THE INTEGRATION OF TOBACCO REDUCTION ACTIVITIES INTO THE PRACTICE OF ACUTE CARE REGISTERED NURSES: A MIXED METHODS RESEARCH PROJECT

by

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Abstract

In light of evidence linking tobacco use with various health issues, hospitals have become viable contexts for tobacco control strategies. Clinicians, in particular nurses, are being challenged to address patients' tobacco use by providing cessation interventions. Emerging evidence indicates that nurses support the idea of encouraging people to stop smoking, perceive an expectation upon them to address patients' tobacco use, and are reluctant to approach patients beyond assessing smoking status. Following this lead a concurrent mixed methods research project investigated acute care registered nurses' integration of tobacco reduction interventions. All nurses working at two hospitals in British Columbia, Canada were included in the project; hospitals were situated in regions that represented diversity in population smoking rates (19.6%–31.2%). Two hundred and fourteen nurses (58% response rate) participated by completing a survey and ethnographic data collection was completed on the 16 adult inpatient wards, which included 135 hours of field observations, 114 brief conversations, document collection, and photographs of designated smoking areas.

This first Canadian investigation of acute care nurses revealed similar views and practice activities related to tobacco use interventions. Beyond assessing smoking status, less than half of the respondents reported consistently advising, assisting, or arranging referrals for patients. Site comparisons demonstrated differences in available tobacco related resources, as well as reported practices of assisting and arranging referrals. Testing of a path model, which hypothesized causal mechanisms influencing nurses' practice, demonstrated nearly half of the variance in nurses' uptake of intervention activities was explained by the role attitude and four measures of perceived barriers. Indirect relationships were noted from perceived tobacco workplace climate factors and smoking status. The ethnographic profile of tobacco use and control in the study sites suggested systemic devaluing concerning support for patients' cessation efforts, a lack of
awareness of addiction issues related to tobacco, and several burdens that patients' tobacco use brings to nurses' practice.

Findings from each study were integrated into a multi-dimensional ecological behavior system, which emphasized the importance of moving beyond focusing on clinicians as a means to change practice. Rather health care institutions will be required to implement system-wide tobacco control strategies.
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Statement of Co-Authorship

This statement of co-authorship is in accordance with the Faculty of Graduate Studies at the University of British Columbia. Acknowledgement of co-authorship addresses contributions related to identification and design of the research project, conducting the research, data analysis and interpretations, and manuscript preparation. Dissertation committee members commonly oversee all steps that lead up to the creation of the final dissertation document; however, since this dissertation consists of a series of co-authored manuscripts submitted for publication, the Faculty of Graduate Studies at the University of British Columbia requires a statement that acknowledges the significant contributions made by dissertation committee members.

Annette Schultz originally conceived the research project design; she negotiated with key personnel at each research study site regarding entry into the field; she organized all field work and collected all data; she performed the analysis of data; she interpreted the findings from data analysis; and she was responsible for the writing of this dissertation document. While Ms. Schultz was the primary contributor, who led activities related to each step of this research project, her dissertation committee members were instrumental supporters of the research project process and the production of the final dissertation document.

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Chapter 1
Introduction

Overview of the Dissertation Presentation

The central issue addressed in this doctoral dissertation is acute care registered nurses' practice and their engagement with tobacco reduction interventions\(^1\), which was investigated using a mixed methods design that consisted of three studies. The presentation of this research project for the purposes of the doctoral dissertation has utilized a manuscript-based format. This first chapter introduces both the overall structure of the dissertation and the research project. The next three chapters present findings from the core studies. Chapter 2 focuses on the descriptive findings concerning acute care registered nurses' practice related to and perceptions of tobacco reduction. Chapter 3 attends to the investigation of the hypothesized causal mechanisms influencing nurses' uptake of tobacco reduction activities. Chapter 4 explores the everyday work world of the acute care registered nurses, with the goal of describing the culture of tobacco use and control within the workplace at the study sites. Finally, Chapter 5 provides a concluding discussion of the research project, links findings from the three studies, along with addressing future research and practical directions for nurses, nursing education, and health administrators.

Manuscript-based Format

This format, while relatively new, is approved by the Faculty of Graduate Studies and the School of Nursing at the University of British Columbia (UBC). The Faculty of Graduate Studies (2004) at UBC defines this format as: a collection of published, in-press, accepted, submitted, or draft manuscripts, which must be presented as a unified document that ends with a concluding chapter that links the manuscripts to each other and the discipline or the field of study.

\(^1\)Throughout this dissertation the terms "tobacco reduction" and "cessation" are used interchangeably. The use of reduction here does not imply a single strategy such as "harm reduction." Instead the use of the term "reduction" is intended to reflect a broader view of addressing tobacco use within the context of acute care settings, which embraces the consideration of strategies that span harm reduction through to cessation. Since this dissertation is an inquiry into acute care nursing practice and potential activities with regard to supporting patients on a cessation trajectory, its focus is not on the efficacy of outcome measures with reference to tobacco use by patients.
Based on this recommendation from the UBC Faculty of Graduate Studies, the dissertation begins by introducing the research project and the specific research objectives. Each research objective is linked to one of the subsequent chapters. Chapters 2-4 are presented as separate research studies, and therefore, each includes a literature review, statement of the research purpose and/or objective(s), methods, findings, discussion and conclusion sections. It should be noted there is some repetition between these chapters. While these chapters are separate studies, they are linked in that they all focus on acute care registered nurses' and tobacco reduction. The presentation of the chapters in this format is not entirely seamless because each study is designed to inform different aspects of the research project. In Chapter 5 linkages are made between the three studies, along with relevant research and practical implications.

The Research Project

Background Information about Tobacco Use and Reduction

A leading cause of preventable morbidity and mortality is tobacco use and exposure to tobacco smoke. The World Health Organization (WHO) (2005) recently reported that the second major cause of mortality is tobacco use and that globally approximately 5 million people die each year from tobacco-related health conditions. Additionally, tobacco use is identified as the fourth most common risk factor associated with morbidity\(^2\). In Canada, 23% of the population (over 5 million people) regularly use tobacco products, it has been estimated that 47,000 people die each year from tobacco-related health conditions (Ontario Tobacco Research Unit, 2004). In the early 1990s the costs of treating tobacco-related health conditions were estimated to have cost the Canadian health care system $2.68 billion dollars per year; additionally, treatment occurred through more than 200,000 hospitalizations, and over 3 million hospitals days

\(^2\) The claim that tobacco use is a primary health issue has been based on evidence that links tobacco use and exposure to tobacco smoke with cardiac, respiratory and cerebral vascular diseases, as well as a variety of cancers. Interestingly, the framing of tobacco use as a physical health risk tends to be the dominant discourse and inadvertently suppresses other health issues such as addiction. Thus even though within the tobacco control community the addictive nature of tobacco use is a common discourse, in other parts of society the physical health risk discourse seems to overpower addiction aspects.
This evidence clearly demonstrates that the Canadian health care system and acute care hospital settings are providing treatment for tobacco-related health issues; however, there is less clarity about tobacco-related strategies being employed beyond the treatment of related health conditions.

In Canada, tobacco control has matured over the last several decades and currently consists of a comprehensive package of strategies that address protection, prevention, cessation and denormalization issues (Steering Committee of the National Strategy to Reduce Tobacco Use in Canada, 1999). While it is important to address each of these areas, it has been suggested that there is a particular need to improve efforts related to reduction strategies (McDonald, 2003). One current reduction strategy is the encouragement of clinicians to address tobacco use and reduction with all patients at every health care visit; tobacco reduction practice guidelines have been published to support this clinical practice (Fiore et al., 2000). The evidence suggests that frequently providing brief interventions (assessment of smoking status and providing advice about reduction) influences smokers' decisions about smoking and stopping. Interestingly, recent studies have reported that people who smoke expect their tobacco use to be addressed during encounters with clinicians (Ellerbeck, Choi, McCarter, Jolicoeur, Greiner & Ahluwalia, 2003; Ossip-Klien, McIntosh, Utman, Burton, Spada & Guido, 2000; Ratner et al., 2004). However, clinicians report they are reluctant to address tobacco reduction unless a patient asks about or demonstrates interest in stopping (Aquilino, Goody & Lowe, 2003; Block, Hutton & Johnson, 2000; France, Glasgow & Marcus, 2001; McCarty, Hennrikus, Lando & Vessey, 2001; Nagle, Schofield & Redman, 1999; O'Loughlin et al., 2001; Sarna, Brown, Lillington, Rose, Wewers & Brecht, 2000a). Research has shown that there are many missed opportunities to initiate a dialogue about tobacco reduction or cessation in clinical practice (Aquilino et al.; Borrelli, Hecht, Papandonatos, Emmons, Tatewosian & Abrams, 2001; Ellerbeck, Ahluwalia, Jolicoeur, Gladden & Mosier, 2001; Ossip-Klien et al.; Sarna et al.; Vaughn, Ward, Doebbeling, Uden-
Holman, Clarke & Woolson, 2002). Since tobacco users and clinicians interface through health care visits that are likely related to or being exacerbated by tobacco use, deepening our understanding of clinician uptake of tobacco reduction practice guidelines will be essential to strengthen this tobacco reduction strategy.

Although all clinicians have a role to play in tobacco reduction, nurses have been identified as having a particularly integral role (International Council of Nursing [ICN], 2000; 2001; WHO, 1999). The key reasons for the emphasis on nurses' role in comparison to that of other clinicians are: nursing is the largest health professional group, nurses spend more time with patients in the most diverse settings, and they are trusted by the public. Moreover, there is evidence that nurse-delivered cessation support can be an effective means of reducing tobacco use (Rice & Stead, 2004). Since the majority of nurses work in direct patient care positions in acute care settings (Canadian Institute for Health Information, 2003), we need to focus on the practice of this particular population of nurses. Furthermore, hospitalization has been identified as a 'window of opportunity' to initiate dialogue and support for patients' cessation efforts (Fiore et al., 2000; France et al., 2001; Rigotti, Munafo, Murphy & Stead, 2003; Ratner et al., 2004). This is the case because smokers are often faced with health issues influenced by their tobacco use and during hospitalization smoking patterns are interrupted. Clearly, there is substantial evidence available to support the argument that nurses working in acute care settings should be providing tobacco reduction interventions with patients who smoke.

Nursing Practice and Tobacco: Literature Review Précis

A review of literature relevant to nursing and tobacco reduction has been published (Schultz, 2003). In the review I discussed nursing governance bodies' and nursing scientific communities' activities related to tobacco reduction. Activities by these two groups influence and

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support nursing practice. Globally nursing governance bodies have generated policy and position statements supporting nurses' provision of tobacco reduction to patients who use tobacco. Nurse scientists have tended to focus on four areas: 1) nurses' use of tobacco, 2) nurse-delivered smoking cessation intervention studies, 3) dissemination of clinical guidelines, and 4) nurses' engagement in tobacco reduction. The purpose of the following section is to familiarize the reader with the breadth of issues being investigated concerning nurses, their practice, and tobacco use or reduction. To meet this purpose a précis of ideas from the paper found in Appendix A is presented along with the integration of ideas from relevant articles that have been published since 2002 when original review was published.

Nurses' use of tobacco. For decades scientists have studied nurses' use of tobacco and their cessation efforts. The reported reasons nurses gave for continuing to smoke included addiction, enjoyment, work pressure/stress reliever, a way to take time out, to control their weight, and peer pressure. As well, nurses who smoked were reported to want to stop smoking for the following reasons: health concerns (both theirs and family), and the role confusion experienced by being a smoker and a health care provider. Finally, nurses who smoked stated reluctance to take on the role of health promoter with patients who smoke.

Two recent publications from a qualitative study (Bialous, Sarna, Wewers, Sivarajan Froelicher & Danao, 2004; Sarna, Bialous, Wewers, Sivarajan Froelicher & Danao, 2005) describe current and former smokers' perspectives on smoking, quitting, and providing patients with cessation support (n = 60). While the findings from this qualitative study concur with previous findings regarding nurses' stated reasons for and desire to stop, the articles also provide some additional insights. These nurses spoke of experiencing guilt about smoking, wanting to hide their tobacco use from co-workers and patients, and the lack of understanding by non-

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4 Chapters 2, 3, and 4 each contain a review of relevant literature to support the study being presented. Those reviews extend what is presented in Appendix A and the précis in this introductory chapter.
smokers about their need for support to stop (Bialous et al.; Sarna et al.). Since cessation support was not readily available even when tobacco use restrictions prohibited smoking in all areas within the hospital buildings, the nurses reported that hospital administrators were not interested in their health. As well, hospital smoking bans were sometime perceived as punitive measures to be rebelled against; for example, some nurses mentioned that ward break rooms had become non-official smoking zones in hospitals that were designated smoke-free buildings (Sarna et al.).

Another recent publication relevant to this section presents findings based on a survey of all mental health nurses at a clinic in the United Kingdom (n = 167; response rate 39 %) (Dickens, Stubbs & Haw, 2004). In this study, attitudes about tobacco use and reduction between nurses who were smokers and non-smokers were compared. Current smokers were more likely to report that nurses should be allowed to smoke with patients to support the development of therapeutic relationships with patients and were less likely to agree that patients should be encouraged to stop smoking. However, there was no difference between smokers and non-smokers when asked about the use of cigarettes as a tool to influence patient behavior; most nurses thought this should not happen. As well, there was agreement that patients who used tobacco and who were unable to smoke were less calm. Despite limitations related to sampling and response rate, this study extends our awareness of how nurses' own use of tobacco might be shaping their practice decisions related to tobacco.

*Nurse-delivered in-hospital cessation interventions.* In my original review article (Schultz, 2003) I discussed ten studies, published between 1996 and 2001, that tested the efficacy of nurses-delivered cessation interventions. Although statistically significant results were not reported in all of the studies, there was evidence that nurse-delivered in-hospital cessation interventions positively influence tobacco use rates and patterns. Furthermore, several meta-analysis studies report in-hospital cessation interventions can be effective (France et al., 2001; Munafo et al., 2001; Rigotti et al., 2003). Additionally, there is a meta-analysis that
specifically demonstrates nurse-delivered interventions can effectively influence tobacco reduction (Rice & Stead, 2004). The authors concluded that nurse-delivered brief interventions, requiring less than 3 minutes to deliver, can influence patients' decision about smoking and quitting. Still, effectiveness increases when combined with other strategies (nicotine replacement therapies, counseling about cessation, counseling about coping strategies, and long-term follow-up) (Rigotti et al.). The challenge for the profession of nursing is to find a means to ensure that tobacco reduction interventions become standard practice. The goal of changing practice is to ensure that all patients who use tobacco have the opportunity to talk about their tobacco use and are offered cessation advice, support, and follow-up (Rice & Stead).

Dissemination of scientific findings and clinical guidelines. In the original review (Schultz, 2003), I noted the plethora of papers that apply clinical guidelines to a wide variety of clinical populations. Since the publication of this review, additional papers focusing on disseminating information about tobacco to nurses have been published. Recently, one issue of Seminars in Oncology Nursing published several papers related to tobacco, which addressed the following topics: tobacco related diseases (Burns, 2003), tobacco use and dependence (Sohn, Hartley, Sivarajan Froelicher & Benowitz, 2003), smoking cessation and cancer (Browning & Wewers, 2003), tobacco use within special populations (Hutchinson & Sivarajan Froelicher, 2003), tobacco policies within the United States (Bialous, Kaufman & Sarna, 2003), and policy and health issues from a global perspective (Percival, Bialous, Chan & Sarna, 2003; Sarna, Cooley & Danao, 2003). These papers are an extensive educational tool and a means for disseminating the vast information about tobacco to oncology nurses. A recently published continuing education article for nurses outlined myths about smoking, stopping, and the role of nurses, along with clear steps that can be integrated into practice, and information about relevant medications (Bialous & Sarna, 2004). Finally, in Canada, the Registered Nurses Association of Ontario (RNAO) (2003) published best practice guidelines, which provide registered nurses with
information about tobacco use, cessation, and tobacco reduction activities that could be integrated into practice.

Another avenue for dissemination of tobacco reduction strategies is through basic nursing education; there have been several recent papers published on this topic. At the time of writing my literature review, there were two studies that reported findings concerning nursing program curriculum content within the United States (Heath, Andrews, Thomas, Kelly & Friedman, 2002; Santas Kraatz, Dudas, Frerichs, Paice & Swenson, 1998). The studies used a survey approach to collect data about nursing curricula and reviewed popular nursing text books. The findings suggested that tobacco reduction content was sparse and presentation was fragmented. A recent study surveyed all baccalaureate nursing (n = 545; response rate 70.6%) and graduate nursing (n = 364; response rate 67.6%) programs in the United States (Wewers, Kidd, Armbruster & Sarna, 2004). Highlights from this study indicate that there is limited curriculum content that addresses tobacco and that the nursing programs tend to address physical health effects related to tobacco use, but not cessation interventions. A second survey study focused on nursing programs in the American state of Kansas (n = 21; response rate 85%) reported similar results (Hornberger & Edwards, 2004). The authors also make suggestions for integrating tobacco reduction into nursing curriculum.

One survey focused on students at an American nursing program (n = 200) to assess their perspectives on tobacco (Jenkins & Ahijevych, 2003). Respondents thought tobacco use was harmful. Although respondents did not think brief 3 minute interventions could be effective, they reported a high level of confidence in their ability to inform patients about the general health risks related to tobacco use. However, they lacked confidence in providing information about nicotine replacement therapies. Results from this study reflect and support the findings from the curriculum content studies.
Three additional studies reported on student nurses' perceptions of tobacco use and reduction rather than curriculum content. Chalmers, Seguire and Brown (2003) conducted focus groups with undergraduate nursing students to hear about their experiences of course content related to tobacco reduction (n = 272). Students reported that they were not exposed to knowledge about tobacco reduction and prevention strategies. Additionally, the students perceived tobacco reduction solely as an individual's health issue (versus a health issue for the family or community). Nor were they aware of tobacco control from a broader policy perspective. A second study conducted in Israel (n = 782; response rate of 69%) found that the student's own experience with smoking and the habits of people in the student social environment were strong predictors of attitudes to tobacco reduction (Baron-Epel, Josephsohn & Ehrenfeld, 2004). A third study of Australian nursing students (n = 366; response rate 86%), in particular the investigation focused on the influence of the students smoking status on knowledge and attitudes toward smoking and cessation (Clark, McCann, Rowe & Lazenbatt, 2004). The authors report that students who were ex-smokers had more detailed knowledge than non-smokers, and that current smokers tended to deny health effects related to tobacco smoking. As well, current smokers had the least favorable attitudes toward tobacco reduction. These authors suggested that delivery of tobacco-related information in nursing curricula needs to be sensitive to the student's smoking status, to assist current smokers' integrating the health information and to develop more positive attitudes towards providing cessation support. These three studies provide important considerations related to integrating tobacco use and reduction into basic nursing programs.

*Nursing and tobacco reduction.* The last area of related literature includes descriptions of the tobacco reduction activities being provided to patients, nurses' attitudes toward tobacco reduction along with perceptions of barriers to providing this care. There have been no newly published papers relevant for this area. The following are very brief highlights from my original
literature review (Schultz, 2003); further details are addressed in Chapters 2-4. There is a small but growing body of evidence indicating that nurses support the idea of encouraging people to stop smoking, believe there is an expectation from others that they should address tobacco reduction, and are often reluctant to initiate conversations about interest in quitting with patients (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2000a; Sarna, Brown, Lillington, Wewers & Brecht, 2000b; Sarna, Wewers, Brown, Lillington & Brecht, 2001). While nurses report that they commonly assess smoking status, additional tobacco reduction activities (e.g., assessing interest in quitting, advising a patient to stop smoking, assisting with cessation, or arranging follow-up) were considerably less likely to be reported as a part of common practice. Research evidence indicates that personal factors influencing nurses' attitudes and perception of barriers related to tobacco use and reduction include: age, education level, smoking status, knowledge about tobacco reduction, and confidence in ability to provide tobacco reduction interventions. Additionally, some researchers suggest that nurses' perception of the following organizational factors influence uptake: availability of time, availability of referral options, requirement of asking about smoking status on history form, and support from other health care professions as well as from supervisors. These few studies demonstrate an emerging interest in the uptake of tobacco reduction activities by acute care nurses; yet, there are many questions still to be investigated that could support nursing practice changes.

Summary. Clearly, tobacco use is an important health issue and requires the attention of all clinicians. The scientific community has generated evidence that supports a vision of nurses' practice moving beyond a sole focus on treatment of tobacco-related health conditions toward consistently providing tobacco reduction interventions. Although nurses tend to concur with this vision, beyond assessing smoking status it appears there is minimal integration of tobacco reduction activities in nursing practice. As well, there is minimal knowledge of the causal mechanisms affecting practice decisions related to providing cessation support. These gaps
hinder professionals' ability to realize their role in attenuating this significant health issue. Finally, there has been no research investigating Canadian acute care registered nurses' perceptions about tobacco and reduction, their practice related to tobacco reduction, or their tobacco-related workplace context.

Research Project Conceptual Framework

The central issue addressed in this research project was nurses' uptake of tobacco reduction activities, which required a conceptualization of behavior occurring in a workplace. The conceptualization foundational to this research project was informed by an ecological perspective. This foundation directly informed the development of the research objectives, and subsequently, provided direction for organizing the studies contained in the project; however, it was not specific enough to entirely guide the three studies. Therefore, it is important to note that specific conceptualizations and theory relevant to each study has been attended to, but those details are addressed in the associated chapters that follow this introductory chapter.

An ecological perspective informed the conceptualization of workplace behavior used in this research project. This perspective provides a broad conceptualization of behavior, which implies that behavior is affected by influences present in multiple dimensions that exist within an individual and their contextual environment (Sallis & Owen, 1997). Frequently, behavioral research tends to focus on the investigation of individual socio-demographic factors and factors measured through individuals' perceptions believed to predict behavioral intention (Conner & Norman, 1995). While an ecological perspective embraces these influences upon behavior, it also suggests that social context and systemic structures shape how an individual behaves. In this research project I was similarly interested in exploring the influence of socio-demographic factors and individual perceptions; yet, I also wanted to investigate how the workplace context shaped integration of tobacco-related activities. My goal was to use a deductive process to investigate the individual's perceptions of workplace context and an inductive process to
investigate organizational culture relevant to tobacco. The findings from these investigative processes can synergistically enrich plausible explanations regarding influences affecting nurses' uptake of tobacco reduction activities.

An ecological perspective frames behavior as a product of both a person's internal and external environments; therefore, the person's internal environment is but one component of a larger behavioral system (Sallis & Owen, 1997). A simple way of conceptualizing this larger behavioral system is as a multi-dimensional nested system, which means influences that promote, demand, discourage, or prohibit behavior can reside in any of the dimensions and that relationships among plausible influences between dimensions could be reciprocal in nature (See Figure 1.1, page 13). One dimension is known as the micro or the intra-personal environment, which includes socio-demographic factors, attitudes, and motivations. The meso dimension or the inter-personal environment moves the focus to the social reality surrounding an individual and is measured through the individual's perception of their social context. Finally, the macro dimension or the extra-personal (social contextual) environment moves the focus to features beyond the individual. Common factors specific to this dimension of influence on workplace behavior could be organizational practice and structures (physical space, policies, documents, or resources), the political will, or collective discourses relevant to the research issue. For this research project, nurses' uptake of tobacco reduction activities was conceptualized as a function of influences present in all three dimensions.

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5 See Chapter 3 for specific descriptions of variables measured. Reported findings from previous studies informed decisions regarding the variable inclusion. The variables for the internal personal level were: socio-demographic factors (individual characteristics) age, education level, and smoking status; attitude toward a tobacco reduction role; four measures of barriers (conceptual mirror of motivation) institutional barriers, barriers related to ability, barriers related to concern for the patient, and barriers associated with knowledge about related health issues.

6 See Chapter 3 for further details concerning descriptions of measurements. There were six variables assessed related to the external personal environment, which is identified as workplace climate in Chapter 3. The variables included were: colleague activities related to tobacco reduction, organization resources related to tobacco reduction, co-worker cohesion, supervisor support, managerial control, and innovation.

7 See Chapter 4 for further details specific to the investigation of social contextual forces level, which is framed as the profile of tobacco in acute care nurses' workplace culture.
Figure 1.1: Multi-dimensional Behavior System

**Micro Dimension Influences**
- Intra-personal environment
  - Demographics
  - Attitudes
  - Motivators/barriers

**Meso Dimension Influences**
- Inter-personal environment
  - Perception of the social context, which in this study would be the nurses’ workplace

**Macro Dimension Influences**
- Extra-personal (social contextual) environment
  - Organizational practices and structures (physical space, policies, documents, or resources)
  - Political will
  - Collective discourses
Purpose and Research Objectives

The purpose of this dissertation was to investigate acute care registered nurses' uptake of tobacco reduction activities and plausible determinants influencing this workplace behavior.

Four research objectives guided the research project. The first three objectives focus on the studies reported in chapters 2-4, and the fourth objective informed the discussion in the concluding chapter. These objectives are broad and some of the project studies required specific research questions to guide data collection and analysis; these additional questions have not be presented here, rather they are addressed in the associated chapter. The research objectives were:

1. To describe and compare acute care hospital nurses' uptake of tobacco reduction, attitudes towards tobacco use and reduction, and perception of barriers toward providing tobacco reduction, within two specific Western Canadian mid-sized hospitals.

2. To test a proposed path model that hypothesizes relationships among predictor variables associated with nurses' integration of tobacco reduction into their practice.

3. To describe the workplace culture related to tobacco use and reduction in the everyday work world of acute care nurses working at the Western Canadian study hospitals.

4. To integrate the quantitative and qualitative findings into the multi-dimensional behavior system that framed the research project.

Research Project Design

A mixed methods design was selected as a means to meet the challenge of using an ecological perspective to conceptualize workplace behavior and the research goal of conducting both a deductive and inductive research processes. Mixed method designs include the collection and analysis of both quantitative and qualitative data in a single study or a series of related studies (Creswell, 2003; Morse, 2003; Tashakkori & Teddlie, 1998). During the latter part of the 20th century an increased interest and conceptualization about mixed methods research has resulted in discussions that outline a variety of designs and purposes thought to underlie this approach to research; yet, all possess the perspective that utilization of both methods enrich the
knowledge generated concerning the research issue. The usual philosophical position taken by
mixed methodologists is pragmatism; thereby, all forms of knowledge generation is seen as
useful for understanding the complexity of human existence and that there are ways of blending
the variety of knowledge generated by sound research processes.

This dissertation used a concurrent design (Tashakkori & Teddlie, 1998, 2003) meaning
quantitative and qualitative data were collected together, the data sets were analyzed separately,
and then findings from the individual research studies were integrated as the final step in the
research project. Data collection included both a self-administered survey and various forms of
qualitative data collection approaches (e.g., naturalistic observations, document review, and
conversations). Once analysis for each individual data set was complete, the findings were
integrated through identification of their position in the multi-dimensional behavioral system
used to conceptualize workplace behavior. Figure 1.2 (page 16) provides a depiction of how the
research objectives are linked with the specific research procedures and products related to data
collection and analysis.

Details related to sampling decisions, data collection, and analyses for each study
contained in this research project are not addressed in this introductory chapter. Chapter 2 and 3
address the quantitative method details and Chapter 4 outlines the qualitative method details
relevant for the research project. Chapter 5 addresses the details concerning the integration of
findings. Supplementing the information in Chapters 2, 3, and 4 are two appendices: Appendix B
(research project consent forms) and Appendix C (research project data collection tools).
Figure 1.2: Concurrent Mixed Methods Research Project Design Diagram

Research Objectives 1 & 2

**Procedures**
1. Develop survey
2. Pre-test survey
3. Distribute survey

**Products**
1. Developed survey
2. Survey data set

**Procedures**
1. Data cleaning and multivariate assumption verification
2. Descriptive statistics
3. Measurement refinement
4. Test path model; multiply regression analysis

**Products**
1. Descriptive profile (Chapter 2)
2. Tested path model results (Chapter 3)

Research Objective 3

**Procedures**
1. Naturalistic observations
2. Collection of relevant documents
3. Brief conversations

**Products**
1. Field notes
2. Documents
3. Notes from conversations

**Procedures**
1. Coding of the three forms of data
2. Thematic analysis

**Products**
1. Themes describing the workplace tobacco culture (Chapter 4)

Research Objective 4

**Procedures**
1. Review findings from Chapter 2, 3, & 4
2. Identify findings as an influence derived from either a micro, meso, or macro dimensions of the multi-dimensional behavioral system defined in this study

**Products**
1. Integration of findings into a multi-dimensional behavioral system; along with implications for practice, policy and future research (Chapter 5)
References


Chapter 2
Registered Nurses’ Perspectives on Tobacco Reduction: Views from Western Canada

Introduction

As we enter the 21st century a significant issue facing all health care professionals is the treatment of tobacco-related physical health conditions. Tobacco use has been reported to be a leading cause of preventable mortality and morbidity (World Health Organization [WHO], 2000) associated with a variety of cancers, cardiovascular diseases, pulmonary conditions, and cerebral vascular ailments (France, Glasgow & Marcus, 2001; Kozlowski, Henningfield & Brigham, 2001; Rice & Stead, 2004; Rigotti, Munafo & Stead, 2001). Additionally, tobacco use can exacerbate other physical health conditions, such as surgical outcomes (Ratner et al., 2004) and a variety of cancer-related treatments and outcomes (Wakefield, Olver, Whitford & Rosenfeld, 2004). In Canada, more than 5 million people over the age of 15 years report being current smokers and in excess of 47,000 people annually die from tobacco-related conditions (Ontario Tobacco Research Unit, 2004). Tobacco control strategies endorsed by national authorities include: protection, prevention, cessation, and denormalization (Steering Committee of the National Strategy to Reduce Tobacco Use in Canada, 1999). Health care professionals are being encouraged to extend their practices beyond the treatment of tobacco-related conditions to include tobacco reduction strategies (Canadian Nurses Association [CNA], 2001b; Fiore et al., 2000).

One group of health care professionals believed to have an integral role to play in tobacco reduction is nursing (International Council of Nurses [ICN] 1999; Rice & Stead, 2004; WHO, 1999). The key reasons are that nurses are the largest health professional group, they have the most contact with patients, and are trusted by the public. While globally nurse scientists and governance bodies have begun to engage in the issue of tobacco reduction (Schultz, 2003), we...
have limited insight regarding direct patient care nurses' engagement in tobacco reduction. This paper aims to shed light on this deficit by presenting findings from a study focused on acute care registered nurses working in British Columbia (BC).

**Tobacco Use in British Columbia**

British Columbia is reported to have the lowest rate of tobacco use in Canada (Health Canada, 2003); the reported rate varies between 16% (Health Canada) and 20% (Ipso Reid, 2003). Recently, it has been estimated that 18% of the non-smoking population is exposed to second-hand smoke daily (Vancouver Coastal Health Authority, 2004). These rates suggest that at least 35% of British Columbians (approximately 1.5 million people) are at an increased risk of developing tobacco-related physical health conditions. In BC approximately 6,000 people die each year from tobacco-related diseases (BC Ministry of Health Services [BCMHS], 2004a); and over 500 million dollars is spent annually on direct care costs to treat tobacco-related physical illnesses (BCMHS, 2004b). Providing health care services for individuals with health conditions associated with or exacerbated by tobacco use, therefore, is a significant feature of the practice of many health care professionals. Of additional interest is that 91% of BC smokers report they are seriously thinking of stopping smoking within six months (Ipso Reid) and, therefore, may benefit from cessation interventions.

**Acute Care Registered Nurses and Tobacco Reduction**

Hospitalization may be an opportune time to initiate conversations with patients about tobacco use, the health effects of tobacco use, and stopping smoking because tobacco use patterns are interrupted during a hospital stay and smokers often contemplate cessation when faced with a health crisis (Fiore et al., 2000; Frances et al., 2001; Ratner et al., 2004; Rigotti et al., 2001). Given that most nurses work in acute care hospitals (Canadian Institute for Health Information, 2003), it would make sense that these nurses should be encouraged to move beyond
providing care for tobacco-related health conditions to integrating tobacco reduction activities into their practice.

A meta-analytic review of studies evaluating the efficacy of nurse-delivered cessation interventions suggests that nurses can significantly influence tobacco use patterns and rates (Rice & Stead, 2004). Moreover, evidence-based best practice guidelines have been published to guide health clinicians in effective ways of delivering tobacco reduction interventions (Fiore et al., 2000; Raw, McNeil & West, 1998; Commonwealth Depart of Health and Aged Care, 1999). The guiding framework for supporting the integration of tobacco reduction into practice is the "four A's," where each "A" represents a series of possible actions. The first "A" pertains to asking, which includes assessment of tobacco use, interest in quitting, and documentation of this information. The second "A" stands for providing advice regarding health risks and benefits associated with tobacco use and stopping, along with advice to stop smoking. The third "A," assist, focuses practitioners on providing information about quitting, coping with relapse, and nicotine replacement therapy. The final "A," arrange, encompasses arranging follow-up or referral to a cessation expert or program. While in an ideal world all of these activities would be integrated into practice, research has demonstrated that even brief interventions comprised of assessing and advising can influence tobacco use patterns and cessation (Rigotti et al, 2001; Tsoh & McClure, 1997). Rice and Stead suggest that the nursing profession's next step is to have cessation interventions become a standard of care; their vision being that tobacco users are provided the opportunity at every health care visit to talk about tobacco use and stopping. Given this call to action, it is timely to consider the tobacco reduction activities nurses currently incorporate in their practice and the factors influencing their practice.

Descriptions are available regarding the tobacco reduction practices of oncology registered nurses in the United States (Sarna, Brown, Lillington, Rose, Wewers & Brecht, 2000a), of American acute care registered nurses (McCarty, Hennrikus, Lando & Vessey, 2001)
and of acute care nurses in Australia (Nagle, Schofield & Redman, 1999). Sarna and colleagues surveyed a random sample of members of the Oncology Nursing Society of the United States (38% response rate; n=1508). They reported that the majority of nurses were assessing and documenting tobacco use, however, far fewer were assessing patient interest in stopping (38%), advising patients to stop smoking (32%), teaching cessation strategies (16%), and referring patients to cessation experts (5%). Acute care registered nurses working on adult in-patient wards at four hospitals situated in the United States were surveyed (68% response rate; n=397) (McCarty et al.). Thirty percent of the nurses stated they frequently counseled smokers about cessation and 11% reported advising all smokers (patients) to quit. Acute care nurses in seven hospitals in Australia were surveyed about their practice regarding tobacco reduction activities (88% response rate; n=335) (Nagle et al.). Almost two thirds of these nurses believed that tobacco reduction was an expected part of their role and that all smoking patients should be educated about tobacco reduction, yet only 10% thought smoking patients received such care. These researchers found that key factors supporting the integration of tobacco reduction into nursing practice were patient interest in stopping, the health benefits associated with cessation, and a belief that nurses have a role to play addressing tobacco use. Identified barriers to the integration of tobacco reduction practices were lack of time, low confidence in ability to support cessation, an inadequate knowledge base, and lack of leadership.

To date, in Canada there has been no reported studies describing acute care nurses’ integration of tobacco reduction activities. However, there is evidence that the nursing governance and scientific communities have begun to address tobacco use. Nursing governance bodies have addressed tobacco reduction through policy development and publication of practice guidelines for nurses (CNA, 1997, 2001a, 2001b; Registered Nurses Association of Ontario, 2003a, 2003b [RNAO]; Saskatchewan Registered Nurses Association, 2001). Canadian nurse scientists have studied tobacco issues relevant to nurses. The efficacy of nurse-administered
smoking cessation interventions have been evaluated (Chalmers et al., 2004; Johnson, Budz, Mackay & Miller, 1999; Ratner, Johnson, Bottorff, Dahinten & Hall, 2000; Ratner et al., 2004), nurses' use of tobacco has been described (Chalmers, Bramadat, Cantin, Shuttleworth & Scott-Findlay, 2000; Chalmers et al., 2001), and tobacco-related education for registered nursing students has been investigated (Chalmers, Seguire & Brown, 2003).

The purpose of this study was to add to the nascent global discussion of nursing and tobacco reduction by providing a Canadian perspective on the integration of tobacco reduction activities into nursing practice. Specifically this study investigated the practice of registered nurses working in acute care hospitals using the following research questions: 1) To what degree are nurses integrating tobacco reduction activities? 2) What are nurses' attitudes concerning tobacco use and tobacco reduction? 3) What are the perceived barriers and motivators to providing tobacco reduction activities? and 4) Are there differences in the degree of integration of tobacco reduction strategies, attitude toward tobacco reduction, and perceptions of influencing factors concerning tobacco reduction between nurses working in hospitals situated in communities with diverse population smoking rates?

Methods

Background

A cross-sectional survey design was used as part of a larger study that investigated acute care registered nurses use of tobacco reduction strategies in their practice. The study was approved by the University of British Columbia Behavioral Research Ethics Board as well as the ethical review boards situated at each of the study hospitals.

Study Sites

Sampling decisions were guided by the need to support a comparison of nurses working in distinct communities which demonstrate different tobacco consumption rates. It was decided that two entire populations of nurses working in hospitals of similar size but situated in the
regions with the largest difference in population smoking rates would be studied. Site A, a hospital with 294 acute care beds, was selected because it was situated in a health region with the lowest provincial smoking rate (19.6%) (Ipso Reid, 2003). Site B, a hospital with 260 acute care beds, was selected because it was situated in a health region with the highest provincial smoking rate (31.2%) (Ipso Reid). Although both hospitals had implemented assessment of smoking status on nursing history forms and policies restricting smoking within hospital buildings, neither hospital had provided nursing staff with the following tobacco reduction resources: nursing practice protocols, best practice guidelines for clinicians, nor educational sessions. Beyond these similarities, there are several notable differences between the hospitals. Site A was located in the southern region of the province and had virtually no on-site tobacco reduction resources available: nicotine replacement therapies were not on the hospital formulary and there were no in-hospital cessation experts. Identified community resources for smoking cessation included local pharmacists and family physicians. Site B was located in the northern region of the province and had tobacco reduction resources including nicotine replacement therapies on the hospital formulary, in-hospital cessation experts, and a community cessation program. In-hospital (pharmacists and a few clinical nurse specialists) and community-based health professionals identified as cessation experts were educated through the Mayo Clinic Nicotine Dependence program in Rochester, MN, United States.

Participants

The sample included all registered nurses employed for at least 6 months at the study hospitals who had worked at least one shift on an adult in-patient ward (surgery, medicine, rehabilitation, cardiac, and psychiatry) during the data collection period. Eligible nurses were identified via human resource records: 235 for Site A and 134 for Site B. Differences in the number of eligible nurses reflected hiring practices: Site A utilized more casual staff than Site B.
Of this sample, 101 nurses from Site A and 113 nurses from Site B completed questionnaires (response rates 43% and 86%, respectively).

**Survey Questionnaire**

Construction of the self-administered questionnaire was informed by studies that investigated nurses' perspectives of tobacco use and reduction (Sarna et al., 2000a; Sarna, Brown, Lillington, Wewers & Brecht, 2000b), a survey developed by the Ontario Tobacco Research Unit to investigate the practice and perceptions of community pharmacists (Brewster & Ashley, 2002), best practice guidelines related to tobacco reduction (Fiore et al., 2000), and an extensive review of nursing literature concerning tobacco reduction (Schultz, 2003). To strengthen content validity two nurse researchers, who were tobacco reduction experts and had extensive experience in survey construction, reviewed the questionnaire for completeness and relevance for the health care context in BC. Finally, the questionnaire was pre-tested with 16 registered nurses working on acute adult in-patient wards in hospitals other than the study sites; their feedback informed minor changes to enhance clarity.

The questionnaire included items concerning the following areas. 1) **Nurses' tobacco reduction activities** were assessed by asking respondents the frequency with which they engaged in 14 activities with patients who used tobacco. The items drew on Sarna and colleagues (2000a) work but also included newly constructed items to reflect activities related to the "four A's" outlined in tobacco reduction best practice guidelines (Fiore et al., 2000). The response categories were: almost always, frequently, seldom, and almost never. 2) **Nurses' attitude toward tobacco reduction and their role** was assessed with 9 items using a 4-point Likert format (strongly agree to strongly disagree). These items were compiled from several sources and included questions that assessed nurses' attitudes about: what tobacco-related actions they thought nurses ought to be engaged in (Sarna et al., 2000b); what tobacco reduction activities they thought their colleagues were doing (new items); and their beliefs concerning tobacco
reduction (Brewster & Ashley, 2002) and supporting cessation (Brewster & Ashley; Sarna et al., 2000b). 3) Barriers and motivators to addressing tobacco reduction were measured using an instrument that contained 19 items (Sarna et al., 2000a). A 4-point Likert format employed response options from strongly agree to strongly disagree. Categories of barriers and motivators included: associated health concerns, concern for the patient (i.e., not wanting to make their patients feel guilty), knowledge and confidence, and institutional factors. 4) Demographic items included: age, sex, marital status, smoking status, nursing education, length of nursing career at the hospital, current nursing position, and perception of tobacco use among patients.

Procedure

One week prior to delivery of the surveys introductory flyers about the study were posted on each nursing ward to raise awareness about the study and encourage nurses to participate. Surveys were packaged in an unsealed self-addressed envelope marked confidential and respondents were asked to return completed surveys in the self-addressed envelope through internal hospital mail to a special research project mailbox. Surveys were available on each ward for a two-month period. During the data collection period reminder flyers were posted weekly regarding the survey along with response rates.

Analysis

Descriptive statistics were used to summarize items assessing reported tobacco reduction practice activities, attitudes toward tobacco use and reduction, and perceived motivators and barriers to addressing tobacco reduction with patients. Since we were interested in a detailed description of nurses' views and engagement in tobacco issues, response frequencies for each item were calculated rather than composite scores. Differences between responses from Site A and Site B participants were explored through use of Mann Whitney U test (ordinal data) (Hazard Munro, 2001). If no differences between study sites were found then the combined frequency of the two positive response options for all participants (both study sites) was
reported. When group differences were found between study sites on an item then findings were presented by study site and frequencies for all four response options were reported.

Results

Participant Demographics

The personal and professional characteristics of the study participants were similar across the two sites in all regards except for marital status (Table 2.1, page 30). Perceptions of tobacco use among patients differed by site; 95% of Site B nurses compared to 84% of Site A nurses reported almost always or frequently working with patients who are smokers.

Representativeness of the samples was assessed by comparing sample demographic data with population data obtained from hospital human resource departments at each study site. Based on available data, the samples for each site appear representative of the population with one exception: the sample of respondents from Site A includes a higher percentage of full-time nurses than in the target population at the hospital site.

Nurses' Tobacco Reduction Activities

There were no group differences noted for the items related to activities associated with asking and providing advice about tobacco use (see Table 2.2, page 31). Between group differences were found with reports of assisting with smoking cessation and arranging follow-up. The pattern of difference in the mean rank scores demonstrates that Site B participants reported a higher likelihood of talking to patients about strategies to support cessation and the use of nicotine replacement therapies; recommending the use of nicotine replacement; and talking with family members about tobacco reduction. Moreover, Site B participants reported referring patients to in-hospital and community smoking cessation resources more frequently than Site A participants.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Site A (n=101)</th>
<th>Site B (n=113)</th>
<th>Between Group Comparison Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (Mean)</td>
<td>40.1 years (41.4*)</td>
<td>40.5 years (41.4*)</td>
<td>t = -.265</td>
</tr>
<tr>
<td>(Range)</td>
<td>22-64 years</td>
<td>23-64 years</td>
<td></td>
</tr>
<tr>
<td>Sex (Frequency)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>95%</td>
<td>96%</td>
<td>( \chi^2 = .028 )</td>
</tr>
<tr>
<td>Male</td>
<td>5%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Marital Status (Frequency)</td>
<td></td>
<td></td>
<td>( \chi^2 = 12.089** )</td>
</tr>
<tr>
<td>Single</td>
<td>28%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Partnered/Married</td>
<td>57%</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td>Separated/Divorced/Widowed</td>
<td>15%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Smoking Status (Frequency)</td>
<td></td>
<td></td>
<td>( \chi^2 = .783 )</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>19%</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Former Smoker</td>
<td>27%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>Never Smoked</td>
<td>55%</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td><strong>Professional</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (Frequency)</td>
<td></td>
<td></td>
<td>( \chi^2 = .059 )</td>
</tr>
<tr>
<td>Diploma</td>
<td>76%</td>
<td>74%</td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>22%</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Number of Years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>at the Hospital (Mean)</td>
<td>9.9 years (8.6*)</td>
<td>9.5 years (8.9*)</td>
<td>t = .383</td>
</tr>
<tr>
<td>(Range)</td>
<td>1-31 years</td>
<td>1-26 years</td>
<td></td>
</tr>
<tr>
<td>Position (Frequency)</td>
<td></td>
<td></td>
<td>( \chi^2 = 1.099 )</td>
</tr>
<tr>
<td>Full time</td>
<td>61% (50%*)</td>
<td>67% (65%*)</td>
<td></td>
</tr>
<tr>
<td>Part time</td>
<td>23% (23%*)</td>
<td>21% (25%*)</td>
<td></td>
</tr>
<tr>
<td>Casual</td>
<td>15% (27%*)</td>
<td>11% (10%*)</td>
<td></td>
</tr>
<tr>
<td>Wards (Frequency)</td>
<td></td>
<td></td>
<td>( \chi^2 = 1.474 )</td>
</tr>
<tr>
<td>Surgery</td>
<td>31% (32%*)</td>
<td>30% (25%*)</td>
<td></td>
</tr>
<tr>
<td>Medicine (b)</td>
<td>54% (51%*)</td>
<td>48% (51%*)</td>
<td></td>
</tr>
<tr>
<td>Psychiatry</td>
<td>16% (17%*)</td>
<td>22% (28%*)</td>
<td></td>
</tr>
<tr>
<td>Perception of tobacco use by patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often in the past month</td>
<td>AA 31%</td>
<td>AA 55%</td>
<td>( z = -.4201***d )</td>
</tr>
<tr>
<td>have you encountered a</td>
<td>F 53%</td>
<td>F 40%</td>
<td></td>
</tr>
<tr>
<td>patient who smokers cigarettes?</td>
<td>S 14%</td>
<td>S 4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N 3%</td>
<td>N 0%</td>
<td></td>
</tr>
</tbody>
</table>

**Notes**
- a: Bracketed frequencies represent population data obtained from human resources departments
- b: This variable included nurses working on cardiac, rehabilitation, and general medical wards
- c: 'AA' = Almost Always; 'F' = Frequently; 'S' = Seldom; 'N' = Never
- d: The statistic used to compare group responses was the Mann Whitney U
- ** p<.01 ***p<.001
<table>
<thead>
<tr>
<th>Sentence Stem and Items</th>
<th>Both Sites&lt;sup&gt;a&lt;/sup&gt; (n=214)</th>
<th>Site A&lt;sup&gt;b&lt;/sup&gt; (n=101)</th>
<th>Site B (n=113)</th>
<th>Mann Whitney U</th>
<th>z score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ask</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assess smoking status on admission</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -1.521)</td>
</tr>
<tr>
<td>Chart smoking status</td>
<td>74%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -1.4)</td>
</tr>
<tr>
<td>Assess interest in quitting</td>
<td>53%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -1.195)</td>
</tr>
<tr>
<td><strong>Advise</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk about health effects of smoking</td>
<td>45%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -1.101)</td>
</tr>
<tr>
<td>Talk about health benefits of stopping</td>
<td>40%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -1.512)</td>
</tr>
<tr>
<td>Advise patient to stop smoking</td>
<td>39%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -1.767)</td>
</tr>
<tr>
<td>Advise patient to cut down</td>
<td>47%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -0.054)</td>
</tr>
<tr>
<td><strong>Assist</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss stopping strategies</td>
<td>AA 6% AA 8%</td>
<td>F 15% F 27%</td>
<td></td>
<td></td>
<td>(z = -2.062^*)</td>
</tr>
<tr>
<td></td>
<td>S 50% S 42%</td>
<td>AN 30% AN 22%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss strategies to cope with relapse</td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
<td>(z = -1.095)</td>
</tr>
<tr>
<td>Discuss nicotine replacement therapies</td>
<td>AA 4% AA 10%</td>
<td>F 26% F 48%</td>
<td></td>
<td></td>
<td>(z = -3.883^{***})</td>
</tr>
<tr>
<td></td>
<td>S 54% S 30%</td>
<td>AN 17% AN 11%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommend nicotine replacement therapies for a patient</td>
<td>AA 8% AA 27%</td>
<td>F 28% F 37%</td>
<td></td>
<td></td>
<td>(z = -4.449^{***})</td>
</tr>
<tr>
<td></td>
<td>S 40% S 20%</td>
<td>AN 25% AN 14%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have a conversation with a family member</td>
<td>AA 2% AA 8%</td>
<td>F 7% F 15%</td>
<td></td>
<td></td>
<td>(z = -1.951^*)</td>
</tr>
<tr>
<td></td>
<td>S 43% S 35%</td>
<td>AN 47% AN 39%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Arrange</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referral to in-hospital expert</td>
<td>AA 0% AA 13%</td>
<td>F 0% F 24%</td>
<td></td>
<td></td>
<td>(z = -7.969^{***})</td>
</tr>
<tr>
<td></td>
<td>S 7% S 20%</td>
<td>AN 92% AN 42%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referral to community-based program</td>
<td>AA 1% AA 4%</td>
<td>F 2% F 7%</td>
<td></td>
<td></td>
<td>(z = -2.394^*)</td>
</tr>
<tr>
<td></td>
<td>S 16% S 20%</td>
<td>AN 80% AN 65%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Notes
a: For items with no group difference the percentage displayed is the summed frequency for almost always and frequently responses.
b: When group differences were found for an item, then site specific frequencies for each of the response categories are provided: 'AA'=Almost Always; 'F'=Frequently; 'S'=Seldom; 'AN'=Almost Never
*p<.05 ***p<.001

Nurses' Attitudes toward Tobacco Reduction and Their Role

Responses to items assessing nurses' attitudes toward tobacco reduction and their role with respect to tobacco reduction were similar in the two sites with three exceptions (see Table 2.3, page 33). Compared to Site A, Site B participants reported that their registered nurse colleagues were more likely to assess smoking status on admission, discuss stopping smoking with patients, and chart about these activities.

Motivators and Barriers to Providing Tobacco Reduction Activities

Responses to items related to the associated health concerns and concern for the patient categories demonstrated no between group differences (see Table 2.4, page 34). In comparison with Site B respondents, Site A nurses were less likely to report having confidence in their ability to support cessation and more likely to report a lack of knowledge to assist patients in stopping smoking. Additionally, in comparison to Site A, Site B nurses were more likely to agree that the following institutional factors supported their involvement in addressing tobacco issues with patients: administrative support for providing smoking cessation counseling, physicians' request for nurse assistance with cessation, having adequate time to provide tobacco reduction interventions, and being given recognition for assisting with cessation.
<table>
<thead>
<tr>
<th>Items</th>
<th>Both Sites(^a)</th>
<th>Site A(^b)</th>
<th>Site B</th>
<th>Mann Whitney U</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Relief of withdrawal symptoms is important for successful stopping</td>
<td>97%</td>
<td></td>
<td></td>
<td>1.906</td>
</tr>
<tr>
<td>2. On my ward nurses assess tobacco use status on admission</td>
<td>SA 31%</td>
<td>SA 46%</td>
<td></td>
<td>-2.124*</td>
</tr>
<tr>
<td></td>
<td>A 57%</td>
<td>A 47%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D 9%</td>
<td>D 4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 1%</td>
<td>SD 3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Nurses need additional training/skills in assisting people to stop</td>
<td>89%</td>
<td></td>
<td></td>
<td>-.655</td>
</tr>
<tr>
<td>4. It is important that nurses set a good examples by not smoking</td>
<td>86%</td>
<td></td>
<td></td>
<td>-1.895</td>
</tr>
<tr>
<td>5. It is important that nurses talk with their patients about tobacco use</td>
<td>86%</td>
<td></td>
<td></td>
<td>-.303</td>
</tr>
<tr>
<td>6. It is important that nurses actively encourage patients to stop smoking</td>
<td>74%</td>
<td></td>
<td></td>
<td>-.401</td>
</tr>
<tr>
<td>7. Most smokers can stop if they really want to</td>
<td>67%</td>
<td></td>
<td></td>
<td>-.082</td>
</tr>
<tr>
<td>8. Smokers appreciate it when nurses provide smoking cessation advice</td>
<td>49%</td>
<td></td>
<td></td>
<td>-1.804</td>
</tr>
<tr>
<td>9. With most smokers nurses can be effective in promoting cessation</td>
<td>47%</td>
<td></td>
<td></td>
<td>-.868</td>
</tr>
<tr>
<td>10. On my ward nurses discuss stopping smoking with their patients</td>
<td>SA 2%</td>
<td>SA 8%</td>
<td></td>
<td>-3.493***</td>
</tr>
<tr>
<td></td>
<td>A 23%</td>
<td>A 38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D 57%</td>
<td>D 46%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 17%</td>
<td>SA 8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. On my ward nurses chart about nursing care provided that relates to tobacco</td>
<td>SA 2%</td>
<td>SA 6%</td>
<td></td>
<td>-2.515*</td>
</tr>
<tr>
<td></td>
<td>A 29%</td>
<td>A 35%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D 47%</td>
<td>D 51%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 22%</td>
<td>SD 8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. When a person has been smoking for many years, there is not much point in trying to stop</td>
<td>7%</td>
<td></td>
<td></td>
<td>-1.706</td>
</tr>
</tbody>
</table>

**Notes**

* a: For items with no group difference the percentage displayed is the summed frequency for strongly agree and agree responses.

* b: When group differences were found for an item, then site specific frequencies for each of the response categories are provided: 'SA'=Strongly Agree; 'A'=Agree; 'D'=Disagree; 'SD'=Strongly Disagree

* p<.05 ***p<.001
<table>
<thead>
<tr>
<th>Sentence Stems and Items</th>
<th>Both Sites (^a) (n=214)</th>
<th>Site A (^b) (n=101)</th>
<th>Site B (n=113)</th>
<th>Mann Whitney U (z) score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. There are health benefits for my patient</td>
<td>97%</td>
<td></td>
<td></td>
<td>(z = -1.354)</td>
</tr>
<tr>
<td>2. Stopping smoking will decrease risks of tobacco related health effects</td>
<td>97%</td>
<td></td>
<td></td>
<td>(z = -0.46)</td>
</tr>
<tr>
<td>3. If a patient stopped smoking, it would influence treatment side effects</td>
<td>67%</td>
<td></td>
<td></td>
<td>(z = -0.091)</td>
</tr>
<tr>
<td>4. A patient wants to stop smoking</td>
<td>81%</td>
<td></td>
<td></td>
<td>(z = -0.821)</td>
</tr>
<tr>
<td><strong>Concern for the Patient</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I have personal experience with stopping</td>
<td>41%</td>
<td></td>
<td></td>
<td>(z = -0.204)</td>
</tr>
<tr>
<td>6. I have confidence in my ability to help someone stop</td>
<td>SA 3%</td>
<td>SA 5%</td>
<td></td>
<td>(z = -2.284^*)</td>
</tr>
<tr>
<td>A 20%</td>
<td>A 30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 52%</td>
<td>D 48%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD 23%</td>
<td>SD 14%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. In the past I have had positive experiences with assisting people with stopping</td>
<td>26%</td>
<td></td>
<td></td>
<td>(z = -1.478)</td>
</tr>
<tr>
<td><strong>Institutional Factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. It is an expected part of my role</td>
<td>58%</td>
<td></td>
<td></td>
<td>(z = -1.478)</td>
</tr>
<tr>
<td>9. On my ward there is administrative support to assist a patient in stopping</td>
<td>SA 0%</td>
<td>SA 10%</td>
<td></td>
<td>(z = -7.718^{***})</td>
</tr>
<tr>
<td>A 10%</td>
<td>A 48%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 39%</td>
<td>D 26%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD 51%</td>
<td>SD 13%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Physicians request nurses involvement in assisting with stopping</td>
<td>SA 2%</td>
<td>SA 4%</td>
<td></td>
<td>(z = -3.765^{***})</td>
</tr>
<tr>
<td>A 15%</td>
<td>A 30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 42%</td>
<td>D 47%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD 40%</td>
<td>SD 18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. During work I have adequate time to provide assistance with stopping</td>
<td>SA 1%</td>
<td>SA 1%</td>
<td></td>
<td>(z = -2.311^*)</td>
</tr>
<tr>
<td>A 11%</td>
<td>A 20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 43%</td>
<td>D 46%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD 45%</td>
<td>SD 30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. On my ward there is recognition for assisting with stopping</td>
<td>SA 0%</td>
<td>SA 1%</td>
<td></td>
<td>(z = -3.071^{**})</td>
</tr>
<tr>
<td>A 0%</td>
<td>A 4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 28%</td>
<td>D 42%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD 71%</td>
<td>SD 51%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2.4 Motivators and Barriers to Integrating Tobacco Reduction continued

<table>
<thead>
<tr>
<th>Sentence Stems and Items</th>
<th>Both Sites(^a) (n=214)</th>
<th>Site A(^b) (n=101)</th>
<th>Site B (n=113)</th>
<th>Mann Whitney U z score</th>
</tr>
</thead>
</table>

**Barriers**

I avoid addressing stopping smoking with my patient because...

**Associated Health Concerns**
1. Stopping smoking would make no difference due to poor prognosis 22% \(z = -0.779\)
2. Smoking is not a health priority 8% \(z = -0.136\)

**Concern for the Patient**
3. A patient is not motivated or interested 76% \(z = -1.78\)
4. I don't want to add to my patient's stress 47% \(z = -1.773\)
5. I feel it is an invasion of privacy 35% \(z = -1.522\)
6. I don't want my patient to feel guilty 25% \(z = -1.351\)

**Knowledge and Confidence**
7. I lack adequate knowledge about how to assist my patient in stopping
   - SA 27% SA 6% \(z = -2.992^{**}\)
   - A 31% A 40%
   - D 36% D 43%
   - SD 6% SD 12%

**Notes**

\(a\): For items with no group difference the percentage displayed is the summed frequency for strongly agree and agree responses.

\(b\): When group differences were found for an item, then site specific frequencies for each of the response categories are provided: 'SA'=Strongly Agree; 'A'=Agree; 'D'=Disagree; 'SD'=Strongly Disagree

\(* p<.05\) \(** p<.01\) \(*** p<.001\)

**Discussion**

Findings from this study provide the first description of Canadian registered nurses' involvement in and views about tobacco reduction. Beyond assessing and charting tobacco use, nurses' engagement in tobacco reduction activities appears to be limited. In both study sites, only half of the nurses indicated that they assessed interest in quitting, and fewer provided advice regarding tobacco use and reduction. The provision of assistance with smoking cessation was restricted primarily to discussing and recommending nicotine replacement therapy, with significantly more nurses at Site B than Site A reporting that they incorporated these activities in
their practice. Arranging follow-up for patients interested in tobacco reduction was not a frequent practice among respondents, although 37% nurses in Site B reported almost always or frequently referred patients to an in-hospital expert. While the level of involvement in tobacco reduction interventions reflected in these findings is slightly higher than rates reported for nurses in other countries (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2000a, 2000b), it appears that many opportunities to address tobacco reduction with smoking patients were not taken up by nurses even when in-hospital resources were available.

Nurses' workload and institutional support for engaging in smoking cessation (e.g., through the provision of best practice guidelines, protocols, in-service education, or in-hospital cessation expert) are likely to be important factors in the uptake of tobacco reduction. Health care settings have increasingly placed heavier demands on all clinicians (ICN, 2003; Office of the Auditor General of BC, 2004). The majority of nurses in this study reported lack of time as a key barrier to addressing tobacco use; this finding has been widely reported in relation to nursing practice (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2000a, 2000b) and other clinicians' practices (Block, Hutton & Johnson, 2000; O'Loughlin et al., 2001; Vaughn, Ward, Doebbeling, Uden-Holman, Clarke & Woolson, 2002). It is interesting to note that in this study those nurses working in an environment with tobacco reduction resources (Site B) were less likely to report both a lack of time and a lack of institutional support than nurses who did not have ready access to these resources. Furthermore, the use of a greater range of tobacco reduction interventions was evident among those working in the hospital with tobacco reduction resources. This finding underscores the importance of the availability of tobacco reduction resources. Others have also recommended that successful integration of tobacco reduction activities in clinical practice depends on institutional commitment to address tobacco use issues (Cooke, Mattick & Campbell, 1998; Fiore et al., 2000; Vaughn et al.). Nevertheless, supporting the dissemination and uptake of clinical practice guidelines among busy clinicians has been
recognized as a challenge (Frances et al., 2001; Hutchinson & Johnston, 2004; Varcoe & Hilton, 1995).

Hospitalization has been proposed to be an opportune time to address tobacco use (Frances et al., 2001; Ratner et al., 2004; Rigotti et al., 2001); however, it has been speculated that health care providers feel reticent to talk about tobacco use with their patients because it might strain their relationship and heighten stress for a person who is already facing a health crisis (Block et al., 2000; Kozlowski et al., 2001). Interestingly, the majority of nurses in this study disagreed that addressing tobacco reduction would increase patients' sense of stress or guilt, or that it would be an invasion of privacy. Additionally, almost all nurses reported that patient interest in stopping would motivate them to address tobacco reduction; similar findings have been reported for a variety of clinicians (Aquilino, Goody & Lowe, 2003; Block et al.; Frances et al.; McCarty et al., 2001; Nagle et al., 1999; O'Loughlin et al., 2001; Sarna et al., 2000a, 2000b).

It is encouraging that the majority of the participants agreed that registered nurses ought to talk with patients about tobacco use and actively encourage patients to stop smoking. Similar findings have been reported by others (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2000a, 2000b). While there was agreement that attempting to stop smoking is worthwhile for any smoker and that smokers can be successful in stopping, only half of the respondents believed that smokers appreciate support provided by nurses and that such efforts are efficacious. There was also solid agreement that the relief of withdrawal symptoms is essential to support cessation. Thus, the respondents portrayed a fairly positive attitude toward cessation; yet, similar to their self-reported practice activities less than half thought that their colleagues are discussing tobacco reduction with patients. These findings suggest that there was a gap between what nurses think they ought to be doing and what they perceive was happening within their practice environments. This could in part be explained by beliefs that cessation support is ineffective and that patients
are disinterested in addressing tobacco reduction. It is interesting to note that the two sets of nurses reported similar attitudes toward tobacco use and reduction, but that differences were found in their perceptions of colleagues' tobacco reduction activities. Nurses working in the institution with a stronger tobacco reduction commitment (site B) reported higher levels of colleague activity. Again this suggests that the provision of resources to support in-hospital tobacco reduction may play an important role in shifting practice norms.

Respondents in this study were candid about their lack of preparedness for intervening with patients on issues related to tobacco use. Knowledge related to clinical practice guidelines has been shown to influence uptake into practice (Frances et al., 2001; Hutchinson & Johnston, 2004). In this study, just under half of the nurses believed they possessed adequate knowledge to support integration to tobacco reduction. As well, less than one third reported having confidence in their ability to assist a patient with stopping smoking. Perception of self-efficacy (knowledge and confidence in skills) regarding providing tobacco reduction has been previously studied among nurses (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2000a, 2000b) and other health professionals (Aquilino et al., 2003; O'Loughlin et al., 2001; Vaughn et al., 2002). These studies suggest that higher levels of self-efficacy improved integration of cessation support.

To ensure nurses are adequately prepared to provide appropriate care and counseling for tobacco-dependent patients nursing educators are being encouraged to integrate tobacco issues into curricula (Chalmers et al., 2003; Heath, Andrews, Thomas, Kelley & Friedman, 2002; Santas Kraatz, Dudas, Frerichs, Paice & Swenson, 1998). In addition, other ways of supporting nurses' integration of tobacco-related interventions are being explored. In one Canadian initiative professional practice guidelines related to tobacco reduction for nurses have been disseminated (RNAO, 2003b) and an e-learning course related to the guidelines developed (RNAO, 2003a). While pilot test results of this initiative led to an increase in knowledge, participants suggested that e-learning was not sufficient for improving skills to counsel patients about tobacco use and
reduction. Other strategies to enhance nurses' use of clinical practice guidelines related to tobacco have been proposed. Tailored educational materials along with a brief one-to-one follow-up training session were provided to support the use of clinical practice guidelines related to tobacco reduction activities among nurses caring for pregnant and post-partum women are currently under evaluation (Hyndman, 2004). Preliminary results indicate nurses responded positively to the training and that they reported increased confidence in providing tobacco-related interventions.

Less intensive educational strategies may also have merit. One potential area for further education of nurses relates to the morbidity associated with tobacco use. McCarty and colleagues (2000) observed that when nurses perceive a link between the health condition and tobacco use, they were more likely to report addressing tobacco use with the patient. These authors also noted that nurses' awareness of the health effects related to tobacco use beyond cardiac conditions, cancer related health issues, and respiratory diseases are very limited. Findings from this study also revealed that some learning might occur indirectly when tobacco reduction resources are provided. Site B nurses were more likely to report they had adequate knowledge and ability to provide tobacco reduction activities, than the comparison group. This difference existed even though neither hospital provided specific in-service tobacco reduction education for nurses. It is possible that the activities of in-hospital cessation experts in Site B provided informal learning opportunities for nurses.

This study has a number of limitations. Since whole population sampling was used, generalizability of the findings beyond the study participants is not possible. The response rate in Site A was lower than expected, however, based on the available population data the participants appear representative. Further information about the non-responders was unavailable. Level of integration of tobacco reduction is based on self-report and no attempt was made to check for accuracy; therefore, even though survey results were treated confidentially response bias might
have influenced reported rates. Still these findings provide a beginning point for discussing Canadian registered nurses' views and practices related to tobacco reduction.

**Conclusion**

The findings from this descriptive study provide further evidence that nurses commonly assess smoking status; however activities beyond this have not become a regular part of acute care registered nurses' practice. While the nurses in this study believed they have a role to play in tobacco reduction, they also felt unprepared and reported limited tobacco resources available to support providing tobacco reduction activities with patients. One logical solution could be to provide tobacco reduction in-service education along with clarification and standardization of which tobacco reduction activities would be reasonable for nurses to integrate into practice. While these strategies are important, findings from this study also suggest the availability of tobacco reduction resources enables nurses' integration of tobacco reduction into practice. As Fiore and colleagues (2000) noted, our ability to attenuate the health effects associated with tobacco use will be restricted if we solely focus on any individual clinician's practice; rather a systemic approach encompassing strategic planning for health institutions and health care systems' to integrate tobacco control will be required.
References


Chapter 3
Investigating the Causal Mechanisms Underlying the Integration of Tobacco Reduction Interventions into Nurses' Practice: A Path Analysis

Introduction

Understanding the determinants that influence acute care registered nurses' integration of tobacco reduction activities into their practice is important for several reasons. First, diminishing the commonly identified physical health consequences associated with tobacco use and exposure to tobacco smoke has been identified as an important global health issue (World Health Organization [WHO], 2000) that all clinicians are being challenged to address (Canadian Nurses Association [CNA], 2001; Fiore et al., 2000; International Council of Nurses [ICN], 1999; Rice & Stead, 2004; WHO). Second, nurses have been identified as having an integral role to play in tobacco reduction (ICN; Rice & Stead; Schultz, 2003; WHO, 1999) and there is evidence that nurse-delivered cessation support can influence tobacco use patterns (Rice & Stead; Schultz). Third, while nurses believe they are expected to provide cessation support as part of their practice (McCarty, Hennrikus, Lando & Vessey, 2001; Nagle, Schofield & Redman, 1999; Sarna, Brown, Lillington, Wewers, & Brecht, 2000b; Schultz, Johnson & Bottorff, in review), there is an inconsistency between what nurses suggest 'ought' to be happening and what they report 'is' occurring (Nagle et al.; Schultz et al.). Fourth, there is emerging evidence that smokers expect their tobacco use will be addressed during health appointments (Ellerbeck, Choi, McCarter, Jolicoeur, Greiner & Ahluwalia, 2003; Ossip-Kliene, McIntosh, Utman, Burton, Spada & Guido, 2000; Ratner et al., 2004). Clearly, deepening our understanding of nurses' uptake of tobacco reduction activities will be required to support nurses in realizing a role in addressing tobacco use.

---

One strategy employed to support clinicians in addressing tobacco use with patients was the dissemination of evidence-based tobacco reduction guidelines (CNA, 1997; Commonwealth Department of Health and Aged Care, 1999; Fiore et al., 2000; Raw, McNeil & West, 1998; Registered Nurses Association of Ontario [RNAO], 2003a, 2003b; Royal College of Nursing [Britain], 1999). Although the practical utility of the guidelines for a variety of populations and settings has been demonstrated (Schultz, 2003) and most clinicians report regularly assessing smoking status, very few report providing additional tobacco reduction activities (Aquilino, Goody & Lowe, 2003; Borrelli, Hecht, Papandonatos, Emmons, Tatewosian & Abrams, 2001; Ellerbeck, Ahluwalia, Jolicoeur, Gladden & Mosier, 2001; Ossip-Klien et al., 2000; Sarna, Brown, Lillington, Rose Wewers & Brecht, 2000a; Schultz, et al., in review; Vaughn, Ward, Doebbeling, Uden-Holman, Clarke & Woolson, 2002). Missed opportunities to address tobacco reduction appear to be the norm. Furthermore, while there are some clinicians who report a greater degree of involvement in tobacco reduction activities, our ability to understand the differences in practice is incomplete. The purpose of this study was to investigate key variables hypothesized to influence the integration of tobacco reduction strategies into registered nurses' practice to extend our understanding of the mechanisms that influence differences in uptake of cessation support. The research objectives addressed were: 1) to propose a theoretical conceptualization of individual and workplace variables reported to influence nurses' integration of tobacco reduction strategies; and 2) to test a path model based on this conceptualization.

Background Literature

Only a few studies have focused specifically on investigating acute care nurses' integration of tobacco reduction strategies. Sarna and colleagues surveyed members of the American Oncology Nursing Society (response rate 38%, n = 1508). They reported on nurses' attitudes toward tobacco control (Sarna et al., 2000b), the integration of tobacco reduction into practice (Sarna et al., 2000a), and perceived barriers to providing interventions (Sarna, Wewers,
Brown, Lillington & Brecht, 2001). A survey of Australian acute care nurses was conducted to describe their knowledge, attitudes, and perceived barriers to providing cessation support to patients (response rate 88%, n = 335) (Nagle et al., 1999). Finally, a third nursing study, utilizing concepts from the theory of planned behavior, examined American acute care nurses' self-reported integration of providing advice about tobacco reduction to their patients (response rate 68%, n = 397) (McCarty et al., 2001).

In these studies, researchers have examined nurses' individual characteristics to determine predictors of attitudes toward or perceived barriers concerning the integration of tobacco reduction interventions (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2001). Age has been noted to be associated with perceived barriers and attitudes; older nurses reported fewer barriers and were more likely to think smokers wanted to quit. Perceived barriers to providing cessation support have been linked with level of education; diploma/degree prepared nurses reported a greater sense of barriers to providing cessation support than those with a graduate degree. Results were inconclusive regarding the usefulness of smoking status as a predictor of attitudes and perceived barriers.

Nurses' attitudes towards addressing tobacco use and providing cessation advice to their patients has generally been reported to be positive (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2000a). In addition, McCarty and colleagues observed a positive relationship between nurses' attitude and the frequency with which nurses provided advice to stop smoking. Their measure of attitude included perceptions of nurses' tobacco reduction role and appropriateness of cessation support during hospitalization.

Perceived barriers (and conversely motivation) to providing cessation support have also been investigated. Nagle and colleagues (1999) and Sarna et al. (2001) described the following barriers to providing tobacco reduction interventions: low self-efficacy, deficient knowledge of tobacco-related health effects, patient lack of interest in stopping, negative impact on
relationships with patients, lack of time, limited workplace leadership, and a lack of available cessation resources within the workplace. Workplace features likely to support the integration of tobacco reduction activities were also identified: access to in-service education, having referral options for patients (both in-hospital and community), tobacco use cues on medical forms, and administrative support/recognition (Nagle et al.). McCarty and colleagues (2001) tested the predictability of three measures of motivation on uptake of cessation support. Two of the motivation measures (effectiveness of providing cessation support and perception that people expected them to provide cessation support [social norm]) demonstrated no relationship with uptake of cessation support. The third measure of motivation, which included perceived availability and efficacy of resources, was positively related with nurses' uptake of cessation support. In a similar study regarding Australian midwives' and physicians' practices (response rate of 63%, n = 204), clinicians' perception of tobacco reduction resources (i.e., perception of tobacco-related policies, in-service education, the amount of available time, and material resources) was found to be positively predictive of clinician uptake of cessation interventions (Cooke, Mattick & Campbell, 1998). Furthermore, this Australian study reported that clinician self-efficacy, perceived workplace innovation, and perceived cohesion of workplace relations positively influenced uptake of a cessation intervention.

In summary, the results of these few studies provide a foundation for conceptualizing causal mechanisms related to nurses' uptake of tobacco reduction strategies into their practice. Evidence suggests individual factors, attitudes towards a tobacco reduction role, perceived workplace characteristics, and perceived barriers are related to nurses' tobacco reduction practices. However, little attention has been paid to assessing the factors in combination or developing theoretical models to explain uptake of tobacco reduction practices. Evaluation of the mechanisms that underlie nurses' integration of tobacco reduction techniques using predictive
models that incorporate factors identified in descriptive studies are needed to begin theory development.

**Conceptual Framework**

To extend our understanding of nurses' uptake of tobacco reduction activities we drew on organizational behavior theory and the concept of "workplace climate," defined as an individual's conscious perception of their social environment at work (Gershon, Stone, Bakken & Larson, 2004; Parker et al., 2003). We decided to consider the utility of this concept for two reasons. We were interested in explaining nurses' integration of tobacco reduction interventions within their workplace setting (workplace behavior). Furthermore, previous studies have suggested that nurses' perception of workplace characteristics was associated with their integration of tobacco reduction techniques (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2001).

Evidence supporting the relationships between workplace climate, role attitude, perceived barriers, and workplace behavior across a wide range of workplace settings guided the development of the proposed path model. Based on a meta-analysis of 121 studies, Parker and colleagues (2003) concluded that workplace climate has an indirect influence on workplace performance (behavior) through a relationship with both role attitude and motivation. In other words, workplace climate affects one's role attitude and motivation, which in turn influences behavior. Role attitude has been defined as the individual's evaluation or feelings towards a specified role (McKenna, 2000). Motivation has been conceptualized as the needs or motives associated with engaging in an action (behavior) (McKenna) and the converse of motivation conceptualized as perceived barriers. Finally, Parker and colleagues suggest that role attitude has a partially mediated relationship with work behavior (performance); through the influence role attitude has on perceived barriers (motivation).

The path model in Figure 3.1 (page 50) depicts the hypothesized relationships between five predictive factors and nurses' integration of tobacco reduction (workplace behavior). Three
Figure 3.1: Visual Diagram: Proposed Path Model Conceptual Framework

1. Arrowed lines demonstrate hypothesized flow and nature of the relationship. The lines with a "+" mean the relationship between the overarching concepts were hypothesized to be positive; lines with a "-" depict a negative relationship between overarching concepts; lines with no symbol represent diverse relationships between variables within each overarching conceptual box.

2. Two hospital sites were included in this study. Study site is a dichotomous categorical variable that was dummy coded for regression analysis, which was held constant in all analysis. Arrowed lines signify proposed influence based on a hospital site with more tobacco reduction resources.
of the predictive factors have been discussed: workplace climate, role attitude, and perceived barriers. Based on evidence that individual factors are related to nurses' role attitude and perceived barriers concerning the integration of tobacco reduction strategies (McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2000a, 2000b, 2001), the following individual factors were included in the path model tested in this study: the nurse's age, level of education, and smoking status. The relationship between workplace behavior and individual characteristics was hypothesized to be fully mediated through a relationship with both role attitude and perceived barriers. Finally, the factor of hospital site was added to the model as a design variable to account for possible differences in study sites. Hospital site was hypothesized to have a direct influence on role attitude, perceived barriers, and workplace behavior, thereby, accounting for any additional workplace influences not captured by the measures used in this study.

Methods

The path model was tested using survey data collected as part of a mixed methods study that focused on acute care registered nurses' integration of tobacco reduction interventions. The investigation was conducted at hospital sites situated in the Canadian province of British Columbia. Study details concerning ethical approval and procedures for data collection have been discussed elsewhere (Schultz et al., in review).

Sampling

Sampling decisions were driven by the proposition that workplace climate along with individual characteristics might influence nurses' role attitude, perceived barriers, and their integration of tobacco reduction. It was speculated that hospitals situated in communities whose population had distinctly different smoking rates might reflect different tobacco-related workplace climates. Therefore, it was decided to survey two whole populations of registered nurses working in hospitals similar in size but situated in provincial regions with the greatest difference in population smoking rates. The two study sites selected were: a 260-bed hospital in a
region with a smoking rate of 31.2% and a 294 bed hospital situated in a region with a smoking rated of 19.6% (Ipso Reid, 2003). Table 3.1 displays other relevant site characteristics.

<table>
<thead>
<tr>
<th>Table 3.1: Site Characteristics Relevant to Tobacco</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site A</strong></td>
</tr>
<tr>
<td><strong>Differences</strong></td>
</tr>
<tr>
<td>• Population smoking rate 19.6% (Ipsos Reid, 2003)</td>
</tr>
<tr>
<td>• Nicotine replacement therapies not available in the hospital</td>
</tr>
<tr>
<td>• No in-hospital smoking cessation expert</td>
</tr>
<tr>
<td>• Minimal community resources</td>
</tr>
<tr>
<td><strong>Similarities</strong></td>
</tr>
<tr>
<td>• Smoking status assessment requested on admission history form</td>
</tr>
<tr>
<td>• No hospital policies or protocols regarding tobacco reduction</td>
</tr>
<tr>
<td>• No tobacco-related in-service education for registered nurses</td>
</tr>
<tr>
<td>• No published tobacco reduction best practice guidelines available within hospital</td>
</tr>
<tr>
<td>• Limited patient education materials available</td>
</tr>
</tbody>
</table>

Three hundred and sixty-nine registered nurses met the study eligibility criteria of being employed at a study hospital for at least 6 months, having worked at least one shift during the 2-month data collection period, and having worked on one of the following adult in-patient wards: psychiatry, surgery, medicine, cardiac care, or rehabilitation. Based on information collected from both human resources departments, there were 235 eligible nurses at Site A and 134 at Site B. The population size difference between the hospitals was a result of staffing patterns; Site A employed a large casual registered nursing pool.
The overall participation rate was 58% (n = 214) and rates by study site were: Site A 43% (n = 101) and Site B 86% (n=113). Sample demographic data were compared to population data obtained from each of the study site's hospital human resource departments. Comparisons, based on available data, demonstrated that the sample for each site was representative of the population (Schultz et al., in review). There was one exception; the sample from Site A contained a higher percentage of full-time nurses than in the general hospital population.

**Measures**

General development of the survey has been described previously (Schultz et al., in review). Details regarding the measurement of the concepts identified in the path model (see Figure 3.2, page 54) are addressed below.

*Individual characteristics.* Three individual characteristics were measured and included in the model. Age was a self-reported continuous item in the survey. Education level was also a self-reported item. The two populations were comprised of degree and diploma prepared nurses, therefore, dummy coding was used with the referent group being diploma prepared registered nurses. Smoking status was measured through a series of questions and was operationalized as: never smoker (smoked less than 100 cigarettes), former smoker (smoked more than 100 cigarettes and had not smoked for over 6 months), and current smoker (smoked more than 100 cigarettes and had smoked within the last 6 months). Smoking status required dummy coding for use in multiple regression analysis; two dummy variables were coded with the referent group being never smokers.

*Hospital site.* All returned surveys were coded to signify the participant’s study site. This dichotomous variable was dummy coded; the referent group was hospital Site A.

*Workplace climate.* Six measures were used to assess workplace climate. Two measures focused on tobacco-related workplace climate and the other four assessed aspects of general workplace climate.
Figure 3.2: Visual Diagram: Proposed Path Model and Measures for Each Concept

1. Two hospital sites were included in this study. Study site is a dichotomous categorical variable that was dummy coded for regression analysis. Hospital site was held constant in all analyses. Arrowed lines signify proposed influence based on a hospital site with more tobacco reduction resources.

2. Arrowed lines demonstrate hypothesized flow and nature of the relationship. The lines with a "+" mean that the relationship between the overarching concepts were hypothesized to be positive; lines with a "-" depict a negative relationship between overarching concepts; lines with no symbol represent a diverse relationship between variables within each overarching conceptual box. There was one exception; the Workplace Climate measure of managerial control was proposed to have the opposite influence then was depicted by the arrow from workplace climate.
One tobacco-related workplace climate measure assessed nurses' perception of colleagues' tobacco reduction activities using three items (i.e., Do nurses on your ward: assess patient smoking status, actively encourage patients to stop smoking, and chart about smoking cessation related care?). These items, had not been previously tested, but were included in this study because it has been established that what one thinks others are doing influences perceived workplace norms, or in this case, an acceptable standard of care (Lewis, DeVellis & Sleath, 2002). A four-point Likert response format was used (strongly agree = 4 to strongly disagree = 1). Higher scores indicated the perception that colleagues were integrating tobacco reduction activities.

The second tobacco-related workplace climate measure, based on Nagle et al.'s (1999) and Cooke et al.'s (1998) work, included 12 items measuring perception of organization resources. The items covered the following areas: nurses' perception of the availability of tobacco-related policies, in-service education opportunities, community resources, ward resource material, formulary medications, and physician involvement. For 9 of the 12 items response categories were: not aware = 0 and aware = 1. Two of the 12 items had a third option. For the item assessing perception of the availability of tobacco reduction education sessions the response options were: not aware = 0, aware = 1, and attended an education session = 2. The item assessing tobacco reduction community resources had three similar response options (not aware = 0, aware = 1, community resource information is on my ward = 2). The twelfth item asked about physician patterns for ordering nicotine replacement and there were three response options (yes = 2; rarely = 1; no = 0). Higher scores indicated a perception that more resources were available.

Four measures focusing on general workplace climate were also included. Following Cooke and colleagues' (1998) lead, we used subscales from the Workplace Environment Scale (Moos, 1994). Moos first published the 10 subscale measure of workplace climate in the early
1980s and since then it has been used to measure the social climate within a wide variety of workplace settings. Four of the 10 subscales were used in this study. Coworker cohesion and supervisor support subscales were chosen because they measured workplace relationships. The other two chosen subscales, innovation and managerial control, measured the perception of being able to question practice and integrate new ideas, and the perception of a workplace dominated by rules, respectively. Reported reliability for each of the nine-item subscales was: coworker cohesion .69; supervisor support .77; managerial control .76; innovation .86 (Moos). In this study each of the four subscales was presented with a four-point Likert response format (strongly agree = 4 to strongly disagree = 1). Higher scores for the two relationship subscales indicated the perception of a supportive relationship climate at work. Higher scores for the managerial control subscale reflected a perception that the workplace climate contained many rules and was rigid; and higher scores on the innovation subscale were indicative of a workplace climate that was perceived to be open to new ideas.

Role attitude. The items measuring role attitude were derived from Sarna and colleagues' work (2000b) and an unpublished survey recently constructed to study the perceptions and practice of community pharmacists (Brewster & Ashley, 2002). The six questions used in this study focused on nurses' attitudes toward providing tobacco reduction activities (e.g., what tobacco reduction activities nurses ought to be using; if nurses can be effective; if providing assistance would be appreciated). A four-point Likert response format was used (strongly agree = 4 to strongly disagree =1). Higher scores depicted a more positive attitude toward a tobacco reduction role.

Perceived barriers. The items used to measure this concept were based on Sarna and colleagues' (2001) original 20 item scale, which tapped into situations that would facilitate or hinder providing tobacco reduction activities. These items were derived from focus groups that were conducted with registered nurses (Sarna et al.). For the purposes of this study some items
were reworded and one was dropped because of redundancy; these changes were based on feedback from nurse scientists who have expertise in tobacco reduction and pretesting with registered nurses who were not eligible to participate in the study. A four-point Likert response format was used (strongly agree = 4 to strongly disagree = 1) and items were coded such that all would reflect a barrier (i.e., facilitator items in the survey were reverse scored). Additionally, for this analysis the 19 items were framed into four hypothesized perceived barrier subscales based on item content. The institutional subscale included 5 items assessing the adequacy of time and support for providing tobacco reduction. The ability subscale included 4 items assessing nurses' perception of confidence in their skills and knowledge related to tobacco reduction. The subscale patient concern (5 items) assessed nurses' perceptions of strained relationships with a patient caused by addressing tobacco reduction. (i.e., the patient's stress level would be increased, the patient would feel guilty, or addressing tobacco use is an invasion of privacy). Finally, the subscale health issues (5 items), tapped into the nurses' perception of continued use of tobacco in relation to health outcomes in general, or in relation to treatments. Higher sub-scale score reflected a stronger endorsement of the perceived barrier to the provision of tobacco reduction activities.

Integration of tobacco reduction activities. This study variable was measured by 14 items, drawing on items developed by Sarna and colleagues (2000a) and new items we developed based on published tobacco reduction best practice guidelines (Fiore et al., 2000). The resulting set of items provided a comprehensive assessment of the four 'As' of tobacco reduction activities (ask, advise, assist, and arrange follow-up) (Fiore et al.). The items were presented in the survey with the following sentence stem "Think of your nursing practice with patients who smoke--how often do you..." A four-point Likert response format provided the following response options: almost always = 4, frequently = 3, seldom = 2, and almost never = 1. Higher scores reflected a greater degree of integration of tobacco reduction activities.
Measure Refinement

Composite scored measures (scales) were tested and refined for several reasons: there were some newly constructed scales, the perceived barrier scale had been re-conceptualized, and factor analysis was either not previously conducted or results were unavailable. Exploratory factor analysis was used to test hypothesized dimensionality (Netemeyer, Bearden & Sharma, 2003) for the following five scales: integration of tobacco reduction activities, perceived barriers (four subscales), role attitude, general workplace climate (four subscales), and perception of colleague tobacco reduction activities (see Tables 3.2-3.6 for factor analysis results, pages 58-61). For the two scales with multiple dimensions several items were dropped because they loaded on more than one factor. Otherwise, all items loaded with a value of at least .30 and were retained.

Factor Analysis Tables: 3.2-3.6

<table>
<thead>
<tr>
<th>Item content</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence Stem: Think of your nursing practice with patients who smoke--how often do you:</td>
<td></td>
</tr>
<tr>
<td>1. Assess smoking status during admission.</td>
<td>.44</td>
</tr>
<tr>
<td>2. Chart a patient’s smoking status.</td>
<td>.42</td>
</tr>
<tr>
<td>3. Assess a patient’s interest in quitting.</td>
<td>.60</td>
</tr>
<tr>
<td>4. Advise a patient to stop smoking.</td>
<td>.78</td>
</tr>
<tr>
<td>5. Advise a patient to cut down smoking.</td>
<td>.68</td>
</tr>
<tr>
<td>6. Have a conversation with a patient about the health effects of smoking.</td>
<td>.83</td>
</tr>
<tr>
<td>7. Have a conversation with a patient about the benefits of stopping smoking.</td>
<td>.87</td>
</tr>
<tr>
<td>8. Have a conversation with a patient about strategies concerning stopping smoking.</td>
<td>.84</td>
</tr>
<tr>
<td>9. Have a conversation with a patient about coping with a possible relapse.</td>
<td>.71</td>
</tr>
<tr>
<td>10. Have a conversation with a patient about nicotine replacement therapies.</td>
<td>.79</td>
</tr>
<tr>
<td>11. Recommend that nicotine replacement therapy be ordered for a patient experiencing nicotine withdrawal.</td>
<td>.52</td>
</tr>
<tr>
<td>12. Refer a patient to an in-hospital smoking cessation specialist.</td>
<td>.50</td>
</tr>
<tr>
<td>13. Refer a patient to a community based cessation resource.</td>
<td>.51</td>
</tr>
<tr>
<td>14. Have a conversation with a family member(s) about smoking cessation.</td>
<td>.70</td>
</tr>
</tbody>
</table>

Eigenvalue 6.36
Percentage of Variance Explained 45%

Extraction Method: Principal Component Analysis; forced one factor.
### Table 3.3: Role Attitude-Factor Loadings

<table>
<thead>
<tr>
<th>Item content</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is important that nurses set a good example by not smoking.</td>
<td>.58</td>
</tr>
<tr>
<td>2. It is important that nurses talk with their patients about tobacco use.</td>
<td>.78</td>
</tr>
<tr>
<td>3. It is important that nurses actively encourage patients to stop smoking.</td>
<td>.85</td>
</tr>
<tr>
<td>4. Nurses need additional training/skills in assisting people in stopping smoking.</td>
<td>.53</td>
</tr>
<tr>
<td>5. With most smokers, nurses can be effective in promoting smoking cessation</td>
<td>.74</td>
</tr>
<tr>
<td>6. Smokers appreciate it when nurses provide smoking cessation advice</td>
<td>.53</td>
</tr>
</tbody>
</table>

Eigenvalue 2.78  
Percentage of Variance Explained 46%

Extraction Method: Principal Component Analysis; forced one factor.

### Table 3.4: Perception of Colleague Tobacco Reduction Activities-Factor Loadings

<table>
<thead>
<tr>
<th>Item content</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On my ward(s) nurses assess tobacco use status on admission.</td>
<td>.66</td>
</tr>
<tr>
<td>2. On my ward(s) nurses readily discuss stopping smoking with their patients.</td>
<td>.77</td>
</tr>
<tr>
<td>3. On my ward(s) nurses chart about nursing care provided that relates to tobacco.</td>
<td>.77</td>
</tr>
</tbody>
</table>

Eigenvalue 1.55  
Percentage of Variance Explained 52%

Extraction Method: Principal Component Analysis; forced one factor.

### Table 3.5: General Workplace Climate-Factor Loadings

<table>
<thead>
<tr>
<th>Item content</th>
<th>Factor 1 Innovation</th>
<th>Factor 2 Supervisor Support</th>
<th>Factor 3 Manager Control</th>
<th>Factor 4 Coworker Cohesion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New and different ideas are always being tried out on my ward.</td>
<td>.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. My ward would be one of the first to try out a new idea.</td>
<td>.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Variety and change are not particularly important on my ward.</td>
<td>.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. On my ward the same methods have been used for quite a long time.</td>
<td>.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. New approaches to things are rarely tried on my ward.</td>
<td>.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Things tend to stay just about the same.</td>
<td>.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. On my ward things always seem to be changing.</td>
<td>.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Doing things in a different way is valued.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. On my ward there is a fresh novel atmosphere.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Supervisors/managers tend to talk down to employees.</td>
<td></td>
<td></td>
<td></td>
<td>.57</td>
</tr>
<tr>
<td>11. Supervisors/managers usually compliment an employee who does something well.</td>
<td></td>
<td></td>
<td>.71</td>
<td></td>
</tr>
<tr>
<td>12. Supervisors/managers usually give full credit to ideas contributed by employees.</td>
<td></td>
<td>.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Supervisors/managers often criticize employees over minor things.</td>
<td></td>
<td>.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item content</td>
<td>Factor 1 Innovation</td>
<td>Factor 2 Supervisor Support</td>
<td>Factor 3 Manager Control</td>
<td>Factor 4 Coworker Cohesion</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>-----------------------------</td>
<td>--------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>14. Supervisors/managers really stand up for their people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Employees discuss personal problems with supervisors.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Supervisors/managers tend to discourage criticisms from employees.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Employees generally feel free to ask for a raise.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Supervisors/managers expect far too much from employees.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Nurses on my ward are expected to follow set rules in doing their work.</td>
<td>.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Supervisors/managers keep a rather close watch on employees.</td>
<td>.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Supervisors/managers are always checking on employees and supervise them very closely.</td>
<td>.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Employees are expected to conform to rather strictly held rules and customs.</td>
<td>.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. There's a strict emphasis on following policies and regulations on my ward.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Nurses on my ward can wear wild looking clothing while on the job if they want.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Rules and regulations are pretty well enforced on my ward.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Supervisors/managers do not often give in to employee pressure*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. If an employee comes in late s/he can make it up by staying late.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. Nurses on my ward go out of their way to help a new employee feel comfortable.</td>
<td>.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. Nurses on my ward take a personal interest in each other.</td>
<td>.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. Nurses on my ward are generally frank about how they feel.</td>
<td>.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. Employees often eat lunch together.</td>
<td>.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. Often people make trouble by talking behind others backs.</td>
<td>.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. The atmosphere is somewhat impersonal.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Employees rarely do things together after work.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Employees who differ greatly from others in the organization don’t get on well.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. Employees often talk to each other about their personal problems.*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Eigenvalues: 4.39 2.109 1.89 1.65
Percentage of variance explained: 21% 10% 9% 8%
Cumulative Percentage: 48%

Note: * loading < 0.30 and cross loadings have not been presented
Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
### Table 3.6: Perceived Barriers-Factor Loadings

<table>
<thead>
<tr>
<th>Item content</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sentence Stem:</strong> I address stopping smoking with my patients because:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. It is an expected part of my role (Institution).*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. In the past I have had positive experiences with</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>assisting people with stopping smoking (Ability).*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. During work I have adequate time to provide</td>
<td></td>
<td></td>
<td></td>
<td>.70</td>
</tr>
<tr>
<td>assistance with stopping smoking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I have personal experience with stopping smoking.</td>
<td></td>
<td></td>
<td>.89</td>
<td></td>
</tr>
<tr>
<td>5. I have confidence in my ability to help someone stop smoking.</td>
<td></td>
<td></td>
<td>.67</td>
<td></td>
</tr>
<tr>
<td>6. If a patient stopping smoking, it would influence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>treatment side effects (Health Issues).*</td>
<td></td>
<td></td>
<td></td>
<td>.67</td>
</tr>
<tr>
<td>7. On my ward there is administrative support to assist</td>
<td></td>
<td>.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a patient in stopping.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Physicians request nursing involvement in assisting</td>
<td></td>
<td>.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with stopping smoking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. On my ward there is recognition/rewards for</td>
<td></td>
<td></td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>assisting with stopping smoking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. There are health benefits for my patient</td>
<td></td>
<td></td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>11. A patient wants to stop smoking.</td>
<td></td>
<td></td>
<td>.47</td>
<td></td>
</tr>
<tr>
<td>12. Stopping smoking will decrease risks of tobacco related health effects.</td>
<td></td>
<td></td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td><strong>Sentence Stem:</strong> I avoid addressing stopping smoking with my patient because:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I feel it is an invasion of privacy.</td>
<td></td>
<td></td>
<td></td>
<td>-.71</td>
</tr>
<tr>
<td>14. A patient is not motivated/interested</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Patient Concern).*</td>
<td></td>
<td></td>
<td></td>
<td>.62</td>
</tr>
<tr>
<td>15. I lack adequate knowledge about how to assist my</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>patient in stopping smoking.</td>
<td></td>
<td></td>
<td></td>
<td>.62</td>
</tr>
<tr>
<td>16. Stopping smoking would make no difference due to</td>
<td></td>
<td></td>
<td></td>
<td>-.39</td>
</tr>
<tr>
<td>a poor prognosis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I don't want my patient to feel guilty.</td>
<td></td>
<td></td>
<td>-.85</td>
<td></td>
</tr>
<tr>
<td>18. I don't want to add to my patient's stress.</td>
<td></td>
<td></td>
<td>-.84</td>
<td></td>
</tr>
<tr>
<td>19. Smoking is not a health priority.</td>
<td></td>
<td></td>
<td></td>
<td>.62</td>
</tr>
<tr>
<td><strong>Eigenvalues</strong></td>
<td>3.46</td>
<td>2.17</td>
<td>1.60</td>
<td>1.26</td>
</tr>
<tr>
<td><strong>Percentage of variance explained</strong></td>
<td>23%</td>
<td>14%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Cumulative Percentage 57%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * loading < 0.30 and cross loadings have not been presented

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.
Cronbach's alpha was used to test the internal consistency (reliability) (Netemeyer et al., 2003) and results ranged between 0.52 and 0.90 (see Table 3.7, page 64). Three of the 12 reported alpha levels might be classified as unacceptable ($\alpha < 0.60$) and one undesirable ($\alpha < 0.65$) (DeVellis, 2003). However, this measure of internal consistency is sensitive to the number of items being analyzed (Bohrnstedt, 1983; Bollen & Lennox, 1991; DeVellis) and when a scale with few items has a low alpha level it is not necessarily reflective of poor internal consistency. Since the four measures with questionable alpha levels consisted of five or fewer items, made conceptual sense, and had demonstrated strong factor analysis results, they were retained for further analysis.

Once decisions about item inclusion were complete then variable scores were computed and regression assumptions were verified: normal distribution, homoscedasticity and linear relationships (Hazard Munro, 2001). Table 3.7 (page 63) provides descriptive statistics for path model variables. For interval data, the means, range and standard deviations are presented; frequencies are provided for the three categorical variables. Additionally, for the scaled measure variables the number of items, composite score range and Cronbach's alpha levels are displayed. Table 3.8 (page 64) provides a correlation matrix of the data.
### Table 3.7: Descriptive Statistics for Proposed Path Model Measures

<table>
<thead>
<tr>
<th>Interval Variables</th>
<th>Cronbach's Alpha</th>
<th>Composite Score Range</th>
<th>Mean</th>
<th>Range</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration of tobacco Reduction activities (14 items)</td>
<td>α = .90</td>
<td>14-56</td>
<td>32.35</td>
<td>14-56</td>
<td>8.16</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional (4 items)</td>
<td>α = .69</td>
<td>4-16</td>
<td>12.69</td>
<td>6-16</td>
<td>2.17</td>
</tr>
<tr>
<td>Ability (3 items)</td>
<td>α = .65</td>
<td>3-12</td>
<td>8.28</td>
<td>3-12</td>
<td>2.20</td>
</tr>
<tr>
<td>Patient concern (4 items)</td>
<td>α = .69</td>
<td>4-16</td>
<td>8.59</td>
<td>4-14</td>
<td>2.36</td>
</tr>
<tr>
<td>Health issues (4 items)</td>
<td>α = .62</td>
<td>4-16</td>
<td>5.96</td>
<td>4-15</td>
<td>1.76</td>
</tr>
<tr>
<td>Role Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role attitude (6 items)</td>
<td>α = .68</td>
<td>6-24</td>
<td>17.61</td>
<td>11-24</td>
<td>2.86</td>
</tr>
<tr>
<td>Workplace Climate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of colleagues' tobacco reduction activities (3 items)</td>
<td>α = .53</td>
<td>3-12</td>
<td>7.83</td>
<td>3-12</td>
<td>1.57</td>
</tr>
<tr>
<td>Perception of organization resources (12 items)</td>
<td>α = .78</td>
<td>0-15</td>
<td>5.34</td>
<td>0-14</td>
<td>3.20</td>
</tr>
<tr>
<td>Co-worker cohesion (5 items)</td>
<td>α = .52</td>
<td>5-20</td>
<td>14.61</td>
<td>8-20</td>
<td>1.93</td>
</tr>
<tr>
<td>Supervisor support (5 items)</td>
<td>α = .75</td>
<td>5-20</td>
<td>13.03</td>
<td>6-20</td>
<td>2.55</td>
</tr>
<tr>
<td>Management control (4 items)</td>
<td>α = .55</td>
<td>4-16</td>
<td>9.23</td>
<td>5-15</td>
<td>1.51</td>
</tr>
<tr>
<td>Innovation (7 items)</td>
<td>α = .85</td>
<td>7-28</td>
<td>16.76</td>
<td>7-25</td>
<td>3.33</td>
</tr>
<tr>
<td>Individual Characteristics</td>
<td></td>
<td></td>
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<tr>
<td>Age</td>
<td>n/a</td>
<td>n/a</td>
<td>40.32</td>
<td>22-64</td>
<td>10.44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Categorical Variables</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking status</td>
<td>Never smoker 53.3%</td>
</tr>
<tr>
<td></td>
<td>Former smoker 29.4%</td>
</tr>
<tr>
<td></td>
<td>Current smoker 17.3%</td>
</tr>
<tr>
<td>Education</td>
<td>Diploma 77%</td>
</tr>
<tr>
<td></td>
<td>Degree 23%</td>
</tr>
<tr>
<td>Hospital site</td>
<td>Site A 47%</td>
</tr>
<tr>
<td></td>
<td>Site B 53%</td>
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</table>
Table 3.8: Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Integration of Tobacco Reduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Perceived Barrier Institution</td>
<td>-0.41**</td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>3. Perceived Barrier Ability</td>
<td>-0.38**</td>
<td>0.35**</td>
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</tr>
<tr>
<td>4. Perceived Barrier Patient concern</td>
<td>-0.40**</td>
<td>0.21**</td>
<td>0.20**</td>
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<td></td>
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<tr>
<td>5. Perceived Barrier Health issues</td>
<td>-0.36**</td>
<td>0.02</td>
<td>0.07</td>
<td>0.27**</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>6. Role Attitude</td>
<td>0.44**</td>
<td>-0.19**</td>
<td>-0.12</td>
<td>-0.37**</td>
<td>-0.37**</td>
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<tr>
<td>7. Perception colleague activity</td>
<td>0.56**</td>
<td>-0.40**</td>
<td>-0.20**</td>
<td>-0.19**</td>
<td>-0.20**</td>
<td>0.22**</td>
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<tr>
<td>8. Perception organ. resource</td>
<td>0.45**</td>
<td>-0.49**</td>
<td>-0.31**</td>
<td>-0.26</td>
<td>-0.05</td>
<td>0.18**</td>
<td>0.39**</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>9. Coworker cohesion</td>
<td>0.12</td>
<td>-0.05</td>
<td>0.06</td>
<td>-0.10</td>
<td>-0.16*</td>
<td>0.20**</td>
<td>0.18*</td>
<td>0.08</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>10. Supervisor support</td>
<td>-0.06</td>
<td>-0.13</td>
<td>0.09</td>
<td>0.14*</td>
<td>0.08</td>
<td>0.09</td>
<td>0.20**</td>
<td>-0.01</td>
<td>0.20**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Managerial control</td>
<td>0.02</td>
<td>-0.19**</td>
<td>0.03</td>
<td>0.10</td>
<td>0.00</td>
<td>0.03</td>
<td>0.07</td>
<td>0.07</td>
<td>0.20**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12. Innovation</td>
<td>0.08</td>
<td>-0.11</td>
<td>0.10</td>
<td>-0.10</td>
<td>0.03</td>
<td>0.13</td>
<td>0.22**</td>
<td>0.06</td>
<td>0.23**</td>
<td>0.33*</td>
<td>-0.02</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13. Age</td>
<td>0.10</td>
<td>-0.07</td>
<td>-0.21**</td>
<td>-0.02</td>
<td>0.13</td>
<td>0.11</td>
<td>-0.02</td>
<td>0.14*</td>
<td>-0.06</td>
<td>0.04</td>
<td>0.01</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Current smoker</td>
<td>-0.06</td>
<td>0.03</td>
<td>-0.22**</td>
<td>0.11</td>
<td>0.13</td>
<td>-0.10</td>
<td>-0.04</td>
<td>0.03</td>
<td>-0.19**</td>
<td>0.07</td>
<td>0.03</td>
<td>-0.09</td>
<td>0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Former smoker</td>
<td>0.10</td>
<td>-0.10</td>
<td>-0.52**</td>
<td>-0.01</td>
<td>0.03</td>
<td>-0.08</td>
<td>0.06</td>
<td>0.07</td>
<td>0.00</td>
<td>-0.16*</td>
<td>-0.09</td>
<td>0.04</td>
<td>0.28**</td>
<td>-0.30**</td>
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</tr>
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<td>16. Degree</td>
<td>-0.02</td>
<td>0.00</td>
<td>0.09</td>
<td>-0.08</td>
<td>-0.07</td>
<td>-0.01</td>
<td>-0.03</td>
<td>-0.05</td>
<td>-0.03</td>
<td>0.04</td>
<td>0.03</td>
<td>0.05</td>
<td>-0.36**</td>
<td>-0.03</td>
<td>-0.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Hospital Site B</td>
<td>0.23**</td>
<td>0.43**</td>
<td>-0.15*</td>
<td>0.14*</td>
<td>0.04</td>
<td>0.02</td>
<td>0.26**</td>
<td>0.71**</td>
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<td>-0.08</td>
<td>0.02</td>
<td>-0.04</td>
<td>0.06</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

Notes: * p < .05; ** p < .001
Analysis

Data analysis was conducted using SPSS version 11.5 and included three phases. The first phase included univariate descriptive analysis to examine the accuracy of the data file, determine the extent of missing data, and identify demographic characteristics. The second phase was to test the proposed path model and to ascertain the path coefficients (standardized beta scores). Multiple regression analysis was conducted for each of the six endogenous variables in the proposed path model (Figure 3.2, page 55). Initially, all hypothesized predictor variables for an endogenous variable were entered into the regression analysis, then non-significant variables (p > .05) were removed and the endogenous variable was regressed again. The one exception for removing a variable that was not significant was the hospital site variable, which was held constant for each of the six endogenous variable regression analyses. The third phase was the calculation of the direct, indirect, and total effect scores for all variables retained in the final path model. These calculations used beta scores from the six multiple regression analysis output.

Results

The list-wise percentage of missing data for constructed variables relevant to test the proposed path model was less than 5%. Therefore, the sample size (n=205) was sufficient to test the hypothesized model (17 variables). According to Knapp (1996), the minimum sample size required is 10 participants for each variable, which would mean 170 participants for the proposed model in this study. Results presented below include participant demographics and path model testing.

Participant Demographics

The age range for the respondents was 22 to 64 years (M=40 years) and almost all were female (95%). Over half (53%) reported never smoking, 30% identified themselves as former smokers, and 17% reported being current smokers. While 68% were living with a partner, 19% reported being single and the rest had experienced a divorce, separation, or death of a partner.
Three quarters were diploma prepared with the remainder having completed a baccalaureate degree in nursing; none had graduate level education. Two thirds had full-time positions, while 22% reported having a part-time position, and 13% were casually employed. Thirty percent of the registered nurses worked on surgical wards, just over half worked on medical wards (cardiac, rehabilitation, or acute medical), and 19% on psychiatry wards. Respondents reported having worked between 1 and 31 years with their current employer, with the average being 10 years. Finally, nurses were asked to report their perception of tobacco use among their patients; in the last month 44% reported that they almost always and 46% reported that they frequently worked with patients who used tobacco.

Bivariate analysis of sample characteristics demonstrated only two significant differences between the study groups. First, Site B nurses were more likely to be partnered and Site A nurses were more likely to be single ($\chi^2(2, n = 212) = 12.089; p < .01$). Second, a difference was found in the perception of tobacco use among patients ($z (n = 212) = -.4201, p < .0001$). Site A nurses reported working with patients who used tobacco almost always 31%, frequently 53%, seldom, 14%, and never 3%; and Site B nurses reported almost always 55%, frequently 40%, seldom 4%, and never 0%.

Path Model Testing

Multiple regression analysis. Statistical testing of the proposed path model consisted of a series of multiple regressions, which included one for each of the six endogenous variables: integration of tobacco reduction activities, the four perceived barriers measures, and role attitude. Tables 3.9-3.14 display the multiple regression analysis results. Highlights about the predictor variables are discussed along with the percentage of variance explained.

Table 3-9 presents regression analysis results concerning the endogenous variable integration of tobacco reduction. Six of the proposed predictors were significant and the seventh predictor variable, hospital site, was not significant but retained because this variable was held
constant in all of the regression analysis to account for any additional differences between study sites. The positive influence of nurses' role attitude accounted for more variance in reported engagement in tobacco reduction activities than any of the four individual perceived barriers. As was expected the influence for each of the perceived barriers was negative. Forty-five percent of the variance in integration of tobacco reduction was explained by these predictors.

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standardized Beta</th>
<th>Unstandardized Co-efficient B</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Site B</td>
<td>.10</td>
<td>1.59</td>
<td>.94</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td>-.20**</td>
<td>-.75</td>
<td>.23</td>
</tr>
<tr>
<td>Ability</td>
<td>-.22***</td>
<td>-.79</td>
<td>.20</td>
</tr>
<tr>
<td>Patient concern</td>
<td>-.17*</td>
<td>-.57</td>
<td>.20</td>
</tr>
<tr>
<td>Health issues</td>
<td>-.19**</td>
<td>-.88</td>
<td>.26</td>
</tr>
<tr>
<td>Role Attitude</td>
<td>.26***</td>
<td>.71</td>
<td>.17</td>
</tr>
</tbody>
</table>

Notes
R² .45
* p < .05; ** p < .001; *** p < .0001

Table 3.10 presents regression analysis results concerning the endogenous variable perceived institutional barriers. Four of the predictor variables were retained in the final regression analysis: hospital site, and three workplace climate variables. This means that three individual characteristics variables (age, education, and smoking status), three general workplace climate variables (innovation, supervisor support, and coworker cohesion), and role attitude were dropped because they did not significantly contribute to the explanation of variance. Perception of organization resources and colleagues' tobacco reduction activities were the key predictors; indicating that perceived presence of tobacco-related resources at work and colleagues engagement in cessation support were predictive of lower perceptions of institutional barriers to using tobacco reduction strategies. Additionally, nurses who reported a higher level of managerial control tended to report lower levels of institutional barriers. Finally, nurses from
Site B reported lower levels of institutional barriers than nurses in Site A. These four predictors explained 32% of the variance in this endogenous variable.

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standardized Beta</th>
<th>Unstandardized Co-efficient B</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Site B</td>
<td>-.18*</td>
<td>-.76</td>
<td>.35</td>
</tr>
<tr>
<td>Workplace Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception: colleague activities</td>
<td>-.24***</td>
<td>-.33</td>
<td>.09</td>
</tr>
<tr>
<td>Perception: organization resources</td>
<td>-.26**</td>
<td>-.18</td>
<td>.06</td>
</tr>
<tr>
<td>Managerial control</td>
<td>-.15*</td>
<td>-.22</td>
<td>.08</td>
</tr>
</tbody>
</table>

Notes
R^2 = .32
* p < .05; ** p < .001; *** p < .0001

Table 3.11 presents regression analysis results concerning the endogenous variable perceived ability. There were four significant variables retained as significant predictors of this endogenous variable: role attitude, perceived organization resources, and smoking status (represented by 2 dummy coded variables). Hospital site was not significant but retained as noted earlier. This means that age, education level, and the other 5 workplace climate variables were dropped from the analysis. Smoking status was the strongest predictor of perceived ability; former smokers reported the highest level of confidence related to providing cessation support. Nurses who perceived the presence of more organization resources and had a positive attitude toward a tobacco reduction role also demonstrated a stronger perception of ability to provide tobacco reduction activities. The five variables impressively accounted for a 57% of the variance in perceived ability.
Table 3.11: Predictors of Perceived Ability Barrier

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standardized Beta</th>
<th>Unstandardized Co-efficient B</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Site B</td>
<td>.07</td>
<td>.30</td>
<td>.29</td>
</tr>
<tr>
<td>Role Attitude</td>
<td>-.12*</td>
<td>-.09</td>
<td>.04</td>
</tr>
<tr>
<td>Workplace Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception:</td>
<td>-.29***</td>
<td>-.20</td>
<td>.05</td>
</tr>
<tr>
<td>organization resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td>-.44***</td>
<td>-2.52</td>
<td>.28</td>
</tr>
<tr>
<td>Former smoker</td>
<td>-.67***</td>
<td>-3.17</td>
<td>.23</td>
</tr>
</tbody>
</table>

Notes
R² .57
* p < .05; ** p < .001; *** p < .0001

Table 3.12 presents regression analysis results concerning the endogenous variable perceived patient concern. The following four variables were retained as significant predictors: role attitude, perceived organization resources, managerial control and supervisor support. All of the individual characteristic variables were dropped along with the workplace climate measures of perceived colleague activity, coworker cohesion, and innovation. Hospital site did not contribute significantly in this multiple regression analysis. The strongest predictor was role attitude; nurses with a positive attitude toward providing cessation support tended to be less concerned about the possibility of negatively influencing relationships with patients and increase patient stress. Nurses who perceived the presence of resources (i.e., policies, tobacco reduction medications, or smoking cessation experts) were, on average, less concerned that addressing tobacco reduction would have a negative influence on patients. The perception of workplace environment steeped in restrictive rules appears related to increased trepidation in engaging in tobacco reduction because of concern for the patient, which was also demonstrated by nurses who reported a presence of stronger supervisory support. These four variables explained 22% of the variance in the endogenous barrier variable of patient concern.
Table 3.12: Predictors of Perceived Patient Concern Barrier

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standardized Beta</th>
<th>Unstandardized Co-efficient B</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Site B</td>
<td>.00</td>
<td>.01</td>
<td>.42</td>
</tr>
<tr>
<td>Role Attitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role attitude</td>
<td>-.35***</td>
<td>-.29</td>
<td>.05</td>
</tr>
<tr>
<td>Workplace Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception</td>
<td>-.20*</td>
<td>-.15</td>
<td>.07</td>
</tr>
<tr>
<td>organization resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managerial control</td>
<td>.12*</td>
<td>.19</td>
<td>.10</td>
</tr>
<tr>
<td>Supervisor support</td>
<td>.17*</td>
<td>.16</td>
<td>.06</td>
</tr>
</tbody>
</table>

Notes

R² .22

* p < .05; ** p < .001; *** p < .0001

Table 3.13 presents regression analysis results concerning the endogenous variable perceived health issues barrier. The following four variables were retained as significant predictors: role attitude, perception of colleague activities, supervisor support and age. Thus, the following variables were dropped: smoking status, education level, perceived organization resources, managerial control, innovation, and coworker cohesion. As well hospital site was not significant but retained as noted earlier. Role attitude was a strong predictor; nurses who reported a more positive attitude concerning their role in tobacco reduction tended to also believe there were health benefits from addressing tobacco use with their patients. Additionally, nurses who thought their colleagues were engaged in tobacco reduction activities reported a stronger belief in the associated health benefits from smoking cessation. Conversely, nurses who perceived stronger supervisory support reported greater perception of barriers related to health issues. Finally, age appears to be related to perception of barriers concerning tobacco-related health issues, younger nurses reported few barriers. These four variables explained 20% of the variance in this endogenous variable.
Table 3.13: Predictors of Perceived Health Issues Barrier

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standardized Beta</th>
<th>Unstandardized Co-efficient B</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Site B</td>
<td>.08</td>
<td>.28</td>
<td>.23</td>
</tr>
<tr>
<td>Role Attitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role attitude</td>
<td>-.37***</td>
<td>-.22</td>
<td>.04</td>
</tr>
<tr>
<td>Workplace Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>colleague activities</td>
<td>-.15*</td>
<td>-.17</td>
<td>.08</td>
</tr>
<tr>
<td>Supervisor support</td>
<td>.15*</td>
<td>.10</td>
<td>.04</td>
</tr>
<tr>
<td>Individual Characteristic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.16*</td>
<td>.03</td>
<td>.01</td>
</tr>
</tbody>
</table>

Notes
\[ R^2 .20 \]
* p < .05; ** p < .001; *** p < .0001

Table 3.14 presents regression analysis results concerning the endogenous variable role attitude. The following five variables were significant contributors to explaining the variance in this endogenous variable: hospital site, perceived colleague activity, perceived organization resources, and the two smoking status dummy coded variables. Therefore, the four general workplace climate measures along with age and education level were dropped from the analysis. The two strongest predictors were perception of organization resources and hospital site. Overall, nurses who perceived the presence of more cessation resources reported a more positive role attitude; however, nurses at Site B (those with more resources) exhibited a less positive role attitude compared to nurses at Site A (those with less resources). Additionally, nurses who tended to think their colleagues were providing cessation support also were inclined to report a more positive attitude toward providing tobacco reduction. Finally, never smokers reported the most positive role attitude, followed by former smokers. Current smokers had a more pessimistic attitude toward a tobacco reduction role. For this endogenous variable only 11% of the variance was explained by the five significant predictors.
Table 3.14: Predictors of Role Attitude

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standardized Beta</th>
<th>Unstandardized Co-efficient B</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Site B</td>
<td>-.22*</td>
<td>-1.24</td>
<td>.53</td>
</tr>
<tr>
<td>Workplace Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception: colleague activities</td>
<td>.17*</td>
<td>.32</td>
<td>.13</td>
</tr>
<tr>
<td>Perception: organization resources</td>
<td>.28**</td>
<td>.25</td>
<td>.09</td>
</tr>
<tr>
<td>Individual Characteristic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td>-.15*</td>
<td>-1.12</td>
<td>.52</td>
</tr>
<tr>
<td>Former smoker</td>
<td>-.14*</td>
<td>-1.90</td>
<td>.43</td>
</tr>
</tbody>
</table>

Notes
R2 .11
* p < .05; ** p < .001; *** p < .0001

Figure 3.3 (page 73) provides a visual depiction of the final path model that includes path coefficients for the predictors of each of the endogenous variables along with the R2 results. Although all workplace climate and individual characteristic measures were not retained in every regression analysis, the hypothesized relationships between perceived barriers, role attitude, and workplace climate appears to have been supported by the data collected in this study. Finally, the individual characteristic of education level and two measures of workplace climate (innovation and coworker cohesion) were not significant predictors in any of the regression analysis and so were dropped from the final path model.
Figure 3.3: Visual Diagram: Final Model and Path Coefficients

Individual Characteristics
1. Age (ag)
2. Current smoker (c)
3. Former smoker (f)

Hospital Site B (hs)

Role Attitude (r)
\( R^2 = .11 \)

Perceived Barriers
1. Institutional (i)
   \( R^2 = .32 \)
2. Ability (a)
   \( R^2 = .57 \)
3. Patient concern (p)
   \( R^2 = .22 \)
4. Health issues (h)
   \( R^2 = .20 \)

Integration of Tobacco Reduction (it)
\( R^2 = .45 \)

Notes: ns (not significant) \( p > .05 \); * \( p < .05 \); ** \( p < .01 \); *** \( p < .0001 \)
Total effects of the predictor variables. Table 3.15 (page 75) displays the direct, indirect, and total effect scores for each variable retained in the path model. The scores reflect a standardized predictive influence on the integration of tobacco reduction. The positive total effect of role attitude on nurses' behavior (.42) was remarkably higher than any of the other variables; twice that of any of the measured perceived barriers. The next strongest predictor of nurses' integration of tobacco reduction activities was perception of organization resource (.27). As expected, the four variables for perceived barriers were negatively related with nurses' integration of cessation support and the total effect scores were similar to one another: ability (-.22), institutional (-.20); health issues (-.19), and patient concern (-.17). Perception of tobacco reduction colleague activities (.15) demonstrated a positive relationship with the nurses' own reported behavior. The former smoker effect (.09), while relatively small, suggests that these nurses were most likely to be engaged in cessation support. The current smoker effect (.03) also reflected a weak positive relationship. Unexpectedly, the total effect from perception of supervisory support reflected a weak negative effect (-.06). The total effect score for age (-.03) suggests that younger nurses were slightly more likely to provide cessation support. Hospital site also demonstrated a minimal unique influence on nurses' reported behavior (.02); Site B nurses reported higher levels of engagement in tobacco reduction activities. Finally, the managerial control total effect score was very low (-.01), suggesting that perceptions of working in an environment steeped in rules was a weak predictor of lower engagement in tobacco reduction.
Table 3.15: Effect Scores for Path Model Predictor Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
<th>Total Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital site</td>
<td>.10</td>
<td>-.08</td>
<td>.02</td>
</tr>
<tr>
<td>Perceived Barrier subscales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td>-.20</td>
<td>n/a</td>
<td>-.20</td>
</tr>
<tr>
<td>Ability</td>
<td>-.22</td>
<td>n/a</td>
<td>-.22</td>
</tr>
<tr>
<td>Patient concern</td>
<td>-.17</td>
<td>n/a</td>
<td>-.17</td>
</tr>
<tr>
<td>Health issues</td>
<td>-.19</td>
<td>n/a</td>
<td>-.19</td>
</tr>
<tr>
<td>Role Attitude scale</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Role attitude</td>
<td>.26</td>
<td>.16</td>
<td>.42</td>
</tr>
<tr>
<td>Workplace Climate scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of colleague</td>
<td>n/a</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>tobacco reduction activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of organization</td>
<td>n/a</td>
<td>.277</td>
<td>.27</td>
</tr>
<tr>
<td>Resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managerial control</td>
<td>n/a</td>
<td>-.01</td>
<td>-.01</td>
</tr>
<tr>
<td>Supervisor support</td>
<td>n/a</td>
<td>-.06</td>
<td>-.06</td>
</tr>
<tr>
<td>Individual Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>n/a</td>
<td>-.03</td>
<td>-.03</td>
</tr>
<tr>
<td>Former smoker</td>
<td>n/a</td>
<td>.09</td>
<td>.09</td>
</tr>
<tr>
<td>Current smoker</td>
<td>n/a</td>
<td>.03</td>
<td>.03</td>
</tr>
</tbody>
</table>

Discussion

This study aimed to enrich our understanding of the mechanisms underlying nurses' uptake of cessation support by testing a proposed path model using survey data from acute care registered nurses working in the Canadian province of British Columbia. Nearly half of the variance in the integration of tobacco reduction interventions (nurses' behavior) was accounted for by attitudes toward a tobacco reduction role and perceptions of barriers to providing support for cessation. Even more noteworthy was the strength of the unique contribution demonstrated by role attitude in explaining the variance in the nurses' behavior. This model also confirmed the importance of considering workplace climate variables in relation to integrating tobacco reduction strategies, particularly perceptions of the availability of organization resources and
colleague tobacco reduction activities. Finally, the re-conceptualization of perceived barriers into four subscales has provided additional insight into associated causal mechanisms.

**Role Attitude**

The findings from this study supplement the growing body of research evidence that suggests clinician attitudes towards providing cessation support behavioral intentions (Borrelli et al., 2001; McCarty et al., 2001; Makni et al., 2002; Puffer & Rashidian, 2004) and that role attitude is predictive of workplace behavior (Parker et al., 2003). Role attitudes are of particular interest because they are potentially modifiable through educational opportunities (Aquilino et al., 2003; Borrelli et al.; Makni et al.; McCarty et al.; McKenna, 2000; Nagle et al., 1999; O'Loughlin et al, 2001; Puffer & Rashidian; Sarna et al., 2000a; Vaughn et al., 2002). Knowledge recommended as essential to influence acute care nurses' tobacco reduction role attitude includes information about health effects associated with tobacco use and strategies for providing cessation support (McCarty et al.). There is evidence that in the United States and Canada nursing educators have not begun to adequately integrate tobacco use and reduction content into their curricula (Chalmers, Seguire & Brown, 2003; Heath, Andrews, Thomas, Kelley & Friedman, 2002; Santas Kraatz, Dudas, Frerichs, Paice & Swenson, 1998). Furthermore, there is minimal evidence of continuing education opportunities available for nurses (Bialous & Sarna, 2004; RNAO, 2003b). It appears that the potential of changing role attitudes related to tobacco reduction through education remains largely untapped.

The findings from this study suggest other strategies may also be effective in influencing role attitudes related to tobacco. Nurses with a higher score on the tobacco-specific workplace climate variables reported a more positive attitude toward providing cessation support; climate measures included both the availability of tobacco reduction resources and perception that colleagues are providing cessation support activities. Availability of tobacco reduction resources has consistently been reported to influence clinicians' attitudes and behavioral intention related to
tobacco reduction (Cooke et al., 1998; McCarty et al., 2001; Puffer & Rashidian, 2004; Vaughn et al., 2002). In addition, the presence of workplace colleague tobacco reduction champions could be useful in shifting nurses' attitudes toward a tobacco reduction role.

Surprisingly, we observed more negative role attitudes among the nurses from Site B (those with access to tobacco reduction resources), compared to those from Site A. Although it is possible that having cessation experts on staff at the hospital reduced expectations for nurses' role in assisting with cessation, an earlier analysis of the data revealed that compared to Site A nurses at Site B reported engaging more frequently in assisting and arranging activities (Schultz et al., in review). Thus, despite relatively less favorable role attitudes for Site B nurses, they reported greater integration of tobacco reduction activities in their practice. This perplexing finding suggests there could be additional factors in the workplace influencing tobacco reduction attitudes.

In this study, current non-smoking nurses (former and never smokers) demonstrated more positive role attitudes, when compared to current smokers. Although drawing conclusions, based on findings from previous studies, about the influence of smoking status as a predictor of attitudes and perceived barriers was difficult, there has been some evidence that suggested former smokers were more engaged and willing to provide cessation support compared to never smokers and current smokers (Cooke et al.; 1998; Sarna et al., 2001). Interestingly, findings from this study demonstrated never smokers had the highest scores on role attitude; yet, the total effects scores of the smoking status variables, concurs that former smokers were most engaged in cessation support.

In summary, the findings of this study support the importance of role attitude and indicate that promising strategies to foster positive role attitudes related to tobacco reduction include the development of educational opportunities (in-service sessions and basic nursing curricula),
provision of workplace tobacco reduction resources, fostering workplace tobacco reduction champions, and supporting cessation efforts of nurses who are current smokers.

**Workplace Climate**

Findings from this study provided further support for the premise that workplace climate factors influence the integration of tobacco reduction activities (Cooke et al., 1998; McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2001; Schultz et al., in review). Not surprisingly, the two tobacco-specific workplace climate variables demonstrated a substantially greater total effect score than the general workplace climate variables. In particular, the perception of available resources for tobacco reduction within the organization was the most influential workplace climate factor predictive of the integration of tobacco reduction strategies and is consistent with previous studies (Cooke et al.; Makni et al., 2002; McCarty et al.; Nagle et al.; Puffer & Rashidian, 2004; Sarna et al.; Vaughn et al., 2002). Organizational commitment to tobacco reduction appears to be one key factor underlying clinician uptake of tobacco reduction activities (Fiore et al., 2000). Recommended system wide resources include: in-service education, nicotine replacement therapies, cessation expertise, reference material for the clinicians and patients, reference to tobacco use and cessation support on all assessment and referral forms, and development of relevant polices and protocols to guide practice (Fiore et al.).

The other tobacco-related workplace climate measure in this study was the perception of colleagues' integration of tobacco reduction activities. Social norms have been conceptualized as one's perception of appropriate or standard behavior (Lewis et al., 2002), and they have been suggested to influence attitudes (McKenna, 2000). Although, research examining nurses' uptake of cessation support strategies, based on the theory of planned behavior, reported no relationship between social norms and nurses' behavioral intentions (McCarty et al., 2001; Puffer & Rashidian, 2004), results from this study indicate differently; social norms had a significant indirect influence on nurses' integration of tobacco reduction strategies.
Despite emerging evidence that workplace climate factors (workplace relationships, degree of innovation, and managerial control) influence clinicians' uptake of cessation support (Cooke et al., 1998) and clinical practice guidelines in general (Carroll, Greenwood, Lynch, Sullivan, Ready & Fitzmaurice, 1997; Estabrooks, 1999; Hutchinson & Johnston, 2004; Varcoe & Hilton, 1995; Vaughn et al., 2002), very weak influences were observed in this study. While supervisor support and managerial control demonstrated limited predictive strength, innovation and co-worker cohesion variables were dropped from the final model because they were not significant contributors. These variables were disappointing in their ability to add to our understanding of causal mechanisms associated with nurses' uptake of tobacco reduction.

**Perceived Barriers**

Reports from descriptive studies suggest that insufficient time, low perception of self-efficacy and perceived lack of patient motivation are important barriers to engagement in tobacco reduction activities (Aquilino et al., 2003; Ellerbeck et al., 2001; Nagle et al., 1999; Sarna et al., 2001). Moreover, reported findings based on regression analysis suggest that low self-efficacy is predictive of low levels of integration of cessation support (Cooke et al., 1998; Makni et al., 2002; McCarty et al., 2001; Puffer & Rashidian, 2004; Vaughn et al., 2002). While findings from this study concur with previous studies, our results also demonstrate that the four barrier aspects assessed in this study (i.e., institutional barriers, barriers related to perceived ability, barriers associated with concern for the patient, and barriers concerning health outcomes related to tobacco use and reduction) contributed relatively equally to the variance in the nurses' self-reported integration of tobacco reduction activities. Thus, addressing any of these barriers should result in similar changes to nurses' engagement in tobacco reduction activities.

**Limitations**

The generalizability of the study findings is limited for a number of reasons. First, the lower response rate from Site A could have resulted in biased results. Although, there was almost
no difference found between the population and sample demographic data, the possibility still 
exists that the participants from Site A are not representative of the population. Second, the data 
used in this study was based on self-report and there was no effort made to confirm reported 
behavior. Thus, actual rates of integration of tobacco reduction strategies might be different than 
rates reported in the research. Third, while the sample size was adequate to test the model, a 
larger sample size would have allowed for model refinement with a randomly selected portion of 
the sample and then confirmation with the rest of the sample. Ultimately, replication of the study 
will enhance the generalizability of the findings.

The implied causation amongst predictor variables retained in the final path model should 
be considered with caution. While path analysis provides statistical evidence about the existence 
of relationships, its ability to provide evidence concerning the direction of influence between 
variables is limited (Pedhazur, 1997). Since the data used in this study were cross-sectional, 
implied causation is based on theory rather than temporal observation. Therefore, the tested 
model is one plausible explanation concerning the relationships amongst the predictor variables. 
Longitudinal studies are required to provide robust support for the implied causal mechanisms.

Conclusion

This is one of the first attempts to develop and test a theoretical model that hypothesizes 
underlying causal mechanisms relevant to understanding nurses' uptake of tobacco reduction 
activities. In this study the importance of role attitude, tobacco-specific workplace climate 
variables, perceived barriers, and smoking status in predicting uptake of tobacco reduction 
activities has been demonstrated. Further testing of this theoretical model would seem warranted 
to provide a strong evidence base to influence practice norms related to providing tobacco 
reduction interventions. Additionally, testing alternative models that include a wider range of 
factors relevant to nursing practice may be useful for theory development as well as the 
evaluation of multi-level models to test for complex causal mechanisms associated with
workplace factors. Influencing nurses' practice norms regarding tobacco reduction ultimately will result in tobacco users having more access to assistance in overcoming their addictive relationship with tobacco.
References


Chapter 4
Profiling the Presence of Tobacco within Acute Care Hospitals:
An Ethnographic Study of Nurses' Workplace

Introduction

In light of evidence linking tobacco use with various physical health issues, health care settings have become increasingly seen as viable contexts in which to implement tobacco control strategies. Smoking bans have been widely introduced within hospital buildings (Nagle, Schofield & Redman, 1996), despite initial compliance issues (Nagle et al., 1996; Sarna, Bialous, Wewers, Sivarajan Froelicher & Danao, 2005; Strobl & Latter, 1994; Tillgren, Jansson, Hoijer & Ullen, 1998) and negative attitudes toward smoking bans (Richardson, 1994; Stillman, Hantula & Swank, 1994; Sarna et al., 2005; Strobl & Latter). With attention turning to the introduction of other tobacco control strategies, there is increasing recognition that acute care nurses, in collaboration with all clinicians, should provide tobacco reduction interventions to patients who smoke (Canadian Nurses Association [CNA], 2001; International Council of Nurses [ICN], 2000; Rice & Stead, 2004; Schultz, 2003; World Health Organization [WHO], 1999). An emerging body of evidence indicates that nurses report a positive attitude toward providing cessation support (Block, Hutton & Johnson, 2000; Nagle, Schofield & Redman, 1999; Sarna, Brown, Lillington, Wewers & Brecht, 2000b; Schultz, Johnson & Bottorff, in review) and believe there is an expectation that they provide tobacco reduction support for patients (McCarty, Hennrikus, Lando & Vessey, 2001; Nagle et al., 1999; Sarna et al., 2000b; Schultz et al.). Yet, the typical practice norm is one of missed opportunities in addressing tobacco use and reduction (Aquilino, Goody & Lowe, 2003; Borrelli, Hecht, Papandonatos, Emmons, Tatewosian & Abrams, 2001; Nagle et al., 1999; Sarna, Brown, Lillington, Rose, Wewers & Brecht, 2000a;

Schultz et al.). Reported difficulties related to the implementation of smoking bans and the difference between what nurses suggest ought to be happening in practice versus what tobacco reduction activities are being provided raises questions about the profile of tobacco within the hospital workplace culture. Investigation of workplace culture through the use of ethnographic research methods, has resulted in an expansion of both the awareness of issues relevant to clinical practice activities (Allen, 2004) and the uptake of research evidence and best practice guidelines (Rycroft-Malone, Harvey, Seers, Kitson, McCormack & Titchen, 2004).

Workplace culture has been conceptualized as an amalgamation of the values, beliefs and assumptions embedded in the institution and clinical practice (McCormick, Kitson, Harvey, Rycroft-Malone, Titchen & Seers, 2002). A sense of the culture can be gleaned from reviewing institutional documents, noting administrative support of practice, listening to employees, and observing clinician practice activities (Wilson, McCormick & Ives, 2005). Given this conceptualization, culture is not a static state with clearly definable boundaries possessed by an organization; rather culture is ever evolving and historically relevant (Rycroft-Malone et al., 2004). A cultural perspective of the workplace provides a means to view the complex web of influences linked to practice decisions. The purpose of this study therefore was to examine acute care nurses' workplace culture, and the points of interface between tobacco and nurses' practice.

**Background Literature: Acute Care Hospitals and Tobacco Control**

During the last several decades tobacco control strategies have been implemented in acute care hospitals. Early steps included banning the sale of tobacco products and restriction of tobacco use to designated areas within hospital buildings, and in some hospitals this was quickly followed by polices that banned smoking throughout hospital buildings (Nagle et al., 1996). Currently, actions are being considered to implement policies declaring hospital buildings and grounds as smoke-free zones (no smoking allowed anywhere on hospital property) (Cowan & Langley, 2004; Nagle et al.). Smoking restrictions on hospital property are supported by
evidence of the health risks associated with the exposure to environmental tobacco smoke and, therefore, are typically viewed as protection measures.

Scientists have investigated effects of smoking bans in acute care settings focusing on compliance, staff attitudes, and effects on staff smoking rates. Compliance has been explored along two dimensions: the compliance of health care organizations legislated to implement policies and people's compliance with smoking only in designated areas. Despite high levels of compliance among hospitals legislated to implement such policies (Lango, Feldman, Kruse, Brownson, Petroski & Hewett, 1998), staff and visitors have been observed to continue to smoke in non-designated areas, even in the presence of no-smoking signs (Nagle et al., 1996; Strobl & Latter, 1994; Tillgren et al., 1998). A series of focus groups with sixty American acute care nurses (former and current smokers) revealed that because of the hectic pace at work nurses found it difficult to find time to go outside to smoke during breaks so some inside rooms were used as unofficial places to smoke (Sarna et al., 2005).

Nurses' attitudes toward tobacco use have also been examined. There is some evidence that nurses demonstrate more sympathy for smokers than doctors and tend to be less supportive of smoking bans (Richardson, 1994; Sarna et al., 2005; Stillman et al., 1994; Strobl & Latter, 1994). Smoking bans create unique challenges for nurses because they regularly deal with patients' requests to smoke and are the main enforcers of policy restrictions (Richardson; Stillman et al.; Strobl & Latter). Furthermore, some nurses have recommended that when hospitals lack administrative support for smoking cessation programs there should be at least one place in the hospital where people can smoke (Sarna et al.).

Staff responses to smoking restrictions in hospitals have varied. While some authors report an overall reduction of hospital employees' tobacco consumption in response to smoking bans (Lango et al., 1998; Nagle et al., 1996), others report both minimal influence on the rate of smoking by staff and compliance issues with staff smoking at hospital entrances (Strobl &
Latter, 1994; Tillgren et al., 1998). In a more recent study, Lango and colleagues (2001) found that hospital employees faced with restrictions demonstrated higher quit rates, and they had less time to smoke, but relapse rates were similar to employees at other hospitals not faced with restrictions. Finally, Sarna and colleagues (2005) reported that while nurses thought smoking bans could be an incentive to stop smoking; they believed cessation efforts could be enhanced if administrators provided support to stop smoking.

A second tobacco control strategy thought plausible for the acute care context is the use of interventions to support tobacco reduction. Meta-analyses of clinical trials demonstrate that providing tobacco reduction interventions in an acute care setting can effectively influence tobacco use (France, Glasgow & Marcus, 2001; Munafo, Rigotti, Lancaster, Stead & Murphy, 2001; Rigotti, Munafo, Murphy & Stead, 2003). It has been suggested that the acute care setting is an important window of opportunity for addressing tobacco use and reduction because patients are faced with physical health issues (likely associated with tobacco use) and regular patterns of tobacco use are altered during a patient's stay in hospital (Fiore et al., 2000; France et al.; Ratner et al., 2004). Others argue that concurrent with the implementation of hospital grounds as smoke-free zones is the need to support tobacco users in abstaining from smoking during their stay in hospital (Cowan & Langley, 2004). Support for the introduction of tobacco reduction interventions in acute care settings is also present in recent policies. For example, the newly ratified WHO's "Framework Convention on Tobacco Control" has identified acute care hospitals as a place where tobacco reduction strategies should be delivered (WHO, 2003, 2005). This evidence supports the claim that tobacco reduction strategies ought to be implemented in acute care settings; however, less evidence exists concerning the details of plausible strategies and the process of implementing them.

One effective tobacco reduction strategy for acute care hospitals includes the provision of relevant resources for clinicians and patients (Fiore et al., 2000; McKee, Gilmore & Novotny,
Smith, Reilly, Houston Miller, Debusk & Barr Taylor, 2002), which could include nicotine replacement medications, practice guidelines, education sessions, in-hospital cessation expertise, and community cessation programs. Indeed findings from several studies suggest that perceived availability of tobacco reduction resources influenced clinician engagement in cessation support (Cooke, Mattick & Campbell, 1998; Schultz & Johnson, in review; Vaughn, Ward, Doebbeling, Uden-Holman, Clarke & Woolson, 2002).

Alternatively, Fiore and colleagues (2000) have suggested that an essential component of a tobacco reduction strategy within health care organizations is the implementation of institution wide documentation systems related to patient tobacco status. Three efficacy studies of systemic documentation of tobacco in acute care settings have reported diverse results. Two separate studies have found that the use of a documented reminder system influenced the rate of clinicians asking about smoking status, their rate of patient referral (to a program available through the study), and their provision of tobacco-related counseling (McDaniel, Kristeller & Hudson, 1999; Robinson, Laurent & Little, 1995). In a more recent study, the use of a "fifth vital sign stamp" increased the rate of asking about smoking status, but did not influence the provision of advice about tobacco reduction, assistance with cessation, or whether clinician made arrangements for follow-up (Piper et al., 2003).

In summary, tobacco control strategies focusing on protection and reduction have begun to be implemented in acute care settings with mixed results. Although several factors influencing the implementation of tobacco control strategies within acute care settings have been identified, our limited understanding of the profile of tobacco within these workplace cultures restricts our ability to effectively address implementation challenges (McCormick et al., 2002).

Study Aim

The research objective was to describe the workplace culture related to tobacco use and reduction in the everyday world of acute care nurses working at two Western Canadian hospitals.
The specific focus of interest was the points where tobacco interfaced with nurses' practice was the focus of interest.

**Method**

This ethnographic study was part of a mixed methods research project that investigated acute care registered nurses' integration of tobacco reduction activities with their patients. Ethnographic approaches investigate a specific group of people in their everyday environment (Roper & Shapira, 2000), with the aim of describing the culture of the group. For this particular study interested in nurses practice and tobacco control, acute care nurses' workplace was the environment explored in order to illuminate both a description of the physical environment where practice occurs and a metaphorical mapping of "the way things are done" in the setting (McCormick et al., 2002, pg. 97). Ethical approval for the research project was obtained from the University of British Columbia Behavioral Research Ethics Board and from each of the study hospital ethical review boards.

**Study Sites**

Two acute care hospitals in the Canadian province of British Columbia (BC) were chosen for this study because of their potential to demonstrate differences in workplace cultures specific to tobacco. The hospitals were of similar size but situated in the two provincial regions with the largest difference in population tobacco use rates. One site was a 260 bed hospital situated in the region with a population smoking rate of 31.2% and the other was a 294 bed hospital situated in the region with a population smoking rate of 19.6% (Ipso Reid, 2003). All adult in-patient nursing wards, except maternity, at both sites were part of this study; a total of 16 acute care hospital wards. The wards included: 2 psychiatric wards, 4 surgery wards, 1 intensive care ward, 1 cardiac care ward, 1 orthopedic ward, 1 neurology ward, 2 rehabilitation medicine wards, and 4 medical wards.
Researcher

The first author was the researcher, who completed the field work, was a registered nurse with considerable years of experience working in an acute care setting and was herself an ex-smoker. These points were articulated on study announcement posters to familiarize potential participants with the researcher to enhance participation in the study. The researcher's familiarity and direct experience with acute care settings enhanced her credibility with the nurses and supported entry into the field. Moreover, prior to data collection she had not worked in either of the study sites and so was an outsider in these settings. This position allowed her to maintain a degree of distance to observe these settings.

Data Collection

Approximately 135 hours were spent in the field observing ward activities, conducting unstructured conversations with nurses, collecting documents, and conducting two 3-4 hour periods of field work on each of the sixteen wards. The times on the wards varied to enhance the possibility of nurses being available to talk with the researcher; times were chosen in collaboration with ward managers and ranged from late morning to late evening. Several study notices were posted on each nursing ward at least two weeks prior to the researcher being on the ward. The purpose of the researcher visits was clearly articulated and it was emphasized that study participation was voluntary. The observation field work was mainly completed within the central nursing station on the ward. The researcher did not shadow the nurses while they provided direct patient care. Rather, field work observations included paying attention to conversations (among various clinicians, and those between nurses and patients at the nursing station), observing signs on the ward related to tobacco use and smoking restrictions, and noting evidence of tobacco reduction resources. Documents collected include: admission forms, various patient care forms (e.g., care maps), referral forms, and various patient reference materials. The researcher also observed and photographed the designated smoking areas and main entrances to
the hospital. Unstructured conversations were conducted on the ward in a location chosen by the
nurse participants and generally lasted between 10-30 minutes. Each conversation began with the
researcher posing a question like, "Think of everything you would do for a patient during a shift
(pause) and now when I say tobacco what do you think of?" The researcher jotted down notes
from these conversations, which were later typed into an electronic file. Informed consent was
obtained from all participants that agreed to talk with the researcher. In total 114 conversations
were conducted: 85 with registered nurses and 29 with other clinicians.

Analysis

Ethnographic analysis is a non-linear inductive process that includes coding, sorting,
theorizing, and reflecting upon the analytic process (Roper & Shapira, 2000). In this study the
data set included field notes, documents, hand-recorded conversations, and photographs of
designated smoking areas. All textual data along with memos concerning collected documents
and photographs were entered into electronic files using Microsoft Word; no qualitative data
analysis software was used to complete the data analysis. Initial stages of analysis included
several reviews of the entire data set to gain a sense of the presence of tobacco and to begin
identification of key ideas. A constant comparative approach was used to initiate
conceptualization. Once key concepts were identified that described the profile of tobacco in
these workplace cultures, then the data set was coded. This initial coding was followed by further
review of the data, reflection on the initial conceptualization, and eventual refinement of the
concepts used to describe the presence of tobacco in these study settings. During this analytic
process data from each hospital site were uniquely distinguishable; this supported identifying
commonalities and difference between sites. While this analysis process was essentially
completed by the first author, research advisors provided guidance with the analytic process.
Results

The findings from this study illuminate the complexities that surround tobacco in the everyday world of acute care nurses. The section opens with a brief overview of prominent broad tobacco control issues and health care system issues present in the study settings. Following this section five themes are identified, which illustrate key points concerning the profile of tobacco in the two acute care hospitals investigated in this ethnographic study. The themes are grouped into two categories: tobacco control in the clinical setting (two themes), and nurses' theorizing about patient's tobacco use and nursing practice (three themes).

The Study Scene

The two study sites were situated in the Canadian province of BC, a region with established tobacco control strategies (Steering Committee of the National Strategy to Reduce Tobacco Use in Canada, 1999), and where tobacco use and control messages are publicly advertised (e.g., cigarette package labeling, billboard and television ads relay information about the health effects of tobacco use and cessation tips). In BC, youth prevention, cessation support, and protection from tobacco smoke in public spaces have been the primary tobacco control strategies supported by the provincial government (BC Ministry of Health Services, 2005a). Additionally, the provincial government has been pursuing legal action against the tobacco industry in an attempt to recover costs for treating tobacco-related health conditions (BC, Ministry of Health Services, 2005b). Tobacco control strategies in acute care settings in this province have primarily focused on banning the sale of tobacco products on site and established smoking restrictions. Some nurses talked about the changes over the last twenty years related to smoking at the hospital. They recalled the blue haze of tobacco smoke being present everywhere in the hospital (including the nurses' station), which was contrasted to the current smoke-free work environment that has been a result of indoor smoking bans. Although indoor smoking bans
has been the provincial norm, support for the implementation of tobacco reduction interventions in acute care setting has not been consistent in provincial hospitals.

During any shift worked by the nurses in study settings, they would have encountered patients who were long-time smokers. Findings, from the survey conducting with these nurses, suggest that most nurses reported "frequently" to "almost always" caring for smokers during every shift worked (response rate 58%; n = 213) (Schultz et al., in review). Although patient care records were not accessed as part of this research, field observations revealed that the patients on the wards appeared to be middle-aged and older, which seems to be a plausible observation because the wards included in this study were adult inpatient wards (e.g., surgery, medicine, intensive care, and psychiatry). Since people generally begin smoking in their teens, most middle-aged smokers come with a smoking history that spans decades, which means nicotine dependence would be an important factor underlying their continued use of tobacco.

Two prominent health care system characteristics were noted at the study sites; high workload demands and diminished relationships with administration. The nurses' average age was 41 years, at least half worked full-time and the majority had been employed at the study hospitals for over 8 years (Schultz et al., in review). The nurses spoke about the increasingly busy pace of work on their wards and field observations reflected this perception. For example, on some wards field observations were conducted very late in the evening, which was when nurses had some availability to have a brief conversation. High acuity was thought to be the primary reason for the pace and increased workload, which was partially a result of shorter patient hospital stays. As well nurses agreed that even though patient acuity levels were higher, staff ratios had not changed to match the increased workload. Furthermore, the workload situation led to reflections about how it has changed the nurses' work patterns. The nurses indicated that their practice tended to be focused on assessments, physical treatments, and medications, which indirectly implied that time available to spend with patients and their
families to teach or address needs beyond the immediate physical ones had diminished. Nurses also spoke about changes in administration within the hospital and the larger health care system, which led into stories about a decreased sense of support from and loss of open communication with management.

_Tobacco Control in the Clinical Setting_

While the implementation of tobacco control strategies in acute care settings seems logical, a closer examination of efforts to integrate protection and reduction strategies reveal the complex presence that tobacco use and control assume in these clinical settings. Moreover, in comparison to the conspicuous evidence related to the implementation of protection strategies at the study sites, indications of tobacco reduction strategies mainly occurred through noticing the absence of evidence rather than discovering tangible confirmation of implementation of this strategy. The inconspicuous nature of tobacco reduction reflected a systemic devaluing of addressing patients' tobacco use and cessation. This stark difference between the apparent protection strategies and absent tobacco reduction strategies was intriguing given the emerging interest in addressing tobacco reduction in acute care.

_The conspicuous signs of tobacco control: Protection in the clinical setting._ Tobacco use by staff, patients and visitors was shaped by protection practices within the study settings. Since both hospitals had implemented smoking bans, smoking was relegated to outside designated smoking areas. Evidence related to compliance with smoking bans provides an initial sense of the complexity tobacco use brings to clinical settings. At each of the sites there were apparent differences with designated smoking areas and issues related to smoking at hospital entrances.

Smoking bans were identifiable through hospital policies, no-smoking signs and, occasionally, ward information pamphlets. Despite efforts to locate smoking in designated outside areas away from hospital entrances, and the fact that entrances at both study hospitals were adorned with multiple no-smoking signs, there was plenty of evidence that smoking
occurred adjacent to these signs. One example includes a pail situated by a hospital entrance within the no-smoking zone that was a place where people frequently gathered as the pail was an ad hoc ashtray. On one field visit a young boy was observed looking into the shiny metal pail situated by one of the no-smoking signs; he immediately described the cigarette butts in the pail as "yucky."

In both hospital sites smoking bans required patients to leave their ward if they wanted to smoke a cigarette. Outside designated smoking areas had containers available for cigarette butts, provided shelter from weather (to varying degrees), and places to sit. The designated smoking areas for each study site had evolved over time. At one site, the patients' designated areas were on specific outdoor patios on each of the six hospital floors (an equal number of patios were designated non-smoking). Nurses explained that the patios became designated smoking areas because of complaints to hospital administration about sick people smoking and, at times, vomiting in front of hospital entrances in full public view. So while patients who smoked were provided a less public space on the patios, there was no change in hospital administration policy to reflect the new designated smoking areas. The other study hospital had very recently made changes to designated smoking areas for patients. Prior to this change a private indoor designated smoking room was available for patients, but access to this room ceased as a strategy to inhibit the spread of a virus between wards (closure was documented by hospital memo). As a result of this closure, patients who smoked had to go outside the hospital and technically away from the hospital entrances. However, there was an alternative area where patients began to smoke. Even though the patient designated smoking area was closed, the staff designated smoking area remained open. This area was an enclosed room that was accessed from outside of the building. Nurses revealed, with some animosity, that this area was now shared by staff, visitors, and patients; an unauthorized change that was not openly addressed.
Evidence of the integration of tobacco reduction strategies was sought by reviewing various types of the collected data: availability of tobacco reduction resources (policies, protocols, and observations), patient care documents, field observations on the nursing wards, and nurses' reflections in conversation with the researcher. Comparisons between the study hospitals revealed some interesting observations. The study sites were selected because of similarity in bed size and differences in smoking rates amongst the community population. Interestingly, there was an equally striking difference in the availability of tobacco reduction resources between the institutions. The hospital servicing the community with the higher population smoking rate had ready access to tobacco reduction resources (e.g., nicotine replacement therapy [patch and gum], in-hospital cessation expertise, and a community cessation program that included in-hospital visits). At this site the emergence of the community cessation program included unofficial links with key hospital pharmacists, and prompted the inclusion of nicotine replacement therapies (NRTs) in the hospital pharmacy formulary. Similar links, however, had not been forged between the community cessation program developers and hospital administration. Consequently, there were no documented hospital policies or protocols regarding tobacco reduction interventions. The other hospital study site had virtually no access to tobacco reduction resources: NRTs were not on the formulary, there were no known cessation resources to access (in-hospital or community) and there were no policies or protocols to guide tobacco reduction interventions. The availability of resources at the one study site was the most tangible evidence of an attempt to integration tobacco reduction interventions.

Despite the fact that admission nursing history forms at both hospital sites included a question about smoking status, a review of patient-related documents revealed several notable absences concerning tobacco use and reduction. First, additional patient care documents, such as care plans and various patient care charting forms, did not address tobacco use or reduction. For
example, on forms that provided a timeline of expected care and health outcomes for patients with respiratory conditions there was no reference made to tobacco use. Nurses explained that smoking status assessed on admission was very rarely transcribed onto other patient care documentation. Second, patient care referral forms for specific health services (e.g., cardiac home follow-up care, diabetic clinic, chemical dependence, rehabilitation care, geriatric follow-up and home oxygen) did not consistently include information on smoking status even when this was available. For example, while cardiac home follow-up forms included a question about tobacco use, the home oxygen forms did not request any information about tobacco use. Third, efforts to locate patient education materials on each ward revealed limited availability of cessation resources and an inadequacy of information that addressed tobacco reduction. For example, of the sixteen wards included in the study, one ward had a single copy of the provincial smokers-helpline pamphlet (a free service available to all smokers). Wards that admitted patients with cardiac, cerebravascular, and respiratory health conditions tended to have other patient education materials that at least mentioned tobacco use. These materials commonly provided information about associated health risks of smoking and the suggestion that "now would be a good time to stop smoking." Rarely were strategies about how to stop smoking included in these materials and there was even less information about how to deal with slips or relapse. Nurses mentioned they generally did not rely on the patient education materials that were available on their wards.

During the 135 hours spent on the wards in the central nursing station, few interactions between nurses and patients related to tobacco were observed, which seems surprising since these nurses regularly cared for patients who smoke. Observations suggested that interactions tended to involve either: a) nurses negotiating times for nursing care with patients based on when the patient would "be out for a smoke" or, b) activities concerning patients' need for NRTs (e.g., requesting an order for NRT for a patient and changing a patient's nicotine patch). In two
situations it appeared that the nurses lacked familiarity with the use of NRTs and withdrawal symptoms. In one situation, the researcher's presence appeared to cue the use of the nicotine patch for a patient and in the other the nurse decided a patient "did not really want" to have the nicotine patch because he fell asleep before she could administer one (over an hour later). Both of these patients, due to their health conditions, were not allowed to leave the ward to smoke.

Finally, reflections shared by the nurses revealed two interesting findings concerning their perspectives about tobacco reduction. First, there were differences in how nurses talked about tobacco reduction. In comparison to nurses who were aware of available tobacco reduction resources, nurses who lacked access to or who were unaware of available resources tended to be pessimistic or nonchalant about providing cessation support. At the site with no tobacco reduction resources, nurses suggested that patients and doctors should be responsible for addressing cessation. One nurse explained: "Nurses have no time and no resources; so, even though we tell patients they cannot smoke here, we have nothing to offer to support not smoking." At the site with tobacco reduction resources, some nurses were unaware of the cessation counselors in their hospital and demonstrated limited understanding about the use of the nicotine patch; they also indicated that not much was done to address tobacco use. The second noteworthy finding was reflected by the nurses who were aware of resources and engaged in addressing tobacco use. These nurses mentioned they did not "push" or "nag" a patient to quit, but they encouraged patients to try the nicotine patch and to talk to a cessation counselor. They also pointed to the benefits of being able to call on a skilled cessation counselor to work with patients interested in cessation. Even though these actions were taken, the nurses claimed that smoking cessation was not addressed on their ward; rather they offered patients options to support not smoking during hospitalization.
Nurses' Theorizing about Patients' Tobacco Use and Their Practice

Nurses reflected on their patients' tobacco use and how it permeated their workplace and practice. Three themes were identified that depict nurses' theories about patients' tobacco use and they capture the following observations. First, while tobacco use is easily framed as a physical health priority, the nurses provided a different perspective on why tobacco use becomes an issue in acute care hospital settings. Second, the nurses described several burdens that tobacco use has for their practice. Finally, although nurses were aware of various physical health consequences associated with tobacco use, their awareness of nicotine dependence as an important factor influencing patient experiences or nursing care was less apparent.

*Tobacco: Not a front line issue.* Nurses commonly noted that tobacco use was "not a front-line issue." Underlying this statement was the belief that there were more important health care priorities for patients in acute care (e.g., immediate post-operative care or treating an acute psychiatric crisis). Additionally, since the average hospital stay is brief, addressing lifestyle issues was not necessarily seen as a realistic goal in an acute care setting, rather the nurses suggested that lifestyle issues should be addressed once the patient is stabilized and at home. This framing of tobacco, as a non-issue in these nurses' practice, is reflected in a comment by one psychiatric nurse: "Tobacco is not talked about on this ward, patients are offered the patch and if they refuse, then they simply go out to smoke." Another nurse working on a surgical ward stated: "Tobacco use is a secondary issue, so not much time is spent on cessation. The effects are long term and people are not willing to talk about it."

There were two situations described by participants when tobacco use became an issue for nurses and patients; both revolved around the reality that patients had to leave the ward to smoke. Underlying the explanations about when tobacco use became a priority were hints about the subliminal awareness of addiction issues related to tobacco use. Nurses explained that tobacco use became an issue they needed to deal with only when irritated patients who wanted to
go out for a smoke but were unable to leave the ward. One nurse explained that tobacco use only became a "priority" for nurses "if the patient is in our face" about wanting to smoke. Another nurse also reflected on how smoking bans and patients' requests to smoke influenced her work:

I think of tobacco and I think trouble because once a patient is awake they are asking to go out for a smoke and I say no and they ask again. The patient can become very agitated, but really this story was worse before we began giving nicotine patches (nicotine patches had only been available on the hospital formulary for a few years). The patients are easier to deal with now. Before we sedated patients with ativan, and now I rarely give ativan to smokers because of cravings.

The need to smoke was constructed as a relational problem related to managing irritable or stressed patients.

The second situation where tobacco use became a priority revolved around patients leaving the floor to "have a smoke." The nurses admitted, sort of jokingly, that they "liked" smokers because they "get up and move," versus non-smokers who stay in bed longer. While post-operative activity is encouraged, the nurses worried that leaving the ward to have a cigarette might place new post-operative patients at risk because of light headedness, possible vomiting or "passing out" after smoking a cigarette. When post-operative patients insisted on leaving the ward for a cigarette, the nurses ensured they left in a wheelchair and provided them with an emesis basin. Cardiac nurses were particularly concerned that smoking would affect their patient's fragile cardiac health condition. When these nurses were unsuccessful at convincing patients not to go outside for a smoke, they explained that they had nitroglycerin (a heart medication for angina) ready for the patient upon their return to the ward. While the nurses preferred patients to abstain from smoking while in hospital, they appeared to be inadequately prepared (limited resources and knowledge about nicotine dependence) to support patients in
dealing with nicotine dependence and withdrawal beyond allowing patients (whenever possible) to go outside for a cigarette. Nurses tended to only lament amongst their colleagues about their concern with patients leaving the ward to smoke because they perceived administrators were not interested in these issues.

*The burden of tobacco.* Even though tobacco use was not deemed a front-line issue, it imbued a sense of burden in these clinical settings. The nurses shared ethical dilemmas they experienced associated with their patients' tobacco use, their discomfort with being enforcers of smoking restrictions, the blurring of their professional boundaries, and of watching their patients' health deteriorate in the face of continued smoking. While these burdens invoked a sense of compassion, they also heightened nurses' worry and strained their relationships with patients.

The first burden involved ethical dilemmas associated with patients having to leave the ward to smoke. Many of the nurses considered both the previously mentioned risks associated with leaving the ward to have a cigarette and plausible benefits of smoking for their patients. The nurses described several possible benefits: "if having a smoke will calm the person down, then I would rather the patient have a smoke," "smoking might be the one pleasurable event in the patient's life," and "smoking might be the one avenue a patient can exercise control during their hospital stay." Balancing the risks and benefits of letting patients leave the ward for a cigarette was not easy for nurses. On most wards there was a lack of consensus on whether nurses should accompany patients outside for a smoke, and this created tensions among the nurses, and between patients and nurses. Some nurses were willing to accommodate patients' need to smoke (time permitting), others stated there was no way they would assist a patient in this way, and a third group of nurses were ambivalent. For this third group there was an added dilemma. These nurses' firmly believed that smoking was harmful to the health of their patients; yet, they questioned their professional obligation to meet their patient's need to smoke.
A second burden involved the nurses' role as an enforcer of tobacco restrictions. The nurses relayed several stories of patients smoking in undesignated areas, which at the extreme included descriptions of two recent situations that led to small fires. Nurses responded to these interactions by confiscating and locking-up the patient's cigarettes in the nurses' desk area. They justified this action on the basis that the patient exposed others to environmental tobacco smoke, and created a substantial risk of fire, as well as the added risk of smoking near oxygen outlets. Once cigarettes were confiscated, patients were required to request cigarettes from the nurses and would be given only one at a time. Moreover, on wards secured at night (e.g., psychiatric wards), nurses admitted to searching patients and their rooms to ensure there were no cigarettes or lighters available to the patient. Enforcement of smoking restrictions created additional work for nurses and placed them in an uncomfortable policing role.

A third burden was related to situations where professional boundaries were challenged, which were described by nurses who were current smokers. One nurse recounted that at the beginning of a 12 hour night shift a patient began asking him for a cigarette, at which time he flatly said no. By the end of the night shift the nurse relented and gave the patient a cigarette. He told me that he regretted this action because his relationship with the patient had changed; he realized this action crossed a professional boundary. Another challenging situation occurred when patients and staff shared common smoking areas. Nurses talked about feeling uncomfortable going on a cigarette break and having their patient there smoking. As one nurse explained:

We are down there on our break and it is not a break if the patients are there. I cannot talk because I do not want the patients to know about my life. When people smoke together there is a different level of conversation that can occur and this puts both the nurses and patients in an awkward position.
Others mentioned that since going for a coffee or meal break with a patient is "inappropriate" professional behavior, they should not be expected to share smoking breaks with their patients.

A fourth burden was reflected in nurses' voiced frustrations about caring for patients with deteriorating physical health conditions associated with continued tobacco use. Despite recognizing the need to support smoking cessation they saw themselves as unable to intervene. For example, one nurse noted that her patient with early signs of chronic pulmonary obstructive disease was administered ventolin to ease breathing difficulties while no one offered support for cessation. Another nurses said:

Tobacco is a leading cause of cancer. We see people when they have received a recent diagnosis and it is a crying shame that we do nothing. But how can we? I mean if doctors are not addressing this; what are we to do? This really needs to be addressed.

*Subliminal territory: Addiction and tobacco use.* In these clinical settings the physical health risks associated with tobacco use was clearly evident in nurses' reflections and various documents; however, equally evident was the unobtrusiveness of addiction issues associated with tobacco use. The nurses did not explicitly describe patients who smoked as either addicted to nicotine or as experiencing withdrawal symptoms during their hospital stay. Furthermore, there appeared to be little appreciation of how people dependent on nicotine experience withdrawal or how the stress associated with illness and hospitalization might influence the need to smoke.

Further evidence that the addictive nature of tobacco use was somewhat subliminal in these clinical settings was evident in nurses' attempts to rationalize how and why people continue to smoke when faced with deteriorating physical health. Several nurses admitted they "do not get" how people can continue to smoke, with all that is known about various physical health risks associated with smoking; especially, once the patient's own health was affected. The nurses' reflections included comments on whether they viewed smoking as an addiction, a habit, or a
personal choice. When smoking was seen as an addiction, the nurses acknowledged having compassion for patients who smoke. When smoking was framed as a habit, a different conversation unfolded. One feature was an attempt to rationally understand the habit of smoking by comparing it with other habits. For example, some nurses compared smoking to a habit like eating chocolate. Alternatively, some nurses considered the habit of smoking as a stress reliever, and subsequently wondered why people did not simply use other techniques to relieve stress. More importantly, the framing of tobacco use as a habit was commonly linked to the notion that smoking was a personal choice along with the view that adults "should take responsibility" for their health. Accordingly, these nurses thought smokers should make the decision to break the habit to enhance their health and decrease their use of health care resources. In referring to smokers who were having repeated vascular surgeries, some nurses suggested such surgery was a waste of valuable health care dollars and bed usage by people who continue to "harm" themselves. Some nurses who viewed tobacco use as a habit or personal choice seemed to have limited compassion for patients who smoke which likely influenced their ability to address tobacco use with patients who smoke.

Discussion

The findings from this study portray a vivid profile of tobacco use and control in two acute care settings, providing a unique look at contextual features that influence both nurses' practice activities related to tobacco use, and the implementation of tobacco reduction and protection strategies. While the findings offer possible keys to overcome implementation challenges and influence the uptake of tobacco reduction practices, they must be reviewed in light of study limitations.

The study focused on only two hospitals; thus, generalizing the findings to all acute care settings is not possible. Additionally, while the number of hours in the field and the number of conversations with nurses created a rich data set for analysis, in-depth probing with the nurses
may have provided additional insights into the issues addressed. Finally, this first attempt at profiling tobacco use and control in acute care settings has successfully generated unique evidence relevant to tobacco control in these settings, but replication of this study in other settings would broaden our understanding of tobacco within this workplace culture.

The study findings indicate that strong institutional support for smoking restrictions has not been expanded to include other tobacco control initiatives evident by the notable absence of cues for addressing tobacco use and reduction in these two study settings. One striking absence was noted in the limited attention directed toward tobacco use in patient care documents with only one exception. When a cue to record tobacco use was present, on admission forms, nurses responded by assessing smoking status. Several researchers have demonstrated the importance of including questions on forms to remind clinicians to address tobacco reduction (McDaniel et al., 1999; Piper et al., 2003; Robinson et al., 1995) and it has been suggested that an institution wide documentation system related to tobacco use and reduction is an effective way to support clinician uptake of cessation support (Fiore et al., 2000). Additionally, the involvement of nurses in tobacco reduction activities was less than optimal. At best nurses suggested they offered patients options to tobacco use and, at the opposite extreme, abdicated responsibility for addressing a patient's tobacco use. Nurses' reflections about tobacco-related patient care differed in expected ways depending on accessibility and awareness of tobacco reduction resources. These findings concur with previous reports that perceived availability of tobacco reduction resources influences clinicians' uptake of cessation support (Cooke et al., 1998; Schultz & Johnson, in review; Vaughn et al., 2002); additionally, findings from this study suggest that accessibility and awareness of resources influence willingness to take responsibility of initiating engagement in tobacco reduction with patients. Finally, a notable lack of smoking cessation information was found in patient education materials used in the study sites. This absence is
another example of lost opportunities for engaging patients in tobacco reduction. Ultimately, these absences reflect a systemic devaluing of tobacco reduction.

Although nurses in this study clearly demonstrated knowledge of health consequences related to tobacco use, parallel knowledge about nicotine dependence was subliminal. Previous research suggests that nurses are aware that tobacco use can be framed as a physical health priority (Nagle et al., 1999; Sarna, et al., 2000b; Schultz et al., in review). While it is possible that if probed these nurses might have acknowledged that patients were experiencing nicotine withdrawal symptoms, it is poignant that when left to their own reflections they did not talk directly about nicotine dependence. In tobacco control communities, it is readily acknowledged that tobacco is a highly addictive substance and for the majority of smokers tobacco use is not a matter of choice (WHO, 2000). Additionally, it is generally accepted that stopping smoking at any point will result in immediate and long-term physical health benefits, that tobacco users should receive support with cessation, and that many smokers will experience several failed attempts at stopping before eventually overcoming their addiction to tobacco use (WHO). Given this understanding the framing of tobacco use as primarily a habit or choice reflected in nurses' reflections and the lack of tobacco specific patient education material, is perplexing. Framing tobacco use as a health issue that includes addiction (nicotine dependence) could effectively influence how tobacco use is addressed by: broadening the knowledge base about tobacco issues and providing the language to appropriately diagnosis and treat withdrawal symptoms (rather than simply identifying the patient as irritable and demanding), increasing awareness and utilization of possible tobacco reduction resources, and alleviating confusion about patient's apparent counterintuitive behavior of continued smoking. Ultimately, framing tobacco use as both a physical health concern and an addiction issue could alleviate the confusion about the addictive nature of tobacco use, resolve related nurse-patient relationship strain, and possibly
evoke compassion for patients who continue to smoke when faced with deteriorating physical health.

The findings of this study support the claim that nurses are the enforcers of smoking bans and that this policing role influences their attitudes towards smoking restrictions (Richardson, 1994; Stillman et al., 1994; Strobl & Latter, 1994). However, this study also revealed evidence about ethical dilemmas that permeate nurses' practice related to situations arising because of smoking bans. Other authors have noted that ethical dilemmas tend to be present in acute care nurses' workplaces (Carper, 1978/1999; Kalvemark, Hoglund, Hansson, Westerholm & Arnetz, 2004; Skott, 2003; Varcoe, Rodney & McCormick, 2003), and that dilemmas arise out of situations of ambiguity related to practice decisions or outcomes. At times these situations may require choosing between several possibilities based on conflicting and competing ethical principles (Carper; Kalvemark et al.). The findings from this study demonstrate this complexity and ambiguity surrounding tobacco use and nurses' practice. While nurses are responsible for enforcing smoking bans, they are also accountable for promoting health, and required to respect a patient's choice and promote autonomy (Registered Nurses Association of British Columbia, 2004). As noted earlier how nurses respond to this dilemma might differ depending on their awareness of tobacco use as an addiction and their accessibility to tobacco reduction resources. Adequate support (knowledge and resources) for addressing nicotine dependence and tobacco reduction may decrease the ambiguity and increase the possibilities for patients to receive assistance in dealing with nicotine withdrawal (in situations where tobacco use is restricted) and with reduction.

**Conclusion**

This study broadens our understanding of complexities found when implementing tobacco control in these clinical settings, as well as nurses' negative experiences and attitudes towards smoking bans, which at times encompasses those patient's who smoke. To overcome
challenges to implementing tobacco control strategies in acute care settings efforts should be directed towards emphasizing the value of addressing tobacco reduction, which could be partially realized through changing patient care documentation systems; increasing awareness and acknowledgement of addiction issues related to tobacco use and nicotine dependence; and providing appropriate resources for nurses to address patients' addiction to tobacco use. Moreover, it is evident from this study that health care settings could benefit from perceiving tobacco use as a health priority that includes concerns related to physical health concerns and additions issues.
References


The findings from this dissertation provide a timely contribution relevant to tobacco control and in particular the emerging interest in tobacco reduction strategies. During the latter half of the 20th century evidence linking tobacco use with various physical health effects matured, which led to the reporting of tobacco-related mortality and morbidity rates and new horizons for tobacco control (World Health Organization [WHO], 2005a). One emerging example concerning tobacco reduction strategy is the directive for all health care professionals, in particular nurses, to integrate tobacco reduction interventions into their daily practice (Canadian Nurses Association [CNA], 2001a, 2001b; International Council of Nurses [ICN], 2000; Rice & Stead, 2004; Schultz, 2003; WHO, 1999). The WHO's newly ratified convention framework for tobacco control supports this challenge for acute care clinicians' practice by suggesting that tobacco reduction support be offered to hospitalized smokers (WHO, 2003, 2005b). Additionally, some acute care institutions have begun to adopt policies that designate hospital grounds as 'smoke-free' zones (Cowan & Langley, 2004), which subsequently influence the practice of the clinicians working in those acute care settings. Interestingly, recent research suggests that nurses tend to agree that tobacco use needs to be addressed and that they could play a role in supporting cessation efforts, but the reported practice norm for most nurses has been that of missed opportunities (Aquilino, Goody & Lowe, 2003; Borrelli, Hecht, Papandonatos, Emmons, Tatewosian & Abrams, 2001; McCarty, Hennrikus, Lando & Vessey, 2001; Nagle, Schofield & Redman., 1999; Sarna, Brown, Lillington, Rose, Wewers & Brecht, 2000a; Sarna, Brown, Lillington, Wewers & Brecht, 2000b; Schultz, Johnson & Bottorff, in review). If there is a collective vision that smokers require support to overcome their addictive relationship with tobacco products (Sarna, 1999; WHO, 2000) then as we move into the 21st century the challenge
we face will be the creation of an impetus for changing clinician practice, so that tobacco
reduction activities become a standard part of practice (Rice & Stead, 2004).

This study followed the lead of earlier descriptive work concerning acute care nurses'
practice and tobacco reduction (McCarty et al., 2001; Nagle et al, 1999; Sarna et al., 2000a,
2001b; Sarna, Wewers, Brown, Lillington & Brecht, 2001) by employing a mixed methods
design. Survey data resulted in descriptions of nurses' practice and tobacco reduction (Chapter
2), and contributed to testing a path model to explain variations in nurses' integration of tobacco
reduction activities into their practice (Chapter 3). An ethnographic investigation in the two acute
care workplace sites revealed a profile of tobacco in clinical settings (Chapter 4). This final
chapter brings the research project to a close. It begins with a brief discussion of benefits and
challenges to conducting a mixed methods research project, which is followed by a presentation
of integrated findings from the three individual studies into a multi-dimensional behavioral
system. The chapter finishes with a discussion of future research and practical directions.

Benefits and Challenges of Mixed Methods Designs

This dissertation ventured into the domain of mixed methods designs, which like any
research design brings benefits and challenges to the investigation. The benefits and challenges
of two areas related to the design of this research project are discussed: 1) the process of
knowledge generation, and 2) the process of data collection.

A mixed methods design supports the use of both an inductive and deductive process of
knowledge generation. While both of these processes are widely accepted methods of knowledge
creation (Creswell, 2003; Tashakkori & Teddlie, 1998), the uniqueness of this concurrent mixed
methods design is that both were used to collect data from the same sources and at the same
time. Each method provided the opportunity to take multiple stances to investigate the research
issue and subsequent findings can synergistically generate evidence concerning the research
issue. However, since only two study sites were include in the project, generalizability of
findings is limited and because collected data were cross sectional, causation can only be theoretically implied. Another challenge that a sole researcher faces in conducting a mixed method project is that each method is steeped in different philosophical positions and requires diverse sets of rigor to ensure sound processes have been employed. As mixed methods research has matured the acceptance that a sole researcher can rigorously complete both methods is shifting to acknowledge that embarking on such a project is thought to be challenging but not insurmountable.

The influence that the two data collection procedures had on each other became important. For example, the survey response rate was likely influenced by the concurrent collection of the qualitative data. The ethnographic data collection required my presence on the wards, which gave me an opportunity to address questions that potential participants had about the underlying motives driving the survey. The most popular areas of conversation were inquiries about whether I was working with or for hospital management, my previous experiences as a nurse (working in acute care), and my history as a smoker. Additionally, I was able to dispel myths concerning the study. For example, at one study site, nurses on several of the wards assumed the study was only for nurses who were smokers. At the same time, I was careful to not answer questions posed about content in the survey.

The Final Research Step: Integrating the Findings

The central research issue, acute care registered nurses' uptake of tobacco reduction activities, focused on workplace behavior, which was conceptualized as a function of various influences situated within a nested multi-dimensional behavioral system (see Figure 1.1, page 13). This system, based on an ecological approach to behavior, was identified in Chapter 1 as having three dimensions: micro, meso, and marco (Sallis & Owen, 1997). A concurrent mixed methods design (Creswell, 2003; Tashakkori & Teddlie, 1998, 2003), which included four
research objectives, was used to address this conceptualization of workplace behavior. Figure 1.2 (page 16) provides a visual diagram of the research design.

This chapter addresses the fourth research objective of integrating the quantitative and qualitative findings into the multi-dimensional behavioral system that framed the research project. Findings discussed in Chapter 2-4 were reviewed and each was identified as an influence situated in a micro, meso, or macro dimension. Mapping the findings into a multi-dimensional behavioral system provides an opportunity to view these various influences as a whole, which collectively comprise the complex context surrounding nurses' practice and tobacco reduction. The results from integrating the findings are presented both through narrative description and a diagram. A brief definition along with identification of relevant findings is provided for each of the three dimensions. Figure 5.1 (page 119) provides a visual depiction of the nested nature of the influences identified in the multi-dimensional behavioral system of influences surrounding nurses' practice relevant to tobacco reduction activities.

Micro Dimension

Influences in the intra-personal dimension represent features that individuals bring to the environment (workplace) relevant to the behavior (nurses' practice and tobacco reduction). Nurses' age and smoking status were two demographic influences that played an important role in the behavioral system in this dimension. Findings suggest that younger nurses were slightly more likely to be engaged in addressing patients' tobacco use. Former smokers, in comparison to never and current smokers, were most likely to address tobacco use issues with their patients. The nurses' attitude toward a tobacco reduction role was also found to be an influence on their uptake of tobacco reduction activities. Finally, three motivators/barriers were identified as micro dimension influences: the nurses' sense of their ability to address tobacco use, perception of their knowledge about associated physical health risks and addiction issues, and their level of trepidation in addressing tobacco reduction because such actions could strain professional
Figure 5.1: Multi-dimensional Behavior System
Influences surrounding nurses' practice related to tobacco reduction

**Micro Dimension Influences**
Intra-personal environment
- Nurses' age
- Nurses' smoking status
- Nurses' role attitude
- Nurses' knowledge about
  - physical health risks
  - addiction health issues
- Nurses' ability to address tobacco use and cessation
- Nurses' sense of trepidation to address patients' tobacco use

**Meso Dimension Influences**
Inter-personal environment
- Nurses' perceptions related to administrators
  - expectations concerning patients' use of tobacco
  - management style
- Nurses' perceptions related to tobacco reduction within the workplace
  - availability of resources
  - colleagues' engagement in tobacco reduction (practice norms)
- Nurses' perceptions related to patients' use of tobacco
  - tobacco use as a priority
  - burdens
  - addiction, habit, or personal choice

**Macro Dimension Influences**
Extra-personal (social contextual) environment
- Tobacco control strategies implemented
  - nationally and provincially
  - institutionally: has implementation been operationalized and resourced systemically
- Framing of tobacco use: health risk factor (personal/environmental tobacco smoke), addiction issues, & chronic disease
- Rate and patterns of tobacco use amongst patients and staff
- Expectations regarding workload and provision of health care treatments
relationships or increase the patient's stress. The findings identified in this dimension mainly
were derived from testing the path model; however, qualitative findings have both verified and
extended the quantitative findings. Findings from both data sets suggest that the nurses' attitude
toward providing tobacco reduction interventions influenced their approach to addressing
tobacco use. Additionally, while the quantitative findings suggest that the nurses' believed they
lack adequate knowledge related to tobacco use and reduction, the qualitative findings deepened
our understanding about a gap in knowledge concerning tobacco related addiction issues in these
nurses' practice and their workplace context.

Meso Dimension

The inter-personal dimension focuses on individuals' perceptions of their social
environment relevant to the nurses' practice. Three perceived aspects of the workplace climate
have been identified as meso dimension influences. One aspect was the nurses' perceptions
concerning administrators' expectations and management style. From testing the path model,
findings suggest that nurses who thought administrators expected them to address patients'
tobacco use were more likely to report providing tobacco reduction activities. As well, nurses
who perceived their relationships with administrators as controlling were more likely to report
that addressing tobacco use was part of their practice. Another meso dimension aspect involved
the perceived tobacco reduction workplace climate, which included measures concerning the
nurses' perceived availability of tobacco reduction resources and perception of their colleagues'
engagement in tobacco reduction activities (practice norms). Again through testing the path
model results demonstrated that nurses who perceived a stronger tobacco reduction workplace
climate were more likely to be engaged in providing cessation support and had a more positive
attitude towards this role. Interestingly, findings from the ethnographic study supported the
findings that an awareness of tobacco reduction resources influenced both willingness to address
tobacco use and attitudes toward this role. The last meso level influence encompasses three
ethnographic findings concerning the nurses' perceptions of patients' tobacco use that appear to prohibit nurses from addressing tobacco use with their patients; these findings extend our understanding of workplace climate features affecting nurses' practice and tobacco reduction. Perceptions that patients' tobacco use was not a priority, the pervasive sense of burden that patients' tobacco use brought to the nurses' practice, and the lack of clarity demonstrated by some nurses about why patients continued to smoke (i.e., addiction, habit, or choice); all reinforced a lack of engagement in tobacco reduction.

*Macro Dimension*

The extra-personal dimension covers a vast array of workplace influences beyond those brought either by or through each individual. Generally these influences relate to organizational practices and structures, political will, and public discourses, which collectively make up the contextual backdrop affecting the possibilities of how an individual will behave. The majority of influences discussed in the four macro level aspects were findings derived from the ethnographic study, with a couple of noted exceptions.

One contextual backdrop influencing the nurses' practice were the tobacco control strategies implemented at the study hospital sites and those identified at a national or provincial level. The particulars of implemented tobacco control strategies reveal the political will for addressing tobacco use issues present in the everyday world of nurses. While the provincial and national agenda discusses a four pronged approach to addressing tobacco use, the study settings have primarily only adopted protection strategies. Thus tobacco related organizational practices revealed in the study settings have focused on addressing tobacco use as a physical health risk and the requirement of minimizing exposure to tobacco smoke, which has subsequently shaped nurses' knowledge, perception of tobacco use issues, and their related practice activities.

A second area that portrays the contextual backdrop can be gleaned from collective discourses related to tobacco use and control. As noted above the implementation of protection
strategies is based on a framing of tobacco use as a physical health issue along with the goal of minimizing people's exposure to tobacco smoke. An unintended consequence, noted in the ethnographic study, was that tobacco use only became an issue for the nurses when faced with irritable patients who were unable to smoke. While framing tobacco use as a physical health issue is important, of equal relevance is questioning why tobacco use is not also framed as an addiction issue. That is, if tobacco as a health issue clearly portrayed both the physical and addictive aspects, might nurses' framing of tobacco as a priority be different along with subsequent actions taken to address the patient's needs.

A third area of influence noted was the rate and patterns of tobacco use amongst patients being cared for in these workplaces. Survey findings revealed that the nurses in these clinical settings believed they regularly cared for patients who were tobacco users, which could be affecting the perceived expectation that they ought to engage in tobacco reduction activities. Furthermore, the pattern of tobacco use amongst these patients was shaped by hospital tobacco control policies and subsequently influencing nurses' experiences with patients' tobacco use. For example, the restriction of tobacco use to designated areas has created several situations where nurses were required to confiscate cigarettes from difficult patients and in some cases search the patient's room as a means of enforcing smoking restrictions. Alternatively, nurses spoke about dilemmas concerning patients who left the nursing ward to smoke.

A fourth area of influence moves beyond tobacco specific features and considers the current expectations upon nurses' practice in their workplace. The ethnographic findings suggested a quickening pace and increased workload on the nursing wards, which has heightened a sense of limited time and diminished possibility for providing the 'extra care' such as addressing tobacco use (survey results verified this perception of limited time for providing tobacco reduction activities). The perception that addressing tobacco use constitutes 'extra care'
is in contrast with the 'common practice' activities, which included activities that address acute care physical needs (assessments and treatments) and the distribution of medications.

Summary

This presentation of the integrated findings, from the quantitative and qualitative studies, into the multi-dimensional behavioral system reveals the complexity of influences surrounding nurses' practice and tobacco reduction activities. Diagram 5.1 provides a visual reminder that these multiple dimensions of influence are nested and dynamic in nature, which means a change to any one influence, could affect influences in other dimensions as well those in the same dimension. A limitation of an ecological perspective approach to studying behavior, which underlies the multi-dimensional behavior system, is its inability to inform the directional nature of relationships amongst the identified influences. While the organizational behavioral theory (Parker et al., 2003) used to develop the tested path model in Chapter 3 provides guidance related to meso and micro dimension influences, theories that address both individual and environmental levels of measurement are required to address relationships with the macro level influences (multi-level models). Further model development and testing related to nursing practice and tobacco reduction is required to deepen our understanding of plausible causal mechanisms concerning the identified influences. Nevertheless, this last research step, of integrating the findings from the three studies, emphasizes the importance of moving beyond a focus on individual clinicians as a means to change practice. While clinicians are important agents of change, they are one component interfacing with a broader dimension of influences that also effect practice. If clinicians' practice is to shift to include tobacco reduction activities as a standard of practice, then health care systems and institutions also need to be challenged to systemically operationalize tobacco reduction strategies.
Future Research Directions

This dissertation provides the first description of Canadian acute care registered nurses' practice, attitudes, and beliefs concerning tobacco use and reduction. Beyond this useful contribution, it also marked the first testing of a theoretical path model that hypothesized causal mechanisms of nurses' uptake of tobacco reduction activities. Furthermore, the ethnographic study brought to light new ideas concerning nurses' knowledge of nicotine dependence, their attitudes towards patients who use tobacco, their experiences related to protection strategies, and the presence of systemic devaluing of tobacco reduction in their clinical settings. Each of these new ideas could inform further research projects and future model development.

Six directions have been identified for future research. First, a semi-structured interview guide could be developed based on the ethnographic findings, which could then be used to tease out additional aspects related to the profile of tobacco, patients' tobacco use, and tobacco control in acute care settings. Second, an additional area to explore with nurses would be links between their practice decisions concerning patient's tobacco use and the presence of tobacco in their personal world (i.e., their history of tobacco use and that of family and friends), which could be investigated through either qualitative or quantitative methods. Third, the path model tested in Chapter 3 demonstrated utility in explaining the variance in nurses' uptake of tobacco reduction activities, and therefore, warrants replication and re-testing. Fourth, it is equally important to remember this is one model and that there could be benefits realized from additional model development. In particular, the development and testing of multi-level models could strengthen our understanding of the influence that various workplace context features have on nurses' uptake of tobacco reduction. Fifth, implementation of tobacco reduction strategies in acute care is emerging, which means we will witness new developments related to policy, protocol, resources, and practice. It would be useful to monitor these developments along with related changes in nurses' engagement in tobacco reduction. The evidence generated from such
monitoring might be useful in supporting changes related to other practice issues. Sixth, a systematic review of available education opportunities related to tobacco use and control, both for student nurses (curriculum) and practicing nursing (in-services), could provide valuable evidence to shift nurses' practice through increasing their knowledge and skills.

Practical Directions

The growing interest in enhancing the delivery of tobacco reduction interventions along with reported statistics concerning tobacco-related morbidity and mortality has resulted in acute care settings being identified as a viable context to implement tobacco reduction strategies and increased expectation that clinicians, in particular nurses, address tobacco use with their patients (CNA, 2001a, 2001b; ICN, 2000; Rice & Stead, 2004; Schultz, 2003; Schultz & Bottorff, in review; University of Ottawa Heart Institute, 2005; WHO, 1999, 2005b). The findings from this dissertation demonstrated an absence of evidence related to tobacco reduction in the study settings and also provided valuable insight concerning development and implementation of tobacco reduction strategies. While practice guidelines can inform the development of tobacco reduction strategies, consideration of the workplace context also provide valuable insight relevant to the development and implementation of effective strategies (McCormick, Kitson, Harvey, Rycroft-Malone, Titchen & Seers, 2002; Rycroft-Malone, Harvey, Seers, Kitson, McCormack & Titchen, 2004).

Underlying the identification of suggested practical directions are beliefs related to patients' tobacco use during hospitalization and nurses' practice in acute care settings, which were gleaned from the study sites. First, findings suggest that patients' tobacco use was inconsistently addressed, both in that provision of tobacco reduction interventions and the appropriate care of nicotine withdrawal symptoms. Second, nurses' are faced with increasing workload demands. Thereby, while nurses' agreed that tobacco use is an important issue that needs to be addressed, they reported insufficient time to address patients' tobacco use, they faced
several burdens related to patients' tobacco use, they were inadequately prepared to address patients' tobacco use and reduction (i.e., resources, knowledge, and skills), and their reported practice activities beyond assessment of smoking status were minimal. Development of effective tobacco reduction strategies for acute care settings should aim to move nurses' practice beyond the assessment of smoking status. Appropriate patient care should include both defined tobacco reduction activities and appropriate care to relieve nicotine withdrawal symptoms. Achievement of these measurable outcomes would be supported through employment of the suggested practical directions and the reframing of the health issues linked to tobacco use.

Directions for Nurses

Although nurses' have been identified as having an integral role to play in tobacco reduction, this valuable resource currently is untapped. Two directions relevant for nurses and their practice concerning tobacco reduction have been identified. The first outlines a baseline standard for nurses practice related to addressing patients' tobacco use and the second concerns nurses who currently smoke.

A baseline standard of care for acute care nurses' practice could include: assessing the patients' smoking status and readiness to stop smoking, advising the patient to stop smoking, appropriately addressing nicotine withdrawal symptoms, and making referrals to cessation experts or programs for additional support (in-hospital cessation expert and/or community-based program). A baseline standard outlines the minimum expectation for nurses to provide to all patients who smoke. These five actions would assure that all patients were asked about their tobacco use, were provided the message that stopping smoking would benefit their physical health, and were offered additional support related to cessation efforts. Moreover, hospitalized patients would receive appropriate care to address their physical needs related to nicotine withdrawal symptoms; a valuable experience that could support future quit attempts. This standard of care could be provided quickly, decrease role ambiguity for nurses, and lesson the
burden nurses experience when caring for nicotine dependent patients. Finally, this baseline standard for practice is focused on providing a message about stopping smoking and addressing nicotine withdrawal symptoms, rather than ‘making’ people stop smoking, which might influence nurses’ willingness to integrate the baseline standard activities.

A second pivotal direction related to shifting nurses’ practice involves supporting nurses who currently smoke to quit. Evidence from this study demonstrated that former smokers were more likely to address tobacco use and reduction with their patients who smoke. As well, since nurses’ perception of colleagues’ engagement in tobacco reduction shaped practice decisions related to providing tobacco reduction activities, an increase in former smokers might result in changes to the standard of practice. Finally, provision of cessation support for nurses would deliver a clear message concerning tobacco use and addiction, which could subsequently shape related collective discourses about tobacco use.

Directions for Education

A common strategy suggested to support nurses’ integration of tobacco reduction interventions into practice has been the development of educational avenues for nurses in practice (Aquilino et al., 2003; Borrelli et al., 2001; McCarty et al., 2001; Nagle et al., 1999; Puffer & Rashidian, 2004; Sarna et al., 2000a) and changes to basic nursing education curricula (Baron-Epel, Josephsohn & Ehrenfeld, 2004; Chalmers, Seguire & Brown, 2003; Clark, McCann, Rowe & Lazenbatt, 2004; Heath, Andrews, Thomas, Kelley & Friedman, 2002; Hornberger & Edwards, 2004; Jenkins & Ahijevych, 2003; Registered Nurses Association of Ontario [RNAO], 2003a; Santas Kraatz, Dudas, Frerichs, Paice & Swenson, 1998; Wewers, Kidd, Armbruster & Sarna, 2004). Knowledge essential to support provision of the baseline standard of care outlined above should include: assessment of smoking status and readiness to stop smoking, various health risks associated with smoking (both primary influences on health and those linked with common health care treatments), health benefits associated with stopping,
nicotine dependence, appropriate treatment for nicotine withdrawal, and referral options. While ensuring practicing nurses receive this information will be essential to influence individuals' practice, education of student nurses is another means that could create a critical mass to influence practice norms.

In Canada, no reviews of basic nursing curricula content have been completed; however, studies conducted in the United States demonstrated that nursing curricula provide inconsistent and inadequate knowledge concerning tobacco use and reduction (Heath et al., 2002; Hornberger & Edwards, 2004; Santas Kraatz et al., 1998; Wewers et al., 2004). Recently the RNAO published best practice guidelines for registered nurses (2003b) and has developed an e-learning course related to the guidelines (2003a). Alternatively, findings discussed in Chapter 2 suggested that less formal learning might occur in workplaces with a variety of tobacco reduction resources including in-hospital cessation experts. While some initial education efforts are beginning to emerge, this avenue for influencing practice has remained largely unexplored.

**Directions for Hospital Administrators**

Hospital administrators need to make a committed effort to foster a workplace climate that values the importance of addressing tobacco use, which echoes recommendations made by Fiore and colleagues (2000). Evidence from this dissertation supports previous findings that clinicians' perception of access to tobacco reduction resources in their workplace is a predictor of uptake of cessation support (Cooke, Mattick & Campbell, 1998; McCarty et al., 2001; Nagle et al., 1999; Sarna et al., 2001; Vaughn, Ward, Doebbeling, Uden-Holman, Clarke & Woolson, 2002). Furthermore, the descriptive study (Chapter 2) noted that nurses with greater accessibility to tobacco reduction resources were more likely to report providing assistance for cessation, as compared to those from the study site with limited tobacco reduction resources. A system-wide approach to implementing tobacco reduction strategies could include several steps, each of which must be shaped by the premise that tobacco use is a health issue not only because of the
related physical health risks but also because it is an addiction issue. Implementation steps could include: development of tobacco reduction policies and practice protocols, availability of tobacco reduction resources (nicotine replacement therapies and in-service education), review of all patient-related documents, and commitment for supplying human resources to provide cessation expertise (i.e., in-hospital and community based). An absence of any of these steps could result in the presence of a contextual backdrop that is systemically devaluing the importance of addressing tobacco use and reduction.

Previously discussed practical directions have addressed details specific to practice protocols and education. Moreover, ready access to nicotine replacement, by including it on the hospital formulary and the provision of in-hospital cessation expertise are self-evident. However, the tobacco reduction strategy step concerning patient care documents warrants a discussion. Patient care and referral forms should include questions about smoking status and interest in stopping, which would cue clinicians to talk with patients about their tobacco use. Additionally, the limited availability of tobacco reduction specific patient reference materials suggest a gap in communication lines between the study hospitals and tobacco-related community-based services, which needs to be addressed if acute care settings are to become an effective resource for delivering tobacco reduction.

Reframing Tobacco Use Issues: Employing a Wider Lens

Currently, tobacco use is easily framed as a physical health issue because of associated morbidity and mortality rates. This framing supports the development and implementation of protection strategies and is the primary rationale provided for why people should stop smoking. Although, there is also clear evidence concerning addiction issues associated with tobacco use (WHO, 2000), findings from this research project suggest that tobacco use in the study settings was framed primarily as a physical health issue and that awareness of addiction issues existed mainly in subliminal terrain. These findings were noted through the nurses' reflections, content in

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patient reference materials, implemented tobacco control strategies within the hospital sites, and availability of resources to address nicotine dependence. It is worthwhile to consider the possible changes that might result if tobacco use was also consciously framed as an addiction and that this framing informed organizational practices along with education concerning tobacco use and control. If this possibility became a reality, there might be a different political will related to tobacco use issues and thereby, organizational practices. One outcome might be a shift in allocation of resources that support appropriate treatment of patients' physical needs related to nicotine dependence and withdrawal. Subsequently, nurses' experience related to patients who use tobacco would change because they would possess an expanded base of knowledge about health issues related to tobacco use (physical health risks and addiction issues), they would be addressing a patients' tobacco use from a boarder perspective (i.e., beyond making people stop smoking or dealing with nicotine withdrawal by supporting patients to go outside for a cigarette), and they would have more resources available to address patient needs. All of this likely would lesson the current perception of burden related to patient's tobacco use, affect the degree of compassion extended toward patients who smoke, and influence the nurses' willingness to address patients' tobacco use. As we move into the 21st century and witness an evolution in the implementation of tobacco control strategies in acute care settings, hopefully we will also witness an evolution in the care patients' receive related to their tobacco use, nicotine dependence and withdrawal symptoms, and support for cessation efforts.


Appendix A
The literature review prepared for the dissertation proposal has been published


Elsevier granted permission for the article to be reprinted in this dissertation.
Nursing and tobacco reduction: A review of the literature

Introduction

Today, tobacco reduction is identified as one way to address preventable morbidity and mortality. Globally prior to the 20\textsuperscript{th} century, mortality was mainly due to infection, malnutrition, and trauma and the use of tobacco was scarcely associated with any health risks (Sarna, 1999). Currently tobacco use is commonly reported to be a leading cause of preventable mortality and morbidity (World Health Organization (WHO), 2000). Tobacco use contributes to health problems associated with cardiovascular diseases, pulmonary diseases, carcinogenic processes, fetal complications, and increased risks associated with surgical procedures (Chollat-Traquet, 1996; Rigotti et al., 2001; Snowball & Robertson, 1996). In 1998 tobacco-related illnesses worldwide resulted in about 4 million deaths (WHO). Since at this time about one-third of the world’s adult population smoke and youth rates are increasing (WHO), tobacco use will continue to be a primary factor contributing to preventable morbidity and mortality during the 21\textsuperscript{st} century (Sheahan & Wilson, 1996).

Our matured understanding of the health effects associated with tobacco use has lead to the development of a comprehensive package of tobacco control strategies employed by governing and health professional bodies throughout the world. Presently strategies include actions to protect the public from exposure to tobacco smoke, prevent people from starting to use tobacco products and reduce the use of tobacco products (WHO, 2000). Although all strategies are required to address this health issue, health care professionals are particularly well situated to assist with reducing use of tobacco products provision of tobacco dependency treatment; known as tobacco reduction. Over the last few decades tobacco dependency treatment has evolved and recently several countries have published clinical guidelines in an effort to disseminate this knowledge amongst health care professionals (Commonwealth Department of Health and Aged Care, 1999; Fiore et al., 2000; Raw et al., 1998). Furthermore, nurses have been identified as an
instrumental partner in tobacco reduction because they are the largest health professional group, they have extensive exposure to various populations through direct client contact in a diversity of care settings, and nurses are trusted by the public (International Council of Nursing, 1999; Rice & Stead, 2001; WHO, 1999a).

In this paper I review the engagement of nursing governance groups and nurse scholars in tobacco reduction. The purpose of this paper is to set a research agenda to strengthen the profession of nursing’s ability to realize their instrumental role in tobacco reduction. To achieve this purpose there are initially three sections presented. The first section briefly describes tobacco reduction. The second is a portrayal of actions taken by nursing governing groups related to tobacco reduction. The third section is a review of relevant nursing literature. Articles reviewed were obtained through a Medline and CINAHL database search using the keyword combinations of “nursing and tobacco,” “nursing and smoking,” “nurse and tobacco,” and “nurse and smoking.” Since the late 1990s there has been an increase in the development of clinical guidelines relevant to tobacco reduction and nursing governance bodies have began to develop actions to support tobacco reduction within nursing practice. For this reason, the literature search was limited to articles published during the later part of the 1990s. From this search articles that addressed one of the four following areas were included in the review: nurses’ use of tobacco, nurse-delivered hospital-based interventions, practical application of clinical guidelines, and nurses’ engagement in tobacco dependency treatment. Frequently cited articles published prior to this time period were considered to supplement a discussion with pertinent perspectives. Finally, a research agenda is discussed for addressing nursing and tobacco reduction issues.

**Tobacco Reduction**

Today tobacco reduction is suggested to be an important strategy to influence health globally. Tobacco reduction includes the provision of tobacco dependency treatments such as brief advice, behavioral counseling, and pharmaceutical treatment (WHO, 2000). In 1999 the
WHO announced their Tobacco Free Initiative, which focuses on developing a global commitment and galvanization of scientifically sound tobacco reduction strategies (WHO). One strategy identified in this initiative is effective treatment for tobacco dependency. It is noted that addressing tobacco dependency is not easy for either a health care provider or a tobacco user, partially because there is a lack of available treatments (even in developed countries), and even when treatments are available the health care professional or the tobacco user may not be motivated to recommend or use the treatment. Sarna (1999) correctly notes that "continued smoking is much more than a choice, and quitting often requires much more than will power" (p. 23). The WHO strongly urges the employment of effective treatment because tobacco users require support to stop smoking.

The WHO recommends that all governmental bodies make tobacco dependency treatment a health priority and not to let limited resources prohibit support for smoking cessation (WHO, 2000). Long-term and short-term health benefits for the tobacco user and those exposed to tobacco smoke are realized regardless at what point a tobacco user stops smoking (WHO). The WHO encourages all governmental bodies and health professional groups to honor the following strategies: make treatment of tobacco dependency a public health priority, increase availability of proven treatments, support research to develop new treatments, encourage assessment and monitoring of tobacco use, and motivate tobacco users to stop.

Globally health professionals have taken actions to address treatment of tobacco dependency. In the United States (Fiore et al., 2000), Canada (Canadian Nurses Association, 1997), the United Kingdom (Raw et al., 1998; Royal College of Nursing (Britain), 1999), and Australia (Commonwealth Department of Health and Aged Care, 1999) health professional practice guidelines for treating tobacco dependency have been published. These guidelines are based on a synthesis of scientific evidence regarding treatment of tobacco dependency, and assists with dissemination of scientific knowledge concerning treatment. Beyond this useful
action the need to study the uptake and integration of tobacco dependency treatment by health
care practitioners into their daily practices has been identified (France et al., 2001; WHO, 2000).

*Nursing Governing Groups’ Activities*

In 1999 at the International Council of Nurses (ICN) meeting in London the WHO’s Director General, Dr. Gro Harlem Brundtland, was invited to address the congress and emphasize the message that nurses have a prominent role to play in tobacco reduction (WHO, 1999a). The ICN, a federation of national nurses’ associations from 122 countries (ICN, 2000), supports national nursing organizations and works in partnership with other international governing bodies, non-governmental bodies, and health professional associations to address issues currently relevant to nursing (ICN, 1999). In 1999, the ICN revised their position statement concerning tobacco use to encourage nurses to engage in protection, prevention, and reduction strategies both with the public and with nurses who use tobacco (ICN). A preliminary finding from a survey of National Nursing Associations conducted by ICN suggests that most associations are not providing training in smoking cessation methods to nurses (ICN, 2001). One other international health body supporting nurses’ engagement in tobacco reduction is the International Union Against Cancer, who created a Fact Sheet called “Enhancing the Nurses’ Role in Tobacco Control” (1996). These actions by international nursing organizations provide the visionary foundation to support developing and sustaining nurses’ involvement in tobacco reduction.

Nationally there are pockets of documented support for nurses’ engagement in tobacco reduction. In Britain, the Royal College of Nursing published educational materials for nurses entitled “Clearing the air: A nurses’ guide to smoking and tobacco control” (1999). The Canadian Nurses Association (CNA) published an educational document called “Working with Canadians affected by tobacco” (1997), issued a joint statement called “Tobacco: The role of health professionals in smoking cessation” (2001a) and, in June 2001, presented a policy
statement concerning the importance of tobacco reduction as a high priority health issue in Canada (CNA, 2001b). In the United States, the American Nurses Association’s (ANA) position statement encourages all nurses to assist tobacco users with cessation efforts during every point of contact (ANA, 1995). Finally, the Australian Royal College of Nursing position statement (1999) addresses concerns of both passive and active exposure to tobacco products and encourages members of the college to become active in several strategies to promote the health of their community by affecting the use of tobacco products and exposure to tobacco smoke.

Beyond the development of position statements and policies, nursing organizations in other countries are involved in tobacco-related actions. For example the Irish Nurses Organization (INO) recently announced the launching of the Research Institute for the Support of a Tobacco Free Society (funded by the Ministry of Health), to support nursing tobacco research (INO, 2002). In Hong Kong, a recent study showed that nurses were interested in providing tobacco reduction care. This study resulted in the development of a smoking cessation hotline, smoking cessation health center, and the development of smoking cessation educational material to support nurses in providing cessation care (Chan, 2000). The Japan Nursing Association recently made a commitment to support tobacco reduction amongst nurses (WHO, 1999b). Finally, in Europe there is a group of health professionals called “European Nurses & Midwives Against Tobacco” which focuses on tobacco reduction education, building health professional networks actively involved in tobacco reduction and lobbying both the government and tobacco industry with the goal of creating a tobacco-free society (Bergmark Broske et al., 2000). These examples are not meant to be exhaustive but rather provide indication that nurses globally are attempting to support the profession of nursing in being able to actualize their instrumental role in tobacco reduction. Supporting these initiatives is a body of research evidence focused on nursing and tobacco reduction.
Nursing Literature Review

In this fourth section of the paper I review the nursing literature in the following four areas: nurses’ use of tobacco, nurse-delivered hospital-based interventions, application of clinical guidelines and nursing education, and, finally, investigation of nurses’ engagement in tobacco reduction activities.

Nurses’ Use of Tobacco

Globally, tobacco use among nurses and student nurses has been studied for decades (Adriaanse et al., 1991). While currently rates of tobacco use continue to be reported, researchers have also examined reasons for tobacco use and approaches to the ideas treatment of nurses’ tobacco dependency (Chalmers et al., 2000; McKenna et al., 2001; Rowe & McLeod Clarke, 2000a). There are two recent efficacy studies focused on smoking cessation interventions specific for tobacco dependent nurses (Chalmers et al., 2001; Rowe & McLeod Clarke, 1999). In these studies, the authors identified nurses as a special population of tobacco users because of their health knowledge, their position as health educators and their position as health behavior role models. As well, in recent studies researchers have noted that a nurse’s smoking status influences her/his engagement in providing cessation support for patients who use tobacco (Nagle et al., 1996; Sarna et al., 2000a).

Recently reported rates of tobacco use amongst nurses are presented in Table Appendix A.1. Drawing definitive conclusions from these survey results regarding tobacco use by nurses is difficult for several reasons. First, the varying survey response rates limit one’s ability to draw comparisons between studies. Second, lack of clear definitions for smoker, ex-smoker and non-smoker influences the validity of comparative statements. Although definitions for non-smoker (smoked less than 100 cigarettes) and current smoker (smoked more than 100 cigarettes and smokes daily) are usually defined clearly, the distinction for ex-smokers is less clear. This group also defined as having smoked more than 100 cigarettes but the length of abstinence is not
usually clear. Equally unclear is whether this group includes people who smoke occasionally (McKenna et al., 2001). Third, the use of a self-report measure of smoking status has been criticized as producing less than accurate prevalence rates (Adriaanse et al., 1991; Rowe & Macleod-Clarke 2000b). Rowe and Macleod-Clarke encourage such a validation process because of a growing social unacceptability of tobacco use and subsequent possible reluctance to accurately report smoking status especially amongst health professionals.

Researchers studying tobacco use among nurses have reported nurses’ perception about why they smoke and how they approach stopping (Chalmers et al., 2000; McKenna et al., 2001; Rowe & McLeod Clarke, 2000a; Trinkoff & Storr, 1998). In some studies, researchers report that younger nurses have been reported to have begun smoking prior to entering nursing school (Chalmers et al.; McKenna et al.). This is a shift from the pattern of many middle-aged nurses who stated smoking during nursing school (Chalmers et al.). Common reasons for continued tobacco use by nurses include addiction, enjoyment, work pressure/stress, a way to deal with anxiety, a way to take time out, to control weight, and peer pressure (Chalmers et al.; McKenna et al.; Rowe & Macleod Clarke; Trinkof & Storr; Tselebis et al., 2001). Researchers have also investigated nurses’ motivation to stop smoking. There are three key motivations reported: concerns for their health, concern for their family’s health, and role conflict between being a smoker and a health professional (Chalmers et al; McKenna et al). Interestingly, McKenna and colleagues noted that the majority of nurses who smoke stated they would like to stop. Finally, preferences concerning cessation methods were reported: “cold turkey” was the most commonly reported means and the next most common method was tapering down the amount smoked (Chalmers et al.). Other cessation resources less commonly used by nurses included social support, nicotine replacements, self-help materials, hypnosis, acupuncture, counseling and support group programs. Nurses stated that attending a program would be difficult because of conflicts with shift work. Nurses are identified as a population of particular interest in relation to
tobacco use and yet, interestingly nurses' reported reasons for smoking and preferences concerning cessation seem to echo sentiments of tobacco users in the general public (Center for Behavioral Research and Program Evaluation, 1995; Cohen et al., 1989; Fiore et al., 1990; Lichtenstein & Glasgow, 1992; McKenna et al.). As well unexpectedly nurses' reported preferences for cessation methods do not reflect the tobacco dependency guidelines for cessation methods which include social support, behavioral change support, and pharmacological treatments. In summary, further study concerning nurses' use of tobacco products and their perception of the benefits of tobacco use would illuminate how these nurses link knowledge associated with professional position and tobacco use. As well further study concerning support for nurses who want to stop could focus on integration of tobacco dependency treatment guidelines.

Two recent efficacy studies evaluated cessation programs designed specifically for nurses with tobacco dependency (Chalmers et al., 2001; Rowe & Macleod Clark 1999). Chalmers and colleagues' study focused on an eight-week intervention based on “Close-up,” a smoking cessation booklet developed by nurses for nurses (Bramadat et al., 1999). According to these authors the development of the booklet occurred through a study that included a premise of health promotion, stages of change, community development, and participatory action research. The booklet was designed to be used either in an eight-week group program format or in a self-study format. Study group assignment was based on personal preference and accessibility to a group program site. Participants (n=117) were followed for 12 months, with measurement at four times: pre-intervention, post-intervention (8 weeks), 6 months, and 12 months. Findings demonstrated that participants receiving the group-based intervention were smoking less, demonstrated stronger tendencies to want to stop smoking, and had greater confidence in their ability to resist temptation. High attrition rates prevented the authors from drawing conclusions about long-term outcomes. A second study by Rowe and Macleod-Clark evaluated the efficacy
of an individualized smoking cessation intervention based on the Health Belief Model. Participants were nurses who smoked, who expressed a desire to stop smoking and a willingness to participate in the study (n=105). Participants chose to receive either the intervention or not receive the intervention (control group). The intervention consisted of an informal individual discussion focused on assessing, planning and implementing smoking cessation strategies. Discussions were supportive in nature, and ranged from one to one and a half hours, based on individual needs. There was a pre-intervention and post-intervention questionnaire, along with saliva cotinine measurement. The researchers reported a statistically significant difference with higher quit rates among those receiving the intervention at the 12-month follow-up. In summary, findings from these two studies might suggest that group cessation programs influence tobacco use patterns but have limited effect on long-term cessation rates; whereas individualized brief interventions influence long-term rates of tobacco use. However, the lack of randomization and insufficient power limits our ability to attribute these differences to the interventions. Further study with larger sample sizes and randomized group assignments are required.

Inquiry focused on tobacco use among nurses, their reason for smoking, and preferences for cessation is one means of knowledge creation to support nurses’ role in tobacco reduction by increasing our awareness and understanding of this group of nurses and tobacco users. Reporting tobacco use rates is one means to discuss nurses’ behavior, however, this means continues to be associated with methodological limitations; therefore, conclusive statements can only be tentatively drawn. Although researchers have identified nurses as a special population of tobacco users, reported findings concerning nurses’ perception of tobacco use and cessation have not strongly demonstrated unique reasons for tobacco use or cessation. Inquiry focused on nurses’ use of tobacco using a qualitative methodology might reveal knowledge relevant to understanding how nurses who smoke are incorporating both their professional health knowledge as well as their professional position as health behavior role models with their tobacco use. This
research could generate knowledge to illuminate the ways in which nurses are a special population of tobacco users thereby, assisting with development of specific cessation support. In the mean time, further work could be done to ensure nurses have access to proven tobacco dependency treatments. In summary, continued inquiry concerning tobacco use among nurses would support nurses’ role in tobacco reduction by enhancing our understanding of how to support tobacco dependent nurses’ cessation efforts, which could strengthens these nurses’ efficacy in their role as health behavior role models.

*Nurse-delivered Smoking Cessation Interventions*

Efficacy research focused on hospital-based cessation interventions provides evidence to support the role of nurses in tobacco reduction and is of particular interest to the profession of nursing since the majority of nurses are employed by hospitals. As well hospitalization is thought to be an opportune time to deliver cessation advice for two key reasons (Rigotti et al., 1997). First, hospitals commonly have policies that restrict tobacco use, which interrupts a patient’s usual pattern of tobacco use. Second, a state of ill health may result in a person questioning how one has either caused or can affect this state of health. Therefore, if the illness is possibly linked to tobacco use, then hospitalization is time when a smoker could be open to consideration of cessation advice. A précis of ten current nurse-delivered hospital-based cessation intervention studies is presented, which is followed by a summary of findings from current review articles about cessation intervention studies. A recently reported effectiveness study conducted in the United Kingdom is discussed. Finally, findings regarding the efficacy of reminders for nurses to engage in tobacco reduction activities are discussed.

Current efficacy studies focused on nurse-delivered hospital-based interventions are presented in Table Appendix A.2. Studies were included in the table if they were published since 1996, core components of the intervention were delivered by nurses (two studies include brief advice from physician), and the interventions were initiated during hospitalization. In the ten
studies found in the table two the interventions were likely to consist of multiple contacts with a nurse in which cessation advice and relapse prevention information were provided. Additionally, interventions included other forms of information delivery such as self-help material and video. Of the ten studies, six were randomized clinical trials (RCT) of which four suggest that nurse-delivered interventions have a statistically significant effect upon the quit rates (Canga et al., 2000; Houston Miller et al., 1997; Simon et al, 1997; Taylor et al., 1996). Of the two that did not report statistically significant differences one used a sparse contact intervention (5 minute consultation followed by a motivational letter), which might account for the lack of a significant difference between groups (Tonnesen et al., 1996). In the second RCT study reporting no statistical significance, the researchers suggested that the lack of statistically significant differences in smoking rates could be explained by differences in factors present in the participants’ lives (Ratner et al., 2000). Therefore, these authors argue that an intervention might have differential effects, providing benefit for some participants and not for others. For example, breastfeeding patterns, mental health, smoking status of the partner, and previous smoking patterns were found to influence the effectiveness of an intervention for post-partum mothers (Ratner et al., 2000) The other four intervention studies (Haddock & Burrows, 1997; Wewers et al., 1997; Gebauer et al., 1998; Johnson et al., 1999), did not employ RCT designs. Although statistically significant findings were not found consistently (possibly due to small sample sizes), study participants receiving interventions were consistently more likely to stop smoking than participants who did not receive the interventions. Thus, it could be suggested that these studies provide evidence that nurse-delivered interventions are clinically significant (Johnson et al.). Evidence from these ten studies demonstrates that hospital-based interventions delivered by nurses can positively influence the smoking rates among patient who received them.

Several systematic reviews of the literature, which focus on in-hospital programs, have recently been published (France et al, 2001; Munafo et al., 2001; Rice & Stead, 2001). Studies
included in the review articles were published over the last 30 years. Common inclusion criteria used by the reviewers included, a 12-month measure of smoking status and use of an RCT design. These systematic reviews conclude that efficacious inpatient smoking programs have been developed as well as validated, and that the next challenge is to translate these interventions into practice, which may be challenged by the changing nature of hospital settings (France et al.; Rice & Stead). Examples of particularly challenging current changes are shorter hospital stays and workload based patterns for staffing. The provision of brief advice alone is believed to influence decisions about continued tobacco use; however the more time available to focus of cessation interventions, increased number of contacts between client and provider, and greater number of intervention components (brief advice, medications, and counseling about cessation and coping strategies) all positively augment the efficacy of an intervention. As well, the effectiveness of hospital-based interventions is enhanced by post-discharge follow-up (France et al.; Munafo et al.; Rice & Stead). The following list of recommendations related to smoking cessation hospital programs were stated by Tsoh and McClure (1997, p. 15):

1. Smoking cessation treatment should be offered to ALL smokers at EVERY visit.
2. Clinicians should ask and record tobacco use status of every patient.
3. Smoking cessation treatment as brief as 3 minutes is effective.
4. The more intense the treatment, the more effective it is in producing long-term abstinence from tobacco.
5. Nicotine replacement therapy combined with social support and skills training delivered by clinicians are the most effective combination of treatments.
6. Healthcare systems should be modified to identify and intervene routinely with all tobacco users at every visit.

A next step to be considered based on established evidence about the efficacy of an intervention is to conduct effectiveness studies. Such studies would reveal information about the feasibility of integrating an intervention in a clinical setting. In one recently reported effectiveness study conducted in the United Kingdom, which focused on a hospital-based nurse delivered cessation intervention, the researchers found no statistical significance in quit rates.
between intervention and control groups (Hajek et al., 2002). The authors also raised questions about the feasibility of the intervention. This RCT was conducted in 17 hospitals, in which cardiac rehabilitation nurses recruited and randomly assigned eligible patients into a control group (n=266) and an intervention group (n=274). The control group received advice to remain abstinent and a booklet regarding smoking cessation. The intervention group received a carbon monoxide reading, received written cessation material, were given a quiz relevant to received information, the quiz was reviewed with a nurse, were offered the assignment of a buddy (a previous cardiac patient who had quitting smoking), and were invited to declare in a written contract an intent to remain abstinent. A sticker was placed on the intervention group members’ charts to remind nurses to reinforce intervention components. The lack of statistical significance could be due to several methodological problems in the study. First, although the intervention was to be a delivered through multiple sessions this did not occur. Time constraints were the main barrier to nurses delivering all the intervention components. Second, less than 70% of intervention patients signed the contract or were offered the buddy component. Of those who were offered the buddy only 7% accepted the option and then only 4% of these were actually assigned a buddy. Interestingly, the only component that significantly predicted abstinence was having signed a contract. This study demonstrates that a single, information based session with a health care provider did not significantly influence quit rates of cardiac patients and provides some beginning ideas about the feasibility of implementing such interventions in clinical practice settings. However, the authors note that perhaps delivery of interventions needs to be a joint effort between hospital nurses and specialist services in smoking cessation. That is, nurses would initiate tobacco dependency treatment and work in collaboration with specialists who would follow-up within hospital and post-discharge. As well this study did not appear to include a pharmacological component of treatment, which has been proven to enhance abstinence rates.
A recently reported study, which explored the efficacy of providing a reminder for nurses to refer patients to a smoking cessation specialist, demonstrated that making organizational changes could influence nurses’ activities (McDaniel et al., 1999). An A₁-B-A₂ reversal design was used. During time A₁ a memo was posted on the ward for four weeks to remind nurses to refer patients. During time B chart reminders were placed on every patient’s chart for four weeks. Finally, during time A₂ chart reminders were removed and posted memos were replaced for four weeks. The rate at which eligible smokers were referred to smoking cessation specialists was 3.4% at time A₁, 34.6% at time B, and 2.1% at time A₂. This study suggests that development of systematic reminders for nurses will increases the likelihood of initiating cessation treatment.

In summary, nurses have the potential to play an instrumental role in tobacco reduction because they are members of the largest health care provider group, who reach the greatest number of patients for longer periods of time especially those patients who are hospitalized (ICN, 1999; Royal College of Nursing (Britain), 1999; WHO 1999a). Evidence exists that hospital-based cessation interventions can influence tobacco use rates (Canga et al., 2000; France et al, 2001; Houston Miller et al., 1997; Rice & Stead, 2001; Simon et al, 1997; Taylor et al., 1996). Although the more components delivered the greater the efficacy of an intervention, even brief interventions will potentially influence tobacco use patterns. The challenge facing nurses and other health care professionals is determining how to incorporate cessation interventions into daily practice (Rice & Stead). This might be assisted through organizational systemic changes, such as reminder notices on patient charts, to support initiation of cessation interventions. An important next step will be to conduct effectiveness studies on the feasibility of incorporating interventions into daily practice.
Dissemination of Clinical Guidelines through Literature and Basic Nursing Education

A third means for supporting a nursing role in tobacco reduction is the practical application of tobacco dependency treatment clinical guidelines, which have been disseminated through the nursing literature. In 1996 an organization in the United States called the Agency for Health Care Policy Research first published smoking cessation guidelines to assist health care professionals and these guidelines have since been updated (Fiore et al., 2000). As well, the United Kingdom (Raw et al., 1998) and Australia (Commonwealth Department of Health and Aged Care, 1999) have published similar cessation guidelines for health professionals. There are at least two national nursing associations that have published smoking cessation guidelines specific for nurses: the Royal College of Nurses in Britain (1999) and the Canadian Nurses Association (1997). These documents are widely available. As well, a plethora of nurse scholars have published articles to support uptake and integration these guidelines into the everyday practice of nurses. An alternative avenue for dissemination is through inclusion of cessation guidelines into basic nursing education.

Articles focused on disseminating clinical guidelines commonly either apply guidelines to specific populations of tobacco users or address the pertinence of the guidelines to nursing care in general (Cawood & Morrow, 2001; Cole, 2001; Lenaghan, 2000; Montagna & Hupcey, 2000; Sarna, 2000; Wewers et al., 1998). The populations recently addressed include oncology patients (Sarna, 1999), women (Bell & Tingen, 2001), prenatal and postpartum patients (Todd et al., 2001), cardiovascular patients (Cote, 2000), respiratory patients (Lindell & Reinke, 1999; Matthews, 2000), diabetic patients (Spencer, 1997), and psychiatric patients (Cataldo, 2001). The authors of these articles commonly provide physiological and contextual information about the targeted population of smokers. This detail is followed by a description of the application of the guidelines, which typically includes the four or five "A's:" ask if the patient smokes, advise the patient to stop, assess readiness to stop smoking, assist patient in stopping, and the fifth (not
always mentioned) is arrange for follow-up. Some articles include information about the stages of change (Prochaska, DiClemente, & Norcross, 1992), how to assess each stage, and how to advise a patient based on their stage of readiness to stop smoking. Details regarding how to assist a patient in stopping include behavioral counseling and pharmacological treatment. The behavioral counseling component consists of development of cessation and relapse prevention skills, and development of social support to assist with cessation efforts. Pharmacological treatments include nicotine replacement via spray, inhaler, patch, or gum forms, and psychoactive agents. Finally, these articles usually include messages to encourage nurses interested in health promotion to incorporate prevention and cessation aspects of tobacco control into their daily practice in every setting in which care is provided (Lenaghan). The articles concerning guideline use provide a means to educate nurses about current tobacco use trends, related health knowledge, and tobacco dependency treatments.

Consideration of how tobacco dependency treatment is incorporated into basic nursing education programs has begun to be of interest to nurse researchers in the United States. Santas Kraatz and colleagues (1998) conducted a study that included a content analysis of nursing text books and an investigation of the amount of lecture time spent on tobacco issues within 70 nursing programs (response rate of 64%) offered in the United States. A review of nursing text books demonstrated that tobacco issues were addressed through scattered bits of information that did not provide a clear picture of tobacco use effects. Lecture time concerning tobacco use was similarly scattered and lacked cohesive delivery of information about the risk factors or how to treat tobacco dependency. A second study in the United States by Heath et al. (2002) investigated the curriculum of American acute care nurse practitioner programs. A total of 50 programs completed the survey (response rate of 83%). Of these programs, over 70% reported 1 to 3 hours of content related to tobacco dependence during the programs. Seventy-eight percent did not require students to provide smoking cessation counseling and almost all of the programs
did not provide students with the opportunity to be certified as a smoking cessation counselor. Only 40% of the programs reported using the national smoking cessation guidelines within the curriculum. Thus these nursing education programs’ delivery of tobacco dependence treatment is brief and fragmented, which would produce newly graduated nurses having limited knowledge and comprehension about the primary health care issues related to tobacco use. Although these studies are interesting, further study, especially in other countries, would supplement these findings and provide guidance for curriculum development to support newly graduated nurses possessing the knowledge and skills to address tobacco reduction. Increasing the number of nurses who possess both the knowledge and skills to assist people in stopping smoking is one means of changing nurses’ daily practice to integrate tobacco reduction activities.

In summary, today there is an abundance of published information available for nurses that support integration of tobacco reduction into practice. Two recently reported studies conducted in the United States suggest that there has been minimal effort given to ensure that tobacco reduction is taught during basic nursing education. Although providing nurses with this information and integrating tobacco reduction content into nursing student education is important, knowing what nurses are currently doing and what barriers they face is another area of research essential to support the profession of nursing in realizing their instrumental role in tobacco reduction.

Nurses’ Engagement in Tobacco Reduction

The fourth area found within the nursing literature relevant to supporting nurses' instrumental role in tobacco reduction is to understand nurses’ behavior related to tobacco reduction, that is, what supports or impedes this behavior. In the early 1980s, two nurse scientists described nurses’ reluctance to engage in health education actions and specifically to encourage patients to stop smoking (Knopf Elkind 1980; Yuson, 1981). At that time it was noted that nurses desired to be health behavior role models and educators but they felt ill prepared for such roles.
Knopf Elkind noted that to change nurses’ behaviors we must be prepared to provide pertinent knowledge, train nurses in public education skills, and find ways to overcome barriers to action. Today educational material about tobacco use and cessation is available through published clinical cessation guidelines (Royal College of Nursing (Britain), 1999; CNA, 1997; Fiore et al., 2000; Raw et al., 1998; Commonwealth Department of Health and Aged Care, 1999) and while some nursing education now includes health education skills (CNA, 1999), there appears to be limited focused attention on tobacco dependency treatment (Santas Kraatz et al., 1998; Heath et al., 2002). Current research findings echo sentiments of nurses’ reluctance to engage in smoking cessation activities (Nagle et al., 1999; Sarna et al., 2000a). There are three recent studies concerned with nurses’ tobacco reduction behavior. In the United States, Sarna and colleagues surveyed oncology nurses concerning tobacco reduction. Their response rate was 38% (n=1508). Two recently reported studies from Australia included one that surveyed nurses employed by the Central Sydney Health Services area (Hughes & Rissel, 1999) with a response rate of 80% (n=610). In the second study the researchers used both a self-administered survey and face-to-face interviews with hospital-based nurses working within the six largest hospitals in the New South Wales region (Nagle et al.), with a response rate of 98% (n=388). Highlights from these three studies are discussed below.

In their survey of oncology nurses, Sarna and colleagues (2000a) measured socio-demographic, professional demographics (i.e., education, years of nursing, and role), personal network information, institutional characteristics (i.e., type of setting and focus of patient care), smoking status, and perception of barriers to providing tobacco dependency treatment. They reported that 7% of respondents were smokers and, in comparison to non-smokers, significantly fewer of these nurses valued involvement in tobacco control. Respondents with personal experience with tobacco related illness were more likely to support tobacco control activities. Eighty-nine percent of respondents agreed that encouraging patients to stop smoking was
important. Nurses with higher education and in educational or administration positions were more supportive of tobacco control activities. Nurses who perceived greater barriers to tobacco control activities included: younger nurses, smokers, those without a degree, those not working in an administration position and nurses other than nurse practitioners. Barriers reported by at least 50% of the nurses included (by order of prevalence) lack of patient motivation, insufficient time, lack of skills and knowledge, and a desire to avoid stressing the patient (Sarna et al., 2000b).

Hughes and Rissel’s (1999) study focused on smoking rates and attitudes toward smoking of nurses from the central Sydney area. The questionnaire included questions about demographics (personal and professional information), smoking status, and attitudes to three smoking-related situations (passive smoking, nurses as health behavior role models, and policies to limit smoking areas). In this study, 21% of respondents were smokers. The only variable predictive of differences in attitudes to each of the three smoking-related situations was smoking status.

Nagle and colleagues (1999) randomly selected dates to survey hospital wards within a region in the New South Wales area. All nurses scheduled to work on a chosen day were given a survey to complete and were interviewed during that shift. The survey included questions measuring attitudes about smoking, quitting, and provision of smoking cessation activities. The interview measured demographics, smoking history, knowledge of smoking related illnesses, quitting strategies, and referral options. Twenty-two percent of the nurses reported being current smokers. Although knowledge about tobacco related illness was high, knowledge about effective strategies to assist stopping and about referral options was poor. While 60% of nurses indicated that they had supported patients with smoking cessation, this support was limited to those patients who wanted to stop. Only 21% of nurses felt competent to address cessation activities with patients. This study reports no statistically significant difference regarding knowledge and
attitudes to smoking and stopping based on smoking status. Regarding the role of hospital nurses, the majority of respondents thought hospitalization was an opportune time to address cessation. These nurses agreed that patients who smoke should receive information about cessation and that nurses could fulfill a cessation counselor role. However these nurses also thought that nurses were too busy to fulfill this role. Factors thought to facilitate cessation activities in order of importance included patient request, having enough time, availability of in-service training, availability of referral options and follow-up after discharge, presence of smoking history forms, support from other health care professionals and supervisors, and more confidence in skills.

Since we know that nurses’ engagement in tobacco dependency treatment influences tobacco consumption (Rice & Stead, 2001), it would seem logical to investigate the uptake of knowledge about tobacco dependency treatment. Nurses apparently are supportive of the idea of encouraging smokers to stop (Hughes & Rissel 1999; Nagle et al., 1999; Sarna et al., 2000a). Personal factors found to significantly influence nurses’ engagement in smoking cessation activities include: age, education level, smoking status, tobacco-related personal network experiences, knowledge and skills level, and confidence related to cessation activities (Hughes & Rissel; Nagle et al.; Sarna et al.). Two studies reported on the effects of contextual factors such as patient desire to stop and amount of time available (Nagle et al.; Sarna et al., 2000b). Only one study included other organizational factors such as availability of referral options, presence of smoking history forms, or support from other health professionals and supervisors (Nagle et al.). In summary, information about nurses’ actions, knowledge, attitudes and related personal factors are important considerations to support our understanding of their engagement or reluctance to engage in tobacco reduction. However, focusing solely on the individual factors to the exclusion of organizational factors will limit our understanding and ability to support nurses in assisting patients in stopping smoking.
Research Agenda Ideas

Clearly, nursing researchers and policy makers are integral partners within tobacco reduction. While the documented activities by these two groups of nurses are essential in supporting the rest of the nursing profession in addressing tobacco reduction, there are areas to be strengthened. First, as noted by ICN (1999) there needs to be continued assistance provided for tobacco dependent nurses and further investigation into how to support these nurses in stopping. Second, basic nursing education is a prime place to begin to shift nurses' ways of engaging in tobacco dependence treatment; therefore further investigation into current curriculum content could inform required changes in curriculum to integrate tobacco reduction into basic education. As well Heath and colleagues (2002) suggest that tobacco use related questions are included on entry-level nursing registration exams, which would encourage inclusion of tobacco-related content within nursing curriculum. Third, while further investigation into tobacco dependence interventions would continue to inform health care professionals, what is essential at this point is finding ways to support integration of tobacco dependence treatment into everyday practice (Rice & Stead, 2001). Effectiveness inquiry could be one means to develop knowledge supportive of such integration into practice. Another focus of inquiry that would address integration of clinical guidelines into practice is to further investigate current nursing practice relevant to tobacco reduction.

France and colleagues (2001) and WHO (2000) identified that research investigation concerning the uptake of clinical guidelines and integration of tobacco dependency treatment into daily practice is required to strengthen efforts to reduce tobacco use. Nursing literature concerning tobacco use demonstrates a beginning focus on this identified research need. To strengthen these beginning studies and broaden our ability to understand nurses' behavior related to tobacco reduction will require inquiry that includes variables associated with the contextual world of tobacco control and health care as possible mediating factors. An Australian study by
Cooke and colleagues (1998) focused on a variety of factors thought to influence uptake of a smoking cessation intervention by midwives and doctors. Organizational factors were measured and it was found that wards with a greater degree of decentralized decision making demonstrated greater use of the intervention. As well the following barriers to use of the intervention were found: lack of time, lack of teamwork, lack of training and lack of quality of the program. Within nursing there has been some discussion about the importance of such organizational factors (Johnson et al., 1999) and yet there has been minimal consideration of these factors in relation to investigation of nurses' engagement in tobacco reduction activities.

Study of nurses' uptake of tobacco dependency treatment clinical guidelines could be seen as a specific case concerned with dissemination and uptake of research findings. Research focused on integration of research findings into nursing practice has explored the effects of personal and organizational factors (Carroll et al., 1997; Varcoe & Hilton, 1995). In these studies personal factors found to significantly influence research uptake into practice included: the nurse's values, interests, experiences, expectations concerning research evidence, and the nurses' perception of organizational support. Organizational factors found to significantly influence research uptake include: organizational support and climate concerning research (i.e. availability of research articles, supervisor and colleague support, sufficient time to read research, or ability to question practice). Varcoe and Hilton speculate that organizational differences might assist in explaining individual differences. Thus, understanding nurses' incorporation of research findings into practice requires multi-factor consideration, which includes both individual and organizational factors (Varcoe & Hilton).

Since we know that even brief intervention by nurses within hospitals could influence tobacco use patterns, understanding what supports this behavior and taking action on the basis of this understanding could significantly influence tobacco use; thereby enhancing our means of addressing this primary health issue. Nursing governance bodies and scientists are working at
creating the vision and knowledge to assist nurses in actualizing this role. Remaining focused on nurses' personal factors and knowledge dissemination will not be enough to support the uptake of clinical guidelines. Not only does tobacco control exist within a hotly debated contextual world but nurses work within an ever evolving health care system, both of which likely are influencing factors related to nurses actualizing their partnership role in tobacco reduction.

**Conclusion**

During the 20th century primary health issues have shifted from infection, malnutrition, and trauma, to include health effects from tobacco use and exposure to tobacco smoke. The profession of nursing has been named as an instrumental partner in addressing this current health issue. Nursing governance bodies and scientists demonstrate engagement in creating a vision and knowledge for nurses to support their ability to realize a role in tobacco reduction. Identified gaps include strengthening support for tobacco dependent nurses, changes to basic nursing education to comprehensively include tobacco reduction, and integration of tobacco dependence treatment into everyday nursing practice. Investigation concerning nurses' engagement in tobacco reduction needs to consider not only personal factors but should include investigation of organizational and broader contextual influences. As we move through the 21st century we will realize new means to address this primary health issue and since nurses have an integral role to play, the questions we ask ourselves as a profession will guide us in either facilitating or impeding our ability to fulfill our instrumental role in tobacco reduction.
References


Chan, S.S. (2000). Nurses’ role in tobacco control in Hong Kong. Paper presented at the 11th World Conference on Tobacco Or Health, Chicago, IL


### Table Appendix A.1: Nurses’ rates of tobacco use reported during: 1996-2001

<table>
<thead>
<tr>
<th>Smoking prevalence (Survey response rate)</th>
<th>Country</th>
<th>Author/s and year</th>
</tr>
</thead>
<tbody>
<tr>
<td>14% nurses (78%)</td>
<td>United States</td>
<td>Trinkoff &amp; Storr, 1998</td>
</tr>
<tr>
<td>22% nurses (88%)</td>
<td>Australia</td>
<td>Nagle, Schofield, &amp; Redman, 1999</td>
</tr>
<tr>
<td>21% nurses (80%)</td>
<td>Australia</td>
<td>Hughes and Rissel, 1999</td>
</tr>
<tr>
<td>21% nurses (84%)</td>
<td>Northern Ireland</td>
<td>Rowe and Macleod Clarke, 1999</td>
</tr>
<tr>
<td>7% nurses (38%)</td>
<td>United States</td>
<td>Sarna, Brown, Lillington, Rose, Wewers, Brecht, 2000a</td>
</tr>
<tr>
<td>12% nurses (65%)</td>
<td>Canada</td>
<td>Chalmers, Bramadat, Cantin, Shuttleworth, &amp; Scott-Findlay, 2000</td>
</tr>
<tr>
<td>25.8% nurses (60%)</td>
<td>United Kingdom</td>
<td>McKenna, Slater, McCance, Bunting, Spiers, &amp; McElwee, 2001</td>
</tr>
<tr>
<td>46% random sample of 120 nurses working on respiratory ward</td>
<td>Greece</td>
<td>Tselebis, Panaghiotou, Theotoka, and Ilias, 2001</td>
</tr>
<tr>
<td>47.4% of 1st year and 54.1% of 3rd year nursing students (95%)</td>
<td>Italy</td>
<td>Boccoli, Federici, Trianni, and Melani, 1997</td>
</tr>
<tr>
<td>46% student nurses (100%)</td>
<td>Northern Ireland</td>
<td>Rowe and Macleod Clarke, 1999</td>
</tr>
<tr>
<td>23% student nurses vocational school (84%)</td>
<td>Japan</td>
<td>Takashi Ohida, Kamal, Takemura, Sone, Minowa, &amp; Nozaki, 2001</td>
</tr>
<tr>
<td>12% student nurses university (81%)</td>
<td>Japan</td>
<td>Takashi Ohida, Kamal, Takemura, Sone, Minowa, &amp; Nozaki, 2001</td>
</tr>
</tbody>
</table>
### Table Appendix A.2: Nurse-delivered hospital-based intervention studies: 1996-2001

<table>
<thead>
<tr>
<th>Authors</th>
<th>Design</th>
<th>Intervention</th>
<th>Sample</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taylor, Houston Miller, Herman, Smith, Sobel, Fisher, &amp; DeBusk, 1996 United States</td>
<td>Randomized Clinical Trial</td>
<td>Nurse delivered, consisting of video tape, workbook, relaxation techniques, nicotine replacement therapy, and four nurse initiated phone follow-up over three months.</td>
<td>In-hospital patients who stated motivation to stop smoking n=660</td>
<td>Smoking status measured at 12 months confirmed by cotinine levels: 31% intervention group and 21% control group with an odds ratio of 1.7 (95% confidence interval=1.1, 2.3).</td>
</tr>
<tr>
<td>Tonnesen et al., 1996 Denmark</td>
<td>Randomized Clinical Trial</td>
<td>Five minute consultation about reasons for stopping and cessation information, which was followed up with a motivational letter at four to six weeks later.</td>
<td>Patients at a lung diagnostic clinic. n=507</td>
<td>Smoking status measured by CO2 at 12 months was: 3.1% for treatment group and 1.2% for control group; not statistically significant.</td>
</tr>
<tr>
<td>Haddock &amp; Burrows, 1997 England</td>
<td>Pilot Study</td>
<td>Treatment group received verbal and written cessation educational material and a self-assessment questionnaire during the pre-admission time period.</td>
<td>Pre-admission surgical patients. n=60</td>
<td>Smoking status measured at time of admission for surgery: 80% of treatment group reported stopping or reducing tobacco use and 50% of control group reported same.</td>
</tr>
<tr>
<td>Simon, Solkowitz, Carmody, &amp; Browner, 1997 United States</td>
<td>Randomized Clinical Trial</td>
<td>Week prior to discharge 30 to 60 minute counseling meeting with a health educator, viewing of a 10 minute video, self-help material, 3 month supply of nicotine replacement and 3 month telephone follow-up. Content of information (given by three methods) covered cessation, relapse prevention, and benefits of stopping smoking. Control group received self help material and a ten minute pre-discharge counseling meeting with a health educator.</td>
<td>Patient who recently had non-cardiac surgery in a Veterans Affairs Hospital. N=324 (98% men)</td>
<td>Smoking status measured and biochemical confirmation at 12 months resulted in: 15% of intervention group and 8% of control group had quit smoking. The odds ratio of 2.0; 95% CI 1.0-3.9; P=.04.</td>
</tr>
<tr>
<td>Authors</td>
<td>Design</td>
<td>Intervention</td>
<td>Sample</td>
<td>Results</td>
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<tr>
<td>Houston Miller, Smith, DeBusk, Sobel, &amp; Taylor, 1997 United States</td>
<td>Randomized Clinical Trial</td>
<td>Three groups: intensive intervention, minimal intervention, and usual care. Participants in all groups received a standardized physician advice to stop smoking. Usual care group received standard booklet and offered a list of outpatient smoking cessation programs. Minimal and intensive interventions groups watched a 16 minute video about cessation and relapse, were given an relaxation and deep breathing audio tape (instructed to listen to this 15 minutes per day for 1 month), received a 30 minute nurse-mediated behavioral counseling session concerning relapse prevention and was conducted at the bedside, were offered nicotine replacement, and were urged to sign a contract with the counseling nurse about willingness to stop smoking. In addition the minimal intervention group received a 10 minute encouraging phone call at 48 hours post-discharge. The intensive intervention group received similar phone calls at: 48 hours, 7 days, 21 days, and 90 days post-discharge.</td>
<td>Admissions to four hospitals screened and all smokers were considered. Exclusion criteria included: pregnancy, psychiatric diagnosis, history of drug or alcohol abuse, admission length expected to be less than 36 hours, or involved in MI rehabilitation treatment. n=1942 intensive intervention group (n=540) minimal intervention group (n=460) usual care group (n=942)</td>
<td>Smoking status was measured at 3, 6, and 12 months post-discharge. The 12 month quit rate by group is: 27% for intensive intervention group; 22% for minimal intervention group; 20% usual care group, There is a significant difference between the intensive intervention group and the usual care group.</td>
</tr>
<tr>
<td>Wewers, Jenkins &amp; Mignery, 1997 United States</td>
<td>Prospective, descriptive, one-group pretest/post-test</td>
<td>Three 20-30 minute intervention with a trained nurse during hospitalization</td>
<td>Hospitalized patients with suspected diagnosis of lung cancer n= 15</td>
<td>Smoking status measured by saliva cotinine levels at 6 weeks post intervention. 40% of participants were confirmed smoke free for at least one week by saliva cotinine levels.</td>
</tr>
<tr>
<td>Gebauer, Kwo, Haynes &amp; Wewers, 1998 United States</td>
<td>Quasi-Experimental</td>
<td>15 minute one-to-one intervention based on the 4 A’s (ask, assess, advise, and assist), which was delivered by an advanced practice nurse</td>
<td>Pregnant outpatient ambulatory setting n= 178</td>
<td>Smoking status measured at 6 and 12 weeks. At 12 weeks 15.5% of intervention group stopped smoking and none of the control group</td>
</tr>
<tr>
<td>Authors</td>
<td>Design</td>
<td>Intervention</td>
<td>Sample</td>
<td>Results</td>
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<tr>
<td>Johnson, Budz, Mackay &amp; Miller, 1999, Canada</td>
<td>Quasi-experimental, with non-equivalent control group. Treatment group consisted of patients on one ward and control group were patients on a second ward.</td>
<td>Two structured in-hospital nurse contacts, which consisted of discussion, video and written material, with follow-up of 6 phone calls over 3 months. Intervention focused on problem solving and reinforcing self-efficacy.</td>
<td>Cardiac in-patients on one of two wards. n=86</td>
<td>Smoking status measured at 6 months by self-report showed that 46% of treatment group were ex-smokers and 31% of control group, no statistical significant difference. No difference between groups regarding self-efficacy. When two key variables (income and whether subject was a surgical patient) were control for than the control group was three times more likely to relapse.</td>
</tr>
<tr>
<td>Ratner, Johnson, Bottorff, Dahinten &amp; Hall, 2000, Canada</td>
<td>Randomized clinical trial</td>
<td>Brief in-hospital post birth contact and 8 phone follow-up sessions over 3 months.</td>
<td>Pregnant women at time of birth and postpartum n= 238</td>
<td>12 month abstinence rates are: control group 18.5% and treatment 21% (not statistically significant). However, this study noted that the following factors influenced relapse rates: breastfeeding, mental health, smoking status of the partner, previous smoking patterns.</td>
</tr>
<tr>
<td>Canga, De Irala, Vara, Duaso, Ferrer &amp; Martinez-Gonzalez, 2000 Spain</td>
<td>Randomized Clinical Trial</td>
<td>Forty minute nurse visit (included cessation information and counseling), nicotine replacement therapy, contract a quit date, and 5 follow-up contacts (the first being the day before the contracted quit date).</td>
<td>Diabetic patients both clinic and in-hospital. n= 280</td>
<td>Smoking status measured by urine cotinine at 6 month follow-up 17% of treatment group were ex-smokers and 2.3% of control group (odds ratio 7.5 95% CI 2.3-2.4.4). Participants who continued to smoke from the intervention group decreased the amount smoked more than the control group.</td>
</tr>
</tbody>
</table>
Appendix B: Research Project Consent Forms

Cover letter and consent for the self-administered Nurse Survey
Field work consent form
Hospital nurses' engagement in smoking cessation activities: 
A comparison study of nurses employed by two mid-sized western Canadian hospitals

The purpose of this study is to learn about nurses' ideas regarding tobacco use, smoking cessation and nursing care. The attached survey was developed by nurse researchers at the University of British Columbia. There has been minimal research focused on asking nurses about the care they provide for patients who smoke and what influences their decision to provide smoking cessation care. We are interested in hearing your opinions about these areas and encourage you to complete the questionnaire. To support the success of this study, it is important that you be honest and express your true opinions. Of course, there are neither right or wrong answers nor good or bad answers to any of these questions. Rather, we want to know what you think about nursing and smoking cessation.

Do not write your name on this questionnaire. To maintain confidentiality your answers will not be connected with your identity. Choosing to complete this questionnaire is entirely voluntary. If you do not want to fill out the questionnaire, this will not affect your employment in any way nor will it affect working relationships with management or anyone else within your hospital. If you choose to participate and do not want to answer a particular question, just leave it blank. The data will NOT be used to evaluate nursing practice or to make any judgments about the quality of care provided at the hospital. Rather, the data will be used to discuss broader issues related to providing smoking cessation care to hospitalized smokers. The benefit in participating will be in helping nurses and other health professionals learn how smoking cessation care is part of nursing practice. Finally, the data set might be used for future educational situations.

By submitting a completed questionnaire, it will be assumed you have given consent to participate in this study.

If you have any questions about your rights as a research informant, you can contact the Research Subject Help Line in the University of British Columbia Office of Research Service in Vancouver at phone number.

If you have any questions about this study, you can contact Annette Schultz at phone number, or her research supervisor Dr. Joy Johnson at phone number.

We appreciate your interest in sharing your ideas and contributing to the success of the study.

Annette SH Schultz RN MN PhD Candidate
Joy L Johnson RN PhD Professor (Doctoral Supervisor)
School of Nursing, University of British Columbia
Hospital nurses’ engagement in smoking cessation activities:
A comparison study of nurses employed by two mid-sized western Canadian hospitals
Field work consent form

Principal Investigator: Joy L Johnson PhD, RN Professor (phone number)
Co-Investigators: Annette SH Schultz, RN, MN, PhD Candidate (phone number)

About this study:

The purpose of this study is to learn about nurses’ ideas concerning smoking cessation and nursing care. Annette Schultz will be collecting documents from nursing wards and observing activities occurring on nursing wards related to tobacco. Annette is also interested in learning about nurses' ideas and concerns related to patient tobacco use and nursing care.

My understanding of the Research Activities:

You understand that Annette Schultz will be on your ward collecting documented information concerning smoking cessation. While she is on your nursing ward you may be asked to assist her in finding information. While Annette is on your ward as a researcher, she will be observing actions and conversations. Any conversations or situations related to tobacco may become part of her field notes and part of her study. You understand that Annette might ask you a brief clarifying question related to a conversation or situation she observes.

As well Annette will be available to talk with you about your ideas or concerns regarding tobacco. Any conversation with Annette will occur at your discretion. You understand that the amount of time that you decide to spend talking with Annette is depended upon the availability of your time relevant to patient care. Therefore, it is up to you to decide how much time you offer Annette while she is on your ward.

You understand that this study is Annette's doctoral dissertation work and therefore is part of her doctoral education requirements.

Risks and Benefits:

There could be minimal to no risks to you if you participate in this study. Any information gathered for this study will be held in the strictest confidence, and will not be directly shared with hospital staff, managers, or any one within the hospital or elsewhere. There will be no way to identify participants or any person, place or setting mentioned in any public documentation related to this study. Please note that choosing to talk with Annette in a non-private setting would
expose your ideas about tobacco to others; however, Annette will be available to have a conversation in private if you request.

Data will NOT be used to evaluate nursing practice or to make any inferences regarding the quality of care provided at the hospital. Rather, the data will be used to discuss broader issues related to providing smoking cessation care to hospitalized smokers. As well the data might be used at a later date for educational situations. No identifying information will be revealed during any such future use.

The benefit in participating will be in helping nurses and other health professionals learn about how smoking cessation care is integrated into practice.

**Protecting Confidentiality:**

The information you provide is strictly confidential, which will be protected in several ways.

1. All information from observations and conversations will be identified by a code.
2. You will not be identified in any records or in written reports from this research. No identifying information will be included in any records.
3. All records will be securely stored in a locked filing cabinet and/or password secured computer files.
4. There are two people other than Annette Schultz and Dr. Joy Johnson who could have access to the research study recorded information: Dr. Joan Bottorff, and Dr. David Tindall, who are both from the University of British Columbia and are members of Annette's dissertation supervisory committee.

**Voluntary Consent:**

You understand that your participation in this study is voluntary. Your decision to participate will in no way influence your employment or performance evaluations. Your decision to participate or not participate in this study is completely voluntary and will in no way jeopardize your relationship with any nurse-managers or anyone at the hospital where you work. If you decide to participate and then change your mind, you are free to withdraw from the study at any time with no consequence.

If you have any questions about your rights as a research informant, you can contact the Research Subject Help Line in the University Of British Columbia Office Of Research Service in Vancouver at phone number.

You understand that if you have any questions about this study, you can ask Annette at the time of reviewing this consent form, or if you have questions at a later time you can contact the researcher, Annette Schultz at phone number, or her research supervisor Dr. Joy Johnson at phone number.

You understand that a copy of the results of this study will be available to you, upon request.
You hereby give your written permission to participate in this study. You are also aware that you do not waive any legal rights by signing this document. You acknowledge receiving a copy of this consent form.

Signature ___________________ Please print name ___________________

Date: ______________________

Witness/Researcher _______________________

Date: ______________________
Appendix C: Research Project Data Collection Tools

Self-administered Nurse Survey
Ward data collection tool
Field note recording template
Nursing Care and Smoking Cessation Activities Survey

This questionnaire consists of eleven sections, which include questions about your workplace, about nursing care and about yourself.
Each section begins with an introduction and directions.
The questionnaire will take about 30 minutes to complete.
You can complete this questionnaire at a time that is most convenient for you.

We are offering an incentive draw!
Information about the incentive draws and instructions for returning the completed questionnaire can be found on the last page of the questionnaire.
Your Workplace Environment

Section A: This section consists of a series of statements reflecting a wide variety of workplace situations. You will notice that some of the statements are similar and it is important that you answer all statements. As well some of the wording might appear unusual for your work setting and again we encourage you to answer each one to the best of your ability.

How much do you agree or disagree with each of the following statements. There are four response options: strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD).

A1. Nurses on my ward go out of their way to help a new employee feel comfortable.
   SA  A  D  SD

A2. Supervisors/managers tend to talk down to employees.
   SA  A  D  SD

A3. Few employees have any important responsibilities.
   SA  A  D  SD

A4. There’s a strict emphasis on following policies and regulations on my ward.
   SA  A  D  SD

A5. Doing things in a different way is valued.
   SA  A  D  SD

A6. The atmosphere is somewhat impersonal.
   SA  A  D  SD

A7. Supervisors/managers usually compliment an employee who does something well.
   SA  A  D  SD

A8. Employees have a great deal of freedom to do as they like.
   SA  A  D  SD

A9. Nurses on my ward can wear wild looking clothing while on the job if they want.
   SA  A  D  SD

A10. New and different ideas are always being tried out on my ward.
    SA  A  D  SD

A11. Nurses on my ward take a personal interest in each other.
    SA  A  D  SD

A12. Supervisors/managers tend to discourage criticisms from employees.
    SA  A  D  SD

A13. Employees are encouraged to make their own decisions.
    SA  A  D  SD

A14. Nurses on my ward are expected to follow set rules in doing their work.
    SA  A  D  SD

A15. My ward would be one of the first to try out a new idea.
    SA  A  D  SD

A16. Employees rarely do things together after work.
    SA  A  D  SD

A17. Supervisors/managers usually give full credit to ideas contributed by employees.
    SA  A  D  SD

A18. Nurses on my ward can use their own initiative to do things.
    SA  A  D  SD

A19. Supervisors/managers keep a rather close watch on employees.
    SA  A  D  SD

A20. Variety and change are not particularly important on my ward.
    SA  A  D  SD

A21. Nurses on my ward are generally frank about how they feel.
    SA  A  D  SD

A22. Supervisors/managers often criticize employees over minor things.
    SA  A  D  SD

A23. Supervisors/managers encourage employees to rely on themselves when a problem arises.
    SA  A  D  SD

A35. Things tend to stay just about the same.
    SA  A  D  SD
A24. Rules and regulations are pretty well enforced on my ward.

A25. On my ward the same methods have been used for quite a long time.

A26. Employees often eat lunch together.

A27. Employees generally feel free to ask for a raise.

A28. Employees generally do not try to be unique or different.

A29. Supervisors/managers are always checking on employees and supervise them very closely.

A30. New approaches to things are rarely tried on my ward.

A31. Employees who differ greatly from others in the organization don't get on well.

A32. Supervisors/managers expect far too much from employees.

A33. Employees are encouraged to learn things even if they are not directly related to work.

A34. Supervisors/managers do not often give in to employee pressure.

A36. Employees often talk to each other about their personal problems.

A37. Employees discuss personal problems with supervisors.

A38. Employees function fairly independently of supervisors/managers.

A39. Employees are expected to conform to rather strictly held rules and customs.

A40. On my ward there is a fresh novel atmosphere.

A41. Often people make trouble by talking behind others backs.

A42. Supervisors/managers really stand up for their people.

A43. Supervisors/managers meet with employees regularly to discuss their future work goals.

A44. If an employee comes in late s/he can make it up by staying late.

A45. On my ward things always seem to be changing.
**Hospital Resources**

**Section B:** This section focuses on smoking cessation resources available to you.

B1. Does your hospital have a written policy related to smoking concerning staff?
   - Yes ___ No ___ Don't Know ___

B2. Does your hospital have a documented nursing procedure related to smoking cessation?
   - Yes ___ No ___ Don't Know ___

B3. Does your hospital have a written policy related to smoking concerning patients?
   - Yes ___ No ___ Don't Know ___

B4. Have you ever participated in a continuing education program related to supporting a patient with smoking cessation?
   - Yes ___ No ___
   - Is such a program available at your hospital?
     - Yes ___ No ___ Don't know ___

B5. Are you aware of smoking cessation resources available in the community?
   - Yes ___ No ___
   - Is this information documented on your ward?
     - Yes ___ No ___ Don't know ___

B6. Do you have access to an in-hospital smoking cessation expert?
   - Yes ___ No ___ Don't Know ___

B7. Does your ward(s) have written material addressing smoking cessation for patients?
   - Yes ___ No ___ Don't Know ___

B8. Does your ward(s) have a video tape concerning smoking cessation for patients?
   - Yes ___ No ___ Don't Know ___

B9. Have you seen the Canadian Nurses Association document called: "Guidelines for registered nurses: Working with Canadians affected by tobacco"?
   - Yes ___ No ___
   - Have you read the document Yes ___ No ___

B10. Does your hospital formulary include pharmaceutical smoking cessation aids?
    - Nicorette Gum Yes ___ No ___ Don't Know ___
    - Nicotine patch Yes ___ No ___ Don't Know ___
    - Zyban Yes ___ No ___ Don't Know ___

    Are there other medications used in relation to tobacco use, withdrawal symptoms, or cessation (please identify)

B11. Do doctors who practice on your ward(s) order nicotine replacement for patients
    - Yes ___ Rarely ___ No ___ Don't Know ___

Nursing Practice and Smoking Cessation

Section C: The focus shifts to your nursing practice experiences with people who smoke. Please respond to each statement by indicating how frequently you either experience the situation or how frequently you include such activities into your regular nursing practice. There are four response options: almost always (AA), frequently (F), seldom (S), or never (N).

Please indicate how often in the past month you encountered patients who:

C1. Smoke cigarettes
   AA   F   S   N
C4. Smoke pipes
   AA   F   S   N
C2. Chews tobacco
   AA   F   S   N
C5. DO NOT use tobacco
   AA   F   S   N
C3. Smoke cigars
   AA   F   S   N

Now think of your nursing practice with patients who smoke—how often do you:

C6. Assess smoking status during admission.
   AA   F   S   N
C14. Have a conversation with a patient about the benefits of stopping smoking.
   AA   F   S   N
C7. Chart a patient’s smoking status.
   AA   F   S   N
C15. Provide a pamphlet about the benefits of stopping smoking.
   AA   F   S   N
C8. Assess a patient’s interest in quitting.
   AA   F   S   N
C16. Encouraged a patient to watch a video concerning the benefits of stopping smoking.
   AA   F   S   N
C9. Advise a patient to stop smoking.
   AA   F   S   N
C17. Have a conversation with a patient about strategies concerning stopping smoking.
   AA   F   S   N
C10. Advise a patient to cut down smoking.
    AA   F   S   N
C18. Provide a pamphlet about strategies to stop smoking.
    AA   F   S   N
C11. Have a conversation with a patient about the health effects of smoking.
    AA   F   S   N
C19. Encourage a patient to watch a video concerning strategies to stop smoking.
    AA   F   S   N
C12. Provide a pamphlet concerning the health effects of tobacco use.
    AA   F   S   N
C20. Have a conversation with a patient about coping with a possible relapse.
    AA   F   S   N
C13. Encourage a patient to watch a video concerning the health effects of tobacco use.
    AA   F   S   N
C21. Provide a pamphlet about coping with a possible relapse.
    AA   F   S   N
C22. Encourage a patient to watch a video concerning how to cope with a possible relapse.

AA   F   S   N

C23. Have a conversation with a patient about nicotine replacement therapies.

AA   F   S   N

C24. Provide a pamphlet about nicotine replacement therapies.

AA   F   S   N

C25. Encourage a patient to watch a video concerning nicotine replacement therapies.

AA   F   S   N

C26. Recommend that nicotine replacement therapy be ordered for a patient experiencing nicotine withdrawal.

AA   F   S   N

C27. Refer a patient to an in-hospital smoking cessation specialist.

AA   F   S   N

C28. Refer a patient to a community based cessation resource.

AA   F   S   N

C29. Have a conversation with a family member(s) about smoking cessation.

AA   F   S   N

C30. Give a family member a pamphlet containing smoking cessation information.

AA   F   S   N

C31. Encourage a family member to watch a video concerning smoking cessation information.

AA   F   S   N

C32. Assist another nurse to stop smoking

AA   F   S   N

Other (please describe)

Effectiveness of activities

Section D: In your experience, how effective is each of the following activities in supporting a patient to stop smoking. There are four response options: very effective (VE), somewhat effective (SE), somewhat ineffective (SI), and completely ineffective (CI).

D1. Your professional advice to patients who smoke

VE   SE   SI   CI

D2. Nicotine gum or patch (self-administered)

VE   SE   SI   CI

D3. Nicotine gum or patch with professional advice

VE   SE   SI   CI

D4. Prescribed Zyban, used as directed

VE   SE   SI   CI

D5. Zyban in combination with nicotine gum or patch

VE   SE   SI   CI

D6. Zyban in combination with nicotine gum or patch and behavioral counseling

VE   SE   SI   CI

D7. Smoking cessation programs or 1-800 Quit Lines

VE   SE   SI   CI

D8. Quitting without professional advice or medication

VE   SE   SI   CI
Your attitude regarding stopping smoking

Section E: For this brief section please indicate how much you agree with each statement. There are four response options: strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD).

E1. When a person has been smoking for many years, there is not much point in trying to stop.
   SA   A   D   SD

E2. Most smokers can stop if they really want to.
   SA   A   D   SD

E3. Relief of withdrawal symptoms is important for successfully stopping smoking.
   SA   A   D   SD

E4. Smokers appreciate it when nurses provide smoking cessation advice.
   SA   A   D   SD

Reasons for addressing smoking cessation

Section F: This section consists of a series of statements, each of which could be a reason why you either address or avoid the topic of stopping smoking with a patient. Please indicate the degree that each statement is reflective of reasons why you either address or avoid stopping smoking with a patient. There are four options: strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD).

I address stopping smoking with my patients because:

F1. It is an expected part of my role.
   SA   A   D   SD

F2. In the past I have had positive experiences with assisting people with stopping smoking.
   SA   A   D   SD

F3. During work I have adequate time to provide assistance with stopping smoking.
   SA   A   D   SD

F4. I have personal experience with stopping smoking.
   SA   A   D   SD

F5. I have confidence in my ability to help someone stop smoking.
   SA   A   D   SD

F6. If a patient stopped smoking, it would influence treatment side effects.
   SA   A   D   SD

F7. On my ward there is administrative support to assist a patient in stopping.
   SA   A   D   SD

F8. Physicians request nursing involvement in assisting with stopping smoking.
   SA   A   D   SD

F9. On my ward there is recognition/rewards for assisting with stopping smoking.
   SA   A   D   SD

F10. There are health benefits for my patient.
    SA   A   D   SD

F11. A patient wants to stop smoking.
     SA   A   D   SD

F12. Stopping smoking will decrease risks of tobacco related health effects.
     SA   A   D   SD
I avoid addressing stopping smoking with my patient because:

F13. I feel it is an invasion of privacy.
   SA   A   D   SD   

   SA   A   D   SD   

F15. I lack adequate knowledge about how to assist my patient in stopping smoking.
   SA   A   D   SD   

F16. Stopping smoking would make no difference due to a poor prognosis
   SA   A   D   SD   

F17. I don't want my patient to feel guilty
   SA   A   D   SD   

F18. I don't want to add to my patient's stress
   SA   A   D   SD   

F19. Smoking is not a health priority
   SA   A   D   SD   

The Role of Nurses
Section G: This section consists of statements about the role of nurses and tobacco in general. Please indicate the degree that you agree with each statement. There are four options: strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD).

G1. It is important that nurses set a good example by not smoking.
   SA   A   D   SD   

G2. It is important that nurses talk with their patients about tobacco use.
   SA   A   D   SD   

G3. It is important that nurses actively encourage patients to stop smoking.
   SA   A   D   SD   

G4. Nurses need additional training/skills in assisting people in stopping smoking.
   SA   A   D   SD   

G5. On my ward(s) nurses assess tobacco use status on admission.
   SA   A   D   SD   

G6. On my ward(s) nurses readily discuss stopping smoking with their patients.
   SA   A   D   SD   

G7. On my ward(s) nurses chart about nursing care provided that relates to tobacco.
   SA   A   D   SD   

G8. With most smokers, nurses can be effective in promoting smoking cessation
   SA   A   D   SD   

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Educational Needs
Section H: Please indicate how helpful it would be to receive information about each of the following topics. There are four response options: very helpful (V), somewhat helpful (S), not very helpful (N), useless (U).

H1. Initiating a discussion with a patient about smoking
   V ___ S ___ N ___ U ___
H2. Assessing a patient's dependence on nicotine
   V ___ S ___ N ___ U ___
H3. Motivating a patient to stop smoking
   V ___ S ___ N ___ U ___
H4. Counseling on behavioral techniques for stopping smoking
   V ___ S ___ N ___ U ___
H5. Use of nicotine gum and patch
   V ___ S ___ N ___ U ___
H6. Use of Zyban for smoking cessation
   V ___ S ___ N ___ U ___
H7. Referral options for smoking cessation in your community
   V ___ S ___ N ___ U ___
H8. "Stages of Change" model of behavior change
   V ___ S ___ N ___ U ___

Professional and Personal Demographics
Section I: The focus of this section is your nursing practice and you. Please answer all questions.

I1. What year did you graduate from your basic nursing education?
   19___ or 20___
I2. What degree/qualification have you received?
   (Please indicate all options that apply to you)
   Diploma of Nursing (2 year program) ___
   Diploma of Nursing (3 year program) ___
   Bachelor's of Nursing ___
   Other Bachelor degree* ________
   Master's of Nursing ___
   Other Master's degree* ________
   PhD of Nursing ___
   Other PhD* ____________________
   Other education* ____________________
   * Please specify area of degree
I3. How many years have you worked at this hospital? Number of years ________
I4. Do you have a full-time position?
   Yes ___ No ___
   Permanent ___ Temporary ___
I5. Do you have a part-time position?
   Yes ___ No ___
   Permanent ___ Temporary ___
I6. Do you work on a casual basis?
   Yes ___ No ___
I7. Currently how many wards do you regularly accept shifts on at this hospital?
   1 ___ 2 ___ 3 ___ 4 ___ Other number ___
18. At this hospital approximately how many hours did you work last month?

Less than 24 hours ______
24 to 48 hours ______
49 to 96 hours ______
144 (fulltime) or more hours ______

19. Do you work as an RN at another hospital?

Yes _____  No _____
Which one(s) ______

110. Indicate which ward(s) you currently work on by **stating how many years** you have worked on the ward(s).

Surgery ward _______________
Medicine ward _______________
Psychiatry ward _______________
Rehabilitation ward ___________
Orthopedics ward _____________
Cardiac Care ward _____________
Neurological Care ward ________
Other ward (specify) __________

111. What year were you born? 19____

112. What is your gender?

Female ____  Male ____

113. Which one best describes your marital status?

Single (never married or lived common law) ______
Living with a partner (married or common law) _______
Separated __________
Divorced ___________
Widowed ___________
### Tobacco Use Status

**Section J:** This brief section asks about tobacco use during your life.

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1. Have you ever smoked more than 100 cigarettes in your life (5 packages of cigarettes)?</td>
<td>Yes _____ No _____</td>
</tr>
<tr>
<td><strong>Proceed to Question J2</strong></td>
<td><strong>Go to the next page</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
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</thead>
<tbody>
<tr>
<td>J2. Please indicate the <strong>ONE</strong> statement that <strong>BEST</strong> describes your current smoking behavior.</td>
<td></td>
</tr>
<tr>
<td>I quit smoking and have not smoked for a year or more</td>
<td></td>
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<tr>
<td>I quit smoking, but once in a while I have a cigarette</td>
<td></td>
</tr>
<tr>
<td>I quit smoking more than 6 months ago and have not smoked for at least 6 months</td>
<td></td>
</tr>
<tr>
<td>I quit smoking in the past 6 months and have not started smoking again</td>
<td></td>
</tr>
<tr>
<td>I quit smoking in the past 6 months but started smoking again</td>
<td></td>
</tr>
<tr>
<td>I am smoking now and I am also <strong>trying</strong> to quit</td>
<td></td>
</tr>
<tr>
<td>I am smoking now and I am <strong>thinking</strong> about trying to quit</td>
<td></td>
</tr>
<tr>
<td>I am smoking now and I am <strong>not thinking</strong> about quitting</td>
<td></td>
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<thead>
<tr>
<th>Question</th>
<th>Options</th>
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<tbody>
<tr>
<td>J3. Have you ever tried to stop smoking?</td>
<td>Yes _____ No _____</td>
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<tr>
<td><strong>Proceed to Question J4</strong></td>
<td><strong>Go to the next page</strong></td>
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<tr>
<th>Question</th>
<th>Options</th>
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<tbody>
<tr>
<td>J4. Regarding your experience with stopping smoking, which best describes how you stopped.</td>
<td></td>
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<tr>
<td>Cold Turkey</td>
<td></td>
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<tr>
<td>Tapered down</td>
<td></td>
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<tr>
<td>Other (specify)</td>
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<tr>
<th>Question</th>
<th>Options</th>
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<tbody>
<tr>
<td>J5. Regarding your experience with stopping smoking, which supports have you used?</td>
<td></td>
</tr>
<tr>
<td>Written Material</td>
<td>Nicotine Patch</td>
</tr>
<tr>
<td>Group program</td>
<td>Nicorette Gum</td>
</tr>
<tr>
<td>Individual Counseling</td>
<td>Zyban</td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
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</tbody>
</table>
Tobacco Use in Your Personal and Professional Environment

Section K: This last section focuses on tobacco use and tobacco related health effects among people in your life. Please answer all questions on this page and the next.

K1. Approximately what percentage of your family members or close friends currently smoke?
   0-25%  26-50%  51-75%  76-100%  
   About how many people is this ______

K2. Approximately what percentage of your family members or close friends are ex-smokers?
   0-25%  26-50%  51-75%  76-100%  
   About how many people is this ______

K3. Have any of your family members or close friends ever experienced a serious tobacco-related illness?
   Yes ______  No ______
   How many ______
   Name of illness(es) _____________

K4. Have you experienced the death of a family member or close friend to a tobacco-related illness?
   Yes ______  No ______
   How many ______
   Name of illness(es) _____________

K5. Have any family members or close friends ever talked with you about your use of tobacco?
   Yes ______  No ______  I have never smoked ______

K6. Have any family members or close friends ever talked with you about stopping smoking?
   Yes ______  No ______  I have never smoked ______

K7. Approximately what percentage of nurses who work on the ward(s) you work currently smoke?
   0-25%  26-50%  51-75%  76-100%  
   About how many people is this ______

K8. To the best of your knowledge approximately what percentage of the nurses you work with are ex-smokers?
   0-25%  26-50%  51-75%  76-100%  
   About how many people is this ______

K9. Have any of the nurses who work on the ward(s) you work experienced a serious tobacco-related illness?
   Yes ______  No ______
   How many ______
   Name of illness(es) _____________

K10. Have you experienced the death of a nurse colleague to a tobacco-related illness?
    Yes ______  No ______
    How many ______
    Name of illness(es) _____________

K11. Have any of your nursing colleagues ever talked with you about your use of tobacco?
    Yes ______  No ______  I have never smoked ______

K12. Have any of your nursing colleagues ever talked with you about stopping smoking?
    Yes ______  No ______  I have never smoked ______
K13. Do you have rules, understanding, agreements about smoking in your home for people who live there?
Please **mark only the ONE** that best describes your home situation.

- Smoking allowed everywhere
- Smoking in designated areas
- Smoking outside only
- No smoking on premises
- No specific rules
- Other: please describe

K14. Do you have rules, understanding or agreements about smoking in your home for visitors?
Please **mark only the ONE** that best describes your home situation.

- Smoking allowed everywhere
- Smoking in designated areas
- Smoking outside only
- No smoking on premises
- No specific rules
- Other: please describe

**Space for Your Comments!**

I invite you to use the rest of this page (and the back of the next page) to write comments you have about the questionnaire, tobacco use, nursing or anything else.
THE FOLLOWING INSTRUCTIONS ADDRESS HOW TO RETURN THE COMPLETED QUESTIONNAIRE AND HOW TO PARTICIPATE IN AN OPTIONAL INCENTIVE DRIVES AVAILABLE TO YOU.

**Incentive Draws and Returning the Survey Package**

You will notice in the questionnaire package that there is a card and small envelope. If you so choose, you can put your name and phone number on the card, place the card in the smaller envelope, and seal this smaller envelope. Then place this sealed small envelope in the larger envelope with your completed questionnaire and return the sealed larger package by using the internal hospital mailing system (you will notice the larger envelope is addressed to Annette Schultz). Once the researcher opens the larger envelope she will take the sealed card and place it in a collection box with the other small envelopes. Over the course of five weeks two enveloped cards will be drawn; these envelopes will be opened and these people will have their RNABC registration fees paid for the year 2004 (approximate value of $337.00). These people’s names will be announced in the hospital newsletter. **Draw dates are: March 3 and March 17 2003.** After the second draw all remaining enveloped cards will be destroyed.

**Returning the Survey Package without entering the optional incentive draw**

You are not required to participate in the draw. If you do not want to be a part of the optional incentive draw but wish to participate in the study simply place your completed questionnaire alone in the large envelope, seal the envelope, return it by using the internal hospital mailing system (you will notice the larger envelope is addressed to Annette Schultz), and discard the card and smaller envelope.

Thank-you for participating in this study

Annette SH Schultz RN MN PhD Candidate and Dr. Joy L Johnson RN PhD
School of Nursing, University of British Columbia
Ward Data Collection Tool

Ward # ___________ Date ___________

1. Are there any policies related to smoking cessation?
   Yes (obtain copy)       No

2. Does the hospital have a protocol concerning smoking cessation?
   Yes (obtain copy)       No

3. Is nicotine replacement pharmaceuticals on the formulary?
   Yes (obtain a copy)     No

4. Does the ward admission sheet require assessment of smoking status?
   Yes (obtain a copy)     No

5. On the ward is there written smoking cessation information available for patients?
   Yes (obtain copies)     No

6. On the ward is there a smoking cessation video tape available for patients?
   Yes (watch-note focus)  No

7. On the ward is there a list of smoking cessation community resources?
   Yes (obtain copy)       No

8. Can the ward nurse refer to a smoking cessation expert within the hospital?
   Yes                     No

9. Does the ward nurse have access to in-service training regarding smoking cessation?
   Yes                     No

10. What is the average nurse-patient ratio?
    Days       Evenings       Nights
Field Note Recoding Template

Date: ____________________

Ward code or Place: ________________

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<tr>
<th>Observations and Discussions</th>
<th>Assumptions</th>
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<tr>
<th>Number of People</th>
<th>Leads</th>
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<th>Number of hours</th>
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