IN BRIEF

- Respondents generally believed that they should encourage their patients to stop smoking, and that oral health problems and oral cancer were major motivating factors in encouraging smokers to stop smoking.
- About a third more dentists routinely recorded their patients' smoking status in 2001 than in 1996 but the final proportion was still less than half of all dentists. Only a quarter always raised the subject with smokers.
- Less than half of respondents believed that dentists are effective in helping patients stop smoking although most believed that doctors were effective.
- Very few respondents reported a good knowledge of nicotine replacement therapy (NRT) and about half requested more training and resources.

Smoking cessation interventions in the Oxford region: changes in dentists' attitudes and reported practices 1996–2001

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Objectives To investigate dentists' current beliefs and practices (2001) with respect to smoking cessation interventions and any changes that might have occurred since the last survey in 1996.

Design Postal questionnaire survey

Setting General dental practitioners on the health authority lists of Berkshire, Buckinghamshire, Oxfordshire and Northamptonshire.

Results A response rate of 71% (696/984) was achieved. The majority of dentists (88.6%) thought that dentists should encourage their patients to stop smoking (increase of 6.3% since 1996; 95%CI 2.6, 10.2; $p=0.001$), although only 42.2% believed dentists were effective in this area (non-significant increase of 4.8% since 1996). Only 48.4% routinely recorded their patient's smoking status (increase of 30.3% since 1996; 95%CI 25.4, 34.9; $p<0.001$) and only 26.9% always discussed the habit with smokers (increase of 9.5% since 1996; 95%CI 5.1, 13.9; $p<0.001$). Less than 10% reported a good knowledge of NRT or Bupropion. About half of respondents requested more training and resources.

Conclusions Dentists generally have positive attitudes to being involved in smoking cessation interventions, but although there are significant increases between 1996 and the current survey, few are active in this area. More training and resources may encourage dentists to be more proactive in helping their patients to stop smoking.

Smoking is the largest single preventable cause of death and disability in the United Kingdom. Smoking causes more than 120,000 deaths each year and costs the NHS in England alone about £1,500m a year.¹ In addition to an increased risk of cardiovascular disease and several cancers, using tobacco also adversely affects oral health in several ways, ranging from periodontal dis-

ease² to oral cancer.^{3,4} In 1998, the Department of Health issued a white paper on tobacco encouraging all health professionals, including dentists, to assess smoking habits and provide smoking cessation advice whenever possible.⁵ Subsequently, a set of smoking cessation guidelines for health professionals were published.⁶ The guidelines recommend that the routine provision of brief advice and follow-up in primary care, including advice on nicotine replacement therapy, should be the cornerstone of an NHS smoking cessation strategy.

Studies have indicated that smoking cessation programmes in dental practice can help smokers stop smoking.^{7–9} A number of articles have been published encouraging dentists to talk to patients who smoke about stopping the habit.^{10–12} However, UK surveys of dentists indicate that although dentists have positive attitudes towards helping their patients stop using tobacco, few are actively involved in this area. Chestnutt and Binnie's 1994 survey of 587 dentists in Glasgow, Scotland found that although 90% of respondents believed that stopping smoking was the single most important step for health improvement, only 7% reported that they always advised smokers to stop smoking.¹³ McCann *et al.* report similar findings from their 1999 survey of 331 Scottish primary dental care professionals. About 90% of respondents believed that the dental practitioner had a major role to play in oral cancer prevention (for which tobacco-use is a major risk factor), but only 19% enquired routinely about patients' smoking habits and 15% personally advised smokers to quit.¹⁴ Barriers identified include insufficient time,¹³ lack of training¹⁴ and a fear of adversely affecting the dentist–patient relationship.¹⁴

In 1996 (before the publication of the white paper), we carried out a survey investigating the attitudes and practices of dentists in the counties of Berkshire, Buckinghamshire, Northamptonshire and Oxfordshire with respect to anti-smoking education.¹⁵ The majority of the 869 respondents (82%) thought that dentists should encourage their patients to stop smoking. However, only 37% believed that dentists were effective in this area and just 18% routinely recorded their patients' smoking status. In 2001, we repeated the survey across the same region. This provided a unique opportunity to ascertain any changes in the beliefs and practices of dentists in this region with respect to smoking cessation intervention, that have occurred over the past 5 years.

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Table 1 Profile of respondents

	No.	%
Total respondents	696	
Sex – male	450	64.7
– female	246	35.3
Practice type		
– Mainly NHS	214	30.9
– Mixed NHS and Private	250	36.1
– Mainly Private	229	33.0
Smoking status		
– Smoker	56	8.1
– Ex-smoker	162	23.3
– Never smoker	476	68.6
'No Smoking' policy in dental practice		
– Yes	657	94.8
– No	36	5.2

OBJECTIVES

The objectives of the study were:

1. To ascertain dentists' beliefs about smoking cessation interventions.
2. To determine the extent to which dentists claim to engage in smoking cessation interventions with their patients.
3. To investigate perceived barriers to providing such interventions.
4. To determine if dentists' smoking status, year of graduation or practice type (NHS, mixed NHS and private, or mainly private) affect their views and activities with respect to smoking cessation.
5. To ascertain any changes in beliefs and attitudes between the last survey in 1996 and the current study.

METHODS

A questionnaire survey was conducted amongst dentists in the counties of Oxfordshire, Berkshire, Buckinghamshire and Northamptonshire. All dentists ($N = 984$) on the regularly updated lists maintained by the health authorities of these four counties were included. The study design used was similar to one used in a survey conducted in the same area in 1996.¹⁵ In the 1996 survey dentists on the health authority lists of the same four counties were surveyed.

A self-administered postal questionnaire was used to collect data. This was accompanied by a letter explaining the aims of the survey and a reply-paid envelope. The main mailing was conducted in August 2001. Non-respondents were sent a first reminder in September and a second reminder in October. Questionnaires identical to the first were enclosed with each reminder.

The questionnaire used was similar to that of the 1996 survey and comprised 18 items. Attitudinal variables were measured using two-point and three-point Likert-type scales. Respondents were also given an opportunity at the end of the questionnaire to make comments on any issue related to this area.

The data from the questionnaires were entered into *Epi-Info Version 6.0* and then exported to and analysed using *SPSS for MS Windows Version 10.0*. Frequencies and percentages were used to determine the distribution of responses for each variable. Percentages for each variable were based on the number of respondents for each question (denominators in the text vary according to the different numbers of respondents who

answered each question). Dentists' views and activities concerning smoking cessation were cross-tabulated against their year of graduation and smoking status. Associations were tested using the chi-squared test and chi-squared test for trend.

RESULTS

Profile of respondents

Of the 984 dentists, 696 (71%) returned completed questionnaires. Details relating to the profile of respondents are illustrated in Table 1. Of the participants, 65% were male (compared with 70% male in 1996). The year of basic qualification ranged from 1959 to 2000. With respect to type of practice, 31% said that their practice was mainly NHS (37% in 1996), 33% mixed NHS and private (33% in 1996) and 36% mainly private (30% in 1996). There was no association between year of graduation and type of practice in either 1996 or 2000. However there appears to be a drift of practitioners from mainly NHS to mainly private practices.

The vast majority of the respondents, 92%, were non-smokers and 70% said they had never smoked. As with the 1996 survey, there was a gradient in the proportion of never smokers with year of graduation; 49% (40/81) of those graduating before 1970 had never smoked, rising to 75% (135/181) of those graduating in 1991–2000 (chi-squared for trend, $P < 0.001$). The majority of respondents, 95%, said they had a 'no smoking' policy on the dental practice premises.

Views on smoking cessation

Table 2 shows respondents' views on smoking cessation interventions in 1996 and 2001. A total of 88.6% (609/687) believed that dentists should encourage their patients to stop smoking, an increase of 6% from 1996. However, only 42% of respondents believed that dentists were effective in helping patients stop smoking (37% in 1996), although 68% thought that doctors were effective (73% in 1996). Newer graduates were more likely to believe that dentists and doctors were effective (Table 3). Those in 'mainly NHS' practices were less likely than those in 'mixed NHS and private' or those in 'mainly private' practice to believe that dentists should encourage their patients to stop smoking and that

Table 2 Comparing dentists' views on smoking cessation between 1996 and 2001

	1996 (%)	2001 (%)	Difference (95% confidence interval)	P-value
Believe to be effective in smoking cessation intervention:				
<i>Dentist</i>				
Effective	37.4	42.2	4.8 (–0.5, 10.0)	0.08
Not effective	42.9	37.3		
Don't know	19.6	20.4		
<i>Doctor</i>				
Effective	73.3	68.3	–5.0 (–9.9, –0.2)	< 0.01
Not effective	14.4	15.9		
Don't know	12.4	15.9		
<i>Nicotine replacement therapy</i>				
Effective	55.7	61.8	6.1 (0.8, 11.4)	0.03
Not effective	11.9	8.2		
Don't know	32.3	30.3		
Believe that dentists should encourage patients to stop smoking	82.3	88.6	6.3 (2.6, 10.2)	0.001
Importance of oral health problems in motivating quitting:				
– Major importance	36.2	60.2	24.0 (18.8, 29.1)	< 0.001
– Minor importance	58.8	35.4		
– No importance	5.0	4.4		

Table 3 Dentists' views on smoking cessation by year of graduation (percentages)

	Before 1971 <i>n</i> = 81	1971-1980 <i>n</i> = 201	1981-1990 <i>n</i> = 233	1991-2000 <i>n</i> = 181	<i>P</i> value for difference between groups (trend)
Believe to be effective in smoking cessation					
– Dentist	46.8	38.1	36.8	51.7	0.048 (0.078)
– Doctor	70.9	61.6	65.9	77.5	0.007 (0.016)
– NRT	57.1	63.2	62.1	61.9	0.441 (0.649)
Believe dentists should encourage patients to stop smoking	88.9	90.3	84.3	92.3	0.065 (0.721)
Believe that the following problems are of major importance in encouraging quitting					
– Lung cancer	88.8	84.3	83.0	85.0	0.746 (0.759)
– Oral cancer	70.9	70.1	67.2	75.7	0.060 (0.218)
– Oral health problems	60.8	60.4	55.7	65.6	0.441 (0.649)
Good knowledge of					
– Nicotine replacement therapies	9.9	10.1	8.2	11.0	0.844 (0.907)
– Bupropion (Zyban)	4.9	8.5	3.4	5.5	0.094 (0.040)

they were effective in this area (Table 4). Current smokers were less likely than non smokers to hold these views (70%, 39/56 smokers and 90%, 569/629 non-smokers, $P = 0.001$ dentists should encourage smokers to stop smoking; and 19%, 10/54 smokers and 44%, 275/619 non-smokers, $P < 0.001$ dentists are effective in smoking cessation).

A total of 60% of respondents in the current survey thought that oral health problems were of major importance in motivating smokers to stop smoking, an increase of 24% from 1996 ($P < 0.001$) (Table 2). The majority of respondents also thought that the risk of oral cancer (71%, 485/686) and the risk of lung cancer (85%, 581/687) were of major importance in motivating smokers to stop smoking (only included in 2001 questionnaire).

Only 10% (67/692) of respondents reported that they had a good knowledge of nicotine replacement therapy (NRT) and only 6% (39/694) reported a good knowledge of Bupropion (Zyban). Current smokers were more likely than non-smokers to report a good knowledge of NRT (29%, 16/56 smokers compared with 51/635 non-smokers; $P < 0.001$) and Bupropion (13%, 7/56 smokers and 5%, 32/637 non-smokers; $P = 0.05$).

Reported activities on smoking cessation

Table 5 illustrates respondents' activities in smoking cessation interventions in 1996 and 2001. The proportion of respondents who reported that they routinely recorded smoking status in the 2001 survey was 30% higher than in 1996, although the total is still only 48%. Respondents from 'mainly NHS' practices were less likely to record smoking status than those in 'mixed NHS and private' or 'mainly private' practices (Table 6) and newer graduates were more likely to do so than older graduates (Table 7). Smokers were less likely to be active in this area than non-smokers (22%, 12/55 smokers compared with 51%, 322/633 non-smokers; $P < 0.001$).

The proportion of respondents who reported that they always discussed smoking with patients who smoked was also higher than in 1996 (17% in 1996 and 27% in 2001) (Table 5). About 75% of respondents said they always discussed smoking with smokers who had periodontal problems but only 14% said they would do so with smokers who had no major oral health problem. Those in 'mainly NHS' practice were less active in discussing smoking than those in 'mixed NHS and private' or 'mainly private' practices

Table 4 Dentists' views on smoking cessation by practice type (percentages)

	NHS <i>n</i> = 238	Mixed <i>n</i> = 211	Private <i>n</i> = 194	<i>P</i> value for difference between groups (trend)
Believe to be effective in smoking cessation				
– Dentist	32.5	47.1	45.9	0.001 (0.240)
– Doctor	66.0	66.7	72.1	0.593 (0.224)
– NRT	61.8	60.6	62.7	0.181 (0.941)
Believe dentists should encourage patients to stop smoking	83.4	91.5	90.3	0.016 (0.027)
Believe that the following problems are of major importance in encouraging quitting				
– Lung cancer	86.3	82.6	85.3	0.692 (0.974)
– Oral cancer	69.8	69.1	73.3	0.699 (0.277)
– Oral health problems	55.7	63.8	59.9	0.155 (0.147)
Good knowledge of				
– Nicotine replacement therapies	9.4	10.1	9.6	0.019 (0.114)
– Bupropion (Zyban)	3.7	5.6	7.4	0.103 (0.184)

Table 5 Comparing dentists' activities concerning smoking cessation between 1996 and 2001

	1996 (%)	2001 (%)	Difference 95% confidence interval	P-value
Routinely record patient's smoking status				
– Yes	18.2	48.4	30.3 (25.4, 34.9)	< 0.001
– No	81.8	51.6		
Discuss smoking with smokers				
– Always/almost always	17.4	26.9	9.5 (5.1, 13.9)	< 0.001
– Sometimes	64.2	64.8		
– Rarely/never	18.3	8.0		
Discuss smoking with patients with periodontal problems				
– Always/almost always	51.1	74.9	23.8 (18.8, 28.8)	< 0.001
– Sometimes	38.8	21.3		
– Rarely/never	10.0	3.5		
Discuss smoking with patients with no major oral health problem				
– Always/almost always	9.3	13.8	4.5 (1.1, 7.9)	0.04
– Sometimes	45.1	49.9		
– Rarely/never	45.6	36.3		

(Table 6). Current smokers were also less active than non-smokers (11%, 6/56 smokers compared with 29% 181/636 non-smokers always discussed smoking with smokers, $P = 0.007$; 48%, 27/56 smokers compared with 77%, 486/628 non-smokers always did so with smokers with periodontal problems, $P < 0.001$; and 2%, 1/56 smokers compared with 15%, 94/628 non-smokers always did so with smokers with no major oral health problem, $P < 0.001$).

DISCUSSION

The majority of respondents in our survey believed that oral health problems (60%) and the risk of oral cancer (71%) were of major importance in motivating smokers to stop smoking, and most (87%) also believed that dentists should encourage smokers to stop the habit. It is encouraging to note the large increase in the proportion who routinely record their patients' smoking status, but this is still less than half of all respondents. Other studies report similarly contradictory results. In McCann's 2000 study carried out in Scotland, 94% of respondents believed that smoking was an important risk factor in oral cancer and 90% perceived the dental practitioner to have a major role in oral

cancer prevention, but only 19% routinely enquired about patient smoking habits.¹⁴ In a 2001 survey of 149 Australian dentists, 70% considered smoking cessation counselling to be part of their professional role but only 14% always asked about the smoking status of their patient.¹⁶

Respondents in our survey were much more likely to discuss smoking with patients who had poor periodontal health than with those who had no major oral health problems. An oral pathology would certainly provide a natural starting point to bring up the subject but the recommendation is that all smokers should receive advice to stop smoking, and not just those who have a smoking-related pathology.⁶ Fear of adversely affecting the dentist–patient relationship did not emerge as a major barrier in our study unlike in McCann's study.¹⁴ However dentists may still not be comfortable raising the subject in a routine consultation. Chairside education materials on the oral effects of smoking may help dentists raise the issue more easily. Tobacco education materials can be included with other oral health education literature, eg on dietary advice, all of which can be routinely used with patients who smoke.

Table 6 Dentists' activities concerning smoking cessation by practice type (percentages)

	NHS <i>n</i> = 214	Mixed <i>n</i> = 250	Private <i>N</i> = 229	P value for difference between groups (trend)
Routinely record patients' smoking status	26.8	65.6	50.2	0.000 (0.000)
Always/almost always discuss smoking with smokers	17.3	36.5	25.9	0.000 (0.016)
Always/almost always discuss smoking with patients with periodontal problems	63.0	86.4	73.3	0.000 (0.011)
Always/almost always discuss smoking with no major oral health problem	8.0	19.8	13.0	0.000 (0.014)

Table 7 Dentists' activities concerning smoking cessation by year of graduation (percentages)

	Before 1971 <i>n</i> = 81	1971– 1980 <i>n</i> = 201	1981– 1990 <i>n</i> = 233	1991– 2000 <i>N</i> = 181	<i>P</i> value for difference between groups (trend)
Routinely record patient's smoking status on treatment chart	37.5	49.3	44.8	57.0	0.016 (0.015)
Always/almost always discuss smoking with smokers	33.3	27.9	24.7	26.0	0.075 (0.980)
Always/almost always discuss smoking with patients with periodontal problems	72.5	75.6	72.6	78.2	0.510 (0.257)
Always/almost always discuss smoking with no major oral health problem	24.1	13.2	10.9	13.9	0.101 (0.125)

Respondents from 'mainly NHS' practices were less likely to believe that dentists should encourage patients to stop smoking and that they were effective in this role. 'NHS' dentists were also less likely to be active in smoking interventions. This may be due to the fact that the NHS fee schedule does not include payment for time spent on health education activity but very few respondents identified insufficient time as a barrier in either the 1996 or 2001 surveys. It may also be that dentists perceive NHS patients as less interested in health advice from the dental practice because they do not wish to pay privately for 'quality' dental services.

In both 1996 and 2001, newer graduates were more likely to believe that dentists were effective in smoking cessation and were more likely to routinely record their patient's smoking status on the treatment chart. In the current survey, 38% of those who graduated before 1971 routinely did so, rising to 57% amongst those who graduated between 1991 and 2000. This upward trend may be due to increasing exposure to smoking-related issues in undergraduate dental education and/or greater receptivity to changes in practice by newer graduates. Whatever the reason, the increasing involvement of dentists in this area is certainly encouraging.

Lack of training in this area has been identified as a barrier in previous research.¹⁴ In our study, the majority of respondents reported that lack of training was only rarely or sometimes a barrier but about 50% said that they would like more skills or resources in this area. Findings from an American study indicate that dentists who were confident about their smoking cessation knowledge frequently advised patients to quit and spent more time counselling patients about tobacco cessation.¹⁷ Less than 10% of respondents in our survey reported a good knowledge of NRT or Bupropion. There is evidence that NRT improves cessation rates by 1.5 to 2 fold and is largely independent of the intensity of the intervention.¹⁸ It is therefore important for anyone involved in smoking cessation activity to have a good knowledge of the various types of NRT available. It is noteworthy that only 42% of respondents in our study believed that dentists were effective in smoking cessation intervention, whereas 68% thought that doctors were effective. Providing dentists with up-to-date information, including how to raise the issue with patients and how to identify patients who are ready to stop smoking, may make them more confident and therefore more active in this area. This could be included as an accredited continuing professional development (CPD) activity, either as a Section 63 meeting and/or on a CD-ROM. Such CPD sessions have been carried out

for dental practice teams in Oxfordshire through a collaboration between the dental public health team and the Oxfordshire Smoking Advice Service.

The low levels of smoking amongst dentists make them good role models for their patients with respect to smoking behaviour. Only 8% of our respondents reported that they smoked. This is lower than the 14% for professional groups in the UK¹⁹ but closer to smoking rates of 10% reported amongst dentists in Europe.²⁰ There is a trend of declining smoking rates among newer graduates in this study reflecting the downward trend in the general UK population.¹⁹ Dentists see their patients repeatedly over time as part of their provision of ongoing oral healthcare. They thus have the opportunity to give brief smoking cessation advice and follow-up on patients who smoke. Brief physician advice has been shown to increase cessation rates by about 2.5%.²¹ The smoking cessation guidelines recommend that all health professionals just provide brief advice aimed at motivating attempts to stop, rather than try to increase cessation rates.⁶ Many smokers will require multiple attempts before achieving a smoke-free lifestyle. Dental practice teams who feel that they do not have the required resources or training in this area can refer patients who are keen to stop smoking to specialist smoking cessation advice centres. These centres have been set up across the country to provide a range of services including self-help leaflets and advice on NRT. The role of dental practice teams could be to identify those of their patients who would like to stop smoking and refer them to these centres for more information, advice and support.

This study provided a unique opportunity to examine changes in dentists' beliefs and practices before and after publication of the White Paper,⁵ which marked a substantial increase in the priority given to reducing smoking. The majority of the survey population of 2001 was probably part of the population surveyed in 1996. However, we feel that it is unlikely that completing a questionnaire five years previously would have influenced their reported views or practices in the current survey.

Our study found that the majority of dentists have positive attitudes to helping their patients stop smoking. The proportion involved in smoking cessation intervention has increased in these past five years, particularly amongst newer graduates. There is still room for improvement and dental practice teams will need to be better-equipped with the relevant skills and resources to enable them to be more active in this area.

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