

Running Head: SMOKING CESSATION INTERVENTIONS FOR PREGNANT WOMEN

Family Practice Nurses and Smoking Cessation Interventions for Pregnant Women

By

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Glossary of Terms

5 A's- Ask, Advise, Assess, Assist & Arrange. The 5 A's approach to treating tobacco use and dependence is the most frequently cited resource in the literature pertaining to smoking cessation (SC) counselling interventions (Fiore et al., 2008)

Family Practice Nurses (FPN)- Registered Nurses who work in primary care settings
(Note: FPN and primary care nurses will be used interchangeably in this thesis)

Intensive Intervention- Practice recommendation number six of the RNAO BPG states that “nurses implement, wherever possible, intensive intervention with women who are pregnant and postpartum” (Registered Nurses’ Association of Ontario, 2007, p. 29). Intensive intervention is defined as lasting more than 10 minutes

Minimal Intervention – The first practice recommendation from the RNAO BPG suggests that “nurses implement minimal tobacco use intervention using the “Ask, Advise, Assist, Arrange” protocol with all clients” (Registered Nurses’ Association of Ontario, 2007, p. 22). Minimal intervention is defined as lasting one to three minutes.

Ontario Family Practice Nurses (OFPN)- a voluntary interest group of the Registered Nurses’ Association of Ontario.

Registered Nurses’ Association of Ontario, Smoking Cessation Best Practice Guideline (RNAO BPG)- entitled “Integrating Smoking Cessation into Daily Nursing Practice” was originally published in 2003 and revised in 2007 available via

<http://rmao.ca/bpg/guidelines/integrating-smoking-cessation-daily-nursing-practice>

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Dedication

To all nurses who strive to integrate evidence-based research into their daily practice.

To Dr. Barbara Davies, the co-director of the Nursing Best Practice Research Centre. For her endless commitment to advancing the nursing profession through the development of nursing best practice research, and for her enthusiasm and encouragement of graduate student research.

Statement of Contributions

The following statement presents the contributions of collaborators of this thesis. The masters' candidate, Christina Cantin, developed the proposal for this study, contacted Dr. Michèle Tremblay to obtain permission to use and modify the questionnaire, completed the ethics application, contacted the Ontario Family Practice Nurses' (OFPN) interest group to arrange participation in this study, developed the on-line questionnaire via *SurveyMonkey*, conducted all data analysis, and wrote all documents, chapters, and manuscripts included in this thesis.

Thesis supervisory committee members included Dr. Wendy Peterson as supervisor, and Dr. Barbara Davies and Dr. Kirsten Woodend, all of the School of Nursing, Faculty of Health Sciences, University of Ottawa. All thesis committee members provided advice on the design, development, and execution of this study. They provided critical review of chapters and manuscripts. In particular, Barbara Davies provided expertise in evidence-based nursing research and knowledge translation; Kirsten Woodend provided expertise in statistical analysis. Wendy Peterson and Barbara Davies are co-authors for the first manuscript and all committee members are co-authors for the second manuscript.

Juddie Surridge, president of the OFPN, provided background information regarding current issues and trends in Family Practice Nursing in Ontario, provided feedback on the e-mail invitations, and helped to facilitate the development, recruitment and conduction of this research. Barb Thompson, secretary of the OFPN, distributed the invitation to participate in the study and all reminders via the group e-mail distribution list; she also recorded the number of e-mails that were not deliverable. France Morin, Debra Kaye, Helene Mongauzy, and Wendy Peterson provided expert review and evaluation of the modified questionnaire.

The following graduate students pilot tested the on-line questionnaire: Rishma Lahda, Julie Chartrand; Seraphina McAlister, Denise Boone, and Sionnach Lukeman.

Abstract

PURPOSE: To describe 1) smoking cessation (SC) interventions by Family Practice Nurses (FPN) during prenatal visits, and 2) the predictors and barriers of FPN-provided SC counselling for pregnant women.

DESIGN: Non-experimental, descriptive, correlational design. Onetime, cross-sectional questionnaire using a previously validated questionnaire, modified and converted to electronic format.

METHODS: Descriptive and multivariable analysis. Predictors investigated included nurses' age, beliefs about their role in SC, self-efficacy to provide effective counselling, SC training, and interest in updating SC knowledge.

PARTICIPANTS: Eighty-nine members of the Ontario Family Practice Nurses' interest group (18% response rate) working in primary care settings across Ontario.

RESULTS: Nearly one quarter (21.5%) of respondents never offer SC counselling to pregnant women. Nurses with higher levels of self-efficacy were more likely to provide SC counselling. Nurses are less likely to provide concrete assistance in the quitting process or arrange follow-up. The most commonly cited barriers included lack of time and cost of medication.

CONCLUSIONS: FPNs are not consistently providing evidence-based SC interventions for pregnant women. Training to enhance self-efficacy may increase the frequency, efficiency and quality of FPN-provided SC interventions.

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Introduction

As a neonatal nurse working in a Special Care Nursery, I wanted to better understand how we could prevent the negative health consequences of being born with a low birth weight. My literature review revealed that “smoking in pregnancy is recognized as the most important risk factor for an adverse pregnancy outcome” (Ohlsson & Shah, 2008, p. 98). Modification of maternal lifestyle was identified in the Institute of Health Economics report by Ohlsson and Shah (2008) as having strong evidence of effectiveness in the prevention of low birth weight and preterm birth. In particular, the following interventions were listed as strong evidence of effectiveness: “smoking cessation and relapse prevention as a routine component of prenatal care, particularly interventions that include intensive counselling, multiple contacts, provision of supportive material and follow up” (p. 262). Smoking is a modifiable health behavior that when reduced or eliminated yielded substantial benefits to the developing fetus and the pregnant woman (Health Canada, 2007; Pregnets, 2003).

An upstream approach is required to more effectively address this health issue. If neonatal outcomes are to be improved, interventions have to start preconceptionally or in early pregnancy. Nurses working in primary care, such as family practice nurses, are optimally situated within the health care system. Family practice nurses are often the first health care providers to see pregnant women. Additionally, family practice nurses are likely have an established relationship with their pregnant patients, which might translate into greater comfort/ease in having difficult conversations pertaining to addictions such as nicotine.

This manuscript based thesis will demonstrate the progression of my understanding of the intricacies of providing smoking cessation interventions for pregnant women and the potential to optimize the role of nurses. This study explores the challenges and opportunities

of nurse-provided smoking cessation interventions for pregnant women. The first chapter describes the rationale for the thesis study, the purpose and the research questions. The second chapter is a manuscript-based commentary that reviews the literature pertaining to nurse-provided smoking cessation interventions for pregnant women. The third chapter reviews the methods for this study. The fourth chapter is a manuscript which summarizes the major findings from this study and identifies the need to optimize the role of nurses in smoking cessation interventions. The final chapter consists of a discussion and summary of the implications for practice, education, research and policy. Study limitation and strengths are discussed in addition to areas for future research. References are included at the end of each chapter, however, the appendices are found at the end of the entire document.

Smoking in Pregnancy- Health Risks to the Fetus

There is strong evidence that clearly establishes numerous negative health effects of smoking on the developing fetus. These negative health effects include low birth weight (LBW), placenta previa, placental abruption, ectopic pregnancy, spontaneous abortion, premature rupture of membranes, premature birth, birth defects, perinatal mortality, sudden infant death syndrome, infant respiratory problems such as asthma, earaches, learning and behavioural problems, and increased risk of becoming an addicted smoker as an adult (Barron, Petrilli, Strath, & McCaffrey, 2007; Health Canada, 2007; Health Canada, 2009; Ohlsson & Shah, 2008; Pregnets, 2003; Price, Jordan, & Dake, 2006).

Maternal smoking is “the most important reason for intrauterine growth retardation and subsequent low birthweight in developed nations” (Selby & Dragonetti, 2007, n.p.). There is an inverse relationship between the number of cigarettes smoked and the birth weight achieved (Health Canada, 2007). Smoking during the third trimester has the most

significant negative impact on fetal weight gain (Selby & Dragonetti). Infants born to mothers who smoke weigh 54- 300 grams less than the infants of non-smoking mothers (Health Canada, 2007; Lumley, Chamberlain, Dowswell, Oliver, Oakley, & Watson, 2009; Selby & Dragonetti).

The Canadian Institute of Health Information (2009) identified that the average in-hospital costs for a LBW baby (<2,500 grams) was 11 times higher than for a non-LBW baby; this equated to \$12,354 and \$1,084 respectively. More tax dollars are needed to pay for the extended hospital admissions and specialized treatments associated with LBW (Stark, 2004). The effects of smoking are 100% preventable. Nurses should engage pregnant women in ongoing discussions regarding the health risks of smoking to themselves and their growing babies, and emphasize the benefits of smoking cessation (RNAO, 2007).

Smoking Cessation in Pregnancy

Women who abstain from smoking in early pregnancy can reduce the negative effects on the unborn baby to that of non-smoking women; the earlier pregnant women abstain from smoking the greater the benefits to the developing fetuses (Barron et al., 2007; Lumley et al., 2009; Scalera & Koren, 1998). Furthermore, there are health benefits of smoking cessation at any point in the pregnancy for both the fetus and the mother (Pregnets, 2003), so it is necessary for health care professionals to have ongoing discussions regarding the importance of avoiding smoking and second-hand smoke. Health care professionals must convey a thorough and strongly persuasive explanation regarding the potential harm of smoking during pregnancy (Baxter et al., 2010).

Smoking cessation interventions for pregnant women need to be specifically tailored to their unique social and personal context (Greaves et al., 2005; Ontario Perinatal

Surveillance System, 2008; Thyrian et al., 2010). The social environment is a major determinant in the initiation and continuation of smoking (Hotham, Gilbert & Atkinson, 2005). Women who have a smoking partner, a large number of children, a high rate of tobacco consumption, as well as deficiencies in prenatal care are more likely to smoke during pregnancy (Schneider, Huy, Schutz & Diehl, 2010). Lumley et al., (2009) reported that smoking in pregnancy is strongly associated with poverty, low educational attainment, poor social support, and psychological illness. Additionally, a national study of childbearing women revealed that nearly one quarter (23.4%) of pregnant women lived with someone who smoked (Chalmers et al., 2008). The importance of a smoke-free environment for pregnant women cannot be overstated (RNAO, 2007).

More research is needed regarding the role of nurses in smoking cessation interventions during routine prenatal care. Pregnant women need access to “support, education, knowledgeable assistance and timely expertise... to teach them how to have a healthy pregnancy” (OPSS, 2008, p. 30). Access to smoking cessation counselling and programs is a necessary aspect of prenatal care (OPSS, 2008; RNAO, 2007).

Statement of the Problem

Interventions known to be effective in smoking reduction and cessation have been well documented in the literature. In 2007, the Registered Nurses’ Association of Ontario (RNAO) published a revised best practice guideline (BPG) entitled “Integrating Smoking Cessation into Daily Nursing Practice”. Specific recommendations for nurses caring for pregnant women are included in this BPG (see Appendix A for summary of RNAO BPG guideline recommendations).

No research has been found regarding nurses' application of the RNAO BPG practice recommendations to pregnant smokers. Studies pertaining to the implementation of RNAO practice recommendations have predominately focused on uptake by smoking cessation champions (Ontario Tobacco Research Unit, A. Babayan, personal communication, April 13, 2011). Smoking cessation (SC) champions are health care providers who have received specific training in the RNAO smoking cessation interventions and guideline implementation. SC champions receive on-going support from a SC coordinator and participate in continued education sessions such as teleconferences, and workshops. Research regarding the experiences of SC champions in implementing this RNAO BPG is in progress.

Ploeg, Davies, Edwards, Gifford, and Elliott-Miller (2007) emphasized that "clinical practice guidelines are promising tools for closing the research evidence-practice gap, yet effective and timely implementation of guidelines into practice remains fragmented and inconsistent" (p. 210). Previous studies pertaining to the use of other clinical practice guidelines for smoking cessation have identified that not all of the recommendations are consistently implemented in clinical practice (Barron et al., 2007; Lumley et al., 2009; Price, Jordan, & Dake, 2006; Davies, Edwards, Ploeg, & Virani, 2008).

SC champions certainly appear to enhance the uptake of BPG practice recommendations (Ploeg et al., 2010). However, no research has been found to reveal how widespread the uptake of this BPG has been among family practice nurses across Ontario, nor what the overall uptake of practice recommendations has been in daily nursing practice when there are no identified SC champions.

Purpose and Research Questions

The purpose of this study is to determine the role of family practice nurses (FPNs) in smoking cessation counselling for pregnant women. Specific research questions include;

- 1) What are FPNs current smoking cessation counselling practices for pregnant women seeking care at primary care settings in Ontario during routine visits? What factors are associated with counselling practices?
- 2) What is FPNs' awareness and use of guidelines pertaining to smoking cessation? What is their awareness of the RNAO BPG "Integrating Smoking Cessation into Daily Nursing Practice"?
- 3) What proportion of FPNs engage pregnant smokers in minimal interventions and intensive interventions?
- 4) What are the barriers to FPN-led smoking cessation counselling interventions of pregnant smokers?

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Chapter Two

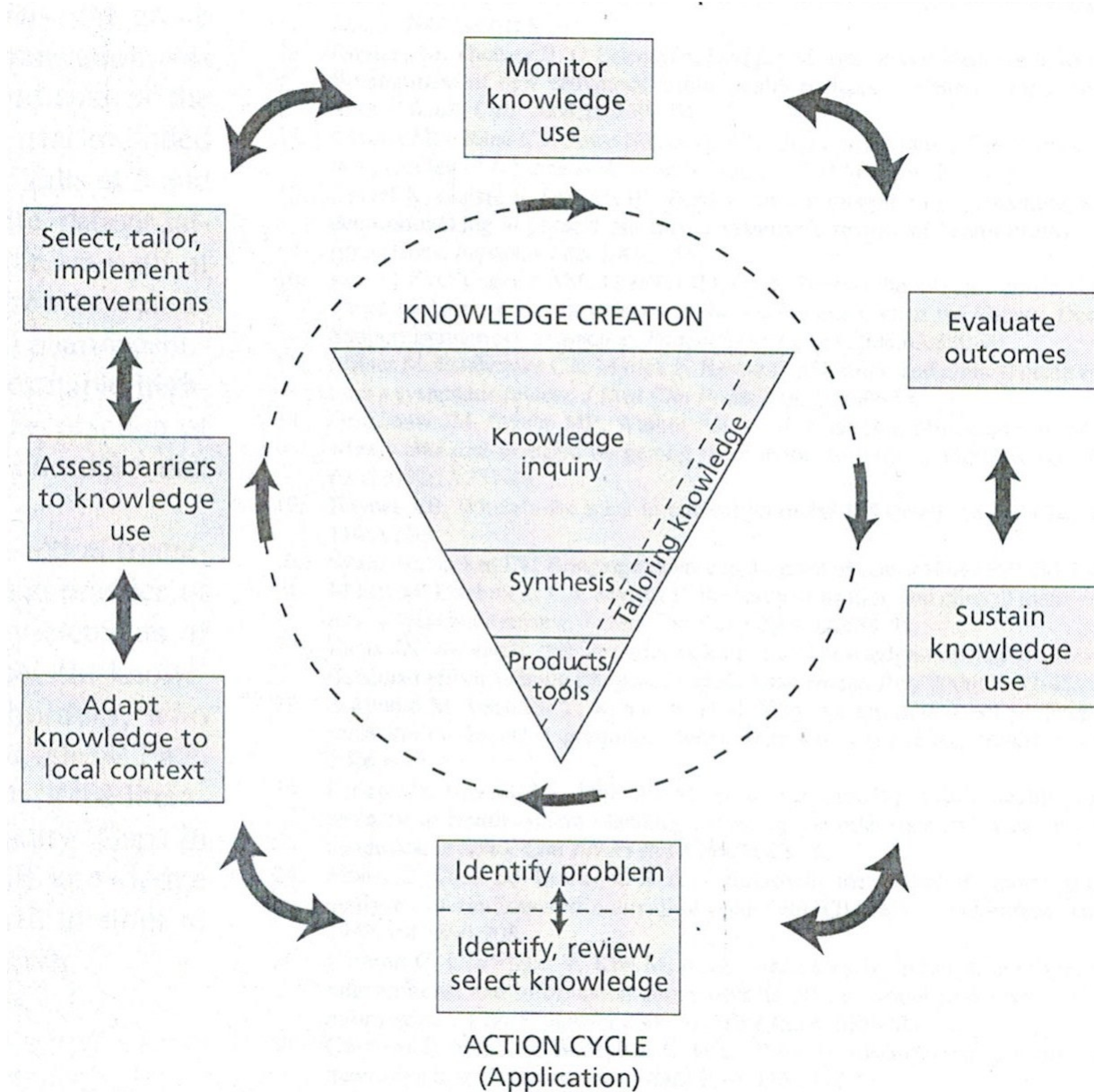
Conceptual Framework and Literature Review

Framework

This study is situated within “The Knowledge to Action Framework” (Straus, Tetroe & Graham, 2009a) (See Figure 1). The Knowledge to Action (KTA) framework incorporates two concepts: “knowledge creation” and “action”. The KTA process is iterative, dynamic, and complex. The central aspect of the diagram is a knowledge creation funnel, which is comprised of three phases. The first phase is knowledge inquiry which refers to primary studies. The second phase is knowledge synthesis or the aggregation of existing knowledge. Examples include meta-analysis and meta-synthesis. The third phase of the knowledge creation funnel is knowledge tools or products. Examples include practice guidelines, decision aids and care pathways (Graham, Logan, Harrison, Staus, Tetroe, Caswell et al., 2006; Straus et al., 2009a; Straus, Tetroe & Graham, 2009b).

As the body of knowledge on a particular topic (e.g. smoking cessation) moves through the three phases of the funnel, the knowledge becomes more refined and more relevant to stakeholders including frontline workers such as nurses. The outer aspect of the diagram depicts the phases in the “action” cycle to the KTA process. The following phases are included in the action cycle: Identify, review and select knowledge to implement; adapt knowledge to local context; assess barriers to knowledge use; select, tailor, implement intervention; monitor knowledge use; evaluate outcomes; and sustain knowledge (Graham et al., 2006; Straus et al., 2009a; Straus et al., 2009b). More recently, Graham and Tetroe (2010) have revised the KTA model to explore supports in the phase “assess barriers to knowledge use”.

Figure 1. Diagram of the Knowledge to Action Framework



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Smoking cessation is a widely researched topic. A multitude of primary studies have been systematically reviewed and later incorporated into clinical practice guidelines. There are numerous BPGs regarding smoking cessation. Of particular interest to this study is the

RNAO best practice guideline entitled “Integrating Smoking Cessation into Daily Nursing Practice” (RNAO, 2007). Since participants were members of RNAO it was hypothesized that they would be aware of RNAO products such as best practice guidelines developed by the RNAO.

The KTA process is relevant to this study determining FPNs’ involvement in smoking cessation counselling for pregnant women within the context of routine prenatal care visits. The first three phases in the action cycle will be evaluated: determine FPNs’ awareness of the RNAO BPG “Integrating Smoking Cessation into Daily Nursing Practice” or other comparable evidence-based guideline; describe how FPNs typically engage pregnant smokers; and identify barriers to smoking cessation interventions for pregnant women. Findings from this study may contribute to the broader research base regarding the implementation of evidence-based prenatal care recommendations. Findings from this study may identify implications regarding the dissemination of the RNAO BPG and how it might need to be tailored in the future for use by FPNs working with special populations such as pregnant women.

Best Practice Guidelines for Smoking Cessation

Numerous clinical practice guidelines regarding smoking cessation have been developed. A commonality in many guidelines is the use of a five “A’s” approach to smoking cessation interventions: *Ask* about tobacco use (at every visit), *Advise* tobacco users to quit, *Assess* readiness to quit, *Assist* in the development of a plan to quit, and *Arrange* ongoing smoking cessation counselling and support.

Of particular relevance to this study is the RNAO BPG entitled “Integrating Smoking Cessation into Daily Nursing Practice” (RNAO, 2007). This guideline was

developed in Ontario to outline evidence-based, nurse-provided, smoking cessation counselling interventions. The RNAO BPG was developed from eight pre-existing clinical practice guidelines. The RNAO BPG incorporates a 4 “A” approach with the “Assess” step incorporated into the “Ask” step of the protocol (J. Chee, personal communication, April 4, 2011). This BPG includes recommendations for practice, education, and organization and policy. More than half of the practice recommendations in the RNAO BPG have strong scientific evidence, indicating that at least two randomized control trials of high quality and consistent findings were utilized to inform/develop the practice recommendations.

Evaluation of the first edition of RNAO smoking cessation BPG was completed by Edwards & Davies (2003). They reported that the RNAO smoking cessation BPG received a high rating for the overall usefulness of the BPG (mean score of 8.1 for staff, with a rating of 10 being extremely useful). Mixed feedback was reported regarding how easy the BPG was to use and/or read. Some respondents appreciated the length and detail while others wanted more concise information pertaining to implementation (i.e. “a tool for implementation”).

One recommendation was that more detailed information is needed for implementation with special populations including pregnant and postpartum women. “Guidelines more explicitly addressing the challenges for staff working with these groups would make the BPG more immediately relevant to a wider range of practice settings” (Edwards & Davies, 2003, p. 26). Further research on how to best support and intervene with special populations, such as pregnant women, is required. Nonetheless, all practice recommendations apply to pregnant women, and all practice recommendations are within

the scope of nursing practice. Nurses have the skills and abilities to engage pregnant women in discussions regarding smoking cessation.

Barriers to Smoking Cessation Counselling/Interventions

A number of barriers to smoking cessation (SC) counselling for pregnant women were identified in the literature. The most significant barriers related to a lack of training. Tremblay, Cournoyer and O'Loughlin (2009) conducted a study in Quebec comparing SC practices across health care provider groups (N=1527, nurses = 179). Tremblay et al. (2009) reported that less than 5% of Quebec nursing respondents received training regarding SC during their studies; this was significantly less training as compared to GPs (15%) and pharmacists (36%). With the exception of physicians and pharmacists, less than 20% of health care providers in their study reported receiving training in SC following their studies (Tremblay et al., 2009).

In a study of midwives' knowledge, perception, beliefs, and practice support regarding tobacco dependence treatment (n=196), Abatemarco, Steinberg, and Delnevo (2007) reported that 72.8% of respondents perceived lack of training as a barrier to SC counselling. Abatemarco et al. reported an association between training and/or experience in SC and the "clinical tobacco treatment practice score" ($F=12.83$; $df= 1$; $P<.001$). The more training and experience in SC the nurse-midwife had, the more counselling the nurse-midwife would complete.

Lack of staff confidence in SC skills emerged as a consistent barrier to SC counselling. Nurses reported a lack of knowledge regarding how to motivate pregnant women to quit, and a lack of confidence in their SC counselling skills (Baxter, Everson-Hock, Messina, Burrows, & Goyder, 2010; Tremblay et al., 2009). Lack of knowledge

regarding where to refer pregnant women for further treatment was also identified as a barrier (Baxter et al., 2010; Price, Jordan, & Dake, 2006; Tremblay et al., 2009).

Another significant barrier was the perception of competing priorities during prenatal care visits (Baxter et al., 2010; Abatemarco et al., 2007). In the study by Abatemarco et al., 72.9% of nurse-midwives reported that there were more pressing issues to discuss such as acute illness which prevented them from engaging pregnant women in SC counselling. There was a significant association between the “clinical tobacco treatment practice score” and the perception of competing priorities in the visits ($F= 8.66$; $df= 1$; $P= .004$).

A troubling finding was a lack of belief that SC counselling is part of the role of health care providers. Tremblay et al., (2009) reported that 20% of health care providers in their study did not believe that SC counselling was part of their role. Conversely, many other studies identified that health care professionals viewed SC counselling as an aspect of their roles and responsibilities but were concerned about the potential negative impact on the therapeutic relationship (Baxter et al., 2010). This was particularly evident in studies surveying midwives (Price et al., 2006; Abatemarco et al., 2007). In concrete terms, “the intention to ask or intervene does not always translate into practice” (Abatemarco et al. 2007, p. 691). Lack of time is commonly cited a perceived barrier, although it is not always significantly associated with SC practice patterns. For example, in the study by Abatemarco et al. (2007), 48.4% of midwives perceived time to be a barrier, however, it was not significantly associated with the “clinical tobacco treatment practice score”.

Facilitators to Smoking Cessation Counselling/Interventions

Perceived self-efficacy to complete SC counselling and intervention is an important facilitator (Price et al., 2006; Tremblay et al., 2009). Tremblay et al., 2009 reported that

increased perceived self-efficacy to engage patients in effective counselling was associated with an increased likelihood of counselling both smokers who were ready to quit and those who were not ready to quit. Having a system in place to provide SC information and resources was a facilitator to SC counselling (Baxter et al., 2010; Abatemarco et al., 2007). There was a significant association between the “clinical tobacco treatment practice score” and having a system in place to provide SC information and resources (56.3%) ($X^2= 9.734$; $P= .002$) (Abatemarco et al. 2007).

The employment of the 5A’s emerged as a facilitator to SC counselling for pregnant women. The greater the use of the 5 A’s, the fewer barriers were reported ($r= -0.345$; $P<.001$). It was found that nurse-midwives more likely to use the 5 A’s had higher perceived efficacy expectations in their ability to communicate issues about the 5 A’s ($r= 0.471$; $P<.001$) and they had higher outcome expectations regarding the effects of using the 5 A’s with pregnant patients who smoked ($r=0.231$; $P=.001$) (Price et al., 2006). Recent training in smoking interventions was associated with increased number of smoking interventions (effect size- 0.13, $p<.001$) (Cooke, Mattick, & Campbell, 1998 as cited in Baxter et al., 2010). In one study, the age of the nurse was relevant. Price et al. (2006) reported a significant but modest positive correlation between use of the 5 A’s and older age of the nurse-midwife ($r=0.167$; $p=.03$).

Overall, nurses identified a need for further training and expressed an interest in updating their knowledge regarding SC counselling techniques and interventions (Abatemarco et al., 2007; Tremblay et al., 2009). Further research is needed regarding nurses’ current awareness of and use of evidence-based SC interventions in addition to their perceived barriers in SC counselling for pregnant women. The following manuscript reviews

the evidence regarding SC during pregnancy, highlights the importance of providing SC interventions for pregnant women, and suggests that nurses are optimally positioned to provide prenatal and postpartum support to pregnant women and their partners who smoke.

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Literature Review

Manuscript Title: Maximizing the uptake of evidence-based smoking cessation interventions for pregnant women: Optimizing the role of primary care nurses.

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Abstract

Smoking during pregnancy continues to be a serious public health problem. Numerous evidence-based guidelines have been developed to assist primary care practitioners in implementing smoking cessation interventions. Not all aspects of smoking cessation guidelines have been consistently implemented, in particular the “assist” and “arrange” steps. Primary care practitioners are well situated to take a lead role in supporting patients to quit smoking, including women who are pregnant and their partners. Smoking cessation counselling for pregnant women needs to be woman-centered and individualized. The challenges of becoming smoke-free need to be addressed on a regular basis, not limited to a discussion during the first prenatal appointment. This commentary reviews the evidence for smoking cessation during pregnancy and highlights the need to better support pregnant women with smoking cessation. Since primary care nurses are reported to be working below their full scope of practice and currently underutilized in some health care settings, we propose that primary care nurses should take an active role in providing evidence-based smoking cessation interventions. Primary care nurses can help childbearing women and their partners by “assisting” with the quitting process and “arranging” follow-up support. Furthermore, they are also ideally positioned to provide additional support during the postpartum period when women are at high risk for relapse.

Keywords: Smoking cessation, pregnancy, primary care, nurses, prenatal care

Introduction

Smoking during pregnancy continues to be a serious public health problem; it contributes to significant short and long term health problems in newborns and children, and

it also presents serious health risks to women (Health Canada, 2007; Health Canada, 2009; Pregnets, 2003). The prevalence of smoking during pregnancy ranges from 6-30% in Canada (Chalmers, Dzakpasu, Heaman, & Kaczorowski, 2008; Health Canada, 2007; Public Health Agency of Canada, 2009), and 13% to 33.7% in the United States (Centers for Disease Control and Prevention, 2011; Reinold, Dalenius, Brindley, Smith, & Grummer-Strawn, 2011). There is a wide range in the reported prevalence of smoking during pregnancy due to the negative social stigma associated with smoking during pregnancy; mothers are reluctant to disclose their smoking behaviours due to feelings of guilt and shame (Greaves, Horne, Poole, Jategaonkar, & McCullough, 2005; Pregnets, 2003; Selby, & Dragonetti, 2007). There is no safe amount of smoking during pregnancy (Association of Women's Health, Obstetric and Neonatal Nurses, 2010; Pregnets, 2003).

Nicotine is highly addictive and pregnant women who desire to quit need concrete assistance in their smoking cessation efforts. Primary care practitioners can potentially enhance both fetal and women's health by consistently engaging pregnant women and their partners in discussions regarding the risks of smoking during pregnancy, identifying women who desire to quit and supporting women in their efforts to be smoke-free during pregnancy and beyond.

The purpose of this commentary is to situate prenatal care as a unique opportunity for primary care practitioners to successfully implement evidence-based smoking cessation guidelines that are too often overlooked in practice. We suggest that primary care nurses are ideally positioned within the healthcare system to take a greater role in smoking cessation counselling to improve the health of mothers and their newborns.

Pregnancy: A key opportunity for successful smoking cessation

The frequencies of routine prenatal visits are an opportune time to support women in smoking cessation. The potential synergy of pregnant women's readiness to quit coupled with the frequency of prenatal appointments that often include women's partners provides a context that optimizes the success of intensive smoking cessation interventions. During pregnancy, women are reported to be highly motivated to quit smoking and are often more receptive to advice on how to quit (Scalera & Koren, 1998). In fact, pregnant women are eight times more likely to quit than the general population (Lumley, Chamberlain, Dowswell, Oliver, Oakley, & Watson, 2009). To enhance smoking cessation efforts, pregnant women benefit from individualized smoking cessation interventions, ongoing support and partner involvement.

Individualized smoking cessation interventions. Smoking cessation interventions for pregnant women need to be specifically tailored to their unique social and personal context (Ebert & Fahy, 2007; Greaves et al., 2005; Pletsch & Morgan, 2002). Smoking in pregnancy is strongly associated with poverty, low educational attainment, poor social support, and psychological illness (Lumley et al., 2009). The social environment is a major determinant in the initiation and continuation of smoking (Hotham, Gilbert, & Atkinson, 2005). Women who have a smoking partner, a large number of children, a high rate of tobacco consumption, as well as deficiencies in prenatal care are more likely to smoke during pregnancy (Schneider, Huy, Schutz, & Diehl, 2010). While providing prenatal care, primary care practitioners have the privilege of already having established trusting relationships with women. Primary care practitioners can use the prenatal time as an

opportunity to facilitate discussions regarding difficult topics such as smoking cessation and provide the ongoing support that is necessary for (or facilitates) sustained abstinence.

Ongoing support. Women's smoking cessation efforts are often successful during pregnancy, however, sustained abstinence is not always achieved since they are motivated by external rather than internal reasons; they are quitting for the fetus and not for themselves (Greaves et al., 2003). A woman-centered approach should be utilized by emphasizing the long term maternal health benefits of smoking cessation (Ebert & Fahy, 2007; Greaves et al., 2003; 2005). Pregnant women who wish to quit smoking require the continued guidance and support of health care professionals who are knowledgeable in effective smoking cessation strategies; this support should continue throughout the prenatal and postnatal period.

Women who abstain from smoking in early pregnancy can reduce the negative effects on the unborn baby to that of non-smoking women; the earlier pregnant women abstain from smoking the greater the benefits to the developing fetuses (Barron, Petrilli, Strath, & McCaffrey, 2007; Lumley et al., 2009). Furthermore, there are health benefits of smoking cessation at any point in the pregnancy for both the fetus and the mother, so it is necessary for health care providers to have ongoing discussions regarding the importance of avoiding smoking and second-hand smoke exposure (Pregnets, 2003).

Involve partner: Nearly one quarter (23.4%) of pregnant women live with someone who smokes (Chalmers, Dzakpasu, Heaman, & Kaczorowski, 2008). Women who attempt to quit but have partners who continue smoking are more likely to relapse (Ingall & Cropley, 2010). Therefore, it is necessary to also include partners in smoking cessation interventions. Health care providers should engage women and their partners in discussions regarding the

health risks of smoking and emphasize the benefits of smoking cessation for the entire family. Regular contact with women and their partners has the potential to provide the continuity of care necessary for achieving and sustaining smoking cessation goals (Pletsch & Morgan, 2002).

The Evidence-Practice Gap

Interventions known to be effective in smoking reduction and cessation have been well documented in the literature; however, the uptake of practice recommendations by primary care practitioners caring for pregnant women is variable. A Canadian study found that women were not receiving all the recommended prenatal health care advice from their health care providers, including health promotion advice pertaining to smoking during pregnancy (White, Fraser-Lee, Tough, & Newburn-Cook, 2006). Over half of the women in the study (58.6%) reported receiving advice regarding the risks of tobacco use during pregnancy. Of the 21.5% women who identified themselves as smokers, 83% reported that they received advice from their health care providers regarding the risk of smoking, and 56% reported ongoing discussions about smoking. Surprisingly, only 25% reported having discussions regarding potential smoking cessation strategies. Furthermore, greater than 30% of women reported that they did not receive advice about the effects of second-hand smoke (White et al., 2006).

Lack of consistent health promotion advice was also identified by the United States Pregnancy Risk Assessment Monitoring System (PRAMS). The proportion of women who reported that they received prenatal care counselling regarding the effects of smoking during pregnancy ranged widely from 49.5% to 79.4% (Williams, Morrow, Shulman, Stephens, D'Angelo, & Fowler, 2009). The full range of smoking cessation related health promotion

and harm reduction interventions are neither universally nor comprehensively implemented. “Health-care providers should increase efforts to assess the smoking status of their patients and offer effective smoking-cessation interventions to every female or pregnant smoker to whom they provide care” (Tong, Jones, Dietz, D'Angelo, & Bombard, 2009, p. 2). There continues to be many opportunities for enhanced provision of preventive prenatal care for pregnant women who smoke.

The Role of Primary Care Nurses in Smoking Cessation Counselling

Primary care practitioners, including nurses, “have a responsibility to routinely screen for tobacco use, to implement or support evidence-based smoking cessation strategies, and to refer patients to smoking cessation programs and resources” (Association of Women’s Health, Obstetric and Neonatal Nurses, 2010, p. 428). In the following paragraphs, we discuss how primary care nurses who see pregnant and postpartum women routinely throughout their childbearing years are ideally situated to provide smoking cessation counselling. Primary care nurses work in a variety of settings such as family physician offices, community health centres, and family health teams. Nurses are among the first health care professionals to see women during pregnancy and are therefore well positioned to engage women in smoking cessation strategies very early in pregnancy. Even though many women will be referred from their family physicians to obstetricians or midwives later in pregnancy, nurses can play a lead role in communicating individual women’s progress with smoking cessation to the team. More importantly, nurses will resume seeing women and their families regularly for preventive care after childbirth. Despite the presence of primary care nurses in the health care system the evidence suggests that they are not being utilized optimally.

A study of primary care nurses in Nova Scotia, Canada revealed that primary care nurses are key members of collaborative health teams: 64.1% of respondents reported that they conduct prenatal assessments, 63% indicated that physicians refer patients to them for health education and 73% specified that they want to provide more patient education (Todd, Howlett, MacKay, & Lawson, 2007). The study authors concluded that primary care nurses are making a valuable but limited contribution to primary health care in Nova Scotia (Todd et al., 2007).

Another study exploring the role of primary care nurses found that only 61% of nurses in Canadian Family Practice Residency Training Programs are working to their full scope of practice (Allard, Frego, Katz, & Halas, 2010). Nurse respondents reported performing non-nursing activities and receiving limited support for optimizing their roles. Nurses in these programs are underutilised: Employers and organizational policies as well as nurses and their colleagues' lack of understanding and awareness of nursing scope of practice contributed to this reality (Allard et al., 2010).

Very little is known about nurses' role in prenatal smoking cessation practice. However, given the evidence indicating that pregnant women currently receive inadequate smoking cessation counselling and the limited role of primary care nursing practice, we propose that increasing primary care nurses' role in smoking cessation counselling is likely an important strategy for improving maternal and infant health outcomes. In the following paragraphs, we employ the Five A's Model of Treating Tobacco Use and Dependence 'Ask, Advise, Assess, Assist and Arrange' (Fiore et al., 2008) for smoking cessation counselling to provide examples of how nurses can actively contribute to increasing the uptake of evidence-based smoking cessation practices with pregnant women.

“Ask” About Tobacco Use

Tobacco use should be considered a vital sign. At each prenatal appointment, nurses can ask women about their smoking behaviours and maintain up-to-date documentation about women’s smoking status and tobacco use. Smoking status can be identified by three categories: a current user, a former user or a non-smoker. For women identified as current or former users, tobacco use should be documented on an on-going basis, at each prenatal appointment.

Follow-up regarding smoking behaviours is crucial, and this is currently not happening on a consistent basis (Baxter et al., 2010; White et al., 2006). A qualitative study revealed that women were surprised by the lack of health care provider follow-up about smoking behaviours (Hotham, Atkinson, & Gilbert, 2002). Women anticipate and expect that smoking is a topic for discussion with their health care providers. By integrating “Ask” into each prenatal appointment, primary care nurses can systematically identify all tobacco users at every visit.

“Advise” to Quit

Nurses can advise all pregnant tobacco users to quit at each prenatal visit. There is disagreement in the literature regarding whether health care professionals should advise total abstinence or adopt a harm reduction approach whereby women gradually reduce the amount of tobacco consumption. Whatever the approach, it is important to discuss the life-long health benefits of smoking cessation for the pregnant woman, in addition to the health benefits of quitting for her baby and other family members.

“Assess” Readiness to Quit

Nurses can assess a pregnant woman’s willingness and readiness to make a quit attempt if the patient is a current smoker. If the woman has started to reduce her tobacco use, or if she is an ex-tobacco user, nurses can determine when these changes were made, and if there are any challenges and facilitators to tobacco abstinence.

“Assist” with the Quitting Process

If the woman is ready to quit, the nurse can help her develop a quit plan. Quit plans typically involve setting a quit date, arranging social support, anticipating challenges, and removing tobacco products from her environment. Nurses can provide on-going practical and supportive counselling in order to enhance the motivation to quit tobacco and remain tobacco-free. Women should be encouraged to contact their health care provider for telephone or in-person appointments if additional supportive counselling is required between prenatal appointments.

Motivational interviewing strategies can be used to assist with the quitting process. These include: Expressing empathy, developing discrepancy, rolling with resistance, and supporting self-efficacy (Fiore et al., 2008). In a randomized controlled trial comparing motivational interviewing versus usual care for low-income pregnant women, motivational interviewing emerged as a cost-effective strategy to prevent relapse (Ruger, Weinstein, Hammond, Kearney, & Emmons, 2008). Primary care nurses can implement motivational interviewing to complement the work that has been done towards achieving and maintaining smoking cessation goals. For patients who are not ready to quit, nurses can implement interventions to enhance motivation to quit. One such intervention is to employ the 5 R’s:

Review *relevance, risks, rewards, roadblocks* and provide *repetition* of the motivational intervention (Fiore et al., 2008).

“Arrange” Follow-up Contact

Nurses can ensure that follow-up appointments are made, either in person or via telephone. The multiple prenatal visits during pregnancy translate into many opportunities to engage pregnant women in health care discussions and interventions pertaining to smoking cessation. It is important to acknowledge and celebrate progress made towards achieving the smoking cessation goals. Nurses should find out and maintain an up to date understanding and awareness of the local resources available to assist women with quitting. If a referral has been made to an external smoking cessation resource, nurses can ask the patient at the next prenatal appointment if she has completed the referral and whether or not the referral was helpful. If the patient has determined that the referral was not useful or appropriate to her circumstances, a referral to another resource will need to be arranged.

Primary care nurses have the opportunity to follow women during the postpartum period and throughout their childbearing years. Women will receive care from their family doctors for their postpartum check-up, and in many cases, for their well-baby check-ups, and infant vaccinations. The postpartum period represents a time of significant risk of relapse for women who have reduced or quit smoking during pregnancy. Postpartum relapse rates are approximately 50-60% within the first six months (Centers for Disease Control and Prevention, 2007; Edwards & Sims-Jones, 1998). Primary care nurses are well positioned to provide support during this vulnerable time.

The 5 A's Model of Treating Tobacco Use and Dependence can be effectively implemented by primary care practitioners caring for this specific population of women.

Additional information and resources addressing the specific needs and consideration of pregnant women are included below:

- Canadian Action Network for the Advancement, Dissemination and Adoption of Practice-informed Tobacco Treatment. Guideline: Specific Populations: Pregnant & Breastfeeding Women
<http://www.can-adaptt.net/>
- Quit smoking telephone counselling protocol for pregnant and postpartum women.
<http://www.hc-sc.gc.ca/hc-ps/pubs/tobac-tabac/protocol/index-eng.php>
- Expecting to Quit: A best practices review of smoking cessation interventions for pregnant and postpartum girls and women.
http://www.bccwh.bc.ca/publications-resources/documents/Expecting_to_Quit.pdf
- Pregnets
<http://www.pregnets.org/>

Conclusion

Pregnant women and their partners need concrete assistance in their journey towards smoking cessation. Smoking cessation interventions should be individualized and woman-centered. Partners should be included in smoking cessation counselling sessions and discussions regarding progress towards the smoking cessation goals should occur throughout pregnancy. Primary care nurses are well situated to engage pregnant women and their partners in health promotion and harm reduction strategies related to smoking (Alsaffar, 2005; Pletsch & Morgan, 2002; Registered Nurses' Association of Ontario, 2007).

Primary care nursing practice needs to be better supported to “assist” pregnant women and their partners who smoke. Additionally, a process should be implemented whereby follow-up is consistently “arranged” to monitor and discuss progression towards smoking cessation goals. This research might identify how evidence-based guidelines for smoking cessation can be further tailored to be more relevant for primary care practitioners

working with special populations such as pregnant and postpartum women. Nurses can empower pregnant women and their partners to making a life changing behaviour modification, so that smoking cessation efforts started during pregnancy will not stop with the birth of the child but rather continue towards life-long abstinence.

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Chapter Three

Methods

The purpose of this study is to determine the role of family practice nurses (FPNs) in smoking cessation counselling for pregnant women. A provincial scan is needed to gain a preliminary understanding of the current practice of FPNs in regards to smoking cessation interventions for pregnant women.

Research Design

The research design for this study is a non-experimental, descriptive, correlational design (Aday & Cornelius, 2006). A onetime cross-sectional electronic survey was used to collect data about self-reported smoking cessation interventions during prenatal care by FPNs, employed in primary care settings in Ontario (see Appendix B for Questionnaire and Appendix C for copyright permission). This design permits the exploration of factors related to FPNs' self-reported SC counselling interventions for pregnant women who are "ready to quit" and "not ready to quit".

Study Setting

The setting for this study is the province of Ontario, Canada. In Ontario, there are approximately 4,000 FPNs (J. Surridge, personal communication, April 21, 2012). FPNs are the "first point of contact with those visiting a family physician/primary care practice" (Alsaffar, 2005, p.1). Pregnant women often gain access to the health care system through their primary care provider: FPNs are likely one of the first HCPs that women see during pregnancy (Alsaffar, 2005).

There are approximately seven models of primary care in the province of Ontario (Health Force Ontario, 2007). Some examples include Family Health Teams (FHTs),

Community Health Centres (CHCs), Family Health Networks, Family Health Groups, physicians' offices, teaching family practice units, university and college health units, and private family practices (Health Force Ontario, 2007; Ontario Family Practice Nurses, 2005).

Sampling Procedure

The participants for this study were FPNs working in primary care settings in Ontario. A convenience sample of FPNs who provided prenatal care were recruited via the *Ontario Family Practice Nurses'* (OFPN) interest group of the Registered Nurses Association of Ontario (RNAO). RNAO is a voluntary professional organization and members can join interest groups to receive professional resources and support in their chosen speciality area. The president and secretary of the OFPN agreed to electronically distribute, via their e-mail distribution list, a bilingual invitation to participate in the survey with a hyperlink to the on-line questionnaire (see Appendix D for E-mail recruitment text). There are approximately 500 members of the OFPN interest group and e-mail is the mode of communication with members (J. Surrige, personal communication, Dec 14, 2010).

Originally, it was intended that the tailored design method would be followed to recruit participants (Dillman, Smyth, & Christian, 2009). This would include five e-mails: a pre-notice, an invitation to participate in the study, and three reminders. However, at the request of the University of Ottawa Research Ethics Board the sampling method was changed to a total of three e-mail contacts, all of which included a hyperlink to the questionnaire. The participants could complete the questionnaire at work or at home. Upon questionnaire completion, participants had the option of entering their name into an appreciation draw for one of four \$25 Chapters Bookstore gift cards.

The inclusion criteria for the study were threefold: 1) currently employed as an RN or RPN at a Primary Care setting in Ontario for at least two years; 2) provide direct patient care for prenatal patients (i.e. are not administrators); and 3) able to read and write in English. It was initially intended that nurse practitioners would be excluded since they have an expanded role. However, due to the low response rate it was decided that respondents who had completed the questionnaire and were either nurse practitioners ($N = 2$) or nurses who had worked less than two years in their current position ($N = 11$) would be included in the data analysis.

Sample size calculation

Norman and Streiner (2008) recommend that 5 to 10 subjects are needed for each independent variable entered into a multiple regression analysis (Norman & Streiner, 2008). Based on the work of Tremblay et al. (2009), 7 independent variables were planned for the analysis. In case of partial non-response, an additional 10 subjects were added to the numbers of participants to be recruited. Therefore, in order to complete the analysis planned, it was determined that a minimum of 80 participants were required. (Note: sex was dropped as an independent variable given that 100% of respondents were female).

Instrument Development

The modification of the data collection instrument, adaptation from a pen-and-paper questionnaire to an electronic format, and the pre-testing procedures are described in this section.

Data Collection Instrument.

The data collection instrument for this study was a questionnaire (Appendix B Questionnaire). The questionnaire was modified from the “Smoking cessation counselling

practices among Quebec nurses” questionnaire (Tremblay, Cournoyer, & Loughlin, 2009). The history of the development of this questionnaire is described in two articles by O’Loughlin et al. (2001), and Tremblay, Gervais, Lacroix, O’Loughlin, Makni, and Paradis (2001). The questionnaire was originally developed from the “Agency for Health Care Policy and Research Smoking Cessation Clinical Practice Guideline” (Smoking Cessation Clinical Practice Guideline Panel and Staff, 1996). This questionnaire has been subsequently used in a number of studies exploring Quebec health care professionals’ smoking cessation practices (Makni et al., 2002; O’Loughlin, Makni, Tremblay, & Karp, 2007; Tremblay, Cournoyer, Jukic, & O’Loughlin, 2007; Tremblay et al., 2009).

In-depth information regarding scale development procedures of the original survey is outlined by O’Loughlin et al. (2001). The psychosocial characteristics relating to smoking cessation counselling were grouped into potential constructs. Principal Component Analysis with orthogonal varimax rotation was then employed to test the groupings and reduce the items into reliable, parsimonious scales (O’Loughlin et al., 2001). “The number of factors selected was based on the scree test and the minimum eigenvalue of 1.0. A factor loading of at least 0.40 was selected as the criterion for determining which items contributed to a given factor” (O’Loughlin et al., 2001, p. 628). Tremblay et al. (2009) reported a similar scale development process to that of O’Loughlin et al. (2001). The reliability of the instrument in both studies has been shown to be good.

Utilizing the questionnaire by Tremblay et al. (2009) in this study had two major benefits. Firstly, the questionnaire had been previously administered to nurses. Results describing the current cessation counselling practices of nurses in Quebec as well as factors associated with these practices were specifically outlined in a report by Tremblay,

Cournoyer, Jukic, and O'Loughlin (2007). Thus it was possible to make comparisons between results of the current study to that of Tremblay et al. Secondly, information was available regarding the reliability testing.

Permission was obtained from Dr. Michèle Tremblay to modify and use the questionnaire (Appendix C). The following procedure was used to modify the questionnaire to collect data exclusively on the current smoking cessation interventions of Family Practice Nurses for pregnant women: conduct a literature review, obtain expert feedback and pre-test the modified questionnaire.

The questionnaire was modified in the following ways:

- I. the word pregnant was inserted before patient/client,
- II. the patient groups were edited to reflect only adolescents and women of childbearing age (i.e. pre-adolescent patients aged 9-12 were excluded),
- III. clinical practice settings were updated to reflect primary care settings in which Ontario FPNs work (acute care and long term care settings were excluded and more options for primary care setting were included such as Family Health Teams, Community Health Centres, University and/or College Health Units, Academic Family Residence Training Programs, and Physicians' offices),
- IV. the medication Champix® (varenicline) was deleted as there is little research regarding the safety and efficacy for use with pregnant women,
- V. Resources for nurses and patients were updated to reflect options available in Ontario (i.e. Canadian Nurse, Ontario Family Practice Nurses' interest group, smokers' Helpline etc.)

- VI. Revised options for the number of pregnant patients that the FPN sees during a normal work day.

The following demographic questions, pertaining to nursing employment, were added:

- a. What is your current position?
- b. What is your current employment status?
- c. How many years have you worked in your current position?

The following questions were deleted because they were not relevant to the current study.

- I. “In the waiting room of the place where you carry out most of your clinical practice, are there any (select all that apply)... No smoking signs, posters encouraging non-smoking, posters encouraging smokers to ask for help, posters informing patients about j’Arrête smoking cessation services, pamphlets on smoking cessation?”
- II. “What is your area of specialty”

The section of the questionnaire inquiring about awareness and use of smoking cessation guidelines was revised to reflect a broader range of generic guidelines that primary care practitioners would likely use for their general patient population and potentially their pregnant patients as well. It was hypothesized that since participants were members of the OFPN, which is an interest group of the RNAO, that the participants would be aware of the RNAO smoking cessation guideline. To test/explore this hypothesis, questionnaire items were included that could collect this information. Specifically, a question was added to collect data on the awareness and use of the RNAO Best Practice Guideline entitled “Integrating Smoking Cessation Intervention into Daily Nursing Practice” (2007).

Three recommendations from the RNAO guideline, that are relevant to nurses working with pregnant women who smoke in primary care settings in Ontario, were used to guide the researcher in exploring this assumption. These included practice recommendations one, six and seven, which were all rated as a level A of evidence (or strong scientific evidence):

1. Practice Recommendation One suggests that “nurses implement minimal tobacco use intervention using the "Ask, Advise, Assist, Arrange" protocol with all clients”;
2. Practice Recommendation Six suggests that “nurses implement, wherever possible, intensive intervention with women who are pregnant and postpartum”; and
3. Practice Recommendation Seven suggests that “nurses encourage persons who smoke, as well as those who don’t, to make their homes smoke-free, to protect children, families and themselves from exposure to second-hand smoke”.

The questionnaire was reviewed by the researcher to ensure that items included were able to capture the extent to which FPNs integrated these practice recommendations into the care of pregnant patients.

Content validity.

In order to test the content validity of the modified survey, an expert panel was formed. Content validity refers to “the extent to which a measurement covers all aspects of the topic it purports to measure” (McDowell, 2006, p. 711). Clinical credibility of a measure

is typically determined by asking experts in the field to critically review the content of the scale for clarity and completeness (McDowell).

The expert panel consisted of four health care professionals: a regional perinatal consultant (from the Champlain Maternal Newborn Regional Program), a university professor teaching maternal/newborn theory, a smoking cessation specialist at a women's health clinic, and an Advanced Practice Nurse in a tertiary high-risk antenatal care clinic. The expert panel reviewed the modified questionnaire and provided written feedback regarding the readability, clarity and completeness of questions. The questionnaire was "snowball edited" meaning that the first expert reviewed the questionnaire and it was sequentially refined as appropriate prior to sending it to the next expert. Feedback from the expert panel led to the following revisions:

- I. Two additional items were added to the question "During the past 3 months, for what proportion of your pregnant clients who smoke and who were NOT ready to quit, did you...?" These items included the following:
 - "Advise the client to reduce the number of cigarettes smoked if unable to quit", and
 - "Offer written educational material on smoking or cessation".

This first item was added to reflect the harm reduction approaches which are increasingly used with pregnant women (Chalmers et al., 2004). Attempting to decrease the number of cigarettes smoked can potentially reduce the negative impact of smoking on both the mother and the fetus. Although some proponents endorse complete cessation, the harm reduction philosophy is more congruent with a women-centered approach (Greaves et al., 2003; Ingall & Cropley, 2010).

The second item was added since providing an information booklet specifically targeting patients in the pre-contemplation stage can help to increase motivation to change behaviour and progress to the next step in the stages of change model (Fiore et al., 2008).

- II. A question was added regarding the inclusion of partners in smoking cessation counselling. “During the past 3 months, how often did you include partners in the smoking cessation counseling session with your pregnant patient?”

The literature regarding SC counselling for pregnant women strongly reinforces the importance of including partners in SC counselling. The literature consistently identifies the negative impact that a partner who smokes has on cessation efforts of pregnant women (Chalmers, Dzakpasu, Heaman, & Kaczorowski, 2008; Schneider, Huy, Schutz, & Diehl, 2010). In one study, it was found that “among smokers and recent quitters, women were twice as likely to continue smoking during pregnancy if their partner was a smoker” (Flenady, Macphail, Karen, Devenish-Mearns, & Smith, 2008, p.555). Therefore, the expert panel strongly advocated that a question pertaining to the inclusion of partners be added to the questionnaire.

Pre-testing the modified questionnaire.

An electronic version of the final questionnaire was developed using the web-based (or on-line) survey development tool, *SurveyMonkey*. The on-line questionnaire was pre-tested with five nurses to determine readability, comprehension, and time required to complete the survey. The pre-testing phase was also important to rule out any technical difficulties with the questionnaire administration process such as accessing/following the hyperlinks from the recruitment e-mail.

The five nurses who completed the pre-testing were student colleagues in the Masters in Nursing Program at the University of Ottawa who had experience in either smoking cessation counselling/interventions, primary care or perinatal nursing (see Appendix E for Pre-testing group feedback). The questionnaire was further revised based on written feedback. The wording of the original question pertaining to barriers was not clear to two of the pilot nurses. Based on the feedback, it was identified that future respondents might potentially be confused with the word “importance”:

Original question “There are many reasons why a nurse many not offer smoking cessation counselling. Please indicate the importance of each of the following possible barriers to cessation counselling in your practice” (response categories: Extremely important, very important, moderately important, not too important, and not at all important).

Revised question: “There are many reasons why a nurse many not offer smoking cessation counselling. Please identify to what extent the following factors are barriers to smoking cessation counselling for pregnant women in your practice” (response categories: Highly significant barrier, significant barrier, sometimes a barrier, rarely a barrier, never a barrier). This revised question was reviewed by two of the pre-testing nurses who confirmed that the new wording was more clearly written.

The demographic questions, pertaining to education, were clarified to emphasize nursing education. The original question was “In what year did you obtain your degree?” This question was changed into two questions: “What is your highest level of nursing education?” and “In what year did you graduate from your highest level of nursing education?”.

Pre-testing identified that it took between 20-29 minutes (mean 23.2 minutes) to complete the on-line questionnaire and complete the feedback form (see Appendix E). Therefore, the study information letter was updated to state that it would take approximately 20 minutes to complete the questionnaire.

Variables

Cessation counselling.

In order to provide interventions and support to pregnant women who smoke, it is suggested that nurses initially determine women's readiness to quit and motivation to quit (Greaves, Horne, Poole, Jategaonkar, & McCullough, 2005). Pregnant women will be either ready to quit or they will not be ready to quit and the subsequent interventions would necessarily be different. In this study, therefore, both of these situations were explored by developing two independent scores modelled from the work of (Tremblay et al., 2009): A "Ready to quit" counselling score quantifies nurses' smoking cessation counselling practice with pregnant women who have indicated readiness to quit and a "Not ready to quit" counselling score quantifies nurses' smoking cessation counselling practice with pregnant women who have indicated that they are not ready to quit.

"Ready to quit" counselling score.

The "ready to quit" counselling score was comprised of 10 items from question #12, "During the past 3 months, for what proportion of pregnant patients who smoked and who were preparing to quit did you...":

1. Ascertain the number of cigarettes smoked per day?
2. Discuss previous quit attempts?
3. Discuss withdrawal symptoms?
4. Discuss worries about quitting?
5. Discuss cognitive- behavioural strategies to quit smoking?
6. Advise setting a formal quit date?

7. Ascertain whether the first cigarette of the day is smoked within 30 minutes of waking up?
8. Refer to resources: written education material on smoking or cessation, smoking cessation resources in the community, a telephone helpline (such as smokers' Helpline) or website that helps patients quit, or a smoking cessation center or a smoking cessation expert? * (Note: a mean referral score was created for this item which was comprised of 5 items that were summed and then divided by 5).
9. Offer an appointment or telephone call 1-2 weeks after the quit date?
10. Recommend nicotine replacement therapy (gum, patch, inhaler or lozenge) or Zyban (bupropion)? * (Note: a mean recommend medication score was created for this item included 2 items that were summed and then divided by 2).

Response options for each item ranged from 1 (nurses undertook practice with few or none of her pregnant patients who smoked and were “ready to quit”) to 5 (nurses undertook practice with all or almost all of her pregnant patients who smoked and were “ready to quit”). The two mean scores (items 8 and 10) were added to items 1-7 and item 9 to determine the total ready to quit counselling score (minimum = 10; maximum = 50). Higher total scores indicate FPNs provided more SC counselling to pregnant women who were ready to quit smoking.

“Not ready to quit” counselling score.

The “Not ready to quit” counselling score was comprised of 9 items from question #11, “During the past 3 months, for what proportion of pregnant patients who smoked and who were NOT ready to quit, did you...”:

1. Provide information of the health risks of smoking to the mother, the fetus and the infant and the benefits of quitting?
2. Discuss her perceptions of the pros and cons of smoking?
3. Discuss her perceptions of the pros and cons of quitting?
4. Express concern about her smoking?
5. Advise the client to quit smoking?
6. Advise the client to reduce the number of cigarettes smoked if unable to quit?
7. Offer written education material on smoking or cessation?
8. Offer an appointment specifically to discuss smoking cessation?
9. Discuss the effects of second-hand smoke on the health of relatives and friends?

Response options for each item ranged from 1 (nurses undertook practice with few or none of her pregnant patients who smoked and were “not ready to quit”) to 5 (nurses undertook practice with all or almost all of her pregnant patients who smoked and were “not ready to quit”). Response items were summed across the nine items (minimum = 9; maximum = 45), with higher scores indicating FPNs provided more SC counselling to pregnant women who were not ready to quit smoking.

Factors that influence nurses' counselling.

Six independent variables were examined to determine if they were significant predictors of nurses' SC counselling of pregnant patients who were either “ready to quit” or “not ready to quit”. The variables were nurses' beliefs (defined as the belief that cessation counselling is the role of nurses), self-efficacy (defined as the self-perceived ability to provide effective cessation counselling), age, interest in updating smoking cessation knowledge, smoking cessation training during nursing studies, and smoking cessation training after nursing studies. Sex was initially identified as a seventh independent variable for examination however; it was dropped from the analysis because all respondents were female.

Modeled by the work of Tremblay et al. (2009), the variables were measured by either single-item indicators or multi-item scales. Two multi-item scales were developed to analyze the variables “beliefs” and “self-efficacy” (Tremblay et al., 2009). The variable “beliefs” was measured as the sum of 6 items related to beliefs ($\alpha = .76$) as per Tremblay et al. (2009). The variable “self-efficacy” was measured as the sum of 5 items ($\alpha = .90$) as per Tremblay et al. These scales were then verified to ensure that the Cronbach Alphas were

≥ 0.7 (Katz, 1999). The remaining four independent variables were measured as single item indicators.

Awareness and Use of Guidelines

Respondents' were asked about their awareness and use of SC guidelines at their place of work. Given that the respondents were members of the Ontario Family Practice Nurses' interest group of the RNAO, it was hypothesized that they would be aware of the RNAO SC BPG (2007). This BPG is targeted to all nurses, working in all settings, with all patient populations. Respondents were asked about their practice related to two specific recommendations pertaining to minimal and intensive intervention. The first practice recommendation from the RNAO BPG suggests that "nurses implement minimal tobacco use intervention using the "Ask, Advise, Assist, Arrange" protocol with all clients" (Registered Nurses' Association of Ontario, 2007, p. 22). Minimal intervention is defined as lasting one to three minutes. Practice recommendation number six suggests that "nurses implement, wherever possible, intensive intervention with women who are pregnant and postpartum" (Registered Nurses' Association of Ontario, 2007, p. 29). Intensive intervention is defined as lasting more than 10 minutes. Respondents were asked to estimate the amount of time that they spend providing smoking cessation counselling during a prenatal visit. Response options included: more than 10 minutes, 6-10 minutes, 3-5 minutes, less than 3 minutes, and "I never offer smoking cessation counselling".

Barriers

In order to better understand the reasons why FPNs may not offer SC counselling, the respondents were asked to identify significant or highly significant barriers to providing SC interventions for pregnant patients. Respondents were asked to identify the extent to

which 17 factors were potential barriers to providing smoking cessation interventions for pregnant women (questionnaire item #17). Response categories included the following: highly significant barrier, significant barrier, sometimes a barrier, rarely a barrier, and never a barrier.

Data Collection

The bilingual e-mail invitation, which included a hyperlink to the questionnaire, was sent to all OFPN members (N= 503). The secretary of the OFPN tracked the number of e-mail messages that were undeliverable (see Appendix F for E-mail tracking sheet). A total of 13 e-mails were undeliverable, meaning that a total of 490 invitations to participate in the research study were delivered.

A study information letter was included in the opening pages of the questionnaire (Appendix B). This study information letter, in divided segments, described the purpose of the study, how the researcher obtained their names, how long it would take to complete the questionnaire, who would have access to the information, and who they could contact if they had questions or concerns about the study (Polit & Beck, 2012). Nurses completed the confidential and anonymous questionnaire via *SurveyMonkey*.

Two weeks after data collection began, it was noted that the response rate was low, at approximately an 8% response rate. The following three reasons for the low response rate were identified:

- 1) There was an error in sending out the first e-mail recruitment invitation. The e-mail was missing half of the French text. Francophone nurses may not have had an equal opportunity to participate in this research study.

- 2) The first e-mail recruitment invitation was also inadvertently sent out on a Saturday when the majority of nurses in Family Practice would not be working.
- 3) There was another Ontario study regarding smoking cessation in primary care that some nurses were mistaking for this study. E-mail messages received by the researcher indicated that some FPNs did not complete the online questionnaire because they had already mailed in a questionnaire on the same topic of smoking cessation in primary care. This paper based questionnaire was unrelated to the current study and this may have confused potential participants.

To distinguish our study from the other, we made some minor revisions to the third and fourth reminder e-mails (see Appendix D) including: underlining the word "pregnant women", emphasizing that this questionnaire is only available as an on-line questionnaire, and reminding nurses about the appreciation draw. The president of the Ontario Family Practice Nurses' Interest Group of the RNAO reviewed and approved these modifications. Ethical approval was obtained to modify the e-mail recruitment message and send two additional recruitment e-mail invitations/reminders. Hence, there was a four week delay between the second and third e-mail reminder.

Data Analysis

The questionnaire data was downloaded from the *SurveyMonkey* website as "actual choice text" format into a Microsoft Excel spreadsheet. This spreadsheet was then imported into the IBM Statistical Package for the Social Sciences (SPSS) version 19.0 statistical software program. Data were cleaned and revealed only two errors which were corrected (i.e. year of birth '74 was changed to 1974; year of graduation '76 was changed to 1976).

Data were transformed from the actual choice text format to numerical values using syntax coding as needed for analysis (see Appendix H for Data Analysis Plan).

Descriptive statistics were completed to describe the characteristics of the participants. Frequencies were tabulated to determine FPN's awareness and use of guidelines as well as the perceived barriers to smoking cessation interventions. In preparation for multiple linear regression analyses, the assumptions were tested. Katz (1999) cautions that variables that are correlated $>.80$ may pose problems in multiple linear regression analysis. Therefore, Pearson Correlations were conducted to assess for multicollinearity.

To limit the number of variables used in a multiple linear regression, separate simple linear regressions were completed for the dependent variables "Ready to quit" and "Not ready to quit" with the six independent variables. Independent variables that had a significance level of $p < .20$ were entered into a multiple linear regression analysis (Katz, 1999).

Ethical Considerations

Ethical approval was obtained from the University of Ottawa Office of Research Ethics and Integrity (see Appendix G for Research Ethics Board Approval). There was no obligation to participate in this study. By completing the questionnaire, implied consent was assumed (Polit & Beck, 2012). Polit and Beck describe implied consent in self-administered questionnaires as "the return of the completed questionnaire [which] reflects voluntary consent to participate" in a study (p.160). Participants could withdraw at any time, or choose not to answer any specific questions.

Privacy

All efforts to ensure a secure transmission when using *SurveyMonkey* were employed. The Secure Sockets Layer (SSL) encryption feature was enabled to ensure that a secure connection was used when transmitting and downloading data. The questionnaire was configured to not collect IP addresses. No names or identifying information were recorded with questionnaire data. Results were reported as grouped data so as not to identify individual participants.

All study related files and documents were kept confidential and anonymous; they are stored in the Nursing Best Practice Research Centre (NBPRC) at the School of Nursing, University of Ottawa. The NBPRC is a pass code protected office to which only members of the NBPRC have access. The questionnaire data was stored on a password protected computer. Printed data analysis was stored in a locked cabinet in the NBPRC.

Following completion of the study, data will be conserved in the locked cabinet in NBPRC for a period of five years and then deleted and/or destroyed. During the conservation period, the data will be encrypted and stored on a USB memory stick. After the conservation period, the digital data will be permanently deleted and all printed data will be destroyed via shredding.

Appreciation Draw

At the end of the questionnaire, FPNs had the option of entering their name into an appreciation draw via a separate, optional survey link (see Appendix I). The appreciation draw included the opportunity to receive one of four \$25 Chapters Bookstore electronic gift cards. If participants choose to enter the appreciation draw they entered their name, address, phone number, and e-mail address into a separate appreciation draw survey which was

hyperlinked from the original questionnaire. If participants declined to enter the draw, they were directed to a "thank you" message and the session was completed. Identifying information collected for the appreciation draw was not linked in any way to the study participants' responses. Once the draw was completed, the appreciation draw survey link and all associated data were permanently deleted. Dillman et al. (2009) state that "...the evidence strongly suggests that prize drawings and lotteries as not as effective as traditional cash incentives or material incentives..." (p.275). However, given that e-mail is the mode of communication for OFPN members it was decided that the most convenient method to offer a token of appreciation, which might potentially increase the response rate, was to offer an electronic gift certificate via an appreciation draw.

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Chapter Four

Results Manuscript

Title: Beyond asking and advising: Maximizing the role of primary care nurses in increasing the uptake of evidence-based smoking cessation practices for pregnant women.

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Abstract

Approximately 6-30% of Canadian women smoke during pregnancy. Prenatal care visits are an opportune time for Family Practice Nurses (FPNs) to provide evidence-based smoking cessation (SC) interventions. Guided by the Knowledge to Action process, the purpose of this study was to describe 1) SC interventions by FPNs during prenatal visits, 2) the predictors of FPN-provided SC counselling for pregnant women and 3) the barriers to SC

counselling. **DATA COLLECTION:** A previously validated questionnaire measuring SC counselling practices was modified and converted to an electronic format. A bilingual invitation was emailed to 491 FPN members of the Registered Nurses' Association of Ontario. Following the tailored design method, three reminder emails were sent.

ANALYTIC METHODS: Descriptive and multivariable analysis. Predictors investigated included nurses' age, beliefs about their role in SC, self-efficacy to provide effective counselling, SC training, and interest in updating SC knowledge. **PARTICIPANTS:**

Eighty-nine FPNs (18% response rate) working in primary care settings across Ontario.

PRELIMINARY FINDINGS: Nearly one quarter (21.5%) of respondents never offer SC counselling to pregnant women. Nurses with higher levels of self-efficacy were more likely to provide SC counselling. Although nurses ask, assess and advise, they are less likely to provide concrete assistance in the quitting process or arrange follow-up. The most commonly cited barriers to FPN-provided SC counselling included lack of time and cost of medication.

CONCLUSIONS AND IMPLICATIONS FOR PRACTICE: FPNs are not consistently providing evidence-based SC interventions for pregnant women. The provision of SC training to enhance self-efficacy may increase the frequency, efficiency and quality of FPN-provided counselling.

Keywords: Smoking cessation, pregnancy, primary care, nurses, prenatal care, perinatal

Introduction

Smoking during pregnancy, although not a new health care issue, continues to warrant concerted diligence by health care professionals. The prevalence rates of smoking during pregnancy range from 6-34% in Canada, the United States and Australia (Centers for Disease Control and Prevention, 2011; Chalmers, Dzakpasu, Heaman, & Kaczorowski, 2008; Flenady, Macphail, Karen, Devenish-Meares, & Smith, 2008; Health Canada, 2007; Public Health Agency of Canada, 2009; Reinold, Dalenius, Brindley, Smith, Grummer-Strawn, 2011). There is a wide range in the reported prevalence of smoking during pregnancy due to the associated negative social stigma; mothers are reluctant to disclose their smoking behaviours due to feelings of guilt and shame (Greaves, Horne, Poole, Jategaonkar, & McCullough, 2005; Pregnets, 2012; Selby, & Dragonetti, 2007). There is no safe amount of smoking during pregnancy and perinatal health care providers, including nurses, must advocate for smoking cessation (SC) or reduction if total cessation is not possible (Association of Women's Health, Obstetric and Neonatal Nurses, 2010; Chalmers et al., 2004; Pregnets, 2012). The 5 A's (Ask, Advise, Assess, Assist & Arrange) approach to treating tobacco use and dependence is the most frequently cited resource in the literature pertaining to SC counselling interventions (Fiore et al., 2008). Additionally, there are best practice guidelines that have been developed to specifically acknowledge the important role of nurses in SC (Registered Nurses Association of Ontario, 2007). Many guidelines include sections addressing special considerations for specific populations such as pregnant women (Canadian Action Network for the Advancement, Dissemination and Adoption of Practice-informed Tobacco Treatment, 2011; Pregnets, 2012).

All patients, especially pregnant women, should be offered smoking cessation interventions at every opportunity. The prenatal period is an opportune time to begin providing on-going support and interventions for SC counselling due to the frequency of health care visits and women's high motivation to quit (Lumley, Chamberlain, Dowswell, Oliver, Oakley, & Watson, 2009; Scalera & Koren, 1998). SC counselling needs to be an on-going activity, "smoking cessation treatment is not a single application intervention" (Buchanan, 2002, p. 249). Every opportunity should be taken assist pregnant women and their partners to reduce fetal and infant exposure to the harmful effects of tobacco smoking (Lumley et al., 2009).

Flenady et al. (2008) reported that 62% of women who quit smoking during pregnancy will relapse within one year. Additionally, Flenady et al. confirmed previous research findings that women were more likely to continue smoking during pregnancy if they had a smoking partner. In fact, "among smokers and recent quitters, women were twice as likely to continue smoking during pregnancy if their partner was a smoker" (Flenady et al., 2008, p.555). Given the high relapse rates during the postpartum period, counselling and support should be provided throughout the perinatal period and continue beyond the pregnancy.

Despite the availability of evidence-based guidelines, which are easily accessible via the internet, there appears to be variable uptake by nurses and physicians in implementing practice recommendations. There is a lack of consistent health promotion advice, inconsistent application of smoking cessation interventions, a lack of follow-up, and high relapse rates (Filion et al., 2011; Okoli, Greaves, Bottorff, & Marcellus, 2010; Tremblay, Cournoyer, & O'Loughlin, 2009; White, Fraser-Lee, Tough, & Newburn-Cook, 2006).

Nurses working in primary care settings are well situated to provide SC interventions. Family Practice Nurses (FPNs), for example, are typically the first health care professionals to see patients, including pregnant women. They are well positioned to provide early SC interventions and provide on-going support. Furthermore, FPNs will continue to deliver preventive care after childbirth for both the mother and her infant. Postpartum SC counselling interventions by FPNs, in particular encouraging smoke-free homes and teaching harm reduction strategies, can potentially minimize infant's exposure to smoke in the home (CAN-ADAPTT, 2011; RNAO, 2007). There is currently a gap in the literature regarding the role of FPNs in providing smoking cessation interventions for pregnant women. The purpose of this study was therefore, to determine the practice of Family Practice Nurses (FPNs) in smoking cessation counselling for pregnant women.

Specific research questions include:

1. What are Family Practice Nurses' current smoking cessation counselling practices for pregnant women seeking care at primary care settings in Ontario during routine visits?
2. What factors are associated with Family Practice Nurses' smoking cessation counselling practices for pregnant women?
3. What is FPNs awareness and use of guidelines pertaining to smoking cessation? What proportion of FPNs engage pregnant smokers in minimal interventions and intensive interventions?
4. What are the barriers to FPN-led smoking cessation counselling interventions of pregnant smokers?

Methods

The study was a non-experimental, descriptive and correlational research design. The setting was primary care practices in the province of Ontario, Canada. There are 7 major models of primary care including Family Health Teams, Community Health Centres, Family Health Networks, Family Health Groups, Comprehensive Care Model, Family Health Organization, and Rural–Northern Physician Group Agreement (Health Force Ontario, 2007). Recently, two additional primary care models were added including Aboriginal Health Access Centres, and Nurse Practitioner-Led Clinics (Registered Nurses’ Association of Ontario, 2012).

A one-time cross-sectional questionnaire was administered to a convenience sample of FPNs who provide prenatal care in primary care settings. Participants were recruited via the *Ontario Family Practice Nurses* Interest Group of the Registered Nurses’ Association of Ontario (RNAO). A bilingual e-mail invitation was sent via the group distribution list which included a hyperlink to a *SurveyMonkey* questionnaire. The inclusion criteria were: 1) currently employed as a nurse at a Primary Care setting in Ontario; 2) provide direct patient care for prenatal patients (i.e. are not administrators); and 3) able to read and write in English.

Questionnaire

The data collection instrument for this study was a questionnaire modified from the “Smoking cessation counselling practices among Quebec nurses” questionnaire by (Tremblay et al., 2009). Utilizing the questionnaire by Tremblay et al. (2009) had two major benefits. First, the questionnaire had been previously administered to nurses. The results describing the current cessation counselling practices of nurses in Quebec as well as factors

associated with these practices were specifically outlined in a report by Tremblay, Cournoyer, Jukic, and O'Loughlin, (2007). Thus it was possible to make comparisons between results of the current study to that of Tremblay et al. Second, this instrument has been demonstrated to be reliable (Tremblay et al., 2009).

Permission was obtained from Dr. Michèle Tremblay to modify and use the questionnaire. To collect data exclusively on the current smoking cessation interventions of Family Practice Nurses for pregnant women, four steps were taken to adapt the questionnaire: conduct a literature review, obtain expert feedback, convert to electronic format and pre-test the modified questionnaire.

Variables

Cessation counselling.

In order to provide interventions and support to pregnant women who smoke, it is suggested that nurses initially determine women's readiness to quit and motivation to quit (Greaves et al., 2005). Pregnant women will be either ready to quit or they will not be ready to quit and the subsequent interventions would necessarily be different. In this study, therefore, both of these situations were explored by developing two independent scores modelled from the work of (Tremblay et al., 2009): A "Ready to quit" counselling score and a "Not ready to quit" counselling score. Response options for each item in the scores ranged from 1 (nurses undertook practice with few or none of her pregnant patients who smoked) to 5 (nurses undertook practice with all or almost all of her pregnant patients who smoked).

"Ready to quit" counselling score.

The "Ready to quit" counselling score quantifies nurses' smoking cessation counselling practice with pregnant women who have indicated readiness to quit. This score was

comprised of 10 items to determine the total “Ready to quit” counselling score (minimum = 10; maximum = 50) with higher total scores indicating FPNs provided more SC counselling to pregnant women who were ready to quit smoking.

“Not ready to quit” counselling score.

The “Not ready to quit” counselling score quantifies nurses’ smoking cessation counselling practice with pregnant women who have indicated that they are not ready to quit.

This score was comprised of 9 items to determine the total “Not ready to quit” counselling score (minimum = 9; maximum = 45), with higher scores indicating FPNs provided more SC counselling to pregnant women who were not ready to quit smoking.

Factors that influence nurses’ counselling.

Six independent variables were examined to determine if they were significant predictors of nurses’ SC counselling of pregnant patients who were either “ready to quit” or “not ready to quit”. The variables were nurses’ beliefs (defined as the belief that cessation counselling is the role of nurses), self-efficacy (defined as the self-perceived ability to provide effective cessation counselling), age, interest in updating smoking cessation knowledge, smoking cessation training during nursing studies, and smoking cessation training after nursing studies.

Modeled by the work of Tremblay et al. (2009), the variables were measured by either single-item indicators or multi-item scales. Two multi-item scales were developed to analyze the variables “beliefs” and “self-efficacy” (Tremblay et al., 2009). The variable “beliefs” was measured as the sum of 6 items related to beliefs ($\alpha = .76$) as per Tremblay et al. (2009). The variable “self-efficacy” was measured as the sum of 5 items ($\alpha = .90$) as per

Tremblay et al. These scales were then verified to ensure that the Cronbach Alphas were ≥ 0.7 (Katz, 1999). The remaining four independent variables were measured as single item indicators.

Awareness and Use of Guidelines

Respondents' were asked about their awareness and use of SC guidelines at their place of work. Given that the respondents were members of the Ontario Family Practice Nurses' interest group of the RNAO, it was hypothesized that they would be aware of the RNAO SC BPG (2007). This BPG is targeted to all nurses, working in all settings, with all patient populations. Respondents were asked about their practice related to two specific recommendations pertaining to minimal and intensive intervention. The first practice recommendation from the RNAO BPG suggests that "nurses implement minimal tobacco use intervention using the "Ask, Advise, Assist, Arrange" protocol with all clients" (Registered Nurses' Association of Ontario, 2007, p. 22). Minimal intervention is defined as lasting one to three minutes. Practice recommendation number six suggests that "nurses implement, wherever possible, intensive intervention with women who are pregnant and postpartum" (Registered Nurses' Association of Ontario, 2007, p. 29). Intensive intervention is defined as lasting more than 10 minutes. Respondents were asked to estimate the amount of time that they spend providing smoking cessation counselling during a prenatal visit. Response options included: more than 10 minutes, 6-10 minutes, 3-5 minutes, less than 3 minutes, and "I never offer smoking cessation counselling".

Barriers

In order to better understand the reasons why FPNs may not offer SC counselling, the respondents were asked to identify significant or highly significant barriers to providing

SC interventions for pregnant patients. Respondents were asked to identify the extent to which 17 factors were potential barriers to providing smoking cessation interventions for pregnant women (questionnaire item #17). Response categories included the following: highly significant barrier, significant barrier, sometimes a barrier, rarely a barrier, and never a barrier.

Data Collection

The *Ontario Family Practice Nurses'* interest group of RNAO sent a bilingual e-mail invitation via the group distribution list. The tailored design method was used to recruit participants (Dillman, Smyth & Christian, 2009). A total of four contacts were sent (one e-mail invitation and three reminder e-mails), with all e-mail messages including a hyperlink to the questionnaire. A record documenting tracking of the e-mail messages was maintained.

Data Analysis

The questionnaire data was downloaded from the *SurveyMonkey* website as “actual choice text” format into a Microsoft Excel spreadsheet. This spreadsheet was then imported into the IBM Statistical Package for the Social Sciences (SPSS) version 19.0 statistical software program. Data were transformed from the actual choice text format to numerical values using syntax coding as needed for analysis.

Descriptive statistics were completed to describe the characteristics of the participants. To limit the number of variables used in a multiple linear regression, separate simple linear regressions were completed for the dependent variables “Ready to quit” and “Not ready to quit” with the six independent variables. Independent variables that had a significance level of $p < .20$ were entered into a multiple linear regression analysis (Katz, 1999).

Ethical considerations

Ethical approval was obtained from the University of Ottawa Office of Research Ethics and Integrity. There was no obligation to participate in this study. By completing the questionnaire, implied consent was assumed (Polit & Beck, 2012). Participants could withdraw at any time, or choose not to answer any specific questions. All efforts to ensure a secure transmission when using *SurveyMonkey* were employed. The Secure Sockets Layer (SSL) encryption feature was enabled to ensure that a secure connection was used when transmitting and downloading data. All study related files and documents were kept confidential and anonymous. The questionnaire was configured to not collect IP addresses. No names or identifying information were recorded with questionnaire data. Results were reported as grouped data so as not to identify individual participants.

Results

There were 503 potential respondents listed on the Ontario Family Practice Nurses' (OFPN) Interest Group e-mail distribution list. It was noted by the OFPN that 3% (n=13) of messages were not delivered. One hundred nurses entered the *SurveyMonkey* link. Of these 100 nurses, four identified that they did not wish to participate, and seven said yes to participation in the study but did not answer any of the questions. Therefore, the response rate for this study was 18% (n=89).

Demographics of Nurses

All respondents were female. The majority of respondents were employed as RNs (91%) at either a Family Health Team (46%) or a physician's office (39%). There was nearly equal distribution of respondents from each of the sizes of communities in which the respondents worked, with somewhat more respondents in the rural group (33%). Two-thirds

of the respondents worked full time (67%) and approximately half reported that they were in their current position for less than 5 years (58%).

The nurses' mean age was 48, with ages ranging from 26-67 years. The majority of respondents had a diploma in nursing (71%). A small number of respondents received SC training during their studies (13%) and there was a threefold increase in the number of nurses who received SC training after their nursing studies (39%). Two-thirds of the nurses reported never having been a smoker (64%) while 34% reported being ex-smokers. There were no daily smokers and only one occasional smoker.

Table 1. Nurses' demographics, smoking status and smoking cessation training

		<i>n (%)</i>
Age (N= 60)	20-29	6 (10)
	30-39	8 (13)
	40-49	14 (23)
	50-59	26 (43)
	>60	6 (10)
Place of Work (N=88)	Family Health Team	40 (46)
	Community Health Centre	4 (5)
	Physician's Office	34 (39)
	Other*	10 (11)
Highest Nursing Education (N=63)	Bachelor's Degree	16 (25)
	Diploma	45 (71)
	Master's degree	2 (3)
Professional license (N=64)	RN	58 (91)
	RPN	4 (6)
	NP	2 (3)
Years in Current Position (N=64)	Less than 2	11 (17)
	2-5 years	26 (41)
	6-10 years	10 (16)
	11-15 years	4 (6)
	More than 16 years	13 (20)
Employment	Full time	41 (64)

Status (N= 64)	Part time	20 (31)
	Casual	3 (5)
SC Training DURING Nursing studies (N=62)	Yes	8 (13)
	No	54 (87)
SC Training AFTER Nursing studies (N=62)	Yes	24 (39)
	No	38 (61)
Smoking Status (N= 64)	Always been a non-smoker	41 (64)
	An ex-smoker	22 (34)
	Occasional smoker	1 (2)
	Daily smoker	0
Size of Community (N=64)	Rural	21 (33)
	Small city <100,000	14 (22)
	Medium city 100-500,000	15 (23)
	Large city >500,000	14 (22)

N does not equal 89 because some respondents did not answer all questions

* Academic Family Residency Training Centre, University or College Health Clinic, Family Medicine Group, Other

Current Smoking Cessation Counselling Practices with Pregnant Women

Participants were asked to estimate the proportion of pregnant patients who smoke for whom they routinely completed the 5 A's of smoking cessation interventions (Table 2). The most commonly self-reported interventions were the first three A's (ask, advise, assess).

Table 2. Proportion of Family Practice Nurses who provided the 5 A's of smoking cessation interventions to pregnant clients who smoke

<i>Smoking cessation intervention</i>	<i>Nurses who routinely provide SC intervention to half or more of their pregnant clients n (%)</i>
Ask/Document smoking status	66/83 (79.5)
Assess readiness to quit smoking	56/82 (68.3)
Advise client to quit smoking	56/82 (68.3)
Assist*	45/80 (56.3)

Arrange follow-up appointment, or refer to smoking cessation program	39/78 (50)
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* Refer the client to community resources, self-help materials, other health care professionals, or smoker's helpline

Factors Associated with Nurses' Smoking Cessation Counselling for Pregnant Patients

Data analysis was completed in order to determine which factors predicted nurses' smoking cessation counselling for pregnant patients who were "ready to quit" and "not ready to quit". The critical assumptions for multiple linear regressions were tested. In particular, none of the six independent variables were correlated $>.80$ and therefore, there was no evidence of multicollinearity. Finally, internal consistency was tested. The Cronbach's alpha for the beliefs and self-efficacy scales were verified to be greater than .70 (.76 and .90 respectively) indicating that they were reliable measures.

Counselling patients who are "ready to quit".

The mean counselling score for pregnant patients who are "ready to quit" was 28.3 [SD= 13.9] (range of scores was 10- 49.1, with higher scores indicating FPNs provided more SC counselling). Simple linear regressions were completed for the dependent variable "Ready to quit" and six independent variables to limit the number of variables used in a multiple linear regression (see Table 3). Independent variables for which the simple linear regression coefficients were $p<.20$ included beliefs ($p<.001$), self-efficacy ($p<.001$), and SC training after nursing school ($p=.004$). These three variables were therefore included as independent variables in the multiple linear regression analysis predicting SC counselling for patients who are "ready to quit".

Overall, the regression was significant $F(3,52)=18.134$, $p<.001$. Of the three predictors investigated, only self-efficacy was significant ($p<.001$). Beliefs and SC training received after nursing school were not significant predictors of SC counseling of patients who are “ready to quit” (Table 4).

Counseling patients who are “not ready to quit”.

The mean counselling score for pregnant patients who are “not ready to quit” was 29.3 [SD=13.7] (range was from the minimum 9 to maximum 45 score possible), with higher scores indicating FPNs provided more SC counselling to pregnant women who were “not ready to quit” smoking. Simple linear regressions were completed for the dependent variable “not ready to quit” and six independent variables to limit the number of variables used in a multiple linear regression (Table 3). Independent variables that had a regression coefficient for which $p<.20$ included beliefs ($p<.001$), self-efficacy ($p<.001$), and SC training received after nursing school ($p=.017$). These three variables were therefore included as independent variables in the multiple linear regression analysis predicting SC counselling for patients who are “not ready to quit”.

Overall, the regression was significant $F(3,53)=11.115$, $p<.001$ $R^2=.400$ (Table 4). Of the predictors investigated, beliefs ($p=.033$) and self-efficacy ($p=.033$) were significant. Smoking cessation training received after nursing school was not a significant predictor of SC counselling of patients who are “not ready to quit”.

Table 4. Simple linear regression: SC counselling for pregnant women

	Ready to quit				Not ready to quit			
	n	β	t	p	n	β	t	p
Beliefs	57	.573	5.180	<.001**	59	.572	5.259	<.001**
Self-efficacy	58	.707	7.484	<.001**	60	.578	5.389	<.001**
Age	51	-.108	-.763	.449	52	-	-.528	.600
Interest in updating SC knowledge	55	.110	.804	.425	56	-.074	-.388	.700
SC training during nursing school	55	.167	1.231	.224	56	.053	.854	.397
SC training after nursing school	53	.386	2.986	.004*	54	.324	2.466	.017*

* p<.05 level ** p<.001

Table 5. Multiple linear regression results for SC counselling for pregnant women

	Ready to quit			Not ready to quit		
	β	t	p	β	t	p
	df(3,52) F=18.134, p<.001 R ² =.526 adj R ² =.497			df(3,53) F=11.115, p<.001 R ² =.400, adj R ² =.364		
Beliefs	.166	1.247	.218	.324	2.188	.033*
Self-efficacy	.556	4.087	<.001**	.333	2.193	.033*
SC training after nursing school	.097	.896	.375	.070	.575	.568

* p<.05 level ** p<.001

Awareness and use of Smoking Cessation Guidelines

Approximately half of the respondents (33/61=54%) were able to identify the guideline in use at their place of work. The most frequently reported guidelines being used by FPNs were the RNAO BPG “Integrating Smoking Cessation Intervention into Daily Nursing Practice” (42%) and the Ottawa Model for Smoking Cessation (36%). Ten percent of respondents (6/61) did not know which guideline they use at their place of work while 36% of respondents (22/61) reported that they did not use a particular guideline at their

place of work. Respondents added the following comments to this question which identified some of the possible reasons for this: the physician did the SC counselling (n=1), there was a smoking cessation resource nurse at their place of work (n=1), and nurses did not have time to complete SC counselling as they were busy with administrative /secretarial duties (n=1). One respondent had an allergy which prevented her from counseling patients who smoked.

RNAO smoking cessation guideline.

Over half of respondents (37/64 =57.8%) identified that they were aware of the RNAO BPG. Of the 37 respondents who were aware of this BPG, the majority of respondents (30/37 =81.1%) identified that they had read the document. Of the respondents who had read the RNAO BPG, approximately half of the respondents (14/30=46.7%) identified that it helped to change their SC practice a “whole lot” or “quite a lot”, and the other half (15/30=50%) identified that it helped to change practice “a bit”.

Minimal and Intensive Smoking Cessation Interventions

One quarter of respondents 20/79 (25.3%) identified that they spend one to three minutes (minimal intervention) counselling pregnant women who smoke during a prenatal visit. Less than 5 % (4/79) of respondents spend 10 or more minutes counselling (intensive intervention). Approximately half of respondents reported that they spend between three to ten minutes 38/79 (48.1%). Twenty-two percent (17/79= 21.5%) of respondents reported that they never offer smoking cessation counselling to pregnant women.

Barriers to Smoking Cessation Interventions

The most frequently identified significant or highly significant barriers to providing SC interventions for pregnant patients were time (54%), cost of medication (54%), lack of knowledge about smoking cessation (35%), inadequate office space to do smoking cessation

counselling (28%), lack of knowledge about medications for smoking cessation (25%) and no reimbursement for smoking cessation counselling (21%). The least frequently reported barriers included the following: fear of losing pregnant patients (6%), smoking cessation guidelines are too complex (8%), lack of motivation in pregnant patients (9%), pregnant patients are resistant to advice (10%), and pregnant patients do not comply (11%).

Discussion

This study describes FPNs' current SC counselling practices for pregnant women seeking prenatal care at primary care settings in Ontario during routine visits. The results of this study confirm our hypothesis that the RNAO BPG guideline was the most frequently reported SC guideline used by FPNs. However, FPNs are not providing intensive intervention as recommended for pregnant women.

Current Smoking Cessation Counselling Practices

FPNs are not consistently implementing all aspects of the 5 A's of Smoking Cessation Guidelines, especially the assist (56.3%) and arrange (50%) steps, for half or more of the pregnant women they see during routine prenatal care visits. This finding is congruent with other studies exploring health care providers' counseling practices for pregnant smokers in Canada and the United States (Abatemarco, Steinberg, & Delnevo, 2007; Okoli et al., 2010; Price, Jordan, & Dake, 2006). Despite having evidence-based best practice guidelines for smoking cessation for more than a decade, the rate of guideline implementation is sub-optimal. More work needs to be done to help nurses achieve optimal cessation counseling practices. This issue is not exclusive/specific to nurses' caring for pregnant women (Tong et al., 2010; Tremblay et al., 2009).

Nurses must be supported to improve their efforts to provide SC interventions for pregnant women because a “strong dose-response relationship exists between intensity of tobacco dependence counseling and effectiveness” (Murray & Wewers, 2004, p. 202). Nurses need to implement the full range of smoking cessation interventions, as appropriate, for each woman. However, the appropriate interventions would be different depending on whether or not the woman is ready to quit smoking.

Counseling patients who are “ready to quit”

In this study, nurses’ self-efficacy predicted the frequency and quality of their SC counselling for pregnant patients who were “ready to quit”. Nurses who had a higher self-perceived ability to provide effective SC counselling were more likely provide SC counselling. Our results are consistent with Tremblay et al. (2009) who also found that self-efficacy was significantly associated with the “ready to quit” counseling score for nurses. However, unlike our findings, Tremblay et al. also found that nurses’ beliefs (that SC counselling is the role of nurses) were significantly associated with SC counselling of patients who were “ready to quit”.

Bandura (1997) defines perceived self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). According to Bandura’s concept/theory of self-efficacy (1997), it may be that nurses who have higher levels of self-efficacy for smoking cessation counselling are more likely to put greater effort into counselling pregnant patients, are more likely to persevere despite obstacles or failures, and are more likely to achieve the level of accomplishment that they set forth to attain.

Counselling patients who are “not ready to quit”

In this study, nurses’ beliefs predicted the provision of SC counselling for pregnant patients who were “not ready to quit”. FPNs who possessed a greater belief that SC counselling was part of the nursing role self-reported more SC counselling for pregnant patients who were “not ready to quit”. If nurses do not believe that an intervention such as smoking cessation counselling is within their role description, they are less likely to perform this action. Some nurses may believe that SC counselling is primarily the role of physicians. For example, in one study, 90% of the nurses agreed that SC was an important professional responsibility but more than half (53%) believed that smokers should seek the help of primary care physicians (Tong et al., 2010).

In this study, we also found that nurses with higher levels of self-efficacy provided greater SC counselling for pregnant patients who are “not ready to quit”. These results are partially consistent with Tremblay et al. (2009) who found that only beliefs were significantly associated with the “not ready to quit” counseling score for nurses. Health care providers, including nurses, need to know that SC interventions are within their scope of practice, that the interventions are effective and that they possess the knowledge and skills necessary to provide effective smoking cessation counselling (Flenady et al., 2008). Two important barriers to the uptake of SC interventions were identified in a pilot project exploring the implementation of a smoking cessation clinical practice guideline within an antenatal care setting (Flenady et al., 2008). These barriers included “lack of acceptance of the value of the intervention by clinical staff and a perceived lack of expertise by midwives to provide support to women” (Flenady et al., 2008, p. 557).

Bandura (1997) highlights the tenuous link between one's belief in the effectiveness of a preventative action and the execution of an action, such as smoking cessation. In the excerpt below, Bandura speaks about physicians and the relationship between self-efficacy and health promotion action:

Primary care physicians are ideally situated to foster preventive and health promotive habits. But not many seriously practice preventive medicine. This lack is not simply a matter of deficient knowledge or unfavorable reimbursement practices. Part of the problem lies in disbelief that their preventive efforts will really produce results...To achieve results, physicians must assess patients' social resistances, have good strategies to offer, manage resistances, gauge progress and readjust strategies accordingly, deal with the interpersonal strains of non-compliance, and support patients through failures and setbacks (Bandura, 1997, p. 307)

It is possible that nurses, similar to physicians, may not fully believe that the time invested in counselling pregnant women will yield desired results of smoking cessation and sustained abstinence. Nurses may lack the ability to adequately address social realities, suggest appropriate strategies to overcome barriers, and their work environments may lack the structure to monitor women's progress towards SC goals. Researchers have suggested that health care providers' self-efficacy to provide effective counselling can be enhanced through additional training (Abatamarco et al., 2007; Price et al., 2006; Tremblay et al., 2009). In a study exploring nurse-midwives counselling practices, low confidence and a lack of training were associated with low rates of more advanced counselling practices such as assisting and arranging (Abatamarco et al., 2007). Another study specifically reported that nurse-midwives who had higher levels of perceived self-efficacy to effectively communicate with their pregnant patients about SC demonstrated the following three attributes: had higher outcome expectations regarding the effectiveness of the 5 A's, had fewer number of perceived barriers and reported more extensive use of the 5 A's (Price et al., 2006):

These findings suggest that the way that nurse-midwives are educated and trained in smoking cessation may be improved by emphasizing methods, materials, and activities that help nurse-midwives increase their efficacy expectations and outcome expectations regarding the efficacy of the 5 A's method. Such educational methods are typically more experiential and interactive than didactic in nature (Price et al., 2006, p. 213)

Although SC training was not a significantly predictor of counseling practices in this study, further research is required to better understand the impact of training on FPN's self-efficacy and SC counselling activities. Tong et al., (2010) reported that having training in SC was positively associated with performing multiple components of the 5 A's of the smoking cessation guidelines (Ask, Advise, Assess, Assist, Arrange). It is reasonable to expect that a lack of training would negatively impact self-efficacy to provide effective SC counselling. There is certainly evidence in the literature that student nurses are not receiving training in SC and consequently nurses do not feel prepared to perform this aspect of the nursing role (Lenz, 2008; Tremblay et al., 2007).

Some FPNs work in isolation from peers and may have limited access to continuing education opportunities (Alsaffar, 2005). Internet-based training may be a cost effective and convenient way to provide additional training to FPNs (Carpenter, Carlini, Painter, Mikko, & Stoner, 2012). On-line training modules for nurses already exist from RNAO via their Tobacco Free RNAO website (RNAO, n.d). The resources section of this website includes the RNAO BPG, strategies for implementation, nursing faculty education guide, health education fact sheet, policy action kit, an e-learning course, and video vignettes. The video vignettes outline how to incorporate smoking cessation into practice and provides information on the stages of change.

Limitations of the study

There were three main limitations of the current study. These include the following: a low response rate, self-reported FPN SC counselling practices, and a lack of generalizability of findings. Despite our use of the tailored design method to recruit participants (Dillman et al., 2009) the response rate remained low (18%). This may have reduced the power to detect significant associations between independent variables under investigation and smoking cessation interventions. Close tracking of e-mail delivery identified that only 3% (n=13) of messages either bounced back or could not be delivered. However, it is possible that more than 13 OFPN members did not receive the invitation and did not have the opportunity to read the invitation. For example, the e-mail invitation and reminders may have been flagged as spam by the recipient's network and automatically sent to trash and junk folder. E-mail is the primary method of communication of the OFPN with its members and there was no other way to contact their members. Even though the response rate was low, it is similar to other studies in which questionnaires were administered via the internet. Sarnia et al. (2009) reported a response rate of 20.5% for a web-based questionnaire. Ploeg et al. (2010) reported a 21.6% response rate (191/885) for their study exploring the role of nursing best practice champions in diffusing best practice guidelines.

The second limitation is that the self-reported counselling practices were not verified with patient reports. Although patient report would have increased the validity and accuracy of self-reports, this was not feasible due to logistical and budgetary restraints. Polit and Beck (2012) identify self-reports as an effective means to gather information on the following: feelings and beliefs of respondents, retrospective data on events that have occurred in the past, as well as behaviors that respondents plan to engage in the future.

The final limitation pertains to a lack of generalizability of the findings. The FPNs recruited for this study were members of a voluntary professional association who may have a greater commitment to furthering their education and promoting the nursing profession. The nurses who completed the questionnaire may not be representative of the FPN population in Ontario and therefore, the results are not generalizable to all FPNs. Nonetheless, this sample of FPNs in Ontario have contributed information regarding their current practices of providing SC interventions for pregnant women seeking care during routine prenatal care visits. The results indicate that the majority of FPNs in this study are not fully implementing evidence based smoking cessation interventions during routine care.

Strengths

The three main strengths of this study include the following: Utilization of a previously validated instrument, recruitment of a diverse sample of FPNs, and exploration of nurse-provided counselling practices for pregnant women who are “ready” and “not ready to quit” smoking.

Previously Validated Instrument

A previously validated instrument was used for this study. Despite modifications to the original questionnaire by Tremblay et al. (2009) the Cronbach’s alpha for the beliefs scale (.76) and the self-efficacy scale (.90) indicate that these scales continued to be reliable measures. Additionally, the questionnaire had been previously administered to nurses in Quebec and thus it was possible to make comparisons with the current study.

Recruitment of a Diverse Sample of Respondents

The study sample included a good cross section of nurse respondents from different age groups, places of work, and years in their current position. Additionally, there was a

nearly equal response from respondents living in the four different sizes of communities, with rural representation being slightly higher. There was a wide range in the self-reported SC practices potentially reflecting that respondents were honest in their self-reports. One respondent commented that she felt ashamed of her lack of provision of SC interventions. She wrote “This survey has made me more aware of a lot more I could be doing. It took me a while to complete it because I wasn’t proud of my answers”. The sampling method used resulted in reaching a small but diverse sample of FPNs working in Ontario.

Exploration of counselling practices for pregnant women who are “ready” and “not ready” to quit smoking

This study explored nurse-provided SC interventions for pregnant women who were both “ready” and “not ready to quit” smoking. The interventions for women are different depending on their readiness to quit smoking (Greaves et al., 2005). By exploring both of these situations, a better understanding of the predictors of nurse-provided SC interventions was obtained. The finding that self-efficacy was a predictor of providing SC interventions for both groups of pregnant women (“ready to quit” and “not ready to quit”) enables researchers and educators to develop and implement interventions to enhance nurses’ self-efficacy to provide effective SC interventions for pregnant women.

Conclusion

Of the predictors investigated in this study, self-efficacy was a significant predictor ($p < .001$) of counselling pregnant patients who are “ready to quit” smoking. Beliefs and self-efficacy were significantly predictors ($p = .033$ and $p = .033$ respectively) of counselling pregnant patients who were “not ready to quit” smoking. Greater promotion of nursing scope of practice is required to reinforce the belief that smoking cessation is an important

intervention for all patients, especially pregnant and postpartum women who smoke. Nurses who believe that smoking cessation counselling is part of their role and who have high self-efficacy to provide effective smoking cessation counselling will provide more interventions. Disseminating research outlining effective strategies to increase nurses' self-efficacy to provide effective smoking cessation interventions may increase the uptake of evidence-based recommendations. Now is the time to make the 5 A's of smoking cessation counselling routine practice for all nurses working in all settings, especially nurses who work with pregnant and postpartum women. All family practice nurses can support pregnant women who smoke (and their partners) so that SC efforts started during pregnancy will not stop with the birth of the child but rather continue towards life-long abstinence.

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Chapter Five

Discussion & Implications

FPNs are well placed within the health care system to conduct smoking cessation counseling with pregnant and postpartum women. FPNs, by virtue of being situated within primary care settings, have a broad reach. They see patients across the lifespan but, of particular importance to this study, they care for patients preconceptionally, antenatally, and postnatally. Seventy percent (45/64) of respondents in the current study reported that they see approximately one to five pregnant patients per day. A further eleven percent (7/64) of respondents reported that they see more than five pregnant patients per day. By providing evidence-based smoking cessation interventions, FPNs can have an important impact on the health of mothers and newborns. Therefore our findings that nearly one quarter of respondents never provide SC interventions for pregnant women is of great concern.

Reasons that nurses gave for never providing SC counseling to pregnant women included: the SC counselling is done by a physician or a SC nurse and the nurses are busy with secretarial or administrative duties. One respondent commented that there has been “poor use of nursing staff in our office for 20 years.” This is consistent with results from a mixed-method study of family practice/primary health care nurses in Nova Scotia in which it was identified that nurses are often underutilized (Todd, Howlett, MacKay, & Lawson, 2007).

Awareness and Use of Smoking Cessation Guidelines

A variety of smoking cessation guidelines is available. Many guidelines are generic and can be used with the general patient population; however, there also exist nursing guidelines which have been tailored for pregnant and postpartum women (RNAO, 2007). Despite this availability of recent, evidence-based SC guidelines, thirty-six percent of

respondents (22/61) reported that they did not use a particular guideline at their place of work, while ten percent of respondents (6/61) did not know which guideline is used at their place of work.

Among the 54% of respondents who do use a SC guideline in their place of work, only 5% reported providing intensive interventions (more than 10 minutes in duration) as recommended by the RNAO for counselling pregnant women who smoke. The most frequently reported interventions included: **ASK** about smoking status (79.5%), **ASSESS** readiness to quit smoking (68.3%) and **ADVISE** client to quit smoking (68.3%). However, it appeared that the more detailed the intervention, the less likely FPNs were to perform the intervention (which translated into less **ASSISTing** and **ARRANGing**). Surprisingly, the majority of FPNs did not arrange follow-up support.

Results from previous studies have corroborated the finding that the rate of SC guideline implementation is sub-optimal, especially the assisting and arranging follow-up steps (Abatemarco, Steinberg, & Delnevo, 2007; Price, Jordan, & Drake, 2006). This issue is not exclusive/specific to nurses' caring for pregnant women. The results of this study are consistent with other research identifying that the assisting and arranging steps of the 5 A's are the least commonly performed aspects of SC counselling (Tong, Strouse, Hall, Kovac, & Schroeder, 2010; Tremblay, Cournoyer, & Loughlin, 2009). These steps are potentially the most important interventions for pregnant smokers who wish to reduce or abstain from smoking.

A potential shortcoming of the RNAO BPG recommendations, as identified by Edwards et al. (2007), is that BPGs "do not emphasize effective strategies for making referrals such as ways to approach and motivate patients to follow-up on referral

recommendations” (n.p). In writing BPGs, it is imperative that specific referral strategies are included to facilitate the implementation of practice recommendations.

These findings suggest that FPNs in Ontario are not working to their full scope of practice, nor are FPNs practicing according to evidenced-based recommendations. Optimal FPN smoking cessation counseling practices can only be attained when nurses receive organizational support to practice to full scope (RNAO, 2007). It is imperative that FPNs are supported to provide SC interventions for pregnant women because a “strong dose-response relationship exists between intensity of tobacco dependence counseling and effectiveness” (Murray & Wewers, 2004, p. 202). Nurses need to implement the full range of smoking cessation interventions, as appropriate, for every pregnant and postpartum woman.

Barriers to Smoking Cessation Interventions

In the current study, the most frequently self-reported “significant” or “highly significant” barriers to providing SC interventions for pregnant patients was lack of time (54%) and cost of medication (54%). In a literature review of quantitative studies pertaining to health care providers’ engagement in smoking cessation with pregnant smokers, lack of time was also identified as the most frequently reported systemic/organizational barrier (Okoli, Greaves, Bottorff, & Marcellus, 2010). Similarly, in a study exploring US midwives’ knowledge, perception, beliefs and practice support regarding tobacco dependence treatment for pregnant women, the authors reported that cost of medication (63.4%) and lack of time (48.8%) were common barriers to counseling pregnant women (Abatemarco et al., 2007). Abatemarco et al. (2007) identified the other barriers to the provision of SC interventions for pregnant women: patients are resistant to advice (81.1%), patients lacked interest (78.1%), competing priorities in the visit such as acute illness (72.9%) and lack of training or

experience in smoking cessation (72.8%). Price et al. (2006) reported minimal to no barriers to providing SC counselling for pregnant women. Price et al. (2006) surveyed 93 midwives in Ohio regarding their perception and use of smoking cessation in nurse-midwives practice. The majority of respondents perceived there were no barriers to counseling pregnant women and only 14% of midwives in this study identified lack of time as a barrier.

The literature regarding barriers to smoking cessation counselling for non-specified patient populations was also consistent with the findings in the current study. In a national survey conducted in the US by Tong et al. (2010) nurses identified the following barriers to smoking cessation counselling: competing priorities during a visit (leading to not having time to help smokers quit) (55.8%) and limited to no reimbursement for smoking cessation counselling (49.4%). Carpenter, Carlini, Painter, Mikko, and Stoner (2012) reported that the most commonly cited barriers in their study included the following: patients not accepting referral to quitline, patients not being ready to quit, lack of time, the need to address acute health issues, and lack of reimbursement for tobacco interventions.

Further research is required to better understand why nurses identify the cost of medication as a barrier to SC counselling. It remains unclear whether nurses perceived that some pregnant women could not afford the medication and hesitated to discuss this as an option or whether the cost of stop smoking aids such as nicotine replacement therapy and medications was an actual concern of the pregnant patients for whom they provide care. It would be important for nurses to discuss the importance of smoking cessation before, during and after pregnancy, and then determine what resources would be needed.

The Ministry of Health and Long Term Care (MOHLTC, 2012a), which administers the Ontario Public Drug Program, provides drug benefits for individuals who are receiving

social assistance. In August of 2011, the MOHLTC made some significant changes to their reimbursement practices for nicotine replacement therapies such as Zyban for patients who are on the Ontario Drug benefits program. Furthermore, Ontario residents who are receiving Ontario Drug Benefits (ODB) are eligible to participate in a “Pharmacy Smoking Cessation Program” free of charge (MOHLTC, 2012b):

A smoking cessation program will see the community pharmacist providing a one to one support service and advice to ODB recipients who want to give up smoking. The program includes a readiness assessment where a patient may enrol in the smoking cessation program with the pharmacy as well as a first consultation and a number of follow-up counselling sessions over a one-year period

This new comprehensive smoking cessation program is structured around the 5 A’s framework. There is a potential gap in service for the pregnant women who are not recipients of the Ontario Drug Program and do not have prescription drug benefits through their employers. However, programs are offered in the community which provide access to free or subsidized nicotine replacement therapies such as the “Take Control Baby Steps” (KFL&A Public Health, n.d) and the “Choose to Be...Smoke-Free” (McCammon-Tripp, Koteles, Fasken, Mead, & Stich, 2012). Greater promotion of community programs is required. As nurses become more familiar with smoking cessation programs for pregnant women offered through the MOHLTC and Public Health Units in Ontario then perhaps referrals to these programs will increase and there will be a decrease in the perceived barrier of cost of medication.

Promoting Factors that Contribute to Smoking Cessation Interventions

Two significant findings, regarding factors that predicted smoking cessation interventions for pregnant women, emerged from this study. The first significant finding is that FPNs with higher self-efficacy to provide effective SC counselling performed more

counselling interventions for pregnant women who were “ready to quit” as well as for pregnant women who were “not ready to quit”. The second significant finding is there was an association between beliefs and the provision of SC interventions. FPNs who possessed a greater belief that SC counselling was part of the nursing role self-reported more SC interventions for pregnant patients who were “not ready to quit”.

Self-Efficacy.

It is quite possible that FPNs have low self-efficacy to provide SC counselling for patients in general, let alone for pregnant women specifically. Certainly, the results that self-efficacy predicts counselling practice are consistent with research conducted with registered nurses caring for different patient populations in other health care settings (Carpenter et al., 2012; Preechawong, Vathesathogkit, & Suwanratsamee, 2011).

Carpenter et al. (2012) conducted a controlled, interrupted time series study to evaluate the effectiveness of a web-based educational and skills building program in tobacco interventions for health care providers. In this study, 114 health care providers (45.7% of whom were RNs) completed the “Ref2Quit” (R2Q) skills training program which is an online educational and skill-building program for health care providers. Following the intervention (R2Q program) health care providers reported a significantly more favourable attitude towards SC and quitline referrals ($t(113) = -10.11, p < .001$), and a significantly higher self-efficacy for providing tobacco cessation interventions ($t(113) = -17.82, p < .001$).

Preechawong et al. (2011) conducted a study using a pretest- posttest, quasi-experimental design to test the effect of a six hour, theory-based tobacco cessation counselling training program on Thai nurses’ self-efficacy and cessation practices. The authors reported a significant improvement in nurses’ self-efficacy between baseline and six

months post-program. They also reported a significant difference in tobacco cessation counselling practice between baseline and three months post program, as well as between baseline and six months post-program. Although training was not a significant predictor of counselling practices in the current study, a significant increase in self-efficacy after receiving training in smoking cessation interventions has been demonstrated in other research studies. Enhanced training may increase FPNs' self-efficacy to provide effective SC interventions for pregnant women.

Beliefs.

The results of this study suggest that nurses may not realize that even though a patient does not wish to quit smoking, that there are still opportunities to support and educate patients. For example, an appropriate intervention for a patient "not ready to quit" would be providing the patient with booklet from organizations such as the Canadian Cancer Society entitled "For smokers who don't want to quit" or the University of Ottawa Heart Institute, Ottawa Model for Smoking Cessation booklet entitled "For smokers not ready to quit".

It is important for nurses to take the time to explore the issue of smoking with pregnant patients including how long they have smoked, past quit attempts, what they like and dislike about smoking and determine patients' readiness to quit. Reflection and dialogue will hopefully bring the patient one step closer to the next stage of change (Fiore et al., 2008). Letting patients know that there are a variety of resources to support them when they are ready to quit is an important nursing role.

Implications for Nursing Practice, Education, Research and Policy

The self-reported role of Ontario family practice nurses in smoking cessation interventions for pregnant women during routine prenatal care visits is described in this study. There is a strong association between smoking during pregnancy and the delivery of a low birth weight baby, among many other adverse maternal and neonatal outcomes. This study was limited to SC provided by FPNs during pregnancy. Smoking is a complex issue requiring a multifaceted strategy. Implications for practice, education, research and policy are discussed in the next section.

Implications for Practice

All FPNs should be aware of SC guideline recommendations and their associated rationale and all FPNs should be involved in developing strategies to integrate SC into everyday practice. Nurses need to determine how they can integrate SC interventions into their daily practice and thus provide intensive interventions for pregnant women as recommended by the RNAO BPG. In a position statement released by the Association of Women's Health, Obstetric and Neonatal Nurses (2010), it was declared that "Health care professionals have a responsibility to routinely screen patients for tobacco use, to implement or support evidence-based smoking cessation strategies, and to refer patients to smoking cessation programs and resources" (p. 428).

Cessation is a key health promotion topic for pregnant women who smoke and discussions regarding SC must be made a priority during prenatal care visits. SC interventions could be provided over a number of prenatal and postpartum visits, and therefore, workload in most settings should not increase dramatically. Additionally, nurses need to possess a greater awareness of available resources in the community in order to

arrange for appropriate referrals. Nurses do not need to be experts in SC, however, they should be knowledgeable about the SC process, barriers to reducing/quitting, and available community supports to which nurses can refer pregnant patients. In doing so, nurses would ensure that they are providing evidence-based care as per BPG recommendations.

Documentation.

It is important to ensure that nursing interventions are documented. Twenty eight percent of respondents reported that they never document their teaching and interventions. It is essential that referrals are flagged on the chart to ensure appropriate follow-up. Improved and appropriate documentation would facilitate follow-up support, strengthen interdisciplinary team work and enhance continuity of care. Furthermore, documentation of nursing interventions is necessary to ensure that nursing's contribution to patient care (and health promotion) will be fully recognized. Many documentation sheets reflecting evidence-based smoking cessation interventions have already been developed and are easily accessible via the internet. FPNs should ensure that there is a comprehensive documentation system established at their health care organization and encourage all health care providers to document SC interventions.

Referrals

Nurses need to provide more referrals as a way to "assist" their pregnant clients and they need to ensure that this is documented. Edwards, Davies, Ploeg, Virani, and Skelly (2007) conducted a study describing the impact, on nurses' familiarity with patient referral resources and nurses' referral practices, of implementing six nursing BPGs (including SC). Nurses from hospital, community and public health settings were surveyed pre and post implementation (n=257). Edwards et al. (2007) concluded that "knowledge of referral

sources, increased awareness of the value of appropriate referrals, and familiarity with the means to support patients in following up referrals may all influence effectiveness of the referral process” (n.p). Additionally, Edwards et al. reported that nurses were more likely to refer to services that were part of organization in which they worked, and there were no referrals to internet sources. Nurses need to broaden their referral practices.

Edwards et al. (2007) advocate collaborating with community partners in establishing referral mechanisms. They recommend that:

health care agencies interested in helping their clients access community resources work collaboratively with agencies in their community to develop strong documentation systems including the use of electronic or web-based formats for referrals...Prompts on the chart and a rapid web-based or email system would support systematic tracking of referrals recommendations and their uptake by patients (Edwards et al., 2007, n.p)

The issue of providing referrals is more complex than merely being aware of what community resources are available and making recommendations. Certainly, nurses need to be aware of referral resources, but nurses must also understand how the resource would be beneficial to the client.

Implications for Education

According to our findings few nurses have received education about smoking cessation both during and after their nursing training. There is a need for the inclusion of SC training during formative nursing education and a need for on-going education and support. Student nurses need opportunities to practice smoking cessation skills in each clinical placement. If students are familiar with the 5 A's and become comfortable discussing addiction related issues with their patients then they are more likely to continue this after graduation. George Brown College, which has offered a Family Practice Nursing

Postgraduate Program since September 2011, should ensure that SC is integrated throughout this course so that graduates have strong SC interventions skills.

Smoking cessation interventions for pregnant women should be included in orientation sessions for all new staff members, with a particular focus on familiarizing the new staff members with community resources and programs to which they can refer their pregnant patients who smoke. The on-going professional education could take the form of webinars and telehealth sessions, lunch & learns, social networking site discussions, and conference presentation items. However, there must also be opportunities for skill development. The results from a naturalistic study with a prospective, before and after design, identified that the implementation of BPGs was facilitated by hands-on skill practice sessions for nurses and the development of new patient education materials. Organizations that demonstrated a greater than 50% improvement in indicators had implemented these strategies (Davies, Edwards, Ploeg, & Virani, 2008).

FPNs in this study identified a high level of interest in further developing their SC skills. The top three items in which FPNs expressed a high level of interest included: An inventory of resources to help pregnant patients quit smoking, a “clinical practice tool” that permits rapid intervention with pregnant patients who smoke, and training on the motivational approach of counselling (see Appendix J for FPN Identified Level of Interest in Professional Education Items). The Ontario Family Practice Nurses interest group could play a key role in disseminating research and available resources to their members via their e-mail distribution lists, website and biannual conferences.

On a regional level, the two perinatal programs within the province of Ontario, the Champlain Maternal Newborn Regional Program (CMNRP) and the South-Western Ontario

Perinatal Program (SWOPP), could play key roles in the dissemination of BPG recommendations. Perinatal consultants organize monthly teleconferences sessions, offer workshops on a variety of topics and teach university courses on perinatal specialty areas. Perinatal consultants from these two programs could collaborate to develop and deliver an educational program/workshop aimed at increasing awareness and uptake of evidence-based recommendations for pregnant women. Continuing education can result in the development of perinatal health care provider proficiency into engaging women and their partners in effective discussions regarding smoking cessation.

On a national level, education efforts regarding SC are underway and these should continue. The Canadian Association of Perinatal and Women's Health Nurses (CAPWHN) hosted a webinar in June 2012 entitled "M-powering fathers to reduce and quit smoking: A new approach to supporting women's tobacco reduction in the perinatal period". Additionally, research findings from the current study were presented by the author in October 2012 at the 2nd Annual National CAPWHN conference.

Even though smoking cessation is not a new health care topic there continues to be interest. It is, however, worth exploring the assumptions surrounding evidence-based guideline recommendations. For example, a key assumption for the RNAO practice recommendation number six (intensive intervention for pregnant and postpartum women) is that the majority of nurses would possess skills and resources (time) to complete this level of intervention. Given that the most frequently reported barrier was time, and that the majority of nurses have not received training in smoking cessation, it is not surprising that pregnant women who smoke are not receiving comprehensive evidence-based care.

Another assumption is that nurses believe that they have a responsibility to provide SC interventions for pregnant women. A nursing colleague with 35 years of experience stated that content about smoking, or cessation, was not included in the training of nurses from her generation. She recalls that there was overall societal acceptance for smoking and even promotion of smoking during pregnancy. She shared that there were many widely held beliefs that quitting would be harder on the baby than continued smoking, and that it was in fact better to have a smaller baby (RN with 35 years of neonatal nursing experience, personal communication). It is possible that some of these myths prevail today and subsequently negatively impact nurses' beliefs that nurses have a role in counselling pregnant women who are "not ready to quit". In an attempt to address these misconceptions, Pregnets (2012) offers a webpage discussing the myths and facts regarding SC during pregnancy; this information should be distributed to both health care professionals and pregnant women.

Greater sharing of resources amongst professionals is required. There is a variety of evidence-based resources that are widely available via the internet and provided free of charge. Given that low awareness and use of guidelines were identified in this study, continued efforts to promote the use of evidence-based guidelines are required. It is necessary to widely disseminate evidence supporting BPG recommendations, in particular evidence regarding NRT use in pregnancy and postpartum, women- centered approach to counselling, and effective referral processes. One avenue to keep abreast of new evidence and to network with nursing colleagues is to join communities of practice such as the RNAO communities of practice.

Additionally, given that family practice nurses often report a sense of isolation, it is important for FPNs to develop networks of support (Todd et al., 2007). The Canadian Family Practice Nurses' Association has an on-line discussion forum on their website (n.d) that FPNs could utilize this discussion forum to share strategies for implementation, to brainstorm ways to navigate challenges, to support and encourage one another, and to reduce their feelings of isolation.

Implications for Research

The Knowledge to Action (KTA) process was a useful theoretical framework to explore the current role of Ontario FPNs in SC interventions for pregnant women, the barriers to SC interventions, and the factors associated with SC interventions. The purpose of this study was to explore the KTA process from a provincial perspective in order to understand the uptake of evidence-based guideline recommendations when nurses were not specifically involved in a BPG implementation initiative.

The RNAO BPG was the most frequently reported SC guideline used by FPNs, however, three respondents identified that they used both the RNAO BPG as well as the CAMH TEACH guideline. This may indicate that the current (RNAO) guideline is not sufficient to deal with issues pertaining to pregnant women. Future research should explore the extent to which health care professionals combine BPGs to meet the needs of their patients from specific populations such as pregnant women. Furthermore, future research should be conducted to test the hypothesis that RNAO members are aware of RNAO developed products such as BPGs.

In order to increase the generalizability of research findings, this study should be repeated with a larger group of nurses, recruited through the general membership of the

College of Nurses of Ontario (CNO). A benefit of conducting a provincial study of nurses, recruited through the general membership of the CNO, is that potential participants could be purposefully sampled to represent a diverse distribution. This would permit the exploration of the impact of organizational structure on nurse-provided SC counselling practices (i.e. compare Family Health Teams, Community Health Centres, and physician's offices). The sample size in the current study was too small to conduct this analysis. The survey should be administered via postal questionnaire given the low response rate obtained via the internet.

Nurse-managed counselling sessions have been shown to be effective in assisting pregnant women in their smoking cessation efforts (RNAO, 2007; Barron et al, 2007). Given that lack of time was the most significant barrier, exploration of nurses' office environments and workloads is needed in order to determine strategies/opportunities that will enable nurses to complete SC counselling interventions. Additionally, a replication of the intervention study by O'Connor et al. (1992) should be conducted with FPNs providing the interventions as opposed to public health nurses. O'Connor et al. reported that pregnant women who received immediate intervention (a one-on-one 20 minute session with a public health nurse for smoking cessation counselling) demonstrated a two to three times higher rate of smoking cessation at all three follow-up time points (one month follow-up from the initial intervention, at 36 weeks gestation, and six weeks postpartum). The intervention was significantly more effective than usual care since 93% received the intervention. Not one patient who received usual care followed-up on the referral to an evening cessation group located at the public health unit, scheduled at a later date.

The results of the study by O'Connor et al. suggest that immediate intervention was the key to successful uptake of the intervention. Although the results of the O'Connor study

are very promising, this intervention was not sustainable because public health nurses do not normally see women during routine prenatal care visits. Future implementation studies should be conducted in realistic settings such as family practice settings and explore sustainable interventions such as maximizing the role of the family practice nurse.

Sustainability is enhanced through using a mechanism/resource (FPNs) that is already in place. FPNs are already interacting with pregnant women on a frequent basis and FPNs have a pre-established relationship which may facilitate the difficult conversations surrounding addictions such as tobacco.

The KTA process can be used by nurses and researchers to guide the implementation of evidence-based recommendations into primary care practices. Nurses working within primary care settings need to adapt the knowledge of evidence-based SC interventions for pregnant women to their local context/ practice setting, assess barriers to knowledge use, and implement SC interventions for pregnant women who are both “ready to quit” and “not ready to quit” (Straus, Tetroe & Graham, 2009). The RNAO toolkit, which has been recently revised, is a valuable resource to assist health care settings/organizations in implementing BPGs; this updated toolkit, which incorporates the KTA process as the model for knowledge translation, should be widely promoted (RNAO, 2012a). Additionally, an evaluation tool is also available to monitor the knowledge use (Edwards, Davies, Dobbins, Griffin, Ploeg, & Skelly, 2003).

Future research should explore the role of nurse educators or champion nurses within Family Practice organizations in enhancing the uptake of practice recommendations.

Champions are defined as “individuals who dedicate themselves to supporting, marketing, and driving through an innovation” (Greenhalgh, Robert, Bate, MacFarlane, & Kyriakidou,

2005 as cited in Ploeg et al, 2010, p. 239). There is evidence to indicate that champions may play a key role in the process of knowledge transfer and implementation of BPGs (Ploeg et al., 2010):

Results of our research support the importance of nursing best practice champions in bringing about evidence-based awareness and practice to health care organizations. To maximize the potential contribution of their roles, there is a need for adequate training of champions. Such training would address a broad range of knowledge and skills such as knowledge transfer, policy development, research and evaluation, leadership and mentorship. Further champions are likely to require ongoing education and support to be effective in their roles (p. 249)

In terms of providing this ongoing support and education to nurse champions, convenient and cost- effective education strategies should be implemented. For example, future implementation studies should explore the use of web-based resources to engage FPNs in education and skill development with an overall goal to determine the impact on FPNs' self-efficacy (to provide effective SC interventions) (Amole, Heath, Joshua, McLear, 2012; Carpenter et al., 2012).

Further exploration into nurses' beliefs and SC practices is required to better understand why in the current study one in five FPNs never offered SC counseling to their pregnant patients. A qualitative study should be conducted to explore nurses' beliefs regarding their role in counselling pregnant women who smoke, in particular their beliefs about their role when caring for women who are "not ready to quit". In this era of budget constraints and reduced health care dollars, it is of utmost importance that nurses are working to their full scope of practice.

Since the provision of SC interventions extends beyond the prenatal period, there is an opportunity for all perinatal nurses, especially postpartum nurses, and neonatal nurses as well as public health nurses, to continue supporting women and their partners who either

smoke, have reduced their smoking, or who have quit. All nurses can reinforce the importance of a smoke-free home environment for the entire family (RNAO, 2007). Knowing that there are high relapse rates during pregnancy and the postpartum period, perinatal and public health nurses can provide much needed support. An implementation study should be conducted involving neonatal nurses in counselling families who smoke, especially families who have delivered a baby with a low birth weight, premature gestation or respiratory issues. Of particular importance would be the role of neonatal nurses in communicating harm reduction strategies to the women and/or partners who are not able to quit, and arranging referrals to health care professionals or community organizations that provide SC interventions (Forest, 2009; Shah, 2011).

Due to the high number of respondents in the current study who reported that they do not consistently document their teaching in regards to SC, researchers need to be cautious when choosing their data collections strategies/methods. Chart audits will not suffice unless all health care professionals, including nurses, have been diligently documenting their discussions, teaching, interventions and support provided.

Implications for Policy

Greater work needs to be done to integrate BPG practice recommendations into Family Practice Nursing's organizational policies and procedures. Associated with this integration, would be the training and ongoing skills development/enhancement needed to support FPNs in delivering SC interventions for pregnant women. This is consistent with organizational recommendation nine and policy recommendation twelve (Registered Nurses' Association of Ontario, 2007).

Organizational recommendations.

Organizational recommendation nine states that “Organizations and Regional Health Authorities should consider smoking cessation as integral to nursing practice, and thereby integrate a variety of professional development opportunities to support nurses in effectively developing skills in smoking cessation intervention and counselling” (RNAO, 2007, p. 10). Currently, FPNs in Ontario are not working to full scope of practice. Anecdotal comments, provided via comment boxes in the survey, identified that the role of FPNs was limited by organizational barriers, including in some cases the physicians with whom they worked. The RNAO recently released a report entitled “Primary Solutions for Primary Care: Maximizing and Expanding the Role of the Primary Care Nurse in Ontario” (2012b). In this report, the RNAO emphasized that:

the roles of the RN and RPN in primary care are misaligned to the competencies, knowledge, and skills of these professionals... clearly there is untapped potential in Ontario’s primary care system with a significant nursing workforce waiting and eager to be fully utilized and take on expanded roles (Registered Nurses’ Association of Ontario, 2012, p.4)

In order to maximize health care dollars, nursing skills need to be fully employed. Current efforts to assist nurses to work to full scope of practice must be supported. Nurses should be given greater responsibility to provide SC interventions and should be given sufficient time to complete the 5 A’s.

Policy recommendations.

In a Cochrane review of 72 trials, Lumley et al. (2009) concluded that “smoking cessation interventions in pregnancy need to be implemented in all maternity care settings. Given the difficulty many pregnant women addicted to tobacco have quitting during pregnancy, population-based measures to reduce smoking and social inequalities should be

supported” (p.2). The RNAO BPG includes specific policy recommendations that can help to guide interventions addressing the needs of pregnant women in Ontario who smoke.

Policy recommendation twelve states “Nursing best practice guidelines can be successfully implemented only where there are adequate planning, resources, organizational and administrative support, as well as appropriate facilitation” (RNAO, 2007, p. 10). The time has come to consider new funding models in primary care that take the focus off physicians and permit nurses to work to their full scope of practice (Browne & Robertson, 2012). In a Canadian Health Services Research Foundation webinar, Browne and Robertson recommended nurse-led, proactive, comprehensive and preventive care models for managing patients with chronic illness. Women who smoke may currently have chronic health issues and if not, they are more likely to develop chronic health issues in the future. Nurses can lead key preventive care interventions and support for patients who smoke.

The province of Ontario needs a provincial strategy to address tobacco use in childbearing families. A SC intervention benchmarking rate for pregnant and postpartum women should be identified. Health care organizations that demonstrate their ability to provide health promotion interventions, such as SC, should be supported. The Ministry of Health and Long Term Care should invest in PHC models that support nurses working to full scope, and prioritize health promotion activities for all patients, especially pregnant women who smoke.

The Provincial Council for Maternal Child Health (PCMCH) should convene a Maternal Newborn Advisory Committee workgroup to address the topic of smoking among childbearing families. The workgroup should be composed of interdisciplinary team members including midwives, physicians, pharmacists, nurses, and social workers. The

purpose of the workgroup/expert panel would be to “support the understanding, adoption and implementation of clinical practice recommendations through research, consultation and best practice” (PCMCH, 2012). The workgroup should identify specific strategies for implementation SC interventions in order to improve efficiencies and enhance system effectiveness.

Quality assurance programs are needed so that knowledge use can be monitored, outcomes evaluated, and strategies developed to sustain best practices. All health care organization should conduct a mandatory annual review of SC guidelines as part of their quality assurance program. To maintain competence, employees could be required to review the RAO on-line learning module or other such self-guided study resource designed to familiarize the learner with evidence-based guidelines. Additionally, primary care settings should review their current referral processes and ensure there are appropriate system prompts for tracking referrals and ensuring follow-up. In doing so, perhaps more nurses will Assist and Arrange with greater frequency.

Limitations

There were a number of limitations of the current study. These include the following: low response rate, self-report of SC counselling practices, missing data, lack of generalizability of findings, and potential non-response error.

Low Response Rate

Despite our use of the tailored design method (Dillman et al., 2009) the response rate remained low (18%). Close tracking of e-mail delivery identified that only 3% (n=13) of messages either bounced back or could not be delivered. However, it is possible that more than 13 OFPN members did not receive the invitation and did not have the opportunity to

read the invitation. For example, the e-mail invitation and reminders may have been flagged as spam by the recipient's network and automatically sent to trash and junk folder. E-mail is the primary method of communication of the OFPN with its members and there was no other way to contact their members.

Calculating the response rate of this internet questionnaire proved to be challenging. In this calculation, the total number of OFPNs that were sent the invitation e-mail was divided by the total number of FPNs who said "yes" to participation. It was assumed that if someone did not complete the questionnaire, they did not wish to participate. However, some OFPN members may not have felt comfortable completing the questionnaire via the internet and would have preferred a paper survey (they were not given the choice). Results from a previous study suggested that some nurses prefer paper-based questionnaires over internet questionnaires (Hanbury, Farley, Thompson, Wilson, & Chambers, 2012).

Even though the response rate was low, it is similar to other studies in which questionnaires were administered via the internet. Sarnia et al. (2009) reported a response rate of 20.5% for a web-based questionnaire. Ploeg et al. (2010) reported a 21.6% response rate (191/885) for their study exploring the role of nursing best practice champions in diffusing best practice guidelines. Hanbury et al. (2012) reported a 19% response rate for their study of key factors influencing health professionals' referrals for women diagnosed with postpartum depression.

Self-Reported Counseling Practices

The self-reported counselling practices were not verified with patient reports. Although patient report would have increased the validity and accuracy of self-reports, this was not feasible due to logistical and budgetary restraints. Polit & Beck (2012) identify self-

reports as an effective means to gather information on the following: feelings and beliefs of respondents, retrospective data on events that have occurred in the past, as well as behaviors that respondents plan to engage in the future.

Missing Data

There was a high rate of non-completion/incomplete data. Twenty-eight percent (25/89) of respondents who had agreed to participate in the study did not complete all questions, including the demographic section at the end. Because they did not complete the demographic information at the end of the questionnaire, they were excluded from the multiple linear regression analysis. This may have reduced the power to detect significant associations between independent variables under investigation and smoking cessation interventions. The missing data, in addition to the low response rate, contributed to decreased validity for the study and greatly reduces the generalizability of the research findings.

There are a number of options to manage missing data, however, each substitution introduces another type of error or bias (Katz, 1999). After in-depth consultation with Dr. Kirsten Woodend, it was decided that no substitutions for missing data would be made. Primarily this decision was based on the fact that the sample was already flawed (low response rate, large amount of missing data) and that substitutions would introduce greater bias into the study. Due to the limited/small sample size and the missing data, pairwise selection was chosen for the multiple linear regression analysis in order to maximize the available data.

In order to verify that the pairwise deletion method did not significantly alter the results, the multiple linear regression analysis was run using the listwise deletion method

which is more conservative (see Table 6). There was not a dramatic change in the degree of freedom. The results did not differ for the “ready to quit” counselling when listwise deletion was used. However, adjusting the deletion method did impact the results for the “not ready to quit” counselling. When the analysis was completed, using pairwise deletion, there were equal significance levels for beliefs (.033) and self-efficacy (.033). However, when the analysis was completed using listwise deletion, only self-efficacy was significant ($p=.018$) with beliefs approaching significance ($p=.053$). Therefore, the results of this study should be interpreted with caution.

Table 6. Pairwise versus Listwise deletion

		<i>df</i>	<i>Pairwise</i>	<i>df</i>	<i>Listwise</i>
Ready to Quit	Beliefs	(3,52)	.218	(3,51)	.256
	Self-efficacy		<.001**		<.001**
	SC training AFTER nsg studies		.375		.303
Not-Ready to Quit	Beliefs	(3,53)	.033*	(3,52)	.053
	Self-efficacy		.033*		.018*
	SC training AFTER nsg studies		.568		.635

* $p<.05$, ** $p<.001$

Lack of Generalizability

FPNs recruited for this study were members of a voluntary professional association who may have a greater commitment to furthering their education and promoting the nursing profession. The nurses who completed the questionnaire may not be representative of the FPN population in Ontario and therefore the results are not generalizable to all FPNs. Nonetheless, this sample of FPNs in Ontario have contributed information regarding their current practices of providing SC interventions for pregnant women seeking care during

routine prenatal care visits. The results indicate that the majority of FPNs in this study are not fully implementing evidence based smoking cessation interventions during routine care.

Technical difficulties/Non-response error

The piloting phase did not identify any technical issues. However, the pre-testing nurses were graduate students and they may have newer computers with faster internet connections, and they may possess greater comfort with internet technologies such as web surveys. Dillman, Smyth, and Christian (2009) advise web survey designers to “design and test the web survey from the respondent perspective; the respondent may not be as computer savvy or familiar with being online (p. 217). It is possible that respondents did not have the most recent versions of web browsers. Dillman (2000) highlights the non-response error may be related to technical issues pertaining to questionnaire administration:

Because heterogeneity exists in the browser capabilities and line transmission speeds available to respondents, the gains in creativity and skip pattern possibilities associated with advanced programming must be balanced against the costs of making it impossible for some people to respond. To the extent that a survey is investigating respondent characteristics that may be related to people’s computer literacy and/or the quality of their browsers and computer connections... nonresponse error is a likely result of ignoring or misjudging compatibility issues (p. 375)

The questionnaire structure was potentially too complex for a web survey. A few questions appeared as matrices that may have been better suited for a paper-based questionnaire. Scrolling was required for some questions and depending on the size of the participant’s computer screen this may have altered the question format or participants may have inadvertently missed portions of the matrices. It is not possible to know the number of potential respondents who encountered technical difficulties and were not able to participate in the study. Additionally, participants may have inadvertently been rebooted to the beginning of the questionnaire when the researcher was monitoring data collection. Due to

lack of experience with *SurveyMonkey*, the researcher initially failed to realize that double-clicking on the survey title on the researcher's *SurveyMonkey* homepage automatically entered the design mode instead of the analyze mode. *SurveyMonkey* cautions researchers to "Always close the current collector(s) while working in the design mode. If participants are responding, they will be brought back to the first page as the system needs to refresh the survey"(SurveyMonkey). This was realized early on in data collection and subsequently the researcher ensured that she entered only the data analysis mode. Inadvertently forcing participants to go to the beginning of the questionnaire may have discouraged their continued participation. It is not known how many participants this may have affected.

Strengths

The three main strengths of this study include the following: Utilization of a previously validated instrument, recruitment of a diverse sample of FPNs, and exploration of nurse-provided counselling practices for pregnant women who are "ready" and "not ready to quit" smoking.

Previously Validated Instrument

A previously validated instrument was used for this study. Despite modifications to the original questionnaire by Tremblay et al. (2009) the Cronbach's alpha for the beliefs scale (.76) and the self-efficacy scale (.90) indicate that these scales continued to be reliable measures. Additionally, the questionnaire had been previously administered to nurses in Quebec and thus it was possible to make comparisons with the current study.

Recruitment of a Diverse Sample of Respondents

The study sample included a good cross section of nurse respondents from different age groups, places of work, and years in their current position. Additionally, there was a

nearly equal response from respondents living in the four different sizes of communities, with rural representation being slightly higher. There was a wide range in the self-reported SC practices potentially reflecting that respondents were honest in their self-reports. One respondent commented that she felt ashamed of her lack of provision of SC interventions. She wrote “This survey has made me more aware of a lot more I could be doing. It took me a while to complete it because I wasn’t proud of my answers”. The sampling method used resulted in reaching a small but diverse sample of FPNs working in Ontario.

Exploration of counselling practices for pregnant women who are “ready” and “not ready” to quit smoking

This study explored nurse-provided SC interventions for pregnant women who were both “ready” and “not ready to quit” smoking. The interventions for women are different depending on their readiness to quit smoking (Greaves et al., 2005). By exploring both of these situations, a better understanding of the predictors of nurse-provided SC interventions was obtained. The finding that self-efficacy was a predictor of providing SC interventions for both groups of pregnant women (“ready to quit” and “not ready to quit”) enables researchers and educators to develop and implement interventions to enhance nurses’ self-efficacy to provide effective SC interventions for pregnant women.

Conclusion

Pregnant women and their partners need concrete assistance in their journey towards smoking cessation. Smoking cessation interventions should be individualized and woman-centered. Partners should be included in smoking cessation counselling sessions. Discussions regarding progress towards the smoking cessation goals should occur throughout pregnancy. Primary care nurses such as FPNs are well situated to engage

pregnant women and their partners in health promotion and harm reduction strategies related to smoking (Alsaffar, 2005; Pletsch & Morgan, 2002; Registered Nurses' Association of Ontario, 2007).

Of the predictors investigated in this study, self-efficacy was significantly ($p < .001$) associated with counselling pregnant patients who are “ready to quit” smoking. Beliefs and self-efficacy were significantly associated with counselling pregnant patients who were “not ready to quit” smoking. Greater promotion of the full nursing scope of practice is required to reinforce the belief that smoking cessation is an important intervention for all patients, especially pregnant and postpartum women who smoke. Nurses who believe that smoking cessation counselling is part of their role and who have high self-efficacy to provide effective smoking cessation counselling will provide more interventions. Disseminating research defining effective strategies to increase nurses' self-efficacy to provide effective smoking cessation interventions may increase the uptake of evidence-based recommendations.

Continued efforts to disseminate BPGs are required given the low awareness and use of SC guidelines. Primary care nursing practice needs to be better supported to “assist” pregnant women and their partners who smoke; providing referrals is an important nursing role. Additionally, a process should be implemented whereby follow-up is consistently “arranged” to monitor and discuss progression towards smoking cessation goals. Nurses can empower pregnant women and their partners to making life changing behaviour modifications, so that smoking cessation efforts started during pregnancy will not stop with the birth of the child but rather continue towards life-long abstinence. Now is the time to

make the 5 A's of smoking cessation counselling routine practice for all nurses working in primary care settings, especially nurses who work with pregnant and postpartum women.

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Appendices

Appendix A. Summary of RNAO BPG Smoking Cessation Guideline

Recommendations

	Recommendations	Level of Evidence
Practice Recommendations	1.0 Nurses implement minimal tobacco use intervention using the "Ask, Advise, Assist, Arrange" protocol with all clients.	A
	2.0 Nurses introduce intensive smoking cessation intervention (more than 10 minutes duration) when their knowledge and time enables them to engage in more intensive counselling.	A
	3.0 Nurses recognize that tobacco users may relapse several times before achieving abstinence and need to re-engage clients in the smoking cessation process.	B
	4.0 Nurses should be knowledgeable about community smoking cessation resources, for referral and follow-up.	C
	5.0 Nurses implement smoking cessation interventions, paying particular attention to gender, ethnicity and age-related issues, and tailor strategies to the diverse needs of populations.	C
	6.0 Nurses implement, wherever possible, intensive intervention with women who are pregnant and postpartum.	A
	7.0 Nurses encourage persons who smoke, as well as those who do not, to make their homes smoke-free, to protect children, families and themselves from exposure to second-hand smoke.	A
Education Recommendations	8.0 All nursing programs should include content about tobacco use, associated health risks and smoking cessation interventions as core concepts in nursing curricula.	C
Organization & Policy Recommendations	9.0 Organizations and Regional Health Authorities should consider smoking cessation as integral to nursing practice, and thereby integrate a variety of professional development opportunities to support nurses in effectively developing skills in smoking cessation intervention and counselling. All corporate hospital orientation programs should include training to use brief smoking cessation interventions as well as information on pharmacotherapy to support hospitalized persons who smoke.	B
	10.0 Nurses seek opportunities to be actively involved in advocating for effective smoking cessation services, including "stop smoking medications".	C
	11.0 Nurses seek opportunities to be actively involved in advocating for smoke-free spaces and protection against second-hand smoke.	C
	12.0 Nursing best practice guidelines can be successfully implemented only where there are adequate planning,	C

	<p>resources, organizational and administrative support, as well as appropriate facilitation. Organizations may wish to develop a plan for implementation that includes:</p> <ul style="list-style-type: none"> • An assessment of organizational readiness and barriers to education. • Involvement of all members (whether in a direct or indirect supportive function) who will contribute to the implementation process. • Dedication of a qualified individual to provide the support needed for the education and implementation process. • Ongoing opportunities for discussion and education to reinforce the importance of best practices. • Opportunities for reflection on personal and organizational experience in implementing guidelines. <p>In this regard, RNAO (through a panel of nurses, researchers and administrators) has developed the <i>Toolkit: Implementation of clinical practice guidelines</i>, based on available evidence, theoretical perspectives and consensus. The Toolkit is recommended for guiding the implementation of the RNAO guideline <i>Integrating Smoking Cessation into Daily Nursing Practice</i></p>	
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Strength of evidence description (RNAO, 2007, p. 12)

A Requires at least two randomized controlled trials as part of the body of literature of overall quality and consistency addressing the specific recommendations.

B Requires availability of well conducted clinical studies, but no randomized controlled trails on the topic of recommendations.

C Requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable studies of good quality.

Appendix B. Questionnaire

Family Practice Nurses and Smoking Cessation Interventions for Pregnant Women

Introduction

You are invited to participate in a research study because you are a member of the Ontario Family Practice Nurses' Interest Group of RNAO. This introduction describes the purpose of the research study, as well as the risks and benefits of participation so that you can make an informed decision regarding whether or not you wish to participate. All research is voluntary. There are no right or wrong answers. The answers you provide are confidential and data processing will be anonymous.

Purpose of this research study

The purpose of this study is to determine the current role of Family Practice Nurses in smoking cessation counseling for pregnant women seeking care during routine prenatal visits. Family Practice Nurses are ideally situated to engage pregnant women in smoking cessation interventions due to the frequency of prenatal care visits. Smoking cessation interventions can reduce the risk of harm to both the mother and the developing baby resulting from smoking during pregnancy.

If you agree to take part in this study, you will be asked to complete a short online questionnaire. Questions explore the interventions that you typically provide for pregnant women who are smokers such as documentation of smoking status and referral to community services. Additionally, there are some brief demographic questions such as your age, place of work and level of education. You can complete this questionnaire at work or at home.

Risk and benefits of participation

There is no obligation to participate in this study. You may choose to withdraw at any time, or choose not to answer any specific questions. Your name will not be recorded with any information collected. All documents related to the study will be kept confidential and anonymous. All study related documents and files will be stored in the Nursing Best Practice Research Unit (NBPRU) at the University of Ottawa. The NBPRU is a pass code protected office and all digital data will be stored on a password protected file on a password protected computer. Printed materials will be stored in a locked cabinet in the NBPRU. Following the completion of the study, data will be stored for a period of five years and then destroyed to protect your privacy.

There are no known risks to participation in this study. The cost to you of participating in this questionnaire will be your time. It will take approximately 20

minutes to complete the questionnaire. You will not receive reimbursement for completing this questionnaire. In appreciation for your time, you will have the option of entering your name into an appreciation draw for one of four \$25 Chapters gift cards. One benefit of participating in this study is that the research community may develop an increased awareness of the valuable contributions of Family Practice Nurses in assisting pregnant women who smoke. Information obtained through this study may provide guidance to nursing organizations to better support Family Practice Nurses in implementing evidence based smoking cessation interventions. Findings from this study may be shared with the Ontario Family Practice Nurses' Interest Group, the Registered Nurses' Association of Ontario and the Canadian Nurses' Association.

Who do I contact if I have a question about the study?

For more information regarding this study, please contact Christina Cantin at XXX@uottawa.ca. You may also contact the thesis supervisor Dr. Wendy Peterson at the University of Ottawa, (613) 562-5800 ext XXXX. If you have any questions regarding your rights of participation, you may contact the protocol officer for Ethics in Research at 550 Cumberland Avenue, Room XXX, (613) 562-5387, ethics@uottawa.ca.

Consent

1. Understand that your participation is voluntary and that you may withdraw from the study at any time. By completing this survey, you acknowledge that you have read and understood the introductory study information and that you voluntarily consent to participate in this study.

- Yes, I wish to continue with the questionnaire [if yes, skip logic to question #3]
- No, I do not wish to participate in this study [if no, skip logic to question #2]

2. Please indicate your reason(s) for not responding.

- Not enough time
- I do not work with pregnant patients
- I do not work in a primary health care setting
- I am not interested in participating
- I have not provided nursing care within the last three months (I am currently retired, on sick leave or maternity leave)
- I am not a nurse

5. What system do you use to identify pregnant patients who smoke?

- flags
- stamps
- labels
- computerized notes
- medical record summary sheets
- I do not use a system

Other (please specify) _____

6. During the past 3 months, for what proportion of your pregnant patients who smoke did you...?

	All / almost all	More than half	About half	Less than half	Few / none
Document the smoking status of the client in her file	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess readiness to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advise client to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refer client to community resources, self-help materials, other health care professionals, or smoker's helpline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Arrange a follow-up appointment, refer to smoking cessation program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. When you offer smoking cessation counseling during a prenatal visit, how many minutes do you spend on average counseling patients?

- More than 10 minutes
- 6-10 minutes
- 3-5 minutes
- Less than 3 minutes
- I never offer smoking cessation counseling

8. How often do you document the smoking cessation counseling you provide to pregnant patients?

- All/almost all the time
- More than half the time
- About half the time
- Less than half the time
- None of the time

Please add your comments: _____

9. How do you document the counseling you provide to pregnant patients who smoke?

- I use a teaching flow sheet
- I use a smoking cessation counseling form
- I write a narrative note (i.e. a progress note)
- I do not document it

Other (please specify) _____

10. During the past 3 months, for what proportion of your pregnant clients who quit smoking recently did you ask if they had smoked again?

- All/almost all
- More than half
- About half
- Less than half
- Few/none

11. During the past 3 months, for what proportion of your pregnant clients who smoke and who were NOT ready to quit, did you...?

	All / almost all	More than half	About half	Less than half	Few / none
Provide information on the health risks of smoking to the mother, the fetus and the infant and the benefits of quitting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss her perceptions of the pros and cons of smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss her perceptions of the pros and cons of quitting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Express concerns about her smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advise the patient to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advise the patient to reduce the number of cigarettes smoked if unable to quit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer written educational material on smoking or cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer an appointment specifically to discuss smoking cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss the effects of second hand smoke on the health of relatives and friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. During the past 3 months, for what proportion of your pregnant clients who smoke and who were preparing to quit, did you...?

	All / almost all	More than half	About half	Less than half	Few / none
Ascertain the number of cigarettes smoked per day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss previous quit attempts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss withdrawal symptoms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss worries about quitting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discuss cognitive-behavioural strategies to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advise setting a formal quit date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ascertain whether the first cigarette of the day is smoked within 30 minutes of waking up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer written educational material on smoking or cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refer patient to smoking cessation resources in the community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refer patient to a telephone Help Line (such as the smokers' Helpline) or website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refer to a smoking cessation center or smoking cessation expert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide guidance and assistance with the quitting process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer an appointment or telephone call 1-2 weeks after the quit date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommend nicotine replacement therapy (gum, patch, inhaler or lozenge)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommend Zyban® (bupropion)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. During the past 3 months, how often did you include partners in smoking cessation counseling sessions with your pregnant patients?

- All/almost all the time
- More than half the time
- About half the time
- Less than half the time
- Never

14. Indicate your level of agreement with each of the following :

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
It is extremely difficult to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When a pregnant client has been smoking for many years, there isn't much point in trying to quit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most of my pregnant clients who smoke want to quit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pregnant clients are interested when I discuss cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Counseling by a nurse helps motivate smokers to quit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am motivated to help patients quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advising smokers to quit will discourage their return to me as a patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support from family and friends is important when smokers quit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Addiction is an important barrier to cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Daily habits and routines are significant barriers to cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nicotine replacement pharmacotherapies such as nicotine gum and patch, and Zyban® should be reimbursed through prescription drug insurance plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Indicate your level of agreement with each of the following :

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Nurses should ask their pregnant patients if they smoke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses should advise their pregnant patients to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses should know about resources available in the community to help pregnant patients quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses should make appointments with their pregnant clients who smoke, specifically to help them quit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses who smoke provide less cessation counselling than nurses who do not smoke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses serve as role models for their pregnant clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Indicate your level of agreement with each of the following :

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I have adequate knowledge and skills to help my pregnant patients quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to tailor smoking cessation counselling to the specific needs of my pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am familiar with various smoking cessation community resources to which I may refer my pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy for me to initiate a discussion about cessation with my pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to ascertain the level of addiction of my pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that I can influence my pregnant patients to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be supported by my colleagues if I helped my pregnant patients to quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**17. There are many reasons why a nurse may not offer cessation counselling.
Please identify to what extent the following factors are barriers to
cessation counseling for pregnant women in your practice:**

	Highly significant barrier	Significant barrier	Sometimes a barrier	Rarely a barrier	Never a barrier
Lack of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficult to assess patient's readiness to quit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of knowledge about smoking cessation counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of knowledge about medication for smoking cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pregnant patients are not interested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pregnant patients are resistant to advice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of impact on pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pregnant patients do not comply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of motivation in pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of community resources to which pregnant patients can be referred	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of educational material for pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficult to follow-up pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost of medication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of losing pregnant patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No reimbursement for smoking cessation counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking cessation guidelines are too complex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Inadequate office space to do smoking cessation counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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18. Indicate your level of interest in each of the following methods or tools to support your smoking cessation counselling activities:

	Extremely interested	Very interested	Moderately interested	Not very interested	Not at all interested
A system (i.e. a listing of medical problems, stamps, labels, computerized patient notes, etc.) to better identify pregnant patients who smoke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Written materials on smoking cessation counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Audio-visual materials on smoking cessation counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactive workshops on smoking cessation counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conferences on smoking cessation counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet-based training on smoking cessation counselling, including clinical vignettes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Articles on smoking cessation counselling in nursing journals (i.e. the <i>Canadian Nurse</i> or the <i>Registered Nurse Journal</i>) or the Ontario Family Practice Nurses' website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An inventory of resources to help pregnant patients quit smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For pregnant clients who consent to be monitored by a professional from a smoking cessation center, a system that allows you to fax information about those pregnant clients to the smoking cessation center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For pregnant clients who consent to be monitored, a system that allows you to fax information about those pregnant clients to a telephone quit-line	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A position statement endorsed by the Ontario Family Practice Nurses' interest group on the role of nurses regarding smoking cessation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training on the motivational approach of counselling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A "clinical practice tool" that permits rapid intervention with your pregnant clientele who smoke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. In your place of work, what smoking cessation guidelines do you use?

- RNAO Smoking Cessation Best Practice Guideline "Integrating Smoking Cessation into Daily Nursing Practice"
- US Clinical Practice Guidelines for Treating Tobacco Use and Dependence
- Smoking Cessation Guidelines: How to Treat your patient's tobacco addiction (Faculty of Medicine, University of Toronto)
- The Ottawa Model for Smoking Cessation
- I do not use any particular guideline at my place of work
- I do not know which guideline we use
- The guidelines are not relevant for pregnant patients

Other (please specify): _____

20. In 2007, RNAO published a Best Practice Guideline entitled "Integrating Smoking Cessation into Daily Nursing Practice".

Are you aware of this document?

Yes	<input type="radio"/>
No	<input type="radio"/>

→ [if no, skip logic to question 23]

21. If YES, did you read this document?

Yes	<input type="radio"/>
No	<input type="radio"/>

→ [if no, skip logic to question 23]

22. If YES, how much did it change your smoking cessation counseling practices?

- A whole lot
- Quite a lot
- A bit
- Not at all
- Not applicable

Demographics

23. Are you...?

- Female
- Male

24. In what year were you born? _____

25. What is your highest level of nursing education?

- Diploma in Nursing
- Bachelors Degree in Nursing
- Masters degree in Nursing

26. In what year did you graduate from your highest level of nursing education?

27. What is your current position?

RN

RPN

NP

Other (please specify): _____

28. What is your current employment status?

Full time

Part time

Casual

29. How many years have you worked in your current position?

Less than two years

2-5 years

6-10 years

11-15 years

More than 16 years

30. What percentage of your pregnant clients are ...?

Less than 18 years	_____	%
18-34 years	_____	%
35 years or older	_____	%
	100	%

31. Approximately how many pregnant patients do you see during a normal work day?

- 1-5 pregnant patients per day
- 5-10 pregnant patients per day
- 10-15 pregnant patients per day
- More than 15 pregnant patients per day
- I do not see pregnant patients on a regular basis

32. In which type of community do you practice?

- Rural community
- Small city (less than 100 000 inhabitants)
- Medium-sized city (100,000-500,000 inhabitants)
- Large city (more than 500,000 inhabitants)

33. Have you ever had any training in smoking cessation counselling...?

	No	Yes
During nursing school	<input type="radio"/>	<input type="radio"/>
After nursing school	<input type="radio"/>	<input type="radio"/>

34. If yes, please indicate which organization provided the training and what year.

35. Are you interested in updating your knowledge on smoking cessation counselling?

- Yes
- No

36. Please indicate your smoking status:

- Always been a non-smoker
- An ex-smoker for more than a year
- An ex-smoker for less than a year
- An occasional smoker
- A daily smoker

37. Please write any comments for us below.

Thank you! Your feedback is greatly appreciated

38. If you wish to enter your name into an appreciation draw for one of four \$25 Chapters gift certificates, please click on the link below.

- [Click here to enter the appreciation draw](#) [hyperlink to separate survey]
- I do not wish to enter the draw

Appendix C. Copyright Permission

Smoking Cessation Counselling Practices Among Quebec Nurses Questionnaire

----- Original Message -----

Subject: RE [Pollurriel potentiel] Request for data collection tool- smoking cessation counseling
From: XXX@XXX
Date: Tue, 3 May, 2011 9:01 am
To: XXX@uottawa.ca

Hello Christina,

I am sending you 2 versions: one that was used in 2004-05 and one we just used last year. Of course, you can adapt the questionnaire. If your work leads to a publication, it would be appreciated if you could acknowledge the use of our questionnaire.

Good luck!

Michèle Tremblay
XXX
XXX
XXX
XXX

Tél.:XXX-XXX-XXXX poste XXX
Fax: XXX-XXX-XXXX

----- Original Message -----

Subject: Request for data collection tool- smoking cessation counseling
From: XXX@uottawa.ca
Date: Tue, 3 May, 2011 8:20 am
To: XXX@XXX

Dear Dr. Michèle Tremblay,

It is with great interest that I read your article entitled "Do the correlates of smoking cessation counseling differ across health professional groups" in *Nicotine and Tobacco Research*, 2009. I am a student in the Masters in Nursing program at the University of Ottawa, Ontario. I am currently studying the role of nurses in smoking cessation counseling for pregnant women.

I am writing to inquire about the data collection tool you used for your study. Would you be willing to share an electronic version of the questionnaire? If so, would you also provide permission to adapt the questionnaire as required for my study?

Thank you in advance for your time,

Christina Cantin RN, PNC, MScN(c)

Appendix D. E-mail recruitment texts

E-mail Recruitment Invitation #1 October 12, 2011

Hello Ontario Family Practice Nurses,

Over the past year, the OFPN executive members have been working diligently to raise awareness regarding the valuable contributions of Family Practices Nurses to the health care system. You are an important member of your health care team and the work that you do in your daily nursing practice makes a difference. I have an opportunity for you to highlight the work that you do, and identify the facilitators and barriers that you encounter when providing nursing care in your primary health care setting. The Ontario Family Practice Nurses have been invited to participate in a research study conducted by a masters' in nursing student at the University of Ottawa.

The purpose of this study is to describe the current role of family practice nurses in smoking cessation interventions for pregnant women. If you wish to participate in the research study, please take a few minutes to complete the on-line questionnaire. Participants in this study must be able to read and write in English. The questionnaire is available by clicking on the following link: <https://www.surveymonkey.com/s/HPYT52B> If you have any questions or concerns regarding this study, please feel free to contact Christina Cantin at XXX@uottawa.ca or call Dr. Wendy Peterson at 613-562-5800 ext XXXX.

Thank you for your time,

Judie Surridge, President of the Ontario Family Practice Nurses

Bonjour Infirmières et infirmiers en pratique familiale de l'Ontario,

Les membres du Comité exécutif des Infirmières et infirmiers en pratique familiale de l'Ontario ont travaillé avec zèle l'an passé pour que les gens prennent conscience de l'apport précieux des Infirmières et infirmiers en pratique familiale au sein du système de soins de santé. Vous êtes des membres importants de votre équipe de soins de santé et les services que vous accomplissez chaque jour comme infirmières et infirmiers en pratique familiale compte beaucoup. Vous avez la chance de mettre en évidence le travail que vous faites, d'identifier les outils et les obstacles que vous rencontrez lorsque vous offrez des soins dans le cadre de soins de santé primaires. Les infirmières et infirmiers en pratique familiale de l'Ontario sont invités à participer à une étude de recherche menée par une étudiante au programme de maîtrise des sciences infirmières à l'Université d'Ottawa.

L'objectif de cette étude vise à décrire le rôle actuel des infirmières et infirmiers généralistes dans les interventions pour le renoncement au tabac des femmes enceintes. Si vous souhaitez participer dans cette étude de recherche, veuillez prendre quelques minutes pour remplir le questionnaire en ligne. Les participants à cette étude doivent être capables de lire et écrire en anglais. Le questionnaire est disponible à l'adresse suivante: <https://www.surveymonkey.com/s/HPYT52B>

Si vous avez des questions en ce qui concerne cette étude, vous pouvez joindre Christina Cantin au XXX@uottawa.ca ou téléphoner Dr. Wendy Peterson au 613-562-5800 poste XXXX.

Merci de votre attention,

Judie Surridge, Présidente des Infirmières et infirmiers en pratique familiale de l'Ontario

E-mail Recruitment Invitation #2 October 24, 2011Subject line:

Hello Ontario Family Practice Nurses,

Last week I sent out a message regarding a research study in which the Ontario Family Practice Nurses have been invited to participate. This study is being conducted by a masters' in nursing student at the University of Ottawa. The purpose of this study is to describe the current role of family practice nurses in smoking cessation interventions for pregnant women. Thank you to the Family Practice Nurses who have already taken the time to complete the on-line questionnaire. At this point the response rate is approximately 4%. If you wish to participate in the research study and have not already done so, please take a few minutes now to complete the questionnaire. Participants in this study must be able to read and write in English. The questionnaire is available by clicking on the following link:

<https://www.surveymonkey.com/s/HPYT52B>

You are an important member of your health care team and the work that you do in your daily nursing practice makes a difference. This is an opportunity for you to highlight the work that you do, and identify the facilitators and barriers that you encounter when providing nursing care in your primary health care setting. Your feedback is valuable. If you have any questions or concerns regarding this study, please feel free to contact Christina Cantin at XXX@uottawa.ca or call Dr. Wendy Peterson at 613-562-5800 ext XXXX.

Thank you for your time,

Judie Surridge, President of the Ontario Family Practice Nurses

Bonjour Infirmières et infirmiers en pratique familiale de l'Ontario,

La semaine passée j'ai envoyé un message concernant une étude de recherche où on invite les infirmières et infirmiers en pratique familiale de l'Ontario à participer. Cette étude est menée par une étudiante au programme de maîtrise des sciences infirmières à l'Université d'Ottawa. L'objectif de cette étude vise à décrire le rôle actuel des infirmières et infirmiers généralistes dans les interventions pour le renoncement au tabac des femmes enceintes. J'aimerais remercier les infirmières et infirmiers en pratique familiale de l'Ontario qui ont déjà pris le temps de remplir le questionnaire en ligne. A ce jour, le taux de réponses est d'environ 4%. Si vous souhaitez participer à cette étude de recherche et que vous ne l'avez pas encore fait, veuillez prendre quelques minutes pour remplir le questionnaire. Les participants à cette étude doivent être capables de lire et écrire en anglais. Le questionnaire est disponible à l'adresse suivante: <https://www.surveymonkey.com/s/HPYT52B>

Vous êtes des membres importants de votre équipe de soins de santé et les services que vous accomplissez chaque jour comme infirmières et infirmiers en pratique familiale compte beaucoup. Vous avez la chance de mettre en évidence le travail que vous faites, d'identifier les outils et les obstacles que vous rencontrez lorsque vous offrez des soins dans le cadre de soins de santé primaires. Vos commentaires sont importants. Si vous avez des questions en ce qui concerne cette étude, vous pouvez joindre Christina Cantin au XXX@uottawa.ca ou téléphoner Dr. Wendy Peterson au 613-562-5800 poste XXXX.

Merci de votre attention,

Judie Surridge, Présidente des Infirmières et Infirmiers en Pratique Familiale de l'Ontario

E-mail Recruitment Invitation #3 November 22, 2011

Subject line:

(Un message français suivi)

Dear Ontario Family Practice Nurses,

Have you entered your name for a chance to win one of four \$25 Chapters gift cards? It is not too late.

How: Complete an on-line questionnaire regarding your role in smoking cessation interventions for pregnant women and enter your contact information for the appreciation draw. Click on the following link to complete the questionnaire:

<https://www.surveymonkey.com/s/HPYT52B>

This questionnaire is only available on-line. If you have received a paper copy of a questionnaire, it is for a different smoking cessation study. Thank you to the Family Practice Nurses who have already taken the time to complete the on-line questionnaire. Your feedback is valuable. To date, the response rate is [*enter response rate*].

Participants in this study must be able to read and write in English. If you have any questions or concerns regarding this study, please feel free to contact Christina Cantin at XXX@uottawa.ca or call Dr. Wendy Peterson at 613-562-5800 ext XXXX.

Thank you for your time,

Judie Surridge, President of the Ontario Family Practice Nurses

Bonjour infirmières et infirmiers en pratique familiale de l'Ontario,

Est-ce que vous vous êtes inscrits pour **gagner un des quatre certificats-cadeau de 25 \$ chez Chapters**? Il n'est pas trop tard.

Comment? En remplissant le questionnaire en ligne au sujet de votre rôle dans des interventions pour le renoncement au tabac des femmes enceintes et en entrant vos données pour le tirage de reconnaissance. Veuillez cliquer sur le lien ci-dessous pour remplir le questionnaire:

<https://www.surveymonkey.com/s/HPYT52B>

Ce questionnaire est disponible en ligne seulement. Si vous avez reçu un exemplaire papier d'un questionnaire, il s'agit d'une autre étude pour le renoncement au tabac. J'aimerais remercier les infirmières et infirmiers en pratique familiale de l'Ontario qui ont déjà pris le temps de remplir le questionnaire en ligne. Vos commentaires sont importants. A ce jour, le taux de réponses est d'environ [*insérer taux*].

Les participants à cette étude doivent être capables de lire et écrire en anglais. Si vous avez des questions en ce qui concerne cette étude, vous pouvez joindre Christina Cantin au XXX@uottawa.ca ou téléphoner Dr. Wendy Peterson au 613-562-5800 poste XXXX.

Merci de votre attention,

Judie Surridge, Présidente des Infirmières et Infirmiers en Pratique Familiale de l'Ontario

E-mail Recruitment Invitation #4 (final) December 3, 2011

(Un message français suivi)

Subject line :

Dear Ontario Family Practice Nurses,

This is the final opportunity to **win one of four \$25 Chapters gift cards!**

How: Complete an on-line questionnaire regarding your role in smoking cessation interventions for pregnant women and enter your contact information for the appreciation draw. Click on the following link to complete the questionnaire:

<https://www.surveymonkey.com/s/HPYT52B>

This questionnaire is **only** available on-line. If you have received a paper copy of a questionnaire, it is for a different smoking cessation study. Thank you to the Family Practice Nurses who have already taken the time to complete the on-line questionnaire. Your feedback is valuable. To date, the response rate is [*enter response rate*].

Participants in this study must be able to read and write in English. If you have any questions or concerns regarding this study, please feel free to contact Christina Cantin at XXX@uottawa.ca or call Dr. Wendy Peterson at 613-562-5800 ext XXXX.

Thank you for your time,

Judie Surridge, President of the Ontario Family Practice Nurses

Bonjour infirmières et infirmiers en pratique familiale de l'Ontario,

C'est la dernière chance que vous avez pour **gagner un des quatre certificats-cadeau de 25 \$ chez Chapters?**

Comment? En remplissant le questionnaire en ligne au sujet de votre rôle dans des interventions pour le renoncement au tabac des femmes enceintes et en entrant vos données pour le tirage de reconnaissance. Veuillez cliquer sur le lien ci-dessous pour remplir le questionnaire:

<https://www.surveymonkey.com/s/HPYT52B>

Ce questionnaire est disponible en ligne **seulement**. Si vous avez reçu un exemplaire papier d'un questionnaire, il s'agit d'une autre étude pour le renoncement au tabac. J'aimerais remercier les infirmières et infirmiers en pratique familiale de l'Ontario qui ont déjà pris le temps de remplir le questionnaire en ligne. Vos commentaires sont importants. A ce jour, le taux de réponses est d'environ [*insérer taux*].

Les participants à cette étude doivent être capables de lire et écrire en anglais. Si vous avez des questions en ce qui concerne cette étude, vous pouvez joindre Christina Cantin au XXX@uottawa.ca ou téléphoner Dr. Wendy Peterson au 613-562-5800 poste XXXX.

Merci de votre attention,

Judie Surridge, Présidente des Infirmières et Infirmiers en Pratique Familiale de l'Ontario

Appendix E. Pre-testing group feedback

Questionnaire “Family Practice Nurses and Smoking Cessation Interventions for Pregnant Women”

Thank you in advance for taking the time to complete this questionnaire and provide feedback. Please print off this feedback form and keep it beside you as you complete the questions. You can make notes as you complete each webpage. I am looking for feedback regarding the readability, clarity and completeness. Also, I need to ensure that there are no technical issues with the questionnaire. There are no right or wrong answers so feel free to experiment with answers options such as “other” or “comment boxes”

1. What type of electronic device you are using to complete the questionnaire: (computer, laptop, netbook, ipad, iphone, blackberry, other: _____)
2. Start Time: _____ (please indicate the time you started this questionnaire)
3. Are the introduction and study information pages clearly worded? (Yes or No). Please add any comments:
4. Do you understand the objective of the questionnaire? (Yes or No)
5. Please complete this chart below.

	Do you understand the meaning of this question?		Is this question clearly worded?		Comments (i.e. Do you feel comfortable answering the questions? Do any questions produce irritation, embarrassment or confusion? Etc)
	YES	NO	YES	NO	
3. Please indicate the type of clinical practice in which you work most of the time.					
4. In the past 3 months, for what proportion of your pregnant patients did you ascertain smoking status?					
5. What system do you use to identify pregnant clients who smoke?					
6. During the past 3 months, for what proportion of your pregnant clients who smoke did you...?					

	Do you understand the meaning of this question?		Is this question clearly worded?		Comments (i.e. Do you feel comfortable answering the questions? Do any questions produce irritation, embarrassment or confusion? Etc)
	YES	NO	YES	NO	
7. When you offer smoking cessation counseling during a prenatal visit, how many minutes do you spend on average counseling patients?					
8. How often do you document the smoking cessation counseling you provide to pregnant patients?					
9. How do you document the counseling you provide to pregnant patients who smoke?					
10. During the past 3 months, for what proportion of pregnant clients who quit smoking recently did you ask if they had smoked again?					
11. During the past 3 months, for what proportion of your pregnant clients who smoke and who were NOT ready to quit, did you...?					
12. During the past 3 months, for what proportion of your pregnant clients who smoke and who were preparing to quit, did you...?					
13. Indicate your level of agreement with each of the following:					
14. Indicate your level of agreement with each of the following:					
15. Indicate your level of agreement with each of the following:					

	Do you understand the meaning of this question?		Is this question clearly worded?		Comments (i.e. Do you feel comfortable answering the questions? Do any questions produce irritation, embarrassment or confusion? Etc)
	YES	NO	YES	NO	
16. There are many reasons why a nurse may not offer smoking cessation counselling. Please indicate the importance of each of the following possible barriers to cessation counselling in your practice:					
17. Indicate your level of interest in each of the following methods or tools to support your smoking cessation counselling activities:					
18. In your place of work, what smoking cessation guideline do you use?					
19. In 2007, RNAO published a Best Practice Guideline entitled "Integrating Smoking Cessation into Daily Nursing Practice". Are you aware of this document?					
20. If YES, did you read this document?					
21. If YES, how much did it help change your smoking cessation counselling practices?					
22- 25 Demographics					
26- 30 Nursing Employment					
31-36 Other demographic info					

6. Were you able to access the link to the appreciation draw? (Yes or No). Comments:

7. Is the questionnaire an appropriate length?

8. Finish Time: _____ (please indicate the time you finished this questionnaire)

Thank you again!

Appendix F. E-mail tracking sheet

Ontario Family Practice Nurses and Smoking Cessation Interventions for Pregnant Women

E-mail tracking sheet

(completed by the secretary of the OFPN)

E-mail message (invitation and reminders)	# of e-mails sent	Unable to deliver	Wrong address	Other (please specify)
#1 October 15, 2011	503	6	5	User unknown in virtual mailbox(1)
#2 October 25, 2011	503	6	7	
#3 November 22, 2011	503	6	7	
#4 December 3, 2011	503	6	7	

Please e-mail completed tracking sheet to Christina Cantin at XXX@uottawa.ca

Appendix G. Research Ethics Board Approval

File Number: H06-11-12

Date (mm/dd/yyyy): 09/16/2011



Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

Ethics Approval Notice Health Sciences and Science REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Wendy	Peterson	Health Sciences / Nursing	Supervisor
Christina	Cantin	Health Sciences / Nursing	Student Researcher

File Number: H06-11-12

Type of Project: Master's Thesis

Title: Family Practice Nurses and Smoking Cessation Interventions for Pregnant Women

<u>Approval Date (mm/dd/yyyy)</u>	<u>Expiry Date (mm/dd/yyyy)</u>	<u>Approval Type</u>
09/16/2011	09/15/2012	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions / Comments:

N/A

Appendix H. Data Analysis Plan

Research Question	Dependent Variable	Independent Variables	Level of Measurement	Analysis Planned	Sample size/power
What factors are associated with counselling practices?	Counselling patients who are "Ready to Quit" Score developed from 10 items. N.B. Item #8 comprised of 6 questions and item #10 comprised of 2 questions. For these latter items, the scores will be summed and then divided by the number of questions. The scores from these two items will then be summed with the other 8 items (range of scores= min of 10 max of 50). Higher scores indicate nurses provide more SC counselling to pregnant women who are "Ready to Quit".	Beliefs	Ordinal: 6 questions, likert scale 1= strongly disagree, 5= strongly agree. I will create a new variable entitled BELIEFS (possible scores range from 6-30) with a high score indicating greater belief that counselling is the role of the nurse.	To limit the number of variables used in a multiple linear regression, separate simple linear regressions will be completed for the dependent variable "Ready to Quit". Independent variables that have a $p < .20$ will be entered into a multiple linear regression analysis (Katz, 1999). Alpha will be set at 0.05	Sample size = 5 (or 10) times the number of variables (Norman & Streiner, 2008) Based on Norman & Streiner (2008), 10 subjects are needed for each IV. There are 7 IVs so a minimum of 70 responses are required. In case of partial non-response, a minimum sample of 80 will be needed.
		Self-efficacy	Ordinal: 7 questions, likert scale 1= strongly disagree, 5= strongly agree. I will create a new variable entitled SELF-EFFICACY (possible scores range from 7-35). A high score indicates high self-efficiency.		
		Training in SC counselling during nursing school	Nominal: Yes/no		
		Training in SC counselling during nursing school	Nominal: Yes/no		
		Interest in updating knowledge	Nominal: Yes/no		
Age	Ratio: in what year were you born. Regroup into age categories (ordinal): 20-29,				

			30-39, 40-49, 50-59, >60		
		Sex	Nominal: Male/female		
	<p>Counselling patients who are “Not Ready to Quit”</p> <p>Score developed from 9 items. The 9 items will be summed. Few =1, almost =5 (range of scores, min score =9, max score = 45). Higher scores indicate nurses provide more SC counselling to pregnant women who are “Not ready to Quit”.</p>	Same analysis as with the previous IV		<p>To limit the number of variables used in a multiple linear regression, separate simple linear regressions will be completed for the dependent variable “Not Ready to Quit”. Independent variables that have a p<.20 will be entered into a multiple linear regression analysis (Katz, 1999). Alpha will be set at 0.05</p>	

Research Question	Analysis Planned
<p>What is FPNs</p> <p>a) awareness and</p> <p>b) use of guidelines pertaining to smoking cessation?</p>	Descriptive: Frequency
<p>What is FPNs awareness of the RNAO BPG “Integrating Smoking Cessation into Daily Nursing Practice”?</p>	Descriptive: Frequency
<p>What proportion of FPNs engage pregnant smokers in</p> <p>a) minimal intervention?</p> <p>b) intensive intervention?</p>	Descriptive: Frequency
<p>What are the barriers to FPN-led SC counselling interventions of pregnant smokers?</p>	Descriptive: Frequency

Appendix I. Appreciation draw

Thirty-two respondents selected the appreciation draw link, however, only 26 respondents entered their contact information. One name was found twice and another name was found three times (combination of different addresses, and e-mail addresses but could identify that it was the same person in two cases). Therefore, each name was entered into the draw only once. The draw was completed with 24 names entered.

E-mail to participants selected for the appreciation draw

Thank you for completing the on-line questionnaire “Family Practice Nurses and Smoking Cessation Interventions for Pregnant Women”. Your name has been randomly selected as one of the four winners of the appreciation draw. You will receive a \$25 Chapters E-Gift Certificate. Please confirm that you have received this message and would like the electronic gift certificate sent to this e-mail address.

Thank you for participating in this important research and congratulations on winning the gift certificate!!!

Christina Cantin, RN, PNC(C)

Masters in Nursing Student,

University of Ottawa

Appendix J. FPN Identified Level of Interest in Professional Education Items

LEVEL OF INTEREST	HIGH		MODERATE	LOW	
	Extremely	Very		Not Very	Not at all
An inventory of resources to help pregnant patients quit smoking	29	21	9	4	
A “clinical practice tool” that permits rapid intervention with your pregnant patients who smoke	25	22	11	4	
Training on the motivational approach of counselling	23	21	12	6	
A position statement endorsed by the Ontario Family Practice Nurses’ interest group on the role of nurses regarding smoking cessation	24	16	14	6	3
For pregnant patients who consent to be monitored by a professional from a smoking cessation center, a system that allows you to fax information about those pregnant clients to the smoking cessation center	23	17	12	7	3
For pregnant patients who consent, a system that allows you to fax information about pregnant clients to a telephone quit-line	23	17	14	8	1
A system (i.e. a listing of medical problems, stamps, labels, computerized patient notes, etc.) to better identify pregnant patients who smoke	20	17	13	12	1
Written materials on smoking cessation counselling	19	22	17	5	
Articles on smoking cessation counselling in nursing journals (i.e. the Canadian Nurse or the Registered Nurse Journal) or the Ontario Family Practice Nurses’ website	19	22	17	3	2
Internet-based training on smoking cessation counselling, including clinical vignettes	17	24	7	13	2
Conferences on smoking cessation counselling	15	22	13	12	1
Interactive workshops on smoking cessation counselling	13	18	19	10	2
Audio-visual materials on smoking cessation counselling	11	20	19	10	3