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Supporting pregnant women to quit smoking: postal survey of New Zealand general practitioners and midwives' smoking cessation knowledge and practices

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Abstract

Aim This study examined New Zealand general practitioners' (GPs) and midwives' smoking cessation knowledge and support offered to pregnant women who smoke.

Method Postal survey of a random sample of 776 New Zealand GPs and midwives, undertaken between September and October 2006.

Results Responses were received from 39% (147/376) GPs and 57% (203/355) midwives. Almost all GPs indicated that they were involved in confirming pregnancy during the first trimester, compared with only 55% of midwives. There was high reported routine recording of smoking status (84.5% for GPs and 98.5% for midwives) and almost all participants thought it was consistent with their role to ask about smoking in pregnancy, discuss the effects of smoking, and ask if women who smoke wanted to stop smoking. Whilst 71% of GPs reported usually advising pregnant women who smoke to abstain completely only 11% of midwives said they do this. Midwives were much more likely to advise cutting down. Over 60% of participants said they usually provide cessation counselling to pregnant women. Reported recommendation of nicotine replacement therapy (NRT) was low. Only 34% of GPs and 31% of midwives were likely to recommend nicotine gum.

Conclusions GPs are in a pivotal position to offer stop smoking advice at the time of confirmation of pregnancy, when the motivation to quit is highest. Insufficient emphasis on the importance of early and complete smoking abstinence is being given by most midwives. Intermittent nicotine delivery mechanisms (such as the nicotine gum, inhaler, lozenge, or microtab) are not well known and need to be promoted more to pregnant women who smoke.

Smoking in pregnancy is the single most preventable cause of pregnancy complications such as miscarriage, pre-term birth, and stillbirth.[1,2] Smoking increases the risk of sudden infant death syndrome and has adverse effects on children's physical and mental development.[3,4]

Smoking cessation programmes should be available in all maternity care settings because they have been shown to increase smoking cessation, reduce preterm birth, and increase birth weight.[5] Indeed, the New Zealand Ministry of Health (MoH) considers that pregnant women are a priority group.[6]

Despite strong evidence of the harms of smoking in pregnancy and of the benefits of stopping smoking, a survey in 2003 found that 22% of pregnant New Zealand women who smoked were smoking around the time of conception.[7] The proportion of Māori women smoking at conception was twice this estimate (55%).[7] The MoH has an ambitious goal to reduce this figure to 30% or lower by 2008.[8]

Pregnancy offers a unique opportunity for smoking cessation interventions due to an increased motivation to stop and likely increased number of contacts pregnant women

have with health professionals.[7,9,10] Motivation to quit is highest in the first trimester,[5,10,11] but despite this approximately one-third of pregnant women smokers continue to smoke during pregnancy,[9] and 21% of women who quit during pregnancy relapse prior to delivery.[12]

One published survey of cessation services provided for pregnant women has been conducted in New Zealand.[13] This survey, conducted in 2001, randomly sampled 274 GPs and 184 midwives—65% of GPs and 95% of midwives asked most of their pregnant patients about smoking. More than three-quarters of the respondents considered smoking cessation advice as an important part of their job.

Half of the GPs and midwives surveyed reported offering smoking cessation advice. Midwives were significantly less likely than GPs to feel comfortable or confident giving smoking cessation advice. Low numbers (24%) of midwives and GPs reported that NRT was appropriate for pregnant women.

Since the 2001 survey, smoking cessation support for pregnant women and smoking cessation practice has changed. The MoH now funds training programmes to improve the provision of smoking cessation counselling and support given by lead maternity carers (LMCs) and other health professionals. Culturally appropriate cessation support for Māori, Aukati Kai Paipa, has also been funded.

Smoking cessation guidelines were developed in 2000, revised in 2002,[14] and have been revised again in 2007[15] to provide healthcare workers with up-to-date evidence-based guidance. Accordingly, in the third quarter of 2006 we undertook a survey of New Zealand health professionals providing care to pregnant women to identify their knowledge and practices in regard to smoking cessation advice and support. This paper reports on the findings from that survey.

Method

We obtained a sample of 376 GPs randomly selected by computer programme from a national database of all New Zealand GPs (Atlantis Ltd), and a random sample of 446 registered midwives from the Midwifery Council of New Zealand's database.

The online White Pages® telephone directory website was searched to obtain address details for the selected midwives, but because of missing data a second random selection from the original list was required to obtain a final sample of 397 registered midwives with postal addresses.

We constructed a questionnaire around six domains of enquiry, comprising participant demographic characteristics and each of the 'Five As' (*Ask, Assess, Advise, Assist, Arrange*) recommended in the 2002 New Zealand *Guidelines for smoking cessation*.[14] The questionnaire comprised closed- and open-ended questions, so participants could write comments if they desired, and was pre-tested for comprehension and ease of completion by two GPs and two midwives.

The questionnaire, participant information sheet, consent form, a competition entry form and prepaid reply envelope were mailed out to the selected participants in September 2006, and re-sent to those who had not responded one month later. We entered the responses in a Microsoft Excel spreadsheet and analysed the data using simple EpiInfo 2000 software. Multiple entries for ethnicity were reduced to a single category using Statistics New Zealand's prioritisation standard (NZ Māori, Pacific Island, Asian, Pakeha/NZ European, Other).

We obtained approval to conduct the study from the University of Auckland Human Participants Ethics Committee and funding support from the MoH.

Results

Response rates and sociodemographic and practice characteristics—Responses were received from 147/376 (39%) of the GPs and 203/355 (57%) of the midwives, an overall response rate of 48%. Surveys returned unopened due to an incorrect address were removed from the midwives denominator. Two GPs and one midwife responded to the survey despite not having been invited. These were excluded from the response rate calculation but their results are included in the analyses because their data could not be separately identified and removed.

The demographic characteristics of the respondents are shown in Table 1. The vast majority of GPs and midwives were European/Pakeha, with very small numbers of Māori, Pacific, Asian, and other ethnicities. Most respondents (71%) were aged between 35–54 years with similar proportions of GPs and midwives in each age group.

Almost all (99%) of midwives were female compared to just under half (46%) of the GPs. Responses were received from GPs located in all District Health Board (DHB) regions throughout New Zealand with the exception of Wairarapa, and from midwives in all 21 DHB regions.

Employment arrangements were markedly different: almost all (91%) of the GPs, but only a small proportion (3%) of midwives, worked under the auspices of a primary health organisation (PHO). Twenty-two percent of GPs and 45% of midwives stated that they practiced independently. A small number of GPs (11%) but almost two-thirds of midwives (60%) worked under the auspices of a DHB. No midwives and only 7% of GPs worked for a Māori provider. Ten percent of GPs and almost 20% of midwives estimated that half or more of their clients were Māori.

Involvement in confirming pregnancy—GPs were significantly more likely to see women to confirm pregnancy than midwives (99% compared with 55% respectively; RR 1.66, 95% CI 1.48–1.86) and were more likely to see them in the first trimester (73% of GPs compared with 60% of midwives; RR 1.67, 95% CI 1.49–1.87). Twenty-three percent of midwives said they usually see women for the first time in the second trimester and 17% in the third trimester.

Asking about smoking—Almost all midwives (98.5%) and fewer, but most, GPs (84.5%) reported that the smoking status of their patients was routinely recorded on the patient's record. High proportions of GPs (97%) and midwives (95.5%) reported that they considered asking about smoking in pregnant patients to be part of their role.

GPs were significantly more likely than midwives to ask about smoking status at the first visit (92% vs 82%; RR 1.12, 95% CI 1.03–1.21). A key reason given for *not* asking about smoking was the short time available, as there were always a number of important topics to discuss. Other respondents stated that they didn't see pregnant women until late in pregnancy or postnatal so didn't ask.

Several GPs commented that asking and recording smoking status was the responsibility of the practice nurse and some noted that they usually only see women once for confirmation of pregnancy.

Table 1. Demographic profile of GPs and midwives participating in the survey

Variables	GP (N=147)	Midwife (N=203)
Ethnicity	%	%
European	75	89
Māori	3	5
Pacific Islands	0	1
Asian	14	1
Other	9	3
District Health Board (DHB)		
Auckland	17	22
Bay of Plenty	6	8
Canterbury	12	11
Capital & Coast	7	11
Counties Manukau	5	7
Hawke's Bay	3	4
Hutt Valley	2	3
Lakes	4	1
Mid Central	8	2
Nelson Marlborough	2	2
Northland	3	2
Otago	6	3
South Canterbury	1	3
Southland	1	1
Tairawhiti	1	1
Taranaki	2	1
Waikato	11	7
Wairarapa	1	0
Waitemata	5	9
West Coast	0.5	1
Wanganui	2	2
Age (years)		
16-24	1	1
25-34	5	9
35-44	29	28
45-54	47	39
55-64	15	20
65 +	3	3
Setting		
Urban	82	72
Rural	16	23
Both	1	5
Organisation		
Public Health Organisation (PHO)	91	3
Independent	22	45
Māori	7	0
Pacific Island	1	0
DHB	11	60
Other	2	5
Māori clients		
<50%	90	77
>50%	10	20

Advising about stopping smoking—High proportions of both GPs (94.5%) and midwives (90%) reported usually asking pregnant patients who smoke if they wished to stop but there were important differences in the advice given.

GPs were significantly more likely than midwives (71% vs 11%; RR 6.50, 95% CI 4.32–9.77) to report advising such patients to stop smoking completely. Conversely, midwives were significantly more likely than GPs (80% vs 28%; RR 2.86, 95% CI 2.18–3.74) to advise cutting down initially with a view to stopping altogether.

A small proportion of midwives (6%) said that they only advise cutting down smoking. Similarly high proportions of both GPs and midwives (90% and 95% respectively) stated that they usually discuss the adverse effects of smoking during pregnancy with smoking patients at the first visit.

Discussing smoking with pregnant women—GPs were significantly more likely than midwives to give stop smoking advice to pregnant women who are known smokers at each antenatal visit as opposed to discussing it only when raised by the woman (69% vs 47%; RR 1.45, 95% CI 1.20–1.75). Five GPs (3%) and 21 midwives (11%) reported that they discuss smoking at a pre-arranged time set up for that purpose.

Arranging cessation support—GPs and midwives were equally more likely than not to provide cessation counselling (65% vs 61%; RR 1.07, 95% CI 0.91–1.26). Figure 1 shows their responses to a question about the effectiveness of various stop smoking medications.

Nicotine replacement (NRT) patch was considered by both GPs and midwives to be the most effective mode of treatment although almost half the GPs thought nicotine gum would be effective for pregnant women. More GPs than midwives considered pharmacotherapy as being effective treatments for pregnant women than midwives. Acupuncture and hypnosis were considered effective by about the same number of midwives that considered NRT patch and gum effective.

The number of GPs rating acupuncture and hypnosis as effective was somewhat lower than the number rating NRT patch and gum as effective but the proportion of GPs doing so was lower than for midwives. Of concern is that a considerable number of GPs (33) and midwives (74) indicated they knew little about the effectiveness for pregnant women of the list of cessation treatments.

GPs and midwives were also asked how likely they were to recommend a particular treatment. Figure 2 shows that the likelihood of recommending particular treatments compared favourably with those treatments considered to be most effective. There was no difference between GPs and midwives in their likelihood of recommending NRT patches to a pregnant woman who smokes (RR 1.01, 95% CI 0.80–1.27) but GPs were significantly less likely to refer pregnant smokers for acupuncture than midwives (34% vs 50.5% respectively; RR 0.67, 95% CI 0.50–0.90). Almost half of the midwives surveyed stated that they were likely or very likely to recommend acupuncture and hypnotherapy.

Figure 1. Perceived effectiveness in pregnant women of various smoking cessation treatments by GPs and midwives (with 95% confidence intervals)

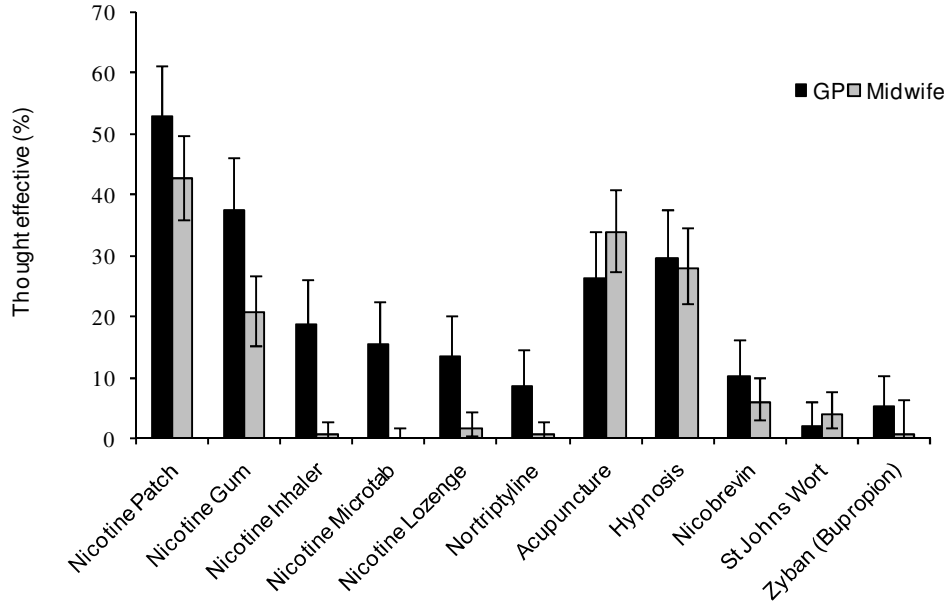
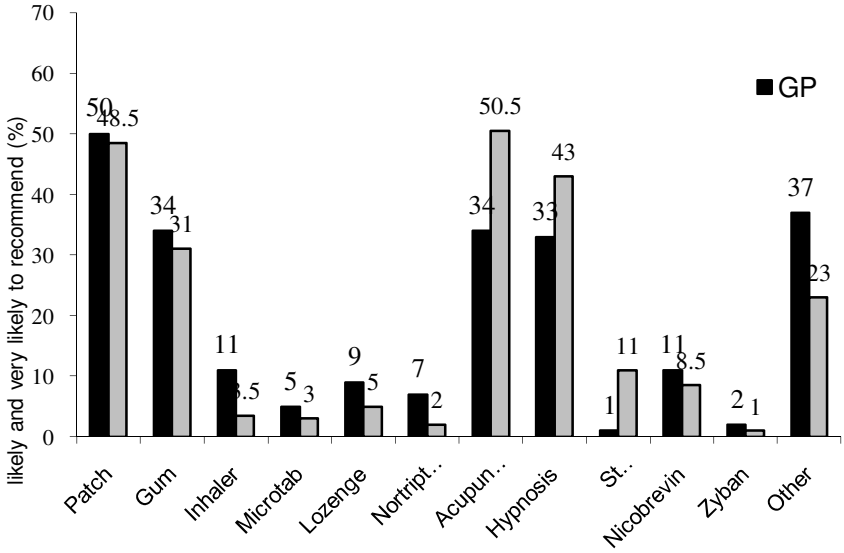


Figure 2. Proportions of GPs and midwives likely or very likely to recommend a particular cessation treatment



Awareness of New Zealand Guidelines for Smoking Cessation—GPs (70%) and midwives (61%) were equally likely to be aware of the New Zealand *Guidelines for smoking cessation*.[14]

Arranging referral to specialist smoking cessation providers—Table 2 shows the cessation support services most likely to be recommended by respondents. GPs were significantly more likely than midwives, or very likely, to refer pregnant women to *Quitline* (RR 1.20, 95% CI; 1.09–1.31). The next preferred source of cessation support for GPs was to refer women to practice nurses (65%).

Only 26.5% of GPs were likely or very likely to refer women to a Māori cessation provider, and almost one-third (31%) said they didn't know of any such service. Few GPs were likely to refer women to a Pacific Island cessation provider or Seventh Day Adventist cessation programmes, but again a large proportion of the GPs did not know of these services. Some participants said that they referred clients to other DHB services or hospital run programmes. A few said they had used *Quitline* in the past but not all reported having had a good experience with this service. *Smokechange* was strongly supported by midwives but not by GPs. *Smokechange* is a personalised, motivational intervention programme designed to encourage pregnant women to cut down their smoking as a pathway to stopping smoking.[16]

Table 2. Likelihood (%) of referral to a selected cessation provider

Cessation provider	Highly unlikely		Unlikely		Likely		Very likely		Don't know	
	GP	MW	GP	MW	GP	MW	GP	MW	GP	MW
Quitline (N=142)	7	5.5	12	13	32	47	47.5	31	1	3
Māori cessation provider (N=123)	20	6	21	21	18.5	25	8	18	31	29
Smokechange (N=117)	23	5	19	8	205	31	2	45	52.5	11
Pacific Island cessation provider (N=114)	26	14	21	19	3	7	1	6	49	54
7th Day Adventist Church (N=114)	30	24	21	11.5	1	5		1	47	58
Practice nurse (N=124)	13	31	18	41	26	10	39	2	3	16

GP=general practitioner, MW=midwife.

Smoking cessation-related training—The training experiences of GPs and midwives differed markedly. Almost two-thirds of GPs but just over one-third of midwives indicated that they had undertaken training in smoking cessation (Table 3). A quarter of GPs and 16% of midwives recalled undertaking training in the use of the *Guidelines for smoking cessation*.[14]

A third of GPs but fewer than 5% of midwives had received training in the provision of NRT. However, almost a half of the midwives surveyed stated that they had received training in provision of cessation advice to pregnant women who smoke. Sixty-seven respondents (19%) had completed other forms of training, 23 (9% of the total) naming courses provided by Education for Change Ltd. Some had attended courses provided by the New Zealand College of Midwives, PHO, or DHB providers and a few had attended courses in the UK and Australia, or had attended courses provided by the manufacturers of pharmaceutical products used in smoking cessation treatment.

Table 3. GPs and midwife participation in cessation-related training

Training area	GPs (N=147)	Midwives (N=203)
Brief smoking cessation advice	92 (62.5%)	78 (38%)
Use of the NZ *Guidelines for smoking cessation*	37 (25%)	32 (16%)
Provision of Nicotine Replacement Therapy	46 (31%)	8 (4%)
Providing smoking cessation advice to pregnant women who smoke	18 (12%)	94 (46%)
Other cessation treatment method	21 (14%)	30 (15%)

Education for Change Ltd was the most frequently used provider of cessation training for midwives (46%) whereas the National Heart Foundation was used more by GPs (but only 9.5% reported attending the course). Nearly a quarter (24%) of GPs and 17% of midwives said that smoking cessation was covered in their basic training. Thirty-nine percent of GPs and 17% of midwives had undertaken smoking cessation-related training with providers other than those funded by the Ministry of Health. Only 14% of GPs and 3% of midwives indicated that they were registered *Quitcard* providers.

Discussion

Surveys of GPs and maternity health professionals in the UK have indicated that while most routinely ask about smoking at the first antenatal visit, far fewer advise pregnant smokers on how to stop, and even fewer monitor and review those still smoking.[9,17]

In a 1995 UK study, 96% of health professionals stated that they asked about and recorded the smoking status of pregnant women and explained the risks of smoking to pregnant smokers when they saw them for the first time. However, fewer (67%) advised pregnant smokers on how to stop and less than half (47%) monitored and reviewed smoking status throughout pregnancy.[9]

In a more recent survey in the UK, McEwan and White found that 96% of GPs and 99% of nurses accepted that intervening to support cessation was part of their role and routinely recorded the smoking status of patients. However, only 50% of GPs and 71% of nurses advised patients to stop smoking on most occasions.[17]

This study has identified areas of progress in smoking cessation treatment for pregnant women, but also reveals some opportunities for improvement. The good news is that high proportions of midwives and GPs reported always asking about smoking. This is consistent with earlier studies which found that 65–74% of New Zealand GP obstetricians and 95% of midwives asked most or every woman about smoking status[13] and suggests that more GPs may be asking about smoking than before.

We found that GPs were significantly more likely than midwives to ask about smoking status at the first visit for pregnancy. Nevertheless, almost all respondents saw it as part of their role to ask about smoking in pregnant patients.

Changes to maternity care funding over recent years has lead to a dramatic reduction in the number of GPs providing antenatal care. Despite this, we found that GPs are

still involved in confirming pregnancies and usually see pregnant women for this service during the first trimester. It isn't until the second trimester that pregnant women nominate their LMC, usually a midwife.

Māori women who smoke are most likely to attempt to stop smoking within 2 weeks of finding out they are pregnant, usually in the first trimester[11] and there is no reason to suspect that this is any different for non-Māori women. Health professionals involved in confirming pregnancy therefore need to be actively promoting smoking cessation and providing stop smoking assistance to pregnant women.

This study suggests that GPs are far more likely than midwives to be in this pivotal position, that is, upon confirmation of a pregnancy. Fortunately, this survey shows that GPs are also likely to offer appropriate advice—to stop smoking. Despite this, efforts to reduce smoking in pregnancy to date have largely focused on midwives of whom over half have not received training in this area.

Another concern is our finding that midwives were significantly more likely than GPs to advise women to cut down on their smoking with a view to quitting rather than to stop smoking completely, with a small number reporting that they do not advise reducing or quitting at all. While most GPs and midwives reported discussing the effects of smoking during pregnancy and effects on the fetus with pregnant women who smoke, GPs were significantly more likely than midwives to discuss smoking at every visit.

According to a recent literature review[18] of cessation treatments, GPs and midwives should discuss smoking at every visit, advise their pregnant patients to stop smoking altogether and refer them to a dedicated cessation service. Cessation training and advice for midwives should give greater emphasis to the importance of advising and supporting pregnant women to stop smoking completely.

The most recent New Zealand *Guidelines for smoking cessation*[15] recommend either referral to smoking cessation services, if the health professional has limited time and/or expertise, or providing support that incorporates setting a quit date, advising complete abstinence, arranging medication if appropriate and arranging a follow-up within a week. Our survey suggests that there has been an increase in the proportion of midwives providing cessation advice and counselling: 61% in our study compared with 55% in 2001.[13]

This study supports other local research suggesting that practice nurses are an important provider of smoking cessation support.[7] There is emerging evidence that nurses can have a similar impact to doctors when providing smoking cessation in primary care.[19] As McLeod et al concluded this work should be adequately resourced, not only within practices but also at regional and national levels, to strengthen a commitment to smoking cessation in primary care.[7]

Awareness of and referring women to the *Quitline* for cessation assistance appears to have increased markedly since an unpublished New Zealand survey by Cowan in 2000 when only around 60% of GPs and 44% of midwives had heard of *Quitline*.[20] In our study only one GP and 3% of midwives said they did not know about the *Quitline*.

Almost a third of GPs and midwives did not know of any Māori smoking cessation providers. Consistent with this, respondents indicated that they wanted more

information about these services. We also found low awareness of and referral to Pacific Island cessation services, but this is likely to be because only a few Pacific Island cessation providers exist and most of these are in the Auckland region.

Knowledge of the effectiveness of using NRT for pregnant women appears to have improved since 2001 when only 24% of GPs and midwives thought NRT was appropriate for use during pregnancy.[13]

In our survey, the form of NRT considered most effective and most likely to be recommended by both GPs and midwives was the patch. However, intermittent forms of NRT are now considered preferable for pregnant women because they deliver a lower total daily dose of nicotine than patches and are therefore less likely to lead to potential adverse effects on the fetus.[21,22]

We found high support for the use of acupuncture and hypnosis among respondents, thus suggesting a widespread lack of knowledge of effective smoking cessation methods. GPs appeared to know more about a wider range of cessation products and treatments and were more likely to identify effective cessation methods than midwives, who were also significantly more likely than GPs to refer pregnant women who smoke for acupuncture to assist quitting, despite absence of evidence for this approach.

As was found in a 2001 survey,[13] many respondents wanted better access to training, especially in the provision of cessation treatments such as NRT in pregnancy and during breastfeeding. Education for midwives based on the *Guidelines for smoking cessation* and an increased effort to raise the proportion of GPs and midwives who have read and practice according to the *Guidelines* has the potential to improve knowledge and use of cessation methods which are supported by evidence.

Our survey has a number of limitations. Firstly, the response rates were low, especially for GPs. This may reflect the extent to which GPs are being approached by researchers in general rather than a particular reluctance to respond to questions about their management of pregnant patients who smoke.

Some GPs may not have responded because they do not provide care for pregnant women. Despite this the study population was similar to the wider population of GPs and midwives with regard to age group and sex suggesting that it was representative in these factors at least. However, very few Māori GPs or midwives participated and even fewer were of Pacific Islands ethnic groups.

Midwives from larger urban centres may have also been under-represented due to the way the database was constructed. Secondly, our study relied on self reported responses so respondents may have provided the answers they expected the researchers to want, and engaged in smoking cessation interventions more or less often than they reported. However, as it was made clear to participants that the survey was anonymous we would not expect this to be a major source of bias.

With regards to strengths, the study methodology is consistent with earlier New Zealand surveys and has provided a useful and comparable snapshot of current provider knowledge, awareness and practices.

Conclusions

The knowledge and practices of New Zealand GPs and midwives with regard to many dimensions of smoking cessation appears to be improving, but there is still considerable scope for greater alignment with evidence-based practices.

Training in the provision of cessation advice has largely been targeted at midwives but women are still seeing GPs to confirm their pregnancy in the first trimester, the very time when they should be receiving advice and support to stop smoking or referral to smoking cessation providers.

Practice nurses are now playing an important role in smoking cessation and should have greater access to appropriate training. Training for midwives in cessation needs to be based on the current evidence for effective smoking cessation support. Whilst many midwives undervalue the importance of stopping smoking completely when pregnant, this study found there was a willingness to improve knowledge of effective smoking cessation treatments.

Competing interests: None known.

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