Respiratory Therapists' Smoking Cessation Counseling Practices: A Comparison Between 2005 and 2010

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OBJECTIVE: We assessed whether smoking cessation counseling practices and related psychosocial characteristics among respiratory therapists (RTs) improved between 2005 and 2010. METHODS: Data were collected in mailed self-report questionnaires in 2005 and in 2010, in random independent samples of active licensed RTs in Québec, Canada. RESULTS: The response proportion was 67.6% in 2005 and 59.9% in 2010. There were no substantial differences in mean cessation counseling scores according to year of survey. RTs who reported that they had received cessation counseling training during their studies or after their studies (when they were in practice) had statistically significantly better counseling practices for both patients ready and patients not ready to quit than untrained RTs. In addition, their self-efficacy to provide effective counseling was higher and they perceived fewer knowledge-related barriers to cessation. Further, RTs trained after their studies perceived fewer patient-related and time barriers to cessation counseling, and had better knowledge of community resources. CONCLUSIONS: Although the proportion of RTs trained in smoking cessation counseling during and after studies increased between 2005 and 2010 (from 3% to 14%, and from 17% to 29%, respectively), sustained efforts are needed to increase the number of trained RTs, so that this translates into positive observable changes in counseling practices. *Key words: respiratory therapists; counseling; smoking cessation.* [Respir Care 2013;58(8): 1299–1306. © 2013 Daedalus Enterprises]

Introduction

In industrialized countries, cigarette smoking is widely acknowledged as the most important risk factor for chronic diseases, including cardiovascular disease, many types of cancer, as well as chronic respiratory diseases.[1] Each year, 37,000 Canadians die from diseases caused by cigarette smoking.[2] Although the prevalence of smoking has declined markedly in the last 20 years, approximately 4.8 million Canadians smoked daily or occasionally in 2010.[3]

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There is general consensus among experts in regard to the programs, policies, and laws needed to prevent tobacco use and dependence, to help smokers quit, and to protect non-smokers from exposure to secondhand smoke. This consensus resulted in the Framework Convention on Tobacco Control, which was adopted in February 2003,[4] and has been ratified in 174 countries, including Canada. Adequate treatment of nicotine dependence by health professionals is a cornerstone of the Framework Convention on Tobacco Control. In 2004, in response to ratification of the Framework Convention on Tobacco Control in Canada, the National Public Health Institute of Québec estab-

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lished collaborations with 6 health professional groups in Québec, Canada, including physicians, pharmacists, dentists, dental hygienists, nurses, and respiratory therapists (RTs). The objective was to develop interventions and practice aids to optimize smoking cessation counseling offered by these health professionals.

RTs promote cardiorespiratory health and offer care to persons with respiratory illness, including asthma, COPD, and lung cancer, which are all highly related to smoking. RTs are therefore in a key position to motivate and support smokers to quit.[5] To guide the development of training and educational interventions for practicing RTs and to enable tracking of cessation counseling practices over time, we first surveyed RTs in Québec in 2005 to assess their cessation counseling practices, and psychosocial characteristics potentially associated with these practices, such as beliefs about cessation counseling, self-efficacy to provide effective counseling, perceived barriers to counseling, and knowledge of community cessation resources.[6] Data were also collected on preferred training formats.[7] The results showed that, although few RTs reported optimal cessation counseling practices, the majority believed that they have an important role in terms of encouraging smokers to quit, and were interested in professional development to optimize their cessation counseling.[7] Self-efficacy, knowledge of community resources, and cessation training during their studies or after studies (when they were in practice) were associated with providing counseling to smokers who were ready to quit. Belief that cessation counseling is the role of RTs and self-efficacy were associated with counseling among smokers who were not ready to quit.[6]

Following the 2005 survey, the National Public Health Institute of Québec, in collaboration with the Ordre Professionnel des Inhalothérapeutes du Québec (OPIQ), the RTs professional body with regulatory and educational responsibilities, developed and implemented several training interventions on smoking cessation counseling for practicing RTs. Training interventions included 28 3-hour interactive workshops held in small groups of usually less than 30 participants, to allow discussions. During these workshops, which were attended by approximately 700 RTs in 2005–2007, many topics were discussed, including the importance of addressing tobacco cessation with patients, the benefits of quitting, nicotine dependence, strategies to help motivate smokers to make a quit attempt, strategies to help smokers quit, withdrawal symptoms, pharmacotherapy, and resources available in the community to help smokers quit. An illustrated pocket practice aid distributed to all 3,429 RTs in Québec in 2007, and to new graduates in 2008–2009, presented the same type of information and included stickers on community resources to be placed on patients' asthma pumps. Ten articles were published in the OPIQ journal in 2005–2009 that dealt with the role of RTs in addressing smoking cessation, tobacco cessation counseling, nicotine dependence, and pharmacotherapy. Finally, in 2008 the OPIQ Department of Professional Inspection added 3 questions on smoking cessation counseling to be asked during inspection visits to assess practice quality among RTs.

QUICK LOOK

Current knowledge

Cigarette smoking is the most important risk factor for chronic diseases, including cardiovascular disease, cancer, and respiratory disease. Respiratory therapists care for patients with a wide range of respiratory ailments and are in a key position to motivate and support smokers to quit.

What this paper contributes to our knowledge

The number of Québec, Canada, respiratory therapists trained in smoking cessation counseling increased between 2005 and 2010. Therapists trained in smoking cessation had better counseling practices for patients ready and not ready to quit, compared to those who were not trained.

In 2010 a second survey was conducted among RTs. The objective of this paper is to assess if smoking cessation counseling practices, or psychosocial characteristics related to cessation counseling improved between 2005 and 2010, in 2 independent samples of RTs. In addition, because training during or after studies was associated with providing counseling among smokers who were ready to quit in 2005, and because more intense training was available to practicing RTs between 2005 and 2010, we verified if training was associated with either counseling practices or psychosocial characteristics.

Methods

Data were collected in a repeat independent sample survey design, with the first survey conducted in 2005, and the second in 2010. The sampling frame for both surveys comprised the OPIQ membership list of all active licensed professionals in Québec, Canada (n = 2,944 RTs in 2004, and n = 3,745 in 2009). RTs were eligible to participate in the survey if they had engaged in clinical practice during the 3 months preceding the survey.

In 2005 a simple random sample of 500 persons was selected from the 2004 list, using a random number generator, with replacement of those who had not provided clinical care in the past 3 months. Data were collected from February to April 2005, in a 143-item, self-administered questionnaire that had been pilot tested for

readability, comprehension, and ease of completion, by 10 RTs. A postcard announcing the study was mailed to each person, followed 3 days later by a package containing the questionnaire, an addressed, stamped, return envelope, and an explanatory cover letter. Two additional mailings targeting non-respondents were undertaken 2 and 4 weeks later. Questionnaire items were based on our previous work.[8-10]

In 2010 a self-administered 142-item questionnaire, very similar to the one sent in 2005, was mailed to 600 RTs randomly selected from the 2009 OPIQ membership list, using the same mail protocol that was used in 2005. Ethics approval was obtained from the McGill University institutional review board in 2004, and the Centre Hospitalier de l'Université de Montréal Research Center ethics review committee in 2009.

Smoking Cessation Counseling Practices

On the premise that before offering pragmatic, goal-oriented cessation counseling, health professionals must know their patients' smoking status and their readiness to quit smoking, we created 2 counseling scores. One score pertained to smokers ready to quit (labeled the "Ready to quit" counseling score), and the other pertained to smokers not ready to quit (labeled the "Not ready to quit" counseling score).[6]

The "Ready to quit" counseling score comprised 10 items.

During the past 3 months, for what proportion of your patients who smoked and who were preparing to quit did you:

- Ascertain the number of cigarettes smoked per day?
- Discuss previous quit attempts?
- Discuss withdrawal symptoms?
- Discuss worries about cessation?
- Discuss strategies to quit smoking?
- Advise setting a quit date?
- Ascertain whether the first cigarette smoked is within 30 min of waking up?
- Refer to either the telephone helpline *j'Arrête* (I quit), a Web site that helps patients quit, a health professional with expertise in cessation, a smoking cessation center, or smoking cessation resources in the community?
- Offer an appointment or telephone call 1–2 weeks after the quit date?
- Recommend nicotine replacement therapy (gum, patch, or inhaler) or bupropion or varenicline?

Response options for each item included few/none; less than half; about half; more than half, and all/almost all. Responses were averaged across the 10 items, with higher scores indicating that the participant undertook cessation counseling with more of his/her patients who were ready to quit (2005 mean ± SD 2.4 ± 1.1, range 1–5, 2010 mean ± SD 2.3 ± 1.1, range 1–5).

The "Not ready to quit" counseling score comprised 7 items.

During the past 3 months, for what proportion of your patients who smoked and who were not ready to quit did you:

- Discuss the effects of smoking on health?
- Discuss their perceptions of the pros and cons of smoking?
- Discuss their perceptions of the pros and cons of quitting?
- Express concerns about their smoking?
- Advise patients to stop smoking?
- Discuss the effects of secondhand smoke on the health of relatives and friends?
- Offer an appointment specifically to discuss quitting?

Response options for each item included few/none; less than half; about half; more than half; and all/almost all. Responses were averaged across the 7 items, with higher scores indicating that the participant undertook cessation counseling with more of his/her patients who were not ready to quit (2005 mean ± SD 2.8 ± 1.1, range 1–5, 2010 mean ± SD 2.5 ± 1.2, range 1–5).

In both 2005 and 2010, most participants provided answers for all items comprising the 2 counseling scores. When more than half of the items for a given score had responses, the score was averaged across items for which there were responses. For participants missing responses for half or more of the items comprising a score, the score was set to missing. In 2005, 3% of the "Ready to quit" and 2% of the "Not ready to quit" scores were set to missing. In 2010, 2% of the "Ready to quit" scores and 1% of the "Not ready to quit" scores were set to missing.

Psychosocial Characteristics

We measured 4 psychosocial characteristics related to smoking cessation counseling, using indicators developed in previous work.[6] Belief that cessation counseling is the role of health professionals was measured in 7 items (Cronbach α, a statistic generally used as a measure of internal consistency or reliability of a psychometric instrument: 2005 α 0.69, 2010 α 0.70), with higher scores indicating stronger agreement.

Table 1. Comparison of Selected Characteristics of Respiratory Therapists in 2005 and 2010, Québec, Canada

	Total $n = 534$	2005 $n = 294$	2010 $n = 240$	P*
Female, %	86	84	88	.20
Age, mean ± SD y	37.8 ± 9.9	37.8 ± 9.3	37.7 ± 10.6	.85
Community type, %†				.53
Rural	8	8	8	
Small city (< 100,000)	26	25	28	
Medium-size city (100,000–500,000)	30	33	27	
Large city (> 500,000)	36	35	38	
Patients < 18 y old, mean ± SD %	12 ± 18	13 ± 18	10 ± 18	.02
Patients ≥ 65 y old, mean ± SD %	61 ± 24	68 ± 22	53 ± 25	< .001
Smoker, %	10	12	9	.25
Trained during studies, %	8	3	14	< .001
Trained after studies, %	23	17	29	.001

* Differences between proportions calculated via chi-square analysis. Differences between means calculated via t test.
† Totals may exceed 100% due to rounding.

Self-efficacy to provide cessation counseling was measured in 5 items (2005 α = 2010 α 0.84), with higher scores indicating increased self-efficacy.

Knowledge of resources in the community to which patients could be referred for help was measured in one item.

Perception of barriers to cessation counseling was measured in 4 scales: patient-related barriers were measured in 4 items (2005 α = 2010 α 0.84); knowledge-related barriers were measured in 4 items (2005 α 0.60, 2010 α 0.76); resource-related barriers were measured in 3 items (2005 α = 2010 α 0.66); and time barriers were measured in one item. Higher scores in each of these 4 scales indicate more perceived barriers to cessation counseling.

For each psychosocial characteristic with more than one item, scores were computed by averaging scores across items. If participants were missing > 50% of items in a scale, the score was set to missing. Appendix A (see the supplementary materials at http://www.rcjournal.com) describes specific questionnaire items and the response choices used to measure each psychosocial characteristic.

Exposure to smoking cessation counseling training was measured in 3 items:

- Have you ever had any training in smoking cessation counseling during your studies?
- Have you ever had any training in smoking cessation counseling after your studies?
- In the last 5 years, did you participate in the workshop for RTs on smoking cessation counseling offered by OPIQ entitled "Intervenir Auprès de Vos Patients Fumeurs: Le Rôle de l'Inhalothérapeute" (Counseling Smokers: The Role of the RT)?

Covariates

Covariates included year of survey (2005, 2010), age, sex, current smoking status, characteristics of the RTs' clinical environment (including the proportion of patients < 18 y old and ≥ 65 y old), and size of the community in which the RT practiced: rural or small city < 100,000 inhabitants; medium-size city 100,000–500,000 inhabitants; large city > 500,000 inhabitants.

Data Analysis

Descriptive statistics were used to characterize and compare the 2005 and 2010 samples. In a dataset that pooled data across the 2005 and 2010 surveys, we used separate multiple linear regression models to test if each survey year, or training during or after studies, was associated with each dependent variable. All models included year of survey, age, and sex as covariates. Additional covariates varied across models, and included variables associated with the dependent variable of interest at $P \leq .25$ in simple linear regression.[11] All analyses were conducted using statistics software (SPSS 16.0, SPSS, Chicago, Illinois).

Results

In 2005 the response proportion, adjusted for non-eligibility, was 67.6%, and in 2010 it was 59.9%. There were no statistically significant differences across years in de-

Table 2. Mean Psychosocial Characteristics Scores* and Cessation Counseling Scores Among Respiratory Therapists, According to Year of Survey and Training During or After Studies, Québec, Canada

	n	Psychosocial Characteristic Score (mean ± SD)							Counseling Score (mean ± SD)	
		Beliefs	Self-Efficacy	Knowledge of Community Resources	Patient Barriers	Knowledge Barriers	Resource Barriers	Time Barriers	Patient Ready to Quit	Patient Not Ready to Quit
2005	294	4.2 ± 0.5	3.5 ± 0.8	3.1 ± 1.1	3.9 ± 0.7	3.6 ± 0.6	3.7 ± 0.7	4.3 ± 0.9	2.4 ± 1.1	2.8 ± 1.1
2010	239	4.2 ± 0.5	3.5 ± 0.8	3.2 ± 1.1	3.6 ± 0.7	3.5 ± 0.8	3.6 ± 0.8	4.1 ± 1.0	2.3 ± 1.1	2.5 ± 1.2
Training during studies										
No	454	4.2 ± 0.5	3.4 ± 0.8	3.1 ± 1.1	3.8 ± 0.7	3.6 ± 0.7	3.6 ± 0.7	4.2 ± 0.9	2.3 ± 1.1	2.6 ± 1.1
Yes	39	4.2 ± 0.5	3.6 ± 0.7	3.2 ± 1.2	3.6 ± 0.6	3.2 ± 0.8	3.4 ± 1.0	4.3 ± 0.8	2.6 ± 1.1	2.7 ± 1.1
Training after studies										
No	403	4.1 ± 0.5	3.3 ± 0.7	2.9 ± 1.1	3.8 ± 0.7	3.6 ± 0.6	3.6 ± 0.8	4.3 ± 0.9	2.1 ± 1.0	2.5 ± 1.1
Yes	117	4.4 ± 0.4	4.1 ± 0.7	4.0 ± 1.0	3.5 ± 0.8	3.3 ± 0.8	3.5 ± 0.8	3.9 ± 1.1	3.2 ± 1.1	3.2 ± 1.1

* Score range 1–5: higher score more favorable, except for barrier score, for which lower score more favorable.

mographic characteristics or in the proportion who smoked. There were some differences in the distribution of patient age group (< 18 y old and ≥ 65 y old), but they were not substantively important (Table 1). The proportion of RTs who reported training during or after studies increased from 3% in 2005 to 14% in 2010 ($P < .001$), and from 17% in 2005 to 29% in 2010 ($P = .001$), respectively. In 2010, 13% of the RTs ($n = 31$) reported that they had received the training provided by OPIQ/National Public Health Institute of Québec.

Table 2 shows the mean ± SD scores for each psychosocial characteristic and each cessation counseling score, according to year, and each of training during and after studies. There were few substantive differences in mean scores according to year of survey, with 2 exceptions. The mean score for patient barriers was 3.9 in 2005, compared to 3.6 in 2010, and the cessation counseling score for patients not ready to quit declined from 2.8 in 2005 to 2.5 in 2010. Similarly, there were few substantive differences in mean scores according to training during studies, with 2 exceptions. The mean score for knowledge barriers was 3.6 among RTs who had not received training during studies, compared to 3.2 among those who did. In addition, RTs trained during studies reported more favorable counseling scores for patients ready to quit than those who had not received training during studies (2.6 compared to 2.3). With the exception of resource barriers, scores for psychosocial characteristics and both cessation counseling scores were consistently better among RTs who had received training after studies, compared to those who had not received training after studies.

In general, the multivariable models supported the univariate findings (Table 3). Patient-related barriers were significantly higher in 2005 than in 2010, and the cessation counseling scores for patients not ready to quit were significantly lower in 2010 than in 2005. In addition, after control for covariates, knowledge of community resources was significantly higher in 2010. Similarly, the multivariable analysis supported the univariate findings that training during studies was inversely associated with the perception of knowledge barriers, and that RTs trained during studies reported more favorable counseling scores for patients ready to quit than those who had not received training during studies. After control for covariates, training during studies was also significantly positively associated with the cessation counseling score for patients not ready to quit, and with self-efficacy to provide effective cessation counseling. Again, supporting the univariate findings, training after studies was significantly associated with all the psychosocial characteristics (with the exception of perceived resource barriers), and it was positively associated with both cessation counseling scores in multivariable analyses.

Discussion

Framework Convention on Tobacco Control article 14 states that "Governments shall take effective measures to promote smoking cessation and adequate treatment of tobacco dependence."[12] Integration of brief advice to quit into all healthcare services is an effective approach that has been included in guidelines developed in 2010 to help governments meet their obligations under article 14.[12]

Over the last 15 years, surveys in several countries have collected data on smoking cessation counseling practices of health professionals, including physicians, pharmacists, nurses, and dentists.[13-17] Factors associated with counseling practices that are amenable to intervention have also been identified. In general, these surveys have reported that health professionals are more likely to ask patients

Table 3. Unstandardized Beta Coefficients and Confidence Intervals for the Association Between Year of Survey, Training During Studies, and Training After Studies, and Each Psychosocial Characteristic and Cessation Counseling Score Among Respiratory Therapists, Québec, Canada

	Psychosocial Characteristic beta coefficient (95% CI)							Counseling Score beta coefficient (95% CI)	
	Beliefs*†‡§	Self-Efficacy†‡§	Knowledge of Community Resources†‡§	Patient Barriers	Knowledge Barriers*‡	Resource Barriers‡	Time Barriers	Patient Ready to Quit*†‡§	Patient Not Ready to Quit*†‡§
2010, vs reference year 2005	−0.02 (−0.11 to 0.07)	0.08 (−0.07 to 0.22)	0.24 (0.03 to 0.45)	−0.24 (−0.36 to −0.11)	−0.09 (−0.21 to 0.03)	−0.06 (−0.19 to 0.08)	−0.12 (−0.28 to 0.05)	−0.06 (−0.27 to 0.14)	−0.28 (−0.49 to −0.07)
P	.72	.30	.02	< .001	.12	.42	.16	.54	.01
Training during studies									
Yes, vs reference answer no	0.09 (−0.08 to 0.24)	0.29 (0.03 to 0.55)	0.32 (−0.07 to 0.70)	−0.03 (−0.28 to 0.21)	−0.35 (−0.58 to −0.12)	−0.21 (−0.47 to 0.06)	0.09 (−0.23 to 0.41)	0.56 (0.20 to 0.92)	0.41 (0.03 to 0.79)
P	.30	.03	.10	.78	.003	.13	.59	.002	.03
Training after studies									
Yes, vs reference answer no	0.29 (0.18 to .39)	0.64 (0.48 to 0.81)	0.93 (0.69 to 1.16)	−0.23 (−0.38 to −0.07)	−0.32 (−0.47 to −0.17)	−0.09 (−0.26 to 0.08)	−0.32 (−0.52 to −0.12)	0.97 (0.74 to 1.19)	0.61 (0.37 to 0.86)
P	< .001	< .001	< .001	.004	< .001	.30	.002	< .001	< .001

All models included year of survey, age and sex. Variables associated with the outcomes at $P \leq .25$ in simple linear regression were included as follows:

* Participant smokes.

† Participant practices in an urban setting.

‡ Proportion of participant's patients who were < 18 y old.

§ Proportion of participant's patients who were ≥ 65 y old.

about their smoking status and advise them to quit than to assist smokers in quitting, refer them to community resources for help, or arrange follow-up.[6,13-17] However, to date there are no studies on cessation counseling practices among RTs, although some authors have advocated for their involvement in smoking cessation.[5,18]

The data presented herein indicate that, with 2 exceptions, neither the smoking cessation counseling practices of RTs nor their characteristics related to counseling improved between 2005 and 2010. In fact, cessation counseling practices with patients not ready to quit appear to have declined. Perception of patient-related barriers and knowledge of community resources were the only dependent variables for which we observed statistically significant favorable changes over time.

However, our data suggest important differences in counseling practices according to whether or not RTs received cessation counseling training. Compared to those not trained, RTs who had been trained during or after their studies had statistically significantly better counseling practices for both patients ready and not ready to quit. In addition their self-efficacy to provide effective counseling was higher and they perceived fewer knowledge-related barriers than their untrained counterparts.

RTs trained after their studies while they were treating patients in a clinical milieu, perceived fewer patient-related and time barriers to cessation counseling and had improved knowledge of community resources that might help their patients. It is possible that with accumulating experience working directly with patients affected by tobacco-related illnesses, RTs realize that many of their patients who smoke really do want to quit, thereby influencing their perceptions of barriers as well as their motivation to learn about community resources. The training offered by OPIQ to practicing RTs did in fact incorporate information about community resources, as well as realistic estimates of the time needed for counseling.

Given the positive association between training and cessation counseling, it is encouraging that the proportion of RTs trained during studies increased from 3% to 14% from 2005 to 2010, and that 29% were trained after studies in 2010, compared to 17% in 2005. However, the proportion of RTs trained remains low, and our data suggest that the increases observed between 2005 and 2010 were not sufficient to translate into observable positive changes in counseling practices over time.

The challenge over the next few years will therefore be to continue and intensify OPIQ's work to increase the number of RTs who are trained to provide cessation counseling. In 2010, in order to make access to training more accessible to all RTs, and especially those working in remote areas, OPIQ updated their training modules developed in 2005–2006 and offered them online. Continuing education credits are offered for this online training, which incorporates 3 clinical scenarios carefully developed to represent the clinical reality of practicing RTs, depicting discussions between an RT and 3 smokers with differing degrees of motivation to quit. In addition to training, OPIQ continues to publish at least 2 articles on smoking every year in their professional journal. Finally, OPIQ has endorsed a joint position statement in 2012 with 6 other provincial health professional orders concerning the importance of addressing tobacco use and the role that health practitioners have in providing cessation support in the context of their daily practice. In this statement, OPIQ has agreed to: offer and promote cessation counseling training to their members; offer tools to help RTs support their smoking patients; promote community cessation resources; and work collaboratively with the Collèges d'Enseignement Général et Professionnel (post-secondary institutions in Québec that offer a variety of educational programs, including RT training programs) to include training on smoking and cessation counseling in the RT programs.

Study Limitations

Limitations of this study include that the data derived from self-reports, so cessation counseling practices might be overestimated. Selection bias related to nonresponse may limit the generalizability of these findings, but likely does not affect the associations observed between cessation counseling practices and the exposures of interest. The Cronbach α for several psychosocial characteristics (ie, beliefs and both knowledge- and resource-related barriers to cessation counseling) were low, which may have resulted in some misclassification. Finally, it is not known how many RTs participated in both the 2005 and 2010 surveys.

Conclusions

There were few changes in RTs cessation counseling practices or in the psychosocial characteristics related to counseling between 2005 and 2010. Nevertheless, compared to those not trained, RTs who had been trained during or after their studies had statistically significantly better counseling practices for both patients ready and not ready to quit. Although it is encouraging that the proportion of RTs trained during or after studies significantly increased between 2005 and 2010, sustained efforts are needed to improve counseling practices.

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