
Pharmacists' attitudes, role perceptions and interventions regarding smoking cessation: Findings from four Canadian provinces

Mary Jane Ashley, J Charles Victor and Joan Brewster

Abstract

Pharmacists in Ontario, Quebec, Saskatchewan and Prince Edward Island were surveyed in 2002 regarding their professional involvement in smoking cessation. In all provinces, at least 70% had positive attitudes toward smoking cessation. At least 50% thought that pharmacists have important roles in motivating patients to quit and in most aspects of motivating, assisting and referring patients. However, in all provinces, less than 40% had intervened in various ways in the past year with more than one half of their patients who smoked. Advising cutting down or quitting, attempting to increase motivation to quit and suggesting the use of nicotine replacement therapy were the most often performed interventions. Consistent inter-provincial patterns of differences in attitudes, role perceptions and interventions were not found. Some differences in attitudes and role perceptions were found between pharmacists practicing in provinces either banning or not banning tobacco sales in pharmacies, but there was no difference in overall interventions. The findings provide a baseline for provincial monitoring of pharmacists' professional smoking cessation attitudes, role perceptions and interventions. They also may inform tobacco control initiatives.

Key words: pharmacists, smoking cessation, attitudes, professional roles, interventions, Canada

Introduction

Now that nicotine replacement therapy (NRT) is available without prescription in Canadian pharmacies,¹ pharmacists are on the front line of contact with smokers who are considering NRT as an aid in smoking cessation. In fact, pharmacists may be the first or only health professional with whom some smokers interact regarding smoking cessation.

There is wide endorsement at the professional level for the increased involvement of pharmacists in helping their patients to quit smoking. In Canada, a group of national health professional organizations, including the Canadian Pharmacists Association, developed a *Joint Statement on*

Smoking Cessation, advocating that professionals be actively involved in prevention, cessation, protection and advocacy.² Organizations of pharmacists in the United States and worldwide also firmly support the increased involvement of pharmacists in helping their patients to quit smoking. The American Society of Health-System Pharmacists' (ASHP) position statement on smoking cessation³ urges pharmacists to implement the Agency for Healthcare Research and Quality guidelines⁴ for smoking cessation and to offer smoking cessation services. In 2005, the ASHP launched the Pharmacy Partnership for Tobacco Cessation, which is concerned with developing national educational initiatives and other resources for pharmacists in the United States.⁵ In 2003,

the International Pharmaceutical Federation (FIP) issued a statement of policy on the role of the pharmacist in promoting a tobacco-free future⁶ and in 2004, a World Health Organization (WHO) meeting of health professional organizations adopted a code of practice for health professional organizations regarding tobacco control.⁷ The Global Network of Pharmacists Against Tobacco has grown out of the FIP and WHO initiatives.⁸

Despite the critical positioning of pharmacists with respect to smoking cessation interventions, studies have shown that only a minority of pharmacists routinely advise their patients on this subject.⁹⁻¹⁷ In Canada, little attention has been paid to the smoking cessation interventions of pharmacists or to factors that may be related to these practices. We have published descriptive findings from the only survey that has addressed these interventions in detail.¹⁸ Overall, this study found that only about a third of respondent pharmacists reported that, in the past year, they intervened in some way with one half or more of patients they knew to be smokers. Using data from this survey, it was also shown that knowledge and skills, attitudes and perceptions of roles are strongly related to smoking-related interventions by pharmacists.¹⁹

In Canada, no provincial-level data have been published on pharmacists' smoking cessation attitudes and practices, nor on their perceptions regarding their professional roles in smoking cessation. With respect to developing national tobacco

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control initiatives involving pharmacists, it is important to know if there are consistent differences to be taken into account across provinces in the attitudes, practices and role perceptions of pharmacists. Pharmacists in Canada are licensed to practice by provincial regulatory bodies and many belong to province-based professional associations, both of which have interests in maintaining and upgrading standards of professional practice. The availability of province-specific data will be useful to these bodies as they develop, fund or endorse tobacco control initiatives aimed at increasing the involvement of pharmacists with their patients who smoke. Province-specific data may also stimulate the development of other provincial initiatives to increase the involvement of pharmacists with patients who smoke—for example, programs or policies developed under the aegis of departments of health. The data also may serve as a baseline for monitoring changes in practice within provincial settings, and they may point to other measures needed to assess the effectiveness of provincial interventions aimed at increasing the involvement of pharmacists with their patients who smoke. To these ends, we report provincial-level findings from our survey of Canadian pharmacists with respect to attitudes toward smoking and smoking cessation, perceptions of professional roles regarding smoking cessation, and reported interventions with patients who smoke. We also examine these findings with respect to provincial legislation regulating the sale of tobacco products in pharmacies.

Methods

Survey

Random samples of practising community pharmacists in Ontario (N = 745), Quebec (N = 450) and Saskatchewan (N = 310) and a list of all pharmacists in Prince Edward Island (N = 131) were obtained with the help of the professional association or licensing body in each province. The provinces were chosen to give a mix of provincial policy regarding tobacco sales in pharmacies, population smoking rates and geographical distribution. (When the

survey was conducted, tobacco was banned from sale in pharmacies in Ontario and Quebec, but not in those in Saskatchewan or Prince Edward Island.)

The survey procedures were based on the Dillman method.²⁰ Each pharmacist in the sample received an introductory letter from his or her provincial pharmacists' association or regulatory authority one week before the anonymous questionnaire was mailed. A reminder postcard was mailed to the entire sample one week after the questionnaire, with two follow-up mailings to non-respondents. Data were collected in the summer and fall of 2002.

Questionnaire

A questionnaire was drafted after review of the literature for relevant issues and consultation with pharmacists and representatives of pharmacy associations. It was pre-tested in individual and group interviews with practising pharmacists and through a mailing to selected pharmacists who had agreed to help with the pre-test. The revised questionnaire included questions concerning the attitudes of pharmacists toward smoking cessation, perceptions of their professional roles regarding patients who smoke and practices with respect to these patients. The questionnaire was translated into French for use in Quebec and reviewed by a francophone professor of pharmacy. Pharmacists in any of the provinces could request material in either language.

Respondents

A total of 996 completed questionnaires were returned. The response rates were calculated according to the American Association for Public Opinion Research Guidelines,²¹ which removes from the denominator those who could not be reached, those who were ineligible (e.g., not in practice, retired) and those who were estimated to be ineligible from the non-respondents (i.e., surveys that were not returned). The response rates were 70.3%, 74.2%, 71.4% and 79.4% for Ontario, Quebec, Saskatchewan and Prince Edward Island, respectively. Pharmacists who reported spending less than 5% of

their time in patient contact roles (N = 13; 1.3%) or who spent less than eight hours per week in their primary pharmacy work setting (N = 23; 2.3%) were excluded from further analysis, leaving 962 questionnaires for analysis. Two respondents had spent less than 5% of their time in patient contact and less than eight hours per week in their primary setting. Of the remaining questionnaires, 41%, 31%, 20% and 8% were from pharmacists in Ontario, Quebec, Saskatchewan and Prince Edward Island, respectively. The provincial findings reported in the tables are presented from left to right, according to the diminishing size of respondent groups.

Descriptive statistics regarding the respondents themselves and the size of the communities in which they practiced are provided in Table 1. There were provincial differences in the sex of the respondents and in the time elapsed since obtaining a pharmacy baccalaureate degree (a proxy measure of age). As well, there were marked provincial differences in the populations of the communities in which the respondents practiced. Pharmacists in Ontario and Quebec more often practiced in large cities and less often in small towns. However, tobacco use among pharmacists was similar across the provinces. In all four provinces, less than 6% of respondents were current users of tobacco.

Analysis

Descriptive analyses, including percentages and confidence intervals, were calculated using SAS software, version 9.1 (SAS Institute Inc., Cary, NC). Analysis of variance, chi-square tests and Fisher's exact tests of association were used where appropriate for comparing personal and practice characteristics across the four provinces. Province-specific percentages were not weighted because within each province every pharmacist had an equal probability of being selected.

Factor analysis

Factor analysis of the ten questions used to assess attitudes toward smoking cessation and interventions with patients who smoke revealed that these items comprised three

groups (Table 2): positive attitudes toward smoking cessation (proportion of variance explained = 0.29; Cronbach's alpha = 0.81), negative attitudes toward smoking cessation (proportion of variance explained = 0.35; Cronbach's alpha = 0.83), and economic-related attitudes toward smoking cessation interventions (proportion of variance explained = 0.15; Cronbach's alpha = 0.80). Factor analysis of the eleven questions used to assess perceptions of pharmacists' clinical roles regarding patients who smoke showed that these questions formed two groups (Table 3): assessing and motivating patients (proportion of variance explained = 0.35; Cronbach's alpha = 0.88) and assisting, referring and following up (proportion of variance explained = 0.13; Cronbach's alpha = 0.85). Factor analysis of the 12 items used to assess interventions within the past year with patients who smoke (Table 4) did not reveal any groupings.

The factor analyses were used to develop summary attitude, role and intervention scores that could be compared across provinces. Summary scores for each of the

three attitude factors and the two role factors were calculated by summing the ordinal responses within each factor. For the positive and negative attitude factors, the responses could range from a low of 4 to a maximum of 16. The economic-related attitudes factor ranged from a low of 2 to a maximum of 8. The responses were weighted so that higher mean scores would indicate more positive attitudes, more negative attitudes and more economic-related concerns, respectively. Of the two role factors, the assessing and motivating patients factor ranged from a low of 3 (representing little belief that these should be important roles for pharmacists) to a maximum of 12 (representing strong belief in the importance of these roles). Similarly, the assisting, referring and following up role factor ranged from a low of 8 to a maximum of 24. Finally, one summary intervention score was created from all 12 questions used to assess individual smoking cessation interventions. It ranged from a minimum of 12 to a maximum of 60, with higher values representing interventions with greater proportions of patients who smoke.

Provincial comparisons with respect to tobacco sales policy

The four provinces were grouped into either those allowing sales of tobacco products in pharmacies (Saskatchewan and PEI) at the time of the survey or those prohibiting sales (Ontario and Quebec).

Each of the six summary scores was modelled onto the policy status using robust generalized linear modelling, controlling for the community size in which the primary practice was located. Prior to modelling, each of the personal and practice characteristics presented in Table 1 was tested for association with each of the summary score outcomes, and with "sales policy" taken separately. Only "community size" met our *a priori* criteria of an association with at least one attitude score, one role score, the intervention score and with sales policy, each at the 0.10 significance level. Respondents were asked if the size of the community in which they practised was 1) less than 25,000; 2) 25,000 to 99,999; 3) 100,000 to 500,000; or 4) more than 500,000 (Table 1).

TABLE 1
Personal and practice characteristics of surveyed Canadian pharmacists from four provinces (2002)

Characteristic	Ontario (N=391)	Quebec (N=297)	Saskatchewan (N=192)	Prince Edward Island (N=82)	p-value ^a
Personal					
Sex (% female)	50.3	64.5	56.8	54.2	0.002
Mean years since degree earned (and standard deviation)	20.4 (11.0)	14.8 (12.0)	19.8 (12.3)	14.2 (10.9)	< 0.001
Tobacco use (%)					
Current	3.1	5.7	5.7	3.7	0.523
Former	19.2	21.9	18.2	19.8	
Never	77.8	72.4	76.0	76.5	
Practice					
Population of community where practising (%)					
< 25,000	20.5	32.4	45.8	56.8	< 0.001
25,000 – 99,999	17.4	26.7	13.0	43.2	
100,000 – 500,000	29.9	17.9	41.2	0.0	
> 500,000	32.2	23.0	0.0	0.0	

^a Chi-square and Fisher's exact tests were used to compare pharmacists across the four provinces with regard to sex, tobacco use and population of community where practising. Analysis of variance was used to compare time elapsed since pharmacists' degree earned, across the provinces. A p-value of > 0.05 was considered not significant.

Results

Attitudes toward smoking cessation

The factor analysis showed that the ten questions regarding attitudes toward smoking cessation fell into three groups, which we called positive attitudes, negative attitudes and economic-related attitudes (Table 2). More than 70% of pharmacists in all four provinces held positive views about smoking cessation. Much smaller percentages had negative views and economic-related concerns. However, at least one quarter of pharmacists in each province agreed that there is little economic incentive for pharmacists to advise on quitting smoking. Although there was some overall inter-provincial variation in seven of the ten attitudes, a clear consistent pattern of provincial differences was not evident.

Perceptions of professional roles

Factor analysis of the eleven questions concerning the professional clinical roles of pharmacists with respect to smoking and smoking cessation revealed two groups, which we called “assessing and motivating patients” and “assisting, referring and following up”. With regard to assessing and motivating patients, more than 50% of pharmacists in all provinces agreed that motivating patients to quit was an important role (Table 3). Pharmacists in all four provinces viewed assessing patient’s readiness to quit as a somewhat less important role, and less than 50% of pharmacists in all provinces thought that asking patients if they smoke and assessing patient’s dependence on smoking were important roles. There was inter-provincial

variation in how pharmacists viewed the importance of three of the four roles, with pharmacists in Ontario tending to be less likely to perceive these roles as important.

With respect to assisting, referring and following up, more than 50% of pharmacists in all four provinces endorsed six of the seven roles as being important. The role of advising patients about the use of NRT (gum or patches) was very strongly endorsed by more than 80% of pharmacists in all four provinces. There was generally less endorsement for the importance of following up progress in quitting, particularly among pharmacists in Ontario and Saskatchewan. Although there was inter-provincial variation in perceptions of all of these roles, a clear consistent pattern of provincial differences was not discernable.

TABLE 2
Attitudes of surveyed Canadian pharmacists towards smoking cessation, by province (2002)

Attitudes towards smoking cessation ^a	Ontario (N=391)	Quebec (N=297)	Saskatchewan (N=192)	Prince Edward Island (N=82)	p-value ^b
Percent agree (95% Confidence interval)					
Positive attitudes					
Most smokers can quit if they really want to	81.4 (76.7 - 86.0)	84.2 (79.2 - 89.2)	78.0 (72.9 - 83.1)	75.9 (70.6 - 81.2)	n.s.
Relief of withdrawal symptoms is important for successfully quitting	92.1 (87.3 - 96.9)	94.9 (89.8 - 100.0)	89.1 (83.7 - 94.5)	92.7 (86.9 - 98.6)	n.s.
With most smokers, pharmacists can be effective in promoting smoking cessation	89.0 (84.3 - 93.8)	96.6 (91.4 - 100.0)	89.1 (83.7 - 94.5)	94.0 (88.1 - 99.8)	< 0.001
Patients appreciate it when I provide smoking cessation advice	92.3 (87.5 - 97.1)	98.3 (93.1 - 100.0)	94.2 (88.7 - 99.8)	90.4 (84.6 - 96.1)	0.002
Negative attitudes					
When a person has been smoking many years, there isn't much point in trying to quit	5.9 (4.4 - 7.4)	3.4 (2.2 - 4.5)	2.1 (1.2 - 3.0)	1.2 (0.5 - 1.9)	n.s.
Talking with smokers about quitting will discourage their return as customers	12.5 (10.4 - 14.7)	2.1 (1.1 - 2.9)	10.9 (8.9 - 13.0)	8.4 (6.6 - 10.3)	< 0.001
Most patients don't want unsolicited advice from their pharmacist	35.1 (31.7 - 38.6)	21.8 (19.0 - 24.7)	34.9 (31.3 - 38.5)	20.5 (17.6 - 23.3)	< 0.001
Counselling patients about quitting smoking is a thankless task	24.4 (21.5 - 27.4)	8.4 (6.6 - 10.2)	26.0 (22.9 - 29.2)	9.6 (7.7 - 11.6)	< 0.001
Economic-related attitudes					
Advising about smoking cessation takes time away from more profitable activities	19.7 (17.0 - 22.4)	17.0 (14.5 - 19.5)	12.0 (9.8 - 14.1)	4.8 (3.4 - 6.2)	0.003
There is not much economic incentive for pharmacists in advising about quitting smoking	37.6 (34.0 - 41.1)	31.5 (28.2 - 34.9)	44.3 (40.3 - 48.3)	30.1 (26.7 - 33.5)	0.020

^a Attitudes are grouped according to a factor analysis.

^b For each attitude, a chi-square test was used to compare pharmacists who strongly agreed/somewhat agreed with the statement to those who strongly disagreed/somewhat disagreed across the four provinces. A p-value of > 0.05 was considered not significant (n.s.).

TABLE 3
Surveyed Canadian pharmacists' perceptions of important roles in smoking cessation, by province (2002)

Role should be important for pharmacists ^a	Ontario (N=391)	Quebec (N=297)	Saskatchewan (N=192)	Prince Edward Island (N=82)	p-value ^b
Percent (95% Confidence interval)					
Assessing and motivating patients					
Asking patients if they smoke	30.6 (27.3 - 33.9)	45.8 (41.8 - 49.8)	34.4 (30.8 - 37.9)	34.9 (31.3 - 38.6)	< 0.001
Assessing patient's dependence on smoking	28.6 (25.5 - 31.8)	43.8 (39.9 - 47.7)	30.2 (26.8 - 33.6)	42.2 (38.1 - 46.2)	< 0.001
Assessing patient's readiness to quit	43.0 (39.2 - 46.7)	46.0 (42.0 - 49.9)	46.4 (42.3 - 50.4)	56.6 (52.0 - 61.3)	n.s.
Motivating patients to quit smoking	56.6 (52.5 - 60.8)	69.1 (64.5 - 73.8)	62.5 (57.8 - 67.2)	69.9 (64.8 - 75.0)	0.004
Assisting, referring and following up					
Giving patients pamphlets or other brief tips on quitting smoking	78.3 (73.7 - 82.9)	85.2 (80.2 - 90.2)	82.3 (77.1 - 87.5)	90.4 (84.6 - 96.1)	0.022
Counselling patients on behavioural techniques for quitting smoking	63.8 (59.4 - 68.1)	56.0 (51.7 - 60.3)	70.3 (65.4 - 75.2)	69.9 (64.8 - 75.0)	0.006
Advising patients about the use of NRT gum or patches	88.8 (84.0 - 93.5)	97.3 (92.1 - 100.0)	91.2 (85.7 - 96.6)	97.6 (91.6 - 100.0)	< 0.001
Referring patients to a physician for help in quitting smoking	66.1 (61.7 - 70.5)	53.7 (49.5 - 57.9)	78.1 (73.0 - 83.3)	83.1 (77.6 - 88.7)	< 0.001
Referring patients to a smoking cessation program or a 1-800 Quit Line	65.6 (61.2 - 69.9)	55.7 (51.4 - 60.0)	62.5 (57.8 - 67.2)	81.9 (76.4 - 87.4)	< 0.001
Following patients' progress in quitting smoking	39.0 (35.4 - 42.7)	52.7 (48.5 - 56.9)	44.0 (40.0 - 48.0)	63.9 (58.9 - 68.8)	< 0.001
Advising patients on the use of bupropion to quit smoking	59.1 (54.8 - 63.3)	79.1 (74.2 - 83.9)	64.9 (60.2 - 69.7)	73.5 (68.2 - 78.7)	< 0.001

^a Role perceptions are grouped according to a factor analysis.

^b For each role, a chi-square test was used to compare pharmacists who thought the role should be important for pharmacists to those who thought pharmacists should have some role or no role at all, across the four provinces. A p-value of > 0.05 was considered not significant (n.s.).

Interventions

Twelve questions were asked about specific interventions in the past year with patients who smoke. The factor analysis did not reveal any groupings. In all four provinces, less than 50% of pharmacists indicated that they performed each intervention in the past year with more than half their patients who smoked (Table 4). Advising cutting down or quitting, attempting to increase motivation to quit and suggesting the use of NRT were consistently the most likely interventions to be performed by pharmacists in all four provinces. Inter-

provincial variation was found for five of the twelve interventions, but no clear consistent pattern of provincial differences was evident.

Provincial policy regarding the sale of tobacco in pharmacies

Pharmacists practising in provinces banning tobacco sales in pharmacies had more positive attitudes regarding smoking cessation than did pharmacists practising in provinces where tobacco sales were permitted (Table 5). There was no statistically significant difference in negative attitudes.

Economic-related concerns were more likely to be reported by pharmacists practising in the provinces not allowing tobacco sales. With respect to role perceptions, there was no difference between the two groups in how pharmacists viewed the importance of assessing and motivating patients. However, pharmacists in the provinces permitting tobacco sales were more likely to view assisting, referring and following up as important roles. Reported interventions, however, were similar between the pharmacists practising in provinces differentiated by pharmacy-tobacco-sales policies.

TABLE 4
Frequency of surveyed Canadian pharmacists' smoking cessation interventions
with their patients who smoke, by province (2002)

Intervention in the past year with more than half of patients who smoke ^a	Ontario (N=391)	Quebec (N=297)	Saskatchewan (N=192)	Prince Edward Island (N=82)	p-value ^b
	Percent (95% Confidence interval)				
Discussed the effects of smoking on health	21.4 (18.6 - 24.2)	15.4 (13.0 - 17.9)	16.7 (14.1 - 19.2)	17.1 (14.5 - 19.7)	n.s.
Discussed the health effects of second-hand smoke	14.2 (11.9 - 16.5)	8.1 (6.3 - 9.8)	9.4 (7.5 - 11.3)	6.2 (4.6 - 7.7)	0.025
Assessed readiness to quit smoking	22.7 (19.9 - 25.6)	17.2 (14.6 - 19.7)	19.8 (17.0 - 22.6)	22.0 (19.0 - 24.9)	n.s.
Advised cutting down or quitting smoking	33.0 (29.6 - 36.4)	29.3 (26.0 - 32.6)	28.7 (25.4 - 31.9)	28.1 (24.7 - 31.4)	n.s.
Attempted to increase motivation to quit	33.6 (30.2 - 37.0)	34.3 (30.8 - 37.9)	31.1 (27.6 - 34.5)	28.1 (24.7 - 31.4)	n.s.
Counselled on behavioural techniques for quitting smoking	23.5 (20.5 - 26.4)	20.5 (17.7 - 23.2)	20.3 (17.5 - 23.1)	21.0 (18.1 - 23.9)	n.s.
Gave pamphlets or other brief tips on quitting smoking	30.2 (27.0 - 33.5)	19.8 (17.1 - 22.5)	23.4 (20.4 - 26.4)	32.9 (29.3 - 36.5)	0.006
Referred to a smoking cessation program or 1-800 Quit Line	13.7 (11.4 - 16.0)	5.7 (4.2 - 7.2)	4.7 (3.3 - 6.1)	24.4 (21.3 - 27.5)	< 0.001
Suggested use of NRT gum or patch	36.1 (32.6 - 39.6)	32.9 (29.4 - 36.3)	26.6 (23.4 - 29.7)	34.2 (30.5 - 37.8)	n.s.
Referred to a physician for help in quitting smoking	21.0 (18.2 - 23.8)	22.9 (20.0 - 25.8)	14.1 (11.8 - 16.5)	14.6 (12.2 - 17.0)	n.s.
Suggested obtaining a prescription for bupropion from a physician	15.5 (13.1 - 18.0)	5.4 (3.9 - 6.8)	14.6 (12.2 - 17.0)	7.4 (5.6 - 9.0)	< 0.001
Followed up on progress in quitting smoking	18.5 (15.9 - 21.1)	31.2 (27.8 - 34.6)	20.4 (17.6 - 23.2)	21.0 (18.1 - 23.9)	< 0.001

^a Interventions are listed as assessed in the questionnaire. A factor analysis did not identify any groupings.

^b For each intervention, a chi-square test was used to compare pharmacists who said they performed this role with more than half of their patients who smoke to pharmacists who did so less often, across the four provinces. A p-value of > 0.05 was considered not significant (n.s.).

TABLE 5
Canadian pharmacists' attitudes, role perceptions and interventions, by their provincial policy on the sale of tobacco in pharmacies (2002)

	Provinces banning sales (Ontario and Quebec) (N = 688)		Provinces allowing sales (Saskatchewan and Prince Edward Island) (N= 274)		Adjusted p-value ^c
	Mean score ^a	SD ^b	Mean score ^a	SD ^b	
Attitudes					
Positive	13.51	1.89	13.16	2.10	0.019
Negative	6.65	1.92	6.64	1.71	0.527
Economic-related	3.92	1.48	3.71	1.38	0.016
Role perceptions					
Assessing and motivating patients	9.56	1.74	9.63	1.72	0.780
Assisting, referring and following up	18.42	2.40	19.00	2.21	0.001
Intervention score	29.08	10.78	27.97	10.43	0.632

^a A higher mean factor score indicates more positive attitudes, more negative attitudes, more economic-related concerns, more perceptions that roles are important and more interventions

^b Standard deviation

^c Adjusted for size of community

Discussion

The findings of this study concerning the very strong positive attitudes of pharmacists in all four provinces toward smoking cessation are encouraging, especially because negative attitudes and economic concerns were much less commonly expressed. The generally strong positive attitudes are matched by strong support for pharmacists' professional roles in most aspects of motivating, assisting and referring patients who smoke. However, the lesser degree of support observed among pharmacists in all four provinces for assessing smoking status, dependence and readiness to quit, and following up on progress in quitting suggests that provincial and national programs should address these clinical aspects to better prepare pharmacists for their central role in smoking cessation.

The positive attitudes of pharmacists toward smoking cessation and the generally strong support for some professional roles are not reflected in the level of reported smoking cessation interventions. With respect to the twelve smoking cessation practices examined, fewer than 50% of pharmacists in each studied province had intervened in the last year with more than half of their patients who smoke. Clearly, there is much room for improvement. Given the wide endorsement at the professional level for the increased involvement of pharmacists in helping their patients to quit smoking, the findings underline the need for tobacco control initiatives to be aimed at increasing the professional involvement of pharmacists in smoking cessation.

An array of factors may underlie a failure to intervene with smoking patients, including personal ones, such as educational preparation; environmental factors in the pharmacy settings (e.g., lack of dedicated counselling space); and practice factors (e.g., insufficient time and lack of management support).^{9,16,18} For example, with respect to education preparation, in a separate study with our respondents, we showed that those with higher levels of self-assessed basic pharmacologic and applied health-

science knowledge were more likely, when compared to counterparts who felt less knowledgeable, to undertake the various clinical interventions, independent of attitudes, perceptions of roles, sex, smoking status and years of practice.²² It is also noteworthy that at least one quarter of respondents in each province agreed that there is little economic incentive for pharmacists to advise on quitting smoking, suggesting that economic concerns may also be barriers to intervention. These issues need to be addressed in provincial and national programs aimed at increasing the interventions of pharmacists with their patients who smoke.

Although some inter-provincial differences were found, clear patterns were not discernable for the most part. What was clear, however, was the relative consistency among pharmacists across the four provinces in attitudes, role perceptions and interventions. Although pharmacists in all provinces had strong positive attitudes, the statement "Most smokers can quit if they really want to" was the least supported attitude measure among pharmacists in each of the four studied provinces. Negative attitudes were much less strongly held, but the strongest support in all provinces was for the statement "most patients don't want unsolicited advice from their pharmacist". Pharmacists in all four provinces consistently reported the lack of financial incentive in advising patients about quitting smoking as the more important of the two economic-related issues examined. Pharmacists in all four provinces consistently viewed advising patients about the use of NRT and giving patients pamphlets or other brief tips on quitting smoking as the first and second most important roles for their profession. With respect to reported interventions, advising cutting down or quitting, attempting to increase motivation to quit and suggesting the use of NRT were consistently among the top three interventions performed by pharmacists in all four provinces. These findings suggest that national programs to increase the involvement of pharmacists with patients who smoke are likely to be viewed similarly by pharmacists in all provinces.

Despite the relative consistency of findings across the four provinces, some potentially interesting inter-provincial differences were found. For example, with respect to roles, pharmacists in Saskatchewan and Prince Edward Island appeared more inclined than their counterparts in Ontario and Quebec to view referral to a physician as an important role. Further, with respect to interventions, although for the most part pharmacists reported they did not suggest that their patients obtain prescriptions from their physicians for bupropion, at least twice as many pharmacists in Ontario and Saskatchewan, compared to those in Quebec and Prince Edward Island, reported that they had made this suggestion in the past year to more than half of their patients who smoked. Further investigation of some inter-provincial differences may be warranted.

Although pharmacists practising in provinces banning tobacco sales in pharmacies had more positive attitudes toward smoking cessation, and pharmacists practising in provinces permitting tobacco sales in pharmacies were more likely to view the roles of assisting, referring and motivating patients as important, overall interventions with patients who smoke were similar between these two groups of pharmacists differentiated by provincial sales policies. This suggests that the provincial policy with respect to tobacco sales in pharmacies may not be an important factor underlying the interventions of pharmacists with patients who smoke. Pharmacists practising in provinces where tobacco sales were not permitted had more economic-related concerns than pharmacists practising in provinces allowing tobacco sales. We are uncertain as to why this is the case.

Limitations

This study has limitations. The data were collected by a mailed self-report questionnaire and are subject to response bias. However, the possibility of response bias is minimized when response rates are high, as they were with respect to all four provinces. Data cannot be valid without a high response rate. The Dillman method²⁰

used for collecting the data in this survey is well documented and widely used in mail surveys. The questionnaire was pre-tested in individual and group interviews with practising pharmacists and through a mailing of selected pharmacists who had agreed to help with the pre-test. These procedures help to increase the face validity of the survey findings. In addition, responses concerning pharmacists' interventions are consistent with expectations from previous studies of pharmacists.^{9,16} The data are cross-sectional and causal relationships cannot be inferred. Attitudes and perceptions of roles are unlikely to have been fully explored by the limited questions asked. Qualitative research might be useful in further defining these complex constructs. Multiple testing may result in some significant associations by chance. Nonetheless, several associations are highly significant and unlikely to be a result of type I error. The results of these analyses should be viewed as hypothesis generating, providing a baseline for further research.

Implications

Efforts are under way in some provinces and nationally to highlight the roles of pharmacists in smoking cessation and better prepare them for these roles. For example, the Clinical Tobacco Intervention program in Ontario trains pharmacists, physicians and dentists to intervene with smokers.²³ The Representative Board of Saskatchewan Pharmacists is developing smoking cessation specialist training for pharmacists and the Canadian Pharmacists Association is developing a smoking cessation training program for Canadian pharmacists.²⁴ A survey and curriculum workshop on smoking cessation for faculty involved in the undergraduate education of Canadian pharmacists has been held²⁵ and the educational needs of Canadian community pharmacists have been assessed.²² These undertakings indicate a clear appreciation nationally and provincially of the central role that pharmacists can play in smoking cessation and the need to enhance the efforts of Canadian pharmacists in this regard. The findings of the

present study provide a baseline against which progress toward the realization of this central role can be assessed in four provinces. They also provide a basis for national and provincial program and policy development designed to increase the involvement of pharmacists in smoking cessation.

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