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# GPs' Confidence in and Barriers to Implementing Smoking Cessation Activities: Compared to Dentists, Dental Hygienists and Pharmacists

David Edwards,<sup>1</sup> Toby Freeman,<sup>2</sup> John Litt<sup>3</sup> and Ann M Roche<sup>4</sup>

*Quality Use of Medicines and Pharmacy Research Centre, University of South Australia, and Quit SA, Cancer Council South Australia*<sup>1</sup>  
*National Centre for Education and Training on Addiction and School of Psychology Flinders University,*<sup>2</sup> *Department of General Practice, Flinders University*<sup>3</sup>  
*National Centre for Education and Training on Addiction and School of Medicine, Flinders University*<sup>4</sup>

*GP smoking cessation interventions have been found to be highly efficacious. However, reported uptake is low, and little is known about barriers or comparisons with other health professionals. The objectives of this study were to examine GPs' provision of smoking cessation activities, confidence and perceived barriers, and compare the results to other health professions (dentists, dental hygienists and pharmacists). A random sample of South Australian GPs (n = 269) were surveyed. Comparisons were made with dentists, dental hygienists and pharmacists for whom similar data had been obtained. Participants were surveyed on their confidence, perceived barriers, level of smoking cessation activity and practice and demographic factors. GPs reported greater provision of and greater confidence in a range of brief smoking cessation interventions than other professions and perceived fewer barriers to the provision of smoking cessation activities. Confidence and system barriers were reported as the most common factors that impeded greater provision of smoking cessation activities. It was concluded that confidence and system barriers need to be addressed to increase rates of smoking cessation interventions provided by these professional groups. Skills-based training that develops confidence would be beneficial for all health professional groups and would increase the number of smokers receiving advice and assistance to quit smoking.*

**Key words:** Smoking, Tobacco, Prevention, Physicians

Tobacco is a leading cause of disease and death worldwide (Esson & Leeder, 2004). There is wide scope for the prevention of tobacco-related harm, and developing strategies to reduce harm is one of the most important goals for public health. Greater provision of consistent advice about smoking cessation across all health care providers would considerably reduce tobacco-related harm.

## ***Smoking cessation interventions in the health care setting***

The efficacy of health professional interventions for smoking cessation is well established (Lancaster & Stead, 2004). Spending less than three minutes with a smoker can double the chance of a successful attempt to quit (Zwar et al., 2004).

Efforts to implement interventions in health care settings have most often targeted GPs (Roche & Freeman, 2004). GPs are influential and credible (Pieterse, Seydel, DeVries, Mudde, & Kok, 2001), patients are comfortable receiving advice

concerning smoking from GPs (Richmond, Kehoe, Heather, Wodak, & Webster, 1996) and perceive higher quality of care when the GP does address smoking (Kottke, Solberg, Brekke, Cabrera, & Marquez, 1997).

International clinical practice recommendations provide an evidence-based framework for smoking cessation in health care settings. The framework consists of the "5 As"; Asking about smoking, Assessing dependence and readiness to change, Advising, Assisting in quitting, and Arranging referral or follow-up (Zwar et al., 2004).

However, uptake of smoking cessation activities among GPs in Australia has been poor, and has not improved over the last decade (Humair & Ward, 1998; Litt, 2002). Humair and Ward videotaped GP consultations and observed that GPs identified and intervened with less than a third of smokers, and spent less than one minute, on average, discussing smoking. In a survey of 1000 smokers attending GPs, only 18% of smokers had ever been handed

a Quit book by their GP and only 10% had been referred to the Quitline (Litt, Pilotto et al., 2003).

Research has indicated that several barriers have hindered the uptake of smoking cessation interventions in general practice. System-level barriers include lack of time (Gottlieb, Guo, Blozis, & Huang, 2001; Wiggers, Sanson-Fisher, & Ring, 1997), difficulty identifying smokers (Gottlieb et al.; Wiggers et al.), lack of support (Litt, Ling, & McAvoy, 2003; Young & Ward, 2001) and lack of incentives (Pieterse et al., 2001; Young & Ward). Practitioner barriers include lack of interest (McAvoy, Kaner, Lock, Heather, & Gilvarry, 1999; Young & Ward), lack of skills and training (McIlvain, Backer, Crabtree, & Lacy, 2002), and negative attitudes towards smoking cessation interventions (McIlvain et al.; Wigger et al.). Patient barriers include the patient not being interested in quitting (Coleman & Wilson, 1999), and infrequently requesting help (Borland, Pigott, Rintoul, Shore, & Young, 2002).

After several decades of concerted effort to engage GPs in smoking cessation interventions, discouraging levels of involvement have prompted examination of possible additional intervention agents. All health professions could potentially play a role in addressing smoking amongst their patients through offering advice and support to quit smoking (Ministerial Council on Drug Strategy, 2004). Upskilling other health professionals in smoking cessation in addition to GPs has several benefits. Firstly, the more professions that routinely deliver smoking cessation interventions, the wider the population of smokers who will receive assistance from at least one health professional. Secondly, other professionals may not experience as many barriers to implementation as GPs, and hence may be able to achieve greater rates of uptake (Roche & Freeman, 2004). Thirdly, if multiple delivery agents are employed, smokers may receive consistent quit smoking messages from more than one health professional, which may increase the motivating effects of the advice.

Few studies have undertaken cross-disciplinary examinations of smoking cessation activities. The little data available comparing uptake or barriers between professions come mainly from the United States. Perez-Stable et al. (2001) found that physicians were more likely to intervene with smoking parents than paediatricians, who were more likely to perceive barriers to smoking cessation activities, including poor patient receptiveness

and lack of skills. Smoking cessation activities were compared among physicians, dentists, dental hygienists, mental health counsellors and counsellors on a specific program (Secker-Walker, Chir, Solomon, Flynn, & Dana, 1994). Physicians reported considerably higher rates of intervening, advising and assisting patients than the other professions. In a survey of smokers in the general population, Tomar, Husten and Manley (1996) found that smokers reported receiving advice to quit smoking from physicians twice as often as compared to dentists.

### ***The current study***

Very little is known about current comparative rates of advice and assistance between health professions and differences in perceived barriers and confidence. This study was designed to address that gap. Smoking cessation activities amongst GPs—their level of confidence, readiness to change smoking cessation activities and perceived barriers—were examined. The impact of confidence and barriers on smoking cessation activity was also examined. These results were compared to three other professional groups (dentists, dental hygienists and pharmacists) for whom similar data had also been obtained.

## **Methodology**

### ***Participants and procedures***

The questionnaire was mailed to all 590 general practitioners registered in South Australia with the Royal Australian College of General Practitioners (SA Branch). Only participants working at least two sessions per week were included to ensure responses reflected current general practice experience.

After three weeks a reminder postcard was sent to non-respondents. A second copy of the questionnaire and letter of endorsement was sent a further two weeks later. Three weeks after the second mail-out a random sample of non-respondents were telephoned ( $n = 153$ ).

### ***Measures***

The activity, barriers and readiness to change scales were adapted from measures developed for the GASP program (Litt et al., 2005). The following measures were included:

*Background variables* – variables measured included personal characteristics (age, gender,

smoking status, smoking cessation education or training) and practice characteristics (solo or group practice, consulting hours per week, number of patients seen in the last week, average consultation length, display of Quit materials).

*Confidence* – confidence was defined as health professionals' self-efficacy beliefs regarding smoking cessation activity. Eight items assessed confidence in undertaking different aspects of smoking cessation interventions (see Table 5, response scale: 1 "Not confident" to 5 "Extremely confident"). Internal consistency was high (Cronbach's alpha: .80).

*Readiness to change* – Participants were asked to select one of three options: that they didn't see a need to change the way they provided smoking cessation services, that they were seriously thinking about changing in the next six months or that they had already initiated changes in the last six months.

*Smoking cessation activity* – six scales addressed smoking cessation activity based on the 5As and an additional measure of follow-up activity. A 5-point Likert scale was used (1 "Never" to 5 "Always"). Recording smoking status was measured with one item, "Record smoking status on file". Recording smoking status was chosen rather than asking about smoking as it is a more concrete behaviour. Advising was measured by three items: giving brief advice to quit, linking advice to the presenting problem, and discussing the effects of smoking on other family members (Cronbach's alpha .70). Assessing was measured using two items, "Assess interest in quitting" and "Assess the level of nicotine dependence" (Cronbach's alpha .53). Assisting the patient to quit smoking was measured by six items addressing strategies such as setting a quit date, developing a cessation plan and providing Quit materials (Cronbach's alpha .68). Arranging was measured using four items addressing referrals to the Quitline or a Quitline program and recommending nicotine replacement therapy or Zyban (Cronbach's alpha .54). Follow-up was measured with one item, "Follow-up on progress in giving up smoking".

*Barriers to providing smoking cessation activities* – 17 items assessed system, practitioner and patient barriers to service provision. The perceived importance of each barrier was assessed on a 5-point Likert scale (1 "Not a barrier at all" to 5 "A major barrier"). Eight items measured system barriers (see Table 5, Cronbach's alpha .87).

Five items measured practitioner barriers addressing personal factors such as "Lack of necessary skills to assist patients to quit" (Cronbach's alpha .72).

Four items measured patient barriers addressing the management of patients or patients' attitudes (Cronbach's alpha .81). An example item is "Patients don't want to discuss quitting".

The same questionnaire (modified slightly to suit specific health professional groups) was distributed simultaneously to all dentists ( $N = 621$ ), dental hygienists ( $N = 70$ ) and pharmacists ( $N = 691$ ) registered in South Australia during the same time period. The administration of the questionnaire was identical and all measures were comparable across professional groups. Measures of confidence, readiness to change, and system, practitioner and patient barriers, and most items measuring activity were the same across professional groups, with the exception of minor wording changes to reflect the setting. Some activity items concerning nicotine replacement therapies, Zyban, linking the advice to the presenting problem and referring to the Quitline were modified slightly for some professions to reflect issues such as ability to prescribe and other professional factors.

### **Statistical analyses**

Demographic factors were compared between GPs, dentists, dental hygienists and pharmacists, and between the current sample of GPs and national labour force estimates (Britt et al., 2004) using chi-squared and t-tests. Confidence, barriers and smoking cessation activities were compared between professions using t-tests. Relationships between these variables were examined using standard multiple regression analyses on a combined measure of activity (calculated from the mean of all activity items, Cronbach's alpha 0.87 for GPs). To include readiness to change as a dichotomous variable in the regression analysis, the responses "seriously thinking" and "already initiated" were combined.

### **Results**

The total number of respondents was 269 general practitioners. In 18 cases the questionnaire was not completed; two had retired, seven were no longer practising and nine questionnaires were returned "not completed" or "not at this address", resulting

in a final response rate of 47%.

Response rates for the comparator groups were: dentists 54% ( $N = 334$ ), dental hygienists 83% ( $N = 58$ ) and pharmacists 48% ( $N = 331$ ). Dentists and dental hygienists were representative of the national population in terms of gender and public or private sector. Dentists were younger than the national sample and worked fewer hours per week. Dental hygienists were representative of the national sample on age, but also worked fewer hours per week. Pharmacists were representative of the national population in hours worked per week, but were younger than the national population; female pharmacists were slightly under-represented.

### Demographics

Of the 269 general practitioners, 159 (59%) were male and 109 (41%) were female, significantly different to the national labour force estimate (Britt et al., 2004) ( $\chi^2(1, N = 1,268) = 5.95, p = .015$ ), which comprises 67% males (46).

The majority of general practitioners had never smoked (77%,  $n = 207$ ). Only six (2%) were current smokers—well below the national prevalence rate of 17% (Australian Institute of Health and Welfare, 2005).

Twenty-four general practitioners (9%) worked

in a solo practice, equivalent to the national labour force estimate (Britt et al., 2004) (11%) ( $\chi^2(1, n = 1,252) = 0.47, p = 0.49$ ) and 238 (89%) worked in a team with more than one general practitioner. Five respondents were locums.

Just over half of general practitioners employed a practice nurse ( $n = 156, 59%$ ), equivalent to the national labour force estimate (Britt et al., 2004) (58%) ( $\chi^2(1, N = 1,262) = 0.01, p = 0.92$ ).

GPs in the current sample were younger than the national (Britt et al., 2004) average ( $\chi^2(3, n = 1,265) = 71.49, p < .001$ ), 57% were aged 44 years or less. GPs in the current sample worked fewer hours per week compared to the national labour force estimate (Britt et al.) ( $\chi^2(3, n = 1,234) = 35.65, p < .001$ ), 71% worked 40 hours or less per week.

Means and standard deviations for demographic variables by profession are shown in Table 1. GPs saw two to four times as many patients per week than either dentists or dental hygienists. This was not measurable for pharmacists. Conversely, GPs had the shortest consultation time, less than half that of dentists, and less than a third of the time hygienists spent with each patient.

### Smoking cessation activities and barriers

Means and standard deviations for confidence, barriers and smoking cessation activities by profession are shown in Table 1. GPs reported

**Table 1: Means (and standard deviations) for demographic variables, confidence, activities and barriers by profession**

Variable (Number of items)	GPs ( $N = 269$ )	Dentists ( $N = 334$ )	Hygienists ( $N = 58$ )	Pharmacists ( $N = 265$ )	F
Age	44.25 <sub>b</sub> (9.19)	42.47 <sub>b</sub> (11.52)	36.93 <sub>a</sub> (7.93)	45.06 <sub>b</sub> (13.83)	9.23***
Years in practice	N/A	18.50 <sub>b</sub> (11.24)	11.34 <sub>a</sub> (8.04)	21.91 <sub>c</sub> (14.09)	19.56***
Patients per week	109.79 <sub>c</sub> (51.30)	55.19 <sub>a</sub> (25.22)	27.07 <sub>b</sub> (12.73)	N/A	199.03***
Hours worked /week	34.63 <sub>b</sub> (13.14)	34.54 <sub>b</sub> (9.45)	24.67 <sub>a</sub> (10.44)	38.63 <sub>b</sub> (12.51)	10.60***
Consult length (mins)	15.37 <sub>a</sub> (4.81)	32.66 <sub>b</sub> (10.34)	48.45 <sub>c</sub> (11.48)	N/A	489.18***
<b>Confidence (8)</b>	3.94 <sub>d</sub> (.55)	2.85 <sub>a</sub> (.82)	3.24 <sub>b</sub> (.78)	3.66 <sub>c</sub> (.71)	127.26***
<b>Total activity</b>	3.14 <sub>d</sub> (.55)	1.85 <sub>a</sub> (.62)	2.47 <sub>b</sub> (.84)	2.86 <sub>c</sub> (.71)	226.78***
Record (1)	3.99 <sub>c</sub> (.97)	2.64 <sub>b</sub> (1.41)	4.12 <sub>c</sub> (1.23)	1.16 <sub>a</sub> (.49)	339.64***
Assess (2)	3.31 <sub>c</sub> (.81)	1.93 <sub>a</sub> (.80)	2.69 <sub>b</sub> (1.03)	3.10 <sub>c</sub> (1.03)	144.77***
Advise (3)	3.69 <sub>c</sub> (.70)	2.70 <sub>a</sub> (.90)	3.28 <sub>b</sub> (1.01)	2.86 <sub>a</sub> (.89)	74.95***
Assist (6)	3.20 <sub>c</sub> (.70)	1.55 <sub>a</sub> (.63)	2.06 <sub>b</sub> (.88)	3.12 <sub>c</sub> (.86)	334.67***
Arrange (4)	2.28 <sub>c</sub> (.64)	1.42 <sub>a</sub> (.61)	1.85 <sub>b</sub> (.76)	2.89 <sub>d</sub> (.81)	228.45***
Follow up (1)	3.34 <sub>c</sub> (1.02)	1.84 <sub>a</sub> (1.15)	2.88 <sub>b</sub> (1.57)	2.76 <sub>b</sub> (1.11)	90.04***
<b>Total barriers</b>	2.63 <sub>a</sub> (.69)	3.28 <sub>c</sub> (.70)	3.1 <sub>b,c</sub> (.63)	2.85 <sub>b</sub> (.61)	52.67***
System barriers (8)	2.81 <sub>a</sub> (.74)	3.34 <sub>c</sub> (.86)	3.07 <sub>b</sub> (.86)	2.92 <sub>a,b</sub> (.71)	26.29***
Prof. barriers (5)	1.93 <sub>a</sub> (.64)	2.97 <sub>d</sub> (.85)	2.72 <sub>c</sub> (.83)	2.33 <sub>b</sub> (.77)	97.26***
Patient barriers (4)	3.14 <sub>a</sub> (.98)	3.52 <sub>b</sub> (.88)	3.41 <sub>a,b</sub> (.81)	3.30 <sub>a,b</sub> (.91)	8.85***

Note: N/A = Not applicable (not asked in the questionnaire). Means with the same alphabetical subscript were not significantly different using Tukey's HSD test. All ANOVA results remained significant after Bonferroni adjustment for multiple testing.

\*\*\*  $p < .001$

**Table 2: Education or training in smoking cessation and levels of readiness to change by profession**

	GPs (N = 269)	Dentists (N = 334)	Hygienists (N = 58)	Pharmacists (N = 265)	$\chi^2(df=3)$
Smoking cessation education/training	32% <sup>a</sup>	4% <sup>c</sup>	6% <sup>b, c</sup>	16% <sup>b</sup>	94.57***
No need to change practice	34% <sup>b,c</sup>	48% <sup>a</sup>	21% <sup>c</sup>	44% <sup>a,b</sup>	23.04***
Seriously thinking about change	39% <sup>a</sup>	44% <sup>a</sup>	50% <sup>a</sup>	46% <sup>a</sup>	4.04
Already initiated change	27% <sup>a</sup>	9% <sup>b</sup>	29% <sup>a</sup>	10% <sup>b</sup>	49.78***

Note: Means with the same alphabetical subscript were not significantly different using post hoc Bonferroni adjusted pairwise comparisons.

\*\*\* p < .001

the highest level of confidence and lowest level of barriers relative to the other three health professional groups.

GPs had the highest overall activity followed by pharmacists and dental hygienists, with dentists reporting the least activity. GPs and dental hygienists were the most active recorders of smoking status, GPs and pharmacists were the most active health professionals in assessing nicotine dependence and readiness to quit, and GPs were most active in advising and following up on patient progress with quitting. Pharmacists were the most active group in regard to arranging referrals.

GPs indicated high levels of readiness to change their smoking cessation activities (see Table 2 below). Fewer GPs saw no need to change their current practice compared to dentists, and more GPs had already initiated changes to their provision of smoking cessation activities compared to dentists and pharmacists.

More GPs had received smoking cessation education or training (32%) compared to the other professions. Dentists reported the least education and training and the least interest in changing their provision of smoking cessation activities.

Standard multiple regression analyses were run on the combined activity measure. Practice factors, including whether it was a solo or group practice, consulting hours per week, patients per week, consultation length and whether the practice employed a practice nurse, were regressed

on the activity scale. None of the factors was significant; hence, they were excluded from the main analysis.

The standardised ( $\beta$ ) and unstandardised (B) regression coefficients for the main regression analysis are presented in Table 3. Confidence emerged as the most important predictor of smoking cessation activities, followed by system barriers. Overall, the variables accounted for 33% of variance in the smoking cessation activities.

The standardised ( $\beta$ ) and unstandardised (B) regression coefficients for the most important predictors of smoking cessation activity across the four professional groups are presented in Table 4. Confidence emerged as the most important predictor of smoking cessation activity across all

**Table 3: Multiple regression analysis for the smoking cessation activities of GPs**

Predictor	B	$\beta$
Age	.00	.00
Gender	.10	.09
Smoking status	.13	.03
Education or training	-.06	-.05
Readiness to change	.00	.00
Confidence	.43	.44***
System barriers	-.12	-.16*
Practitioner barriers	-.04	-.05
Patient barriers	.00	-.01

Note: B are unstandardised coefficients,  $\beta$  are standardised coefficients.

\* p < .05, \*\* p < .01, \*\*\* p < .001

**Table 4: Comparison of multiple regression analysis results for the smoking cessation activities of GPs, dentists, dental hygienists and pharmacists**

	GPs (N = 269)		Dentists (N = 334)		Hygienists (N = 58)		Pharmacists (N = 265)	
	B	$\beta$	B	$\beta$	B	$\beta$	B	$\beta$
Confidence	.43	.44***	.39	.53***	.32	.30*	.50	.53***
Barriers								
System	-.12	-.16*	-.09	-.12*	-.21	-.22 <sup>b</sup>	n/s	n/s
Practitioner	n/s	n/s	-.12	-.16**	-.37	-.36*	-.13	-.14 <sup>a</sup>

<sup>a</sup> approached significance (p=.056) <sup>b</sup> approached significance (p=.09)

Note: B are unstandardised coefficients,  $\beta$  are standardised coefficients.

**Table 5: Mean ratings of importance (and standard deviations) of confidence and system barriers for GPs**

Factors	Mean	SD
Confidence (5 = extremely confident)		
Raise smoking issues when they are related to the visit	4.7	0.5
Discuss patient readiness to change smoking behaviour	4.4	0.7
Use brief advice to help people quit	4.3	0.7
Assess nicotine dependence and recommend therapies	4.1	0.8
Raise smoking issues when not related to the visit	4.1	0.9
Spend additional time assisting patients who are having difficulties with the quitting process	3.8	0.9
Increase patient motivation to quit using specific counselling strategies	3.5	1.0
Engage all staff members in a process to develop systems for smoking cessation.	2.7	1.1
System barriers (5 = a major barrier )		
Lack of time	3.7	1.2
Insufficient financial incentives for time spent	3.0	1.3
No coordinated plan to implement protocols/guidelines	2.9	1.2
Lack of feedback on patient progress	2.9	1.1
Lack of smoking cessation protocols/guidelines	2.7	1.1
Lack of knowledge of other support services	2.5	1.0
Lack of printed resources	2.5	1.1
Lack of reminders of patient smoking status	2.3	1.1

Note: All items were measured using a 5-point Likert scale ranging from 1 ("Not confident"/"Not a barrier") to 5 ("Extremely confident"/"A major barrier").

groups. Practitioner factors were significant for dentists and dental hygienists, and approached significance for pharmacists, while system barriers were significant for dentists and general practitioners and approached significance for dental hygienists.

GPs' confidence and system barriers were analysed to identify the specific issues perceived to be of highest importance (see Table 5). General practitioners were least confident about engaging staff members in a process to develop systems for smoking cessation and increasing patient motivation using specific counselling strategies. The practitioner barriers perceived to be most important were lack of time and lack of financial incentives for spending time on smoking.

### Discussion

This study is the first Australian research to (1) compare GPs' self-reported smoking cessation activities to other professional groups, namely dentists, dental hygienists and pharmacists, and (2) compare confidence in and barriers to smoking cessation activities among these professions.

Confidence emerged as the major predictor of provision of smoking cessation activities to patients across all professions. If confidence is a pivotal factor, then questions arise regarding how to

improve confidence levels. Education and training alone is not sufficient; Richmond, Mendelsohn and Kehoe (1998) found that lack of confidence was still quite low following training in effective behavioural techniques to assist smokers.

GPs are ahead of other health professional groups in terms of uptake of smoking cessation activities. There may be several reasons for this, including GPs' higher rate of smoking cessation education and training compared to the other professions surveyed, and arguably having greater resources to draw upon (such as being able to prescribe Zyban) and greater knowledge of potential co-morbidities and health effects. GPs also reported fewer barriers to activity. However, many smokers are still not receiving smoking cessation advice and assistance from their GP (Humair & Ward, 1998; Litt, Pilotto et al., 2003). There is still room to improve uptake of smoking cessation interventions. In particular, the more proactive strategies of assisting patients to quit and arranging referrals to services such as a quitline are under-utilised. Given the effectiveness of quit lines for smokers (Stead, Lancaster, & Perera, 2004), interventions with GPs should focus attention on these strategies in order to maximise the impact GPs could have on smoking cessation rates among their patients.

The system barrier rated as most important by GPs was lack of time to discuss smoking. Strategies that address or acknowledge the limited opportunistic time available to GPs (Jaen et al., 2001) and reflect the current time they devote to smoking cessation (Humair & Ward, 1998) are more likely to be acceptable and adopted (Jaen et al., 2001; Litt, 2002).

GP implementation of effective smoking cessation activities could be improved by:

- improved smoking cessation training and education (Lancaster, Silagy, & Fowler, 2004)
- clinical systems that provide a supportive practice infrastructure (McIlvain et al., 2002)
- developing and implementing organisational policies that are conducive to smoking cessation activity (Litt, Ling, & McAvoy, 2003).

### **Practice implications**

The majority of GPs, dental professionals and pharmacists reported willingness to engage in smoking cessation activities. Hence, there is opportunity to increase levels of smoking cessation activity. Increasing the range of health professionals skilled and prepared to respond to smoking would increase the chances of every smoker receiving advice and assistance to quit smoking from a health professional.

In order to achieve increased participation of health professionals in smoking cessation activities, the key barriers identified in this study need to be addressed—in particular levels of confidence.

A key strategy to increase confidence and skills among health workers is the provision of education and training. Less than one-third of the South Australian GPs indicated they had received education and training in smoking cessation, and rates were even lower among the other professions. This is a serious deficit that must be addressed.

This study demonstrates that many of the issues which affect health workers' smoking cessation activities are common across professional groups. Hence, there may be benefits in adopting a systematic and coordinated approach that addresses common issues across professional boundaries, as in the Clinical Tobacco Intervention Program based in Ontario, Canada ([www.ctica.org](http://www.ctica.org)).

### **Limitations of the study**

While the GP sample in the present study matched national labour force estimates on variables such as solo or group practice, and employing a practice nurse, the current sample were younger, worked fewer hours per week and had a higher proportion of females than the national estimate (Britt et al., 2004). These differences, in addition to the low response rate for GPs, suggest that the current sample may represent those GPs most likely to intervene with their smoking patients. Consequently, findings from this sample should best be viewed as “as good as it gets” for GPs' smoking cessation activities.

While the current findings are applicable to South Australia and may be applicable to other Australian states and territories, similar research is needed internationally to examine global similarities and differences. Although Pieterse et al. (2001) suggest that barriers to uptake of smoking cessation interventions among GPs may be universal, there is not a strong evidence base to support this, and it is likely that variation in systemic barriers exists between countries.

The general criticism of self-reported measures of behaviour applies—that participants' reported levels of behaviour may not equate to real behaviour. Previous evidence suggests that GPs tend to over-report their prevention activities (Wilson & McDonald, 1994). However, this can only be addressed through the observation of participants' behaviour, which presents many challenges and is beyond the scope of this research. The self-report measures used in this study are not established scales, but rather were adapted from the GASP program (Litt, Pilotto et al., 2005). Hence, internal consistencies were the only psychometrics available, and these are not necessarily appropriate for judging reliability. Since the activity measures are indexes of different behaviours, rather than scales, participant responses are not expected to be homogenous across items (Streiner, 2003). What Cronbach's alphas may be indicating in this case is that GPs use different assessing and arranging strategies to different degrees (moderate alphas), where their use of advising and assisting strategies are more uniform (high alphas). Future research may be able to build on the current findings by developing validated instruments and examining possible methods of ascertaining estimates of actual behaviour.



## Conclusion

Increasing the consistency of provision of smoking cessation advice across health providers would maximise the public health benefits of this essential

prevention strategy. If the deficits identified by this study were addressed, the contribution GPs and other health professionals could make to the prevention of smoking-related harm would be considerable.

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David Edwards  
Quit SA  
Cancer Council South Australia  
PO Box 929  
Unley South Australia 5061  
AUSTRALIA  
Email: dedwards@quitsa.org.au

Toby Freeman  
National Centre for Education and Training on Addiction  
School of Psychology  
Flinders University  
GPO Box 2100  
Adelaide South Australia 5001  
AUSTRALIA

John Litt  
Department of General Practice  
Flinders University  
GPO Box 2100  
Adelaide South Australia 5001  
AUSTRALIA

Ann M Roche  
National Centre for Education and Training on Addiction  
Flinders University  
GPO Box 2100  
Adelaide South Australia 5001  
AUSTRALIA

Correspondence to David Edwards