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**FACULTY OF GRADUATE AND
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GRADE / DEGREE

School of Nursing

FACULTÉ, ÉCOLE, DÉPARTEMENT / FACULTY, SCHOOL, DEPARTMENT

Understanding the motivation of nurses toward the continued use of an evidence-based practice in a tertiary clinical practice setting: An application of planned behaviour theory

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**Understanding the Motivation of Nurses
Toward the Continued Use of an Evidence-Based Practice
in a
Tertiary Clinical Practice Setting:**

An Application of Planned Behaviour Theory

by

Letitia Nadalin Penno

NSG 7999 Masters Thesis

Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
In partial fulfillment of the requirements for the
Degree of Master of Science in Nursing

University of Ottawa
January 2008
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395 Wellington Street
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Your file Votre référence
ISBN: 978-0-494-50907-4
Our file Notre référence
ISBN: 978-0-494-50907-4

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Abstract

Introduction: In the last two to three decades, research findings have gradually been permeating the culture of nursing. Increasingly, nurses are expected to integrate evidence-based practices into specific nursing policy/protocols and patient care decisions (Polit and Beck, 2004; Rogers, 2004). In truth, research utilization is dependent on nurses' actual direct or indirect use of evidence in the clinical setting (Estabrooks, 1999). To date, researchers have been able to conclude that the more positive a nurse's attitude the more likely the nurse will use research findings (Ehrenfeld & Eckering, 1991; Camiah, 1997; Estabrooks, 1999; Olade, 20203, 2004). The nursing literature reveals a dearth of studies examining nurses' "actual ongoing use" of research and the related factors/challenges affecting their continued use of research findings in clinical practice.

Purpose: Why do some nurses continue to use research while others do not where organizational policy supports the ongoing use of evidence-based practice? The purposes of this study are to validate whether nurses' are continuing to use the RNAO's Falls Risk Prevention Best Practice Guidelines (BPG) policy/protocol in 2 units of a tertiary clinical care setting, to examine practicing nurse's attitudes, beliefs and perceptions related to their intention continue to use the policy/protocol; to examine the importance of each variable (beliefs, subjective norms, perceived behavioural controls) related to their intention to continue to use the policy/protocol; and to examine nurses' perceptions and experiences regarding the facilitators, barriers and organizational structures that impact their continued use of research in their practice setting.

Methods: This survey correlation design study used Ajzen's Theory of Planned Behaviour (Godin & Kok, 1996) as a theoretical framework to examine practicing nurse's attitudes, beliefs, perceptions related to their intention to continue to use the Registered Nurse's of Ontario Association (RNAO)'s Falls Risk Prevention Best Practice Guideline (BPG) in their clinical practice.

Findings: Sixty four percent of surveyed nurses (n=22/44) report using the Falls protocol (a direct type of research) always (18%) and/or often (46%) in their clinical practice. They also reported using the Falls Protocol on their previous shift an average of 2.6 patients per nurse. The main sources of falls research education where nurses first learnt about the RNAO's BPG were during their nursing practice (46%), a form of continuing education (27%), or in a conference/ seminar setting (18%). Composite mean scores related to surveyed nurses attitudes, social norm

and control beliefs ranged from 1.71 to 2.43 indicating strong positive attitudes, a strong sense of social pressure and greater level of control over their ongoing use of the Falls Protocol in their daily practice. Nurses' attitudes, social and control beliefs explained 46% of the variance in intention related to its ongoing use every 3 months and 73% of ongoing use after a patient fall incidence. Surveyed nurses identified 9 facilitators and 4 potential barriers related to the ongoing use of the Falls Protocol in their clinical practice.

Conclusions: Findings reveal nurses in a tertiary care facility demonstrate 'strong generalized intentions' towards the ongoing use of the direct form of research, the Falls Risk Prevention BPG on admission, on a quarterly basis and after a patient fall incident. The 'ongoing utilization of research' in practice is definitely of interest and viewed positively by nurses in this setting despite their educational profile, limited research education and minimal exposure to in-house continuing education. This result indicates exposure to research is necessary in developing favourable attitudes towards RU. Furthermore, nurses' intention to 'continue to use' the Falls Protocol in this tertiary care facility is significantly influenced by the social expectations of referent persons and by their perceived behavioural control (PBC) beliefs. Surveyed nurses also report that three factors facilitate their 'ongoing use' of the Falls Protocol in their setting; these are congruent with those found in the literature relating to the initial adoption of research. These facilitators include: 1) providing research in a useable form; 2) attending conferences or seminars to remain current with new research related to their clinical setting; and 3) engagement in research activities such as the development, updating and implementation of the Falls BPG for use on their units.

Acknowledgements

A special thank you is extended to Dr. Ian Graham; for assuming the role of my thesis committee chair but more importantly for the guidance and expertise he has imparted related to Knowledge Translation, the application of the Theory of Planned Behaviour within health research and the mentoring he has provide me with during this thesis learning process.

I also feel very fortunate to have worked with Dr. Kirsten Woodend, thesis committee member, throughout the development of my thesis and I would like to extend my appreciation for her ongoing support and supervision.

The establishment of the measurement tool for this empirical study would not have been possible without the additional expert guidance of Jacqueline Tetroe. I thank her for her patience and ongoing support.

Lastly, I would like to acknowledge and sincerely thank Dr. David Hemsworth for his technical guidance and support throughout the analysis phase of this study to ensure complete analysis of the data.

Table of Contents

Chapter 1 - Introduction, Problem Statement and Study Objective	1
Introduction.....	1
Prevalence of the Problem	3
Understanding Nurses' Beliefs, Attitudes and Perceptions towards Research Utilization.....	4
Purpose and Objectives.....	5
Research Questions.....	5
Theory of Planned Behaviour – Conceptual Framework	6
Chapter 2 - Present State of Knowledge -Literature Review	9
Sources Used in the Literature Review Process	9
Definitions in the Literature for the Concept of Research Utilization.....	10
The Conceptual Structure of Research Utilization	10
Differentiating Research Utilization & Evidenced–Based Practice	13
Re-Defining the Concept Research Utilization.....	16
Importance of Using Evidence in Clinical Practice	19
What is Known Related to the “Initiate Use Phase of RU”	20
<i>Motivations for Research Utilization.....</i>	<i>20</i>
<i>Barriers Towards Research Utilization.....</i>	<i>20</i>
<i>Facilitators Towards Research Utilization.....</i>	<i>21</i>
<i>Attitudes Towards Research Utilization</i>	<i>22</i>
A Case Study Demonstration of the “Initiate Use Phase of RU”: Understanding the Transfer of the RNAO’s Falls Risk Prevention CPG Into Practice.....	23
<i>Significance of Falls in the Elderly.....</i>	<i>23</i>
<i>Local Practice and Policy.....</i>	<i>24</i>
<i>Theoretical Framework Used to Analyze Knowledge Transfer.....</i>	<i>25</i>
<i>Case Study Findings related to the “Initiate Use Phase of RU”</i>	<i>26</i>
What is Known Related to the “Ongoing Use Phase of RU”	27
<i>Literature Review.....</i>	<i>27</i>
<i>Understanding Sustained Use of Research in Practice - The Ongoing Use Phase of RU.....</i>	<i>28</i>
Chapter 3 - Methodology.....	29
Research Design.....	29
Survey Development.....	29
Setting & Sample	32
Survey Administration	33
Measures	34
Ethics.....	36
Advantages and Limitations of Proposed Design.....	36
Chapter 4 - Results.....	38
Demographic Characteristics	38
Intention Results	40
Reliability Results	42
Attitude, Normative and Perceived Behavioral Control (PBC) Beliefs Results.....	43
Predictors of Intention Results.....	44
Additional Results.....	47
<i>Barriers and Facilitators Results.....</i>	<i>47</i>

<i>Supporting Data Results</i>	49
<i>Usage of the Direct Form of Research</i>	49
<i>Interest for Future Integration of Falls Protocol</i>	50
<i>Strategies for Ongoing Use of the Falls Protocol</i>	50
Chapter 5 - Discussion: Interpretation of Results	51
Nurses Ongoing Use of the Direct type of Research; the Falls Protocol (Estabrooks, 1999) .	51
Motivations of Nurses towards the Ongoing Use of Research	52
<i>Attitudes</i>	52
<i>Interest in Future Research Use</i>	53
<i>Normative Beliefs</i>	53
<i>Control Beliefs</i>	54
<i>Predictors of Intention</i>	55
Facilitators, Barriers & Organizational Structures Impacting Ongoing Use of Research	55
<i>Facilitators</i>	56
<i>Barriers and Organizational Structures</i>	58
Limitations	60
Implications	61
<i>Implications for Practice</i>	62
<i>Implications for Education</i>	65
<i>Implications for Research</i>	67
Conclusions	68
References	71
Appendix A – Figure 2 -The Concept of Research Utilization	76
Appendix A – Table 1 – A Comparison of The Concept of Research Utilization	77
Appendix B – RNAO’s: Nursing Best Practice Guidelines Program (2005)	78
Appendix C – NEMHC Policy and Protocol for Falls Risk Assessment	81
Appendix D – Figure 3 – The Ottawa Model of research Use	94
Appendix E – 2004 Recommendations regarding the selection and tailoring of research transfer strategies to overcome barriers & enhance supports at the NEMHC	95
Appendix F – Questionnaire	98
Appendix G – Participant Letter	105

List of Tables

Table 1 – A Comparison of The Concept of Research Utilization (Penno, 2007) & Current Models of RU	77
Table 2 - Characteristics of Nurses (n = 22)	38
Table 3 – Summary of Major Constructs of the TPB (n = 22)	41
Table 4 – Correlation Matrix.....	45
Table 5 – Model Summary	45
Table 6 – Model Coefficients.....	46
Table 7 – Summary of Factors affecting ongoing use of Falls Protocol.....	48

List of Figures and Illustrations

Figure 1 – Schematic Diagram of Ajzen’s Theory of Planned Behaviour (1985, 1988).....	7
Figure 2 -The Concept of Research Utilization by Letitia Nadalin Penno 2007.....	76
Figure 3 -The Ottawa Model of Research Use	94
Figure 4: Summary of Surveyed Nurses Direct Ongoing Use of the Falls Protocol.....	500

List of Abbreviations

RU – Research utilization
RNAO – Registered Nurses Association of Ontario
BPG – Best practice guideline
RCT – Randomized control trial
TPB – Theory of Planned Behaviour
PBC – Perceived behavioural control
NEMHC – North East Mental Health Center
SMH – Seniors Mental Health
MEDLINE – a medical database
CINAHL – Cumulative index of nursing and allied health literature
DARE – Databases of abstracts of reviews of effectiveness
EBP – Evidence –based practice
EBM – Evidence –based medicine
OMRU – Ottawa Model for Research Use
CPG – Clinical Practice Guideline
CNO – College of Nurses
RN – Registered Nurses
RPN – Registered Practical Nurse
PN – Practical Nurse
NP – Nurse Practitioner
Dfb – degrees of freedom between
β - beta value
< - less than
> - more than
α - p value
@ - at
R ² – R squared
N – sample number
SN – Subjective Norm
ATT – Attitude

Chapter 1

Introduction, Problem Statement and Study Objectives

Introduction

Why do some nurses continue to use research while others do not where organizational policy supports the ongoing use of evidence-based practice? This survey correlation study seeks to address this evidence-gap and measure nurses' attitudes, beliefs and perceptions towards their ongoing use of evidence in a tertiary care facility. It also seeks to examine nurses' perceptions and experienced knowledge regarding the facilitators, barriers and organizational structures that have an impact on their continued use of the research in their daily practice.

The importance of using research as evidence for practice has been at the forefront of the nursing profession since the early 1970's. The concept of Research Utilization (RU) has been defined in the literature by many theorists as a 'process' (Polit & Beck, 2004; Stetler, 2001; Royle et al, 1997; Barnstein, 1996; Horsley et al, 1983). As such, the RU process begins with the emergence of an empirically based innovation, new knowledge, or new phenomena that gets scrutinized for adoption in practice settings. As research is conducted over time knowledge accumulates and eventually works its way into use (Polit & Beck, 2004 p. 673).

In the last two to three decades, the need to use research findings has gradually been permeating the culture of nursing. Increasingly, nurses are expected to integrate evidence-based practices into specific nursing actions and patient care decisions (Polit and Beck, 2004; Rogers, 2004). Research utilization is dependent on nurses' direct or indirect use of the evidence in the clinical setting (Estabrooks, 1999). For example, putting findings into practice via a protocol and evaluating the potential usefulness of the evidence on patient

outcomes demonstrates direct use of research. Successful utilization of nursing research in practice is a highly complex process. Fortunately within nursing, over the past two decades, two resources; namely the Cochrane Library and Clinical Practice Guidelines, have emerged that facilitate the application and implementation of research evidence into clinical practice (Grol & Grimshaw, 1999, 2003; Davis, 2002). These resources provide systematic reviews of published healthcare clinical trials and studies. The Cochrane Library was established by the Cochrane Collaboration; an international non profit organization, dedicated to ensuring accurate information about the effects of health care are readily available worldwide. It produces and disseminates systematic reviews of healthcare interventions. The Cochrane Collaboration was founded in 1993 and named after the British epidemiologist, Archie Cochrane.

The RNAO is a professional nursing association in Ontario that has undertaken to publish Nursing Best Practice Guidelines (BPG) that are well researched and tested. These guidelines are developed by a panel of nurses and experts convened by the RNAO. Recommendations found within the guidelines are derived from a variety of sources, some of which include a systematic process of review which focuses on evidence available in systematic reviews, meta-analyses, randomized control trials (RCT) and published clinical practice guidelines. The guidelines are designed to assist nurses to apply the best available evidence to make clinical decisions within diverse clinical practice settings, ranging from acute to long term care.

To date, the nursing profession purports integrating the findings of research, such as best practice guidelines, to improve clinical practice and to ensure that quality care should be the vision for most nurses who form the largest portion of care providers at the bedside (Olade, 2003). To this end, numerous studies have been designed to inform the profession about the

factors/challenges faced by nurses related to the adoption of evidence into clinical practice. More specifically, these studies examine factors that occur between the publication of research findings, the dissemination of the results, and their direct application to nursing practice (Michel & Sneed, 1995; Funk, Tornquist & Champagne, 1995; Bero, Grilli, Grimshaw, Harvey, Oxman & Thompson, 1998, Rodgers, 2000, Hunt, 2001). A number of facilitators have been identified (Funk, Tornquist & Champagne, 1995; Camiah, 1997; Estabrooks, 1999; Omery & Williams, 1999; Parahoo, 2000, Rodgers, 2000; Retsas, 2000; Tsai, 2000; Hunt, 2001; Olade, 2003, 2004) as well as barriers that affect nurses initial uptake of evidence/guidelines into their practice (Closs and Cheater, 1994; Chapman, 1996; Camiah, 1997; Omery & Williams, 1999; Estabrooks 1999; Rodgers, 2000; Tsai, 2000; Olade, 2003, 2004).

Prevalence of the Problem

Olade (2003) concedes it is disheartening to note that the integration of scientific findings into practice has been relatively slow among nurses. Thus far, the nursing literature reveals a dearth of studies examining: 1) nurses' decisions to 'continue to use evidence', such as clinical practice guidelines, and 2) the related factors/challenges affecting their ongoing use of such evidence in their daily clinical practice. From the few studies which have been done we can only conclude that the more positive a nurse's attitude, the more likely the nurse will use research findings (Ehrenfeld, and Eckering, 1991; Camiah, 1997; Estabrooks, 1999; Olade, 2003, 2004). Researchers have still not clearly discovered why some nurses use research findings and others do not; nor why some are more likely to use research findings than others or why others struggle with the ongoing use of research in their individual practice when that research is approved for use in their setting. Evidently, changing nurses' behaviour remains a challenge, even when relative advantages are indicated (Davis, 2002). Admittedly, a number of barriers and facilitators have been identified with respect to nurses'

uptake of research in clinical practice yet few nursing studies have focused on the salient internal factors, such as beliefs, attitudes and perceptions, affecting nurses' motivation to continue to use research in their practice. If nurses do not have a positive attitude towards the use of research, nor believe using research has advantages for patient and nursing, it is unlikely they will integrate findings into their practice.

Understanding Nurses' Beliefs, Attitudes and Perceptions towards Research Utilization

Understanding nurses' attitudes towards research utilization; what their beliefs are about how easy or difficult it is to use research in their practice; what they perceive the positive and negative consequences of using research to be; what their perceptions are about the social norms or expectations to adopt research findings in their practice are; as well as their motivations to comply with the expectation will provide information about nurses' intention to use research if and when the opportunity arises. Understanding nurses' beliefs about the presence of factors that may facilitate or impede their use of research is also an important consideration when seeking information about nurses' intentions to use research in their practice. According to Ajzen's Theory of Planned Behaviour (TPB), the more favourable the attitude and the social norms (reflects perception of the social expectation to adopt a behaviour) are towards the change behaviour and the greater the perceived control (beliefs about how easy or not it is to perform the behaviour), the stronger an individual's intention to perform the behaviour in question (Ajzen, 1988). Ajzen's theoretical framework was used to gain further insight into and understanding of the behavioural intentions of nurses regarding their ongoing use of research findings in their clinical practice and to provide the hospital with effective interventions to improve research utilization.

Purpose and Objectives

The purposes of this study were to validate whether nurses are using the RNAO's Falls Risk Prevention BPG policy/protocol approved for use in their setting on an ongoing basis; to examine practicing nurses' attitudes, beliefs and perceptions related to their intention to continued use the RNAO's Falls Risk Prevention policy/protocol in their clinical practice; to examine the importance of each variable (beliefs, subjective norms, perceived behavioural controls) related to their intention to continue to use the policy/protocol in their practice; and to examine the nurses' perceptions and experienced knowledge regarding the facilitators, barriers and organizational structures that impact their continued use of research in their practice setting.

The objectives of this study are to **a)** substantiate nurses' ongoing use of research findings in a tertiary care setting using Estabrooks' (1999) definition of RU, namely the direct form of RU; **b)** examine nurses' motivations i.e. attitudes, beliefs, perceptions related to their ongoing use of research findings in their clinical practice using Ajzen's Theory of Planned Behaviour (Godin & Kok, 1996) as a theoretical framework, **c)** examine which of the variable(s) (beliefs, subjective norms, perceived behavioural controls) is a greater predictor of nurses' intention to continued use of research in their clinical practice; and **d)** examine nurses' practice experience i.e. barriers, facilitators and organizational structures that impact their continued use of research findings in their practice setting.

Research Questions

- Do the nurses in this tertiary care facility actually use the approved RNAO Falls Risk Prevention clinical practice guideline as per the established policy/protocol (a direct form of RU defined by Estabrooks in 1999) on an ongoing basis in their daily practice?

- What are the specific attitudes, social norms and perceived behavioural control beliefs of nurses that are related to their intention to continue to use the Falls Risk Prevention policy/protocol in their clinical setting?
- What is the relative importance of the independent variables of planned behaviour theory such as nurses' attitudes (outcome component), social norms (normative/referent component) and perceived behavioural control beliefs (control components) related to nurses' intention to continue to use the Falls Risk Prevention policy/protocol (dependent variable) in their clinical practice?
- What are the barriers, facilitators and organizational structures impacting nurses' ongoing use of the Falls Risk Prevention policy/protocol in their practice?

The Setting

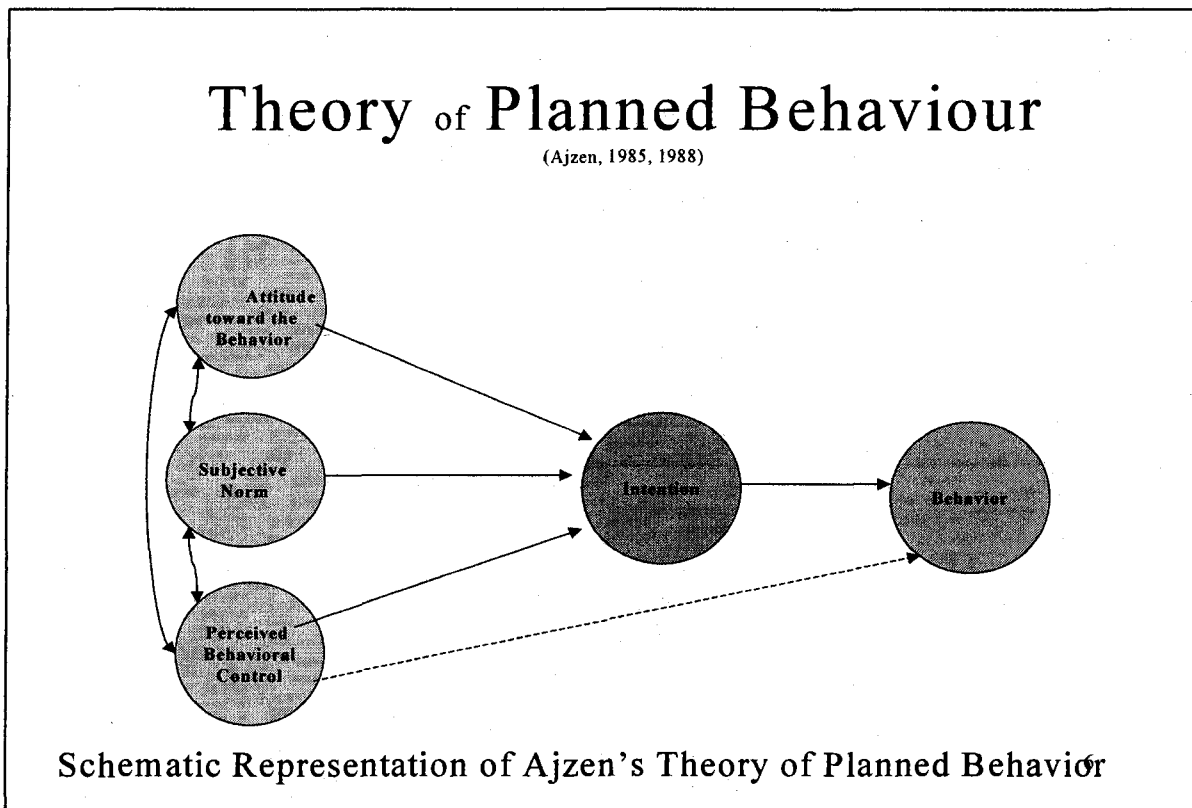
The study was conducted in a tertiary site, a regional psychiatric hospital; namely the North East Mental Health Center (NEMHC), wherein a case study was previously conducted by the researcher three years ago to analyze the initial uptake/adoption of an evidence-based practice, the RNAO's Falls Risk Prevention best practice guideline. In 2003, this guideline was adopted and implemented on three Seniors Mental Health (SMH) units where approximately 60 nurses continue to be employed. Currently, policy at the NEMHC continues to support nurses' ongoing use of the RNAO Falls Risk Prevention BPG in daily clinical practice placing the decision point to use the guideline with the individual nurses at the clinical practice level.

Theory of Planned Behaviour – Conceptual Framework

The theoretical framework used for this research is Ajzen's (1985, 1988) Theory of Planned Behaviour (TPB) (see figure 1). In this study the behaviour of interest is nurses' 'Ongoing Use of Research' (the RNAO's Falls BPG) in the clinical setting. Ajzen's Theory

of Planned Behaviour (TPB) suggests the best predictor of behaviour is behavioural intention. Intention is a measure of the extent to which an individual is motivated to perform the behaviour and is seen to be a function of three independent variables; attitude, subjective norm, and perceived behavioural control.

Figure 1: Schematic Diagram of Ajzen's Theory of Planned Behavior (1985, 1988)



Attitudes are a reflection of one's belief about the positive or the negative consequences of performing a particular behaviour such as the ongoing use of research (Ajzen, 1985). Subjective Norm reflects one's perception of the social expectation to adopt behaviour (Ajzen, 1985). Thus it reflects one's belief about whether others approve or disapprove of one's ongoing use of research in clinical practice. Perceived Behavioural Control (PBC) is a reflection of the perceived ease or difficulty involved in performing the behaviour (Ajzen, 1985). Ajzen noted that most behaviours are located at some point along a continuum that extends from total control to complete lack of control. PBC is intended to

accommodate situations in which individuals may lack a degree of, or complete, volitional control. For example, given the complexity of healthcare environments the presence of practical constraints and or barriers often inhibits nurses' ability to use research in their practice. Thus, theoretically, nurses with positive attitudes, who perceive they have the support of others and who believe they have control over factors that may facilitate or impede use of the Falls Risk Prevention policy/protocol as a base for evidence-based practice should be more likely to actually continue to use this research in their daily clinical practice.

The following chapters describe the present state of knowledge related to Research Utilization (RU), a new definition for the concept of RU, the methodology used to measure nurses' ongoing use of research in clinical practice, the results and related implications and conclusions.

Chapter 2

Present State of Knowledge -Literature Review

Sources Used in the Literature Review Process

A variety of search strategies were used in the development of this literature review. These included an organized search of health and medicine electronic databases such as MEDLINE (a general medical database) and CINAHL (Cumulative Index of Nursing and Allied Health Literature) for journal articles related to the subjects of: nursing research, evidence-based practice(s), barriers, attitudes, facilitators, clinical practice guideline(s), RU, the concept of RU, and or implementation models for RU. The Cochrane Library was most useful in identifying available systematic reviews conducted on the components of RU using the terms evidence-based practice, evidence-based nursing, the concept of research utilization, research utilization and clinical practice. In particular, the Cochrane Databases of Systematic Reviews (CDSR) revealed systematic reviews conducted by the Cochrane Collaboration and abstracts of systematic reviews completed by other groups located under the Databases of Abstracts of Reviews of Effectiveness (DARE). A review of the present state of knowledge related to the concept of RU and Implementation Models for RU was sourced in 2005 from information found within textbooks such Nursing Research: Principles and Methods (Polit & Beck, 2004); Evidence-based practice: A Primer for Healthcare Professionals (Dawes et al, 1999); Diffusion of Innovations (Rogers, 2003); The Evidence-based Practice Manual for Nurses (Craig & Smyth, 2002) along with a number of peer reviewed electronic journal articles cited in the reference list provided herein. Furthermore, a critical appraisal was conducted of the literature cited in the RNAO's clinical practice guideline (RNAO, 2005) referred to in the case study in February 2006.

Definitions in the Literature for the Concept of Research Utilization

To understand what is meant by the term 'research use', a concept analysis was undertaken to clearly define the concept of Research Utilization (RU), describing what it is and what it isn't. The literature revealed that many theorists have defined RU as a process (Polit & Beck, 2004; Horsley et al, 1983; Barnstein, 1996; Royle et al, 1997; Stetler, 2001). As such, the RU process begins with the emergence of an empirically based innovation, new knowledge, or new phenomena that gets scrutinized for adoption in practice settings. As research is conducted, over time knowledge accumulates and eventually works its way into use (Polit & Beck, 2004 p. 673). Stetler (2001) has argued that there are two types of research 'knowledge', specifically, the knowledge regarding the products of research and the knowledge regarding the process of research. This suggestion would further imply there are two types of RU: 1) the use of research as a set of products and 2) the use of research as a set of processes (Stetler, 1985). The use of research products refers to the use of research findings, including validated measuring instruments. Use of research as a process refers to use of individual components of the research method for the purpose of routine problem solving rather than for the conduct of research. Both types of research knowledge (research products and research as a process) are integrated in the Stetler Model of RU (Stetler, 2001), with the model's primary focus being the use of research findings (products).

The Conceptual Structure of Research Utilization

This notion that RU can be a specific kind or type of research knowledge, has been further explored and measured by Estabrooks (1999) in a study wherein she randomly surveyed 600 practicing nurses use of research findings in Western Canada. She found evidence to support three distinct types of research utilization among nurses: direct, indirect and persuasive RU. To develop the conceptual structure of RU and define the three types of

RU, Estabrooks (1999) considered the work of theorists Loomis (1985), Rich (1975), Weiss (1979) and Beyer & Trice (1982), who have studied the phenomenon of 'knowledge development' and 'the diffusion of ideas'. Loomis (1985) conceptualized knowledge as the overarching domain under which RU is located. In the literature there are three ways in which research has been reported to be used: there is instrumental use, conceptual use, and symbolic use of research findings. Rich (1975) and Weiss (1979) discussed the classification of instrumental and conceptual utilization of knowledge while Beyer and Trice (1982) added symbolic utilization to the conceptual structure of RU. Specifically, in *instrumental utilization* there is a concrete application of the research where the research is normally translated into a useable form. The research in this case is used to guide decisions /interventions. In *conceptual utilization* the research may change ones thinking but not necessarily one's actions. This type of research serves to enlighten the decision maker. Lastly, *symbolic utilization* involves the use of research as persuasive tool to legitimize ones position or practice.

Moreover, these theorists have recognized that a continuum exists in terms of the specificity of the use to which research findings are used (Polit & Beck, 2004, p.674)(Estabrooks, 1999). At one end of the continuum are distinct, identifiable attempts to base specific actions (nursing interventions) on research findings such as the development of a protocol to make specific decisions/interventions. This type of utilization is referred to as 'Instrumental Utilization' (Caplan & Rich, 1975; Rich, 1975; Weiss, 1979). Estabrooks (1999) refers to this as 'Direct RU'. The opposite end of the continuum reflects how research findings are often used in a more diffuse manner, in a way that promotes cumulative awareness, understanding, and enlightenment. For example, there is a change in one's thinking or opinion about how to approach certain patient care or client situations not

necessarily one's particular action. Thus the research informs and/or enlightens the decision makers (Hansenfeld & Patti, 1992). This type of utilization is referred to as 'Conceptual Utilization' (Rich, 1975; Weiss, 1979). Estabrooks (1999) refers to this as 'Indirect RU'. A few years later, Beyer & Trice (1982) added 'Symbolic Utilization' to this same end of the continuum. Symbolic utilization involves the use of research as a persuasive or political tool to legitimize a position or practice. A case in point is the use of findings to persuade others (including those in decision making positions) to make changes in policies or practice. Estabrooks (1999) refers to this as 'Persuasive RU' in her conceptual structure of RU.

The middle of the continuum involves the partial impact of research findings on nursing practice (Weiss, 1980). It represents a slow evolutionary process that does not reflect a concrete decision to use research, but rather reflects what Weiss (1980) terms 'Knowledge Creep' and 'Decision Accretion'. This notion of 'knowledge creep' has been metaphorically referred to by Polit & Beck (2004, p.674), as "an evolving percolation of research ideas and findings." Decision accretion, according to Weiss (1980) refers to the manner in which momentum for a decision builds over time based on the accumulation of information gained from readings and discussions. This type of partial RU is akin to nurses' conscious decisions to consider the use of research, new knowledge or new ideas in their clinical practice.

Rich (1975), Weiss (1979), Beyer & Trice (1982) and Stetler (1985) made important theoretical contributions to the profession's understanding of the RU in the mid 1980s. Estabrook's (1999) contends little else existed (no empirical work could be located) that verified or refuted the instrumental, conceptual and symbolic structure of RU described by these theorists. Thus Estabrook's (1999) research provides the first such empirical support for the conceptual structure of RU and has been incorporated into the working definition developed as part of this concept analysis.

Differentiating Research Utilization & Evidenced-Based Practice

The terms research utilization (RU) and evidence-based practice (EBP) are often used interchangeably even though they are not synonymous. Although there is overlap between the two concepts, they are, in fact, distinct (Polit & Beck, 2004; Estabrooks, 1999, 2003; Stetler, 1998, 2001; Omery, 1999; Rodgers, 2000). In the 1990s, the concept, evidence-based practice (EBP) appeared in the literature. The term EBP evolved from evidence-based medicine (EBM), which was developed in Canada in 1992 by Gordon Guyatt to teach medical students at McMaster University Medical School. It originated when a group of physicians, at McMaster Medical School rejected that which was taught as expert information and instead sought the truth by systematic patient observations. This group developed a clinical learning strategy they called evidence-based medicine (Polit & Beck 2004, p 678). Subsequently, the term EBP has evolved acknowledging the interdisciplinary nature of health care, of which medicine is a part. Its emergence raises questions about what is considered evidence, the relationship between the concepts of RU and EBP, and perhaps the status and relevancy of published RU models.

Neither 'evidence' nor 'EBP' is uniformly defined in the literature. Webster's Dictionary defines evidence as "something that furnishes proof or testimony, or something legally submitted to ascertain the truth of a matter". Further, the term 'evident' implies presence of visible signs that leads one to a definite conclusion. Related terms that readily come to mind are verifiable data, facts, or findings. Thus to define evidence is really to indicate the levels of evidence that are deemed acceptable by an individual or group involved in the process of EBP (Hamric, Spross & Hanson, 2005, p. 264).

Polit & Beck (2004, p 677), Pape (2003), Stetler et al (1998) (2001), Omery (1999), Dicenso, Cullum & Ciliska, (1998), define the concept of Evidence-Based Practice

(EBP) as a process that begins with a search for information about how best to solve specific problems and resultantly involves making clinical decisions on the basis of the best possible evidence. There is general agreement findings from rigorous research are considered the best possible source of evidence, but EBP takes into consideration additional non-research sources of information (Goode, 2000). Non- research sources include performance data from quality improvement initiatives (i.e. report cards, peer review reports, program evaluations, quality improvement project assessments and evaluations, survey reports); consensus recommendations from experts or expert clinical opinions both locally or nationally; and affirmed experiences (i.e. shared reflections, goal related progress and outcome documentation; and case studies) in addition to scientific research findings (i.e. synthesis of integrated research reviews, meta-analysis or individual studies). Thus, a basic feature of EBP is the emphasis it places on identifying the best available research evidence and integrating the evidence with clinical expertise, patient input and existing resources rather than basing decision-making on custom, authority opinion, or ritual (Polit & Beck, 2004, p.678; Goode, 2000; DiCenso, Cullum, Ciliska, 1998). Omery (1999) adds such EBP activities in nursing often result in a set of clinical practice guidelines to direct the practitioners in decision-making. Supporters argue EBP constitutes a rational approach to provide high quality health care in our current cost-constrained environments given the available resources

Research Utilization, the narrower of the two concepts, is defined as the use of the findings from a disciplined study or set of studies in a practical application that is unrelated to the original research site (Polit & Beck, 2004, p.673). This definition elaborates on previous published definitions of RU. For example, Horsley et al (1983 p100 -101) defined RU as a process directed towards transfer of specific research-based knowledge into practice through

a systematic use of a series of activities, Barnstein (1996) defined RU as the process of getting to knowledge-based practice (p.53), Royle et al (1997) defined RU as the process in which relevant research is critically examined and applied to patient care (p.12) and Stetler in 1994 (Stetler, 1985) defined RU as a process directed towards the transfer of specific research –based knowledge into practice. Nonetheless these definitions for the concept of RU clearly indicate the evidence or findings being considered for use in the clinical setting stem from scientific research only.

Notably, with the emergence of the EBP movement and its emphasis on the inclusion of non-research sources of evidence, several RU models have undergone revisions. This distinction between RU and EBP has been incorporated into several RU models (i.e. the 1994 Stetler Model for RU, the 1998 Ottawa Model for Research Use (OMRU), the 2001 Iowa Model and the 2002 ACE Star Model) reflected in basic research texts and the application of such models have been published in various peer reviewed journals to enhance the use of research findings in nursing practice. Cases in point, Stetler (2001) has clarified the distinction between RU and EBP in her model by further differentiating external and internal sources of evidence. External refers primarily to research findings, but also includes consensus of experts. Internal refers to ‘other sources of credible data’. The Iowa model was revised in 2001 and renamed the Iowa Model of EBP to Promote Quality Care. It acknowledges that formal RU/EBP projects can begin with a problem-focused trigger that emerges from the clinical setting or an awareness of innovative research findings. However, if a literature review reveals no answers and there is little time to conduct a study, case reports, expert opinions and scientific principles are considered for EBP guideline development (Pape, 2003). Inevitably, many of the recently published nursing-related

models for implementation of research findings in clinical practice build on this practitioner-orientated definition from Medicine

Re-Defining the Concept Research Utilization

The following re-conceptualization of the concept of RU builds on the work of previous theorists, its process-like nature and the integrative nature of knowledge utilization. RU can be viewed as a broad concept that divides into three sequential phases or sub-concepts depicting the varying degrees of use of research findings. The sub concepts are termed phases: 1) the Initiate Use Phase of RU, 2) the Ongoing Use Phase of RU, and 3) the Abandonment Use Phase of RU. This is illustrated in Appendix A, Figure 2. The underlying assumptions include: RU uses only scientific findings or forms of knowledge which have a research base to substantiate them as defined by Estabrooks (1999) and the sub-concepts integrate theories of knowledge utilization. Furthermore, the components of existing RU Models (the Stetler Model; the Iowa Model, the Ottawa Model for Research Utilization (OMRU), the ACE Model) designed to enhance the diffusion and dissemination of research findings into clinical practice have been analyzed with respect to the relationship they have to this conceptual structure of RU and their applications are discussed within the definitions of the three sub-concepts of RU. This is illustrated in Appendix A, Table 1.

The broad concept of Research Utilization is re-defined by this researcher as: “*a process of using research (evidence, new knowledge, findings) from rigorous research studies or set of studies (including qualitative and quantitative) that have been critically examined and applied to a practical application that is unrelated to the original research (Polit & Beck, 2004, Stetler, 2001, Barnstein, 1996, Royel et al, 1997, Horsley et al , 1983). It divides into three sub-concepts which depict the varying degree of research use: initiate use phase of RU, the ongoing use phase of RU and abandonment use phase of RU.*” This

broad definition and the associated sub-concept definitions incorporate that which Polit & Beck (2004), Stetler(2001), Estabrooks(1999), Barnstein (1996), Royle et al (1997), Horsley et al (1983) assert define what RU is.

The sub-concept 'Initiate Use Phase of RU' involves the partial impact of research findings on nursing practice commonly referred to by Weiss (1980) as the middle of the continuum. 'Initiate Use Phase of RU' is defined by this researcher as "*the emergence of new knowledge or ideas and/or a trigger or feeling of discomfort felt by a practitioner that spurs them to search for new knowledge or to validate current practice to the point where a conscious decision to consider the use of research in practice is made based on the accumulation of information gained from readings and discussions (which may or may not result in a product of RU ie policy, pilot, tools, for use in the clinical setting)*" (Weiss, 1980). Notably, this sub-concept's definition encompasses an evolutionary process that is reflected in Weiss's (1980) notions related to knowledge utilization known as 'knowledge creep' and 'decision accretion' in which momentum for a decision builds over time. Ultimately there is a change in attitude or opinion towards the findings, the potential feasibility and application in practice is considered, confirming how the findings will be translated into practice is also involved. The latter part of this phase of this sub-concept might involve the development of a guideline, detailed procedure or plans for formal organizational change. This type of partial RU is akin to nurses' conscious decisions to adopt (or reject) the use of research, new knowledge or new ideas in their clinical practice.

Additionally, RU models (Stetler, 2001; OMRU, 1999; Iowa, 2003; Rogers, 1995) have incorporated, to varying degrees, the evolutionary aspect of the Initiate Use Phase of RU sub-concept in their various stages/phases (see Appendix A, Table 1). The RU models too describe the degree of research use in stages or phases. Stages/phases that are

synonymous with the definition of the Initiate Use Phase sub-concept include: discovery, summary, translation stages (ACE star Model); knowledge, persuasion, decision stages (Rogers Model); preparation, validation, comparative evaluation, decision making, translation and application phases (Stetler Model); knowledge focused or problem focused trigger stage (IOWA Model) and the assessment, the transfer strategy and the adoption (decision) phases of research uptake (OMRU Model). Ultimately there is a change in attitude or opinion towards the findings, the potential feasibility and application in practice is considered, confirming how the findings will be translated into practice is also involved. The latter stages/phases of the models might also involve the development of a guideline, detailed procedure or plans for formal organizational change

The second sub-concept 'Ongoing Use Phase of RU' forms the focus of this thesis. The Ongoing Use Phase assumes that diffusion, dissemination and a commitment /decision to use research findings, in part or wholly, has occurred. Hence, the Ongoing Use phase of RU is defined by the researcher as *"the continued /ongoing use or the adoption of the findings in one's practice, albeit direct, indirect in nature or persuasive as per Estabrooks, (1999).* Estabrooks (1999) defines these three distinct types of RU as: *Direct RU, involves the direct use of findings in giving patient care which is analogous to instrumental utilization described by Rich in 1975; Indirect RU, involves changes in nurses' thinking which is analogous to conceptual utilization by Rich, 1975; and Persuasive RU, involves the use of findings to influence those in decision making positions to bring about change in policy or practices".* Thus, the notions of direct, indirect and persuasive RU (Estabrooks, 1999) are considered ways in which continued use of research are manifested or realized in nursing practice and subsequently are part of the focus of this research proposal.

The third sub-concept 'Abandonment Use Phase of RU' is defined by the researcher as *"the discontinuation of an innovation/research findings/evidence being considered for use or those already in use when the body of knowledge is deemed inadequate, the emergence of new knowledge, the result of unrealized goals and/or the realization of a negative outcome(s) from the perspective of the users, receivers, the organization, practitioners, patients, economical/political environment"* (Omery & Williams , 1999). This sub-concept involves stopping or abandoning the RU process. Ultimately, for a variety of reasons, the new idea or knowledge has not been fully routinized into the ongoing practices of the adopter (or nurses) and sustainability is not likely. This can either result in returning to the research or literature, the scientific process or simply never reconsidering the use of the particular research findings again.

Importance of Using Evidence in Clinical Practice

Research utilization (RU) has been emphasized in nursing since the early 1970s by nursing leaders, such as Abdellah (1970) and Lindeman (1975), who called for the use of scientific evidence from research to improve the quality of patient care in nursing practice. More recently the movement towards evidence-based practice has brought this point into focus. The use of research findings for evidence-based nursing practice can serve to predict the probable outcomes of certain nursing decisions, to control the occurrence of undesired outcomes and/or to initiate activities that promote desired client outcomes (Polit and Beck, 2004). Increasingly, nurses are expected to integrate evidence-based practice into specific nursing actions and patient care decisions to foster professional accountability to care recipients and reinforce nursing as a profession and discipline (Rogers, 2004). Hence, the importance of research as an essential basis for making decisions, for developing nursing interventions and for

the nursing professions' development has long been realized and remains an international nursing concern today.

What is Known Related to the "Initiate Use Phase of RU"

Motivations for Research Utilization

In summary, a review of the literature on nurses' use of research in clinical practice revealed numerous studies highlighting barriers, facilitators and organizational structures which relate to nurses' adoption and uptake of evidence into practice. A few studies were found focusing on nurses' attitudes toward research, which concluded the more positive a nurse's attitude the more likely the nurse will use research findings (Ehrenfeld & Eckering, 1991; Camiah, 1997; Estabrooks, 1999; Olade, 2003, 2004).

Barriers Towards Research Utilization

It is evident in the literature that significant efforts have been made over the years to identify barriers as well as facilitators, in regards to research utilization among practicing nurses. Studies focusing mainly on barriers to research utilization noted (a) characteristics of the nurse, which revolve around poor knowledge of research, (b) characteristics of the research presentation, with statistical terms beyond the level of the average nurse; and (c) characteristics of the organization settings in clinical areas constitute barriers. In particular, barriers to RU revealed by these studies include nurses' lack of time and independence in the organization, lack of staff, lack of research knowledge among nurses without university education, lack of support from managers/administration and lack of authority to change practice (Funk, Tornquist & Champagne, 1995; Camiah, 1997; Estabrooks, 1999; Omery & Williams, 1999; Kitson et al, 1996; Parahoo, 2000, Rodgers, 2000; Retsas, 2000; Tsai, 2000; Hunt, 2001; Olade, 2003, 2004). Other important conclusions from a few of these studies

reveal the resistance among senior staff (Camiah, 1997, Estabrooks, 1999), the research values and skills of the nurses (Olade, 2003, 2004) and access to role models or knowledgeable research nurses (Olade, 2003) particularly in the clinical setting (Kitson et al, 1996) were important in research utilization among nurses.

Facilitators Towards Research Utilization

Kitson et al (1996) have argued before nurses are able to respond to new knowledge and new ways of working contextual barriers must not only be tackled but nurses must be encouraged to become involved in the process of change. Other factors noted to facilitate research utilization in nursing practice include administrative commitment and support, knowledge of the research process, favourable research attitudes, affiliations with a university, and financial resources (Closs and Cheater, 1994; Chapman, 1996; Kitson et al, 1996; Camiah, 1997; Omery & Williams, 1999; Estabrooks 1999; Rodgers, 2000; Tsai, 2000; Olade, 2003, 2004). Additionally, Closs and Cheater (1994) contend the three basic requisites necessary for successful research utilization within an organization include a positive research culture, an interest among practitioners (nurses) and the supports (both human and physical) required to promote change. According to Kitson et al (1996), Omery & Williams' (1999) qualitative exploration study wherein they used an open ended interview technique with 20 nurses, and Tsai's (2000) descriptive correlation survey of 382 staff nurses and nurse managers closer ties between academic and service institutions, such as partnerships, enhance research utilization and increase nurses' involvement in research activities. Findings from a descriptive study conducted by Olade in 2004 further indicate a need to emphasis the value of research utilization at all levels of nursing education and the importance of having an experienced research coordinator on site to consult with nurses to initiate research utilization activities and enhance evidenced based practices.

Attitudes Towards Research Utilization

Although several studies have revealed barriers to research utilization among nurses and identified potential facilitators for RU, as few as ten studies were identified by Estabrooks et al (2003) in a systematic review, to have examined the individual determinants of adopters towards research use, such as nurses' attitudes towards research use. Findings from a non-experimental survey study conducted by Ehrenfeld, and Eckering (1991) of 166 nurses related to their attitudes towards research utilization demonstrated where ability is higher, attitudes towards research activities are more positive and vice versa. Further evidence substantiates that nurses without a baccalaureate degree do not fully understand or value research (Omery and Williams, 1999; Tsai, 2000; Rodgers, 2000) and harbour less favourable attitudes towards research (Olade, 2003). Moreover, Olade (2003) identified a statistically significant correlation between nurses' education level and attitudes towards research. This descriptive correlation study design focused on the attitudes of 106 nurses in rural practice settings towards nursing research and the relationship between their attitudes and other factors. Olade's (2003) results reinforce the fact a good knowledge base of research is still an important ingredient in developing favourable research attitudes.

Other notable results gleaned from the literature stipulate the attitudes of nurses towards research and the importance they attach to it to be key motivators for nurses' use of research in clinical practice (Chapman, 1996). In fact, nurses with favourable attitudes towards research have demonstrated more desire to use research findings for evidence-based practice than those with less favourable attitudes (Olade, 2004). What's more, nurses with degrees demonstrated a more favourable attitude towards nursing research when they are directly involved in the research process rather than just collecting data (Olade, 2003). Moreover, the results of these studies conclude the more positive a nurses' attitude, the more

likely the nurse will implement research findings (Ehrenfeld, and Eckering, 1991; Camiah, 1997; Estabrooks, 1999; Estabrooks et al, 2003 Olade, 2003, 2004).

A Case Study Demonstration of the “Initiate Use Phase of RU”: Understanding the Transfer of the RNAO’s Falls Risk Prevention CPG Into Practice

Significance of Falls in the Elderly

A fall can be a devastating event for an older person and a serious injury such as a hip fracture can result in considerable loss of function and independence, even death. Non-injurious falls can also have a serious impact on the psychological well being of older people. Approximately one in three older adults fall each year, while 36% of those who fall develop serious injuries (Koski, Luukinen, Laippala & Kiveal, 1998). The Canadian Institute for Health Information (CIHI, 2000) indicates falls are the primary cause of injury admissions to Canada’s acute care hospitals, accounting for 84.4% of all injury hospitalizations for patients’ age 65 years and older and 75.7% of all in-hospital deaths for patients admitted with injuries. Resultantly, the prevention of falls has taken on greater importance for health care professionals and several innovations have been developed to reduce the risk of falls in the elderly.

One such innovation is the Registered Nurses of Ontario’s (RNAO) best practice guideline (BPG) for falls risk prevention for nursing and allied health care professionals (RNAO, 2005). The RNAO purports, identifying possible risk factors and falls prevention programs can in fact prevent the majority of falls (RNAO, 2005, p.21). Recommendations found within this guideline have been derived from a 3 year systematic review process which focused on evidence available in systematic reviews, meta-analyses, randomized control trials (RCT) and published clinical practice guidelines (see Appendix B).

Local Practice and Policy

In 2004, a case study of the implementation process used at a regional acute psychiatric facility; the Northeast Mental Health Center (NEMHC), to adopt the RNAO nursing best practice guideline (BPG) for the prevention of falls and fall injuries in the older adult was conducted by the researcher. The decision to implement the RNAO's falls BPG published in 2002 (RNAO, 2002) was made taking into consideration several organizational factors, namely the high incidence of reported falls occurring within the hospital. Case in point, internal statistics revealed the number of falls within the Senior Mental Health Program (SMH) which consists of three nursing units, averaged 10 per month in 2002-03. This equates to one in 5.5 patients falling per month. Secondly, the need to address an accreditation recommendation (which suggested the need to reduce the use of restraints within the SMH program) was identified. Lastly, many patients within this acute care hospital were often discharged to alternative long term placement facilities following treatment. Receiving healthcare facilities are governed by the new legislative requirement to minimize the use of restraints on patients in hospitals and facilities (Bill 85-Patient Restraint Minimization Act, 2001). To enhance continuity of care between facilities and to reduce the likelihood of falls post discharge, the hospital felt an obligation to initiate a falls prevention program. Hence since the fall of 2003, the SMH Program, averaging approximately 55 patients per month has actively been involved with the implementation of the falls risk prevention guideline.

The steps taken to address the high falls incidence within this regional hospital involved the development of a policy and protocol specific to the unique patient population using the RNAO guideline implementation toolkit (RNAO Toolkit, 2002). Interventions approved for use in 2003 included an initial staff training day, an admission risk assessment

process, a “Time Up and Go” mobility assessment tool process, a post-fall risk assessment process, a quarterly chart audit process, exercises, mobility aides, environmental modifications, medication reviews and hip protectors (see Appendix C). The diffusion, dissemination and implementation of research findings into clinical practice at the NEMHC involved a multidisciplinary team approach, namely the involvement of a physiotherapist, an occupational therapist, physicians, unit nurses (RNs RPNs), a pharmacist and even housekeeping staff. The Ottawa Model for Research Use (OMRU) (Logan & Graham, 1998) was used as the conceptual framework to analyze the process undertaken by the Champion Team at the NEMHC to implement the RNAO Falls Risk Prevention CPG within the SMH program.

Theoretical Framework Used to Analyze Knowledge Transfer

The OMRU (Logan & Graham, 1998) recognizes six key components or elements that are seen to have influence on practitioner(s) uptake and utilization of research. These include:

- 1) the practice environment;
- 2) potential adopters;
- 3) the evidence-based innovation;
- 4) strategies for transferring the evidence into practice;
- 5) the use of the evidence and
- 6) health related and other outcomes of the process (Logan & Graham, 1998).

Logan and Graham (1998) state the model itself is a representation of an interactive, dynamic process of interconnected decisions and actions taken by many individuals relating to each of the model elements (see Appendix D, Figure 3). Identification of potential barriers and supports to research use related to the practice environment (SMH program units), the adopters (multidisciplinary team professionals) and the evidence-based on innovation (the RNAO falls prevention CPG) were analyzed following discussions with members of the Champion Team, participant interviews and focus group discussions. The OMRU was used

as a tool to analyze and provide suggestions for the selection and tailoring of research transfer strategies to overcome barriers and enhance supports for future research dissemination, implementation on other units within the facility and sustainability of the project within the SMH Program. It was also used to develop recommendations regarding the impending evaluation of the actual use of the guideline scheduled to take place in the fall of 2004 (see Appendix E).

Case Study Findings related to the “Initiate Use Phase of RU”

In summary, case study findings highlighted the research transfer strategies used by the Champion Team to engage practitioners to use research in practice during the initial training sessions and the beginning phases of the guidelines implementation appeared to be very successful. However, significant barriers existed with respect to practitioners’ ongoing use and future sustained use of the Falls CPG. In particular, recommendations to overcome barriers included the need to develop a communication plan designed to raise awareness of how research findings can be integrated into practice; use of passive dissemination techniques to limit the time practitioners are required to read available literature; the need to provide access to training sessions on an ongoing basis to potential adopters; expanding hiring practices to include the guideline in orientation training; engagement of a key stakeholder; the Senior Mental Health (SMH) Program Manager needed to be re-established; the need to develop a family education/awareness program; the need to establish an ongoing incident reporting structure and chart auditing process and lastly to continue with a multiple transfer strategy approach verses a single strategy.

Key recommendations related to the sustainability of the project focused on one of the most negative aspects of the implementation process, the reassignment of the project’s most strategic stakeholders. Recommendations to facilitate the ‘ongoing use’ of the BPG were

provided by the researcher with the intent of supporting the Champion Team in their endeavour to disseminate research into their clinical practice setting. For example, the need to support training and development of unit specific experts on the CPG to provide direction at the unit level; the establishment of a new Champion Team to ensue continuation of the project and to provide the clinical expertise within the facility; and the need to maintain ongoing communication with all stakeholders at all levels of the organization regarding the effectiveness of the guideline to ensure continued support. A final recommendation to monitor and evaluate the outcomes of research was suggested based on the unpredictability of the process of research use and the possibility of unanticipated positive and negative outcomes purported by Graham & Logan (1998). Hence, in 2004 it was strongly recommended the NEMHC find concrete evidence that the adoption and use of the Falls CPG was being used as it was intended. Outcome measurement relating to practitioners' use of the guideline, patient implications (outcomes) and project goals set out by the Champion Team needed to be evaluation priorities.

What is Known Related to the "Ongoing Use Phase of RU"

Literature Review

Few studies were found that relate to nurses actual 'ongoing use' of research and the related factors affecting their 'continued use of research findings' in clinical practice. Results from a systematic review and met-analysis of factors presumed to be determinates of nurse use of research were found to be equivocal by Estabrooks et al (2003). Thus it remains unknown the extent to which beliefs, and attitudes, involvement in research activities, information-seeking , education, professional characteristics and other social economic factors influence nurses research use in the clinical setting. Clearly additional research is

required to address this evidence-gap and measure nurses' ongoing use of evidence in a tertiary care facility and examine their perceptions and experience regarding the facilitators, barriers and organizational structures that impact their continued use of research in their practice.

Understanding Sustained Use of Research in Practice - The Ongoing Use Phase of RU

The Sub-concept of RU known as 'Ongoing Use Phase of RU' refers exclusively to the implementation phase of research utilization wherein the decision/commitment to use research findings in clinical practice has been made. Thus the diffusion and dissemination of research findings is assumed to have already occurred within the clinical setting.

The next chapter describes the empirical study conducted using Ajzen's Theory of Planned Behaviour (Godin & Kok, 1996) as a theoretical framework to examine practicing nurse's attitudes, beliefs, perceptions (feelings) related to their intention towards continued use of the RNAO's Falls Risk Prevention BPG in their clinical practice, the Ongoing Use Phase of RU. A survey correlation design is used to measure the independent variables (outcome, normative and perceived behavioural control) and to validate nurses' ongoing use of the 'Direct' type of research (covariate) empirically substantiated by Estabrooks in 1999. For three years, policy within the proposed setting has supported the continued use of the falls BPG and has placed the decision to use it with the individual nurses at the point of care.

Chapter 3 Methodology

Research Design

The focus of this quantitative study is to validate nurses' ongoing use of the approved direct type of research (Estabrooks, 1999) in their practice (ie the use of RNAO's Fall Risk Prevention policy/protocol); to examine nurses' attitudes, beliefs and perceptions related to their intention to continue to use the RNAO Falls Risk Prevention policy/protocol in their clinical practice and lastly to examine the nurses' perceptions and experienced knowledge regarding the facilitators, barriers and organizational structures that impact their continued use of research in their practice setting.

A survey correlation design was used to measure three independent variables (attitudes, subjective norms and perceived behavioural control beliefs) contained within the Ajzen theoretical framework (Godin & Kok, 1996) and to examine which of the variable(s); beliefs, subjective norms, perceived behavioural controls is a greater predictor of the dependent variable: nurses intention to continue to use research findings in their clinical practice. A mix of open ended questions were used in the survey to measure nurses' perceptions and experienced knowledge regarding the facilitators, barriers and organizational structures that impact their continued use of said policy/protocol in their practice setting.

Survey Development

A 7-point Likert scale TPB survey questionnaire was developed using the Manual for Health Services Researchers: Constructing Questionnaires based on the Theory of Planned Behaviour (TPB Manual) (Frances et al, 2005) and is provided in Appendix F. The questionnaire contains three direct measurement questions for each of the three independent predictor variables (attitude, subjective norm and perceived behavioural control belief) and the

dependent variable (behavioural intention) with open ended questions (Frances et al, 2005, p 26). Participants were asked to indicate their extent of agreement with each statement/question. The response scale for these questions is unipolar (1 to 7) with an end point rating scale range of 1 = strongly agrees and 7 = strongly disagrees. This scoring scheme (unipolar) was adopted as it is considered an optimal scaling choice by Frances et al (2005, p 39). The construction of the questions to measure the variables in the TPB model proceeded according to the process recommended in the TPB Manual which involved nine phases or steps. (Francis et al, 2005 p.10) (Godin & Kok, 1996). Three scenarios which reflected key decision points for nurses to use the RNAO's Falls Risk Prevention policy/protocol (behavioural intention) in their tertiary care facility were taken into consideration when formulating the questions. For example, Scenario 1 - on admission and within 48 hours; Scenario 2 – three months later; and Scenario 3 – after a patient fall incident. Several additional 7-point Likert scale type questions were formulated as per the TPB Manual (France et al, 2005) to measure respondents beliefs related to perceived facilitators and barriers to the “Ongoing Use Phase of RU”. Questions used to assess attitudes and facilitator/barriers towards RU were interspersed with questions measuring behavioural intention, subjective norm and perceived behavioural control (PBC) for each of the three scenarios. The twelve independent variable questions for Scenario 2 and 3 were randomized using an online source to avoid repetition (<http://www.randomizer.org/form.htm>).

A set of demographic questions which were both closed and open-ended were developed to ensure meaningful interpretation of the findings. Respondents were asked to disclose socio-demographic information such as personal, education, training information and work experience data (covariates). Respondents were asked about their knowledge and familiarity with the approved policy/protocol. They were also asked to describe how often

they use the policy/protocol (Estabrooks, 1999) (covariate) approved for use in their tertiary care facility. Finally respondents were asked to list strategies for the future integration of the Falls Protocol in their setting.

The survey questions (see Appendix F) were based on both generic and specific data sources. The generic sources involved the combined use and application of Perceived Characteristics of Innovation (PCI) (Rogers, 2003) and information gathered from an administered initial questionnaire constructed as per the TPB Manual (Francis et al 2005, p 35). Questions in the initial questionnaire were designed using Ajzen's Theory of Planned Behaviour to measure attitudes, beliefs and perceptions of nurses regarding research utilization (RU) and the extent to which they are motivated to use research in their tertiary care setting. Formatting and piloting of the initial questionnaire was completed in May 2005 with a sample of twenty-nine nurses in a northern rural tertiary care hospital. This initial questionnaire was tested for comprehension, level of language (specificity, sensitivity) and clarity among nurses sharing the same characteristics as the sample group to be studied. More specifically, the initial questionnaire contained both closed and open-ended questions. Respondents were asked to consider the advantages and disadvantages of using research; to list significant others who might approve or disapprove of their use of research; to identify factors that might prevent or facilitate their use of research and finally to list adjectives that describe how they feel about research. Content analysis of information obtained from the initial questionnaire was undertaken by the researcher and 75% of all beliefs stated were used to formulate questions for the 7-point Likert scale TPB survey questionnaire in Appendix F.

The 7-point Likert scale TPB survey questionnaire in Appendix F was not subjected to a test-retest reliability study given the small sample size and the potential for contamination. Instrument reliability was calculated using Cronbach's Alpha to determine internal

consistency within the instrument questions. This questionnaire was subjected to face validity and feasibility testing through review and feedback from clinical experts and administration at the tertiary care facility. Two clinical experts from the pilot site, namely the Program Manager and Head Nurse both of whom were familiar with the original guideline implementation processes and the current users' (subjects) ongoing use of the guideline adopted for use in their setting were asked to review the questionnaire. The experts were asked to judge the appropriateness of the items on the questionnaire. For example did the items cover the breathe of the approved policy/protocol components; were the questions in a format appropriate to assess the users ongoing usage of the policy/protocol. Modification were made accordingly and the final version of the 7-point Likert scale TPB survey questionnaire used in the main study is attached (see Appendix F).

Setting & Sample

The setting for this study is an acute care facility in northern Ontario, providing 24-hour emergency services to a defined region, including both urban and rural areas. The hospital approved the RNAO Falls Risk Prevention clinical practice guideline and it was implemented in the fall of 2003.

All voluntary participants had to be practicing nurses (RNs, RPNs, or PNs Nurse/Team Leaders, Nurse Clinicians/Educators, Nurse Administrators or Nurse Practitioners) working within nursing units that had approved the use of the Falls Risk Prevention policy/protocol for more than two years. To be eligible for inclusion in the study, a nurse had to be currently registered with the College of Nurses (CNO) either as a Registered nurse (RN), Practical Nurse (PN or RPN) or a Nurse Practitioner (NP). They had to be currently employed as a full-time or part-time employee within the chosen tertiary care setting for the last two years. These key informants were most likely to be aware of the approved research based practice and were most

likely to be able to portray more fully the context of the hospital environment while providing the greatest breath of perceptions and experiences related to their actual ongoing use or non use of the clinical guideline. Approximately 60 nurses remain currently employed to work on the two Senior Mental Health units within the tertiary care facility however only 44 were considered eligible given the said criteria to volunteer to participate in this survey.

Survey Administration

After approval by the Tertiary Care Facility's Ethic's Committee, the researcher, in collaboration with the NEMHC's Head Nurse- Senior's Mental Health identified the number of practicing nursing personnel on each unit who met the sample criteria (44 nurses). Then an appropriate number of copies of the participant letter (see Appendix G) and survey questionnaires (see Appendix F) were enveloped together and brought to the applicable nursing units and placed by the researcher in a designated location.

Within hours of the cover letter/questionnaire distribution, the researcher spent time on site (on all shifts) over a period of five to six weeks explaining the study's purpose, what it is intended to measure and answering questions. Nurses' were informed directly by the researcher that their participation in the survey was voluntary and of their right to change their mind about their involvement at any time. To ensure informed consent among participants the survey questionnaire was made available to all potential participants prior to considering participation in the study, consent was implied upon return of a completed survey.

Confidentiality of information was maintained through anonymity. Surveys were completed anonymously; nurses were not required to identify themselves. Participants were instructed to place completed questionnaires in a designated envelop on each unit for pick up by the researcher.

Measures

Planned behaviour analysis sorts nurses' reasons for acting (or not acting) into three categories: (i) expected advantages and disadvantages of using research (outcome beliefs), (ii) the normative expectations of reference persons and groups (normative/referent beliefs) and (iii) perceived barriers and facilitating factors (control beliefs). With the exception of behaviour, the variables in the TPB model are psychological (internal) constructs. Each predictor variable may be measured directly and indirectly. In this study, only direct measurement of variables was used by asking respondents about their overall attitude, their behavioural beliefs (beliefs about the consequences of the behaviour) and outcome evaluations (the corresponding positive or negative judgements about each of the features of the behaviour ie desirable /undesirable).

The results of all submitted questionnaires were tabulated and statistical calculations were performed on the available data. A more complete analysis was then completed using the demographic data to ensure meaningful interpretation of the data within its context.

The questionnaire includes three scenarios that reflect key decision points for nurses to use the RNAO's Falls Risk Prevention policy/protocol (behavioural intention) in their tertiary care facility. For example, Scenario 1 - on admission and within 48 hours; Scenario 2 – three months later; and Scenario 3 – after a fall incident.

Direct measurement of behavioural intention involved several methods, namely intentional performance, generalized intention and intention simulation measurement:

Method 1 – Intentional performance, a mean score was calculated to reflect the actual average number of times per nurse the nurses indicated they performed the target behaviour on their previous shift. **Method 2** – Generalized intention, a mean of the three intention scores was calculated. **Method 3** – Intentional simulation the number of Yes answers formed the score

for behavioural simulation. Note the higher the percentage the stronger the intention to perform the behaviour. Also a mean score related to the decision difficulty associated with the simulation provided in Scenario 2 and 3 was calculated.

Direct measurement of attitudes involves the use of bipolar adjectives (i.e. pairs of opposites) that are evaluative i.e. good –bad. Items with negatively worded endpoints on the left side of the page were recoded so that lower numbers consistently reflect a positive attitude to the target behaviour. An overall mean attitude score was then calculated.

Direct measurement of subjective norm involved the use of questions referring to the opinion of important people in general. Scoring involved coding the items that have positively worded endpoints on the left, so that lower scores then consistently reflect greater social pressure to do the target behaviour. An overall mean subjective norm score was calculated.

Direct measurement of PBC involved assessing the respondents' confidence that they were capable of performing the target behaviour. This was achieved by assessing the person's self-efficacy and their beliefs about the controllability of the behaviour. Coding of positive endpoints to the left so that lower scores consistently reflect a greater level of control over the target behaviour was completed along with a calculation of a mean PBC score.

Multiple regression analysis using SPSS version 11 was used to investigate the effects the independent variables had on the dependent variable measure (the intention to continue to use research). The degree to which the independent variables affect nurses' ongoing use of research in clinical practice can be assessed through the use of the multiple correlation coefficients using the Pearson R index. Since R varies only from 0.0 to 1.0 it will show the strength of the relationship between pairs of the independent variables and the dependent variable. The R statistic, when squared (R^2 or coefficient of determination), will indicate the proportion of variance in dependent variable accounted for by the combined simultaneous

influence of the independent variables. A correlation matrix was created so that the independent variable that correlates most strongly with nurses' use of research in clinical practice could be demonstrated. The TPB assumes that the independent variables are strongly correlated with the dependent variable but weakly correlated with each other (Godin & Kok, 1996). Furthermore an analysis of the regression coefficients was completed to reveal the dominant determinant of intention among the three categories i.e. attitudes, subjective norms and perceived behavioural control beliefs.

Ethics

Initially, verbal permission to conduct the survey had been obtained from the NEMHC Administration in the spring of 2007. Final approval to conduct the research study at the NEMHC was obtained from the University of Ottawa Research and Ethics Board and the NEMHC Ethic's Committee July 17, 2007. To limit the bias that may have occurred from the research evidence presented in the proposal, the Program Manager and Head Nurse of the Senior Mental Health Units were not given a copy of the proposal.

Confidentiality of information was to be maintained through anonymity. All data is kept in a locked cabinet in a location that is accessed by research personnel only. Any resulting publications will only present aggregated data so as to not identify any participants. Given the voluntary nature of participation, the collection of attitudinal data, anonymous data collection, and presentation of only aggregated results, the risk of participating in the study are minimal.

Advantages and Limitations of Proposed Design

Advantages of this design include: the survey is a relatively inexpensive; it is an efficient means of gathering data and lastly the flexibility of a survey design served to facilitate

the participation of the majority of nurses who are assigned shift work on the two tertiary care units.

One limitation of using a survey design is the data they capture can be superficial (Polit & Beck, 2004). To partially compensate for this disadvantage, the survey included opened ended questions in an attempt to probe more deeply into some of the questions related to nurses' 'continued use' of research in clinical practice. Secondly, the survey questions were tailored to the study site's specific policy/protocol and the point of care decisions nurses face in this setting related to research utilization. Thirdly, the homogeneity of this convenience sample (nurses from 2 similar tertiary care units within the same facility) may not be representative of regional differences in other practice environments. Therefore the generalizability of findings may be limited.

Chapter 4 Results

Demographic Characteristics

A total of 24 out of 44 surveys were completed over a five week interval between August and September 2007. Subsequently, two questionnaires were excluded from the analysis for the following reasons: the criterion of two years of experience was not met and incompleteness. This resulted in a 50% eligible response rate (n = 22/44). Administration reports several eligible nurses were absent from the workplace during the survey implementation period due to vacation, worker compensation, sick and or maternity leave. Had this been known the survey implementation date would have been adjusted and the response rate would have been higher.

Table 2 - Characteristics of Nurses (n = 22)

Variables	Frequency	Percentage	Variables	Frequency	Percentage
Age			Position		
20-25 yrs	0	0	RN	10	45%
26-30 yrs	2	9 %	RPN	12	55%
31-35 yrs	3	14 %	Years of Experience		
36- 40 yrs	4	18%	< 1 yr	0	0
41- 45 yrs	3	14%	1-5 yrs	3	14%
46-50 yrs	4	18%	6-10 yrs	5	22%
51-55 yrs	5	23%	11-15 yrs	3	14%
> 56 yrs	1	5%	16-20 yrs	3	14%
Initial Education Training			>20 yrs	8	36%
Diploma (RN, RPN)	21	95%	First Learnt of Falls Research		
Degree (RN)	1	5%	Nowhere	0	0
Other Education			Research course	0	0
No further education	20	90%	Basic training	2	8%
Baccalaureate	0	0	Seminar/conference	5	19%
Post RN Program	1	5 %	Continuing education	7	27%
Masters in Nursing	0	0	During nursing practice	12	46%
PhD	0	0	Journals	0	0
Other -Pharmacy Technician	1	5%	Other	0	0

As per Table 2, respondents range in age from 26 to more than 56 years: with the majority distributed within age groups 51 - 55 yrs (23%), 46-50 yrs (18%) and 36 - 40 (18%).

Forty five percent (n = 10) of the respondents held an RN position, while 55% (n=12) held RPN positions. Ninety five percent of respondents obtained their initial nursing education from a diploma program, either a RN or RPN program, while 5% had obtained a university degree. Only one of the sample indicated they had graduated from a post educational program in nursing. Notably, 90% of the sample had not engaged in any form of formal post-graduate education despite the availability of two baccalaureate degree programs in the region.

Respondents' years of nursing experience ranged from one to more than 20 years, with over 50% having over 16 or more years of experience; while the remaining 50% had 1-5 yrs. (14%), 6-10 yrs. (23%) or 11-15 yrs. (14%) of experience. The Program Manager reported that high retention rates within this facility can be attributed to the speciality role it provides within the region for psychiatric services. Many nurses employed have worked at the same facility for many years and were regarded as senior staff. Nonetheless, over the last two to five years, recent attrition rates have spawned a variety of recruitment initiatives. This presumably explains the spread of years of work experience revealed in the age profile data.

The main sources of falls research education where the participants' first learnt about nursing research, were from their basic nursing training (8%), a form of continuing education (27%), or seminar (19%). Forty-six percent did not know anything about falls research before they began practicing in the clinical area moreover, none of the nurses indicated they had tapped into any other potential initial sources of research education such as journals or research courses. Recent hires (one to five years experience) had indicated they received nursing research training in their initial training programs along with those who had taken a post graduate program (6-10 yrs of experience). Conversely, participants with more experience; 11 yrs or more, indicate they either first learnt about nursing research in continuing education/seminars or in the clinical setting.

Intention Results

The three methods of measuring nurses intentions used in this study were performance (Method 1), generalized (Method 2) and simulation intention (Method 3). The *intention performance* mean for this sample of 22 nurses is 2.59 patients per shift. Thus nurses report directly using the Falls Prevention Screening tool on their previous shift an average of 2.6+ patients per nurse.

Composite means scores were calculated to measure nurses' *generalized intentions* towards their ongoing use of the Falls Protocol on admission (Scenario 1), on a quarterly basis (Scenario 2) and after a fall incident (Scenario 3) (see Table 3). Findings range from 1.48 in Scenario 2 to 2.06 in Scenario 3. The composite mean score for nurses' ongoing use of the falls protocol on admission (Scenario 1) is 2.02. A Likert scale of 1-7 was used with the lower numbers reflecting a strong intention to perform the target behaviour. Nurses demonstrated strong generalized intentions to use the Falls Prevention screening tool in all three scenarios.

Table 3 – Summary of Major Constructs of the TPB (n = 22)

Variables	Scenario 1 – Use of falls protocol on admission					Scenario 2 – Use of falls protocol on a quarterly basis					Scenario 3 – Use of falls protocol after a patient fall incident				
	No of items	Item Mean	Std Dev	Comp Mean	Cronbach alpha	Number of items	Item Mean	Std Dev	Comp Mean	Cronbach alpha	No of items	Item Mean	Std Dev	Comp Mean	Cronbach alpha
Generalized Intention*	3	2.27	2.05	2.02	0.94	3	1.55	.74	1.49	0.84	3	2.27	1.28	2.06	0.88
Dependent variable	S1_intent S1_plan S1_will	1.96 1.81	1.68 1.56			S2_intent S2_plan S2_will	1.5 1.41	.60 .80			S3_intent S3_plan S3_will	1.96 1.74 1.05			
Attitudes* Indep. var.						5	0.55 1.59 1.68 2.23 1.50	0.67 0.73 0.84 1.11 0.67	1.71	0.69	5	1.82 1.77 1.73 2.36 1.68	1.50 0.97 0.99 1.59 1.00	1.87	0.76
Subjective Norm* Indep. var						4	2.23 1.86 1.73 2.27	1.11 0.94 0.77 1.077	2.02	0.70	4	2.41 2.14 2.32 2.86	1.18 1.17 1.25 1.17	2.43	0.79
Perceived Behavioral Control* Indep. var						4	1.96 1.82 1.55 2.27	1.13 1.01 0.60 1.42	1.90	0.41	4	2.05 2.05 1.91 2.18	1.17 1.17 1.07 1.50	2.05	0.70

*Range of scale 1-7

Note. The positively worded endpoints were on the left, so that lower numbers then always reflect a positive target behaviour)

Intention = lower numbers reflect a stronger intention to perform the behaviour

Attitude = lower numbers reflect a positive attitude to the target behaviour

Subjective Norm = lower numbers reflect a greater social pressure to do the target behaviour

PBC = lower numbers reflect a greater level of control over the target behaviour

The *simulation intention* scores reflect the percentage of nurses who indicated a Yes answer for the behavioural simulation or scenarios presented to them. In this study, Scenario 2 required an assessment decision to use the falls prevention screening tool every three months and in Scenario 3 after a patient fall incident. The higher the proportion of yes answers the stronger the intention to perform the behaviour. In Scenario 2, 64% (14 out of 22) of the nurses indicated yes they would use the Falls protocol quarterly while in Scenario 3, 86% (19 out of 22) indicated yes they would use the falls protocol after a patient fall incident. Additionally, in Scenario 2 nurses were also asked whether they would intervene immediately and/or contact a physician for reassessment of pain medication usage. Seventy three percent (73%) of respondents indicated they would intervene immediately, 64% would use the falls protocol and 41% would contact the MD.

Nurses were asked to indicate how difficult the decision was for them to use the Falls Protocol on a quarterly basis (Scenario 2), after a fall incident (Scenario 3) and to add any relevant comments. A decisional difficulty mean was calculated using a Likert scale of 1-7. Note lower numbers indicate minimal decisional difficulty associated with choosing to use the Falls Protocol reflecting a stronger intention to perform the behaviour. In Scenario 2, the decisional difficulty mean score was 1.82 and in Scenario 3 it was 1.95 demonstrating their strong intentions to use the Falls Protocol quarterly and after a patient falls incident. In addition 18% (4 out of 22) of nurses commented in Scenario 3 (after a fall incident) on the need to consider patient safety, the nurse manager's direction, or whether time and staffing permit use of the falls protocol.

Reliability Results

Instrument reliability was completed using SPSS version 11 to calculate Cronbach's alpha (see Table 3). Normal range is between 0.0 and +1.0 where higher values reflect a

higher degree of internal consistency or homogeneity of measures (all variables, namely intention, attitude, subjective norm and perceived behavioural control beliefs) each composed of several items (questions).

Reliability is highest in Scenario 1 (use of the falls protocol on admission) with a Cronbach's alpha of 0.9 for the intention variable. In fact, all variables resulted in a Cronbach's alpha of greater than (>) 0.6, except in Scenario 2 (use of the falls protocol on a quarterly basis) where the perceived behavioural control (PBC) variable was found to be 0.41. The difference in reliability within the PBC variable in Scenario 2 reflects nurses' inconsistent responses (alternating their choice to circle the negative versus the positive endpoint of the ratio scale) among the four questions (items) measuring their control beliefs. Therefore, this value was not used to determine the control beliefs of nurses as it relates to their ongoing use of the Falls Protocol every 3 months (Scenario 2 only).

Attitude, Normative and Perceived Behavioral Control (PBC) Beliefs Results

Mean scores were calculated using a Likert scale of 1-7 for the independent variables; namely nurses' attitudes, subjective norms and perceived behavioural control beliefs (see Table 3). Note lower numbers reflect ongoing use of the Falls Protocol (the target behaviour) for each scenario. The composite mean scores for these three independent variables range from 1.71 to 2.43. Specifically, composite mean scores for attitude in Scenario 2 and 3 were 1.71 and 1.87 respectively. This demonstrates nurses have a positive attitude towards the use of the Falls Protocol on a quarterly basis (Scenario 2) and after each patient fall incident (Scenario 3). The composite mean scores reflecting nurses' normative beliefs in Scenario 2 and 3 were 2.02 and 2.43 respectively. Thus nurses report a strong sense of social pressure to use the Falls Protocol quarterly and after a patient fall incident. The composite mean scores for the perceived behavioural control (PBC) variables in Scenario 2 and 3 were 1.9 and 2.05

respectively. Notably, in Scenario 2 the PBC mean score is not considered reliable given the Cronbach alpha score of less than 0.6. Therefore only the PBC mean score for scenario 3, reflecting nurses' belief that they have a great level of control over their use of the Falls Protocol after a patient fall incident can be considered reliable.

Predictors of Intention Results

Multiple regression analysis was used to investigate the effects the independent variables had on the dependent variable measure (the intention to continue to use research). The degree to which the independent variables affect nurses' ongoing use of research in clinical practice was examined using the Pearson correlation coefficients, the Pearson R index. The correlation matrix (see Table 4) presents the Pearson correlation coefficients for all of the variables in this study. In Scenario 2 and 3, it was found that the dependent variable (intention) is significantly positively correlated to all three independent variables at a p value of less than ($<$) 0.05. Thus nurses' attitudes, normative and control beliefs are positively correlated with their intentions to use the Falls Protocol. More specifically, in Scenario 2, nurses' normative beliefs ($R = 0.615$) have the strongest correlation with nurses' ongoing use of the Falls Protocol every 3 months. In Scenario 3, nurses' perceived behavioural control beliefs ($R = 0.768$) have the strongest correlation with nurses ongoing use of the Falls Protocol. In both Scenario 2 and 3 the independent variable is least correlated with nurses attitudes where $R = 0.498$ and $R = 0.516$ respectively.

Table 4 – Correlation Matrix

Scenario 2	N = 22	Comp2INT	Comp2ATT	Comp2SN	Comp2PBC
Pearson Correlation	Comp2INT	1.000			
	Comp2ATT	.498 *	1.000		
	Comp2SN	.615 *	.547 *	1.000	
	Comp2PBC	.501 *	.308	.448 *	1.000
Sig (1-tailed)	Comp2INT				
	Comp2ATT	.009			
	Comp2SN	.001	.004		
	Comp2PBC	.009	.082	.018	
Scenario 3	N = 22	Comp3INT	Comp3ATT	Comp3SN	Comp3PBC
Pearson Correlation	Comp3INT	1.000			
	Comp3ATT	.516 *	1.000		
	Comp3SN	.676 *	.145	1.000	
	Comp3PBC	.768 *	.515 *	.524 *	1.000
Sig (1-tailed)	Comp3INT				
	Comp3ATT	.007			
	Comp3SN	.000	.259		
	Comp3PBC	.000	.007	.006	

*Note Correlation is significant at $p = 0.05$ (2 tailed)

Using intention as the dependent variable and nurses attitudes, subjective norms and perceived behavioural control beliefs as independent (predictor) variables, multiple regression analyses were conducted for both Scenario 2 and 3 using the composite mean score for each variable.

Model Summary: The model summary is shown in Table 5.

Table 5 – Model Summary

	Model	R Squared	df1	df2	F	P value
Scenario 2	1	0.472	3	18	5.360	0.008
Scenario 3	1	0.732	3	18	16.347	0.000

As per Table 5, the F values for both Scenario 2 and 3 are significant at a p value of less than ($<$) 0.05 such that $F_{3,21} = 3.07 @ \alpha = 0.05$ (two tailed). Using a significance level of 0.05 the F value for Scenario 2 for $n = 22$ is 5.360 with 3 degrees of freedom between variables ($dfb = 3$), with a p value of 0.008. Similarly, in Scenario 3 for $n = 22$ the F value is

16.347 with 3 degrees of freedom between variables ($dfb = 3$), with a p value of 0.000. The F statistic is significant, as is the p value, therefore, the model is significant. The data supports the hypothesis that nurses' attitude, normative and control beliefs affect their intention to use the Falls Protocol on an ongoing basis every three months (Scenario 2) and after a patient fall incident (Scenario 3).

The R squared (R^2) value is the proportion of variance in the dependent variable accounted for by the combined simultaneous influence of the independent variables. In Scenario 2, the $R^2 = 0.472$ indicating 47% of the variation in nurses ongoing use of the Falls protocol every three months can be explained in terms of the combination of their attitudes, SN and PBC beliefs. In Scenario 3 the $R^2 = 0.732$ indicating 73% of the variation in nurses use of the Falls Protocol after a patient fall incident can be explained by the combination of their attitudes, SN and PBC beliefs.

As illustrated in Table 6, in Scenario 2 the standardized beta (β) coefficients values are greatest for normative belief ($\beta = 0.383$) followed by control beliefs ($\beta = 0.266$) and lastly attitude ($\beta = 0.207$). In Scenario 3, the beta coefficients are greatest for the control beliefs ($\beta = 0.429$) followed by normative beliefs ($\beta = 0.417$) and lastly attitude ($\beta = 0.234$). The relative size of these beta results must be considered along with the t- tests

Table 6 – Model Coefficients

Variable	Beta	t-test	P value (0.05)
Scenario 1			
Comp Mean ATT	.207	1.007	.327
Comp Mean SN	.383	1.751	.097
Comp Mean PBC	.266	1.385	.183
Scenario2			
Comp Mean ATT	.234	1.621	.122
Comp Mean SN	.417	2.863	.010
Comp Mean PBC	.429	2.551	.020

and p values. Generally a t value of greater than ($>$) 2.086 is significant, at $df = n-2$, and a p value of 0.05. In Scenario 2, all t values for the independent variables are $< 2.086 @ p = 0.05$ level. Therefore the beta results are non significant.

In Scenario 3, the t values for all the independent variables are > 2.086 @ $p = 0.05$ level except the attitude variable where $t = 1.621$ with a $p = 0.122$. The beta results of the attitude variable are non significant. Notably, the relationship between the nurses intention to use the Falls Protocol after a fall incident is significantly related to nurse normative beliefs ($t = 2.863$ with a p value of 0.01) and their control beliefs ($t = 2.551$ with a p value of 0.02).

Additional Results

Barriers and Facilitators Results

Fourteen additional Likert scale questions along with a comment section were used in the survey to measure nurses' perceptions and experienced knowledge regarding the facilitators, barriers and organizational structures that impact their continued use of Falls Policy/protocol in their practice setting. Mean scores were calculated for Likert scale questions. Note lower scores reflect a positive response towards the factor whether it was worded as a facilitator or barrier.

The first additional question asked nurses to indicate whether or not factors exist outside their control prevents them from continuing to use the Falls Protocol. Fifty percent of the sample agreed there are barriers affecting their ongoing use of the Falls Protocol, while 18% remain undecided and 32% do not believe barriers exist in their setting. Subsequent comments indicated the Falls Protocol is always available for use; however workload interferes with its usage; the paperwork after a fall incident is perceived to be too time consuming; and lastly it is the primary nurse's responsibility to re-evaluate the patient thus it is not always completed by the nurse on duty.

Of the remaining thirteen additional questions, 9 out of 13 factors (69%) are considered facilitators for the ongoing use of the Falls Protocol in this setting. The remaining 4 out of 13

(31%) are perceived by nurses to be neither a significant facilitator nor a barrier, as illustrated in Table 7.

Table 7 – Summary of Factors affecting ongoing use of Falls Protocol

Factors	Mean score	Percentage
Research in useable format	2	Facilitators 9/13 = 69%
Opportunity to collaborate with therapies	2	
Opportunity to collaborate with physicians	2	
Increases assessment skills	2	
Enhanced knowledge & competence integrating research into practice	3	
Enhanced decision making ability	3	
Increased interest to remain current with new research	3	
Increased confidence in their practice	3	
Helps keep their nursing practice current	3	
Increased costs on unit	4	Undecided (Not a Barrier or Facilitator) 4/13 = 31%
Allows for more efficient use of time	4	
Resulted in less time spent with patient	4	
Resulted in a need for enhanced staffing complement	4	
		Barriers 0/13 = 0%

Note. Lower means scores reflect a positive response towards the factor.

There is strong agreement (Mean score of 2) among nurses that the following factors are facilitators for the ongoing use of the Falls Protocol in their setting: providing current research in a useable practical form; its use created opportunities for collaboration with other disciplines namely therapies, and physicians; and its use has improved their assessment skills. Nurses indicated agreement (mean score of 3) other facilitating factors related to the Falls protocol usage include: it has enhanced their research knowledge base and competence integrating research into their practice; it has enhanced their decision making ability; it has increased their interest in attending conferences /seminars to remain current with new research related to their clinical setting; it has increased their confidence in their practice; and it helps keep their nursing practice current. It appears nurses remain undecided (Mean score of 4) whether the protocol's usage has increased costs on the unit; has made more efficient use of their time; has resulted in

less time spent with patient or has resulted in the need for enhanced staffing complement.

These latter four factors are not considered facilitators or barriers related to the ongoing use of the Falls Protocol by this sample in this setting.

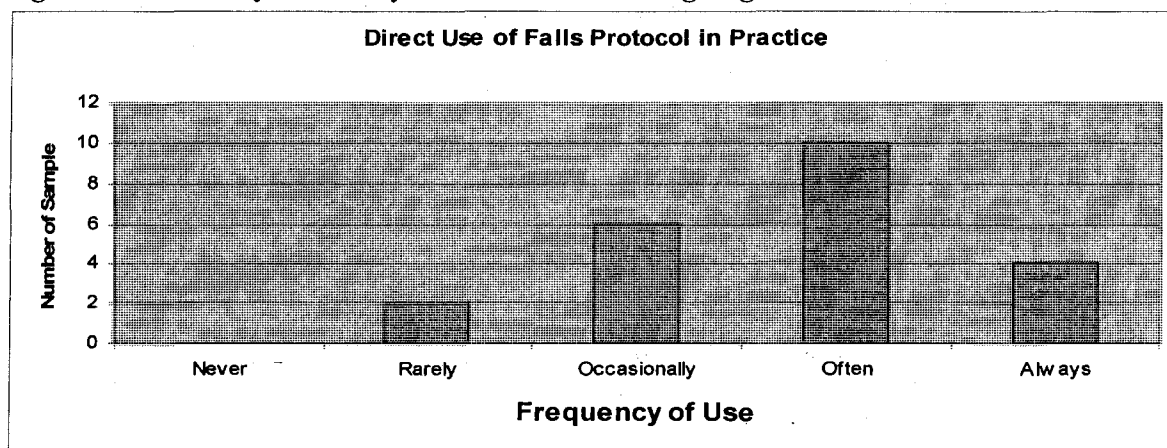
Supporting Data Results

Three additional questions were designed to provide supporting data for the Ajzen based questions and to determine if nurses in this particular setting report the use of the direct type of research empirically validated by Estabrooks (1999). These questions focused on nurses' beliefs, perceptions and feelings regarding their actual use of the Falls Protocol and the future use of this research in their practice. The analysis for the additional question section of the survey was done using a frequency of response rate methodology (Polit & Beck, 2004). Nurses were also asked to list what they would like to see applied in their setting to ensure the ongoing use of the Falls Protocol.

Usage of the Direct Form of Research

Estabrooks (1999) defined three types of research used by practicing nurses. They include direct, indirect and persuasive research use. The questionnaire asked nurses to indicate how often they use the direct form of research: the Falls Protocol in their practice. Findings reveal 18 % (n = 4/22) indicate they 'always' use the Falls Protocol in their daily practice while the majority of nurses (46%, n = 10/22) indicate they 'often' use the direct form of research in their daily practice. Interestingly, 27% (n = 6/22) 'occasionally' use the Falls Protocol while only a 9% of nurses (n = 2/22) indicate they rarely use the Falls Protocol, 0% have indicated they 'never' use the Falls Protocol as per Figure 4 below.

Figure 4: Summary of Surveyed Nurses Direct Ongoing Use of the Falls Protocol



Interest for Future Integration of Falls Protocol

Eighty-two (n = 18/22) percent of nurses in this survey indicate an interest in the future integration of the Falls Protocol into their practice setting while only a small number (n = 4/22, or 18%) of nurses had no interest at all.

Strategies for Ongoing Use of the Falls Protocol

Examples of the several strategies recommended by surveyed nurses for the future ongoing integration of the Falls BPG in this practice setting are as follows: Increase ongoing education (18%, n = 4); increase staff (14%, n = 3); increase initial education (9%, n = 2); further prevention measures are needed (9%); increase family education (5%, n = 1); ensure physician buy in (5%) and increase time to implement (5%).

Chapter 5

Discussion: Interpretation of Results

The responses of the nurses in this survey are summarized and linked to the results found in the literature and case study using the following headings: Validating nurses ongoing use of the 'Direct' type of research; motivations of nurses towards the ongoing use of research; such as attitude and interest, normative and control beliefs affecting ongoing RU; predictors of intentions for ongoing RU; strategies for future ongoing research use, facilitators, barriers and organizational structures impacting Ongoing RU.

The results of this study only apply to nurses working within this particular tertiary care centre. For three years, policy within the NEMHC has supported the continued use of the Falls BPG and has placed the decision to use it with the individual nurses at the point of care: namely on admission within 48 hours (Scenario 1); quarterly (Scenario 2) and after a patient fall incident (Scenario 3).

Nurses Ongoing Use of the Direct type of Research; the Falls Protocol (Estabrooks, 1999)

Estabrooks (1999) has indicated direct RU is most closely identified among practicing nurses and exerts a stronger influence on measures of research utilization than the other types of RU (indirect and persuasive). The majority (64%) of surveyed nurses in this study reported they either always or often use the Falls protocol: a direct type of research (Estabrooks, 1999). This result is consistent with the performance intention measurement findings where nurses indicated they used the Falls Protocol during their previous shift on an average of 2.6 patients. These same nurses have also strongly indicated a key facilitator for the ongoing use of research or the Falls Best Practice Guideline (BPG), in this practice setting is having a direct usable form, such as a policy/protocol. This is not surprising, since 92% of nurses have revealed they first learnt about the Falls BPG either during their nursing practice, continuing

education and or a conference/seminar. Acknowledgement and support of this preference should be of interest to both nurse leaders and hospital educators for improved integration of research findings into evidence-based practice.

Motivations of Nurses towards the Ongoing Use of Research

The results of this study demonstrate nurses in this facility have a positive attitude towards the ongoing use of the Falls Policy/protocol on a quarterly basis and after a patient fall incident; a strong social pressure from persons important to them, such as families, other practitioners, physicians and managers, to use the Falls Protocol quarterly and after a patient fall; and a greater level of control over the ongoing use of the Falls Protocol after a patient fall incident.

Attitudes

Nurses working in this tertiary care facility have a positive attitude towards the use of the Falls Protocol every three months and after patient fall incidents despite their educational level. Previous studies have concluded that the higher the level of nursing education, the more positive the attitude towards research use (Ehrenfeld & Eckerling, 1991; Olade 2003, 2004). Olade (2004) and Omery & Williams(1999) have also concluded that nurses with degrees show a more favourable attitude towards nursing research when they are directly involved in the research process. Notably, ninety-five percent of the nurses in this survey are diploma graduates (n = 10 RNs and n = 12 RPNs) with a small minority (5%, n = 1) being university graduates. Only 8% (n=2) indicated they have taken research in basic training. Findings in this survey conversely demonstrate the nurses in this tertiary facility, which have a diploma level of education (RN or RPN), without some form of formal research education/training can and do have positive attitudes towards research utilization. The fact that 46% of surveyed nurses (n=12) indicated they have been exposed to some form of

research education during their nursing work experience, 27% (n=7) through a continuing education course, 19% (n=5) via a conference/seminar indicates that “*exposure to research*” contributes to developing favourable attitudes towards research utilization verses the source of original exposure to research such as a nursing degree program. This finding contributes new knowledge to the profession. Thus there is a need to expose all nurses to some form of research education no matter what their educational level and to reinforce the usefulness of research findings for evidence-based practice in the workplace.

Interest in Future Research Use

Results from this survey reveal nurses in this facility not only have a positive attitude towards the ongoing use of the Falls BPG but an overwhelming majority (82%) indicate an interest in the future integration of the Falls Protocol into their daily practice. These same nurses also demonstrated strong generalized intentions to use the Falls Protocol in all three scenarios. The findings in this study are congruent with the results of previous studies, which suggest the more positive the attitude, the more likely the nurse is to implement the research findings (Olade, 2004; Estabrooks, 1999, Camiah, 1997; Ehrenfeld & Eckerling 1991). Hence, the relationship between the interest or desire for research utilization and research attitudes noted in this study and previous studies supports the postulation that the development of a favourable research attitude could be one of the missing links in the gap between availability of scientific evidence and its utilization at the bedside among nurses.

Normative Beliefs

The primary motivator identified among surveyed nurses to use the Falls Risk Assessment Tool in scenario 2, every three months and scenario 3, after a patient fall incident was the ongoing support/expectations of reference persons considered important to them and their work. Normative beliefs of nurses about the expectations of reference persons such as

families of patients, other practitioners, physicians, management: namely the program manager and clinical team leaders; have the strongest impact on whether they use the Falls protocol in their daily practice. These results are congruent with those found in the literature. In several studies (Omery, 1999; Estabrooks, 1999; Tsai, 2000; Rodgers, 2000; Olade, 2001, 2004) this factor too has been identified as a key influential component to successful RU. Interestingly, in a study conducted by Camiah, (1997) encouragement, facilitation and support from management were identified as the most effective way to promote nursing research in practice. Therefore it is advisable management continue to foster the expectations of reference persons to ensure the ongoing use of the Falls Protocol in this setting.

Control Beliefs

Findings from this study reveal nurses' believe they have a great level of control over the ongoing use of the Falls Protocol after a patient fall incident (Scenario 3). In fact, surveyed nurses indicated they are confident they could use the Falls Protocol after a patient fall without difficulty (internal control beliefs or self-efficacy). They also believe there are few or no external factors beyond their control determining their use of the protocol after a patient fall (external control beliefs). Thus surveyed nurses believe the use the protocol after a patient fall is totally up to them. Several studies have been conducted over the years examining the impact of various barriers and facilitators towards research utilization and this finding substantiates nurses beliefs about the presence of factors that may facilitate or impede their use of research is an important consideration particularly with respect to RU sustainability; the 'Ongoing Use Phase of RU'. This finding supports existing RU knowledge.

Unfortunately, the results of this study related to nurses perceived behavioural control beliefs and their intention to use of the Falls Protocol every 3 months (Scenario 2) are not reliable and therefore can not be reported on. The lack of internal consistency among the

responses of nurses to the 4 questions measuring their control beliefs in Scenario 2 can be explained by the fact the Nurse Facilitators (team leader nurses) often drive the use of the protocol every 3 months for updating purposes to prepare for patient case conferencing. Anecdotal reports from the nurse leaders further suggests surveyed nurses do not feel it is always up to them to decide to use the protocol every 3 month.

Predictors of Intention

Ajzen's (1988) Theory of Planned Behaviour (TPB) suggests the best predictor of nurses' ongoing use of the Falls Protocol in their daily practice is behavioural intention.

Intention is a measure of the extent to which a nurse is motivated to use the Falls Protocol and is seen to be a function of three parameters (independent variables): nurses' attitudes, normative and control beliefs. Results from this study indicate nurses' normative and control beliefs in this tertiary care facility do affect their intention to continue to use the Falls Protocol after a patient fall incident in their daily practice (Scenario 3). In fact, findings reveal surveyed nurses' control beliefs are the strongest predictor followed by their perception of the social expectations of families, management, physicians and other disciplines. This finding should be an important consideration for administrators, nurse educators and researchers.

Facilitators, Barriers & Organizational Structures Impacting Ongoing Use of Research

Findings from this study reveal that there are several facilitators supporting nurses' ongoing use of the Falls Protocol in this tertiary care facility. Notably, three out of nine facilitators identified by surveyed nurses are similar to those reported in the literature (Estabrooks, 1999; Tsai, 2000; Olade, 2004; Omery & Williams, 1999; Kitson, 1996; Michel & Sneed, 1995; Davis, 1995) relating to the uptake of research in clinical practice and can now be considered determinants impacting the 'Ongoing Use Phase of RU' (see Table 7).

Findings also reveal 50% (n = 11) of surveyed nurses believe factors do exist outside their control which prevent them from continuing to use the Falls Protocol. What these factors are can only be gleaned from factors surveyed nurses remain undecided about and from their recommendations for the future integration of the Falls Protocol into daily practice.

Facilitators

Surveyed nurses report three factors facilitate the ongoing use of the Falls Protocol in their setting which are congruent with those found in the literature (Estabrooks, 1999; Tsai, 2000; Olade, 2004; Omery & Williams, 1999; Kitson, 1996; Michel & Sneed, 1995; Davis, 1995) relating to the uptake or 'Initiate Use Phases of RU' defined herein. These facilitators include: 1) providing research in a useable form; 2) attending conferences or seminars to remain current with new research related to their clinical setting; 3) engagement in research activities such as the development, updating and implementation of the Falls BPG for use on their units has enhanced their research knowledge base and competence integrating research into their practice.

Surveyed nurses unanimously indicate that having research in a useable form to be a facilitator. Obviously, the steps taken by the Champion Team, in 2003, to develop a policy and protocol specific to the unique patient population at the NEMHC, using the RNAO BPG toolkit (RNAO Toolkit, 2002), can now be considered a key facilitating factor related to surveyed nurses' ongoing use of research in their daily practice. This finding is not unexpected given the majority of nurses in this setting have a diploma level of education and minimal research skills training. In studies conducted by Olade, (2003); Estabrooks, (1999); Omery, (1999), and Camiah, (1997) nurses found research reports to be incomprehensible, unread and hence unused. Presenting research in a direct form (Estabrooks, 1999) such as a policy/protocol is an important consideration for Administration and Nurse Leaders. Furthermore, commitment to

continue to assist surveyed nurses' access to relevant research findings to update the Falls Protocol and integrate new knowledge into a readable and directly useable format is essential for RU sustainability in this setting. In fact this is supported in the literature by Tsai (2000) and Olade (2004) who contend the main types of assistance needed to enhance nurse research utilization includes guidance to locate useful research, consultation and role modelling. The latter can be achieved through consultation with external experts similar to that which the Champion Team engaged in with the RNAO or with local university faculty and perhaps the use of a train the trainer model.

Two other important facilitators necessary to ensure successful RU found in the literature and identified among surveyed nurses are continuing education and engagement in research activities. Estabrooks (1999), Michel and Sneed (1995) and Davis (1995) have found education in the form of conferences/in-services/seminars to be a key determinant for nurses use of research in clinical practice. Engagement through active participation in research activities also has been found by Tsai, (2000), Omery & Williams, (1999), and Kitson et al, (1996) to enhance research utilization and increase nurses' involvement in research activities. Kitson et al (1996) have argued before nurses are able to respond to new knowledge and new ways of working nurses must be encouraged to become involved in the process of change. Research transfer strategies used by the Champion Team described in the case study to engage practitioners to use research in practice during the initial training sessions and the beginning phases of the guidelines implementation were successful and need to be maintained. Additional transfer strategies will need to be developed for the purpose of providing effective ongoing education for trained nurses to sustain RU. In fact, surveyed nurses have recommended several continuing education transfer strategies for the future integration of the Falls Protocol into this practice setting. Strategies include the need to provide the original

initial training and education to all newly hired nurses who work on the units and to provide ongoing in-service education for those nurses who have been involved in the protocols' use for a number of years. Clearly, the need to update nurses on current evidenced-based practices related to additional preventative measures found to be effective preventing falls is of great interest to them. Nurses also recommended the hospital provide ongoing education for families to ensure continued support for their evidence-based practice given the occasional turnover seen among these key members of the patient health care team.

Other facilitators recognized by surveyed nurses in this study necessary to ensure the successful 'ongoing use of research' in their daily clinical practice include skills training specifically to improve their assessment skills and confidence level; opportunities to enhance their decision making ability and to remain current with new knowledge/research as it relates to their practice; and collaboration with other disciplines namely therapies, and physicians. In actual fact surveyed nurses have recommended the need to ensure physician buy in.

Management would be well advised to follow up on this recommendation since physicians are considered key members of the patient healthcare team. These findings add new knowledge about the facilitators that may uniquely impact the 'Ongoing Use Phase of RU' given they have not yet been identified in the literature to be key determinants for the Initial Use Phase of RU.

Barriers and Organizational Structures

Lastly, it appears surveyed nurses remain undecided whether the following factors can be considered barriers or facilitators for the ongoing use of the Falls Protocol in their setting. These factors include costs; time allocation for nurses, patient nurse contact time and staffing requirements (see Table 6). Many of these factors have been identified in the literature as barriers to RU.

The financial constraint/cost is an undecided factor for surveyed nurses. Interestingly, this factor has only been identified in the literature by other researchers to be a concern of management not staff nurses (Olade 2004, Olade, 2003, Omery & Williams 1999). The presence of this concern among surveyed nurses may be an organizational impact of this particular facility, given its preoccupation with financial over expenditures and utilization concerns. If so, there is a need for nurse leaders to establish a budgetary allotment for research within the nursing unit budget to demonstrate the importance they attached to research and evidence-based practice. Ultimately, according to Omery & Williams, (1999) unless nursing leaders believe in research utilization and promote a culture to support those activities; research utilization will fail to become a value in nursing.

A lack of time (Funk, Tornquist & Champagne, 1995; Omery & Williams, 1999; Tsai,2000; Retsas, 2000; Parahoo, 2000; Hunt, 2001; Olade, 2003) is one of the most commonly reported barriers to research utilization found in the literature and was reported in the case study discussed herein. Findings from this study reveal surveyed nurses now remain undecided whether the use of the protocol has allowed them to use their time more efficiently or increased the time they spend with their patients. Nurses commented there often is too little time to engage in evidence-based practice on the job given the high workload on all shifts and have made the recommendation for increased time to implement the Falls Protocol as a strategy for the future integration. These comments would lead one to suspect this factor may become more of a potential barrier than a facilitator within the facility.

The need for an enhanced staffing complement was viewed by surveyed nurses to be neither a barrier nor a facilitator to research utilization within this setting. However, one of the key strategies identified for the future integration of the Falls Protocol by surveyed nurses was the need to increase staffing given frequent staffing shortages experienced by nurses in

this facility. This recommendation suggests this factor may become a potential barrier for the ongoing use of the Falls Protocol when the unit experiences staff shortages and resultant increased workloads. The lack of staff as a barrier for RU has been reported in the literature by Tsai (2000) and Olade (2003). In these studies nurses reported they had no time due to the shortage of staff to utilize scientific findings for evidence-based practice. Clearly the potential for staff shortages to inhibit research utilization among surveyed nurses should be a concern for nursing management within the hospital. To sustain the ongoing use of the Falls Protocol in this setting management should consider the following: having someone who has a research background and understands the realities of the clinical setting more visible or accessible to staff nurses who will focus on strategic ways of enhancing nurses' knowledge about the use of the Falls Protocol regardless of workload and staffing levels.

Limitations

There are a few limitations in this study to consider related to the reliability and the validity of the instrument, the generalizability of the findings and the use of a survey design. The reliability of the instrument used in this study: the 7-point Likert scale TPB survey questionnaire in Appendix F was evaluated using an internal consistency approach. It was not subjected to a test-retest reliability study given the small sample size and the potential for contamination. Rather the instrument's reliability was measured using a SPSS computer program to calculate the Cronbach's Alpha thereby determining internal consistency within the instrument questions. Furthermore, the survey questions were tailored to this study site's specific policy/protocol and the points of care decisions nurses face in this setting related to their ongoing use of the Falls Protocol. Therefore, the reliability of this instrument will be limited to populations with similar characteristics as the study sample and sites utilizing a similar policy protocol (same point of care decisions to use the protocol).

The validity testing of the instrument in this study is a limitation to consider as well. The TPB survey questionnaire was subjected to face validity (whether the instrument appears to be measuring the policy/protocol) and content validity testing (whether there are an appropriate number of questions and that they adequately covers the policy/protocol) through review and feedback from clinical experts and administration at the tertiary care facility. Two clinical experts from the pilot site; both whom were familiar with the original guideline implementation processes and the current users' (sample's) ongoing use of the guideline were asked to review the questionnaire. Experts were asked to evaluate whether individual questions were relevant and approximate in terms of the existing policy/protocol and whether the items adequately measured all dimensions of the policy/protocol. Modification were made accordingly and the final version of the 7-point Likert scale TPB survey questionnaire used in the study is attached herein (see Appendix F).

Another limitation to consider in this study relates to generalizability of findings. The homogeneity of the convenience sample (nurses from 2 similar tertiary care units within the same facility) may not be representative of regional differences in other practice environments. Therefore the generalizability of findings is limited to nurses only within this facility.

A final limitation of this study is the use of a survey design given that the data captured can be viewed as superficial (Polit & Beck, 2004). To partially compensate for this, the survey included opened ended questions, in an attempt to probe more deeply into some of the questions related to nurses' 'continued use' of research in clinical practice.

Implications

Insight and understandings of the behavioural intention of nurses regarding their ongoing use of the Falls Policy/protocol in their clinical practice has implications for the profession of nursing related to practice, education and research.

Implications for Practice

Findings from this study reveal nurses demonstrate strong intentions and for the most part continue to use the Falls Protocol on an ongoing basis on admission (Scenario 1), after a patient fall incident (Scenario 3) and less so on a quarterly basis (Scenario 2). One could argue the knowledge transfer strategies currently being used are successful. Nonetheless, to improve nurses intentions and sustain their ongoing use of the Falls Protocol for all three scenarios, the support and approval from referent groups such as families, management, physicians and therapists, who were found to have the greatest impact on nurses' intentions to use the Falls Protocol, should be encouraged. To achieve this Nursing Administration should find ways to foster the commitment of these referent persons to the RU activities of surveyed nurses as a lived value for their organization. This includes providing on-going education for referent groups together with nurses either on site or externally at conferences where relevant research findings are being discussed, ensuring access to relevant research findings in a useable format for direct application into the clinical setting for all practitioners, directly involving staff nurses together with physicians and therapists in the development and implementation of new policies/protocols/guidelines that integrate research findings into the daily practices; involving nurses and referent groups in the evaluation of current research based initiatives for continued implementation, establishing role models from internal and external sources of expertise such as the RNAO or local university faculty, and lastly integrating research use into the performance evaluation process for all practitioners. These knowledge transfer strategies will serve to foster the expectations of reference persons to ensure the ongoing use of the Falls Protocol and improve nurses' intention to sustain the ongoing use of the Falls Protocol within this facility.

Presenting research in a direct form (Estabrooks, 1999) such as a policy/protocol is an important consideration for Administration and Nurse Leaders. A successful knowledge transfer strategy for the nurses within this facility was the use of the RNAO's Falls Risk Prevention BPG (2002) to develop the existing Falls Protocol. This strategy has provided surveyed nurses with the opportunity to ensure quality nursing practice based on scientific knowledge and therefore should be maximized for improved research utilization at unit level. To sustain the use of the Falls Protocol and the implementation of future research findings within this setting, nurse leaders and educators, need to continue to deliberately integrate research findings into standards, guidelines, and protocols. For example, commitment to continue to assist surveyed nurses' access relevant research findings to update the Falls Protocol and integrate new knowledge into a readable and directly useable format is essential for RU sustainability in this setting. This will help bridge the gap between having clinically relevant knowledge and using it in practice for nurses within this facility.

In this study, 50% of surveyed nurses indicated there are factors outside their control that prevent them from using the Falls Protocol in their daily practice. Yet, the barriers were not clearly defined. Through subsequent comment nurses indicated the Falls Protocol was always available for use, however heavy workloads interfere with its usage; the paperwork is too time consuming; and it is the primary nurse's responsibility to re-evaluate the patient and thus not always completed by the nurse on duty. Strategies are needed to help nurses overcome these prevailing concerns. The importance of encouraging and supporting research utilization in the clinical setting by Nursing Administration can not be overemphasized. Monitoring workloads; allocating time (within the daily nurse workload system) for nurses to complete evidence-based activities such as completing assessment forms (approximately 10-20minutes) and other related paper work each shift; and adjusting the protocol so that the nurse on duty shares equally, with

the primary nurse, the responsibility for re-evaluating a patient's status will address the said concerns and reduce the percentage of nurses who perceive there are factors preventing them from using the Falls Protocol on a daily basis.

Furthermore, one of the key strategies identified for the future integration of the Falls Protocol by surveyed nurses was the need to increase staffing given the frequent staffing shortages experienced by nurses in this facility. The potential for staff shortages to inhibit ongoing research utilization should be a concern for Nursing Leaders within the hospital. To sustain the use of the Falls Protocol in this setting management should consider having someone who has a research background and understands the realities of the clinical setting more visible or accessible to staff nurses who will focus on strategic ways of enhancing nurses' use of research in practice regardless of workload and staffing levels. For example, once a week this individual could meet with staff and discuss ongoing implementation concerns, provide information related to successful transfer strategies for staff consideration and moreover act as a support mechanism to encourage those nurses interested in maintaining use of research in their practice. Commitment by management to provide such a resource will no doubt serve to address nurses concerns related to staffing while supporting their interest and intentions to continue to use the Falls Protocol in their daily practice.

Moreover, future research initiatives should take into consideration the transfer strategies used originally by the Champion Team, the key facilitators and suggestions for the future integration of the Falls Protocol provided by surveyed nurses in this study. This could serve as an excellent starting point to minimize potential barriers related to the ongoing use of research findings in practice. As with all shifts, the change from practice guided by tradition or trial or error to practice guided by science will not be sustained unless leadership is committed to the process in its entirety. Without sustained commitment on an ongoing basis by Administration,

the time and effort put into the change process by others such as the Champion Team may be for naught.

Implications for Education

In this tertiary care hospital staff education at the unit level is the responsibility of nursing management and nurse educators. To increase and sustain ongoing research use among nurses the value of research utilization needs to be emphasized in all forms of nursing education within this hospital; especially unit specific orientation and continuing education. Newly hired nurses and allied health care practitioners, regardless of their educational level, should be afforded the opportunity to engage in the 'Initial Training Session for the Falls Protocol' provided to all practitioners when implemented in 2003 by the Champion Team (see Appendix C). Existing staff should also be given the opportunity to participate in some form of continuing education to not only increase research awareness but to enhance their knowledge, competence and confidence to integrate research findings into their daily practice. This is particularly important given the fact 95% of surveyed staff are diploma graduates, who received no research training in their basic education. Without adequate unit orientation and continuing education the ongoing use of research findings and the expectation of integrating scientific evidence on an ongoing basis into practice in this setting will continue adhoc based solely on nurses intrinsic motivations. This is an unrealistic expectation and will not sustain the use of the Falls Protocol. Clearly translating research into practice needs the continued support, assistance and commitment of Nursing Administration. For example, institutionalizing research utilization into the annual nursing education/training objective process, staff meetings, orientation, continuing in-services and skill certification processes is necessary. Fortunately, the positive attitude and interest noted among surveyed nurses manifests an encouragingly receptive ground for future continuing education.

Notably, the commitment to research utilization by therapists, physicians and managers in this facility is apparent to the nursing staff. What is less apparent is who is or should be serving as role models and internal consultants to provide the needed guidance for research participation and utilization for practical problems. The establishment of the said research expert resource and perhaps an 'Ongoing Implementation Committee' could serve as a starting point from which to build the necessary internal resources and role models for improved research utilization. Furthermore, hospital leaders should promote research utilization activities in all professional and educational/placement contracts with Schools of Nursing, Therapy and Medicine for the purpose of ensuring evidenced-based practice among placement and contract practitioners and providing staff access to potential role models at the bedside. Contracts should stipulate evidence-based practice as the preferred guide to practice for all students and interdisciplinary team practitioners. Both Ajzen (1985, 1988) and Olade (2003) indicate practitioners who develop favourable attitudes towards research while in school are likely to carry these over to the practice arena. Hence, there is a need to stress the significance of research findings for evidence-based practice in educational contracts so leaders in academia prepare nurses with research utilization skills and positive attitudes to become potential role models for the practice setting. Research utilization should be a critical initiative for nursing leaders in both service and academia

Over 82% of surveyed nurses showed a desire for future integration of research findings in their practice. This demonstrates openness to and a yearning for research utilization in evidence-based practice among the majority of nurses in this hospital. Hospital leaders and educators (from academia) should take advantage of nurses' positive feelings towards research utilization and develop strategies to educate nurses and students (on placement) about the benefits of research utilization starting with the Falls Protocol.

Implications for Research

Estabrooks (1999) indicates the most common type of research use practicing nurses identify with is direct utilization. This was evident in the results of this survey however; the validity of self reporting regarding nurses' stated use of research needs to be considered in this survey. There is a need to conduct an observational study to confirm actual research use in practice.

Furthermore, more surveyed nurses identified that factors do exist which prevent them from using the Falls Protocol in daily practice. But these barriers were not clearly defined. It is only through comment and consideration of the strategies presented by nurses for the future integration of the Falls Protocol that one can glean what barriers may exist in this setting. Further research is necessary to tease out what factors contribute and impeded nurses' use of research during the Ongoing Use Phase of RU.

In this survey, the families, physicians, therapists and management were perceived to be key individuals who have a significant impact on surveyed nurses' use of research in practice. Hence, further research is needed to compare families', physicians', therapists' and nurse leaders' beliefs, attitudes and perceptions about the ongoing use of research in this tertiary care center with those found for nurses. The results from these surveys could provide further understanding and insight regarding the attitudes and beliefs of key referent individuals working directly with nurses and a different perspective of potential barriers, facilitators and organizational impacts affecting research utilization in this particular tertiary care setting. Survey results could provide additional information to develop effective strategies to enhance nurses' ongoing use of research in this practice setting.

Conclusions

Research Utilization has been redefined herein as a broad concept that divides into three sequential phases or sub-concepts depicting the varying degrees of use of research findings. The sub concepts are termed phases: 1) the Initiate Use Phase of RU, 2) the Ongoing Use Phase of RU, and 3) the Abandonment Use Phase of RU. The second sub-concept, the 'Ongoing Use Phase of RU' forms the focus of this thesis. The Ongoing Use Phase of RU, refers exclusively to the implementation phase of research utilization wherein the decision/commitment to use research findings in clinical practice has been made. Thus the diffusion and dissemination of research findings is assumed to have already occurred within the clinical setting. The notion of direct RU (Estabrooks, 1999) is considered the means in which the continued use of research is manifested or realized in nursing practice at the study site.

Using Ajzen's Theory of Planned Behaviour (Godin & Kok, 1996) as a theoretical framework, this survey study focused on investigating nurses' 'ongoing use' of an approved direct type of research (Estabrooks, 1999), namely the Falls Protocol. The study examined nurses' attitudes, subjective norm and perceived behavioural control beliefs related to their intention to 'continue to use' the Falls Protocol in their daily practice and examined nurses' perceptions regarding the facilitators, barriers and organizational structures that impact their 'ongoing use' of the Falls Protocol.

For three years, policy within the NEMHC has supported the continued use of the Falls BPG and has placed the decision to use it with the individual nurses at the point of care: namely on admission within 48 hours (Scenario 1); quarterly (Scenario 2) and after a patient fall incident (Scenario 3). Findings reveal nurses in this tertiary care facility demonstrate 'strong generalized intentions' towards the ongoing use of the direct form of research; the Falls Protocol in all three scenarios. In fact the majority of nurses indicated they either always or

often use the Falls Protocol in their daily practice. The ongoing utilization of research in practice is definitely of interest and viewed positively by nurses in this setting despite their educational profile, limited research education and minimal exposure to in-house continuing education. This result indicates exposure to research may be contributing to the development of favourable attitudes towards RU verses the source of original exposure. This unique result implies the missing link to 'ongoing integration of research' into evidence-based practices does not depend on level of education but rather effective continuing education, further development of the existing positive attitudes and efforts (use of effective transfer strategies) which increase the use of the direct type of research utilization at all decision points within the Falls Protocol. This finding is contrary to that found in the literature and therefore adds to the existing knowledge of research utilization among nurses.

Furthermore, nurses' intention to 'continue to use' the Falls Protocol in this tertiary care facility is significantly influenced by the social expectations of families, physicians, therapists and management and by their perceived behavioural control (PBC) beliefs. The normative beliefs of nurses about the expectations of reference persons were found to have an equally strong impact on whether nurses use the Falls Protocol on a quarterly basis and after a patient fall incident. This result is congruent with those found in the literature (Camiah, 1997; Omery, 1999; Estabrooks, 1999; Tsai, 2000; Rodgers, 2000; Olade, 2001,2004). Findings also revealed nurses control beliefs were the strongest predictor of their use of the Falls Protocol particularly after a patient fall incident. Several studies have been conducted over the years examining the impact of various barriers and facilitators affecting research utilization and this finding substantiates nurses control beliefs about the presence of factors that may facilitate or impede their use of research as an important consideration particularly with respect the

Ongoing Use Phase of RU. These findings therefore support the existing knowledge of research utilization.

Furthermore, surveyed nurses report three factors facilitate their 'ongoing use' of the Falls Protocol in their setting. These facilitators include: 1) providing research in a useable form; 2) attending conferences or seminars to remain current with new research related to their clinical setting; 3) engagement in research activities such as the development, updating and implementation of the Falls BPG for use on their units has enhanced their research knowledge base and competence integrating research into their practice. These three facilitators are congruent with those found in the literature (Estabrooks, 1999; Tsai, 2000; Olade, 2004; Omery & Williams, 1999; Kitson, 1996; Michel & Sneed, 1995; Davis, 1995) relating to the uptake or 'Initiate Use Phase of RU'. These unique findings add new knowledge about the facilitators that may also impact the 'Ongoing Use Phase of RU' among nurses.

Future analysis of families, nurse leaders, physicians and therapists attitudes, beliefs and perceptions towards the ongoing use of research are needed to build on the existing findings to improve the understanding of research utilization in this setting and development of effective interventions for improved research utilization among nurses.

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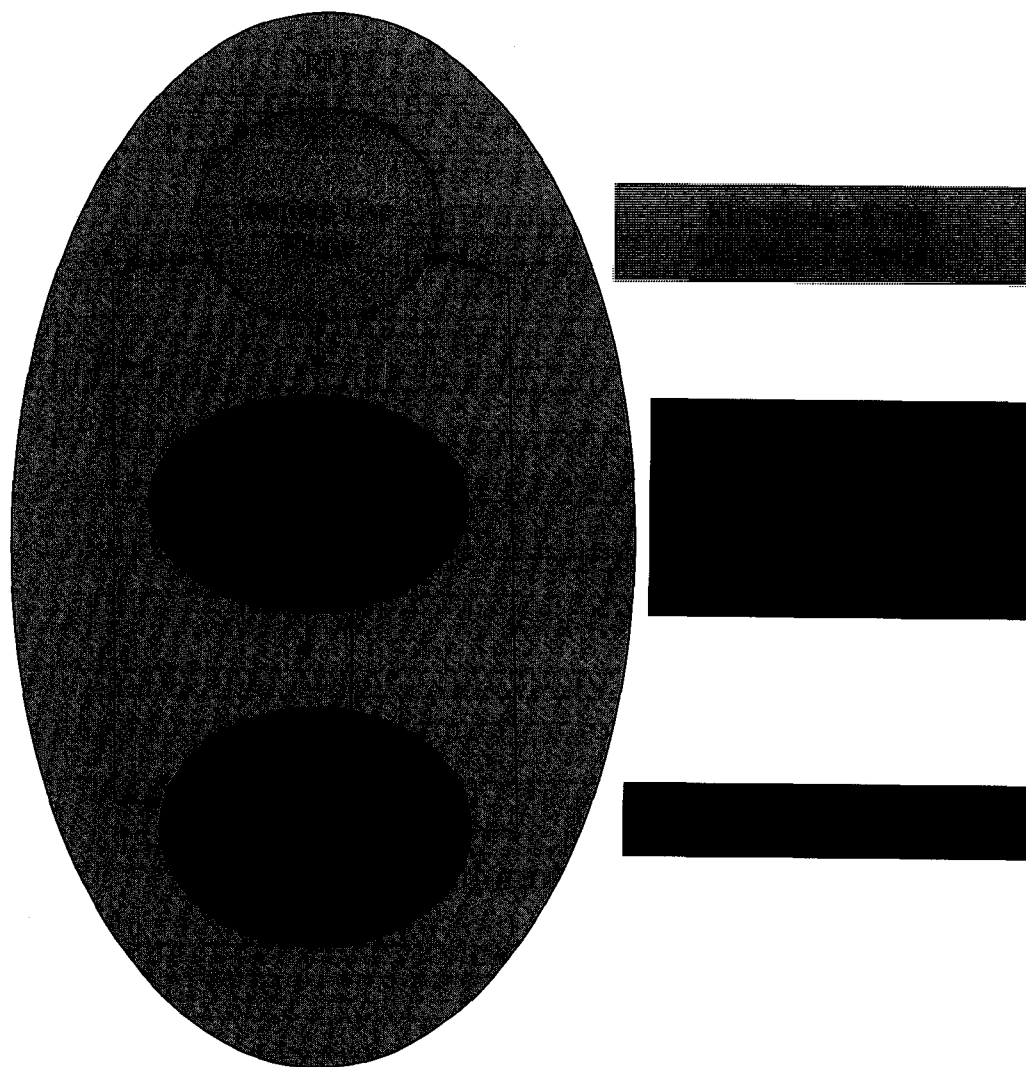
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Appendix A

Figure 2 -The Concept of Research Utilization by Letitia Nadalin Penno 2007



RU = Represents the Broad concept of Research Utilization

Initial Use Phase of RU = Represents the sub-concept Initiate Research Utilization

Ongoing Use Phase of RU = Represents the sub-concept Continued Research Utilization

Abandonment Use Phase of RU = Represents the sub-concept Discontinued Utilization

Appendix A – Table 1: A Comparison of The Concept of Research Utilization (Penno, 2007) & Current Models of RU

Concept Research Utilization Penno (2007)	Types of Research Utilization	Estabrooks (1999) Conceptual Structure of RU (Types of Utilization)	Rogers Innovation Diffusion Model (1994)	Stetler Model (2001)	IOWA Model (2001)	ACE Star Model of Knowledge Transformation (2002)	OMRU (1998)
Initiate Use Phase	Knowledge Creep (Weiss 1980) Decision Accretion (Weiss 1980)		Knowledge stage Persuasion stage Decision stage	Phase I -Preparation Phase II- Validation Phase III- Comparative evaluation/decision making Phase IV - Translation and application (Consider use aspect of this phase)	Knowledge focused trigger Or problem focused trigger Form a Team Pilot the change	Discovery stage Summary stage Translation stage	Assessment phase Transfer strategy phase Adoption Phase – (decision process of Uptake) ie awareness of Res ie attitude towards Res ie decision to use res
Ongoing Use Phase	Instrumental Utilization (Chaplan & Rich, 1975) Conceptual Utilization (Hansenfeld &Patti, 1992) (Chaplan & Rich, 1975) Symbolic Utilization (Beyer & Trice, 1982)	Direct Utilization Indirect Utilization Persuasive Utilization	Implementation stage	Phase IV - Translation and application (use now aspect of this phase)	Institute change Dissemination results	Implementation stage	Use Phase
Abandonment Use Phase			Confirmation stage	Phase V – Evaluation	Evaluate	Evaluation stage	

Appendix B

Registered Nurses Association of Ontario: Nursing best practice guidelines program (2005) *Prevention of Falls and Fall Injuries in the Older Adult*

Summary of Recommendations

General Principles:

1. The client's perspective, individual desires and needs are central to the application of the guideline.
2. The over-arching principle that guides the intervention choices is the principle of maintaining the highest quality of life possible while striving for a safe environment and practices. Risk taking, autonomy, and self-determination are supported, respected, and considered in the plan of interventions.
3. Individuals, their significant other(s) and the care team engage in assessment and interventions through a collaborative process.

RECOMMENDATION		*LEVEL OF EVIDENCE	**GRADE OF RECOMMENDATION
Practice Recommendations			
Assessment	1.0 Assess fall risk on admission. 1.1 Assess fall risk after a fall.	lb lb	B B
Intervention <i>Tai Chi</i>	2.0 Tai Chi to prevent falls in the elderly is recommended for those clients whose length of stay (LOS) is greater than four months and for those clients with no history of a fall fracture. There is insufficient evidence to recommend Tai Chi to prevent falls for clients with LOS less than four months.	lb	B
<i>Exercise</i>	2.1 Nurses can use strength training as a component of multi-factorial fall interventions; however, there is insufficient evidence to recommend it as a stand-alone intervention.	lb	I
<i>Multi-factorial</i>	2.2 Nurses, as part of the multidisciplinary team, implement multi-factorial fall prevention interventions to prevent future falls.	1a	B
<i>Medications</i>	2.3 Nurses, in consultation with the health care team, conduct periodic medication reviews to prevent falls among the elderly in health care settings. Clients taking benzodiazepines, tricyclic antidepressants, selective serotonin-reuptake inhibitors, trazodone, or more than five medications should be identified as high risk. There is fair evidence that medication review be conducted periodically throughout the institutional stay.	IIb	B
<i>Hip Protectors</i>	2.4 Nurses could consider the use of hip protectors to reduce hip fractures among those clients considered at high risk of fractures associated with falls; however, there is no evidence to support universal use of hip protectors among the elderly in health care settings.	lb	B

* For a discussion of Levels of Evidence see p. 11.

** For a discussion of Grades of Recommendation see p. 12.

Nursing Best Practice Guideline

RECOMMENDATION		*LEVEL OF EVIDENCE	+GRADE OF RECOMMENDATION
Vitamin D	2.5 Nurses provide clients with information on the benefits of vitamin D supplementation in relation to reducing fall risk. In addition, information on dietary, life style, and treatment choice for the prevention of osteoporosis is relevant in relation to reducing the risk of fracture.	IV	
Client Education	2.6 All clients who have been assessed as high risk for falling receive education regarding their risk of falling.	IV	
Environment	3.0 Nurses include environmental modifications as a component of fall prevention strategies.	Ib	
Education Recommendations			
Nursing Education	4.0 Education on the prevention of falls and fall injuries should be included in nursing curricula and on-going education with specific attention to: <ul style="list-style-type: none"> ■ Promoting safe mobility; ■ Risk assessment; ■ Multidisciplinary strategies; ■ Risk management including post-fall follow-up; and ■ Alternatives to restraints and/or other restricted devices. 	IV	
Organization & Policy Recommendations			
Least Restraint	5.0 Nurses should not use side rails for the prevention of falls or recurrent falls for clients receiving care in health care facilities; however, other client factors may influence decision-making around the use of side rails.	III	I
	6.0 Organizations establish a corporate policy for least restraint that includes components of physical and chemical restraints.	IV	
Organizational Support	7.0 Organizations create an environment that supports interventions for fall prevention that includes: <ul style="list-style-type: none"> ■ Fall prevention programs; ■ Staff education; ■ Clinical consultation for risk assessment and intervention; ■ Involvement of multidisciplinary teams in case management; and ■ Availability of supplies and equipment such as transfer devices, high low beds, and bed exit alarms. 	IV	

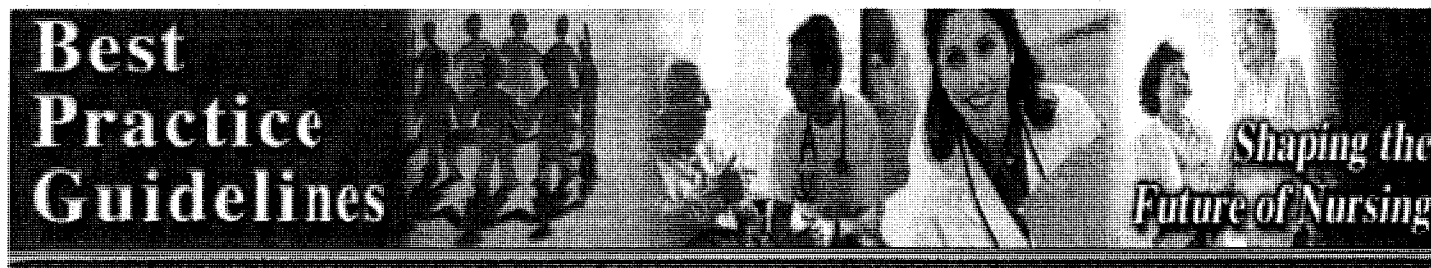
Prevention of Falls and Fall Injuries in the Older Adult

	RECOMMENDATION	*LEVEL OF EVIDENCE	*GRADE OF RECOMMENDATION
Medication Review	8.0 Implement processes to effectively manage polypharmacy and psychotropic medications including regular medication reviews and exploration of alternatives to psychotropic medication for sedation.	IV	
RNAO Toolkit	<p>9.0 Nursing best practice guidelines can be successfully implemented only where there are adequate planning, resources, organizational and administrative support, as well as appropriate facilitation. Organizations may wish to develop a plan for implementation that includes:</p> <ul style="list-style-type: none"> ■ An assessment of organizational readiness and barriers to education. ■ Involvement of all members (whether in a direct or indirect supportive function) who will contribute to the implementation process. ■ Dedication of a qualified individual to provide the support needed for the education and implementation process. ■ Ongoing opportunities for discussion and education to reinforce the importance of best practices. ■ Opportunities for reflection on personal and organizational experience in implementing guidelines. <p>In this regard, RNAO (through a panel of nurses, researchers and administrators) has developed the <i>Toolkit: Implementation of Clinical Practice Guidelines</i> based on available evidence, theoretical perspectives and consensus. The <i>Toolkit</i> is recommended for guiding the implementation of the RNAO guideline <i>Prevention of Falls and Fall Injuries in the Older Adult</i>.</p>	IV	

RNAO BPG, (2005, p. 8-10).

Appendix C

NEMHC Policy and Protocol for Falls Risk Assessment
NURSING BEST PRACTICE GUIDELINES



PREVENTION OF FALLS AND FALLS INJURIES IN THE ELDERLY

OUTLINE FOR THE AFTERNOON

WELCOME!

INTRODUCTION TO BPGS

CASE STUDY

ASSESSMENT TOOLS

GROUP DISCUSSION

WRAP UP

POLICY/ PROTOCOL FOR FALLS RISK ASSESSMENT TOOL

Purpose: To ensure a consistent, accurate and timely assessment of a patient's fall risk. To promote and maintain mobility, and functioning at the patient's optimal level.

Policy Statement: All patients will have a falls risk assessment started on admission and completed within 48 hrs by admission staff. The risk assessment will then be completed on a quarterly basis (every three months) by prime nurse. The falls risk assessment will be completed prn in the event of a patient's status change (i.e.: physical, mental and at nurse's discretion)

Procedure:

Nursing staff, (with possible consultation and involvement of; PT/OT, Recreation Therapist, Doctors, Housekeeping, Dietary, Patient and patient family).

Ensures the following:

1. Complete the Falls Risk Assessment Screening Tool
-as per included instructions
2. Using the Falls Risk Assessment Decision Tree, complete any other necessary assessments and refer to OT/PT, Recreational therapy, and others as deemed necessary by decision tree
3. Using information obtained through screening tools to complete an individualized care plan for falls prevention
4. At quarterly review and prn, complete a nursing note summarizing the assessment of client's risk for falls and any actions taken.
5. Ensure screening results are reviewed at multidisciplinary team meetings.

Reference: Prevention of Falls and Fall Injuries in the Older Adult; RNAO, 2002

July Draft 2003

Case Study

Sam Jones is an 86yr old male resident with severe dementia, osteoarthritis, poor hearing, and early stages of cataracts in both eyes.

He walks with a wheeled walker, his gait is unsteady and he frequently complains of pain in his legs.

He has had a hx of falls, resulting in minor injuries i.e.: contusions and abrasions.

Sam is easily agitated, difficult to re-direct, and argumentative.

Sam also has "sundown syndrome".

At night he gets up several times to go to the bathroom, forgetting to use his walker, and urinating at times on the floor. Often Sam will require re-direction his bed because of poor memory recall as to its location.

Today Sam is very confused and argumentative. He has recently received a prn to decrease agitation. He is ambulating erratically without his walker, using the co-patients and walls for support. Sam is in stocking feet, with his pants falling down around his ankles. The cleaner has just finished mopping the hallway and has placed wet floor signs the length of the hall. The hall is crowded with equipment and dimly lit because of burnt lights. Sam is attempting to leave the floor to go to work.

What would you do in this situation to assist Sam?

What is Sam's risk level for falls?

Teaching notes:

Systematically evaluate using intrinsic and extrinsic factors:

Intrinsic: previous fall, visual deficit, arthritis, unsteady gait, cognitive impairment, agitation, incontinence.

Extrinsic: prn medication, footwear, pants falling, wet floor, poor lighting, cluttered hall, and no walker.

Plan: Intervene immediately!

Use simple direct instructions while talking patient through intervention and teaching.

Pull up pants, provide walker and footwear, and a belt or braces.

Assess need for use of bathroom, and physical comfort

Walk with /redirect to a safe environment and quiet area to assist with de-escalation.

Continue to monitor patient

Clear the hall of miscellaneous items

Call maintenance about lighting

Suggest to housekeeping that the floor be mopped dry.

What to do after the incident is resolved:

Investigate patient's comfort with use of walker/ appropriateness of walker.

Assess client's pain management , with the multidisciplinary team:

M.D.: Assessment of pain medication and benzodiazepine usage.

PT/ OT: Assess of ambulatory devices, mobility/ flexibility gait/ posture/ balance

Rec staff: Assessment for walking program and exercise

Nursing staff: Encourage and assist with patient ambulation, assess activity tolerance.

Monitor for side effects of benzodiazepines and pain medication, assess need for toileting routine

Dietary: Assess diet for nutritional needs.

Ophthalmologist: Assess cataract development

Intrinsic and Extrinsic Factors Associated with Potential Falls and Fall Injuries

Intrinsic Factors	Extrinsic Factors
Previous Fall	Medications
Visual Deficit	Restraints
Stroke	Environmental Factors: <ul style="list-style-type: none"> • Loose carpets • Unsafe stairways • Bath tubs without handles • Ill fitting sheets • Poor lighting • Inadequate assistive devices
Arthritis	
Orthostatic Hypotension	
Acute Illness	
Unsteady Gait	
Cognitive Impairment	
Incontinence	

**INSTRUCTIONS FOR COMPLETION OF THE FALLS RISK ASSESSMENT
SCREENING TOOL**

Section: score appropriate points for each section (there are no in between points, either the indicator is present or it is not)

1. PHYSICAL STATUS

Score the appropriate points for each question.

- has fallen in the last 6 months = 1 point
- has sustained injury from a fall in last 6 months = 2 points
- has had repeated falls over last 6 months = 3 points

This section can have a maximum of 6 points.

2. IMPAIRED DISEASE PROCESS

- osteoporosis or any long standing physical medical problem -whether patient has one or several medical problems = 1 point
- any neurological condition , including dementia = 2 points

Maximum total = 3 points

3. COGNITIVE FUNCTION

- complete a mini mental state exam and score according to results; i.e.; 30-25 = 0points, 20 – 24 = 1point, 10-19 = 2points, 0-9 = 3 points
- if patient is routinely unable to follow simple instructions (i.e. Wash face) score 3 points

Maximum total = 6 points

4. ORTHO-STATIC HYPOTENSION

- if there is a difference of 20 mmHg or greater from lying to standing score 3 points

Maximum total = 3 points

5. SENSORY

- score a point for each deficit patient has; hearing, vision and verbal communication

Maximum total = 3 points

6. AMBULATES

- score according to the amount of assistance the patient currently utilizes

Maximum total = 3 points

7. TRANSFERS

- score according to the number of staff required to transfer patient, with or without mechanical/assistive devices
- use the method used the most on the patient (i.e.: if patient usually requires two staff to transfer, but occasionally has good days and uses one staff, score for 2 staff assist)

Maximum total = 3 points

8. BALANCE & GAIT

- *score 3 points if unsteady when standing, 3 points for unsteady gait, and 3 points for unsteady when turning*

Maximum total = 9 points

9. POLYPHARMACY

- *count the number of medications patient is on and score accordingly*
- *then if patient is on a sedative or benzodiazepine score an extra 3 points (include these meds. In the count above)*

Maximum total = 6 points

10. INCONTINENCE

- *if patient is incontinent score 2 points*
- *if they also get up at night due elimination score 1 point*

Maximum total = 3 points

11 - 12. Score appropriately, as asked by assessment

13. ACUTE ILLNESS

- *score 3 points; acute illness examples: UTI, flu, infections, anything acute and reversible*

14. PHYSICAL RESTRAINT USE

- *a physical restraint is anything that a patient cannot get out of and impedes movement, including a Geri chair with Tabletop.*
- *Score appropriately for the number of hours a day patient is in a restraint*

Maximum total = 3 points

Then total all sections of screening tool, write in total score section. From that section, the risk level can be determined. Ensure that form is addressograph, signed and dated.

July 2003

North Bay Psychiatric Hospital

RISK FALLS ASSESSMENT TOOL
FALLS RISK ASSESSMENT *(draft)*

(to be completed on admission –within 48 hrs- and quarterly)

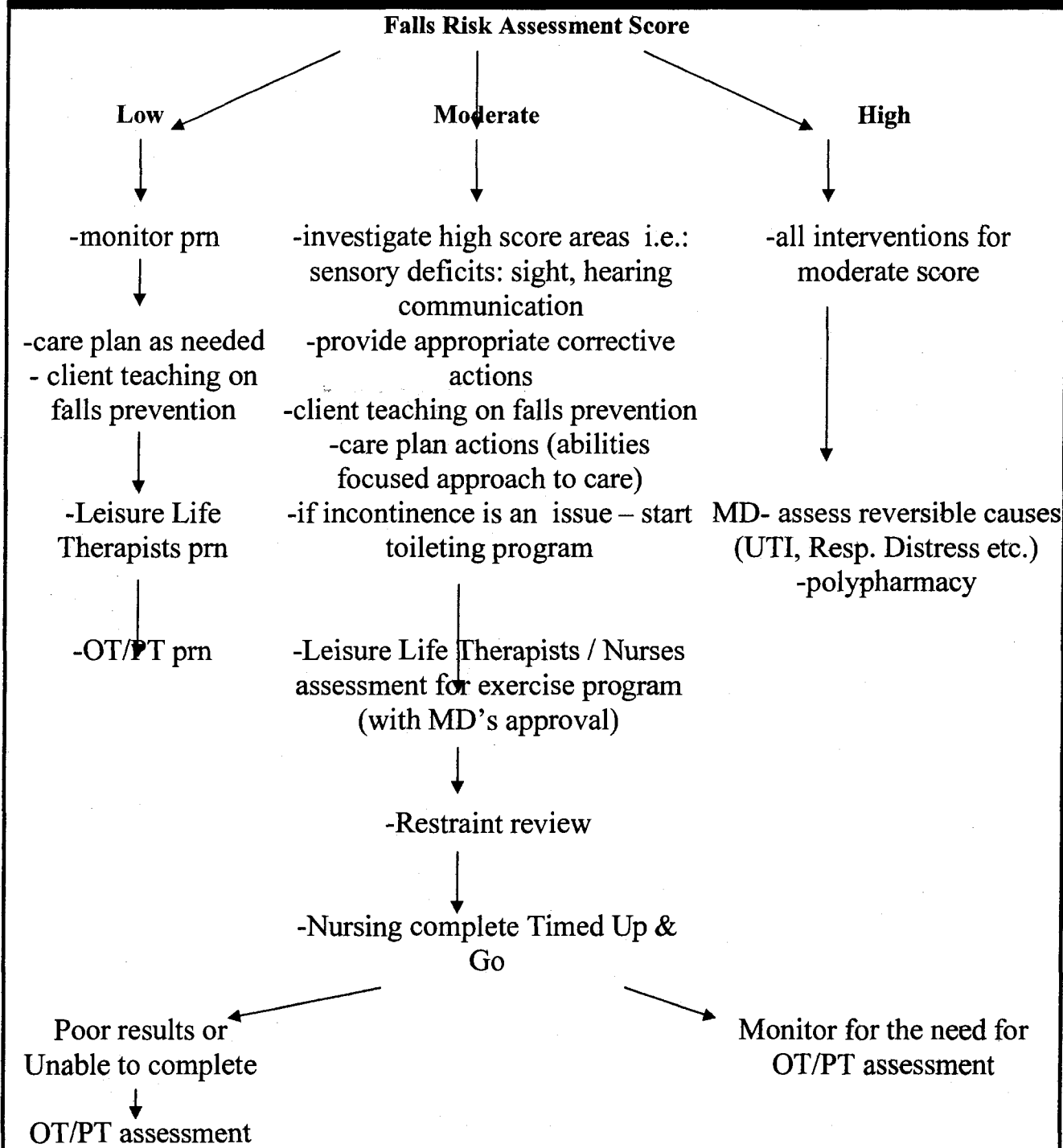
	Assessment 1	Assessment 2	Assessment 3
DATE			
1. PHYSICAL STATUS Has fallen: *In last 6 months (1) *Has sustained injury from fall in last 6 mths (2) *Has had repeated falls over last 6 mths (3)	(score)	(score)	(score)
2. IMPAIRED DISEASE PROCESS *Osteoporosis, arthritis, CVA, anemia etc (1) *Neurological condition (2)			
3. COGNITIVE FUNCTION *Results of MMS >20 – 24 (1) >10 – 19 (2) >0 – 9 (3) *does not comply to instruction (3)			
4. ORTHO-STATIC HYPO-TENSION *20mmHg or greater change from lying to standing (3)			
5. SENSORY *Hearing deficit (1) *Visual deficit (1) *Communication deficit (1)			
6. TRANSFERS (with/without assistive device) <ul style="list-style-type: none"> • Supervision (1) • 1 person assist (2) • 2 person assist (3) 			
7. BALANCE & GAIT <ul style="list-style-type: none"> • Unsteady when standing (3) • Shuffling gait/unnatural 			

gait (3) • Unsteady when turning (3)			
8. POLYPHARMACY • 1 – 4 Medications (1) • 5 – 9 Medications (2) • +10 Medications (3) • on sedatives/benzodiazapine (3)			
9. INCONTINENCE • Frequency, urgency, nocturia >2x per night (1) • Incontinent (2)			
10. NON COMPLIANCE WITH FOOTWEAR (2)			
11. DEHYDRATION (3)			
12. ACUTE ILLNESS (3)			
TOTAL - risk of falls • 1- 12 Low • 13-25 Medium • 26-48 High			
SIGNATURE			

Adapted from Valleyview Home for the Aged
Falls Risk Assessment

March 2003
North Bay Psychiatric Hospital

FALLS RISK ASSESSMENT DECISION TREE



TIME UP AND GO TEST

Guidelines

Rationale: The Timed Up and Go Test is a test of basic functional mobility for the Frail Elderly. This test measures, in seconds the time taken by an individual to stand up from a standard arm chair (approximately seat height of 46 cm) , walk three meters , turn, walk back to the chair., and sit down again.

Note: *this is not to be given to clients who are not able to ambulate safely with aids.*

METHOD:

1. **The client wears his/hers regular footwear and uses his/hers customary walking aid (none, cane or walker)**
2. **The client starts with his/hers back against the chair, his/her arms resting on the chair's arms and his/her walking aid at hand.**
3. **The therapist instructs the clients that on the word go he/she is to get up and walk at a comfortable pace to a line in the floor three meters away, turn, return to the chair and sit down again.**
4. **No physical assistance is to be given.**
5. **The client walks through the test once before being timed in order to become familiar with the test.**
6. **Either a wrist-watch with a second hand or a stop-watch can be used to time the performance.**
7. **Results are documented in seconds in the clients chart.**

Falls and Restraints Test Your Knowledge

Please mark the following statements as true or false:

1. T/F Current research has demonstrated that the use of restraints increases the incidence of falls severity.

2. T/F Restraint usage has been linked to functional decline and emotional distress

3. T/F Falls are the leading cause of morbidity and mortality in seniors.

4. T/F Urgency to use the bathroom increases the incidence of falls

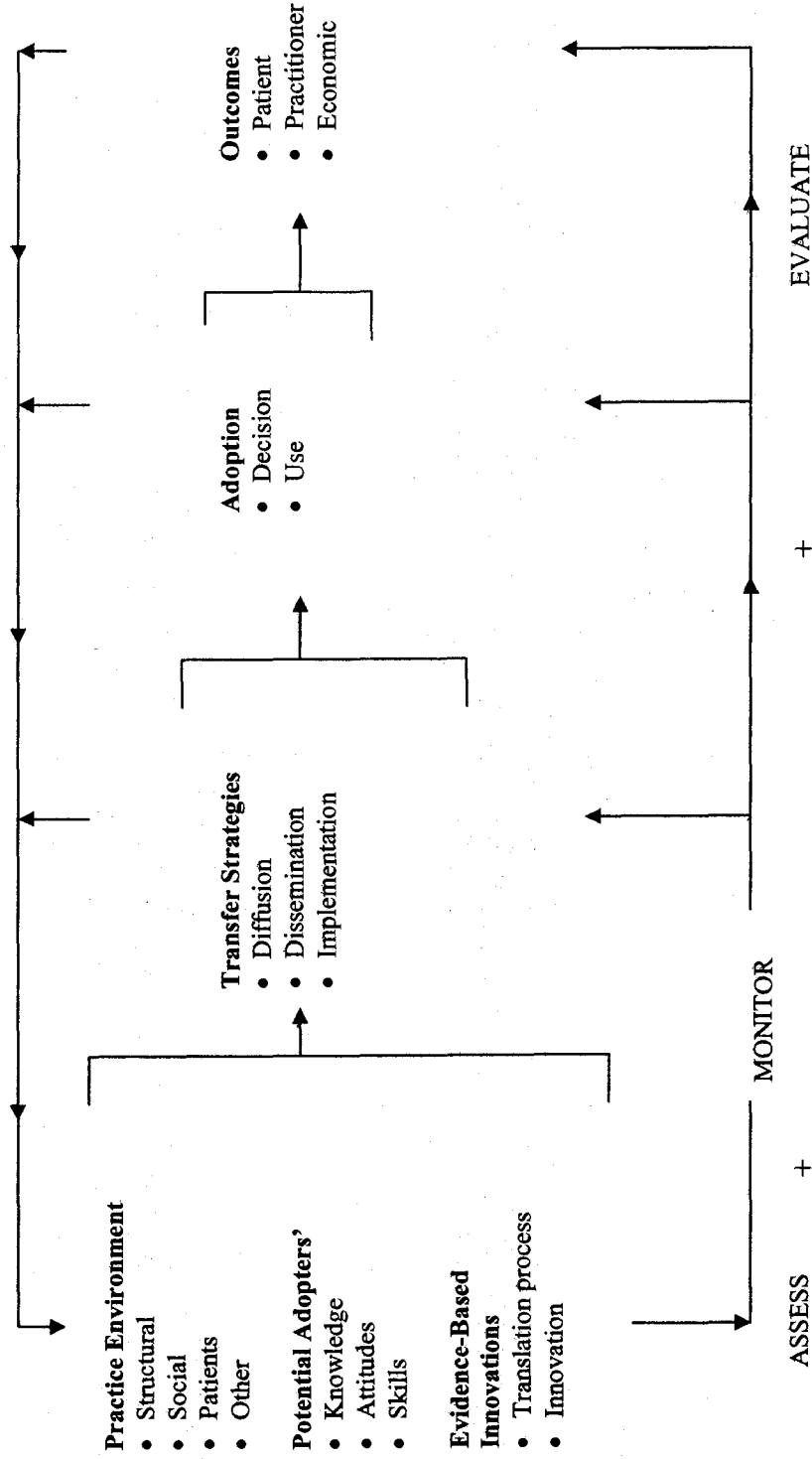
5. T/F Polypharmacy, specifically the use of benzodiazepines decreases the incidence of falls

6. T/F Falls assessment and prevention is a multidisciplinary issue

Answers to questions:

Appendix D

Figure 3 -The Ottawa Model of Research Use



Logan & Graham (1998), p. 229. Copyright © 1998 by Sage Publications.

Appendix E

2004 Recommendations regarding the selection and tailoring of research transfer strategies to overcome barriers & enhance supports at the NEMHC

The transfer strategy analysis focuses on the strategies used for getting evidence-based innovations to potential adopters and promoting their adoption and use. Recommended strategies for transferring the evidence and facilitating its future use are provided based on the stages of the 'research use decision process' outlined in the OMRU (Logan & Graham, 1998)

Awareness of the CPG for falls

- Prior to the initiation of the project anywhere else within the NBPH, the development of a 'communication plan' designed to raise awareness about how research findings can be integrated into client care practices using CPG is advisable. Transfer strategies that include a multi-prong approach increase the likelihood of potential adopters' exposure to the project (Logan & Graham, 1998). Use of available formats and/or media such as posters, workshops, open forums, intranet bulletin boards and staff mail box systems, can be used to introduce key aspects of research use in clinical practice and maintain ongoing communications during the implementation phases.
- Targeting or tailoring of available evidence-based findings relevant to specific hospital programs (passive dissemination), such as the falls prevention CPG for the SMH interdisciplinary team members, is recommended. For example, providing access to the actual research articles discussed in the RNAO's CPG for falls prevention and highlighting relevant components is an effective passive transfer strategy that will limit the time practitioners require to read the available literature. This transfer strategy will also serve to increase practitioner skill and ability to analyze research findings for use in the clinical setting.
- Continued use of the established committee structures (Nursing Practice Council, Nursing Management Council, Nursing QI/RM Council and Nursing Education and Research Council) for ongoing communication related to project progress towards established goals and outcomes is recommended.

Development of positive attitudes towards the CPG

- For those key stakeholders who did not attend the initial sessions there is a need to provide access to the training sessions. This is required to ensure all existing staff have the benefit of being exposed to the projects goals and to experience the training required to successfully implement the tailored CPG for falls, its related protocols, assessment tools and charting requirements.
- The issuing of "Training Certificates" by the Champion Team instructors following successful completion of the initial training sessions is a successful recruitment and retention strategy for staff at the NBPH given the pending divestment and restructuring initiatives. It is recommended that this transfer strategy be continued with any successive training initiatives.
- The development and provision of educational materials in the form of a self-directed take-home study package is another alternative transfer strategy recommended to expose the large and ever changing float pool staff who often are assigned to work on units implementing CPGs.
- Hiring practices for nursing and other interdisciplinary professionals such as occupational therapists, physiotherapist, and social workers will need to be expanded. Orientation packages should include all educational materials, unit protocols, assessment tools and charting documentation requirements for the implementation of the falls prevention CPG. This will ensure awareness of the established clinical practice within the SMH program.

Decision to use the CPG

- The engagement of the SMH Program Manager, a key stakeholder, needs to be reestablished. This will facilitate a positive attitude towards the projects continued implementation, ensure support for ongoing training sessions and encourage involvement in evaluation of patient outcomes.
- Family education or awareness of the implementation of the falls CPG should also be considered. This will not only serve to demonstrate to families the advanced clinical practices being used at the hospital, but engage those families who are actively involved in the patient's care to participate in the implementation of the guideline on and off site (when the patient is out on leave with family).
- Formalization of the established falls and fall injury prevention protocols, policies and procedures is strongly recommended. This transfer strategy can be an effective means of dealing with those individuals who inconsistently apply the CPG.

Continued use of the CPG

- Given the SPC reassignment, other nursing management personnel from within the hospital who attended the initial training session should be given the opportunity to participate in the project's evaluation phase (such as the full time Clinical Coordinator or Program Manager). Following a briefing session, this individual could be delegated the responsibility to begin the chart audit evaluation process (qualitative analysis). Additionally, they could be given the responsibility to establish a monthly qualitative and quantitative data collection process to gather other unit level monitoring documentation (benchmarking use of restraints and use of alternative restraint strategies). These monthly reports should then be forwarded to the SPC for analysis with respect to the effectiveness of the CPG implementation process and the achievement of project goals/outcomes.
- The ongoing incident reporting structure currently in place (completed by the GRASP Coordinator) needs to be enhanced. A separate statistical report should be generated and forwarded to the SPC on a monthly basis, for combined analysis with other evaluation results such as the chart audits and monitoring documentation (other quantitative and qualitative data being recorded at the unit level). While the incident reports alone have the potential to provide evaluation data, one should be reluctant to allow the success of the CPG implementation to hinge on this outcome alone given the unique and complex nature of the psychiatric patient population within the SMH program. Therefore, it is imperative that other qualitative and quantitative data be evaluated to determine effectiveness of the CPG implementation and achievement of project goals.
- Not all implementation strategies work all the time. In fact, Logan and Graham (1998) suggest the use of multiple strategies is more effective than the use of a single strategy. This is a key point worth mentioning as the Champion Team considers the need for ongoing training sessions for potential adopters. Furthermore, Logan & Graham (1998) contend transfer strategies that are nearer to the end user and integrated into the process of care delivery are more likely to be effective. This should be taken into consideration by the Champion Team with future efforts related to ensuring continued use of the CPG.

2004 Recommendations for sustainability and the project's evaluation phase

Recommendations for the evaluation of "research adoption and use" and "outcome measurement" are outlined below. The evaluation strategies provided are an attempt to provide concrete evidence as to whether the adoption and use of the falls CPG is being used as it was intended. The outcomes measurement relates to the patients, practitioners and project goals as set out by the Champion team.

- A key hurdle in the project's implementation has been the reassignment of the project's most strategic stakeholder, the SPC. This individual's knowledge and project management skills have been temporarily diverted as a result of other pressing priorities. In effect, this has essentially

halted the evaluation process. As a result, there is an immediate need to establish an alternative reporting and evaluation system so that those closely connected to the project remain motivated and enthusiastic. Feedback mechanisms need to be put in place to maintain the project's momentum.

- Unfortunately, the risk associated with the investment of all the intellectual capital into a single person (the Clinical Nurse –Amanda Souter) has been realized with the individual's reassignment. The reliance on one Clinical Nurse, without a strategic backup plan, has definitely jeopardized the ongoing success of the CPG implementation. Engaging and sponsoring all three current Clinical Nurses on each unit, along with one or two other interested team members (who are on opposite rotations) to attend the RNAO BPG training sessions, is seen as necessary to ensure the project's sustainability. This training is required so that these individuals can provide the clinical expertise and direction regarding the CPG implementation on all shifts.
- There is an urgent need to gain agreement among stakeholders to establish a 'new Champion Team' to ensure the continuation of the project and to provide the clinical expertise and direction the project participants need at unit level. Membership should include all three Clinical Nurses from all units, two unit representatives per unit, the SMH Program Manager, the GRASP Coordinator, a Clinical Coordinator, one other Unit Program Manager and the SPC. Overall, this new Champion Team should be made up of enthusiastic individuals interested in monitoring the use of research in the clinical setting and the improvement of patient care outcomes. The chair position should rotate to facilitate continued commitment among members and to share workload. Clerical support for the committee should be established and the meetings should be scheduled on a regular basis every month.
- It is necessary to initiate the evaluation phase as soon as possible to ascertain whether the adoption and use of the falls CPG is being used as it was intended by the original Champion Team. Anonymously surveying all stakeholders involved is recommended. This approach will help maintain accurate and honest feedback. By monitoring the adoption process of the CPG at the unit level, the new Champion Team will be able to determine whether the guideline is being used as intended, whether it has been adapted to local unit conditions and may no longer be used as intended, or whether it has been adopted and later in the year abandoned. Because the process of research utilization is evolutionary and interactive (Logan & Graham, 1998), it is essential the new Champion Team understands how the CPG has been adopted or rejected. In so doing, the team will be in a better position to modify existing transfer strategies or select new ones to maximize the use of the falls CPG within the SMH program.
- Prior to implementation of the falls CPG elsewhere within the hospital, it is recommended that an environmental analysis be conducted, as per the RNAO implementation toolkit (2002). This is necessary to determine the readiness of the potential adopters for research utilization and the suitability of existing transfer strategies (Moulding, Silagy & Weller, 1999). Additional transfer strategies may need to be developed given unit specific environment and adopter profiles.
- Ongoing communications with all stakeholders and committees regarding the effectiveness of the falls prevention guideline needs to be reestablished as soon as possible to maintain the projects profile within the hospital and support at the various levels from within. It is recommended that the SPC continue as the liaison between the new Champion Team and these committees.
- Future plans to maintain the vision of establishing evidence-based nursing practice within NBPH should include the continued sponsorship of interested hospital personnel to the RNAO training sessions on Best Practice Guideline Implementation.



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Appendix F

QUESTIONNAIRE ON THE USE OF FALLS RISK PREVENTION POLICY/PROTOCOL IN CLINICAL PRACTICE

By Letitia Nadalin Penno
MScN Student
University of Ottawa

Background

The North East Mental Health Center (NEMHC) began implementing the Registered Nurses of Ontario's (RNAO) best practice guideline (BPG) for Falls Risk Prevention in your clinical setting in July 2003. The purposes were to ensure a consistent, accurate and timely assessment of patient's fall risk and to promote and maintain patient's optimal level of mobility and functioning.

Introduction

I am conducting a study to learn more about your experiences with the ongoing implementation of this guideline. In particular, I am interested in your attitudes, beliefs, feelings, and perceptions regarding the Falls Risk Prevention policy /protocol designed specifically for the NEMHC and your use of the Risk Assessment Screening Tool associated with this protocol.

Please read each question carefully and answer it to the best of your ability. There are no correct or incorrect responses; we are merely interested in your point of view. The questionnaire may appear to be monotonous since several of the statements are worded in a repetitive manner. The nature of this study requires this methodological approach. However, your collaboration is vital. It is important to get *your opinion*.

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Scenario 2, questions continued:

For me, re-administering the Falls Risk Assessment Tool with this patient as soon as possible would be: Easy 1 2 3 4 5 6 7 Difficult

Physicians whose opinions I value think that I should re-administer the Falls Risk Assessment Tool with this patient as soon as possible.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I feel capable of re-administering Falls Risk Assessment Tool in with this patient as soon as possible.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Management (program manager & clinical team leader) do expect I will re-administer the Falls Risk Assessment Tool with this patient as soon as possible.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

For me, re-administering the Falls Risk Prevention Screening Tool with this patient as soon as possible would be:

Beneficial	1	2	3	4	5	6	7	Harmful
Useful	1	2	3	4	5	6	7	Not Useful
Good	1	2	3	4	5	6	7	Bad
Adequate	1	2	3	4	5	6	7	Inadequate
Helpful	1	2	3	4	5	6	7	Not Helpful

I plan to re-administer the Falls Risk Prevention Screening tool in Tool with this patient as soon as possible. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

It is expected of me that I re-administer the Risk Assessment Tool with this patient as soon as possible. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I intend to re-administer the Falls Risk Prevention Screening Tool with this patient as soon as possible. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I will re-administer the Falls Risk Prevention Screening Tool with this patient as soon as possible.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Most people (ie families of patients, other practitioners)who are important to me think that I should re-administer use the Falls Risk Assessment Tool with this patient as soon as possible.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

It is mostly up to me whether I re-administer the Falls Risk Assessment Tool as soon as possible

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I am confident I will re-administer the Falls Risk Assessment Tool with this patient as soon as possible.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I have complete control over re-administering the Falls Risk Assessment Tool with this patient as soon as possible.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Scenario 3

Sam Jones is an 86 year old male resident with severe dementia, osteoarthritis, poor hearing and early stages of cataracts in both eyes. He walks with a wheeled walker. His gait is unsteady and he frequently complains of pain in his legs. He has had a history of falls, resulting in minor injuries i.e.: contusions and abrasions. Sam is easily agitated, difficult to re-direct and argumentative at times. While on your shift Sam experiences a fall, and like the others he suffers only minor abrasions on his knee and elbow.

Would you use the Falls Risk Assessment Tool on this patient to systematically evaluate both the intrinsic and extrinsic factors associated with his potential for falls and falls injuries?

Your Decision Yes No

How difficult was it for you to make a decision for this scenario?

1 2 3 4 5 6 7
 Not at all Somewhat Difficult Extremely Difficult
 Difficult

Comments/Explanation _____

For me, using the Falls Risk Assessment Tool with this patient as soon as possible after his fall would be: Easy 1 2 3 4 5 6 7 Difficult

It is expected of me that I use the Risk Assessment Tool with this patient as soon as possible after his fall. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I intend to use the Falls Risk Prevention Screening Tool with this patient as soon as possible after his fall. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I feel capable of using Falls Risk Assessment Tool with this patient as soon as possible after his fall. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I am confident I will use the Falls Risk Assessment Tool with this patient as soon as possible after his fall. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I plan to use the Falls Risk Prevention Screening Tool with this patient as soon as possible after his fall. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Management (program manager & clinical team leader) do expect I will use the Falls Risk Assessment Tool with this patient as soon as possible after his fall
 Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Physicians whose opinions I value think that I should use the Falls Risk Assessment Tool with this patient as soon as possible after his fall

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

It is mostly up to me whether I re-administer the Falls Risk Assessment Tool after his fall

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Scenario 3 questions continued:

Most people (ie families of patients, other practitioners)who are important to me think that I should use the Falls Risk Assessment Tool with this patient as soon as possible after his fall

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I will use the Falls Risk Prevention Screening Tool with this patient as soon as possible after his fall.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

I have complete control in using the Falls Risk Assessment Tool with this patient as soon as possible after his fall

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

For me, using the Falls Risk Prevention Screening Tool with this patient as soon as possible after his fall would be:

Beneficial	1	2	3	4	5	6	7	Harmful
Useful	1	2	3	4	5	6	7	Not Useful
Good	1	2	3	4	5	6	7	Bad
Adequate	1	2	3	4	5	6	7	Inadequate
Helpful	1	2	3	4	5	6	7	Not Helpful

Please answer each of the following questions by circling the number that best describes your opinion. On a scale of 1 to 7 where 1 indicates you strongly agree and 7 you strongly disagree

There are factors outside my control that prevent me from continuing to use the Falls Risk Assessment Tool.

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Comments _____

Use of the Falls Risk Prevention protocol ...

provides current research in a useable practical form

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has created opportunities to collaborate with other disciplines ie therapies

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has created opportunities to collaborate with physicians

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has allowed me to use my time more efficiently

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has increased costs on my unit

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has resulted in less time spent with my patients

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has improved my existing assessment skills

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has increased my interest in attending conferences & seminars to remain current with new research related to my clinical setting

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has resulted in the need for an enhanced staffing complement

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has increased my confidence in my practice

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

helps keep my nursing practice current

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has enhanced my research knowledge base & competence integrating research findings into my practice

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

has enhanced my decision making ability

Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Demographic Questionnaire

Personal Information

1. What is your age category?

- 20 yrs - 25 yrs
 26 yrs - 30 yrs
 31 yrs - 35 yrs
 36 yrs - 40 yrs
 41 yrs - 45 yrs
 46 yrs - 50 yrs
 51 yrs - 55 yrs
 More than 56 yrs

Education training

2. Indicate the program you received your basic nursing education.

- Diploma (RN, RPN)
 University Bachelor (BScN)

3. Following your initial training did you complete any other education program(s)?

No Yes If yes please indicate type:

- Baccalaureate
 Post RN program
 Masters in Nursing
 PhD

Work Experience as a nurse

4. How many years of experience in Nursing do you have?

- <1 year
 1-5 years
 6-10 years
 11-15 years
 16-20 years
 Over 20 years

5. What is your position?

- Registered Nurse
 Registered Practical Nurse
 Team/Clinical Leader
 Program Manager
 Other (specify) _____

Research information

6. Where did you first learn about Falls Prevention?

- Nowhere
 Research course
 In your basic training
 Seminar/conference
 In continuing education
 During nursing practice
 Journals
 Other (specify) _____

7. In your daily nursing practice, indicate how often you use the falls risk prevention policy/protocol in your practice?

(Please mark your response with an X)

Direct use

Never	Rarely	Occasionally	Often	Always
-------	--------	--------------	-------	--------

8. Are you interested in future integration of the Falls Risk Prevention protocol in your practice setting?

- Yes
 No

9. List what you would like to see applied in your setting to ensure the ongoing use of the Falls Risk Prevention policy/protocol if there was an opportunity to do so?

Thank you for your participation
 Letitia Nadalin Penno
 MScN Student, Ottawa University



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Appendix G

INFORMATION LETTER FOR PROSPECTIVE PARTICIPANT

Study Title: Understanding the Motivation of Nurses towards their Continued Use of the Falls Risk Prevention evidence-based practice in a tertiary clinical practice setting:

Institution: North Eastern Mental Health Center – North Bay Campus

Investigator: Letitia Nadalin Penno, RN, BScN, MBA.
MSc N Student

Background

The North East Mental Health Center (NEMHC) formally known as the North Bay Psychiatric Regional Hospital, began implementing the Registered Nurses of Ontario's (RNAO) best practice guideline (BPG) for Falls Risk Prevention in your clinical setting in July 2003. The purposes were to ensure a consistent, accurate and timely assessment of patient's fall risk and to promote and maintain patient's optimal level of mobility and functioning.

Introduction

My name is Letitia Nadalin Penno and I am currently enrolled in the University Of Ottawa's Master of Nursing Science program. As such, I am conducting a study to learn more about your experiences with the ongoing implementing of this guideline. In particular, I am interested in your attitudes, beliefs, feelings, and perceptions regarding your continued use of the Falls Risk Prevention policy /protocol and your use of the risk assessment tools associated with this protocol in your daily clinical practice. Interested participants will be asked to complete a questionnaire. There are no right or wrong answers. Please tell me what you really think.

Once all the questionnaires are completed, the data will be analyzed and compared. The findings will provide a better understanding of the relationship between nurses' perceptions and/or experiences (practice) and their intention to use research findings when caring for patients within their particular clinical setting. The study will also examine what practicing nurses perceive as the barriers and facilitators that impact their ability to use research within the clinical setting. This knowledge is imperative to give direction to the development of specific strategies, choices or system redesign for future implementation of research findings into clinical practice within health care organizations.

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Moreover, through your participation, nurses will have taken steps to shape their future of nursing practice.

Purpose

The purpose of the study is to examine and compare practicing nurses' perceptions (feelings and beliefs) and experienced knowledge (practice) related to their ongoing use of research – the Falls Risk Prevention policy/protocol within their clinical setting

Description of Research

Your participation in this study is strictly voluntarily. If you decide to participate in this study completion of the survey will be viewed as implied consent allowing your responses to be anonymously used in this study.

Potential Risks

There are no known risks associated with this study.

Benefits

You will not benefit directly from participating in this research study. However, ultimately the new knowledge and understanding will be used to enhance the quality of nursing practice in today's hospital work environments. The findings of this study will be prepared for publication in peer reviewed nursing journals.

Confidentiality

The principle investigators will be responsible for the protection of your anonymity and confidentiality. You have the right to privacy and you maintain the freedom to disclose information voluntarily. You are asked to complete the questionnaire anonymously and to seal your completed survey in the envelop provided and deposit it in the designated location on your unit for pick by the investigator. Confidentiality will be maintained by the study personnel and all data will be kept in locked files and there will be limited computer access. No information that discloses your identity will be released or published. If you require further information regarding confidentiality please ask the principle investigator.

If you decide to participate in the study, your name will not appear anywhere in the information collected from or about you. Data for the study will be compiled at the completion of the questionnaires. The results of this study may be published but your name will not be used and there will be no way to link you with the study through any other information.

Participant Rights

Your participation in this study is voluntary. If you agree to participate you are free to change your mind about being involved in this research at any time. If you have any questions or concerns regarding this research study you can contact Letitia Nadalin Penno, principal investigator, at