, the number of sessions conducted by an experienced practitioner observed when starting work and having been observed in practice and received feedback, all contributed additional variance to the model. In other words, these six modifiable variables were significant mediators of the association between practitioners' role and CO-verified quit rates over and above the structural variables (Combined Indirect Effect Estimate= -0.041; S.E= 0.006; $p<0.001$; CI= -0.53-(-)0.029; Direct Effect Estimate= 0.027; S.E= 0.005; $p<0.001$; CI= 0.018-0.036; Weighted root mean square residual=2.564). For full details of mediation analyses, including estimates of effect sizes for differences between community and specialist practitioners, see the online supplementary file.

Discussion

The results supported previous research showing that specialist practitioners deliver more effective stop-smoking support on average than community practitioners who provide this support as a small part of their professional role. They reveal a number of factors that explain this difference, many of which are modifiable by improved management, training and supervision.

As has been found previously (McDermott et al., 2012) and contrary to national guidance (Department of Health, 2011), community practitioners received less initial training and supervision, and this was found to account in part for their lower success rates. Relevant knowledge for delivering smoking cessation support can be learned and assessed through an online programme (www.ncsct.co.uk) (Brose, West, Michie, Kenyon, et al., 2012) and confidence in delivering evidence-based BCTs can be boosted significantly after attendance at a two-day face-to-face training programme with improvements maintained after three month (Brose, West, Michie, & McEwen, 2012).

Community practitioners were less likely to follow recommended practice and this partly accounted for their lower quit rates. Of particular note is a greater allowance for gradual rather than abrupt quitting. A recent meta-analysis found no difference between abrupt and gradual quitting methods (Lindson, Aveyard, & Hughes, 2010) the studies were typically small and other evidence (Cheong, Yong, & Borland, 2007; Wee, West, Bulgiba, & Shahab, 2011) have found an advantage to abrupt quitting. The present results support this approach.

It is important to note that there were many areas of practice that did not differ between community and specialist practitioners and that many of the former reported high success rates. It is clearly possible for community practitioners achieve very good results and to provide an excellent quality

service. The results of this study highlight specific areas that should be targeted by improved management, training and supervision.

Strengths and limitations

The extent to which the sample studied was representative of all practitioners in England cannot be determined because there is no compulsory register. The estimated response rate of 27% in the current survey is lower than the average response rate of 40% reported by Cook and colleagues (Cook, Heath, & Thompson, 2010) in a meta-analysis of 68 studies based on online surveys. However many practitioners on the database will have been on short-term contracts and may no longer be practicing (Bauld, Coleman, Adams, Pound, & Ferguson, 2005) and the sample characteristics, in terms of the proportion of role spent delivering stop smoking interventions, the number of clients seen, treatment models offered and CO-verified quit rates, are consistent with previous research (McDermott et al., 2012). On the other hand, it is likely that our sample was biased towards more experienced and well-trained practitioners given that the claimed success rates in our survey were higher than the national average (The NHS Information Centre, 2011). However, it seems unlikely that this could account for the *differences* between specialist and community practitioners observed.

Conclusions

The findings of this study support previous research in showing that community practitioners for whom smoking cessation support is only a minor part of their professional role may be less effective on average than specialist practitioners. A significant proportion of the difference can be accounted for by modifiable factors such as management and supervision, amount of training received and use of gradual rather than abrupt quitting. Addressing these issues should be an urgent

priority bearing in mind that for most smokers' clinic clients even one year of smoking loses them 3 months of life expectancy (Doll, Peto, Wheatley, Gray, & Sutherland, 1994).

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Table 1: Stop smoking practitioner demographic and employment variables

		All practitioners [a]	Specialist practitioners [a]	Community practitioners [a]	Comparison between specialist and community practitioners
Gender %(n)	Female	83.7 (947)	82.9 (475)	84.5 (394)	$\chi^2(1) = 0.51$, p=.474
Age	Mean (SD, Range)	44.20 (10.52, 17-69)	43.70 (10.99, 20-69)	44.67 (10.22, 17-69)	t(1018.60) = 1.47, p=.141
Mean length of time in role (Months)	Mean (SD, Range)	62.79 (49.25, 1-371)	68.17 (48.57, 1-371)	54.61 (47.18, 1-371)	t(1037) = 4.54, p<.001
% of current role involving delivering stop smoking interventions	Mean (SD, Range)	52.92 (36.03, 10-100)	75.95 (28.32, 10-100)	28.48 (25.84, 10-100)	t(1023.39) = 28.21, p<.001
N smokers setting a quit date in the past 12 months [b]	Mean (SD, Range)	111.68 (110.71, 10-400)	163.99 (120.19, 10-400)	55.24 (59.67, 10-400)	t(477.63) = 14.21, p<.001
% of clients that were CO-verified 4-week quitters [b]	Mean (SD, Range)	58.34 (24.27, 10-100)	63.55 (21.52, 10-100)	50.40 (26.40, 10-100)	t(450.22) = 6.95, p=<.001

[a] ns varied between 600 to 1132 for all practitioners, 301 to 573 for specialist practitioners and 225 to 466 for community practitioners due to missing data and restrictions (i.e. to those working for at least 12 months)
[b] working for at least 12 months

Table 2: Current work practices of stop smoking practitioners

			All practitioners [a]	Specialist practitioners [a]	Community practitioners [a]	Comparison between specialist and community practitioners
Treatment models [b] offered by practitioners %(n) [c]	Telephone advice/counselling		70.5 (795)	80.7 (460)	58.1 (270)	$\chi^2(1) = 63.14$, p<.001
	One-to-one drop-in sessions		48.5 (547)	62.5 (356)	29.5 (137)	$\chi^2(1) = 111.76$, p<.001
	Home visits		36.2 (408)	58.9 (336)	8.4 (39)	$\chi^2(1) = 283.34$, p<.001
	Closed group programmes		21.2 (239)	33.3 (190)	4.5 (21)	$\chi^2(1) = 131.03$, p<.001
	Rolling group programmes		17.8 (201)	28.4 (162)	4.3 (20)	$\chi^2(1) = 102.80$, p<.001
	Peer led sessions		4.3 (49)	6.9 (39)	1.3 (6)	$\chi^2(1) = 19.03$, p<.001
	One-to-one appointments		92.5 (1047)	91.8 (526)	94.2 (439)	$\chi^2(1) = 2.25$, p=.133
	Self-help materials		63.1 (712)	60.5 (345)	66.0 (307)	$\chi^2(1) = 3.32$, p=.069
Specific medication most frequently recommended to clients? %(n)	Varenicline (Champix)		15.1 (171)	11.9 (68)	19.3 (90)	$\chi^2(1) = 11.05$, p=.001
	Combination NRT		26.4 (299)	26.5 (152)	26.2 (122)	$\chi^2(1) = 0.02$, p=.90
	Specific NRT product [d]		23.2 (263)	15.7 (90)	32.0 (149)	$\chi^2(1) = 38.40$, p<.001
	I don't recommend any		34.0 (385)	44.9 (257)	21.2 (99)	$\chi^2(1) = 63.59$, p<.001
	Other		1.2 (14)	1.0 (6)	1.3 (6)	$\chi^2(1) = 0.13$, p=.718
Practitioner always uses abrupt cessation model? %(n)	Yes		43.6 (456)	49.5 (268)	34.8 (146)	$\chi^2(1) = 20.78$, p<.001
Proportion of clients using the abrupt cessation model	Mean (SD, Range)		77.25 (24.54, 0-100)	82.67 (17.62, 0-100)	68.81 (30.17, 0-100)	t(504.01) = 7.67, p<.001
Service has a treatment manual for one-to-one support? %(n)	Yes		93.8 (1061)	96.3 (551)	90.8 (423)	$\chi^2(1) = 13.70$, p<.001
Average length of sessions for one-to-one appointments (minutes)	First session	Mean (SD, Range)	31.91 (11.56, 10-90)	34.30 (11.69, 15-90)	28.89 (10.59, 10-90)	t(941.51) = 7.50, p<.001
	Subsequent sessions	Mean (SD, Range)	16.79 (7.59, 5-75)	17.61 (7.31, 5-75)	15.56 (7.52, 5-60)	t(948) = 4.23, p<.001
Average number of sessions for one-to-one appointments	Mean (SD, Range)		7.52 (3.64, 1-20)	7.90 (3.71, 1-20)	7.01 (3.50, 1-20)	t(934) = 3.73, p<.001

[a] ns varied between 910 to 1132 for all practitioners, 499 to 572 for specialist practitioners and 344 to 466 for community practitioners due to missing data.
[b] Groups can be 'open (rolling)' or 'closed'; open groups are open to new members at each session, i.e. individuals within the same group will be at different points in their quit attempt and have different quit dates. A closed group in contrast is a group in which all members start their quit attempt together and new members cannot join after the first meeting. Drop-ins differ from one-to-one support in that they operate without fixed appointments and number and timings of sessions are less fixed
[c] Participants could choose more than one category
[d] Collapsed figure for all practitioners who recommended a specific, single NRT product (e.g. nicotine gum or nicotine lozenge).

Table 3: Stop smoking practitioners' reported use of evidence-based BCTs

	% of practitioners reporting using BCT with all clients			
	All practitioners [a]	**Specialist practitioners** [a]	**Community practitioners** [a]	**Comparison between specialist and community practitioners**
Advise on stop smoking medications	90.8 (929)	94.7 (502)	85.9 (352)	$\chi^2(1) = 22.67$, p<.001
Ask about experiences of stop smoking medication that the smoker is using	85.9 (879)	92.1 (488)	79.3 (325)	$\chi^2(1) = 33.37$, p<.001
Facilitate relapse prevention and coping	75.8 (775)	82.3 (436)	66.8 (274)	$\chi^2(1) = 29.45$, p<.001
Summarize information/ confirm client decisions	52.9 (534)	58.0 (307)	45.4 (181)	$\chi^2(1) = 14.25$, p<.001
Provide rewards contingent on successfully stopping smoking	93.0 (954)	95.1 (505)	90.0 (371)	$\chi^2(1) = 8.88$, p=.003
Explain the purpose of CO-monitoring	88.2 (889)	90.7 (479)	85.4 (340)	$\chi^2(1) = 6.62$, p=.010
Elicit client views	60.5 (621)	64.2 (341)	56.1 (231)	$\chi^2(1) = 6.23$, p=.013
Strengthen ex-smoker identity	60.6 (622)	64.2 (341)	56.3 (232)	$\chi^2(1) = 5.86$, p=.015
Advise on changing routine	83.3 (852)	85.5 (453)	80.2 (329)	$\chi^2(1) = 4.41$, p=.036
Boost motivation and self-efficacy	91.4 (915)	92.6 (486)	90.1 (355)	$\chi^2(1) = 1.72$, p=.190
Measure CO	77.9 (799)	77.4 (411)	80.1 (330)	$\chi^2(1) = 1.06$, p=.303
Provide reassurance	74.8 (755)	76.0 (402)	72.9 (291)	$\chi^2(1) = 1.20$, p=.273
Provide information on withdrawal symptoms	71.7 (733)	70.8 (375)	71.7 (294)	$\chi^2(1) = 0.053$, p=.818
Advise on conserving mental resources	59.3 (595)	60.9 (321)	57.0 (225)	$\chi^2(1) = 1.63$, p=.201
Advise on/ facilitate use of social support	51.5 (520)	50.1 (265)	53.6 (214)	$\chi^2(1) = 1.14$, p=.286
Give options for additional and later support	38.7 (397)	36.2 (192)	41.5 (171)	$\chi^2(1) = 2.65$, p= .103
Total number of BCTs used with all clients Mean (SD, Range)	11.59 (3.51, 0-16)	11.92 (3.27, 0-16)	11.13 (3.69, 0-16)	t(777.32) = 3.36, p=.001

[a] Restricted to those working for at least three months. Ns varied between 1001 to 1026 for all practitioners, 525 to 531 for specialist practitioners and 394 to 412 for community practitioners due to missing data.

Table 4: Stop smoking practitioners' reported levels of training

		All practitioners [a]	Specialist practitioners [a]	Community practitioners [a]	Comparison between specialist and community practitioners
Number of days 'off the job' training (smoking cessation specific) received when started working at the services	Mean (SD, Range)	2.74 (1.44, 1-10)	3.12 (1.52, 1-10)	2.28 (1.16, 1-8)	t(862.99) = 9.32, p<.001
Number of sessions conducted by an experienced practitioner observed when started employment?	Mean (SD, Range)	6.00 (7.09, 0-30)	8.53 (7.91, 0-30)	2.91 (4.67, 0-30)	t(887.94) = 13.63, p<.001
Frequency of 'off the job' update training (%)? [b c]	Never Less than once a year Once a year More than once a year	2.4 (21) 15.9 (139) 50.7 (444) 31.1 (272)	1.9 (9) 16.3 (77) 44.6 (210) 37.2 (175)	3.3 (11) 16.3 (55) 58.6 (198) 21.9 (74)	χ^2(1) = 1.47, p =.225 χ^2(1) = .001, p=.977 χ^2(1) = 15.42, p<.001 χ^2(1) = 21.51, p<.001
Ever been observed in practice and received feedback (%) [b]	Yes	60.3 (564)	75.6 (381)	37.9 (136)	χ^2(1) = 124.15, p <.001

[a] ns varied between 876-1024 for all practitioners, 471-534 for specialist practitioners and 359-407 for community practitioners due to missing data and restrictions (i.e. to those working for at least 12 months)
[b] Working for at least 12 months.
[c] Free-text responses and some original categories were combined to ease interpretation.