

Evidence summary: is smoking cessation an effective and cost-effective service to be introduced in NHS dentistry?

Developed from an original question submitted by Monika Gyenes: 'Is smoking cessation counselling an important and essential role for dental professionals? Do we know the best practise, the current activity at GDP level and the barriers? Is it worth introducing into general dental practice and requesting NHS finance? Are we ready to do it and do we have enough time to do it?'

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KEY TERMS

- **Nicotine replacement therapy:** products that deliver controlled nicotine doses, reduced over time.
- **Five A's model of smoking cessation:** 1) Ask the patient about their tobacco usage; 2) Advise them to quit; 3) Assess their willingness to quit; 4) Assist them in quitting; 5) Arrange follow-ups.
- **Three A's model of smoking cessation:** 1) and 2) as above; 3) Act to refer the patient to specialist support.
- **Smokeless tobacco:** tobacco that is orally chewed or 'snuffed' through the nose.

Since August 2009, members of the Primary Care Dentistry Research Forum (www.dentistryresearch.org) have taken part in an online vote to identify questions in day-to-day practice that they felt most needed to be answered with conclusive research. The question that receives the most votes each month forms the subject of a critical appraisal of the relevant literature. Each month a new round of voting takes place to decide which further questions will be reviewed. Dental practitioners and dental care professionals are encouraged to take part in the voting and submit their own questions to be included in the vote by joining the website.

The paper below details a summary of the findings of the eighth critical appraisal. In order to address the question raised by the primary care dentistry research forum, first any international study was included that evaluated the effectiveness smoking cessation in dental practice. The aim was to understand whether smoking cessation in dental practice is an effective treatment strategy to increase tobacco cessation and abstinence. Moreover, this rapid assessment intended to identify whether there are certain types of smoking cessation intervention (or components of an intervention) in dental settings that are more effective than the others. In order to determine the applicability of the results to the NHS, we also looked for studies evaluating the cost-effectiveness of these interventions in NHS dentistry, studies reporting the current practice in NHS dentistry and finally qualitative and quantitative studies describing and evaluating the experience and views of dentists in the UK regarding implementing smoking cessation interventions in dental settings. The latter studies would help us to identify the possible barriers and facilitators in implementing these interventions in a dental setting. In conclusion, the critical appraisal of the international literature suggests that behavioural intervention for smoking cessation involving oral health professionals is an effective method of reducing tobacco use in smokers and users of smokeless tobacco and preventing uptake in non-smokers. There is not enough evidence available to assess whether these interventions are cost-effective and the effectiveness of one intervention (or component of the intervention) over another is not clear. The evaluation of the UK-related literature shows that private dental practices deliver more smoking cessation activities than their NHS counterparts. NHS practitioners report lack of reimbursement from the NHS, lack of time and training and fears over patient response as barriers to delivering smoking cessation interventions. We did not find studies evaluating the cost-effectiveness of the intervention in the UK.

BACKGROUND

In the UK, approximately 28% of the adult population smoke. The number of smokers has declined in recent years but the prevalence is still high in some disadvantaged parts of the country.^{1,2} General dental practice provides an ideal opportunity to support smokers in smoking cessation, however, lack of

knowledge and time of practitioners and a lack of financial reimbursement has been a barrier to implementing tobacco cessation services.³ This review evaluates whether smoking cessation is an effective and cost-effective strategy for general dental practice, what are the current practises in UK, and what are the barriers and facilitators in implementing

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these interventions. The original question submitted was developed into the working question 'Is smoking cessation counselling in dental practise an effective and cost-effective service? How many GDP practices implement tobacco cessation programs in UK and how are these programs implemented? What are the barriers and facilitators in implementing smoking cessation counseling in dental practise in the UK?' In order to evaluate this, firstly randomised controlled trials conducted in any country were identified and critically appraised to find out whether smoking cessation in dental practise is an effective strategy or not. In order to understand the relevance of these results to the UK setting, studies describing and evaluating the current practise of smoking cessation in the UK, studies evaluating the experiences and views of dentists (barriers and facilitators) towards implementing smoking cessation in UK and studies evaluating the cost-effectiveness of the intervention UK were included.

REVIEW METHODS

Search for systematic reviews

Initially, a subject search was made of two databases to identify potential updated systematic reviews that summarised and synthesised the current literature on smoking cessation in dental practice. Eight relevant studies were identified on the Database of Abstracts of Reviews of Effects (DARE) and 42 on the Cochrane Database of Systematic Reviews (CDSR).

One Cochrane review addressed the topic of the effectiveness of smoking cessation programs³ and an update of this review was found in the *International Dental Journal*.⁴ This also addressed a separate question of whether in-house counselling in the dental practice is better than referring the patient to a specialist. The last search referenced in the update was in 2008. Consequently, for the question on the effectiveness of the intervention, this rapid assessment only included clinical trials that were published after 2008 and met the criteria of the Cochrane review to evaluate whether the Cochrane review is still up to date.³

Table 1 Summary of the Cochrane intervention review on tobacco cessation in the dental setting³ and the later update of this review⁴ (extracts adapted from the reviews/review abstracts)

Main objective	To assess the effectiveness of the interventions for tobacco cessation for smokers and smokeless tobacco users conducted by dental professionals, specifically looking at four comparisons (a-d). In addition to this, Needleman 2010 ⁴ evaluates a fifth comparison (see below).
Search strategy	The specialised registers of the Cochrane Tobacco Addiction Group and Cochrane Oral Health Group. The Cochrane review did the last search on 7 July 2006 and the Needleman 2010 review did an updated search in the same databases at the end of June 2008.
Main results	Nine trials (six trials conducted in the USA were identified in the Cochrane review ³ and three trials (two conducted in the USA and one conducted in the UK) by the Needleman 2010 review ⁴ .* The studies had either moderate or high risk of bias.
Comparison a: brief counselling cessation by dental professionals compared to usual care	Eight studies comparing brief counselling with usual practice. Six of them use the five A's model or variants of it. In two cases nicotine replacement therapy was also used. In one case counselling was accompanied with a quitline. Five were conducted in a dental office and the rest in a community setting, for example high school. From the six trials that were included in the Cochrane reviews, only one focused on smokers and the rest included smokeless tobacco users. The two additional studies that Needleman 2010 ⁴ identified only focused on smokers.
Comparison b: brief counselling cessation intervention conducted by dental professionals with nicotine replacement therapy (NRT) compared to NRT alone	No studies identified.
Comparison c: tobacco cessation programme with an individualised oral examination component versus tobacco cessation programme without one	No studies identified. [†]
Comparison d: tobacco cessation programme conducted by dental professionals versus programs conducted by other health professionals	No studies identified. [†]
Comparison e: in-house counselling in a dental practice versus referral to telephone quitlines	Two RCTs conducted in private dental practices. They did not synthesise the result of the two studies. Both studies did not find any differences in quit rate between the two interventions. [§]
Authors' conclusion	
Implication for practice	Smoking cessation in dental practice or in a community setting conducted by dental professionals can increase the number of abstinence individuals in tobacco users. The studies are mostly conducted on smokeless tobacco users; therefore, the evidence is not adequate to support the effectiveness of interventions for smokers. Evidence is not adequate to depict which component of the intervention provides additional effectiveness in comparison to others.
Implication for research	There is a need for more studies evaluating the impact of the range of interventions on abstinence rates of smokers or smokeless tobacco users. More research is needed on smokers.

*In our updated search, we identified four more studies that are explained in detail in Table 2.

†This issue was not separately reported in the Carr 2006 Cochrane review.³ However, another Cochrane review conducted by Ebert *et al.* in 2007²⁰ on interventions for smokeless tobacco use cessation (last updated in March 2007) addresses this as a sub-question. The Ebert 2007 Cochrane review found 14 studies evaluating behavioural interventions and five of them involved oral health professionals. Their overall meta-analysis including all studies that evaluated behavioural interventions (both those involving oral health professionals and those involving other health professionals) showed a beneficial effect but with large heterogeneity. Therefore, they conducted a subgroup analysis to explore the heterogeneity and concluded that amongst the behavioural interventions, the use of telephone counselling and oral examination may be associated with the most effective treatment.²⁰

§In the updated search, one additional study was found that matched this comparison. The study is listed in Table 2.⁵

||There are more studies on smoking cessation listed in Table 2.

Search for trials

A search was executed in MEDLINE (OVID) on 3 November 2010 using subject-related themes. The search strategy did not include any study design filter.

An additional search was carried out in Cochrane Central Register of Controlled Trials (CENTRAL) to identify relevant clinical trials along with a search of the NHS Economic Evaluation Database for

Table 2 Controlled clinical trials evaluating smoking cessation activities delivered in a dental setting

Reference	Year	Study aim and design	Population	Country	Intervention/ service change	Comparator	Summary of results	Authors' conclusion
5	2010	To evaluate the effectiveness of the 5 A's model of smoking cessation versus a 3 A's model versus usual care. The study was a cluster RCT.	Private dental clinics in Mississippi in four cohorts across three years. 76 dentists, 252 dental hygienists and dental assistants were involved. 17 dental clinics were stratified in each cohort based on location. From the included patients, 70% were smokers, 16% used smokeless tobacco and 5% used both.	USA	1) 5 A's intervention: three hour workshop and CD-ROM + motivational & self-help written materials for the five step intervention. 2) 3 A's intervention: two hour workshop + CD-ROM + motivational & self-help written materials for 3 A's intervention.	Usual care control: provided their usual tobacco cessation services to patients (this was not further clarified).	Completion of assessment: At 12 months, 74% of 5 A's clinics completed the assessment and 69% of the 3 A's group. Prolonged abstinence (12 months): (3% vs 2%, $p < 0.10$). 12 months point prevalence: (12% vs 8%, $p < 0.01$) [Point prevalence: outcome measure used to assess whether the patient did not use tobacco recently, eg in the last seven days; prolonged abstinence: outcome measure used to assess whether the patient did not use tobacco for a longer period of time, eg 12 months.]	The intervention groups were more likely to quit than usual care groups.
6	2010	The study aimed to compare the effectiveness of brief counselling for tobacco cessation by dental practitioners versus usual care in a community health centre. Cluster RCT, stratified by size, race/ethnicity distribution prior randomisation, using the re-aim framework.	14 community health dental clinics in the USA. Most of the participants were smokers (2.4%), tobacco chewers and 26 (1%) participants both smoked and chewed tobacco.	USA	Three hour in-service workshop on delivering 5 A's tailored brief tobacco intervention including proper use for nicotine replacement therapy. The groups were given nicotine patches, longer and patient self-help materials (tailored based on type of tobacco, race and ethnicity). Information on local tobacco quitline was also given.	The usual tobacco cessation practice with patients.	Participants in the intervention group had higher abstinence rates at the 7.5 month follow up for both point prevalence and prolonged abstinence.	Smokers in the 5 A's group had higher abstinence rates than the usual group.
7	2010	To evaluate the effectiveness of an intensive smoking intervention delivered by dental professionals. The study is an RCT and the patients were randomised in two groups.	The patients were recruited from 19 dental clinics in Hiroshima and Nagasaki. All the patients were smokers.	Japan	Five visits counselling to quit with two major regimens consisting of behavioural and pharmaceutical approaches, three hour training course	Control group	In the three month period, 75.8% (intervention) and 69.6% (non-intervention) of the participants were available to be assessed for smoking status. The abstinence rates were 51.5% (intervention) and 13.0% (non-intervention). The rates in the non-intervention group did not change in 6-12 months but the intervention group had decreased rate after 6 months (39.4%) and also after 1 year (36.4%). The adjusted odds ratio (95% CI) for continuous abstinence (intervention vs non-intervention group) was 7.1 (1.8, 28.5) at 3 months and afterwards, 8.9 (1.7, 47.2), and 6.4 (1.3, 30.7) in 6 and 12 months.	Intensive smoking-cessation intervention in the dental setting is an effective strategy to increase abstinence rates.
8	2009	The study aims to evaluate the long term effect of a behavioural smoking cessation program (self-help plus phone counselling) in military personal with usual care.	The participants were recruited from 28 dental clinics of the air force, army and marine corps navy in US military service. They were recruited regardless of their motivation to quit. All were smokeless tobacco (ST) users. Some of them also smoked cigarettes.	USA	Behaviour intervention group: self-help guidebook for ST cessation, video-based ST program + three brief telephone counselling (motivational interviewing, motivational enhancement strategies).	Usual care: dental provider counselling to quit ST use and a referral to local military installation tobacco cessation program.	The behavioural intervention was significantly more efficacious (2-3 times greater abstinence rates) than usual condition. The study also found significant correlation between number of counselling calls, total duration of calls, amount of manual read and amount of video watched with positive direction of the intervention.	The authors conclude that brief smoking cessation advice in dental practice should be delivered accompanied with a referral to a telephone quitline.

Table 3 Characteristics of studies evaluating the views and attitudes of dentists on delivering smoking cessation activities in dental practices in the UK

Reference	Study sample and setting	Date of conducting the research	Study data collection	Study objective	Current practise on providing smoking cessation in dental practice
12	Clinical dental students (3rd, 4th, 5th year students) at Cardiff University School of Dentistry. 89% response rate (161/181).	February 2008	Self-administered questionnaire with 16 questions on the provision of smoking cessation activities by clinical dentists and their attitudes and perceived barriers.	To assess the smoking cessation activities of students in a UK dental school and to explore their perceived barriers.	86% reported that they enquired about patient smoking habits in the last 3 months. Less than 10% of the students enquired less than half the time. 94% recorded patient smoking habit.
13	All dental practitioners within West Yorkshire. The overall response rate was 50% (386/769). 345 respondents stated their practice profile. 40% (139) had a private practice profile (more than 10% private patients) and 60% (207) had an NHS orientated practice profile (less than 10% private patients).	March 2005-April 2006	Questionnaire with 22 questions. They were posted with a freepost return envelope to encourage a reply. There were two reminder mailings to non-responders.	To define whether dental practices provided smoking cessation advice and if yes, to what extent smoking cessation activities varied between dental practices depending on their profile.	The private oriented practices provided more smoking cessation advice (2% more) and more frequent referral to NHS stop smoking helpline number (8% more) but it was not statistically different from the NHS oriented practices. However, the private oriented practices had 1.7 times higher probability than NHS oriented practice to refer patients to NHS stop smoking service.
14	Periodontists and hygienists. All periodontists on the General Dental Council's Specialist Register living in England, Scotland, Wales and the Channel Islands were contacted and the hygienists were randomly contacted from the Rolls of Auxiliaries until the same sample size as the periodontists was reached. 57% of the periodontists worked in a specialist's office, 29% worked full time in hospital or a university department, 7% worked in a general dental office. 89% of hygienists worked in general practice and only 2% worked in specialist practice.	October 2005-January 2006	Questionnaire with 16 questions. They were posted with a covering letter explaining the aim of the study and a pre-paid stamped return envelope.	The study aimed to evaluate the attitudes, current practice and perceived barriers of specialist and hygienists regarding smoking cessation activities.	Periodontists: 95% asked their patient whether they routinely smoke, 35% spent more than 5 min to advise them about their habits. This was significantly higher in a specialist practice only. 85% reported that the periodontist gave the advice and 65% stated that the hygienists gave the smoking cessation advice. Type of advice: 99% discussed oral effects 85% discussed health effects 62% discussed methods of cessation 48% give pamphlets 31% quit smoking groups 29% advised nicotine replacement therapy. Hygienists: 89% routinely asked the patient about smoking habits and 19% spent more than 5 min advising them. 65% reported giving smoking cessation advice. Only 77% hygienists report that the dentist gave smoking cessation advice, 91 stated that more commonly the hygienists provided the advice. Type of advice: 98% discussed oral effects 72 discussed health effects 60% discussed methods of cessation 43% give pamphlets 29% quit smoking groups 23% advised nicotine replacement therapy.
15	1,500 members of the British Dental Association excluding retired members, overseas members and students (77% worked in general dental practice, 20% worked in salaried dental services, 3% either did not work or did not work in dentistry). 53% of the general dentists got three quarters of their income from the NHS.	2002	Omnibus survey with 14 questions that was posted to the members and included a prepaid envelope to return to BDA. Two reminders were circulated. The response rate was 58% (970 usable questionnaires were returned).	To study the attitudes and opinions of the members of the British Dental Association towards implementing tobacco cessation strategies in dental practices.	57% of the dentists gave advice fairly regularly or always and 37% recommended over-the-counter nicotine replacement therapy.

Oral health professionals' views and attitudes towards smoking cessation in dental practice	Facilitators in implementing the smoking cessation program in dental practice	Barriers in implementing the smoking cessation program in dental practice
84% were positive about the role of dentists in providing smoking cessation. 84% believed that they should be trained to do this.	Not reported	<p>Strong barriers to smoking cessation advice (% students reporting):</p> <ul style="list-style-type: none"> • Patient's lack of interest (83%) • Lack of training (47%) • Patient education material (42%) • Lack of time (32%) • Concerns about effectiveness (25%) • Amount of time required (25%) • Insufficient support from supervising staff (21%) • Possibility of damaging patient rapport (20%). <p>Except patient lack of interest, the rest of the barriers were judged by 10-30% other students as no barrier.</p>
7% (10) of the private oriented practices and 19% (40) of NHS oriented practices considered the NHS contract to affect their smoking cessation activities but did not report whether they considered it as a facilitator or barrier.	Not reported	<p>Barriers that were significantly more often reported in NHS oriented practices compared to private ones:</p> <ul style="list-style-type: none"> • Lack of time (difference 18%). • Lack of expertise. <p>Barriers that were not significantly different between the two groups:</p> <ul style="list-style-type: none"> • Lack of confidence • Lack of staff.
Periodontists: 68% believed it was very appropriate to advise patients in a dental practice. Hygienists: 48% believed it was very appropriate to advise patients in a dental practice.	Not reported.	<p>Periodontists:</p> <ul style="list-style-type: none"> • 47% most important barrier is patient response • 29% lack of time • 21% lack of training • 16% lack of funding. <p>Hygienists:</p> <ul style="list-style-type: none"> • 60% most important barrier is patient response • 58% lack of time • 36% lack of training (those who were qualified longer were more likely to report this as a barrier) • 18% lack of funding.
68% believed that offering patients advice about tobacco cessation was the duty of every dentist.	50% believed that dentists are more likely to recommend nicotine replacement therapy if it would be prescribed on the NHS.	<ul style="list-style-type: none"> • Lack of time (47%) • Lack of reimbursement (46%) • Lack of training (38%) • Lack of patient educational material (36%) • Lack of knowledge of available referral resources (38%) • Patient resistance (25%).

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Table 3 Characteristics of studies evaluating the views and attitudes of dentists on delivering smoking cessation activities in dental practices in the UK

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Reference	Study sample and setting	Date of conducting the research	Study data collection	Study objective	Current practise on providing smoking cessation in dental practice
16	All dental hygienists in the Northern Deanery of the UK were contacted. The sample was identified from the General Dental Council's roll of dental hygienists. The hygienists were requested to forward it to one dentist and dental nurse in one practice. 118 (70%) hygienists responded and 100 dentists (60%) and 106 dental nurses (63%).	NR	Questionnaire consisting of closed Likert-type (6 point) questions. They were piloted by an independent evaluator. The questionnaire was posted and the return was requested within four weeks and a stamped addressed envelope was provided. Non-responders were followed up.	The study aimed to evaluate the perception and activities on delivering smoking cessation in a dental setting of dentists, dental hygienists and dental nurses.	92% of dental practices were smoke-free environments. 63% dentists, 55% dental hygienists and 21% dental nurses were involved in providing smoking cessation. Only 4% of dentists and 0% of dental hygienists never enquire about the smoking status of their patients, however 70% of the dental nurses do not ask.
17	All general dental practitioners (GDPs) on the South Essex Health Authority dental list	October 2001-January 2002	Questionnaire survey of all GDPs. The questionnaire was first piloted and then sent to all of the GDPs in South Essex Health Authority. Focus group interviews with dental teams in 10 dental practices that were selected using a stratified sampling method.	The study aimed to assess the view and attitudes of oral health professionals towards delivering smoking cessation in a dental practice.	90% reported asking patients about their smoking status at the first visit. 82% indicated that they advised smokers to stop, especially patients with poor periodontal health. Only 25% give advice on nicotine replacement therapy and only 24% referred to a specialist smoking cessation service. In the qualitative part, the dominant approach to encourage people to stop was to lecture them or preach to them to stop and change their lifestyle.
19	Dentists in counties of Oxfordshire, Berkshire, Buckinghamshire and Northamptonshire as listed by the health authorities in these counties. 696 (71%) responded. 31% were mainly NHS, 33% mixed NHS and private and 36% mainly private.	August 2001	Questionnaire comprising 18 items measuring using two- and three-point Likert-type scales. The questionnaire was posted and follow-up posts were sent to non-responders. Similar to the questionnaire in the John 1997 study. ¹⁸	The study aimed to define the dentists' beliefs about smoking cessation intervention, the extent to which they claim to be engaged, identify perceived barriers, determine the status of the dentists and change of beliefs from the last survey in 1996.	48% reported that they routinely recorded the smoking status of their patients. The dentists who mainly focused on NHS practice were less likely to report it compared to others. 75% always discussed it with patients who had periodontal problems but only 14% would discuss it if the patient did not have a major oral health problem.
18	Dentists in counties of Oxfordshire, Berkshire, Buckinghamshire and Northamptonshire as listed by the health authorities in these counties. 674 (78%) responded; 37% said that their practice was mainly NHS, 33% mixed NHS and private practice and 30% mainly private practice.	1996	Questionnaire comprising 18 items measuring using two- and three-point Likert-type scales. The questionnaire was posted and follow-up posts were sent to non-responders	The study aimed to determine dentists' beliefs about smoking, the extent to which they are engaged in delivering smoking cessation and perceived barriers to this intervention.	18% routinely recorded patient smoking status. 17% always discussed smoking status with their patients and 64% sometimes discussed it. However, 51% always and 39% sometimes discussed smoking with their patients if they had periodontal problems. Respondents from private practices were more likely to discuss smoking compared to others.

Oral health professionals' views and attitudes towards smoking cessation in dental practice	Facilitators in implementing the smoking cessation program in dental practice	Barriers in implementing the smoking cessation program in dental practice
82% dentists, 91% dental hygienists and 28% dental nurses believed they should be involved in providing smoking cessation.	Not reported.	<ul style="list-style-type: none"> • Lack of training: by all participants • Lack of remuneration: mainly by dentists • Lack of time: mainly by dental hygienists.
Negative attitude and frustration towards smoking cessation and prevention in general, especially between dental hygienists.	In the focus groups, it came up that if the fee scale included a fee for advising patients, dentists would be encouraged to provide advice.	<ul style="list-style-type: none"> • Lack of time (80%) • Lack of resources (76%) • Lack of payment (73%) • Inadequate knowledge on how to incorporate smoking cessation into consultations (72%) • Patients do not want smoking cessation advice from a dentist (68%) • Lack of confidence in the ability to incorporate smoking cessation activities in consultations (58%) • Dentists are not effective in giving smoking cessation advice (55%) • Smoking cessation not an appropriate activity for dentists (25%) • Damaging to the dentist-patient relationship (19%). <p>From the focus interview, the following barriers were identified:</p> <ul style="list-style-type: none"> • Non responsiveness of patients • Smoking cessation is not relevant to dental practice • Adversely affecting dental-patient relationship • Lack of time and reimbursement • High staff turnover that complicated continuity of care • Lack of communication between staff • Lack of space to hold confidential conversation.
88.6% of dentists believed that they should deliver smoking cessation advice in dental practice (dentists in NHS practice were less likely than the others) but only 42% believe that dentists were effective in helping smoking cessation and 68% thought that doctors were effective.	60% believed that oral health problems motivate smokers to stop smoking, especially the risk of oral cancer (71%) and the risk of lung cancer (85%).	Not reported
82% believed dentist should encourage patients to stop smoking. 73% believed that they should set a non-smoking example outside clinical premises. 37% thought dentists would be effective in helping smokers. 36% thought oral health problems were a major motivation for smokers to quit smoking (dentists in private practice were more likely to think these are effective than the others). 73% believed doctors are effective in helping smokers. 56% believed nicotine replacement therapy is effective.		<ul style="list-style-type: none"> • Lack of time: 12% considered it always a barrier and 40% considered it sometimes as a barrier. • Fear of adversely affecting patient-doctor relationship: only 6% considered it always as a barrier, 33% considered it sometimes as a barrier. • Lack of training: 16% considered it always as a barrier and 28% considered it sometimes a barrier.

cost studies. Appendix 1 provides the detailed search strategies.

MEDLINE (OVID): 849 search results were initially retrieved and 26 potentially relevant studies to the effectiveness question were identified. However, all except five⁵⁻⁹ were excluded as they were either published before 2008 or did not match the inclusion criteria. Nohlert's 2009⁹ study was omitted as it compared two methods of smoking cessation rather than examining individual effectiveness. Finally, only four studies were included in this rapid assessment.

Two cost studies^{10,11} and 14 potentially relevant studies were found addressing the questions of current practise of smoking cessation in dental practices in the UK or barriers and facilitators in implementing these interventions. Both cost studies were excluded as they were not conducted in the UK. From the 14 studies, only eight of them were eventually included;¹²⁻¹⁹ the other six were excluded as they did not focus on dentists in the UK or did not evaluate smoking cessation activities.

CENTRAL: 93 studies were initially identified. When searches were refined to 2008-2010, only 14 studies remained. None of these reported an additional randomised controlled trial (RCT) or quasi-RCT that matched the inclusion criteria but was not already identified by the MEDLINE search.

NHS Economic Evaluation Database: two studies were identified, one of which was irrelevant and the other had already been identified in the MEDLINE search.

RESULTS

Effectiveness of the intervention

Although the latest systematic review⁴ is quite recent, there are a number of randomised controlled trials published after this date. The Cochrane review included six trials; Needleman's 2010 review⁴ identified two additional trials; and the MEDLINE and CENTRAL searches identified four new trials. The outcomes and published updates of the Cochrane review have been summarised in Table 1 and an overview of the newly identified trials can be found in Table 2.

The Needleman 2010 review⁴ addressed a second question (that was

not addressed in the Cochrane review³) of whether in-house counselling in the dental practice is better than referring to a smoking cessation specialist. The reviewers found two RCTs conducted in private dental practices. They did not report the quality of the studies for the latter question but noted that they had problems with statistical data. Both studies did not find any differences in quit rates between the in-house counselling and referral to smoking cessation specialists.

The available evidence suggests that behavioural intervention for smoking cessation involving oral health professionals is an effective strategy to increase tobacco abstinence rates amongst smokeless tobacco users. This was also the conclusion of the Cochrane review³ that predominately identified studies including participants who were using smokeless tobacco. The trials conducted after the date of the search of the Cochrane review are principally conducted amongst smokers. It seems that smoking cessation in dental settings can have a positive effect in smokers. To provide a clearer conclusion, the current studies need to be included in the quantitative synthesis and provide a pooled estimate on the effectiveness of the intervention. This is beyond the scope of this rapid assessment. There is a need for the current systematic reviews on the topic to be updated to provide clear evidence on the effectiveness of smoking cessation in smokers.

There were a few other Cochrane reviews that addressed a more general question but included studies involving oral health professionals. One of them provided a separate analysis of smoking cessation interventions involving dental professionals²⁰ (Table 1). Three other Cochrane reviews evaluating smoking cessation intervention included studies involving oral health professionals but did not conduct separate analyses regarding whether these interventions were more or less effective than alternatives.²¹⁻²³

Cost-effectiveness of the intervention

There were no studies evaluating the cost-effectiveness of smoking cessation in UK.

Current practise and barriers and facilitators to implementing smoking cessation

Eight studies were identified that address this question. Details are provided in Table 3.

Private practices seem to provide more smoking cessation services. They also less frequently reported barriers than NHS or mixed practices. Although a large number of dentists asked about patients' smoking habits, they less frequently provided smoking cessation advice, nicotine replacement therapy or referral to specialist services. The most common reported barrier to these interventions was a lack of time and resources. Two other barriers often reported were lack of training and concerns about patient response.

Two factors were reported as facilitators in delivering smoking cessation in dental practice: patients with oral health problems were more motivated than other patients, and reimbursement of smoking cessation advice or nicotine replacement therapy prescribed by the dentists can increase the interest of the dentist in delivering smoking cessation activities.

SUMMARY

In conclusion, the international literature suggests that behavioural intervention for smoking cessation involving oral health professionals is an effective method of reducing tobacco use in smokers and users of smokeless tobacco and preventing uptake in non-smokers. There is not enough evidence available to assess whether these interventions are cost-effective and the effectiveness of one intervention (or component of the intervention) over another is not clear. The evaluation of the UK-related literature shows that private dental practices deliver more smoking cessation activities than their NHS counterparts. NHS practitioners report lack of reimbursement from the NHS, lack of time and training and fears over patient response as barriers to delivering smoking cessation interventions. We did not find studies evaluating the cost-effectiveness of the intervention in the UK.

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Appendix 1 Search strategies used in the review process

MEDLINE (OVID) Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1950 to Present
Date of search: 3 November 2010

1	(dentist? or dental or "oral health" or "oral medicine" or dentistry or "oral hygiene").mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]
2	Dentists/
3	Dental Staff/
4	exp Oral Health/
5	(orthodont\$ or periodont\$ or endodont\$ or prosthodont\$).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]
6	1 or 2 or 3 or 4 or 5
7	Smoking/pc [Prevention & Control]
8	Smoking Cessation/
9	exp "Tobacco Use Cessation"/
10	((Smok\$ or tobacco\$ or nicotine\$ or cigar\$) and (cessation\$ or quit\$ or abstinence\$)).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]
11	antismok\$.mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier]
12	7 or 8 or 9 or 10 or 11
13	6 and 12

The Cochrane library: includes seven databases: (1) Cochrane Database of Systematic Reviews; (2) Cochrane Central Register of Controlled Trials; (3) Cochrane Methodology Register; (4) Database of Abstracts of Reviews of Effects; (5) Health Technology Assessment Database; (6) NHS Economic Evaluation Database; (7) About The Cochrane Collaboration.
Date of search: 23 November 2010

ID	Search
#1	MeSH descriptor Dentistry explode all trees
#2	MeSH descriptor Smoking Cessation explode all trees
#3	MeSH descriptor Oral Health explode all trees
#4	Smok* OR tobacco* OR nicotine* OR cigar*
#5	cessation* OR quit* OR abstinence*
#6	(#4 AND #5)
#7	(#6 OR #2)
#8	dentist OR dental OR "oral health" OR Dentistry OR "oral hygiene"
#9	(#1 OR #3 OR #8)
#10	#7 AND #9