Mentoring as a Knowledge Translation Intervention to Inform Clinical Practice: A Multi-Methods Study

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بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

Bismi-llāhi r-raḥmāni r-raḥīm

"In the name of God, the Most Gracious, the Most Merciful"

Dissertation Abstract

Background

Mentoring is an intervention for implementing evidence into practice, but little is known about this intervention. The overall aim of this dissertation was to examine mentoring as a knowledge translation (KT) intervention to inform clinical practice.

Methods

1. A systematic review was used to determine the effectiveness of mentoring as a KT intervention.
2. An interpretive descriptive qualitative study was conducted to explore the use of mentoring in the Registered Nurses' Association of Ontario's Best Practice Guidelines Implementation/ Knowledge Transfer Fellowship program.

Findings

1. Of 10,669 citations from 1988 to 2012, 10 studies were eligible. Findings showed that mentoring alone (n = 1 study) improved one behavioral outcome. When mentoring was used as part of a multi-faceted intervention (n = 9), there were various effects on knowledge, beliefs/attitudes, use of research evidence in clinical practice, and the impacts on healthcare professionals, patients and organizations.
2. Qualitative interviews with 6 fellows, 8 mentors and 4 program leaders revealed that mentoring involved building relationships, establishing a learning plan, and using teaching and learning activities. Mentors were described as accessible, dedicated, and having expertise; fellows were described as dedicated, self-directed, and having mixed levels of expertise. Mentoring was described as positively impacting upon mentoring relationships, fellows, mentors, and organizations. Participants reported no negative outcomes.

Conclusion

Mentoring was used as a KT intervention to support the implementation of evidence into clinical practice. The systematic review and qualitative study findings informed the Mentoring for Guideline Implementation model. Mentoring involved mentees selecting more experienced mentors who provided individualized support based on mentees' learning needs, which resulted in mutual benefits for mentees and mentors. Future research is required to validate this new mentoring model, develop an instrument to measure the mentor-mentee relationship, and

evaluate the effectiveness of mentoring as a KT intervention for guideline implementation in nursing.

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List of Abbreviations

ACPF	Advanced Clinical Practice Fellowship
AMSTAR	Assessment of Multiple Systematic Reviews
ARCC	Advancing Research and Clinical practice through close Collaboration
CASP	Critical Appraisal Skills Program
CBA	Controlled Before and After
CCTs	Controlled Clinical Trials
CIHR	Canadian Institutes of Health Research
CPGs	Clinical Practice Guidelines
EBP	Evidence-Based Practice
EPOC	Cochrane Effective Practice and Organisation of Care Review Group
ITS	Interrupted Time Series
KT	Knowledge Translation
MGI	Mentoring for Guideline Implementation
OCRSIEP	Organizational Culture and Readiness for System-Wide Implementation of Evidence-Based Practice
PICO	Population, Intervention, Comparator, and Outcomes
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RCTs	Randomized Controlled Trials
RNAO	Registered Nurses Association of Ontario
USA	United States of America

Chapter One

Introduction

Introduction

In this chapter, the research problem is described, the study objectives are identified, and the dissertation format is explained.

1.1. Research Problem

Healthcare professional organizations promote the implementation of research evidence into clinical practice (Agency for Healthcare Research and Quality, 2014a; International Council of Nurses, 2010; Ontario Hospital Association, 2011). The use of evidence is one element of evidence-based practice, which also includes the integration of clinical expertise, patient values and preferences and healthcare resources (DiCenso, Ciliska, & Guyatt, 2005). To facilitate evidence-based practice, clinical practice guidelines (CPGs) are developed (Turner, Misso, Harris, & Green, 2008).

CPGs are recommendation statements systematically developed based on a synthesis of research evidence and designed to help practitioners and patients make clinical decisions (Field & Lohr, 1992). CPGs also summarize best practices that are based on experts' experiences, judgments, and viewpoints, and ongoing research evidence (Health Canada, 2002). Previous research has demonstrated that implementing CPGs has improved some process outcomes and impact on patients, healthcare professionals, and organizations (Bahtsevani, Uden, & Willman, 2004; Lugtenberg, Burgers, & Westert, 2009). Nursing practice guidelines have also been found to enhance clinical nursing and patient outcomes (Davies, Edwards, Ploeg, & Virani, 2008; Rashotte, Thomas, Gregoire, & Ledoux, 2008; Timmerman, Teare, Walling, Delaney, & Gander, 2007). Health policy in several countries, including Canada and the United States of America, requires the provision of healthcare based on best practice (Agency for Healthcare Research and Quality, 2014b; Ontario Ministry of Health, 2010). In fact, British Columbia's Ministry of

Health, in Canada, gives physicians financial incentives for managing patients with congestive heart failure, diabetes, and/or hypertension based on CPGs (British Columbia Ministry of Health, 2014). However, there is a lack of consistent implementation of CPGs; this discrepancy is known as the research-to-practice gap (Ginexi, & Hilton, 2006; Haines, Kuruvilla, & Borchert, 2004).

Factors that contribute to the research-to-practice gap have been identified at healthcare professional, patient, organizational, and system levels (Cochrane Effective Practice and Organisation of Care Review Group, 2008; Grimshaw, Eccles, Lavis, Hill, & Squires, 2012). Specific to nurses, common individual barriers that interfere with the implementation of CPGs are related to negative attitudes and beliefs, compliance behaviour, and inadequate knowledge (Colon-Emeric et al., 2007; Cummings, Hutchinson, Scott, Norton, & Estabrooks, 2010; Gifford, Graham, & Davies, 2013a; Idell, Grant, & Kirk, 2007; Ploeg, Davies, Edwards, Gifford, & Miller, 2007; Semin-Goossens, Helm, & Bossuyt, 2003). Organizational barriers include lack of integration of CPGs into policies and procedures, and lack of resources; system level barriers include insufficient staffing and increased workloads (Gifford et al., 2013a; Ploeg et al., 2007). Patient level barriers include lack of knowledge and access to physicians (Gifford et al., 2013a).

Knowledge translation (KT) interventions are used to overcome identified barriers and to support the implementation of research evidence into practice, including use of CPGs (Grimshaw et al., 2012; Scott et al., 2012). A systematic review has shown that effective KT interventions for healthcare professionals are educational meetings, opinion leaders, and educational outreach visitors (Grimshaw et al., 2012). However, in nursing specific studies, there is limited evidence to support the effectiveness of the KT interventions (Thompson, Estabrooks, Scott-Findlay, Moore, & Wallin, 2007). Nurse champions have had mixed influence on implementing CPGs, with no negative outcomes (Campbell, 2008; Hodnett et al., 1996). In addition to opinion

leaders, educational outreach visitors and champions, other social influence roles that support the implementation of evidence in clinical practice include facilitators, leaders, preceptors and mentors (Salsberg & Macaulay, 2013). Social influence occurs when an individual uses interpersonal interactions to influence other individuals' and/or groups' thoughts, feelings, attitudes or behaviours (Salsberg & Macaulay, 2013; Zimbardo & Leippe, 1991).

Mentoring interventions make use of social influence to support implementing evidence-based practice and have also been used to enhance healthcare professionals' development (Gagliardi, Webster, Perrier, Bell, & Straus, 2014; Levin, Fineout-Overholt, Melnyk, Barnes, & Vetter, 2011; Wallen et al., 2010). For the purpose of this dissertation, mentoring included three essential characteristics that were consistently identified in business, healthcare, healthcare education, and other workplace literature (Allen, Eby, O'Brien, & Lentz., 2008; Andrews & Wallis, 1999; Berk, Berg, Mortimer, Walton-Moss, & Yeo, 2005; Bozeman, & Feeney, 2007; Eby, Rhodes, & Allen, 2007; Haggard, Dougherty, Turban & Wilbanks, 2011; Harrington, 2011; Kammeyer-Mueller & Judge, 2008; Kowtko, & Watts, 2008; Ploeg, de Witt, Hutchison, Hayward, & Grayson, 2008; Russell & Adams, 1997; Sambunjak, Straus, & Marusic, 2006; Sambunjak, Straus, & Marusic, 2010; Stewart & Krueger, 1996; Straus, Chatur, & Taylor, 2009; Turban & Lee, 2007). These characteristics were: (a) mentors are more experienced than mentees as related to a specific task; **(**b) mentors provide individualized support based on mentees' learning needs; and (c) mentors and mentees achieve an interpersonal relationship with mutual benefit, engagement and commitment. However, little empirical research has examined mentoring as a KT intervention.

In summary, CPGs are developed to inform clinical practice and improve patient outcomes. However, these guidelines are not systematically used and barriers interfere with their

use in clinical practice. Mentoring is one of several interventions for implementing evidence into practice, but little is known about how mentoring is used to implement CPGs.

1.2. Study Objectives

The overall aim of this dissertation is to examine mentoring as a KT intervention to inform clinical practice using a multi-methods study. Specific objectives were:

1) To conduct a systematic review to determine the effectiveness of mentoring as a KT intervention designed to increase the use of empirical evidence by healthcare professionals in clinical practice. Findings from this review informed the next objective.
2) To conduct an interpretive description qualitative study to explore the use of mentoring to support the implementation of nursing guidelines in clinical practice.

1.3. Dissertation Format

This is a mixed traditional and manuscript based dissertation (see Table 1.1). Chapter 1 describes the research problem and organization of the dissertation. Chapter 2 is a literature review examining how mentoring is defined and used within the context of CPGs. Chapter 3 presents the dissertation's methodologies in detail. Chapter 4 is a systematic review which aimed to determine the effectiveness of mentoring as a KT intervention designed to increase the use of empirical evidence by healthcare professionals in clinical practice. Chapter 5 is an interpretive description qualitative study, which explored the use of mentoring as a KT intervention to support the implementation of nursing guidelines in clinical practice. More specifically, the chapter examines mentoring characteristics, strategies, and impact upon mentees, mentors and organizations. Chapter 6 provides an integrated discussion of the dissertation findings, the Mentoring for Guideline Implementation model, and implications for nursing education, practice, and research. Finally, Chapter 7 describes the role of manuscript co-authors.

Table 1.1

Summary of Dissertation Organization

Chapter #	Chapter Title	Objective(s)	Method	Manuscript Format
1	Introduction	Describe the research problem and explain the organization of the dissertation.	N/A	American Psychological Association
2	Mentoring Intervention within the Context of Guideline Implementation: Literature Review	Examine how mentoring is defined and used within the context of clinical practice guidelines.	Literature review	American Psychological Association
3	Methodology	Discuss dissertation' methodologies in detail.	N/A	American Psychological Association
4	Measuring the Effectiveness of Mentoring as a KT Intervention for Implementing Empirical Evidence: A Systematic Review	Determine the effectiveness of mentoring as a KT intervention designed to increase the use of empirical evidence by healthcare professionals in clinical practice.	Systematic review	Worldviews on Evidence-Based Nursing Journal
5	Mentoring as a KT Intervention for Implementing Nursing Practice Guidelines: A Qualitative Study	Explore the use of mentoring as a KT intervention to support the implementation of nursing guidelines in clinical practice.	Interpretive description qualitative study	International Journal of Nursing Studies
6	Integrative Discussion	Provide an integrated discussion of the dissertation findings, introduce a clinical mentoring framework, and identify implications for education, practice, and research.	Descriptive Synthesis	American Psychological Association
7	Contributions of Collaborators	To describe the role of manuscript co-authors.	N/A	American Psychological Association

Note. N/A= not applicable

Chapter Two

Mentoring Intervention within the Context of Guideline Implementation: Literature Review

Literature Review

This chapter is focused on literature regarding social influence roles as knowledge translation (KT) interventions and identifying the gap in knowledge with mentoring. First, the literature review search strategy is described. Second, findings are summarized to provide an overview of the use clinical practice guidelines (CPGs) in nursing, and to describe interventions to overcome barriers for implementing CPGs within nursing. Next, social influence roles as KT interventions are compared, mentoring is defined, and studies examining mentoring within evidence-based practice (EBP) are synthesized. Finally, mentoring components and a mentoring conceptual model are identified.

2.1. Literature Review Search Strategy

A literature search was conducted in February 2011 and updated in November 2014 to identify citations focused on the use of mentoring within the context of CPGs. Information sources searched included: electronic databases, journals, and relevant websites. The electronic databases included the Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Cochrane Central Register of Controlled Trials, Ovid MEDLINE, CINAHL, Ovid PsycINFO, Ovid EMBASE, AHMD, ProQuest - Dissertation Abstracts International (DAI), and Trials Register (Current Controlled Trials). The search was restricted to the English language and all databases were searched for publications from 1988 to November 2014. The search was limited to 1988 because of the focus on empirical evidence that started in 1989 (French, 2002). Search terms included: EBP, KT, research evidence, CPGs, nursing CPGs, guideline implementation, evaluation, impact of guideline implementation, guideline interventions, diffusion of innovation or social influence, and mentoring.

Hand searching was conducted using reference lists and tables of contents of included studies and relevant journals (e.g., Journal of Evidence-Based Medicine, International Journal of Evidence Based Coaching and Mentoring, International Journal of Evidence-based Healthcare, Implementation Science, Systematic Reviews, and Worldviews on Evidence-Based Nursing). Finally, websites of organizations known to implement CPGs (e.g., Registered Nurses Association of Ontario (RNAO), Safer Healthcare Now) were also searched.

2.2. Clinical Practice Guidelines in Nursing

Regulatory nursing bodies and professional nursing organizations expect nurses to implement CPGs in their practice (Canadian Nurses Association, 2010; College of Nurses of Ontario 2002; RNAO, 2006). Implementation occurs when best practice guidelines are adopted in practice (Stetler & Caramanica, 2007).

CPGs have been developed specifically for nurses and/or have at least some recommendations relevant to nurses (Agency for Healthcare Research and Quality, n.d.; Guideline International Network 2014; RNAO, 2006). For example, in Canada, the RNAO established the Best Practice Guidelines program in 1999 to develop CPGs by and for nurses (RNAO, n.d.). The program also supports the development Best Practice Spotlight Organizations©, which are healthcare and academic organizations selected by the RNAO through a request for proposal process to implement and evaluate the RNAO's guidelines. The RNAO received funding from the Ontario Ministry of Health and Long-Term Care to support this CPG initiative (Grinspun, 2013). To date 47, guidelines are available from the RNAO on clinical topics (e.g., prevention of falls among the elderly, prevention of pressure ulcers, management of pain) and healthy work environment topics (e.g., managing conflict in healthcare teams). The CPGs are available in English, French, Spanish, Italian, Mandarin, and Japanese and

are disseminated nationally and internationally across acute care, home care, long-term care, and community healthcare settings (Grinspun, 2013).

Studies have measured the effect of CPGs on care processes and impact on patients, healthcare professionals, and organizations (Bahtsevani, Uden, & Willman, 2004; Lugtenberg, Burgers, & Westert, 2009). Process outcomes focused on implementation of evidence-informed care to patients and communication of evidence to patients and healthcare professionals (Graham, Bick, Tetroe, Straus, & Harrison, 2010). Process outcomes that required knowledge use included: (a) conceptual knowledge use (e.g., change in healthcare professional's knowledge, understanding, attitudes/beliefs), and (b) instrumental knowledge use (e.g., actual change in healthcare professional's behavior or practice; Graham et al., 2010). Impact evaluation determined the extent to which applying evidence can make a difference for patients, healthcare professionals, and organizations outcomes (Wilkinson, Johnson, & Wimpenny, 2010).

Two systematic reviews have examined the influence of CPGs on process outcomes and impact on patients, healthcare professionals, and organization (Bahtsevani et al., 2004; Thomas, Cullum, McColl, Rousseau, Soutter, & Steen, 2000). The Cochrane systematic review identified 18 studies involving nurses and other healthcare professionals allied to medicine (Thomas et al., 2000), and the other review identified eight studies involving healthcare professionals including nurses (Bahtsevani et al., 2004). Both reviews showed some evidence that CPGs have improved care processes, such as enhanced nurses' management of labour, and enhanced attitude and perceptions of CPGs. There was also some evidence that CPGs supported healthcare professionals' outcomes (e.g., enhanced team working approaches), organization outcomes (e.g., decreased length of stay), and patients' outcomes (e.g., improved infants' skin condition) (Bahtsevani et al., 2004).

Implementing nursing CPGs has been shown to improve some clinical outcomes (Davies, Edwards, Ploeg, & Virani 2008; Rashotte, Thomas, Gregoire, & Ledoux, 2008; Timmerman et al., 2007). In one study, implementing three of six RNAO CPGs led to improvement in more than 50% of process and nursing care outcomes (e.g., asthma, diabetes foot care, and venous leg ulcers) (Davies et al., 2008). Process outcomes reported in the study were development of individualized action plans for discharging asthmatic clients, assessment for risk factors for foot ulceration and/or amputation, and assessment for clinical history associated with venous disease. Implementation of the other three CPGs that focused on breastfeeding, delirium-dementia-depression, and smoking cessation were not successful. The CPGs were implemented in community hospitals (e.g. asthma, diabetes foot care), a community chronic care hospital (e.g., venous leg ulcers), acute care teaching hospitals (e.g., breastfeeding, delirium-dementia-depression), and mental health teaching hospital (e.g., smoking cessation).

Two other studies evaluated outcomes from implementing the pressure ulcer guideline (Rashotte et al., 2008; Timmerman et al., 2007). Rashotte and colleagues reported statistically significant changes ($p \leq .001$) in the implementation of 2 of 11 recommendations of pressure ulcer guidelines. Practice changes were observed after immediately implementing the recommendations and no additional changes were reported at four subsequent points in time. These initial changes improved some process outcomes for pressure ulcer care (e.g., assessment of risk of pressure ulcers using assessment tool and the documentation of assessment). Timmerman and colleagues showed a decrease in the incidence of pressure ulcers in long-term care settings, from 6.0% of patients at baseline to 0.2% post implementation of CPG, and a decrease in the pressure ulcer prevalence rate, from 8.8% at baseline to 3.7%.

Despite recognizable benefits from implementing some CPGs, research findings indicate CPGs have not been consistently implemented into practice. For example, in the Netherlands, Europe, and USA, there was a high prevalence of pressure ulcers among hospitalized patients because of inconsistent use of pressure ulcer guidelines resulting in prolonged hospitalization and increased financial burden (De Laat, Schoonhoven, Pickkers, Verbeek, & Van Achterberg, 2006). In Canada, when six CPGs on asthma, breastfeeding, delirium-dementia-depression, foot complications in diabetes, smoking cessation and venous leg ulcers were implemented, many patients did not receive nursing care based on the recommendations in the CPGs (Davies et al., 2008). In short, while there is some evidence that CPG recommendations implemented into nursing practice results in improved process and patient outcomes, not all implementation has been successful.

2.2.1. Barriers to guideline implementation.

A systematic meta-review of 12 systematic reviews identified barriers interfering with CPG implementation (Francke, Smit, de Veer, & Mistiaen, 2008). However, the studies reviewed were focused on physicians, with little reported on barriers unique to nurses.

Three recent studies identified barriers to implementing CPGs in nursing practice (e.g., client-centered care, pain assessment, fall prevention; Gifford, Graham, & Davies, 2013a; Koh, Manias, Hutchinson, Donath, & Johnston, 2008; Ploeg, Davies, Edwards, Gifford, & Miller, 2007). Two of the studies involved administrators, nursing managers, project leaders, clinical resource nurses, and staff nurses from 26 acute, community, home healthcare, and long-term care settings in Canada (Gifford et al., 2013a; Ploeg et al., 2007). The other study involved staff nurses in five acute care hospitals in Singapore (Koh et al., 2008).

Barriers that interfered with nurses' implementation of CPG recommendations in clinical practice were identified at the level of individual nurses, healthcare teams, organizations, systems, patients, and CPGs (Gifford et al., 2013a; Koh et al., 2008). Individual nursing level barriers were: inadequate knowledge, skills, and motivation; poor attitudes and beliefs as indicated by staff resistance to change; believing there was no reason to change; lack of comfort or confidence; and lack of involvement (Gifford et al., 2013a; Koh et al., 2008; Ploeg et al., 2007). Barriers at the team level were poor communication among healthcare team members and different beliefs between physicians and nurses that affect interactions within the healthcare team (Gifford et al., 2013a). Organizational barriers were lack of integration of CPGs into policies and procedures, lack of resources, and inadequate availability of nursing specialists (Gifford et al., 2013a; Koh et al, 2008; Ploeg et al., 2007). System level barriers were insufficient staffing, increased workloads, and staff turnover (Gifford et al., 2013a; Ploeg et al., 2007). Patients' knowledge and attitudes also created difficulties for nurses attempting to practice based on CPGs (Gifford et al., 2013a; Koh et al, 2008). Finally, barriers related to CPGs were incompatibility with healthcare professionals' values and needs, lack of flexibility and lack of ease in use (Koh et al., 2008).

2.2.2. Guideline KT interventions.

There are several KT interventions, with varying levels of effectiveness used to overcome barriers and to improve the implementation of research evidence including CPGs (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012; Scott et al., 2012). KT is defined by the Canadian Institutes of Health Research as "a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the healthcare system"

(Straus, Tetroe, & Graham, 2013a, p. 4). Grimshaw et al. (2012) conducted a comprehensive systematic review that summarized evidence collected from systematic reviews regarding KT interventions. Seven types of KT interventions had a moderate effect on changing healthcare professionals' behaviour towards implementing research evidence including CPGs (Grimshaw et al., 2012). These interventions included audit and feedback (118 trials, median improvement of care ±5.0%), educational meetings (81 trials, median improvement in care 6.0%), printed educational materials (12 trials, median improvement of care 4.3%), computerized reminders (28 trials, median improvement of care ±4.2%), and tailored interventions (26 trials, meta-regression of 12 trials; pooled odds ratio of 1.5, 95% CI, 1.27-1.82, $p < .001$) (Grimshaw et al., 2012). KT interventions that used social influence roles were educational outreach visitors (69 trials, median improvement in prescribing behaviours ±4.8%; and in other behaviours ±6.0%) and local opinion leaders (18 trials, median improvement of care 12.0%) (Grimshaw et al., 2012).

Social influence occurs when an individual uses interpersonal interactions to influence other individuals' and/or groups' thoughts, feelings, attitudes, or behaviours (Salsberg & Macaulay, 2013; Zimbardo & Leippe, 1991). Within nursing specific studies, social influence using nurse champions either enhanced the implementation of CPGs or did not change the outcomes (Campbell, 2008; Hodnett et al., 1996; Rashotte et al., 2008). Limited availability of nurse champions with expertise in falls prevention was one of the top rated contextual barriers identified by nurses as having affected the implementation of a fall prevention guideline in five hospitals, identified by 77.8% of 1,467 nurses (Koh et al., 2008). In another study, social influence to implement EBP provided by nurses in mentoring roles resulted in decreasing turnover, enhanced beliefs in EBP, and enhanced knowledge (Dearholt, White, Newhouse, Pugh, & Poe, 2008; Levin, Fineout-Overholt, Melnyk, Barnes, & Vetter, 2011; Wallen et al., 2010).

However, little is known about mentoring as a KT intervention for implementing guidelines in clinical practice.

Other KT interventions used to support nurses implementing research evidence including CPGs were educational meetings, interactive educational meetings led by a local opinion leader, and the creation of multidisciplinary committees (Thompson, Estabrooks, Scott-Findlay, Moore, & Wallin, 2007). These interventions were recognized by a systematic review conducted to identify interventions used to enhance nurses' use of research evidence. However, only studies of varying quality were included and the review concluded that there was limited evidence to support the effectiveness of these KT interventions in nursing.

2.3. Comparing Social Influence Roles as KT Interventions

There are several roles that, like mentoring, use social influence to implement research evidence including CPGs (Salsberg, & Macaulay, 2013). These roles include opinion leader, facilitator, educational outreach visitor, champion, leader, and preceptor (see Appendix A, Glossary of Terms). Systematic reviews of these roles were used to identify role characteristics (see Table 2.1) and summarise evidence on their effectiveness. If systematic reviews were not available, other designs were used.

Table 2.1

Comparison of Characteristics across Social Influence Roles

Characteristics	Social Influence Roles					
	[1]Opinion Leader	[2]Facilitator	[3]Educational Outreach Visitor	[4]Champion	[5]Leader	[6]Preceptor
Influencing organizational communication structure	√			√		
Providing teaching based on individuals' needs			√			
Advocating for organizational norms	√					
Focusing on organizational needs and development		√		√	√	
Performance evaluation						√
Focusing on educational program requirements						√
Planning and managing of projects					√	
Leading and supporting individuals/team				√	√	
Creating an organizational vision					√	
Enabling the implementation processes in an organization		√		√		
Monitoring EBP		√		√	√	
Problem solving		√			√	
Team building		√			√	
Tailoring implementation interventions		√	√	√	√	
Changing individual performance			√			

Note.√ = characteristic present.[1]Doumit et al., 2007; Flodgren et al., 2011; Grimshaw etal., 2012.[2]Dogherty et al., 2010; Dogherty et al., 2012. [3]Grimshaw et al., 2012; O'Brien et al., 2007. [4] Hodnett et al., 1996*;* Ploeg et al., 2010; Thompson et al., 2006.[5]Gifford et al., 2006; Gifford et al., 2011; Godshalk & Sosik, 2007.[6]Barker, 2006; Huybrecht et al., 2011; Luhanga et al., 2010; Udlis, 2008.

In brief, opinion leaders support the organizational communication structure and are marketing advocates for organizational norms (Doumit, Gattellari, Grimshaw, & O'Brien, 2007; Flodgren et al., 2011; Grimshaw et al., 2012). A systematic review has shown that local opinion leaders can increase use of EBP by 12.0% (Grimshaw et al., 2012).

Facilitators enable the implementation process to meet organizational needs but are specifically tasked with monitoring EBP, problem solving, team building, and tailoring implementation interventions to enhance use of EBP (Dogherty, Harrison, & Graham, 2010; Dogherty, Harrison, Baker, & Graham, 2012; Goode, Fink, Krugman, Oman, & Traditi, 2011). A systematic review and meta-analysis of facilitation within primary care settings has shown it moderately improves the implementation of CPGs (effect size = .56, 95% CI = .43-.68) (Baskerville, Liddy, & Hogg, 2012).

Educational outreach visitors provide teaching based on identified needs of individuals to change performance, tailor implementation interventions, and overcome identified barriers to change (Grimshaw et al., 2012; O'Brien et al., 2007). A systematic review has shown that educational outreach visitors can improve uptake of EBP by 6.0% (Grimshaw et al., 2012).

Champions support organizational communication, focus on meeting organizational needs, support monitoring of EBP, tailor implementation interventions, lead individuals and teams, and enable the implementation process in organizations (Hodnett et al., 1996; Ploeg et al., 2010; Thompson, Estabrooks, & Degner, 2006). Champions have had mixed influence on the implementation of EBP. A pre/post-test quasi-experimental study found that champions increased sepsis screening in ICU from 23% to 74%, but did not influence the percentage of patients treated from sepsis (Campbell, 2008). In a randomized controlled trial, champions did not change childbirth outcomes (e.g., episiotomy rates) in hospitals (Hodnett et al., 1996).

Leaders focus mainly on organizational needs, development, planning and management of projects and resources, leading and supporting individuals and teams, and creating an organizational vision (Gifford, Davies, Edwards, & Graham, 2006; Gifford, Davies, Tourangeau, & Lefebre, 2011; Godshalk & Sosik, 2007). Leaders also concentrate on monitoring EBP, problem solving, team building, and tailoring implementation interventions. A clustered randomized control trial identified mixed influence of leadership in implementing CPG recommendations for diabetic foot ulcer within home care nursing (Gifford et al., 2013b). In this trial, primary outcomes were not improved but priority indicator scores selected by participants were significantly improved.

Preceptors usually focus on developing competencies in students based on pre-set objectives driven by program needs rather than student needs and using performance evaluation (Huybrecht et al., 2011; Luhanga, Billay, Grundy, Myrick, & Yonge, 2010; Udlis, 2008). There is no known evidence to support the effectiveness of the preceptor role in implementing EBP. Mentoring is inadequately described within the literature as one of the social influence roles used to implement CPGs and hence is not included in Table 2.1.

There are two limitations that need to be considered for the comparison between social influence roles. First, if a study does not describe the characteristic, it does not mean that the role does not display that characteristic. Second, there is limited evidence regarding some of the roles' effectiveness in supporting the implementation of EBP including CPGs.

2.4. Concept of Mentoring

There are various definitions for the concept of mentoring within different contexts (Eby, Rhodes, & Allen, 2007; Haggard, Dougherty, Turban & Wilbanks, 2011). The seminal research of Kram on mentoring has influenced the theoretical understandings of mentoring relationships

in many contexts, including business, healthcare, and healthcare education (Kram 1983; Kram 1988; Ragins & Kram, 2007; Sambunjak, Straus, & Marusic, 2006). Three characteristics were described in Kram's (1988) definition of mentoring: the availability of more and less experienced individuals, the use of a developmental and supportive relationship, and mentors' functions or behaviours. These functions or behaviours were: (a) career functions (focused on mentees' career development and included sponsorship, enhancing exposure and visibility, coaching, protection, and providing challenging assignments); and (b) psychosocial functions (concentrated on enhancing mentees' competency, identity and effectiveness in work and included role modeling, acceptance and confirmation, counselling and friendship) (Kram, 1988). Some studies have applied a similar conceptualization of mentoring as identified by Kram (Byrne & Keefe, 2002; Ragins & Kram, 2007; Russell & Adams, 1997; Ploeg, de Witt, Hutchison, Hayward, & Grayson, 2008; Yonge, Billay, Myrick, & Luhanga, 2007). However, many subsequent definitions of mentoring in different contexts have extended Kram's definition by adding new details or characteristics (Bozeman & Feeney, 2007).

A literature review to examine how the definition of mentoring had evolved since Kram's work concluded that by 2011 there were nearly 40 different definitions of mentoring in various settings (Haggard et al., 2011). The newer mentoring definitions added more detail about the purpose of mentoring beyond developing mentees, differentiated between mentoring and supervisory relationships, discussed types of relationships (e.g., formal and informal relationship), and other forms of mentoring beyond one-to-one relationships (e.g., peer mentoring) (Bozeman & Feeney, 2007; Haggard et al., 2011; Harrington, 2011; Berk, Berg, Mortimer, Walton-Moss, & Yeo, 2005). In the business literature, mentoring concepts have expanded to include negative mentoring and/or factors affecting a supportive relationship for

mentees (Bozeman, & Feeney, 2007). In healthcare settings, mentoring definitions have placed more focus on the mutual benefits of mentoring for both mentor and mentee and have described the length of mentoring relationship (Andrews & Wallis, 1999; Berk et al., 2005; Dorsey & Baker, 2004; Harrington, 2011; Kowtko, & Watts, 2008; Sambunjak, Straus, & Marusic, 2010; Siu & Sivan, 2011; Yonge et al., 2007).

In nursing, a concept analysis conducted to provide conceptual clarity for the term mentoring yielded 82 citations (Stewart & Krueger, 1996). In addition to the characteristics in Kram's mentoring definition, the analysis identified other characteristics, including that mentoring is a process of teaching and learning that involves a mutual and lengthy relationship (Stewart & Krueger, 1996). A limitation of this analysis was that it included mainly dissertations and theses of graduate nursing students that explored the use of mentoring primarily within academia (Stewart & Krueger, 1996). The mentoring definitions are inconsistent across settings and there does not appear to be a definition focused on mentoring as a KT intervention (Eby et al., 2007; Haggard et al., 2011). Lack of a clear and well-defined operational concept of mentoring as a KT intervention is problematic because (a) it hinders differentiating between mentoring concepts and overlapping concepts, such as 'preceptorship', that use relationship building to support others (Yonge et al., 2007); and (b) it challenges efforts to identify and include relevant studies focused on assessing mentoring interventions to implement CPGs. Clarifying concepts improves researchers' abilities to conduct and understand research and facilitates knowledge sharing (Baldwin, 2008; Rodgers, 1989).

For the purpose of this dissertation, a working definition of 'mentoring as a KT intervention' was developed by critically examining citations originating mainly from business, healthcare, healthcare education, and other workplaces. Studies from business were included as

there is major overlap in the way mentoring is used in business and healthcare. Initially, 10 general mentoring characteristics were identified and used as a framework to analyze and identify mentoring characteristics in various publications (see Table 2.2) (Allen, Eby, O'Brien, & Lentz., 2008; Andrews & Wallis, 1999; Berk et al., 2005; Bozeman, & Feeney, 2007; Eby et al., 2007; Haggard et al., 2011; Harrington, 2011; Kammeyer-Mueller & Judge, 2008; Kowtko, & Watts, 2008; Ploeg et al., 2008; Russell & Adams, 1997; Sambunjak et al.,2006; Sambunjak et al., 2010; Stewart & Krueger, 1996; Straus, Chatur, & Taylor, 2009; Turban & Lee, 2007). Of 10 characteristics, 3 common characteristics were: (a) a more experienced person (mentor) and a less experienced person (mentee) for a specific task, (b) individualized support based on mentee's needs, and (c) an interpersonal relationship as generally indicated by mutual benefit, engagement and commitment. These three characteristics are further described.

Table 2.2

Mentoring Intervention Elements

First Author, Year, Discipline	Allen, 2004 Multiple workplace	Andrews, 1999 Nursing Education	Berk, 2005 Medicine	Bozeman, 2007 Business	Eby, 2007 Multiple workplace	Haggard, 2011 Multiple Workplace	Harrington, 2011 Nursing	Kammeyer, 2008, Multiple Workplace	Kowtko, 2008 Medical Education	Ploeg, 2008 Program Evaluation	Russell, 1997 Business	Sambunjak, 2006 Medical Education	Sambunjak, 2009 Medical Education	Stewart,1996 Nursing	Straus, 2009 Medical Education	Turban, 2007 Business	**Total**
1. Involves more and less experienced person	√	√	√	√			√	√		√	√	√	√	√	√	√	**13**
2. Describes environment of mentoring				√													**1**
3. Teaching and learning processes														√			**1**
4. Mentor provides focused individualized support based on mentees' needs	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	**16**
5. Interpersonal, interactive reciprocal relationship		√	√	√		√	√		√		√	√	√	√	√	√	**12**
6. Developmental/shared relationship including engagement and commitment		√	√	√		√	√		√		√	√	√		√	√	**11**
7. Long relationship		√	√			√								√	√		**5**
8.Negative mentoring				√													**1**

Note.√=Mentoring characteristic present

Table 2.2

Cont. Mentoring Intervention Elements

First Author, Year, Discipline	Allen, 2004 Multiple workplace	Andrews, 1999 Nursing Education	Berk, 2005 Medicine	Bozeman, 2007 Business	Eby, 2007 Multiple workplace	Haggard, 2011 Multiple Workplace	Harrington, 2011 Nursing	Kammeyer, 2008, Multiple Workplace	Kowtko, 2008 Medical Education	Ploeg, 2008 Program Evaluation	Russell, 1997 Nursing	Sambunjak, 2006 Medical Education	Sambunjak, 2009 Medical Education	Stewart,1996 Nursing	Straus, 2009 Medical Education	Turban, 2007 Business	**Total**
9. Emphasizing individuals pairing or matching prior to starting relationship						√				√			√		√		**4**
10. Need for evaluation of relationship/outcomes	√								√	√			√		√	√	**6**
Total Characteristics																	**10**

Note.√=Mentoring characteristic present

A more experienced mentor and a less experienced mentee are included in the traditional definition of mentoring and consistently used in subsequent descriptions (Kram, 1988). A mentor is described as a wiser and trustworthy individual who provides advice, teaching, and counselling to an individual (Dorsey & Baker, 2004). A mentee is described as a less experienced person who is trying to apply the knowledge, skills and advice given by one or more mentors (Grossman, 2007). Business and healthcare studies suggest that it is essential for a mentor to have a higher degree of expertise than the mentee in particular areas related to the mentee's needs (Allen et al., 2008; Kammeyer-Mueller & Judge, 2008; Sambunjak et al., 2006; Sambunjak et al., 2010; Siu & Sivan, 2011; Straus et al., 2009; Turban & Lee, 2007). An experienced mentor can support the mentee's knowledge, skills, and competence, and increase his/her self-esteem and development (Allen, Eby, Poteet, Lentz, & Lima, 2004; Huybrecht, Loeckx, Quaeyhaegens, De Tobel, & Mistiaen, 2011; Siu & Sivan, 2011). A mentor who has a professional background similar to the mentee's is useful in promoting the success of the mentoring relationship (Huybrecht et al., 2011; McCloughen, O'Brien, & Jackson, 2009).

Another important characteristic of mentoring is that the mentee receives individualized support based on his/her needs. Needs in the context of mentoring are focused on personal and professional development (Gagliardi, Webster, Perrier, Bell, & Straus, 2014; Sambunjak et al., 2006). Mentoring requires assessing the mentee's needs and tailoring mentor behaviours and strategies to meet those needs, a process in which the mentee participates actively (Davis & Nakamura, 2010; Ragins & Kram, 2007; Straus et al., 2009). If mentees' needs are not identified and considered, dysfunctional and unproductive relationships may result (Ragins & Kram, 2007). The emphasis on mentee needs led to the

term ‘mentee-centeredness’ or ‘learner-centered education’, which focuses on students’ learning needs rather than on teachers’ needs (Dalley, Canela, & Benzel-Lindley, 2008; Davis & Nakamura, 2010). When teaching strategies are tailored to students’ learning styles and needs, students are more likely to actively engage in their own education process (Dalley et al., 2008; Greer, Pokorny, Brown, Steele, & Clay, 2010).

The third characteristic of mentoring is an interpersonal relationship as generally indicated by mutual benefit, engagement, and commitment. Healthcare and business literature characterize a mentoring relationship as effective and beneficial when there is significant personal and professional engagement from both mentor and mentee, and when both are motivated and fully involved in the mentoring relationship (Haggard et al., 2011; LaFleur & White, 2010; McCloughen, O’Brien, & Jackson, 2011; Ploeg et al., 2008; Sambunjak et al., 2010; Turban & Lee, 2007). Engagement occurs through interaction and commitment or willingness of the mentor and mentee to participate in all planning and mentoring activities (LaFleur & White, 2010; McCloughen et al., 2011; Sambunjak et al., 2009; Turban & Lee, 2007). Commitment in mentoring is useful for resolving problems and succeeding in the relationship, and may facilitate a mentee’s behavioural change in practice (Sambunjak et al., 2010; Shershneva, Wang, Lindeman, Savoy, & Olson, 2010; Wakefield, 2004). The mentee’s engagement with mentoring activities facilitates development of the mentee’s knowledge and skills regarding research implementation and evaluation (Ploeg et al., 2008). Ineffective mentoring relationships can occur when there is a lack of commitment and communication, personality differences, competition and conflicts of interest between mentor and mentee, and a lack of mentor experience (Straus, Johnson, Marques, & Feldman, 2013b; Straus & Sackett, 2014). In one study, 20% of mentees described lack of mentor

engagement as one of the key barriers to conducting practice change activities in organizations implementing CPGs (Gifford, Davies, Ploeg, Eldred, & Bajnok, 2013c). Lack of engagement was described in this study as infrequent access to mentors and lack of mentor support and participation in mentoring activities.

2.4.1. Mentoring for CPG implementation.

When the three mentoring characteristics were used to help find studies focused on the use of mentoring interventions to support the implementation of CPGs, two groups of studies were identified. The first set of studies (n = 2) assessed mentoring within the context of CPG implementation (Gifford et al., 2013c; Ploeg et al., 2008) and the second set of studies (n = 4) assessed mentoring within the context of implementing EBP in nursing (Dearholt et al., 2008; Levin et al., 2011; Mariano et al., 2009; Wallen et al., 2010).

The first study focused on mentoring for CPG implementation was a qualitative study with 30 participants from the RNAO's Advanced Clinical Practice Fellowships program concentrated on Leadership, Clinical, and Guideline Implementation (Gifford et al., 2013c). A mixed-methods case study described the influence of a research mentorship program in a community care setting (Ploeg et al., 2008). Mentors, mentees and other stakeholders (n = 53) described characteristics of mentoring relationships (e.g., mentors being mentee-centered, mutual relationship) and mentoring strategies (e.g., mentoring meetings, educational sessions; Ploeg et al., 2008). Both studies identified that mentoring supported mentees in undertaking practice change activities at the level of the nursing team (e.g., providing education and coaching), mentees themselves (e.g., attending courses or presenting at a conference), and organizations (e.g., creating or revising policies and procedures; Gifford et al., 2013c; Ploeg et al., 2008). Mentoring was also described as

having enhanced mentees' outcomes (e.g., increased knowledge and skills, career advancement), nursing outcomes (e.g., ability to use new equipment), and patient/family outcomes (e.g., enhanced satisfaction; Gifford et al., 2013c; Ploeg et al., 2008). Both studies identified barriers that hindered the success of mentor-mentee relationships at the mentee level (e.g., staff resistance and shortage, lack of knowledge and skills about CPGs, inadequate support from mentors) and organizational level (e.g., lack of incentives for mentors, lack of organizational processes to support mentees incorporating their knowledge about mentoring into the organization). Enablers identified were leadership support as well as staff and mentor involvement (Ploeg et al., 2008). However, these studies provided little information about the characteristics of mentoring.

The second set of studies (n = 4) evaluated mentoring used to implement non-guideline based research evidence (Dearholt et al., 2008; Levin et al., 2011; Mariano et al., 2009; Wallen et al., 2010). Three of the four studies reported improvements in mentees' outcomes, including decreased turnover, enhanced beliefs in EBP and enhanced knowledge, but had no reported outcomes on patients or organizations (Dearholt et al., 2008; Levin et al., 2011; Wallen et al., 2010). Mentoring interventions used in these studies were delivered over 5 to 12 sessions (Median = 8.5) with each session approximately 2 hours and scheduled over 56 to 196 days (Median = 112; Dearholt et al., 2008; Levin et al., 2011; Mariano et al., 2009; Wallen et al., 2010). These studies also described the mentor selection process undertaken by mentees or organizations. Enablers to mentoring were leadership support and availability of resources (Wallen et al., 2010). However, the studies did not provide a description of mentors' and mentees' experiences.

2.4.2. Components of mentoring.

Five key mentoring components were identified in the literature: type of mentoring relationship, mentor and mentee characteristics, mentoring strategies for implementing CPGs, barriers and facilitators for mentoring, and mentoring outcomes for individuals and organizations including patients. These components are described in the next sections.

First, the type of mentoring relationship refers to how the mentor and mentee select each other. A mentoring relationship can be formal or informal. Formal mentoring is when an organization assigns the mentor to the mentee and supports mentor-mentee relationships (Tourigny & Pulich, 2005). In this type of mentoring, the organization also determines mentee's specific learning objectives, roles and responsibilities, expectations, and the overall duration of the relationship, which is normally short (Tourigny & Pulich, 2005). Informal mentoring is unstructured, the mentor and mentee choose each other, and roles and responsibilities are different, based on the identified needs of the mentor and mentee (Straus et al., 2009; Tourigny & Pulich, 2005). The duration of informal mentoring is usually longer (Straus et al., 2009).

There is controversy surrounding whether or not formal mentoring is beneficial. Formal mentoring was found to be more influential than informal mentoring in changing mentees' attitudes, thoughts, and behaviour (Egan & Song, 2008; Wallen et al., 2010). However, a systematic review showed that formal mentoring might not benefit mentees or even mentors, because both are forced into a relationship that may not allow for effective mentee development (Sambunjak et al., 2010). A recent systematic review examined studies from non-healthcare settings to determine key mentoring components that could be adjusted for the use of mentoring within the KT context (Gagliardi et al., 2014). The review indicated

that both formal and informal mentoring were useful for enhancing mentees' outcomes. This review described that formal mentoring was beneficial when it involved: (a) mentees participating in a learning workshop before initiating mentoring, (b) one-to-one mentoring and/or one-mentor-to-several mentees or distance mentoring, and (c) an expert trained mentor who regularly met with mentee(s) for over an hour from six months to one year. Several other studies supported the need for a mentor to schedule regular meetings with a mentee (Birch, Asiri, & de Gara, 2007; Mills, Lennon, & Francies, 2006). The systematic review identified that mentoring frequency and length of mentoring sessions varied widely across studies (Gagliardi et al., 2014). As well, the process of selecting a mentor and the use of a single mentor versus co-mentors were not well described (Gagliardi et al., 2014).

Second, mentor and mentee characteristics are personal, professional, and relational. Mentor and mentee form the mentoring relationship in which both must actively interact to achieve specific needs (Sambunjak et al., 2010; Santoro et al., 2010; Straus et al., 2011; Straus & Sackett, 2014). Mentor and mentee possess certain characteristics that influence their relationships (Sambunjak et al., 2010). Relational characteristics influence the level and intensity of reciprocity in the relationship (Sambunjak et al., 2010).

Other studies described mentor personal (e.g., honesty, trustworthy), professional (e.g., expertise, well respected), and relational (e.g., accessible, dedication) characteristics (Sambunjak et al., 2010). Studies also identified mentee personal (e.g., passion), professional (e.g., willingness to learn) and relational (e.g., commitment to the mentoring relationship) characteristics (McCloughen et al., 2011; Sambunjak et al., 2010). Although mentoring is a relationship between mentor and mentee, studies more often described the role of mentor

than that of mentee (Haggard et al., 2011). In the context of nursing practice guideline implementation, mentor and mentee characteristics have not been well described.

Third, mentoring strategies include activities, resources, and methods to support the mentoring relationship (Sambunjak et al., 2006; Sambunjak et al., 2010; Straus, Graham, Taylor, & Lockyer, 2008). A mentor selects strategies and resources that complement mentoring to further meet the mentee's needs (Davis & Nakamura, 2010; Ragins & Kram, 2007; Straus et al., 2009). Complementary strategies include educational workshops, feedback, and incentives. Mentees attend educational sessions or workshops over a period of time and sometimes are taught through a combination of didactic lectures and hands-on practice (Dearholt et al., 2008; Gagliardi et al., 2014; Levin et al., 2011; Mariano et al., 2009; Melnyk et al., 2010; Wallen et al., 2010). Complementary strategies to mentoring sometimes overlooked are providing feedback (Anderson, Silet, & Fleming, 2012; Sambunjak et al., 2009) and incentives (Sambunjak et al., 2010).

Fourth, mentoring barriers and facilitators are personal, relational, and organizational factors that influence the mentor-mentee relationships (Sambunjak et al., 2010). Personal barriers and facilitators are related to either the mentor's or mentee's characteristics (Sambunjak et al., 2010). Personal barriers and facilitators may be related to mentoring skills and trustworthiness (Gagliardi et al., 2014; Sambunjak et al., 2010). Relational factors that may support or hinder mentoring relationships are, for example, compatibility of mentor with mentee's learning needs and style, mentor accessibility, mentor commitment, and mentor-mentee selection type (McCloughen et al., 2011; Gifford et al., 2013c; Straus et al., 2009; Tourigny & Pulich, 2005). At the organizational level, facilitators are related to, for instance, availability of resources, time, incentives, and leadership support (Wallen et al.,

2010). On the other hand, barriers at the organizational level are related to, for example, lack of incentives for mentors (Ploeg et al., 2008). A limited number of studies that examined barriers and facilitators for mentoring to support nursing practice guideline implementation were identified.

Fifth, mentoring outcomes refer to the benefits or harms that result from the mentoring relationship (Dougherty & Dreher, 2007). Mentoring outcomes are divided into mentor, mentee, and organizational outcomes, including patient outcomes. Mentor outcomes are related to personal and professional development (e.g., handling conflict; LaFleur & White, 2010). In healthcare studies, mentoring was positively associated with improved mentees' knowledge and skills, attitudes and behaviours (Dearholt et al., 2008; Egan & Song, 2008; Wallen et al., 2010). Mentoring also enhanced healthcare professionals' careers, personal development, and choices, leading to improved recruitment and retention (Block, Claffey, Korow, & McCaffrey, 2005; Hegeman, Hoskinson, Munro, Maiden, & Pillemer, 2007; Sambunjak et al.,2006; Sambunjak et al., 2010; Straus, Straus, & Tzanetos, 2006). In business studies, organizational outcomes resulting from mentoring included mentees having higher salaries, less stress, and stronger commitments toward their careers; they were also less likely to leave organizations (Allen et al., 2004). Within the context of CPGs, mentoring also supported organizational outcomes, including the implementation of guidelines into practice (Gifford et al., 2013c; Ploeg et al., 2008). Mentoring minimally enhanced patients' outcomes (e.g., enhanced patient and family satisfaction; Gifford et al., 2013c). However, mentoring was not always used as an intervention to influence patients' outcomes.

When mentoring was used to support the implementation of EBP, outcomes sometimes neither improved nor worsened. In Mariano et al.'s (2009) study, even though

there was a working relationship between mentor and mentee, mentoring was not shown to be useful in improving healthcare professionals' attitudes toward EBP, and it did not help in implementing EBP. The self-report EBP Beliefs Scale was used to measure the mentees' attitudes and the self-report EBP Implementation Scale was used to measure their performance related to EBP. In this particular study, the reasons for the lack of evidence of effective mentoring outcomes might be related to a small sample size (n = 17), and therefore a lack of statistical power (Mariano et al., 2009). Using educational interventions with mentoring has led to mixed outcomes (Levin et al., 2011). Levin et al. (2011) conducted a mixed methods study of Randomized Controlled Trial

and focus groups to examine how the implementation of EBP through the Advancing Research and Clinical practice through close Collaboration (ARCC) model influenced nurses and organizational outcomes. The EBP intervention group received formal mentoring and educational meetings and materials, while the control group received only educational meetings that were dissimilar to the intervention group (Levin et al., 2011). In the intervention group, there was statistically significant improvement in beliefs concerning EBP (Levin et al., 2011). There was no statistical difference in learning levels between both groups.

Many designs were used to examine mentoring outcomes within the EBP context: quantitative designs, such as a non-experimental pre- and post-test design (Mariano et al., 2009), post-test design (Dearholt et al., 2008) or mixed methods design (Levin et al., 2011; Wallen et al., 2010). These studies encountered several limitations such as a small sample size and low response rate (Mariano et al., 2009; Wallen et al., 2010), lack of detail in the methods section, such as number of participants and analysis type (Dearholt et al., 2008),

and reporting selective outcomes (Wallen et al., 2010). Such limitations may have produced bias in the interpretation and use of research findings. With regard to CPG implementation, no studies found examined the use of mentoring alone, without complementary strategies, for implementing nursing CPGs. Also, a limited number of studies explored mentoring outcomes from mentors' and mentees' perspectives.

2.4.3. Mentoring conceptual model.

While searching for a suitable framework or a model to explain mentoring relationships within the context of CPGs, the Advancing Research and Clinical practice through close Collaboration (ARCC) model was identified (Melnyk & Fineout-Overholt, 2010). The ARCC model primarily focuses on enhancing the implementation and sustainability of EBP in organizations (Levin et al., 2011; Melnyk, Fineout-Overholt, Giggleman, & Cruz, 2010; Wallen et al., 2010). The first step in the model is to assess organizational culture and readiness for EBP. The second step is to identify facilitators and major barriers for EBP implementation (Melnyk & Fineout-Overholt, 2010). The final step in the model is to develop and use an EBP mentor (Melnyk & Fineout-Overholt, 2010). The ARCC model shows that an EBP mentor supports and sustains practice change by implementing ARCC multifaceted enhancing strategies, (e.g., EBP rounds, journal clubs) and conducting interactive EBP workshops (Melnyk & Fineout-Overholt, 2010). The model illustrates that an EBP mentor enhances nurses' beliefs and implementation of EBP which can improve other nurses', hospitals' and patients' outcomes (Melnyk & Fineout-Overholt, 2010).

Although the ARCC model is useful for understanding the role of a mentor in supporting EBP, it is not useful for understanding mentoring relationships within a CPGs context for three reasons. First, the ARCC model does not depict key components associated with mentoring relationships, including the role of mentees. Second, the model shows that the mentor role is more important than the mentee role in driving EBP changes (Melnyk & Fineout-Overholt, 2010). However, the mentoring literature review showed that both mentor and mentee roles were equally important to develop mentees and enhance practice changes

(Ploeg et al., 2008; Straus et al., 2013b). Third, the model implies that mentors support practice change based on identifying and meeting organizational needs rather than mentees' needs (Melnyk & Fineout-Overholt, 2010). The essence of the mentoring relationship is identifying and meeting mentees' needs (Gagliardi et al., 2014).

2.5. Conclusion

The literature review identified that implementation of CPGs improves outcomes. However, the qualitative and quantitative studies reviewed indicated that several barriers interfere with the implementation of CPGs into nursing practice. Several KT interventions including social influence were used to overcome barriers. There is evidence of the effect of opinion leaders, facilitators, educational outreach visitors, champions, and leaders as a KT intervention but little is known about the effect of mentoring. Six studies provided some types of mentoring relationships, description of mentor and mentee characteristics, mentoring strategies, factors influencing mentoring within the context of CPG implementation, and mentoring outcomes. The ARCC model limitedly explains mentoring within the context of EBP.

Chapter Three

Methodology

Methodology

This chapter provides a detailed description with rationale for the methods used for the systematic review and the qualitative study. The chapter concludes with a discussion of the potential significance of the research. The overall purpose of the dissertation was to examine mentoring as a knowledge translation (KT) intervention to inform clinical practice using a multi-methods study.

3.1. Systematic Review

3.1.1. Objective.

The systematic review aimed to determine the effectiveness of mentoring as a KT intervention designed to increase the use of empirical evidence by healthcare professionals in clinical practice. Specific research questions that guided the study were:

- What are the characteristics of mentoring as a KT intervention?
- Does a mentoring intervention alone increase the uptake of evidence compared to no intervention, or compared to other intervention(s) without mentoring?
- Does mentoring as part of a multifaceted intervention increase the uptake of evidence compared to no intervention, or compared to other intervention(s) without mentoring?

3.1.2. Methods.

The systematic review was designed based on the methods proposed by the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2011) and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (Liberati et al., 2009; Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). The systematic review protocol was developed a priori to minimize risk of bias in the review processes related to, for example, authors' selection and inclusion of studies, and

outcomes reporting (Liberati et al., 2009; Torgerson, 2003). Having an a priori protocol is an indicator of a higher quality systematic review (Higgins & Green, 2011; Shea, Grimshaw, Hamel, & Bouter, 2006).

3.1.3. Eligibility criteria.

Study inclusion and exclusion criteria were established to guide the identification and selection of citations eligible for the systematic review. Table 3.1 provides the inclusion and exclusion criteria informed by PICO (Population, Intervention, Comparator, and Outcomes). Developing inclusion and exclusion criteria based on PICO has been useful for examining review validity, applicability, and comprehensiveness (Liberati et al., 2009; Shamseer et al., 2015).

Table 3.1

Criteria for Inclusion and Exclusion of Studies

Criteria	Included	Excluded
Population	Healthcare professionals responsible for patient care	▪ Undergraduate medical or non-medical students
Intervention	Mentoring to enhance use of evidence in clinical practice defined as: (a) Mentor is more experienced than mentee (as related to the specific task); (b) Individualized support based on mentee's needs; (c) Interpersonal relationship as generally indicated by mutual benefit, engagement and commitment.	▪ Focused on organizational or program needs ▪ Not describing or requiring a mutually beneficial relationship
Comparator	Intervention group compared with control group or other intervention.	N/A
Outcomes	Included one or more of the following: ▪ Conceptual knowledge use; ▪ Instrumental knowledge use; ▪ Enablers of instrumental use; ▪ Impact on patients, or organizations or healthcare professionals	▪ Publishing a research paper ▪ Obtaining grants for research ▪ Attending Journal Club
Study Designs	(a) Randomized controlled trials (b) Controlled clinical trials (c) Controlled before and after studies (d) Interrupted time series (e) Pre/post-test studies	▪ Qualitative studies ▪ Descriptive studies ▪ Editorials
Language	English	

Note. N/A= not applicable

For 'population', studies concerning healthcare professionals responsible for patient care were included; studies focused on undergraduate medical and non-medical students were excluded. For 'intervention', studies that met our definition of mentoring were eligible: (a) mentor was more experienced than mentee (as related to the specific task); (b) individualized support based on mentee's needs; and (c) interpersonal relationship as generally indicated by mutual benefit, engagement, and commitment. Studies were excluded if the interventions focused on organizational or program needs, or did not involve a

mutually beneficial relationship. For ‘comparator’, studies were included whether or not a comparison or a control group was involved.

For ‘outcomes’, eligible studies measured one or more outcomes reported in the Knowledge Use and Impact Model: (a) conceptual knowledge use (e.g., healthcare professionals’ knowledge, understanding, attitudes/beliefs); (b) instrumental knowledge use (e.g., healthcare professionals’ behavior or practice); (c) enablers of instrumental use (e.g., organizational endorsement); and (d) impacts on the patient, the healthcare professional, and the organization (Graham, Bick, Tetroe, Straus, & Harrison, 2010). Studies were excluded if the outcomes were limited to mentees publishing a research paper, obtaining research grants, or attending a journal club; this review focused on studies that measured mentoring’s effect on actual implementation of evidence into clinical practice. The Knowledge Use and Impact Model was selected to report mentoring outcomes because it is the only known model or framework focused on reporting these types of outcomes (Graham et al., 2010). This model was feasible to use because it provided definitions and examples that explicitly differentiate between monitoring knowledge use and the impact of using the knowledge.

Eligible study designs were randomized controlled trials (RCTs), controlled clinical trials (CCTs), controlled before and after studies (CBA), interrupted time series (ITS), or pre/post-test studies. Qualitative and descriptive studies and editorials were excluded from the review because they were not designed to provide robust evidence about intervention effectiveness (Higgins & Green, 2011). Only English citations were included during the search because the KT studies were most likely to be conducted in English-speaking countries (Moher, Pham, Lawson, & Klassen, 2003).

3.1.4. Information sources.

A comprehensive search was conducted using electronic databases, grey literature, hand and electronic searching. The electronic databases included the Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, Cochrane Central Register of Controlled Trials, Ovid MEDLINE, CINAHL, Ovid PsycINFO, Ovid EMBASE, AHMD, ProQuest-Dissertation Abstracts International (DAI), and Trials Register (Current Controlled Trials). All databases were searched for publications from 1988 to December 2012. In 1989, there was a large initial shift toward implementing empirical evidence into clinical practice (French, 2002). The grey literature search included websites of organizations (e.g., Registered Nurses' Association of Ontario) known to use mentoring to implement clinical practice guidelines (CPGs). The grey literature was also searched for unpublished studies and technical reports. Handsearching was conducted by reviewing the tables of contents of journals focused on examining the effectiveness of interventions and strategies related to EBP. These included *Worldviews on Evidence-Based Nursing* (1994 - December 2012), *Journal of Nursing Scholarship* (1988 - December 2012), *the International Journal of Evidence Based Coaching and Mentoring* (August 2003 - December 2012), *International Journal of Evidence-Based Healthcare* (2005 - December 2012), *Implementation Science* (February 2006 - December 2012), and *Systematic Reviews* (2012 - December 2012). Hand searching was also conducted for conferences that examined the effectiveness of interventions and strategies related to evidenced-based practice (EBP) (e.g., Knowledge Utilization Colloquium), conference abstracts, and reference lists of included studies and relevant review citations. Finally, an electronic search was conducted to identify publications of known experts in mentoring (e.g., Melnyk, and Straus). Previous research has

shown that using a comprehensive search of different data sources is important for identifying as many relevant studies as possible (Higgins & Green, 2011).

3.1.5. Search strategy.

The search strategy was developed by a University of Ottawa Librarian (LS) and the primary investigator (GA) using the inclusion and exclusion criteria. First, search terms were identified (see Appendix B) and a broad search was conducted in MEDLINE (see Appendix C). The search strategy for MEDLINE (Ovid format) was guided by the research questions and PICO: population (e.g., healthcare professionals), intervention evaluated (e.g., mentoring), and types of study design (e.g., RCT, CCT, CBA, ITS, pre/post-test). Filters for the designs were used only for MEDLINE and specific guidance was sought for EMBASE. The search terms were entered as Medical Subject Headings (MeSH) and as keywords or terms. Some terms were truncated, as was needed, to help generate literature containing all terms. The keywords used for the MEDLINE search were adapted for the other bibliographic databases. The search strategies are provided in Appendix C to allow others to replicate the search (Liberati et al., 2009).

3.1.6. Study selection.

The citations identified by the search strategy had duplicates removed and were entered into a web-based tool designed to facilitate blind screening by two independent reviewers. Blind assessment by two reviewers enhances the quality of the systematic review by ensuring relevant studies were not rejected and minimizing risk of bias from individual reviewers' judgment (Higgins & Green, 2011; Liberati et al., 2009; Shea et al., 2007).

The process for study selection was conducted in three phases. First, titles were screened by two independent reviewers (GA and DR) to judge the citations as 'include',

'exclude' or 'unsure' using the broad terms associated with the systematic review research questions (e.g., social influences roles, implementation of evidence-based practice). The range of social influence roles (e.g., mentors, leaders, preceptors, facilitators, educational outreach visitors, opinion leaders, and champions) rather than mentors alone was used given that these roles are sometimes used interchangeably (Thompson, Estabrooks, & Degner, 2006). To remove citations, both reviewers needed to independently agree that citations should be excluded; otherwise, the citation was included for phase two of study selection. Second, titles and abstracts were screened by two independent reviewers (GA and DR) using the inclusion and exclusion criteria (see Appendix D). Third, included or unsure citations in phase two were screened using full-text by two independent reviewers (GA and DR). If the reviewers disagreed, a consensus meeting was used to resolve the disagreements and, if necessary, a third member of the research team was included (DS).

3.1.7. Data collection process.

To extract the data from included studies, reviewers used a modified form based on the Cochrane Effective Practice and Organisation of Care Review Group (EPOC) data collection tool (Cochrane Effective Practice and Organisation of Care Review Group, 2008). EPOC has the largest set of Cochrane Reviews evaluating KT interventions including local opinion leaders and educational outreach visitors. Modifications to the form included changing the intervention section to explicitly extract data on mentoring characteristics and other social influence role characteristics (see Table 2.1). As well, the section titled 'nature of desired change' in the data extraction form was changed to be consistent with the purpose of this systematic review. Finally, the outcomes section was modified to extract data on the eligible 'mentoring outcomes'. The modified data collection form was piloted on four

randomly selected included studies before its actual use. Some further modifications were made to the form, including explicitly listing outcomes based on the Knowledge Use and Impact Model, and adding barriers and enablers influencing use of mentoring (Graham et al., 2010). Using an extraction form ensured a systematic process for data extraction and facilitated opportunities for re-assessing studies for inclusion (Higgins & Green, 2011; Liberati et al., 2009).

Two of four reviewers extracted data independently from included studies (GA, DR, JW, JJ). Having two data extractors has been shown to improve the quality of the systematic reviews (Shea et al., 2007). The following data were extracted from each study: (a) characteristics of included studies (country, setting, design, type of evidence being implemented, number of participants in intervention and control groups, title of mentoring intervention, quality criteria), (b) characteristics of interventions (intervention and control group characteristics, description of intervention, intervention delivery approach, frequency and length of intervention), (c) characteristics of instruments that measured mentoring outcomes (outcome measure, instrument name, reliability and validity), (d) outcomes (conceptual knowledge use, instrumental knowledge use, enablers of instrumental use, impact on patients, healthcare professionals, and organizations) (Graham et al., 2010), and (e) barriers and enablers influencing use of mentoring. Disagreements about data extraction were resolved by consensus. As necessary, we contacted the authors of included studies to obtain further information on the intervention. This additional procedure for data extraction was required to ensure study eligibility and to better report the mentoring intervention (Liberati et al., 2009).

3.1.8. Assessment of the risk of bias.

The methodological quality of included studies was assessed independently by two of four reviewers (GA, DR, JW, JJ) using: the Cochrane Collaboration's Tool for Assessing Risk of Bias for RCT studies (Higgins & Green, 2011), and the Critical Appraisal Skills Program tool for quasi-experimental studies (Public Health Resource Unit, 2006). The Cochrane Collaboration's Tool for Assessing Risk of Bias consists of seven items, each assessed as "High risk of bias", "Low", "Unclear", or "Not applicable". The Critical Appraisal Skills Program tool has 10 items assessed as "Met", "Not met", or "Not applicable". For this tool, quality of the study was considered high when ≥ 80% of the criteria were met, moderate when 60-79.9% of the criteria were met, and weak when < 60% of the criteria were met (Murray et al., 2009). Disagreements were resolved by consensus and, if necessary, by including a third member of the research team (KH or DS). Assessing the included studies' risk of bias assessed validity of the findings and determined if studies estimated greater or smaller intervention effect (Higgins & Green, 2011). However, given the small number of included studies, the risk of bias assessments were reported to enhance transparency of the systematic review findings but were not used to limit the number of studies included (Hopewell, Boutron, Altman, & Ravaud, 2013; Shamseer et al., 2015).

3.1.9. Data synthesis.

All data collected were entered into an Excel database. The total number of citations identified from all information sources was depicted in a flow diagram according to the PRISMA diagram (Liberati et al., 2009; Moher et al., 2009). Tables were used to summarize: (a) characteristics of included studies and their risk of bias; (b) excluded studies; (c) characteristics of interventions and comparison groups; (d) characteristics of instruments

used to measure outcomes, and (e) barriers and enablers influencing mentoring. The tables were designed to clearly organize and present the findings (Higgins & Green, 2011). Findings for outcomes were synthesized based on the Knowledge Use and Impact Model (Graham et al., 2010). Data were analyzed descriptively to answer the systematic review research questions.

3.1.10. Assessment for heterogeneity.

Heterogeneity was assessed using confidence intervals and the standard Chi-square to examine the efficacy and applicability of interventions and to determine the possibility of conducting a meta-analysis (Higgins & Green, 2011). Heterogeneity is present when there is poor overlap in the confidence intervals or low *p* value in the standard Chi-square (Higgins & Green, 2011). Heterogeneity occurs when there are inconsistencies between included studies including: (a) statistical heterogeneity defined as inconsistencies in the intervention effects across studies, (b) clinical heterogeneity defined as inconsistencies between participants, interventions and outcomes, and (c) methodological heterogeneity defined as inconsistencies in the study designs and risk of bias (Higgins & Green, 2011). If heterogeneity was identified, meta-analysis would not be conducted.

3.1.11. Meta-Analysis.

Meta-analysis was planned if there were two or more studies without heterogeneity. It was anticipated that the results could be combined for the primary outcome (use of evidence). The meta-analysis was planned to consider: the nature of the outcome data (e.g., dichotomous, continuous), effect measures (e.g., risk ratio, odds ratio or risk difference for dichotomous outcomes, mean difference or standardized mean difference for continuous outcomes). Meta-analysis considered pair-wise comparisons, including a comparison of an

experimental intervention versus the control intervention, or the comparison of two experimental interventions (Higgins & Green, 2011). Conducting meta-analysis has the potential to enhance power for the real effect of an intervention if it exists and provide explanations of different findings (Higgins & Green, 2011).

3.1.12. Quality of the systematic review.

To increase the quality of the systematic review, the protocol was developed a priori based on the methods proposed by the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2011). The protocol was approved by co-authors a priori. To increase the methodological quality of the systematic review, the Assessment of Multiple Systematic Reviews (AMSTAR) tool was applied a priori (Shea et al., 2007). This systematic review protocol met all (n =11) criteria listed in the AMSTAR tool.

3.2. Qualitative Study

3.2.1. Purpose.

The overall aim of the qualitative study was to explore the use of mentoring as a KT intervention to support the implementation of nursing guidelines in clinical practice. The specific research questions that guided this study were:

- What are the characteristics of mentoring?
- What mentoring strategies are used and how do they support fellows?
- What are the perceived outcomes of mentoring for the mentors, the fellows, and the organizations?

3.2.2. Study design.

A qualitative study was conducted using an interpretive description design (Thorne, 2008). This design is philosophically grounded in a naturalistic orientation which focuses on

how individuals behave in natural settings and recognizes that realities are subjective, multiple, constructed socially and experientially, and are influenced by contextual factors (Lincoln & Guba, 1985; Thorne, Kirkham, & O'Flynn-Magee, 2004). Indeed, the knower and the known are close (Lincoln & Guba, 1985). In the process of understanding the realities that are shared by participants, investigators incorporate their personal interpretations and values with the interpretations of participants' interviews (Creswell, 2007). Therefore, member checking in this study was conducted to ensure that interpretation of the findings by the lead author adequately represented participants' realities (Lincoln & Guba, 1985).

There are three tenets underpinning interpretive description design: 1) the phenomenon should be studied as a whole given that realities are complex, constructed socially and experientially, and influenced by contextual and individual factors, 2) there are interactions between the researcher, and the 'object' of examination that influence one another, and 3) there is no a priori theory that will sufficiently describe the phenomenon under study; therefore theory should emerge from the data (Hunt, 2009; Thorne, Kirkham, & MacDonald-Emes, 1997; Thorne, Kirkham, & O'Flynn-Magee, 2004).

Although the interpretive description design considers and uses other social science qualitative research methods (Thorne et al., 2004; Thorne, 2008), the design is ultimately "grounded in [nursing's] own epistemological foundations, adheres to the systematic reasoning of [nurses'] own discipline, and yields legitimate knowledge for [nurses'] practice" (Thorne et al., 1997, p.172). Hence, the primary aim of the interpretive description design is to develop a clinical understanding of the phenomenon within the nursing context to facilitate knowledge development and, consequently, to inform clinical practice (Hunt

2009; Thorne, 2008; Thorne et al., 2004). Furthermore, this design is meant to draw interpretive conclusions based on individuals' and groups' insights using reflection and inductive reasoning to produce meaningful new clinical knowledge and reveal the values integral to individuals' perceptions.

The interpretive description design was selected to guide this qualitative study for three reasons. First, this research focused on examining a clinical nursing issue (e.g., the influence of mentoring on implementing nursing guidelines in clinical practice) that is congruent with the primary focus of the interpretive description (Thorne et al., 1997). Second, the design encourages the study of differences in the phenomenon under examination (Thorne, 2008). The research aimed to determine how mentoring is described by different individuals and how their realities are influenced by their clinical settings. Third, the design encourages researchers to identify the effect that their experiences, clinical knowledge, assumptions and values have on the study's results (Thorne, 2008).

3.2.2.1. Situating Self.

According to the interpretive description design, it is crucial for researchers to position themselves within the research to acknowledge the influence that they have on the study (Thorne, 2008). The primary investigator (GA) worked as a critical care nurse for more than 10 years in a large academic teaching hospital in Saudi Arabia. She was also employed with the Saudi Ministry of Health for one year to review healthcare organizations' performance on implementing CPGs. During this time, she had the opportunity to directly or indirectly support healthcare professionals with implementing numerous CPGs at unit and organizational levels. At the unit level, she had scheduled time with individual nurses at the bedside in order to assist them in understanding and conducting specific procedures related

to CPG recommendations. At the organizational level, she frequently met with leaders to guide them through CPG implementation processes, including human and material resource management.

She had observed first how implementing CPGs in critical care could improve patient care. For example, implementing a CPG for treating pressure ulcers led to a decrease in the number and depth of wounds developed on patients' backs due to prolonged sedation. As well, she gained knowledge about CPG implementation and evaluation in Canadian contexts through her experiences as a Research Assistant on a multi-site study that examined the development of monitoring processes to evaluate the implementation of CPG recommendations (Davies & Higuchi, 2010). In this role, she participated in site visits, assisted with qualitative data analysis, and witnessed the role that researchers play. The researchers supported various healthcare organizations in developing monitoring processes for implementing CPGs based on individual sites' contexts and needs. As a result of her experiences, she further realized the importance of individual mentoring in supporting CPG implementation and the need for monitoring processes tailored to different sites.

3.2.3. Setting.

This qualitative study took place in Ontario, Canada within the Best Practice Guidelines Implementation/Knowledge Transfer Fellowship program. This fellowship is one of three Advanced Clinical Practice Fellowship (ACPF) programs provided by the Registered Nurses' Association of Ontario (RNAO). This fellowship was chosen because it is a well-established program (begun in 2000) and mentoring is a key component of the fellowship (RNAO, 2014). The Best Practice Guidelines Implementation/Knowledge Transfer Fellowship aims to develop nurses' knowledge, skills, and expertise with respect to

implementing RNAO best practice guidelines, transferring knowledge, and building EPB capacity in staff nurses (RNAO, 2014). Approximately 128 Best Practice Guidelines Implementation/Knowledge Transfer fellowships were awarded between 2000 and 2014 (H. McConnell, email communication, April 7, 2014).

This fellowship program is ongoing and offered to registered nurses who work in Ontario, have a minimum of one year experience, and are willing to participate full-time (12 weeks) or part-time (20 weeks) for a total of 450 hours (RNAO, 2014). The fellowship application includes: (a) a learning plan, including the name of the guideline recommendation to be examined during the fellowship; (b) an abstract of the proposed fellowship plans; (c) information about applicants and their organizations, mentoring team, including the name of the primary mentor and co-mentor(s); (d) a proposed budget; and (e) support letters from mentors, mentors' organizations, and applicants' organizations (RNAO, 2014).

Primary mentors need to be registered nurses with a minimum credential of a Master's degree and have the necessary education and/or expertise related to the fellowship application (RNAO, 2014). Co-mentors are optional and can be chosen from any relevant discipline with varying levels of education (RNAO, 2014). All mentors could be either internal or external to the fellows' organization. The RNAO requires that mentors collaborate with fellows throughout the fellowship to sustain learning and impact on organizational outcomes (RNAO, 2014). In addition to providing required documents, the application is evaluated to determine how enhancing fellows' learning and expertise could affect patient and organizational outcomes (RNAO, 2014).

Submitted proposals are evaluated by two or more external nurse reviewers who have previously participated as a fellow, mentor, and/or member of an organization involved with the RNAO. Reviewers independently grade applications using a scoring system and then reach consensus on a final score with recommendations and feedback for the applicants (RNAO, 2014).

Successful applicants sign a contract on the deliverables and funding together with their organization, primary mentors, and the RNAO (RNAO, 2014). Fellows receive $13,000 CAD from the RNAO based on funding from the Ontario Ministry of Health and Long-Term Care, and a minimum of $5000 CAD in kind support from their own organization (RNAO, 2014).

After the fellowship completion, the RNAO requests several documents from fellows (e.g., updated learning plan, copies of resources developed by fellows). In addition to the availability of RNAO staff, the RNAO provides several learning opportunities and resources to support fellows throughout their fellowships (RNAO, 2014).

3.2.4. Participants and sampling.

We invited fellows and mentors living in Ontario, who participated in the Best Practice Guidelines Implementation/Knowledge Transfer Fellowship from its inception to September, 2013. Eligible participants were chosen in sequence as they volunteered with the aim of obtaining a broad range of experiences from which to identify patterns of differences and commonalities in their perspectives (Creswell, 2007; Patton, 1990). We aimed to have fellow and mentor experiences from a variety of healthcare settings (e.g., acute care, complex continuing care/ LTC, community care), educational backgrounds (e.g., diploma, undergraduate and graduate education), and years of nursing experience. Additional eligible

participants were individuals working for a minimum of six months as RNAO program leaders with various levels of influence on the development, shaping, and/or management of the fellowship program. Matched mentor and fellow pairs were eligible for the study. Given slow recruitment, snowball sampling was also used to identify eligible fellows by included study's participants (Creswell, 2007).

According to an interpretive description study design, there are no specific rules for determining sample size (Thorne, 2008). Hence, data saturation was used for determining the sample size; defined as no new information is obtained from subsequent interviews and redundancy in findings occurs (Morse, 1995). According to Francis et al. (2010), data saturation is often achieved by 10 participants; and then an additional three participants should be interviewed to ensure no new findings are identified.

3.2.5. Procedure.

A staff member at the RNAO facilitated the recruitment of participants by sending an invitation recruitment email, with the information letter and consent form attached, to potentially eligible participants (see Appendix E, F, G, H). Those interested in participating were asked to contact the primary investigator (GA).

The primary investigator (GA) conducted interviews using a semi-structured interview guide and scheduled at a convenient time and place (in person or over the telephone). The interview method for data collection was chosen to allow participants to describe their subjective experiences with mentoring in clinical practice and provide explanations for specific events, activities, and roles. Individual interviews are considered an appropriate data collection approach when little is known about the study phenomenon (Kvale, 1996).

Prior to the interview, participants were asked to sign the written consent form, and were given a copy of the interview guide without prompts. During the interview, participants were asked the questions in the interview guide and, as necessary, prompted to share their mentoring experiences. At the end of the interview, participants were asked demographic questions, and their interest in reviewing the findings. Interviews were planned for 30-45 minutes and audio-recorded, with field notes documented. Reflections and observations were also documented after the interviews.

As a form of member checking, all mentors and fellows interested in reviewing the findings were emailed a 1-page summary report and asked to confirm the preliminary findings reflected their experiences (Lincoln & Guba, 1985). They were also asked to provide any additional information.

3.2.6. Data collection tools.

Interview guides were developed for mentors, fellows, and program leaders (see Appendix I and J) based on the systematic review findings and the research questions. The interview guides asked participants about their experiences with mentoring in the fellowship program to be able to answer the research questions focused on mentoring characteristics, strategies, and perceived outcomes of mentoring on mentors, fellows, and organizations. The interview guides consisted of open-ended questions with prompts intended to elicit further comments or clarification during interviews (Creswell, 2007). The primary investigator (GA) pilot tested the interview guides with a mentor and a fellow before conducting further interviews, to assess and refine questions and procedures (Creswell, 2007). These initial interviews were not included in the findings. The demographic questionnaire (see Appendix

K) consisted of questions about age, educational preparation, employment status, and nursing experiences.

3.2.7. Data analysis.

Audio-taped interviews were transcribed verbatim, and transcripts were compared with the recordings for accuracy, and read several times for immersion in the data (GA). All transcripts were uploaded in NVivo 10 software, which was also used to conduct inductive content analysis (Elo & Kyngäs, 2008; QRS International, 2012; Vaismoradi, Turunen, & Bondas, 2013). Demographic data were entered into an Excel database and analyzed descriptively.

Inductive analysis underpins the rigorous analytical processes of the interpretive description method (Thorne, 2008). When little is known about a phenomenon, such as mentoring, the inductive analysis is used to build knowledge derived from participants' responses. This approach facilitates the movement from a particular and fragmented knowledge to more broadly relevant and structured knowledge to understand the overall phenomenon under study (Elo & Kyngas, 2007). Content analysis is defined as "a systematic coding and categorizing approach used for exploring large amounts of textual information unobtrusively to determine trends and patterns of words used, their frequency, their relationships, and the structures and discourses of communication" (Vaismoradi et al., 2013, p. 400). It is useful for providing explanation about little known, complex, and important nursing phenomenon. Content analysis is also useful for identifying the important processes of phenomena (Elo & Kyngäs, 2008). In the qualitative study, inductive content analysis was used to develop focused description from participants' accounts about mentoring. More

specifically, the inductive content analysis for the interview transcripts and field notes included the following steps:

1. The text was read line-by-line with open coding conducted using notes, and categories describing content written in transcripts' margins (GA).
2. Notes and categories were collated into a coding scheme and used to generate sub-categories (GA). Sub-categories were collapsed by comparing and contrasting headings, and then merged into larger sub-categories with more general description of content. Then, these larger sub-categories with similar events, understandings, trends, and incidences were grouped together to formulate main categories.
3. A second team member (DS) independently analyzed eight transcripts, and two team members (GA, DS) conducted constant comparative analysis to systematically compare emerging categories for all 18 interviews (Thorne, 2008). These approaches to data analysis enhanced credibility through investigator triangulation and ensure that experiences shared by study participants are subjective (Lincoln & Guba, 1985)
4. The data analysis findings were audited by co-authors and categories further refined (DS, KH, JP).

3.2.8. Rigour.

To ensure data rigour, several strategies were used to enhance credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985). First, credibility relates to the truth of the findings (Shenton, 2004) and was enhanced using three methods: (a) auditing the results by co-authors (DS, KH, JP), and independently analyzing eight transcripts by two team members (GA, DS); (b) data triangulation of the findings from interview transcripts of fellows, mentors, and from matched fellow/mentor pairs; and (c)

member checking with mentors and fellows to confirm preliminary findings (Lincoln & Guba, 1985; Thorne, 2008).

Second, dependability aims to ensure that the findings are consistent over time when repeated in the same context and with the same methods and participants (Shenton, 2004). To enhance dependability, a detailed audit trial was developed, including information about decisions taken during the research process including analysis. Committee members (DS, KH, JP) reviewed the audit trial, the results of the study, and description of the data analysis processes (Shenton, 2004).

Third, confirmability aims to ensure that the findings reflect the participants' experiences and meanings (Shenton, 2004). Confirmability was enhanced by member checking and maintaining the detailed audit trial (Lincoln & Guba, 1985; Shenton, 2004). Fourth, to enhance transferability of findings, a rich description of the setting in which the study took place and of the participants was provided (Lincoln & Guba, 1985; Shenton, 2004).

3.2.9. Ethical considerations.

Research ethics approval was obtained for the qualitative study from the University of Ottawa Research Ethics Board (file no. H04-13-03) (see Appendix L). After receiving the University of Ottawa ethics approval, a copy of the approval was sent to the RNAO with the research proposal. Subsequently, the RNAO provided participation approval (see Appendix E). Consistent with the Tri-Council Policy Statement (2010), participants completed a study consent form prior to the interview (see Appendix H). On the consent form, the participants were informed about risks, confidentiality, anonymity, conservation of data, and voluntary participation. The participants were informed that no identifying personal or organizational

data would be published and that they had the right to withdraw from the study at any time. All data collected were kept securely in a locked file cabinet in the locked Nursing Best Practice Research Centre at the University of Ottawa, School of Nursing. Data will be stored for 10 years after data collection and then destroyed (April, 2025).

3.3. Potential Significance of the Research

The systematic review and qualitative study were designed to contribute to an increasing understanding of the use of mentoring as a KT intervention to implement evidence, including CPGs, into clinical practice. The study proposal responded to a goal of the Canadian Institutes of Health Research (CIHR) (2010) to improve the implementation of research evidence and its evaluation. Having evidence to support mentoring as a KT intervention fits with one of the four strategic directions of the CIHR Three-Year Implementation Plan (2010-2013), namely to accelerate capturing the advantages of health research on health and on the economy (CIHR, 2010).

Chapter Four

Measuring the Effectiveness of Mentoring as a Knowledge Translation Intervention for Implementing Empirical Evidence: A Systematic Review

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Measuring the Effectiveness of Mentoring as a Knowledge Translation Intervention for Implementing Empirical Evidence: A Systematic Review

Abstract

Background: Mentoring as a knowledge translation (KT) intervention uses social influence among healthcare professionals to increase use of evidence in clinical practice.

Aim: To determine the effectiveness of mentoring as a KT intervention designed to increase healthcare professionals' use of evidence in clinical practice.

Methods: A systematic review was conducted using electronic databases (i.e., MEDLINE, CINAHL), grey literature, and hand searching. Eligible studies evaluated mentoring of healthcare professionals responsible for patient care to enhance the uptake of evidence into practice. Mentoring defined as (a) a mentor more experienced than mentee; (b) individualized support based on mentee's needs; and (c) involved in an interpersonal relationship as indicated by mutual benefit, engagement and commitment. Two reviewers independently screened citations for eligibility, extracted data, and appraised quality of studies. Data were analyzed descriptively.

Results: Of 10,669 citations from 1988 to 2012, 10 studies were eligible. Mentoring as a KT intervention was evaluated in Canada, USA and Australia. Exposure to mentoring compared to no mentoring improved some behavioral outcomes (one study). Compared to controls or other multifaceted interventions, multifaceted interventions with mentoring improved practitioners' knowledge (four of five studies), beliefs (four of six studies), and impact on organizational outcomes (three of four studies). There were mixed findings for changes in professionals' behaviors and impact on practitioners' and patients' outcomes: some outcomes improved, while others showed no difference.

Linking evidence to action: Only one study evaluated the effectiveness of mentoring alone as a KT intervention and showed improvement in some behavioral outcomes. The other nine studies that evaluated the effectiveness of mentoring as part of a multifaceted intervention showed mixed findings, making it difficult to determine the added effect of mentoring. Further research is needed to identify effective mentoring as a KT intervention.

4.1. Introduction

Knowledge translation (KT) interventions are designed to support the uptake of best available evidence, including clinical guidelines into practice (Straus, Tetroe, & Graham, 2013). One category of KT intervention relies on social influence, which occurs when an individual uses interpersonal interactions to influence other individuals' and/or groups' thoughts, feelings, attitudes, or behaviors (Eccles & Foy, 2009; Zimbardo & Leippe, 1991). Mentoring as a KT intervention uses social influence and has the potential to increase the uptake of evidence-based practice (EBP) (Gattellari et al., 2005). However, few studies have included mentoring as an intervention to support the uptake of nursing practice guidelines (Davies, Edwards, Ploeg, & Virani, 2008; Gifford, Davies, Ploeg, Eldred, & Bajnok, 2013). The purpose of this paper is to examine the effects of mentoring as a KT intervention aimed at supporting the uptake of empirical evidence into clinical practice. This review offers a unique contribution to research on mentoring within the context of KT by identifying essential characteristics of mentoring interventions and providing an understanding of the effects of mentoring on practitioners, patients and organizations.

Our definition of mentoring relied upon three essential characteristics of mentoring that were consistently identified in business and healthcare (Haggard, Dougherty, Turban, & Wilbanks, 2011; Ploeg, de Witt, Hutchison, Hayward, & Grayson, 2008; Sambunjak, Straus, & Marusic, 2006, 2010). These characteristics were (a) mentors more experienced than mentees as related to a specific task; (b) mentors provide individualized support based on mentees' learning needs; and (c) mentoring involves an interpersonal relationship as generally indicated by mutual benefit, engagement and commitment.

Mentoring is similar to and often confused with other social influence KT interventions, such as champions, local opinion leaders, facilitation and educational outreach visitors. According to the Diffusion of Innovation theory, the ways specific individuals (i.e., champions, opinion leaders) interact and discuss ideas with others influence learning and adoption of change (Rogers, 2003). Educational outreach visitors assist healthcare professionals by providing feedback, identifying barriers to change, and developing tailored interventions to address these barriers (O'Brien et al., 2007). Local opinion leaders support organizational communication structures and advocate for organizational norms; they also informally influence peers' attitudes and behaviors (Flodgren et al., 2011). Facilitation enables implementation processes, leading to tailored interventions, problem-solving and team building (Dogherty, Harrison, & Graham, 2010). Mentoring focuses on mentees' needs rather than on organizational or study program needs. Alternatively, champions are expected to support change processes by persuading and negotiating with people to adopt new innovations (Rogers, 2003). Champions may also spread information about clinical guidelines via education and help to implement clinical practice guideline strategies based on organizational contexts (Ploeg et al., 2010). Unlike other social influence KT interventions, mentoring specifically requires mentors to be more experienced than mentees at the specific task.

Several social influence KT interventions have been evaluated to determine effects on the uptake of evidence. Champions have had mixed influence on the uptake of evidence. For example, champions increased sepsis screening in ICU from 23% to 74%, but did not influence the percentage of patients treated from sepsis (Campbell, 2008). In another study, champions did not change childbirth outcomes, such as episiotomy rates (Hodnett et al., 1996). Educational outreach visitors and local opinion leaders have increased the implementation of research

evidence by 6.0% and 12.0% respectively (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012). Evidence drawn from primary healthcare settings showed facilitation moderately affected the uptake of clinical guidelines (effect size = .56, 95% CI = .43-.68) (Baskerville, Liddy, & Hogg, 2012). Little is known about how expertise, individualized support and interpersonal relationships underpin mentoring as a KT intervention to support the uptake of evidence into clinical practice.

4.2. Objectives

The aim of this systematic review is to determine the effectiveness of mentoring as a KT intervention designed to increase the use of empirical evidence by healthcare professionals in clinical practice. Research questions were: (a) What are the characteristics of mentoring as a KT intervention? (b) Does a mentoring intervention alone increase the uptake of evidence compared to no intervention or compared to other intervention(s) without mentoring? (c) Does mentoring as part of a multifaceted intervention increase the uptake of evidence compared to no intervention or compared to other intervention(s) without mentoring?

4.3. Methods

A systematic review was conducted based on the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2011) and reported using the PRISMA Statement (Liberati et al., 2009). The review protocol was developed a priori.

The search strategy was designed using keywords related to PICO (population, intervention, comparator, and outcomes) with inclusion and exclusion criteria (see Table 4.1). Eligible intervention studies used mentoring as a KT intervention and met the definition of mentoring.

Table 4.1

Study Inclusion Criteria

Criteria	Included	Excluded
Population	Healthcare professionals responsible for patient care	▪ Undergraduate medical or nonmedical students
Intervention	Mentoring to enhance use of evidence in clinical practice defined as: (a) Mentor more experienced than mentee (as related to the specific task); (b) Individualized support based on mentee's needs; (c)Interpersonal relationship as generally indicated by mutual benefit, engagement and commitment.	▪Focusing on organizational or program needs ▪Not describing or requiring a mutually beneficial relationship
Comparator	Intervention group compared with control group or other intervention	N/A
Outcomes	Include one of the following: ▪ Conceptual knowledge use ▪ Instrumental knowledge use ▪ Enablers of instrumental use ▪ Impact (on patients or organizations or healthcare professionals)	▪Publishing a research paper ▪Obtaining grants for research ▪Attending Journal Club
Designs	(a) Randomized controlled trials (RCTs) (b) Controlled clinical trials (CCTs) (c) Controlled before and after studies (CBA) (d) Interrupted time series (ITS) (e) Pre/post-test studies	▪Qualitative studies, ▪Descriptive studies
Language	English	

We searched electronic databases for articles published between January 1988 and December 2012. The search was limited to 1988 due to a shift toward increased use of empirical evidence in 1989 (French, 2002). Electronic databases searched were the Cochrane and DARE (Database of Abstracts of Reviews of Effectivenesss), Cochrane Central Register of Controlled Trials, MEDLINE, CINAHL, PsycINFO, EMBASE, AHMD, ProQuest-Dissertation and Thesis Database, and Trials Register. A specific search strategy was developed with the librarian (LS) based on PICO for MEDLINE (see Appendix C) and adapted for other databases. Online grey literature was searched for unpublished studies and technical reports by organizations known to implement EBP. Journals and relevant conferences that examine the effectiveness of

interventions and strategies related to EBP were also searched, as was a reference list of included studies and relevant review articles (see Appendix C).

The citations identified by the search strategy were entered into a web-based tool designed to facilitate blind screening by two independent reviewers (GA, DR). The screening process involved three phases. First, titles were screened and judged as "include," "exclude," or "unsure". When at least one reviewer rated a citation as "include" or "unsure," it remained included. Second, abstracts were screened using the same process. Third, full-texts of citations were screened. There were no disagreements between reviewers. Authors for eight studies were contacted for additional information about the intervention to determine eligibility.

A standardized form was developed based on the Cochrane Effective Practice and Organisation of Care Review Group (EPOC) data collection tool (2008). The form was pilot-tested on four randomly selected included studies and then refined accordingly. Two of four authors used the form to extract data independently based on the characteristics of the studies, mentoring interventions, outcome measures, factors influencing use of mentoring, and methodological quality of studies. The Cochrane Collaboration's Tool for Assessing Risk of Bias was used to check the quality of randomized controlled trials (Higgins & Green, 2011). The quasi-experimental studies were appraised using the Critical Appraisal Skills Program (CASP) tool (Public Health Resource Unit, 2006). Disagreements were resolved by consensus.

Due to heterogeneity across study outcomes, data were analyzed descriptively. Study comparisons were grouped to answer the research questions. Findings were synthesized based on the outcomes of Knowledge use and Impact (Graham, Bick, Tetroe, Straus, & Harrison, 2010). Knowledge use included (a) conceptual knowledge use (i.e., practitioner's knowledge, understanding, attitudes/beliefs), (b) instrumental knowledge use (i.e., practitioner's behavior or

practice), and (c) enablers of instrumental use (i.e., organizational endorsement). Impact included impact on (a) the patient (b) the practitioner and (c) the organization.

4.4. Results

Of 10,669 citations, 62 were potentially eligible and 10 were confirmed eligible (see Figure 4.1). The 52 excluded were non-intervention designs (n = 21), ineligible populations (n = 2), or interventions that were not examining social influence roles (n = 6), not meeting mentoring characteristics (n = 17), or not supporting the uptake of evidence in clinical practice (n = 6) (see Appendix M).

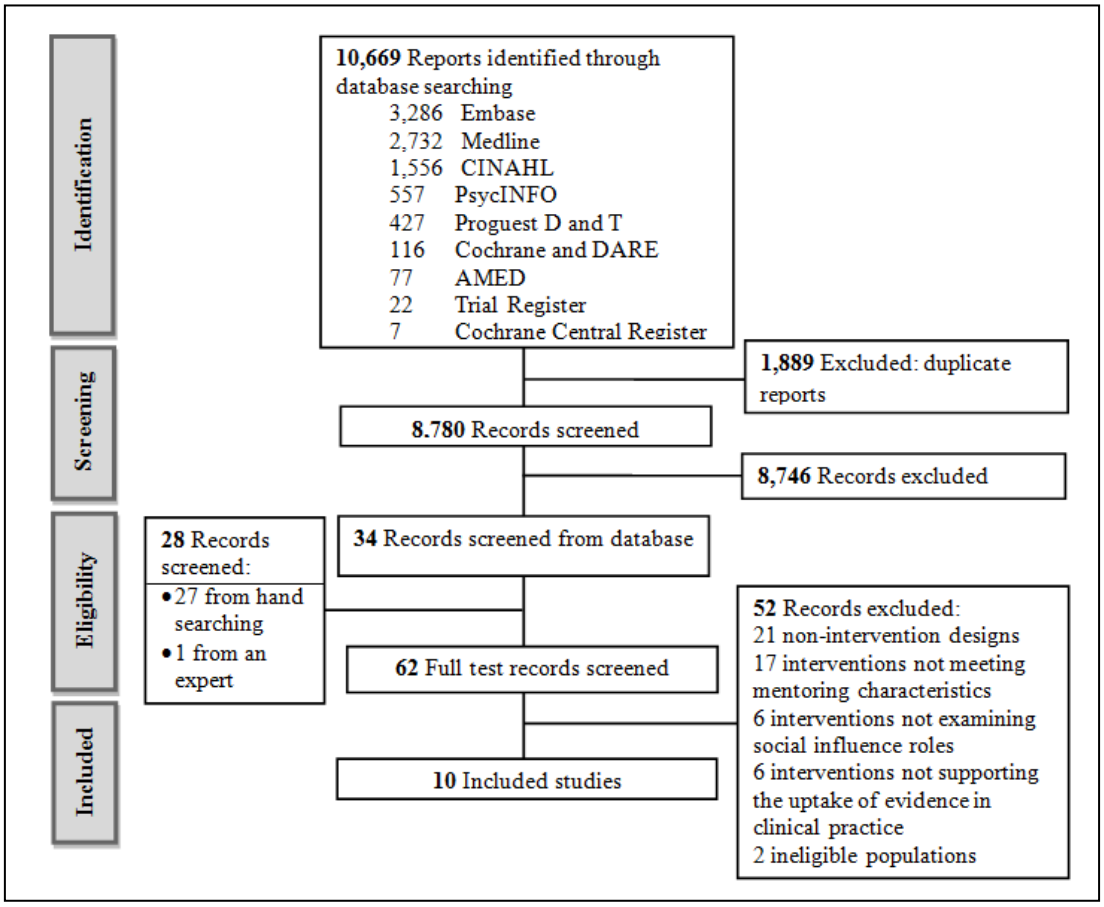

Figure 4.1. **Flow Diagram of Study Selection Process.**

4.4.1 Characteristics of the studies.

The ten included studies were conducted in three countries (USA, Canada, Australia) and published between 1991 and 2012 (see Table 4.2). Six studies were cluster-randomized controlled trials (RCTs), one a controlled clinical trial (CCT), one a controlled before and after study (CBA), and two were pre-and post-test studies. Of six RCT studies, four randomized clusters by hospitals, one by physicians, and one by nurses. The cluster effect was not taken into account in the analysis of one RCT (Lomas et al., 1991). Seven studies evaluated the uptake of clinical practice guidelines, and three evaluated the uptake of non-guideline-based research evidence. The studies were conducted in tertiary care, community hospital, home care, or

primary care. The median number of participants per study was 108.5 (range of 15 to 2,409). Seven were nursing studies and four were medical studies.

Of six RCTs, five were rated as low risk of bias and one as moderate risk of bias (see Table 4.2). For the CCT study, risk of bias was rated as unclear because there was insufficient reporting to judge risk of bias. The CBA study was rated as moderate because 70% of CASP criteria were met, while the two pre-and post-test studies were rated as higher quality because 80% of CASP criteria were met (Murray et al., 2009).

Table 4.2

Characteristics of Included Studies (n = 10)

First Author, Year (Country)	Design and Setting	Evidence being Implemented	Participants (#in Intervention+ Comparison)	Mentoring Intervention Title	Study Risk of Bias*
Berner, 2003 (USA)	Clustered RCT in tertiary care	Unstable angina guideline	1076 (NR+NR) physicians	Opinion leaders by trained physicians	**1.**Unclear **2.** Low **3.** NA **4.** Low **5.** Low **6.** Low **7.** Low
Gattellari, 2005 (Australia)	Clustered RCT in primary care	Lower urinary tract symptoms guideline	277 (136 + 141) physicians	Academic detailing by physicians	**1.** Low **2.** Low **3.** NA **4.** Low **5.** Low **6.** Unclear **7.** Low
Johnston, 2007 (Canada)	Clustered RCT in tertiary care	Pain management guideline	141 (NR + NR) nurses	Opinion leaders by trained nurses and other practitioners	**1.** Low **2.** High **3.** NA **4.** Low **5.** High **6.** Unclear **7.** Low
Levin, 2011 (USA)	Clustered RCT in home care	Evidence-based practice	46 (22+24) nurses	Mentor by a nurse	**1.** Low **2.** Low **3.** NA **4.** Low **5.** Low **6.** Unclear **7.** Low
Lomas, 1991 (Canada)	Clustered RCT in community hospitals	Vaginal birth after cesarean section guideline	76 (38+ 38) physicians	Opinion leaders by trained physicians	**1.**Unclear **2.**Unclear **3.** NA **4.** Low **5.** Low **6.** Low **7.** Low
Soumerai, 1998; Borbas, 2000 (USA)	Clustered RCT in community hospitals	Acute myocardial infarction guideline	2409 (Median = 43, Median = 36) physicians	Opinion leaders by physicians	**1.** Unclear **2.**Unclear **3.** NA **4.** Low **5.** Low **6.** Low **7.** Low

*Note.**Study Risk of Bias Quality Assessment Legend. For EPOC: 1. allocation concealment; 2. follow-up, professionals; 3. follow-up, patients; 4. blinded assessment; 5. baseline measurement; 6. reliable primary outcome measure(s); 7. protection against contamination. For CASP tool: 1. clear statement of aims; 2. methodology appropriate; 3. research design appropriate to address research aims; 4. recruitment strategy appropriate; 5. data collected appropriately; 6. relationship between researcher and participants considered; 7. ethical issues considered; 8. data analysis sufficiently rigorous; 9. clear statement of findings; 10. valuable research. NR = not reported; NA = not applicable.

Table 4.2

Cont. Characteristics of Included Studies (n = 10)

First Author, Year (Country)	Design and Setting	Evidence being Implemented	Participants (#in Intervention+ Comparison)	Mentoring Intervention Title	Study Risk of Bias*
Masny, 2008 (USA)	CCT in primary care but outcomes pre & post only	High risk cancer guideline	41 (20 + 21) nurses	Mentor by genetic counselor	**1.** Unclear **2.** High **3.** NA **4.**Unclear **5.** Unclear **6.**Unclear **7.** Unclear
Wallen, 2010 (USA)	CBA in tertiary care	Evidence-based practice	159 (94 + 65) nurse leaders	Mentor by nurses	**7/10** met; **2/10** not met **1/10** not applicable
Mariano, 2009 (USA)	Pre/post test study in tertiary care	Evidence-based communication strategies with families	20 (NA + NA) nurses	Mentor by trained nurses	**8/10** met; **1/10** not met **1/10** not applicable
Morgan, 2012 (USA)	Pre/post test study in community hospital	Pressure ulcer guideline	15 (NA+NA) nurses	Mentor by expert	**8/10** met; **1/10** not met **1/10** not applicable

*Note.**Study Risk of Bias Quality Assessment Legend. For EPOC: 1. allocation concealment; 2. follow-up, professionals; 3. follow-up, patients; 4. blinded assessment; 5. baseline measurement; 6. reliable primary outcome measure(s); 7. protection against contamination. For CASP tool: 1. clear statement of aims; 2. methodology appropriate; 3. research design appropriate to address research aims; 4. recruitment strategy appropriate; 5. data collected appropriately; 6. relationship between researcher and participants considered; 7. ethical issues considered; 8. data analysis sufficiently rigorous; 9. clear statement of findings; 10. valuable research. NR = not reported; NA = not applicable.

4.4.2. Characteristics of mentoring interventions.

Of the ten studies, five used the term "mentoring," four "opinion leaders," and one "academic detailing" (see Table 4.2). Characteristics of mentoring interventions varied across studies based on (a) mode of delivery, (b) frequency and length of mentoring intervention, and (c) type of mentor selection process. Mentoring interventions were delivered via a single approach (individual or group meetings), or via mixed approach (combination of individual or group meetings, or email) (see Table 4.3). The mentoring interventions varied from 3 to 12 sessions (Median = 7.5) with each session approximately 2 hours and scheduled over 14 to 360 days (Median = 90). Some mentors were physicians nominated by their peers (Berner et al., 2003; Lomas et al., 1991; Soumerai et al., 1998). Other mentors were nurses or other healthcare professionals selected to support nurses (Johnston et al., 2007; Levin, Fineout-Overholt, Melnyk, Barnes, & Vetter, 2011; Mariano et al., 2009; Masny, Ropka, Peterson, Fetzer, & Daly, 2008; Wallen et al., 2010). Only Johnston and colleagues (2007) discussed the mentor selection process, indicating key leaders were selected as mentors.

Table 4.3

Characteristics of Interventions (n = 10 studies)

First Author, Year	Groups	Intervention Description	Delivery Approach	Intervention Frequency and Length
Berner, 2003	**Intervention** Group 1	Mentoring	Group	NR
		Coordinator or administrative educational meetings (e.g., review of guideline, study design, implementation strategies)	Once	NR
		Coordinator or administrative educational materials	NR	NR
		Audit and feedback	NR	2 audits + 1 feedback
	Group 2	Coordinator or administrative educational meetings (e.g., review of guideline)	Once	NR
		Coordinator or administrative educational materials	NR	NR
		Audit and feedback	NR	2 audits + 1 feedback
	Control	None		
Gattellari, 2005	**Intervention**	Peer coaching sessions by mentors	In person via telephone	3 sessions over 2 months
		Patients' educational materials	Written + in person discussion with patients	One session
		Practitioners' educational materials (e.g., guidelines, the Great Debate)	Audiotape/video/written	3 times over 3 months
		Audit and feedback	In person	Pre & post audit, each audit over 6 weeks + 3 feedbacks over 2 months.
	Control	Practitioners' educational materials (i.e., guidelines)	Written	Once.
Johnston, 2007	**Intervention**	One-on-one coaching sessions by mentors	In person	10 sessions per participant. Most coaching 14-25 days.
		Audit and feedback	In person	10 audit and feedbacks during intervention + 2 audits, once at 2 weeks and once at 6 months after intervention completion.
		Practitioners' educational materials	Written + verbal	As needed

Note. NR= not reported

Table 4.3

Cont. Characteristics of Interventions (n = 10 studies)

First Author, Year	Groups	Description of Intervention	Delivery Approach	Frequency and Length of Intervention
Johnston, 2007	**Control**	Audit and feedback	NR	At least 4 audits per nurse, per month during intervention + 2 audits, once at 2 weeks and once at 6 months after intervention completion.
Levin, 2011	**Intervention**	Mentoring	In person + email	12 sessions. 2 hour sessions, weekly over 12 weeks.
		Practitioners' educational meetings (i.e., EBP)	Group	4 sessions. 1 hour sessions, weekly over 4 weeks.
		Practitioners' educational materials	Written	NR
		Mass media (i.e., poster)	Written	NR
	Control	Practitioners' educational meetings (i.e., physical assessment)	Group	4 sessions. 1 hour sessions, weekly over 4 weeks.
Lomas, 1991	**Intervention** Group 1	Mentoring	Group and in person	Approximately 12 sessions over 12 months.
		Practitioners' educational materials (e.g., guideline, information sheets)	Written	Twice over 5 months
		Practitioners' educational meetings	Group	One session
	Group 2	Local consensus process on the criteria of conducting caesarean section	Group	NR
		Audit and feedback	Group + mailed	1 audit + 3-4 feedbacks.
	Control	Practitioners' educational materials (i.e., guideline)	Written	Once
Mariano, 2009	**Post**	Mentoring	In person	5 months
		Mass media (i.e., posting study updates)	Written	5 months
	Pre	None		
Masny, 2008	**Intervention**	Mentoring	In person by telephone or email	3 sessions. One session monthly over 3 months, beginning immediately after pre-course.
		Practitioners' educational meetings	Telephone	3 sessions. One session monthly over 3 months.
		Practitioners' educational materials	Email	3 months
	Control	None (waitlist control)		

Note. NR = not report

Table 4.3

Cont. Characteristics of Interventions (n = 10 studies)

First Author, Year	Groups	Description of Intervention	Delivery Approach	Frequency and Length of Intervention
Morgan, 2012	**Post**	Mentoring	Group	5 sessions. Approximately 2 hours per session, over 6 weeks.
		Practitioners' educational materials	Written	5 times
		Wound champion taught revised medical form	NR	NR
	Pre	None		
Soumerai, 1998	**Intervention**	Mentoring	Group	7 months
		Practitioners' educational materials	Group	7 months
		Establish system change (e.g., revising protocols)	NR	7 months
		Audit and feedback	Group	Twice
	Control	Audit and feedback	Mailed	Twice
Wallen, 2010	**Intervention**	Mentoring	In person or group	7 months
		Practitioners' educational meeting	Group (in-person and via internet forum)	2 days
	Control	None		

Note. NR = not reported

4.4.2.1. Multifaceted intervention with mentoring versus without mentoring (n = 1).

Instrumental knowledge use. Compared to a multifaceted intervention without mentoring (i.e., educational meetings combined with educational materials, and audit and feedback), physicians who received mentoring as part of the same kind of multifaceted intervention improved use of antiplatelet medication within 24 hours of admission (M = 20.2% vs. M = -3.9%, p =.02) (Berner et al., 2003). There was no difference in heparin use, ECG within 20 minutes of arriving in emergency, beta-blockers during hospitalization, and antiplatelet medications at discharge.

4.4.2.2. Multifaceted intervention with mentoring compared to single intervention without mentoring (n = 5).

Conceptual knowledge use. Compared to educational materials alone, physicians exposed to mentoring as part of a multifaceted intervention reported improved knowledge of prostate cancer screening (M = 6.1/7, 95% CI = 5.9-6.3 vs. M = 4.8/7, 95% CI = 4.6-5.0, p < .001), and changes in their beliefs regarding medico-legal risk concerning prostate-specific antigen (PSA) screening (odds ratio =.31, 95% CI = .19-.51, p < .001) (Gattellari et al., 2005). In another study, there was improvement in physicians' knowledge of vaginal birth after Cesarean section (M = 60.3% vs. M = 46.2%), and more care provided in agreement with the guideline recommendations (M = 54.4% vs M = 39.7%) (Lomas et al., 1991).

Compared to educational meetings, nurses who received mentoring as part of a multifaceted intervention had increased beliefs in EBP ($F_{1, 15}$ = 33.105, p < .001) and had sustained beliefs at 9 months post-intervention ($F_{1, 15}$ = 7.335, p = .016) (Levin et al., 2011). No differences were reported in nurses' knowledge. Compared to audit and feedback, mentoring as

part of a multifaceted intervention improved nurses' knowledge of pain management ($p < .0001$) (Johnston et al., 2007).

Instrumental knowledge use. Compared to educational materials alone, physicians exposed to mentoring as part of a multifaceted intervention reported improvement in their skills for supporting patients' informed decision-making ($M = 45.7/55$, 95% CI = 44.2-47.2 vs. $M = 37.2/55$, 95% CI = 35.5-38.8, $p < .001$), and increases in their provision of written and verbal information to men before making decisions about PSA ($M = 28.4/35$, 95% CI = 27.8-29.0 vs. $M = 23.9/35$, 95% CI = 23.1-24.7, $p < .001$) (Gattellari et al., 2005). Physicians ordered fewer PSA tests (risk ratio = .52, 95% CI = .38-.75, $p < .0004$), but not because they were significantly influenced by their perceptions of medico-legal concerns (Gattellari et al., 2005). Physicians who received mentoring as part of a multifaceted intervention increased participation in a trial of labour rate ($M = 38.2\%$, 95% CI = 30.6-45.7 vs. $M = 28.3\%$, 95% CI = 23.0-33.7, $p < .007$), showed changes in practice in delivering women after cesarean section ($M = 30.9\%$ vs. $M = 23.1\%$), and more often offered a vaginal birth trial ($M = 74.2\%$, 95% CI = 63.1-85.2 vs. $M = 51.3\%$, 95% CI = 43.5-59.2, $p < .002$) (Lomas et al., 1991).

Compared to educational meetings, nurses who received mentoring as part of a multifaceted intervention improved implementation of EBP ($F_{1,15} = 10.39$, $p = .006$) and sustained implementation at 9 months post-intervention ($F_{2,30} = 5.85$, $p = .007$) (Levin et al., 2011). Compared to audit and feedback, mentoring as part of a multifaceted intervention increased physicians' prescriptions of aspirin (Median = +.13 vs. -.03, $p = .04$) and beta-blocker medications (Median = +.31 vs. +.18, $p = .02$) for patients with Acute Myocardial Infarction (Soumerai et al., 1998), and improved uptake of pain management guidelines as evidenced by

enhanced nurses' pain assessment documentation (15% to 58%, $p < .0001$ vs. 24% to 9%, $p < .001$) (Johnston et al., 2007). There was no difference in the use of thrombolysis and Lidocaine medications (Soumerai et al., 1998) or in the administration of analgesia and non-pharmacological measures (Johnston et al., 2007).

Impact on patients. Compared to educational materials only, physicians exposed to mentoring as part of a multifaceted intervention showed improvement in infant patients' Apgar scores at 5 min (M = .9%, 95% CI = .0-.6 vs. M =1.2%, 95% C I = .0-2.4, $p < .0001$), and higher rates of vaginal births for patients (M = 25.3%, 95% CI = 19.3-31.2 vs. M = 14.5%, 95% CI = 10.3-18.7, $p = 0.003$) (Lomas et al., 1991). This study also reported no statistically significant difference in infant Apgar scores at 1 min, rates of unscheduled cesarean sections, and in maternal and infant deaths.

Impact on practitioners. Compared to educational materials only, physicians exposed to mentoring as part of a multifaceted intervention improved preference to share decision-making with patients about PSA screening (odds ratio = .11, 95% CI = .04-0.31, $p < .001$) (Gattellari et al., 2005). There was also a decrease in physicians' decisional conflict regarding PSA screening decisions (M = 25.4/45, 95% CI = 24.5-26.3 vs. M = 27.8/45, 95% CI = 26.6-29.0, $p < .0002$) (Gattellari et al., 2005).

Compared to educational meetings, nurses who received mentoring as part of a multifaceted intervention showed no difference in group cohesion, job satisfaction and nurses' workload (i.e., time and effort) post-intervention or at 9 months (Levin et al., 2011).

Impact on organization. Compared to educational materials only, physicians exposed to mentoring as part of a multifaceted intervention had shorter hospital stays for their patients (M =

46.6% days vs. M = 32.2%, $p < .0001$) (Lomas et al., 1991). Compared to educational meetings, nurses who received mentoring as part of a multifaceted intervention had a 50% lower attrition or turnover rate, while the control group continued to have a 35% attrition or turnover rate (Levin et al., 2011).

4.4.2.3. Multifaceted intervention with mentoring compared to no intervention (n = 5 studies).

Conceptual knowledge use. Compared to no intervention, nurses exposed to mentoring as part of a multifaceted intervention had increased beliefs in EBP (M = 57.2-62.6% vs. 58.0%-58.2%, p = .025) (Wallen et al., 2010) or no difference (Mariano et al., 2009). Nurses also had improved perceptions of organizational culture and readiness for EBP (M = 77.2%-89.5% vs. M = 80.9%-82.9%, p = .025) (Wallen et al., 2010).

Instrumental knowledge use. Compared to no intervention, physicians exposed to mentoring as part of a multifaceted intervention showed improved use of antiplatelet medication within 24 hours of admission (M = 15.8% vs. M = -.4%, p = .01) (Berner et al., 2003). The number of nurses who sought clinical support from mentors increased from 17 to 26 nurses at three months, and 33 at six months (Masny et al., 2008). There were no differences in the use of ECG within 20 min of arriving in emergency, beta-blockers during hospitalization, heparin use and antiplatelet medications at discharge (Berner et al., 2003). Two studies reported no difference between groups of nurses' uptake of non-guideline-based research evidence into clinical practice (Mariano et al., 2009; Wallen et al., 2010).

Impact on practitioners. Compared to no intervention, nurses exposed to mentoring as part of a multifaceted intervention had increased self-efficacy for cancer risk counseling skills

over time ($p < .001$) (Masny et al., 2008). The other multifaceted study that included mentoring found no difference in nurses' job satisfaction, group cohesion, or intention to leave their positions and profession (Wallen et al., 2010).

Impact on organization. Compared to no intervention, nurses exposed to mentoring as part of a multifaceted intervention had no difference in retention (Wallen et al., 2010). Nurses' participation in mentoring as part of a multifaceted intervention also led to a 5% reduction in the prevalence of hospital acquired pressure ulcers (Morgan, 2012).

4.4.3. Characteristics of instruments.

Twelve instruments measured knowledge use and impact (see Table 4.4). Of 12 instruments, 6 reported reliability and validity, 1 reported reliability only, and 5 had no psychometric properties reported. Only two instruments were used in more than one study, and they were based on the Transtheoretical Model of Health Behavior Change and the Advancing Research and Clinical Practice through Close Collaboration (ARCC) model (i.e., EBP Implementation and the EBP beliefs scales) (Melnyk, Fineout-Overholt, & Mays, 2008). One reliable and valid instrument was used to assess barriers and enablers influencing mentoring.

Table 4.4

Characteristics of Instruments (n = 13 Instruments)

Outcomes Measure	Instruments	Reliability	Validity
Knowledge	Pediatric Nurses' Knowledge and Attitudes Survey Regarding Pain [J]	Cronbach's alpha = .72 to .79 [J]	√
	A knowledge and attitude survey [S]	NR	NR
	Obstetricians' survey [Lo]	NR	NR
	Organizational Culture and Readiness for System-Wide Implementation of EBP (OCRSIEP) scale [W]	Cronbach's alpha = .93 to .94 [W]	NR
Belief/attitude	*****EBP Beliefs Scale [Le, Ma, W]	▪ Internal consistency = >.85 [Le] ▪ Cronbach's alpha = .90 to .92 [W]	√
	A knowledge and attitude survey [S]	NR	NR
	Obstetricians' survey [Lo]	NR	NR
Use of evidence	The Pain Management Experience Evaluation [J]	NR	NR
	*****EBP Implementation Scale [Le, Ma, W]	▪ Internal consistency = > .85 [Le] ▪ Cronbach's alpha =.90 to .92 [W]	√
	Obstetricians' survey [Lo]	NR	NR
Practitioner outcomes	Group cohesion Scale [Le, W]	▪ Internal consistency = .73 to .83 [Le] ▪ Cronbach's alpha = .81 to .89 [W]	√
	Job satisfaction questionnaire [W]	Cronbach's alpha = .84 to .88 [W]	√
	Index of Work Satisfaction [Le]	Cronbach's alpha = .80 to .90 [Le]	√
	The Provider Decision Process Assessment Instrument [G]	NR	NR
	Intention to Leave Scale [W]	NR	NR
Barriers and enablers	Barriers to Research Utilization Scale [Mo]	Cronbach's alpha = .89 [Mo]	√
	A knowledge and attitude survey [S]	NR	NR

*Note.** Based on The Transtheoretical Model of Health Behavior Change, and the Advancing Research and Clinical Practice Through Close Collaboration model (Melnyk et al., 2008). G = Gattellari, 2005; J = Johnston, 2007; Le = Levin, 2011; Lo = Lomas, 1991; Ma = Mariano, 2009; Mo = Morgan, 2012; S = Soumerai, 1998; W = Wallen, 2010. NR = not reported. √ = done.

4.4.4. Barriers and enablers influencing mentoring.

Of 10 studies, four reported barriers and four reported enablers to mentoring (see Table 4.5). The barriers identified were staff resistance and shortage, lack of time, lack of knowledge and skills related to guideline recommendations, and inadequate guidance from mentors. The enablers identified were leadership support, staff involvement and available mentors.

Table 4. 5

Barriers and Enablers to Mentoring (n = 5 Studies)

Factors Related to	Barriers	Enablers
Mentor	NR	▪Availability of mentor to support less experienced staff [Ma]. ▪Earlier involvement of mentors in project activities [S].
Mentees	▪Inadequate guidance from mentor [Ma]. ▪Less experienced nurses had difficulty completing activities with mentor [Ma]. ▪Lack of knowledge and skills related to understanding research statistics and how to replicate and evaluate research [Mo]. ▪Lack of time to read research [Mo]. ▪Literature not in one place [Mo]. ▪Previous negative experience with similar interventions [S]. ▪Lack of knowledge and skills related to guidelines recommendations [S].	
Healthcare professionals	▪Staff resistance [W]. ▪Physicians unsupportive to practice changes [Mo].	▪Staff involvement from different levels in the organization [W].
Organization	▪Less experienced nurses had short time to complete implementation activities with mentors [Ma]. ▪Lack of clinical opportunities to practice knowledge gained during mentoring sessions [Ma]. ▪Inadequate resources (i.e., staffing level or equipment) [S].	▪Leadership support [L, S, W]. ▪Availability of resources (i.e., financial) [W]. ▪Availability of a framework to guide sustainable changes [W].
Patients and/or family	▪Lack of knowledge regarding assigned treatment [S]. ▪Previous negative experience with similar interventions [S].	NR
Evidence	▪Outdated protocols or inconsistent standing orders [S].	NR

Note. L=Levin, 2011; M=Masny, 2008; Morgan, 2012; S= Soumerai, 1998; W=Wallen et al, 2010. NR = not reported.

4.5. Discussion

This systematic review is the first known synthesis of studies that measure the effectiveness of mentoring as a KT intervention. Ten studies of varying methodological quality evaluated the effectiveness of mentoring as part of multifaceted interventions. Only one study, with low risk of bias, compared a multifaceted intervention with mentoring to the same kind of intervention without mentoring. This study showed mixed effects for practitioners' behavior, with one outcome improving and others showing no difference (Berner et al., 2003). The other nine studies with mentoring as part of a multifaceted intervention showed various effects on practitioners, patients and organizations. Of these nine, the study with consistently positive outcomes and low risk of bias used mentoring in combination with practitioners' and patients' educational materials, as well as audit and feedback (Gattellari et al., 2005). Overall, interventions with mentoring did not produce worse outcomes than controls or alternate intervention(s). Differences in intervention characteristics, such as mentoring length and frequency, may have an effect on the mixed findings observed in these studies.

Our findings can be compared and contrasted with other studies evaluating mentoring within healthcare. Unlike our mixed findings, some studies showed that mentees exposed to mentors consistently increased knowledge, skills and use of EBP (Melnyk et al., 2004; Sambunjak et al., 2006). Mentoring was also consistently useful for enhancing mentees' personal and professional development (i.e., job satisfaction and productivity), and organizational outcomes (i.e., retention and recruitment) (Kashiwagi, Varkey, & Cook, 2013; Melnyk, 2007). However, similar to our findings, other studies found that the use of mentoring in medical

practice had mixed impacts on patients' outcomes (Augestad et al., 2013; Birch, Asiri, & de Gara, 2007).

Mentoring interventions supported the uptake of some clinical guideline recommendations in studies with unclear to low risk of bias (Berner et al., 2003; Morgan, 2012; Gattellari et al., 2005; Johnston et al., 2007; Lomas et al., 1991; Masny, 2008; Soumerai et al., 1998). However, mentoring interventions were only shown to support the uptake of non-guideline-based research evidence in one of three studies with moderate to high quality (Levin et al., 2011; Mariano et al., 2009; Wallen et al., 2010). Non-guideline-based research evidence was often more general and not necessarily targeted to specific issues, whereas guideline recommendations were often framed specifically around an issue, which allowed for better implementation or measuring of targeted outcomes (Turner, Misso, Harris, & Green, 2008). With so few studies evaluating non-guideline-based research evidence, it is difficult to make conclusions.

Outcomes related to conceptual and instrumental knowledge use, impact on practitioners, and barriers and enablers influencing mentoring were measured using various instruments. No instrument was used to measure mentor-mentee interaction or skills. Overall thirteen instruments were used, with psychometric properties reported for only seven instruments. Furthermore, only three studies used the same instruments (Levin et al., 2011; Mariano et al., 2009; Wallen et al., 2010). Using consistent instruments can facilitate comparisons across studies, potentially enhancing understanding of the effectiveness of mentoring (Tian, Atkinson, Portnoy, & Lowitt, 2010).

Our understanding of mentoring within the KT context improved with the identification of three further characteristics. First, mentoring involves regular meetings over a period of time. Although studies showed regular meetings enhanced mentees' outcomes, there was little explanation of how meetings were organized (Sambunjak et al., 2010). Second, mentoring can be delivered via different approaches: individual or group meetings or email. One of our included studies found that mentoring through individual meetings via telephone enhanced all measured outcomes (Gattellari et al., 2005). Mentoring delivered using a combination of individual and group meetings also improved most outcomes (Lomas et al., 1991). Consistent with other research, mentoring delivered using individual meetings enhanced practitioners' outcomes (Ploeg et al., 2008). Third, mentoring involves a selection process to match mentees and mentors. Physician mentors were selected via peers in most medical studies, while nurses' and healthcare professionals' mentors were selected via key leaders in one nursing study. The extent to which selection processes affect relationships and the uptake of evidence into practice is difficult to conclude from this review. Similar findings around selection process were reported in studies examining the effect of opinion leaders' interventions on the uptake of evidence in different healthcare settings (Flodgren et al., 2011; Grimshaw et al., 2006).

Interestingly, few of the studies reported on mentor-mentee relationships. Given that a key element of mentoring intervention is the relational aspect (LaFleur & White, 2010), understanding characteristics of mentor-mentee relationships could improve the uptake of evidence into practice. As well, few studies reported on mentors' knowledge and skills regarding mentoring strategies and innovations. Research needs to identify effective mentor behaviors and strategies that can be used to meet mentees' individualized needs.

The act of mentoring was not consistently called mentoring in the included studies. Studies used the terms “mentoring,” “opinion leaders,” and “academic detailing”. All terms met our definition of mentoring. The lack of a clear and well-defined taxonomy for mentoring and other social influence roles within the context of KT made determining study eligibility more challenging, as mentoring and other concepts were used synonymously. Our findings about concept confusion were similar to findings in literature reviews on facilitation (Dogherty et al., 2010) and on different concepts or roles used to support the uptake of EBP (Thompson, Estabrooks, & Degner, 2006). For example, facilitation was called different terms (e.g., “link nurses”, “opinion leaders”) (Dogherty et al., 2010). A taxonomy of social influence roles would contribute to conceptual clarity.

Barriers hindering the success of mentor-mentee relationships highlighted in this review included staff resistance and shortage, lack of time, lack of knowledge and skills about guidelines, and inadequate support from mentors. These barriers are consistent with those identified in other studies exploring barriers to mentoring within the context of EBP (Gifford et al., 2013; Melnyk et al., 2004; Ploeg et al., 2008). Barriers not identified in this systematic review, but that may be relevant, include lack of incentives for mentors and lack of organizational processes to support mentees incorporating their knowledge about mentoring in organizations (Ploeg et al., 2008). Our findings about enablers (i.e., leadership support, and staff and mentor involvement) are consistent with others who identified providing educational sessions with experts and supporting mentees to practice learned skills as enablers (Melnyk et al., 2004; Ploeg et al., 2008).

4.6. Limitations

Three key limitations of this systematic review and of the included studies should be considered. First, we conducted a thorough systematic search using broad eligibility criteria, but relevant studies may have been missed due to concept confusion. Second, available studies included minimal description of mentoring interventions. Third, we may have missed relevant studies by restricting the search to English articles; however, KT studies were most likely to be conducted in English-speaking countries (Moher, Pham, Lawson, & Klassen, 2003).

4.7. Implications and Conclusions

Few studies have included mentoring as a KT intervention. Those studies that include mentoring have done so as part of a multifaceted KT intervention. This review helps to fill the gap in research by identifying characteristics essential to mentoring as a KT intervention aimed at supporting the uptake of evidence into clinical practice. Mentoring as part of a multifaceted intervention had various effects on practitioners, patients and organizations, although none were negative. Further, one of the ten studies clearly showed that mentoring, not the other elements of the multifaceted intervention, had changed some practitioners' behaviour. However, based on the studies reviewed, it is difficult to determine the effect of mentoring specifically on the uptake of evidence into practice.

Our review suggests several implications for further research, education and clinical practice. Research is needed to understand mentoring apart from other interventions. There is a need to identify factors used to address individual mentee needs and to explore the nature of mentor-mentee relationships and their influence on supporting the uptake of evidence. Further,

studies need to better report on the mentoring intervention and psychometric properties of instruments to facilitate comparability across studies.

Mentoring has commonly been employed in clinical nursing education and in organizational change efforts (Huybrecht, Loeckx, Quaeyhaegens, De Tobel, & Mistiaen, 2011). In organizational settings, expert clinical educators and advanced practice nurses are positioned to act as mentors. They frequently provide tailored interaction with nurses via different approaches to enhance staff's involvement, knowledge, beliefs and skills and to decrease their resistance and turnover rate. A better understanding of mentoring could allow experts to create effective KT interventions aimed at enhancing the uptake of evidence in clinical practice.

Linking Evidence to Action

- When planning for mentoring to support the uptake of evidence into practice, clinical educators, advanced practice nurses, and others positioned to be mentors should consider the following:
  - Plan regular meetings with mentees over a period of time.
  - Deliver mentoring using the most appropriate approach (e.g., individual and/or group meetings, telephone, email).
  - Establish a selection process to match mentees and mentors.
- Mentoring as a KT intervention may be combined with other KT interventions (e.g., educational meetings and materials, audit and feedback).
- Research is needed to determine the impact of mentoring on professional and patient outcomes, and the influence of the mentor-mentee relationship on outcomes.

References

Augestad, K. M., Bellika, J. G., Budrionis, A., Chomutare, T., Lindsetmo, R. O., Patel, H., & Delaney, C. (2013). Surgical telementoring in knowledge translation—clinical outcomes and educational benefits: A comprehensive review. *Surgical Innovation, 20*(3), 273-281. doi: 10.1177/1553350612465793

Baskerville, N. B., Liddy, C., & Hogg, W. (2012). Systematic review and meta-analysis of practice facilitation within primary care settings. *Annals of Family Medicine, 10*(1), 63-74. doi: 10.1370/afm.1312

Berner, E. S., Baker, C. S., Funkhouser, E., Heudebert, G. R., Allison, J. J., Fargason, C. A., Jr., . . . Kiefe, C. I. (2003). Do local opinion leaders augment hospital quality improvement efforts? A randomized trial to promote adherence to unstable angina guidelines. *Medical Care, 41*(3), 420-431. doi: 10.1097/01.mlr.0000052977.24246.38

Birch, D. W., Asiri, A. H., & de Gara, C. J. (2007). The impact of a formal mentoring program for minimally invasive surgery on surgeon practice and patient outcomes. *The American Journal of Surgery, 193*(5), 589-591; 591-582. doi: 10.1016/j.amjsurg.2007.01.003

Borbas, C., Morris, N., McLaughlin, B., Asinger, R., & Gobel, F. (2000). The role of clinical opinion leaders in guideline implementation and quality improvement. *Chest, 118*(2 Suppl), 24S-32S. doi:10.1378/chest.118.2_suppl.24S

Campbell, J. (2008). The effect of nurse champions on compliance with Keystone Intensive Care Unit Sepsis-screening protocol. *Critical Care Nursing Quarterly, 31*(3), 251-269. doi: 10.1097/01.CNQ.0000325050.91473.0b

Cochrane Effective Practice and Organisation of Care Review Group (EPOC) (2008). *Data Collection Checklist*. Retrieved from http://www.epoc.cochrane.org.

Davies, B., Edwards, N., Ploeg, J., & Virani, T. (2008). Insights about the process and impact of implementing nursing guidelines on delivery of care in hospitals and community settings. *BMC Health Services Research, 8*(29), 1-15. doi: 10.1016/j.nedt.2007.02.006

Dogherty, E. J., Harrison, M. B., & Graham, I. D. (2010). Facilitation as a role and process in achieving evidence-based practice in nursing: A focused review of concept and meaning. *Worldviews on Evidence-Based Nursing, 7*(2), 76-89. doi: 10.1111/j.1741-6787.2010.00186.x

Eccles, M. P., & Foy, R. (2009). Linkage and exchange interventions. In S. Straus, J. Tetroe & I. D. Graham (Eds.), *Knowledge translation in health care: Moving from evidence to practice* (pp.123-126). West Sussex, UK: Wiley-Blackwell Publishing.

Flodgren, G., Parmelli, E., Doumit, G., Gattellari, M., O'Brien, M. A., Grimshaw, J., & Eccles, M. P. (2011). Local opinion leaders: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews, 8*, CD000125. doi: 10.1002/14651858.CD000125.pub4

French, P. (2002). What is the evidence on evidence-based nursing? An epistemological concern. *Journal of Advanced Nursing, 37*(3), 250-257. doi: 10.1046/j.1365-2648.2002.02065.x

Gattellari, M., Donnelly, N., Taylor, N., Meerkin, M., Hirst, G., & Ward, J. E. (2005). Does 'peer coaching' increase GP capacity to promote informed decision making about PSA screening? A cluster randomised trial. *Family Practice, 22*(3), 253-265. doi: http://dx.doi.org/10.1093/fampra/cmi028

Gifford, W. A, Davies, B., L., Ploeg, J., Eldred, S., & Bajnok, I. (2013). Moving knowledge to action: A qualitative study of the Registered Nurses' Association of Ontario Advanced Clinical Practice Fellowship Program. *Nursing Leadership, 26*(1), 32-57. doi:10.12927/cjnl.2013.23302

Graham, I. D., Bick, D., Tetro, J., Straus, S. E., & Harrison, M. B. (2010). Measuring outcomes of evidence-based practice: Distinguishing between knowledge use and impact. In D. Bick, & I. D. Graham (Eds.), *Evaluating the impact of implementing evidence-based practice* (pp.18-37). West Sussex, UK: Blackwell & Sigma Theta Tau International, Honor Society of Nursing.

Grimshaw, J. M., Eccles, M. P., Greener, J., Maclennan, G., Ibbotson, T., Kahan, J. P., & Sullivan, F. (2006). Is the involvement of opinion leaders in the implementation of research findings a feasible strategy? *Implementation Science, 1*(3), 1-12. doi: 10.1186/1748-5908-1-3

Grimshaw, J. M., Eccles, M. P., Lavis, J. N., Hill, S. J., & Squires, J. E. (2012). Knowledge translation of research findings. *Implementation Science, 7*(50), 1-17. doi: 10.1186/1748-5908-7-50

Haggard, D. L., Dougherty, T. W., Turban, D. B., & Wilbanks, J. E. (2011). Who is a mentor? A review of evolving definitions and implications for research. *Journal of Management, 37*, 280-304. doi: 10.1177/0149206310386227

Higgins J. P. T., & Green. S. (2011). *Cochrane Handbook for Systematic Reviews of Interventions*. Retrieved from http://handbook.cochrane.org/

Hodnett, E. D., Kaufman, K., O'Brien-Pallas, L., Chipman, M., Watson-MacDonell, J., & Hunsburger, W. (1996). A strategy to promote research-based nursing care: Effects on childbirth outcomes. *Research in Nursing & Health, 19*(1), 13-20. doi: 10.1002/(sici)1098-240x(199602)19:1<13::aid-nur2>3.0.co;2-o

Huybrecht, S., Loeckx, W., Quaeyhaegens, Y., De Tobel, D., & Mistiaen, W. (2011). Mentoring in nursing education: perceived characteristics of mentors and the consequences of mentorship. *Nurse Education Today, 31*(3), 274-278. doi: 10.1016/j.nedt.2010.10.022

Johnston, C. C., Gagnon, A., Rennick, J., Rosmus, C., Patenaude, H., Ellis, J., . . . Byron, J. (2007). One-on-one coaching to improve pain assessment and management practices of pediatric nurses. *Journal of Pediatric Nursing, 22*(6), 467-478. doi: http://dx.doi.org/10.1016/j.pedn.2007.07.004

Kashiwagi, D. T., Varkey, P., & Cook, D. A. (2013). Mentoring programs for physicians in academic medicine: a systematic review. *Academic Medicine, 88*(7), 1029-1037. doi: 10.1097/ACM.0b013e318294f368

LaFleur, A. K., & White, B. J., (2010). Appreciating mentorship: The benefits of being a mentor. *Professional Case Management, 15*(6), 305–311. doi: 10.1097/NCM.0b013e3181eae464.

Levin, R. F., Fineout-Overholt, E., Melnyk, B. M., Barnes, M., & Vetter, M. J. (2011). Fostering evidence-based practice to improve nurse and cost outcomes in a community health setting: A pilot test of the advancing research and clinical practice through close collaboration model. *Nursing Administration Quarterly, 35*(1), 21-33. doi: 10.1097/NAQ.0b013e31820320ff

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P., . . . Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of

studies that evaluate health care interventions: Explanation and elaboration. *Journal of Clinical Epidemiology, 62*(10), e1-34. doi: 10.1016/j.jclinepi.2009.06.006

Lomas, J., Enkin, M., Anderson, G. M., Hannah, W. J., Vayda, E., & Singer, J. (1991). Opinion leaders vs audit and feedback to implement practice guidelines. Delivery after previous cesarean section. *Journal of the American Medical Association, 265*(17), 2202-2207. doi: 10.1001/jama.1991.03460170056033

Mariano, D. K., Caley, L. M., Eschberger, L., Woloszyn, A., Volker, P., Leonard, M. S., & Tung, Y. (2009). Building evidence-based practice with staff nurses through mentoring. *Journal of Neonatal Nursing, 15*(3), 81-87. doi: http://dx.doi.org/10.1016/j.jnn.2009.01.005

Masny, A., Ropka, M. E., Peterson, C., Fetzer, D., & Daly, M. B. (2008). Mentoring nurses in familial cancer risk assessment and counseling: Lessons learned from a formative evaluation. *Journal of Genetic Counseling, 17*(2), 196-207. doi: 10.1007/s10897-007-9140-1. Epub 2008 Jan 26.

Melnyk, B. M. (2007). The latest evidence on the outcomes of mentoring. *Worldviews on Evidence-Based Nursing, 4*(3), 170-173. doi: 10.1111/j.1741-6787.2007.00099.x

Melnyk, B. M., Fineout-Overholt, E., & Mays, M. Z. (2008). The evidence-based practice beliefs and implementation scales: Psychometric properties of two new instruments. *Worldviews on Evidence-Based Nursing, 5*(4), 208-216. doi: 10.1111/j.1741-6787.2008.00126.x

Melnyk, B. M., Fineout-Overholt, E., Fischbeck Feinstein, N., Li, H., Small, L., Wilcox, L., & Kraus, R. (2004). Nurses' perceived knowledge, beliefs, skills, and needs regarding evidence-based practice: Implications for accelerating the paradigm shift. *Worldviews on Evidence-Based Nursing, 1*(3), 185-193. doi: 10.1111/j.1524-475X.2004.04024.x

Moher, D., Pham, B., Lawson, M. L., & Klassen, T. P. (2003). The inclusion of reports of randomised trials published in languages other than English in systematic reviews. *Health Technology Assessment, 7*(41), 1-90. doi: 10.3310/hta7410

Morgan, L. A. (2012). A mentoring model for evidence-based practice in a community hospital. *Journal for Nurses in Staff Development, 28*(5), 233-237. doi: 10.1097/NND.0b013e318269fe0f

Murray, M. A., Brunier, G., Chung, J. O., Craig, L. A., Mills, C., Thomas, A., & Stacey, D. (2009). A systematic review of factors influencing decision-making in adults living with chronic kidney disease. *Patient Education Counselling, 76*(2), 149-158. doi: 10.1016/j.pec.2008.12.010

O'Brien, M. A., Rogers, S., Jamtvedt, G., Oxman, A. D., Odgaard-Jensen, J., Kristoffersen, D. T., . . . Harvey, E. L. (2007). Educational outreach visits: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews, 4*, CD000409. doi: 10.1002/14651858.CD000409.pub2

Ploeg, J., de Witt, L., Hutchison, B., Hayward, L., & Grayson, K. (2008). Evaluation of a research mentorship program in community care. *Evaluation and Program Planning, 31*(1), 22-33. doi: 10.1016/j.evalprogplan.2007.10.002

Ploeg, J., Skelly, J., Rowan, M., Edwards, N., Davies, B., Grinspun, D., . . . Downey, A. (2010). The role of nursing best practice champions in diffusing practice guidelines: A mixed methods study. *Worldviews on Evidence-Based Nursing, 7*(4), 238-251. doi: 10.1111/j.1741-6787.2010.00202.x

Public Health Resource Unit (2006). Critical appraisal of qualitative studies. Retrieved from http://www.sph.nhs.uk/sph-files/casp-appraisal tools/Qualitative%20Appraisal%20Tool.pdf

Rogers, E. (2003). *Diffusion of Innovation* (5th ed.). New York, NY: Free Press.

Sambunjak, D., Straus, S. E., & Marusic, A. (2006). Mentoring in academic medicine: a systematic review. *JAMA, 296*(9), 1103-1115. doi: 10.1001/jama.296.9.1103

Sambunjak, D., Straus, S. E., & Marusic, A. (2010). A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *Journal of General Internal Medicine, 25*(1), 72-78. doi: 10.1007/s11606-009-1165-8

Soumerai, S. B., McLaughlin, T. J., Gurwitz, J. H., Guadagnoli, E., Hauptman, P. J., Borbas, C., . . . Gobel, F. (1998). Effect of local medical opinion leaders on quality of care for acute myocardial infarction: A randomized controlled trial. *JAMA, 279*(17), 1358-1363. doi:10.1097/00132586-199910000-00010

Straus, S. E., Tetroe, J., & Graham, I. D. (2013). Knowledge translation: What it is and what it isn't. In S. Straus, J. Tetroe & I. D. Graham (Eds.), *Knowledge translation in health care: Moving from evidence to practice* (2nd ed.) (pp.3-13). West Sussex, UK: Wiley-Blackwell Publishing.

Thompson, G. N., Estabrooks, C. A., & Degner, L. F. (2006). Clarifying the concepts in knowledge transfer: A literature review. *Journal of Advanced Nursing, 53*(6), 691-701. doi: 10.1111/j.1365-2648.2006.03775.x

Tian, J., Atkinson, N. L., Portnoy, B., & Lowitt, N. R. (2010). The development of a theory-based instrument to evaluate the effectiveness of continuing medical education. *Academic Medicine, 85*(9), 1518-1525. doi: 10.1097/ACM.0b013e3181eac3fb

Turner, T., Misso, M., Harris, C., & Green, S. (2008). Development of evidence-based clinical practice guidelines (CPGs): Comparing approaches. *Implementation Science, 3*(45), 1-8. doi: 10.1186/1748-5908-3-45

Wallen, G. R., Mitchell, S. A., Melnyk, B., Fineout-Overholt, E., Miller-Davis, C., Yates, J., & Hastings, C. (2010). Implementing evidence-based practice: Effectiveness of a structured multifaceted mentorship programme. *Journal of Advanced Nursing, 66*(12), 2761-2771. doi: 10.1111/j.1365-2648.2010.05442.x

Zimbardo, P. G., & Leippe, M. R. (1991). *The psychology of attitude change and social influence*. Philadelphia, Pennsylvania: Temple University Press.

Chapter Five

Mentoring as a Knowledge Translation Intervention for Implementing Nursing Practice Guidelines: A Qualitative Study

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Mentoring as a Knowledge Translation Intervention for Implementing Nursing Practice Guidelines: A Qualitative Study

Abstract

Background: Mentoring has potential to be used as a knowledge translation intervention to increase the use of evidence in clinical practice. However, we know little about how mentoring is used to implement clinical practice guidelines.

Objectives: To explore the use of mentoring for implementing nursing clinical practice guidelines.

Design: An interpretive description qualitative study.

Setting: A fellowship program offered by the Registered Nurses' Association of Ontario in Ontario, Canada that includes mentoring as an intervention to develop nurses' knowledge, skills and expertise with respect to implementing guidelines in acute care, home care, public health, and/or ambulatory care.

Participants: Fellows and mentors who participated in the fellowship program and program leaders who had a minimum of six months' experience developing and/or managing the program.

Methods: Participants were interviewed using semi-structured interview guides. Inductive content analysis was used. Study rigor was promoted through the use of triangulation of findings and member checking.

Results: Eighteen interviews were conducted from September 2013 to March 2014 with six fellows who participated in seven fellowships, eight mentors who participated in 17 fellowships, and four program leaders. Commonly reported characteristics of mentors were being accessible, having expertise, and being dedicated , and characteristics of fellows were described as being dedicated, self-directed and having mixed levels of expertise. The mentoring process was

described as building relationships, developing a learning plan, and using teaching and learning activities guided by the learning plan to support the growth of the fellow (e.g., coaching, identifying learning resources). Positive outcomes of the fellowship were described as showing impact on (a) the mentoring relationships (e.g., ongoing mentoring, mutual benefits), (b) fellows (e.g., professional development, recognition), (c) mentors (e.g., professional development, feeling rewarded), and (d) organizations (e.g., using guideline recommendations, developing infrastructure). No negative outcomes of mentoring were reported by participants.

Conclusions: Our findings highlighted elements of mentoring as an intervention to support guideline implementation. A central feature of this program was the learning plan used to identify fellows' needs, focus the mentoring, and monitor measureable achievements.

5.1. Background

Nursing clinical practice guidelines (CPGs) are developed to move evidence into practice (Timmerman, Teare, Walling, Delaney, & Gander, 2007). However, few guidelines are used in clinical practice (Ginexi, & Hilton, 2006). A meta-systematic review of interventions for implementing evidence into clinical practice found that social influence type interventions (e.g., educational outreach visitors, local opinion leaders) increased uptake of evidence by 5 to 18% (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012; Scott et al., 2012). This review focused on physicians' studies only and did not include evidence on any other type of social influence intervention such as mentoring. A subsequent systematic review of 10 studies that used mentoring as an implementation intervention found mixed impacts on outcomes and little information on mentoring characteristics and strategies (Abdullah et al., 2014). This qualitative study explores the use of mentoring as an intervention for implementing nursing CPGs. Hence, the study contributes to further determining the impact of this social influence type of intervention on implementing nursing CPGs within a healthcare context aimed at providing safe, effective, and quality patient care.

Mentoring involves mentees selecting more experienced mentors who provide individualized support over time based on mentees' learning needs (Abdullah et al., 2014). Mentoring can be formal when an organization assigns the mentor to the mentee, determines specific objectives, roles and responsibilities, expectations, and supports the mentor-mentee relationship (Tourigny & Pulich, 2005). Informal mentoring occurs when a mentee identifies a mentor, and both determine roles and responsibilities based on their needs (Tourigny & Pulich, 2005).

Previous studies described mentees as committed and willing to learn, and mentors as reliable and active listeners (Sambunjak, Straus, & Marusic, 2010). The process of mentoring varied in frequency, length of meetings, duration of relationships, and mentoring forms (e.g., one-to-one, co-mentors), but frequently involved role modeling and helping mentees to build their networks (Gagliardi, Webster, Perrier, Bell, & Straus, 2014; Sambunjak et al., 2010). Ideally successful mentoring achieves reciprocity but most studies report on mentee outcomes only (Straus, Johnson, Marques, & Feldman, 2013). Mentee outcomes included career enhancement, personal and professional development, improved recruitment and retention, and increased learning (Andrews & Wallis, 1999; Sambunjak, Straus, & Marusic, 2006; Sambunjak et al., 2010). However, when mentors lacked necessary experience, the mentoring experience was not successful.

Within the context of mentoring as a KT intervention, a systematic review identified only one study that evaluated the effectiveness of interventions with mentoring compared to similar interventions without mentoring (Abdullah et al., 2014). Findings showed that physicians exposed to mentoring improved use of CPGs as evidenced by use of antiplatelet medication within 24 hours of patients' admission (Berner et al., 2003). Two non-intervention studies reported on the use of mentoring as a KT intervention. In one study of the Advanced Clinical Practice Fellowship program, mentoring supported mentees in undertaking practice change activities at the level of the nursing team (e.g., providing education and coaching), mentees themselves (e.g., attending courses or presenting at conferences), and organizations (e.g., creating or revising policies and procedures; Gifford, Davies, Ploeg, Eldred, & Bajnok, 2013). Another study that evaluated the influence of a research mentorship program in community care settings in Ontario reported on the characteristics of mentoring relationships (e.g., mentors being

learner-centered, mutual relationship) and mentoring strategies (e.g., mentoring meetings, educational sessions; Ploeg, de Witt, Hutchison, Hayward, & Grayson, 2008). In these two studies, mentoring was described as enhancing mentees' outcomes (e.g., increased knowledge and skills, career advancement), nursing outcomes (e.g., use of new equipment), patient outcomes (e.g., enhanced patient and family satisfaction) and organizational outcomes (e.g., implementation of guidelines into practice; Gifford et al., 2013; Ploeg et al., 2008). Overall, there is little evidence on the use of mentoring as a KT intervention for implementing nursing CPGs into practice.

The overall aim of this study was to explore the use of mentoring as a KT intervention to support the implementation of nursing guidelines in clinical practice. Specific research questions were: (a) What are the characteristics of mentoring? (b) What mentoring strategies are used and how do they support fellows? and (c) What are the perceived outcomes of mentoring?

5.2. Design

A qualitative study was conducted using an interpretive description design (Thorne, 2008). This design is philosophically grounded in a naturalistic orientation, recognizing that individual realities are constructed socially and experientially, and are influenced by contextual factors (Thorne, Kirkham, & O'Flynn-Magee, 2004). Although this qualitative design was informed by other social science qualitative research methods (Thorne, 2008), it primarily aims to develop a clinical understanding of a phenomenon within the nursing context to facilitate knowledge development and, consequently, to inform clinical practice (Thorne et al., 2004).

5.2.1. Setting.

This study focuses on examining the Registered Nurses' Association of Ontario (RNAO) Best Practice Guidelines Implementation/Knowledge Transfer Fellowship program, which aims

to develop nurses' knowledge, skills and expertise with respect to implementing CPGs (RNAO, 2014). The fellowship programs were established by the RNAO in 2000 and continue to be offered yearly. A key component of the fellowship program is formal mentoring (RNAO, 2014).

The RNAO facilitates the fellowship application process, provides funding to successful applicants, and collects fellowship reports. The application includes: (a) a learning plan, indicating learning needs, the CPG recommendations to be implemented, and strategies to address learning needs; (b) information about applicants and primary/co-mentor(s); (c) a proposed budget; and (d) letters of support from mentors, mentors' organizations, and applicants' organizations (RNAO, 2014). The application also must explain how enhancing expertise will effect patient and organizational outcomes, and identify strategies to sustain impact on organizations (RNAO, 2014). The RNAO does not routinely match mentors and applicants, but may suggest mentors for applicants unable to identify one. Two external reviewers evaluate applications.

Applicants for the Fellowship Program must be registered nurses willing to participate either full-time (12 weeks) or part-time (20 weeks) for a total of 450 hours (RNAO, 2014). The primary mentor must be a registered nurse with a Master's degree and expertise related to the fellowship application. Co-mentors are optional, can be chosen from any relevant discipline and may possess varying levels of education. Successful applicants sign a contract on the deliverables together with their organization, primary mentors, and the RNAO. Fellows typically receive $13,000 CAD from the RNAO based on funding from the Ontario Ministry of Health and Long-Term Care, and a minimum of $5000 CAD in kind support from their own organization (RNAO, 2014). Approximately 128 Best Practice Guidelines Implementation/Knowledge Transfer fellowships were awarded between 2000 and 2014.

5.2.2. Participants and sampling.

Eligible participants were fellows, mentors and RNAO's program leaders. We invited fellows and mentors living in Ontario, who participated in the Best Practice Guidelines Implementation/Knowledge Transfer Fellowship from its inception to September, 2013. Matched and unmatched mentor-fellow pairs were eligible for the study. We included matched pairs to compare and contrast mentor-fellow results. Program leaders with various levels of involvement and influence on the development, implementation and/or ongoing management of the fellowship program for a minimum of six months were also eligible. Snowball sampling was used to identify additional fellows (Creswell, 2007). In this study, recruitment continued until data saturation was achieved (Morse, 1995).

5.2.3. Procedure.

The RNAO fellowship program staff sent the recruitment email and consent form to potentially eligible participants. Those expressing interest had eligibility verified and were scheduled for an in-person or telephone interview. Semi-structured interviews were conducted using an interview guide informed by a systematic review of mentoring as a KT intervention (Abdullah et al., 2014). The guide encouraged participants to share their mentoring experiences using open-ended questions with prompts as necessary to elicit further comments or clarification during interviews. Interview guides were pilot tested with a fellow and a mentor, and no revisions were required. Field notes were documented after each interview.

As a form of member-checking, all mentors and fellows were emailed a 1-page summary report to confirm that the preliminary findings reflected their experiences (Lincoln & Guba, 1985). The program leaders did not participate in member checking as their findings were focused on program description (with some quotes supporting outcomes).

5.3. Ethical Considerations

The study was approved by the University of Ottawa Research Ethics Board (file no. H04-13-03) (see Appendix L). To ensure confidentiality, all personal identifiers were removed from transcripts and numbers were used to identify participants (e.g., M1, F1, and PL1).

5.4. Analysis

Audio-taped interviews were transcribed verbatim, and transcripts were compared with the recordings for accuracy, and read several times for immersion in the data (GA). All transcripts were uploaded in NVivo 10 software, which was also used to conduct analysis (QRS International, 2012). Demographic data were entered into an Excel database and analyzed descriptively. Guided by inductive content analysis (Elo & Kyngas, 2008), the interview transcripts and field notes were analyzed following four steps. First, the text was read line-by-line with open coding conducted using notes, and categories describing content written in transcripts' margins (GA). Second, notes and categories were collated into a coding scheme and used to generate sub-categories. Sub-categories were collapsed by comparing and contrasting headings, and then merged into larger sub-categories with a more general description of content. Then, these larger sub-categories with similar events, understandings, trends and incidences were grouped together to formulate main categories (GA). Third, a second team member (DS) independently analyzed eight transcripts, and two team members (GA, DS) conducted constant comparative analysis to systematically compare emerging categories in the interviews (Thorne, 2008). This process helped detect similarities and differences in participants' experiences and to understand relationships in the data. Fourth, the data analysis findings were audited by co-authors and categories were further refined (DS, KH, JP).

Several strategies were used to enhance credibility and transferability (Lincoln & Guba, 1985). To enhance credibility, two team members (GA, DS) independently analyzed eight transcripts, the analysis process was audited by three team members (DS, KH and JP), interview transcriptions from fellows were triangulated with mentors, and member checking was conducted. To ensure transferability, a rich description of the study setting was provided.

5.5. Findings

Eight mentors, six fellows and four program leaders were interviewed from September, 2013 to March, 2014 (see Table 5.1). Of the eight mentors, seven were primary mentors, and one was a co-mentor. The mentors experienced a total of 17 different fellowships. One fellow completed two fellowships. Three matched mentor-fellow pairs participated and all their findings were consistent.

Interviews were conducted in person (n = 10) or via telephone (n = 8) and lasted a median of 40 minutes (range 30 to 60 minutes). Participants used 11 different guidelines focused on clinical issues (e.g., Assessment and Management of Pain) and work place environment (e.g., Collaborative Practice amongst Nursing Teams) (see Table 5.2).

The participants' perspectives were organized into three major categories: Characteristics of mentors and fellows, mentoring process, and perceived outcomes of mentoring (see Table 5.3). Categories and sub-categories emerging from the data were consistent between mentors, fellows and program leaders, with no disagreements.

Table 5.1

Characteristics of Participants

Characteristics	Fellows (n = 6)	Mentors (n = 8)	Program Leaders (n = 4)
Age: <40 yrs.	1	1	1
>40 yrs.	5	7	3
Female	6	8	4
Median years in nursing (range)	27.5 (5-40)	31.5 (10-42)	32.5 (14-40)
Median years in current position (range)	3.3 (0.25-8 yrs.)	10.5 (5-28 yrs.)	11.0 (0.75-17)
Highest level of education: Baccalaureate degree	3	0	0
Graduate degree	3	8	4
Type of Position: Staff nurse	3	0	0
Supervisor	3	8	4
Affiliated with University	0	3	2
Employer: Acute care	3	6	0
Community care/ home care	1	0	0
Public health	1	2	0
Ambulatory care	1	0	0
RNAO	0	0	4
# of fellowships: 1	6	5	
2	1	0	
3	0	1	
4	0	1***	
5	0	1	
Fellowship (year): 2000	1	0	
2009	0	3**	
2010	2	2	
2011	2	1	
2012	1	1	
2013	1*	2	
Type of fellowship: Full-time	6	7**	
Part-time	1*	2	

*Note.**Fellow did 2 fellowships;**One mentor had 2 fellows in the same year; ***One co-mentored with another person. Note: year for each fellowship was not always provided by mentor.

Table 5.2

Characteristics of the Nursing Guidelines

Name of the Guideline	Fellow						Mentor							
	1	2	3	4	5	6	1	2	3	4	5	6	7	8
Strategies to Support Self-Management in Chronic Conditions (with Adolescents)	√													
Strategies to Support Self-Management in Chronic Conditions (with Adults)	√													
Prevention of Falls and Fall Injuries		√												
Enhancing Healthy Adolescent Development			*√						*√					
Assessment and Management of Pain				*√						*√	√			√
Crisis Intervention					√									
Screening for Delirium, Depression and Dementia						√								
Assessment and Management of Foot Ulcers for People with Diabetes							√							
Implementation of Best Practices in the Emergency Psychiatric Services (not RNAO BPG)								√						
Collaborative Practice amongst Nursing Teams (HWE)											x2			
Supporting and Strengthening Families through Expected and Unexpected Life Events											√			
Client Centred Care												√	√	√

Note. HWE = Healthy Work Environments Guidelines; * = paired mentor and fellow; √ = used; x2 = guideline used twice

5.5.1. Characteristics of mentors and fellows.

Participants described mentor and fellow characteristics to be important to the mentoring experience. Mentors were described as 'accessible', 'having expertise' and 'dedicated' (see Table 5.3). Participants described mentors as being **'accessible,'** which was the degree to which mentors were available to fellows. All participants highlighted mentors' efforts to stay in contact with fellows through mainly face-to-face meetings in formal (e.g., office) or informal (e.g., restaurant, library) locations, and by email and telephone. For example, one mentor said, *"I would travel to [fellow's] location, where they practice or they would stop by my office or we'd do it over the telephone or email as well"* (M8). Fellows found that frequent contact with their mentors was important for asking questions and successfully achieving goals. However, half of the participants identified that mentors were not always available to meet fellows because of competing work demands and lack of time. One fellow complained, *"[Meetings] were very random because [mentors] are very busy people… [W]ith [the primary mentor] it started on a regular scheduled type basis and then it sort of fizzled out"* (F4).

All participants described mentors as '**having expertise'** on guideline content, guideline implementation, and/or mentoring. One fellow recognized her mentor's expertise: *"[S]he's a suitable mentor since she is the lead manager for the implementation of the guideline and has extensive experience, knowledge and expertise in the area of project management, change management and stakeholder engagement"* (F3).

Four participants characterized mentors as **'dedicated'** in their commitment to the fellowship program and to their role as mentors. One participant explained her dedication to the fellowship: *"[W]e're a firm believer of helping to promote the RNAO Fellowship because it does provide time for the nurses to really concentrate on a project away from the bedside"* (M1). Some participants said that co-mentors were as motivated as primary mentors to support fellows

throughout the fellowship. One fellow remarked, *"Even the one [mentor] that moved, left the hospital, was very dedicated and said, I'll continue on even though I don't work there, as an external"* (F1).

Fellows were described as 'dedicated', 'self-directed', and 'having mixed levels of expertise' (see Table 5.3). The majority of participants described fellows as being **'dedicated,'** or committed or motivated to the fellowship and to learn. One fellow said, *"[My mentor] had seen my interest and enthusiasm and passion in introducing change in nursing practice in our organization"* (F2). All mentors observed fellows' strong commitment to participate in fellowship activities: one mentor noted, *"She had boxes and boxes of literature...and she would be working on it from [home] and she synthesized it in a report"* (M3). Some mentors stated that when the focus of a fellowship was part of a fellow's job mandate, it enhanced the fellow's dedication.

Some participants characterized fellows as being **'self-directed,'** or independent, meaning that fellows took initiative to meet their own learning needs. Participants identified independent activities used by fellows to stay focused and learn, such as using trial and error, conducting literature searches and being self-disciplined. One fellow explained that *"trial and error was far more beneficial for me… I learned more out of it because I was able to identify what I wanted to [do]; not what somebody else was identifying for me"* (F4). One mentor described a fellow's independence, saying, *"She wasn't attached at the hip to me. She was able to go off and then do some library time, some literature search"* (M7).

Some participants described fellows as **'having mixed levels of expertise,'** meaning that fellows had some degree of specialized knowledge and skills in areas such as guideline content, but limited knowledge in other areas such as guideline implementation or creating learning plans. A fellow described her experience with implementing guidelines in new units: *"I was*

considered... a frontline expert... [but] I realized quickly that, yes in my environment I am, but not so much... [in another environment]" (F5). One mentor said, *"[The fellow] had the ability and the experience. She already had a graduate degree but she had never really... pushed herself at that level before…to look at learning objectives"* (M7).

5.5.2. Mentoring process.

Participants described the 'mentoring process' as a series of activities and behaviours to support fellows' development. The 'mentoring process' was divided into three sub-categories: building relationships, developing a learning plan, and using teaching and learning activities guided by the learning plan (see Table 5.3).

5.5.2.1. Building relationships. Participants identified building two types of relationships: mentor-fellow relationships and relationships with other healthcare professionals and/or organizations relevant to the fellowship. All participants talked about **'building mentor-fellow relationships,'** described as the process of forming and adapting the mentoring relationship over time. Fellows selected mentors based on previous collaborations, and /or recommendations of others, and/or mentors' expertise in guidelines. One mentor stated: *"We've had a past history of working together…and we've always worked very well together...so we had sort of worked out how we work with each other... She [the fellow] didn't have to do that relationship building with the mentor"* (M3). A fellow explained that she had chosen her mentor based on expertise *"in…assess[ing] patients…who had some cognitive deficits…she was an expert on delirium and dementia so that's how I had contact with her"* (F2).

Mentors and fellows described relationships with each other as **'collaborative, trusting and mutually respectful'**. All mentors explained that it was important to build this type of relationship with fellows. Mainly mentors said that when primary mentors and fellows participated in identifying learning objectives, co-mentors, and each other's strengths and

limitations this helped develop trusting and collaborative relationships. Commitment to completing the fellowship and shared values and goals also supported the development of a trusting and collaborative relationship. For example, a mentor stated, *"We worked very well together; it was [a] synergistic [relationship].When she [the fellow] drafted her objectives…for the fellowship, we both discussed them. She was in the driver's seat; I basically supported her in identifying what was meaningful for her"* (M3). Both mentors and fellows described their relationship as 'mutually respectful' when they showed regard for each other's roles, opinions and expertise.

However, two participants identified that sometimes factors affecting mentor-fellow relationships, such as jealousy or conflicting opinions, interfered with trust and respect. A fellow shared, *"Sometimes having [multiple mentors] was a little onerous because [mentors]… have different approaches to things so they might be arguing or debating a point that really wasn't worth arguing over. [They were] very strong people, very strong opinions"* (F5).

A majority of participants described **'having opportunities for interaction'** as important; some explained that '**clarifying expectations'** and '**sharing expertise'** helped build and enhance 'collaborative, trusting, and mutually respectful' relationships. Participants described **'having opportunities for interaction'** as enhanced when mentors' and fellows' work spaces were physically close together. All mentors and most fellows explained that physical approximation encouraged frequent contact and conversation, even for short times when fellows asked quick questions. A mentor explained, *"[My fellow's] office was located with one member of our mentoring team and nearby to myself… certainly having the mentee in close proximity made that really easy"* (M5). Conversely, one fellow shared that not having her mentor located in the same organization was difficult, because she had to *"drive to [mentor's organization]; I was very tired"* (F6).

Mentors and fellows stated that they **'clarified expectations'** with each other to ensure learning objectives were met, activities were completed and to allow consistent understanding of the mentoring relationship and related outcomes. A fellow said, *"Get really clear with what that mentorship relationship [is] going to look like before you begin. So that what the expectations are of each other [are clear]"* (F6).

Participants described that mentors and fellows **'shared expertise'** on guideline content and implementation by discussing theoretical knowledge from reviewing literature, and linking knowledge to clinical practice. A fellow explained, *"I did all the literature review…so I could present it to them [mentors], tell them what I found, they could put it into perspective of the clinical practice and keep a link with it"* (F1).

A majority of participants described that mentors **'facilitated network building'**, which helped fellows develop relationships with other healthcare professionals and/or link with other organizations. Participants explained that network development was based on fellows' learning needs and objectives and that mentors helped fellows link with various professionals: for example, a writer to enhance writing skills, an international expert to gain knowledge in an area of guidelines, and a librarian to enhance literature review skills. One mentor discussed her role in connecting her fellow *"with our mentorship organization,"* saying, *"I really believe in the networking and being able to reach out to other folks to see what they're doing"* (M5).

5.5.2.2. Developing a learning plan was described by participants as the process of creating the fellowship objectives and deliverables. All participants explained that 'developing the learning plan' was an important and required component of mentoring and the fellowship application. Developing the learning plan occurred in two stages: 'establishing learning needs' and 'identifying learning objectives'. **'Establishing learning needs'** involved undertaking activities to delineate fellows' learning requirements. The activities described by mentors

included conducting informal learning needs assessment with fellows, by discussing and reviewing their: (a) past experience; (b) current and desired knowledge, skills and competencies; (c) learning style; (d) level of academic writing; and (e) preferred teaching and learning activities. A mentor explained, *"I kind of did an assessment, not a formal assessment…of various aspects of her [fellow's] fellowship that she would need to be successful. Communication, writing, PowerPoint, collecting data, literature searching, going to the library"* (M4).

The most frequent learning needs identified, by half of participants, were learning about guideline implementation and sustainability, patient care (e.g., patient assessment, management skills), and research skills (e.g., academic writing, literature review). Other learning needs, identified by less than half of participants, were developing skills in using technology (e.g., electronic health record, web-based training program), and leadership (e.g., leading program implementation). A few participants also identified needs to develop teaching skills and to learn about their organization (e.g., channel of communication, policy).

A majority of participants also described **'identifying learning objectives'**. Participants described learning objectives' as broad or detailed, structured, and measurable. A fellow shared how her mentor helped her to identify *"many goals… [that] had to be very…detailed...measurable…and then writing it up as we went"* (F5). Mentors described meeting individually with fellows to develop focused objectives to meet fellows' needs, rather than organizational needs.

Though the learning plan was required in the fellowship application, many participants revealed that fellows struggled to recognize learning needs and objectives, and to create the plan. Participants explained that the RNAO learning plan template was complex and academic, fellows lacked experience and academic skills and some mentors had limited or no expertise with learning plans. One fellow shared,

"It was a little overwhelming at first. You [have] to identify what your problem area is in your unit and then… do the research and it's been a long time since I've actually put together a proposal and I found it a little daunting" (F4).

5.5.2.3. Using teaching and learning activities. A majority of participants revealed that fellows' learning plans directed the selection of interactive and appropriate mentor and fellow actions that focused on fellows' learning needs, involved setting a realistic timeline, and included regular follow-up and progress evaluation. Key activities identified by nearly all participants were 'coaching', 'identifying learning resources', and 'assessing learning progress'. Other strategies identified by nearly half of participants were 'encouragement' and 'reflective learning'.

'Coaching' was described by participants as a form of teaching, advising, problem-solving, role modeling, and providing feedback on fellows' learning. Participants stated that mentors provided tailored coaching to help develop fellows' clinical and academic competencies. A mentor explained, *"[The fellow] modelled me, what I was doing to lead the BPG [best practice guideline], so there was the leadership [and] … team building skills"* (M3). Participants also identified that coaching was used by mentors to provide support to fellows when they encountered a problem in their fellowship, and/or with co-mentors and/or colleagues.

Participants talked about mentors '**identifying learning resources'** for fellows, including online or in-person educational sessions, RNAO educational events, conducting literature reviews, and the RNAO implementation toolkit. A mentor stated, *"[The fellow] actually took a course on pain… and so increas[ed] her knowledge using evidence"* (M4).

Participants also discussed how mentors **'assessed learning progress'** of fellows' in completing their learning plan. Assessment of fellow's achievements included providing

feedback and assessing fellow's needs at weekly meetings. A fellow said, *"[Mentors] would sort of review either what had gone on or what my deliverables [were]"* (F5).

Participants indicated that mentors **'encouraged'** fellows to carry out learning activities, ask questions, and assess progress with their fellowship plan. Mentors also motivated fellows by getting leadership support for some fellowship activities and showing interest in fellows' learning activities. A mentor shared, *"Along the way, hold [my fellow's] hand and say, yes you can do it. Look, you've just learned how to project manage, you've just learned how to call another hospital, you can talk to other hospitals"* (M4).

Participants stated that mentors encouraged **'reflective learning'** by asking fellows to think about and analyze ongoing experiences through journaling, debriefing after meetings or providing constructive feedback. A fellow identified, *"[My mentors] asked me to keep a journal of all the milestones and reflect upon it"* (F3).

5.5.3. Perceived outcomes of mentoring.

Fellows, mentors, and program leaders reported several positive outcomes that they thought were a result of mentoring. These were categorized as relationship, individual, and organization outcomes. Participants did not report negative outcomes (see Table 5.3).

5.5.3.1. Relationship outcomes. Participants identified that mentoring supported the mentor-fellow relationships through **'**ongoing mentoring' and achieving 'mutual benefits'. More than half of mentors and fellows said their mentoring relationship continued after the end of the fellowship (**'ongoing mentoring')**. Mentoring was used for tackling problems or implementing new changes, writing for publication, and preparing presentations for conference. One mentor said, *"To this day [the fellow] comes to me. She just came to me last week because she was having a problem in her program"* (M4). A fellow explained, *"I went back to my home organization and began developing this assessment service [and] that mentorship team stayed*

close. So [mentors] were available for me as time went on and I don't know what I'd have done without them" (F6).

More than half of participants, mainly mentors, described mentoring as **'mutually beneficial',** referring to the idea that mentors also gained advantages from mentoring. Participants described mutual benefits as fellows' learning was enhanced, mentors also enhanced their learning, implementation of guidelines in their practice, recognition, networking, mentoring and leadership skills, awareness of gaps in practice and increased their publications. One mentor shared, *"[It] was tremendous to see…the fact that I was supporting her in writing an article was an acknowledgement. Like the faculty gave me an acknowledgement"* (M7). A program leader explained, *"The opportunity to mentor a fellow is a wonderful learning experience for them [mentors]… [because they] also gain an understanding from a different perspective of what's happening in other organizations particularly if they're mentoring somebody from another organization"* (PL2).

5.5.3.2. Individual outcomes. Participants described individual outcomes for fellows (e.g., professional development, recognition and feeling more self-confident), and mentors (e.g., professional development and feeling rewarded). Participants found that mentoring enhanced fellows' **'professional development'** in 'improved knowledge and skills', 'career advancement', 'publishing and presenting' and 'undertaking graduate studies'. Almost all participants indicated that fellows had **'improved knowledge and skills'** about guideline implementation, patient care, leadership skills, organizations, and mentoring. One fellow explained, *"A lot of work for this [fellowship] helped me learn how to implement and how you would even begin to tackle the implementation of such a ginormous task"* (F4).

More than half of participants reported that fellows experienced **'career advancement'** post-fellowship, with three of six fellows promoted from staff nurse to supervisory positions,

such as a clinical coordinator. Four of eight mentors confirmed their fellows had been promoted. Some participants discussed how mentoring enhanced fellows' **'publishing and presenting'** skills, including writing abstracts and reports. Three fellows undertook **'graduate studies'** after completing the fellowship program.

The second outcome identified by half of the participants was that fellows received **'recognition'** from colleagues and organizations: for developing expertise in guideline implementation, for completing fellowship activities, or for educating colleagues about best practices. A fellow said, *"I got a ginormous amount of respect from my colleagues because they didn't recognize the amount of work that I had to do"* (F4). One fellow's organization recognized her during nursing week with a "*Leadership Award"* (M7). Fellows were also recognized by the RNAO with invitations to participate in guideline development panels and by other organizations with invitations to present at conferences.

Finally, some participants indicated that fellows '**felt more self-confident'** in their abilities and their actions by, for example, contacting international experts without hesitation, communicating ideas to higher authority stakeholders, conducting public presentations, and implementing changes in organizations. A fellow explained, *"Mentoring process… gave me that empowerment to initiate change in the nursing practice"* (F2).

For individual outcomes for mentors, more than half of participants noted that mentoring enhanced their **'professional development'**. Mentors were described as having opportunities to support their own project development, and further their learning about guidelines and mentoring skills. A mentor explained that *"in the past two years of… [mentoring] experiences…I was new to the mentorship role... [and am] working on it as I go"* (M5).

Some participants talked about how mentors **'felt rewarded'** as they observed fellows enhancing their learning and practice. For example, a fellow said, *"[My mentors] enjoyed*

watching me flourish and watching the program [being established] once I got back to the organization" (F6).

5.5.3.3. Organizational outcomes. Participants reported four organizational outcomes: using guideline recommendations, developing infrastructure, new partnerships, and recognition. Nearly all participants indicated that mentoring supported their organization's **'use of guideline recommendations'** in clinical practice to enhance awareness of evidence-based practice, encourage the use of new tools and develop consultation teams and new working processes. For example, a mentor explained that mentoring supported the establishment of a mechanism in her organization to *"decrease the amount of IM [intramuscular] injections that were used on the unit. So that was... one of those quick wins that we had with her fellowship"* (M5). A program leader explained, *"Anecdotally people have indicated in some instances that they [fellows] ... [are] having impacts on the patients themselves in terms of the approach that [fellows]are taking for patient education or delivery of service such as an implementation of a guideline"* (PL3). A few participants indicated integration of new practice changes based on guidelines in organizations' routine practice with new documentation and/ or policy changes.

Another major outcome for organizations described by participants was **'developing infrastructure'** for subsequent fellowships and creating clinical tools or new resources (e.g., instruments, posters, charts and documents) to move guideline recommendations into practice. A program leader explained: *"[Mentoring] certainly impacts the program so far as the tools that [fellows] have developed."* (PL4).

Half of the participants explained that mentoring supported the development of new **'partnerships'** between departments within fellows' organizations and/or with others, including mentors' organizations. These 'partnerships' provided further opportunities for collaboration in consultation, training, sharing resources and strengthened inter/intra professional relationships. A

fellow said, *"[There is] partnership between our organization and the mentor's organization and that relationship was developed [during fellowship]"* (F6).

Some participants reported that organizations **'received recognition'** nationally and/or internationally for developing expertise with implementing specific guidelines and/or meeting international guideline standards. Two participants explained that undertaking the fellowship helped their organization become an RNAO Best Practice Spotlight Organization©. A mentor stated, *"[The fellow] was instrumental in helping us get to the designation and fulfill all the requirements for a spotlight organization. So I think really it helped the organization a great deal"* (M3). Another fellow explained that mentoring helped get her organization international recognition.

Table 5.3

Summary of Findings

I. Characteristics of mentors and fellows	1. Mentors	• Accessible • Having expertise • Dedicated
	2. Fellows	• Dedicated • Self-directed • Having mixed levels of expertise
II. Mentoring process	1. Building relationships	• Collaborative, trusting and mutually respectful mentor-fellow relationships • Facilitated network building with other healthcare professionals and/or organizations
	2. Developing a learning plan	• Establishing learning needs • Identifying learning objectives
	3. Using teaching and learning activities	• Coaching • Identifying learning resources • Assessing learning progress • Providing encouragement • Using reflective learning
III. Perceived outcomes of mentoring	1. Relationship outcomes	• Access to ongoing mentoring beyond the fellowship • Mutual benefits for mentors and fellows
	2. Individual outcomes	For fellow: • Enhanced professional development • Recognition for developing expertise • Increased self-confidence
		For mentor: • Enhanced professional development • Felt rewarded
	3. Organizational outcomes	• Used guideline recommendations • Developed an infrastructure for building capacity for future fellowships and creating clinical tools • Established new partnerships • Recognized as Best Practice Spotlight Organization© and/or a source for implementing specific guidelines

5.6. Member Checking

Of 8 mentors, 5 responded to the one-page summary of the preliminary findings, 2 did not respond, and one had died. Of 6 fellows, 2 responded to the one-page summary of the preliminary findings, and 4 did not respond. All 7 respondents agreed with the findings and no changes were suggested. One mentor commented, *"Very accurate evaluation of the mentor-mentee relationships and outcomes. Agree completely with the insights you have gathered based on our interview"* (M7).

5.7. Discussion

The aim of the study was to explore mentoring as a KT intervention to enhance the implementation of nursing guidelines in clinical practice. Our findings reveal important elements for understanding mentoring programs. Participants described common characteristics of mentors as accessible, fellows as self-directed and both being dedicated with relevant levels of expertise. The main processes of mentoring were described as building relationships, developing a learning plan, and using teaching and learning activities guided by the learning plan. Participants reported outcomes on the fellows, mentors, mentor-fellow relationship, and organizations.

Participants described mentors as being accessible, dedicated, and focused on the fellowship learning plan and these characteristics are consistent with being learner-centered. A learner-centered approach focuses on mentees' learning rather than on mentors' teaching and enhances mentees' knowledge, skills, and self-confidence (Dalley, Canela, & Benzel-Lindley, 2008; Davis, & Nakamura, 2010; Greer, Pokorny, Clay, Brown, & Steele, 2010). Mentors' and fellows' characteristics were also similar to those reported in studies conducted in academic medicine (Straus et al., 2013; Straus & Sackett, 2014). However, our study recognized that fellows come to the mentoring relationship with various levels of expertise.

The discussion of findings focuses on the phases and strengths of building relationships, the challenges with using a learning plan, and mentoring impacts on mentors, organizations and on the mentor-fellow relationship beyond fellow outcomes. The study participants described one of the main processes of mentoring as building the relationship between the fellow and mentor(s). Kram (1988) proposed four phases of mentoring relationships: initiation, cultivation, separation, and redefinition. In the initiation phase, the mentoring relationship is developed and expectations identified. In our study, this phase was initiated during the application process when the learning plan was developed. According to Kram, the cultivation phase makes maximum use of the career functions or behaviours, focusing on mentees' career development, and psychosocial functions, concentrating on enhancing mentees' competency, identity and effectiveness in work. This phase was similar to the fellowship period in our study, which focused on the learning needs of the fellows.

The separation phase occurs when mentees' objectives are significantly achieved; they perform activities independently and mentors become less needed (Kram, 1988). Given the fellowship program had a pre-specified period of time, this "phase" was somewhat defined by the program rather than by fellows' needs. Hence, in our study many fellows and mentors described their relationship as continuing beyond the fellowship period.

According to Kram (1988), the redefinition phase occurs when the mentoring relationship progresses into a new type of relationship, more peer-like friendship, or ends completely. Participants in our study reported that most fellows maintained more formal supportive relationships with mentors, rather than informal relationships and friendships, after the fellowship was completed. Overall these relationships were described as being collaborative, and having trust and mutual respect, which is consistent with previous studies (Eller, Lev, & Feurer, 2014; Straus, Chatur, & Taylor, 2009; Straus et al., 2013).

Participants described the learning plan required for the fellowship application as a challenge. More specifically, participants found the RNAO learning plan template complex and academic; fellows lacked the skills to develop it, and some mentors had limited or no expertise with learning plans. This finding was surprising, given that registered nurses are required to create learning plans to renew their provincial licences each year (College of Nurses of Ontario, 2013; College of Registered Nurses of British Columbia, 2014). There are practical resources on how to develop learning plans within the context of nursing education (Majumdar, 1996; O'Shea, 2003). Although the learning plan was a central feature of the RNAO mentoring program, learning plans were rarely identified within other mentoring programs and there is no known evidence on the effectiveness of learning plans (Weiss et al., 2011).

Although mentoring was mainly focused on developing fellows' knowledge, skills and expertise, participants described how mentoring positively impacted mentors, organizations and the mentor-fellow relationship. These findings were consistent with other studies (Gifford et al., 2013; Jones, 2012; Ploeg et al., 2008). Our study described new outcomes that included fellows' and organizations' recognition, new partnerships, and building infrastructure for subsequent fellowships.

5.8. Limitations and Strengths

There were some limitations and strengths in our study. First, there is the possibility of recall bias when participants are asked to describe past events or experiences occurring one to five years earlier (Hassan, 2006). However, time between fellowship completion and interviews may have given participants opportunities to observe longer-term outcomes, such as promotion. Second, although the number of fellow participants was small, many mentors were able to share from more than one mentoring experience. As such, 17 unique fellowships were represented in the study and there was saturation in findings. Finally, most participants were from the acute care

setting, and only a limited number shared experiences with mentoring from community or long-term care settings.

Study strengths include the range of participant experiences, the rigor of analysis, the triangulation of findings and the potential transferability. We interviewed participants who used several different guidelines, with different lengths of experience and included mentors with different mentoring experiences. Several strategies were used to enhance credibility of analysis and preliminary findings were confirmed with member checking (Lincoln & Guba, 1985). Triangulation of data between mentors and fellows, including three matched pairs, revealed similar findings. Detailed description of the setting was provided to facilitate transferability of research findings (Lincoln & Guba, 1985).

5.9. Conclusion

Our study indicates that mentoring holds potential as a social influence intervention that can improve guideline implementation in practice. Mentors and mentees were described as having specific characteristics and building collaborative relationships that were considered important for mentees' success. Mentors and mentees created learning plans based on the mentee's needs, and used the learning plans to select teaching and learning activities, and monitor the fellowship process. Mentors and mentees described the fellowship as being mutually beneficial for their individual professional development, and as supporting the organization in the process of implementing CPGs.

References

Abdullah, G., Rossy, D., Ploeg, J., Davies, B., Higuchi, K., Sikora, L., & Stacey, D. (2014). Measuring the effectiveness of mentoring as a knowledge translation intervention for implementing empirical evidence: A systematic review. *Worldviews of Evidence Based Nursing, 11*(5), 284-300. doi: 10.1111/wvn.12060. Epub 2014 Sep 23

Andrews, M., & Wallis, M. (1999). Mentorship in nursing: A literature review. *Journal of Advanced Nursing, 29*(1), 201-207. doi: 10.1046/j.1365-2648.1999.00884.x

Berner, E. S., Baker, C. S., Funkhouser, E., Heudebert, G. R., Allison, J. J., Fargason, C. A., Jr., . . . Kiefe, C. I. (2003). Do local opinion leaders augment hospital quality improvement efforts? A randomized trial to promote adherence to unstable angina guidelines. *Medical Care, 41*(3), 420-431. doi: 10.1097/01.mlr.0000052977.24246.38

College of Nurses of Ontario (2013). *Self assessment*. Retrieved from http://www.cno.org/en/myqa/self-assessment/

College of Registered Nurses of British Columbia (2014). *Professional development plan*. Retrieved from https://crnbc.ca/QA/RN/ProfDevPlan/Pages/Default.aspx

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. (2nd ed.). Thousand Oaks, CA: Sage Publications.

Dalley, K., Candela, L., & Benzel-Lindley, J. (2008). Learning to let go: the challenge of de-crowding the curriculum. *Nurse Education Today, 28*(1), 62-69. doi: 10.1016/j.nedt.2007.02.006

Davis, O. C., & Nakamura, J. (2010). A proposed model for an optimal mentoring environment for medical residents: A literature review. *Academic Medicine, 85*(6), 1060-1066. doi: 10.1097/ACM.0b013e3181dc4aab

Eller, L. S., Lev, E. L., & Feurer, A. (2014). Key components of an effective mentoring relationship: A qualitative study. *Nurse Education Today, 34*(5), 815-820. doi: 10.1016/j.nedt.2013.07.020

Elo, S., & Kyngas, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107-115. doi: 10.1111/j.1365-2648.2007.04569.x.

Gagliardi, A. R., Webster, F., Perrier, L., Bell, M., & Straus, S. (2014). Exploring mentorship as a strategy to build capacity for knowledge translation research and practice: A scoping systematic review. *Implementation Science, 9*(122), 122. doi:10.1186/s13012-014-0122-z

Gifford, W. A., Davies, B. L., Ploeg, J., Eldred, S., & Bajnok, I. (2013). Moving knowledge to action: A qualitative study of the Registered Nurses' Association of Ontario Advanced Clinical Practice Fellowship program. *Nursing Leadership, 26*(1), 32-57. doi:10.12927/cjnl.2013.23302

Ginexi, E. M., & Hilton, T. F. (2006). What's next for translation research? *Evaluation the Health Professions, 29*(3), 334-347. doi: 10.1177/0163278706290409

Greer, A. G., Pokorny, M., Clay, M. C., Brown, S., & Steele, L. L. (2010). Learner-centered characteristics of nurse educators. *International Journal of Nursing Education Scholarship, 7*, Article 6. doi: 10.2202/1548-923x.1710

Grimshaw, J. M., Eccles, M. P., Lavis, J. N., Hill, S. J., & Squires, J. E. (2012). Knowledge translation of research findings. *Implementation Science, 7*(50), 1-17. doi: 10.1186/1748-5908-7-50

Hassan, E. (2006). Recall Bias can be a Threat to Retrospective and Prospective Research Designs. The *Internet Journal of Epidemiology, 3*(2). Retrieved from https://ispub.com/IJE/3/2/13060#sthash.bDTsPmSH.dpuf

Jones, J. (2012). An Analysis of Learning Outcomes within Formal Mentoring Relationships. *International Journal of Evidence Based Coaching and Mentoring, 10* (1). Retrieved from http://ijebcm.brookes.ac.uk/documents/vol10issue1-paper-05.pdf

Kram, E. K. (1988). *Mentoring at work: Developmental relationships in organizational life*. Lanham, Maryland: University Press of America.

Lincoln, Y., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Majumdar, B. (1996). Self-directed learning in the context of a nursing curriculum: Development of a learning plan. *Curationis, 19*(2), 43-46. doi: 10.4102/curationis.v19i2.1323

O'Shea, E. (2003). Self-directed learning in nurse education: A review of the literature. *Journal of Advanced Nursing, 43*(1), 62-70. doi: 10.1046/j.1365-2648.2003.02673.x

Ploeg, J., de Witt, L., Hutchison, B., Hayward, L., & Grayson, K. (2008). Evaluation of a research mentorship program in community care. *Evaluation and Program Planning, 31*(1), 22-33. doi: 10.1016/j.evalprogplan.2007.10.002

QRS International, (2012). NVivo qualitative data analysis software (Version 10) [computer software]. Retrieved from http://www.qsrinternational.com/support_downloads.aspx

Registered Nurses' Association of Ontario (RNAO) (2014). *Advanced Clinical Practice Fellowship program: Request for proposals, 2015-2016*. Retrieved from http://rnao.ca/sites/rnao-ca/files/ACPF_Cycle_34_Request_For_Proposals.pdf

Sambunjak, D., Straus, S. E., & Marusic, A. (2006). Mentoring in academic medicine: A systematic review. *JAMA, 296*(9), 1103-1115. doi: 10.1001/jama.296.9.1103

Sambunjak, D., Straus, S. E., & Marusic, A. (2010). A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *Journal of General Internal Medicine, 25*(1), 72-78. doi: 10.1007/s11606-009-1165-8. Epub 2009 Nov 19.

Scott, S. D., Albrecht, L., O'Leary, K., Ball, G. D., Hartling, L., Hofmeyer, A., . . . Dryden, D. M. (2012). Systematic review of knowledge translation strategies in the allied health professions. *Implementation Science, 7*, 70. doi: 10.1186/1748-5908-7-70

Straus, S. E., Chatur, F., & Taylor, M. (2009). Issues in the mentor-mentee relationship in academic medicine: A qualitative study. *Academic Medicine, 84*(1), 135-139. doi: 10.1097/ACM.0b013e31819301ab

Straus, S. E., Johnson, M. O., Marquez, C., & Feldman, M. D. (2013). Characteristics of successful and failed mentoring relationships: A qualitative study across two academic health centers. *Academic Medicine, 88*(1), 82-89. doi: 10.1097/ACM.0b013e31827647a0

Straus, S., E., & Sackett, D., L. (2014). *Mentorship in academic medicine*. Oxford, UK: Wiley Blackwell.

Thorne, S. (2008). *Interpretive description*. Walnut Creek, CA: Left Coast Press, Inc.

Thorne, S., Kirkham, S. R., & O'Flynn-Magee, K. (2004). The analytic challenge in interpretive description. *International Journal of Qualitative Methods, 3* (1), 1-17. Retrieved from http://www.ualberta.ca/~iiqm/backissues/3_1/pdf/thorneetal.pdf

Timmerman, T., Teare, G., Walling, E., Delaney, C., & Gander, L. (2007). Evaluating the implementation and outcomes of the Saskatchewan Pressure Ulcer Guidelines in long-term care facilities. *Ostomy Wound Manage, 53*(2), 28-43. Retrieved from http://www.o-wm.com/content/evaluating-implementation-and-outcomes-saskatchewan-pressure-ulcer-guidelines-long-term-care

Tourigny, L., & Pulich, M. (2005). A Critical Examination of Formal and Informal Mentoring Among Nurses. *The Health Care Manager, 24*(1), 68-76. doi: 10.1097/00126450-200501000-00011

Weiss, L. M., Williams, C. A., Wetzel, D. E., Drake, A. C., Cumberlander, L. B., & Gordon, C. L. (2008). Veterans Health Administration mentoring model for new nurse executives. *Nursing Administration Quarterly, 32*(3), 226-229. doi: 10.1097/01.NAQ.0000325180.17461.2a

Chapter Six

Integrated Discussion

Integrated Discussion

My dissertation examines mentoring as a knowledge translation (KT) intervention to inform clinical practice. In this chapter, I summarize the findings and discuss how they contribute to the development of the MGI (**M**entoring for **G**uideline **I**mplementation) conceptual model. As well, I discuss challenges with concept clarity for mentoring, and outcomes measures of mentoring. Finally, the implications for nursing education, practice, and research are highlighted.

6.1. Summary of Dissertation Findings

Systematic review. I conducted a systematic review to determine the effectiveness of mentoring as a KT intervention designed to increase the use of empirical evidence by healthcare professionals in clinical practice (Chapter 4). In the review, I identified 10 studies that evaluated the effectiveness of mentoring. There was only one study that evaluated the effectiveness of mentoring alone and it was quality appraised as having low risk of bias (Berner et al., 2003). This study showed improvement in one behavioural outcome: improved use of antiplatelet medication by physicians within 24 hours of admission. In the other nine studies that used mentoring as part of a multifaceted intervention, there were various effects on conceptual knowledge use (e.g., knowledge, belief/attitude), instrumental knowledge use (e.g., use of guideline or non-guideline based research evidence), and impacts on healthcare professionals, patients and organizations. Overall, interventions with mentoring did not produce worse outcomes than controls or alternate intervention(s). The review showed that mentoring was not consistently called mentoring, as it was confused with other social influence roles including opinion leaders and academic detailing (or called educational outreach visitors). Another challenge was that characteristics of mentoring interventions and instruments used to measure

outcomes varied across studies. No instruments were used to measure mentor–mentee interaction.

Qualitative study. I subsequently conducted an interpretive description qualitative study to explore the use of mentoring as a KT intervention when used to support the implementation of nursing guidelines in clinical practice (Chapter 5). Eighteen interviews were conducted with 6 fellows, 8 mentors and 4 program leaders involved in the Registered Nurses' Association of Ontario's Best Practice Guidelines Implementation/Knowledge Transfer Fellowship program. Participants described the mentoring process as building relationships, developing a learning plan, and using teaching and learning activities (e.g., coaching, identifying learning resources, assessing learning progress, encouragement, reflective learning). Mentors were characterized as being accessible, dedicated, and having expertise; while fellows were characterized as dedicated, self-directed, and having mixed levels of expertise. The outcomes of mentoring were described as positively influencing the mentor-fellow relationship and professional development. Organizations were described as benefiting from the use of guidelines, having new partnerships and infrastructure for similar fellowship programs.

Findings from the systematic review and the qualitative study indicated that mentoring uses a social influence role to support individuals in implementing evidence-based practice including clinical practice guidelines (CPGs). The findings position mentoring as one of the KT interventions (e.g., opinion leaders, educational outreach visitors) that use social influence intervention to overcome individual barriers. Therefore, there is growing evidence to support mentoring's inclusion with other interventions that aim to enhance healthcare professionals' performance and behavioural change in the Cochrane Effective Practice and Organization of Care Review Group checklist (EPOC) (2008).

6.2. MGI Model

The findings from the systematic review and qualitative study were used to create **M**entoring for **G**uideline **I**mplementation (MGI) model (see Figure 6.1). The aim of the MGI is to guide the use of mentoring to support mentees' development within the context of guideline implementation.

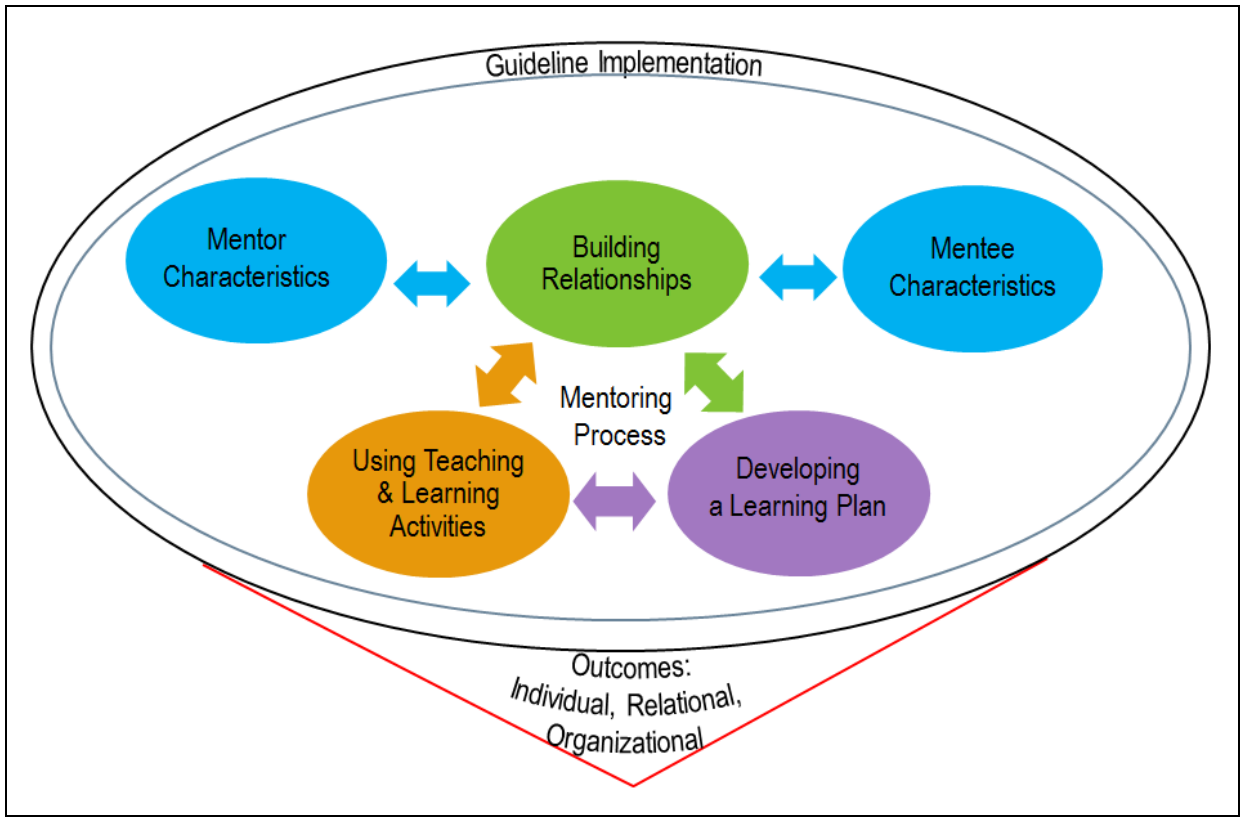

Figure 6.1. **Mentoring for Guideline Implementation (MGI)**

Figure 6.1 shows that the MGI model consists of four key components: guideline implementation, mentee and mentor characteristics, mentoring process, and outcomes. The outer circle in the model illustrates that mentoring occurs within the context of guideline implementation within a clinical practice environment. The bi-directional arrows between characteristics of mentors/mentee and building relationships indicate that mentors and mentees possess certain characteristics prior to becoming involved in the mentoring relationship that are

important to the mentoring experience. In the centre of the model is the mentoring process, which involves three key elements: building relationships, developing a learning plan, and using teaching and learning activities. The bi-directional arrows between the three elements indicate that the elements influence each other. The funnel at the bottom of the figure indicates the impact of mentoring on outcomes for individuals, relationships and organizations. The four components are described in the next sections with evidence from the dissertation findings.

The guideline implementation component is defined as using mentoring as an intervention to put CPGs into use. The guidelines are known as best practices that are based on experts' experiences, judgment and viewpoint, and ongoing research evidence (Health Canada, 2002). The systematic review identified that seven of 10 included studies used mentoring to support implementation of CPGs and the other three were focused on implementing non-guideline-based research evidence (Chapter 4). The focus on CPGs is not surprising given that they are a synthesis of evidence formatted with specific recommendations to help practitioners and patients make clinical decisions regarding particular situations in clinical practice (Field & Lohr, 1992). The qualitative study reported that mentoring was used to support the implementation of 12 unique guidelines, 11 were CPGs and one was a Healthy Work Environment guideline (Chapter 5).

The characteristics of mentors and mentees are defined as traits and abilities of individuals that are important to the mentoring experience. Both mentor and mentee are key to the mentoring relationship. The systematic review reported one mentee characteristic (less expertise in content areas) and two mentor characteristics (accessible and more expertise in content areas). The systematic review described accessible as regularly scheduled meetings between mentors and mentees over a period of time, via individual and/or group meetings and/or

email. The qualitative study findings confirmed these characteristics and further described accessible as availability of mentors for formal or informal individual meetings with a mentee, rather than group meetings with several mentees. The qualitative study described expertise as the knowledge and skills of mentors relevant to the guideline topic, the clinical setting, and/or the implementation process. Mentees were described as having mixed levels of expertise meaning that they had some degree of specialized knowledge and skills in areas such as guideline content, but limited knowledge in areas such as guideline implementation or creating learning plans. The qualitative study findings identified other characteristics for both mentees (dedicated, self-directed) and mentors (dedicated).

The process of mentoring is defined as a series of activities to support mentees' development aimed at implementing guidelines. It consists of three core activities: building relationships, establishing the learning plan, and using teaching and learning activities. Building relationships is defined as establishing an interpersonal collaboration between the mentee and one or more mentors to support achieving his/her learning needs. The systematic review identified that a mentoring relationship is generally indicated by mutual benefit, engagement, and commitment, and there is a selection process to match mentees and mentors. The qualitative study also described the nature of mentee-mentor relationships as collaborative, trusting and mutually respectful with relational activities that enhanced mentoring relationships (e.g., opportunities for interaction, clarifying expectations, sharing expertise). Furthermore a mentor selection process was described as mentees selected mentors based on previous collaborations, recommendations of others, and/or mentors' expertise in guidelines. Participants in the qualitative study described new relationships established between mentees and other healthcare professionals and/or organizations in building their network.

Another important element in the mentoring process is developing a learning plan. This element is defined as the establishment of the learning objectives and deliverables to meet mentees' needs. The findings of the systematic review revealed that mentoring focused on the needs of the mentee but interestingly did not indicate that there was a learning plan or any other types of guiding document. In the qualitative study, the learning plan was central to the mentoring process.

Using teaching-learning activities is defined as fellows' learning plans directed the selection of interactive and appropriate mentor and fellow actions that focused on fellows' learning needs, involved setting a realistic timeline, and included regular follow-up and progress evaluation. Examples of teaching and learning activities included: coaching, identifying learning resources, and assessing learning progress. Findings in both the systematic review and qualitative study indicated that mentors provided individualized activities based on mentees' learning needs.

The systematic review showed that the mentoring intervention in nine of ten identified studies was used as part of multifaceted intervention. The review reported the most frequent interventions associated with mentoring were attending educational programs and performance feedback, and disseminating educational materials. Similarly, the qualitative study reported that several activities were most frequently used alongside mentoring to support mentees' learning (e.g., performance feedback, attending educational programs, encouraging mentees to conduct literature reviews). The qualitative study also recognized the mentor's role in assessing learning progress of mentees.

The MGI model identifies individual, relational and organization outcomes occurring as the consequences of the mentoring intervention. The systematic review identified mixed findings for changes in healthcare professionals', patients' and organizations' outcomes: some outcomes

improved, while others showed no difference. In addition to mentees' and organizational outcomes, participants in the qualitative study described that mentoring also improved mentors' outcomes and the mentor-mentee relationship.

6.3. Concept Clarity for Mentoring

As discussed in the literature review (Chapter 2), mentoring in the literature has emerged from business, healthcare, healthcare education, and other workplaces. Findings from the systematic review and qualitative study contributed to a definition of a mentoring intervention within the context of KT. The systematic review revealed confusion in the concept of mentoring compared to other social influence role interventions, but consistently described mentoring as having six characteristics: (a) mentors are more experienced than mentees in relation to a specific task; (b) mentors provide individualized support based on mentees' learning; (c) mentoring involves an interpersonal relationship as generally indicated by mutual benefit, engagement, and commitment; (d) mentoring involves regular meetings over a period of time; (e) mentoring can be delivered via different approaches, for example, individual or group meetings or email; and (f) mentoring involves a selection process to match mentees and mentors (Chapter 4).

The findings of the qualitative study confirmed and clarified these six characteristics and highlighted the importance of mutual benefits occurring from the mentor-mentee interpersonal relationship (Chapter 5). Therefore, mentoring intervention within KT consists of seven characteristics, and mentoring is more succinctly defined as: Mentoring involves mentees selecting more experienced mentors who provide individualized support, over time, based on mentees' learning needs, which results in mutual benefits for mentees and mentors. Previous research has shown that clarifying concepts is critical to improving, conducting and understanding research and facilitating knowledge sharing (Baldwin, 2008; Rodgers, 1989).

Unlike other studies that tend to emphasize that formal mentoring needs a lengthy relationship (Andrews & Wallis, 1999; Berk, Berg, Mortimer, Walton-Moss, & Yeo, 2005; Siu & Sivan, 2011; Yonge, Billay, Myrick, & Luhanga, 2007), the systematic review and qualitative study had mixed findings. The systematic review identified that mentoring interventions scheduled between 14 to 360 days (Median = 90) resulted in mixed outcomes. Our qualitative study showed that formal mentoring conducted over 91or 183 days was described by participants as having several positive outcomes. Hence, identifying an ideal length of time for mentoring as a KT intervention may be difficult for four reasons: (a) the mentoring timeframe was pre-determined by the funding organization or research program, (b) mentoring required individualizing mentors' activities based on mentees' learning needs which vary from one mentee to another, (c) mentoring was one of several other interventions required for CPG implementation, and (d) there were individual and organizational barriers to implementing CPGs that influenced the length of time required for implementation.

The seven specific mentoring characteristics are compared with the other social influence roles to clarify how mentoring intervention is different from or overlaps with these roles (see Table 6.1). The table illustrates that the mentor role is unique in that none of the other roles requires that the level of experience be higher than the mentee's as related to a specific task. Another mentor characteristic not shared by other roles is mutual benefit. With regards to the use of individualized support based on the mentees' needs, the educational outreach visitor is the only role to share this characteristic with the mentor. Like a mentor, all roles use interpersonal relationships to bring about change in organizations. Preceptor is the only role besides mentor that includes regularly scheduled meetings with mentees over a period of time. Like mentor, all roles, except educational outreach visitor and preceptor, deliver teaching and learning activities

via different approaches, including group meetings or email. Opinion leader, educational outreach visitor, and champion, like mentor, require a selection process to match learner to teacher.

Table 6.1

Similarities and Differences between Mentor and Other Social Influence Roles

	Social Influence Roles						
Mentoring Characteristics	**Mentor**	**[1]Opinion Leader**	**[2]Facilitator**	**[3]Educational Outreach Visitor**	**[4]Champion**	**[5]Leader**	**[6]Preceptor**
(a) Mentor more experienced than mentee as related to a specific task	√						
(b) Individualized support based on mentees' needs	√			√			
(c) Interpersonal relationship	√	√	√	√	√	√	√
(d) Regular meeting over a period of time	√						√
(e) Delivered via different approaches	√	√	√		√	√	
(f) Involves a selection process for the mentor	√	√		√	√		
(g) Mutual benefit	√						

Note.√ = mentoring characteristic present. [1]Doumit, Gattellari, Grimshaw, & O'Brien, 2007; Flodgren et al., 2011; Grimshaw, Eccles, Lavis, Hill, & Squires, 2012. [2] Dogherty, Harrison, & Graham, 2010; Dogherty, Harrison, Baker, & Graham, 2012. [3]Grimshaw et al., 2012; O'Brien et al., 2007. [4] Hodnett et al., 1996*;* Ploeg et al., 2010; Thompson, Estabrooks, & Degner, 2006. [5]Gifford, Davies, Graham, & Edwards, 2006; Gifford, Davies, Tourangeau, & Lefebre, 2011; Godshalk & Sosik, 2007. [6]Barker, 2006; Huybrecht, Loeckx, Quaeyhaegens, De Tobel, & Mistiaen, 2011; Luhanga, Billay, Grundy, Myrick, & Yonge, 2010; Udlis, 2008.

6.4. Instruments for Measuring Mentoring

There are few instruments with good psychometric properties used to measure the effectiveness of a mentoring intervention. The systematic review identified 12 different instruments used to measure processes (n = 7 instruments) and the effect of mentoring as a KT intervention on outcomes (n = 5 instruments) (Chapter 4). Hence, meta-analysis of findings was not possible and will continue to be problematic if similar processes and outcomes are not measured (Fitzpatrick, Davey, Buxton, & Jones, 1998). As well, the systematic review identified no instruments that measured the impact of mentoring on organization and patient outcomes.

Reliability and validity were reported for only six of the twelve instruments. Three instruments had good reliability and validity and they were most consistently used in the systematic review. The Evidence-Based Practice Implementation and the Evidence-Based Practice Beliefs instruments were used in three studies to measure nurses' beliefs and implementation of evidence into practice (Levin, Fineout-Overholt, Melnyk, Barnes, & Vetter, 2011; Mariano et al., 2009; Wallen et al., 2010). Both instruments are theory-based, as per the Transtheoretical Model of Health Behaviour Change and the Advancing Research and Clinical Practice Through Close Collaboration model (Melnyk, Fineout-Overholt, & Mays, 2008). Also, the systematic review identified that the Group Cohesion instrument was used in two studies to measure the impact of mentoring on practitioner outcomes (Levin et al., 2011; Wallen et al., 2010).

The systematic review identified no instruments that measured the mentor-mentee relationship. However, two instruments for mentees were identified in the literature: The Mentorship Profile Questionnaire and The Mentorship Effectiveness Scale (Berk, Berg, Mortimer, Walton-Moss, & Yeo, 2005). Both instruments were developed by Johns Hopkins

University School of Nursing (Berk et al., 2005). The Mentorship Profile Questionnaire was developed to measure mentees' perceptions of the characteristics and effectiveness of mentor-mentee relationship. Mentees were required to fill out two sections: section one was related to their role, frequency and methods of contact with mentor, and the length of relationship, while in section two, mentees described their outcomes and provided documents to support their achievements (e.g., publication, promotion). The Mentorship Effectiveness Scale was developed to allow mentees to identify mentor behaviours and it consists of 12 statements, six-point agree–disagree-format Likert-type rating scale. These instruments can inform the development of a new mentoring instrument.

6.5. Implications for Nursing

The findings from the systematic review and qualitative study have several implications for nursing education, practice, and research (see Table 6.2).

Table 6.2

Implications for Education, Practice, and Research

Categories	Implications
Education	▪Prepare advanced practice nurses as mentors to support other nurses in implementing CPGs and/or other evidence into clinical practice. ▪Use the MGI model to guide the development of mentoring training programs for mentors within the context of CPG implementation for advanced practice nurses.
Practice	▪Use more experienced staff nurses as mentors to support less experienced nurses, new graduate nurses and nurse students in developing skills and knowledge of CPGs. ▪Identify different strategies to use more experienced nurses as mentors within the context of CPG implementation.
Research	▪Evaluate the effectiveness of mentoring alone vs. mentoring as part of a multifaceted intervention on individual, organizational and relational outcomes within the context of CPG implementation. ▪Develop an instrument to measure mentor-mentee relationships. ▪Validate the MGI model. ▪Identify barriers and facilitators to the use of mentoring as a KT intervention.

6.5.1. Education.

Findings from this dissertation indicate the need to better prepare advanced practice nurses with knowledge and skills for mentoring and CPG implementation. More specifically, experience was identified as one of the core mentor characteristics in the systematic review and qualitative study. Also, experience was identified as one of the reasons for the mentee to select a mentor in the qualitative study. This study also identified that mentor's expertise was shared with mentees and enhanced mentor-mentee relationships.

Nursing Master's programs in Canada prepare advanced practice nurses to function within four role domains: clinical practice, education, research, and leadership (Canadian Nurses Association, 2008). Mentoring fits within competencies under the leadership domain, but has not been explicitly described (Canadian Nurses Association, 2008). There are no known training programs to prepare advanced practice nurses as mentors within the context of CPG implementation. There are some mentor training materials, such as "Achieving Excellence in Professional Practice" (Canadian Nurses Association, 2004), that can be used as part of the educational preparation of advanced practice nurses. Based on the findings of this dissertation, these training materials could be updated to include, for example, developing a learning plan to more explicitly focus on mentee's needs.

The MGI model may be useful in guiding the development of a training program for mentors within the context of CPG implementation for advanced practice nurses. The training could focus on creating learning plans, developing skills in a range of teaching and learning activities, and role playing mentoring interactions to ensure focus on the mentee's needs. The training could also include methods to assess mentees' learning needs, adult learning theories, and activities to build and maintain relationships with new or more experienced nurses. Ideally,

mentors in training should be given opportunities to practice mentoring in clinical practice, to apply their knowledge and to build their skills (Barker, 2006; Doerksen, 2010).

6.5.2. Practice.

Findings identified that mentors supported mentees in developing knowledge, skills and attitudes toward using research evidence, including CPG implementation. More experienced nurses are well positioned to support less experienced nurses, new graduate nurses and nursing students during consolidation to develop their skills and knowledge of CPGs (Chan, 2004; Ferguson, 2011; Johnston et al., 2007; Jokelainen, Turunen, Tossavainen, Jamookeeah, & Coco, 2011; Myall, Levett-Jones, & Lathlean, 2008). As there are large numbers of new graduate nurses hired every year, more experienced nurses can ease new graduate nurses' transition into clinical practice settings by helping them apply evidence to inform their practice (Ferguson, 2011; Funderburk, 2008; Halfer, Graf, & Sullivan, 2008). More experienced nurses can also help new graduate nurses to develop knowledge and skills, use critical thinking to make sound clinical decisions, to fit into a unit culture, and during difficult working situations (Ferguson, 2011).

More experienced nurses possess several professional characteristics that make them valuable to organizations, such as know-how or practical knowledge, critical thinking to make sound clinical decisions, knowledge of the culture of the setting, and skills in handling difficult working situations (Fitzgerald, 2007). To inspire busy more experienced nurses to become mentors, organizations need to (a) recognize experienced nurses who have good mentoring skills, (b) provide encouragement strategies (e.g., decreased workload, rewards, certificates, make involvement in mentoring part of yearly performance evaluation) and (c) give more experienced

nurses opportunities to participate in orientation events or create avenues for them to informally interact with new nurses to facilitate mentor-mentee matching (Ferguson, 2011).

6.5.3. Future research

This dissertation highlights several areas requiring further research. According to the systematic review, there was only one randomized controlled trial (RCT) study that evaluated mentoring independent of other interventions (Berner et al., 2003). Therefore, another rigorous quantitative research study, such as an RCT, is needed to evaluate the effectiveness of mentoring alone versus mentoring as part of a multifaceted intervention on individual, organizational and relational outcomes. RCT is a suitable design to detect cause and effect relationships, to identify factors other than intervention and control that affect outcomes, and to reduce bias in the measurement of outcomes (Campbell & Stanley, 1963).

Another research opportunity is to develop an instrument to examine the mentor-mentee relationship. Building a collaborative, trusting and mutually respectful relationship is one of the key elements in the mentoring process (Chapter 5; Eller et al., 2014; Ploeg, de Witt, Hutchison, Hayward, & Grayson, 2008; Straus et al., 2009). But interestingly, mentor-mentee relationship outcome was not explicitly measured and explored in any studies in the systematic review (Chapter 4). The first step would be to conduct a systematic review to identify instruments focused on measuring the quality of relationships. For example, two instruments in the literature focused on mentorship: The Mentorship Profile Questionnaire and The Mentorship Effectiveness Scale (Berk et al., 2005). These instruments are limited to measuring the relationship from mentees' perspectives only, and do not consider mentors' perspectives. As well, reliability and validity, and theoretical foundations of these instruments were not reported. Therefore, a broader

search is required to find instruments designed to measure the quality of the mentor-mentee relationship from both perspectives.

Validation is an important step in developing a conceptual model (Walker & Avant, 2005). One approach to validating the MGI model would be to conduct a qualitative study with Registered Nurses' Association of Ontario fellows, mentors and program leaders. Focus groups and individual interviews could be undertaken to review the model using the elements known to be essential to develop a theory (Walker & Avant, 2005). Participants could also be asked whether the model reflects the important components of mentoring intervention that support the implementation of evidence into practice. Then, proposed changes to the MGI model could be reviewed by a committee with representation from a range of stakeholders with expertise in mentoring, CPG implementation, and theory development.

To better inform the development and implementation of mentoring programs, barriers and facilitators to the use of mentoring as a KT intervention to support the implementation of CPGs should be identified. An interpretive description qualitative study could be conducted with mentors, fellows and program leaders from the Registered Nurses Association of Ontario Best Practice Guidelines Implementation/Knowledge Transfer Fellowship. A semi-structured interview guide could focus on: (a) mentoring experiences that were positive; (b) mentoring experiences that were negative; (c) discussing common barriers or challenges to mentoring; and (d) discussing common facilitators that enhance mentoring. Analysis to identify barriers and facilitators could be guided by the Ottawa Model of Research Use (Logan & Graham, 2010). As per this model, the first step would be assess barriers and facilitators at the level of the innovation (e.g., mentoring program), the potential adopters (e.g., mentors, mentees), and the

practice environment (e.g., leadership, patients). According to the Ottawa Model of Research Use, the next step would be to identify tailored strategies to overcome identified barriers.

6.6. Conclusion

In this dissertation, multiple methods were used to examine mentoring as a KT intervention to inform clinical practice. The systematic review and qualitative study findings helped to overcome gaps in the literature by clarifying the mentoring definition, and exploring mentor-mentee relationship characteristics. This dissertation clearly highlights the need for more rigorous research to evaluate mentoring as a KT intervention and the need to develop an instrument to measure mentor-mentee relationships. Interestingly, the dissertation showed that participants perceived that mentoring as an intervention enhanced mentee, mentor, relationship, and organizational outcomes, including as planned, the use of nursing guidelines in clinical practice. The MGI model was created to provide a conceptual model to inform the elements in mentoring as a KT intervention for guideline implementation. This dissertation situates mentoring as one of the interventions that can be used to overcome barriers to implementing CPGs within the context of KT.

Chapter Seven

Contribution of Collaborators

Contribution of Collaborators

The chapter introduces and identifies the contributions of collaborators and was written in accordance with the guidelines of the International Committee of Medical Journal Editors (2014) and the Faculty of Graduate and Postdoctoral Studies at the University of Ottawa (2012). Contributions are discussed as they relate to those who were involved as part of the research team and other collaborators on the manuscript. Chapter 7 concludes by acknowledging stakeholders and research assistants who supported some aspects of the manuscripts and/or dissertation.

As per the International Committee of Medical Journal Editors guideline (2014), co-authors must:

1. Make significant contribution to the conception and design of the research, collection of data, analysis, interpretation and validation of data;
2. Draft and review the manuscript for important intellectual content;
3. Approve the final version of the manuscript; and
4. Agree on the integrity of the work.

The Faculty of Graduate and Postdoctoral Studies at the University of Ottawa (2012) guidelines require that students writing manuscript-based dissertations describe their contribution to any of the manuscripts in depth and differentiate between their contributions and various co-authors contributions.

7.1. Research Team Collaborators

The primary researcher, GA conceived of, participated in, and led all aspects of the research study as part of the fulfillment of the requirements of the degree of Doctorate of Nursing (PhD) at the University of Ottawa. The collaborators were GA's dissertation supervisor, Dr. Dawn Stacey RN, PhD, CON(C) (DS), and two committee members, Dr. Kathryn Higuchi

RN, PhD (KH), and Dr. Jenny Ploeg RN, PhD (JP). All have participated in different phases of the dissertation (see Table 7.1). They provided content expertise and approved the research proposal. For the manuscripts, they provided consultation and feedback, participated in the validation of data, contributed intellectual content to the manuscripts, and approved the final versions.

GA is a Registered Nurse with Saudi Arabia Government. GA worked as a critical care nurse for more than ten years in one of the largest university hospitals in Jeddah, Saudi Arabia. She was also employed with the Saudi Ministry of Health for one year as part of an implementation team to review the performance of healthcare organizations as they implemented clinical practice guidelines. GA's doctoral studies were funded through a scholarship from King Abdulaziz University Hospital, Jeddah, Saudi Arabia. The funders played no role in dissertation design, data collection, analysis, interpretation of data, writing the dissertation, or in the decision to submit any papers for publication. They accept no responsibility for the content.

DS is a full professor and holds a University Research Chair in Knowledge Translation to Patients in the School of Nursing at the University of Ottawa. As well, she is a senior investigator in the Nursing Best Practice Research Centre and a scientist at the Ottawa Hospital Research Institute where she is Director of the Patient Decision Aids Research Group. DS has extensive experience in mentoring, knowledge translation, implementation science, and decision coaching. Ten years ago, she was a secondary mentor for a mentee from the Registered Nurses' Association of Ontario Leadership/Clinical Fellowship Programs and she has mentored numerous others in conducting research.

KH is an adjunct professor at the University of Ottawa in the School of Nursing and a member of the Nursing Best Practice Research Centre. KH has extensive experience in knowledge translation, implementation science, curriculum development, and mentoring. KH

was one of the co-investigators who mentored senior leaders (administration), clinical leaders and direct care providers from different healthcare settings as part of the Guideline Implementation for Improved Clinical Outcomes (GICOM) study. The aim of the GICOM was to to examine the improvement and sustainability of healthcare professionals' quality of care and patient outcomes as a result of the implementation of best practice guidelines. She also led several curriculum development committees that aimed to incorporate clinical practice guidelines in undergraduate curriculum. KH also has several experiences in mentoring different faculty members for different purposes.

JP is a full professor at McMaster University in the School of Nursing (Hamilton, ON) and an associate member in the Department of Health, Aging and Society at McMaster University and Scientific Director of the Aging, Community and Health Research Unit. JP has extensive expertise in evaluation of community health services for older adults and their caregivers; best practice guideline implementation, sustainability and spread; evidence-informed practice and mentoring. JP was also a co-investigator for the GICOM study. She has a key publication in mentoring, entitled *"*Evaluation of a research mentorship program in community care*"* (Ploeg, de Witt, Hutchison, Hayward, & Grayson, 2008)

7.2. Other Collaborators

There were three other collaborators who met the International Committee of Medical Journal Editors guideline to be a co-author on one manuscript in the dissertation**.** Dr**.** Barbara Davies (BD), Dianne Rossy (DR), and Lindsey Sikora (LS) have made important contributions to different stages of developing the systematic review (Chapter 4) (see Table 7.1). BD, a professor in the School of Nursing and co-director of the Nursing Best Practice Research Centre, contributed to designing the systematic review. DR, an advanced practice nurse at The Ottawa Hospital, participated in screening, extracting and validating data. LS, a Health Science Research

Liaison Librarian at the University of Ottawa collaborated on developing the search strategy for the systematic review. All of them contributed important intellectual content when reviewing the manuscript and provided approval for the final version.

7.3. Stakeholders and Research Assistants Acknowledgements

For the qualitative study, Heather McConnell, Associate Director of Guideline Implementation and Knowledge Transfer, facilitated recruiting eligible participants. Anton Saarimaki, a computer specialist at the Ottawa Hospital Research Institute, developed the web-based screening tools used for the systematic review. Julie Wu and Janet Jull, research assistants at the Ottawa Hospital Research Institute, independently extracted the data and appraised the quality of studies included in the systematic review. Elaine Parker transcribed the interviews and Elina Hill provided English-language editing assistance with the dissertation.

Table 7.1

Summary of Collaborators Contributions

Elements	Chapter 4 Measuring the Effectiveness of Mentoring as a Knowledge Translation Intervention for Implementing Empirical Evidence: A Systematic Review	Chapter 5 Mentoring as a Knowledge Translation Intervention for Implementing Nursing Practice Guidelines: A Qualitative Study
Conceptualize & design	GA	GA
Collect data	GA	GA
Analyze & interpret data	GA DS DR JP BD KH LS	GA DS KH JP
Draft content	GA	GA
Revise manuscript for important intellectual	GA DS DR JP BD KH LS	GA DS KH JP
Approve final version	GA DS JP BD KH DR LS	GA DS KH JP
Responsible for overall content	GA	GA

References

Agency for Healthcare Research and Quality (n.d.). *Guidelines by Topic*. Retrieved from http://www.guideline.gov/search/search.aspx?term=nurs

Agency for Healthcare Research and Quality. (2014a). *About evidence-based practice centers (EPCs).* Retrieved from http://www.ahrq.gov/research/findings/evidence-based-reports/overview/index.html

Agency for Healthcare Research and Quality. (2014b). *Clinical guidelines and recommendations.* Retrieved from http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/index.html

Allen, T. D., Eby, L. T., O'Brien, K. E., & Lentz, E. (2008). The state of mentoring research: A qualitative review and future research implications. *Journal of Vocational Behavior, 73*, 343–357. doi:10.1016/j.jvb.2007.08.004

Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégés: A meta-analysis. *Journal of Applied Psychology, 89*(1), 127–136. Retrieved from http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB8QFjAA&url=http%3A%2F%2Fwww.researchgate.net%2Fpublication%2F8881166_Career_benefits_associated_with_mentoring_for_protge_a_meta-analysis%2Flinks%2F0912f508148d424344000000&ei=NNGDVLrjO4WeyQT3xYK4Bg&usg=AFQjCNHMFNlrt8T6p9atosQUIlYdUIBTNQ

Anderson, L., Silet, K., & Fleming, M. (2012). Evaluating and giving feedback to mentors: New evidence-based approaches. *Clinical and Translational Science, 5*(1), 71-77. doi: 10.1111/j.1752-8062.2011.00361.x. Epub 2011 Nov 28.

Andrews, M., & Wallis, M. (1999). Mentorship in nursing: A literature review. *Journal of Advanced Nursing, 29*(1), 201-207. doi: 10.1046/j.1365-2648.1999.00884.x

Bahtsevani, C., Uden, G., & Willman, A. (2004). Outcomes of evidence-based clinical practice guidelines: A systematic review. *International Journal of Technology Assessment in Health Care, 20*(4), 427-433. doi: 10.1017/S026646230400131X

Baldwin, M. A. (2008). Concept analysis as a method of inquiry. *Nurse Researcher, 15*(2), 49-58. doi: 10.7748/nr2008.01.15.2.49.c6329

Barker, E. R. (2006). Mentoring - A complex relationship. *Journal of the American Academy of Nurse Practitioners, 18*, 56-6. doi: 10.1111/j.1745-7599.2006.00102.x

Baskerville, N. B., Liddy, C., & Hogg, W. (2012). Systematic review and meta-analysis of practice facilitation within primary care settings. *Annals of Family Medicine, 10*(1), 63-74. doi: 10.1370/afm.1312

Berk, R. A., Berg, J., Mortimer, R., Walton-Moss, B., & Yeo, T. P. (2005). Measuring the effectiveness of faculty mentoring relationships. *Academic Medicine, 80*(1), 66-71. Retrieved from http://www.bu.edu/sph/files/2012/01/Berk_Measuring-the-effectiveness-of-fac-mentoring-relationships.pdf

Berner, E. S., Baker, C. S., Funkhouser, E., Heudebert, G. R., Allison, J. J., Fargason, C. A., Jr., . . . Kiefe, C. I. (2003). Do local opinion leaders augment hospital quality improvement efforts? A randomized trial to promote adherence to unstable angina guidelines. *Medical Care, 41*(3), 420-431. doi: 10.1097/01.mlr.0000052977.24246.38

Birch, D. W., Asiri, A. H., & de Gara, C. J. (2007). The impact of a formal mentoring program for minimally invasive surgery on surgeon practice and patient outcomes. *The American*

Journal of Surgery, *193*(5), 589-591; discussion 591-2. doi: 10.1016/j.amjsurg.2007.01.003

Block, L. M., Claffey, C., Korow, M. K., & McCaffrey, R. (2005). The value of mentorship within nursing organizations. *Nursing Forum, 40*(4), 134-140. doi: 10.1111/j.1744-6198.2005.00026.x

Bozeman, B., & Feeney, M. K. (2007). Toward a useful theory of mentoring: A conceptual analysis and critique. *Administration & Society, 39*(6), 719-739. doi: 10.1177/0095399707304119

British of Columbia Ministry of Health. (2014). *Full service family practice incentive program*. Retrieved from http://www.primaryhealthcarebc.ca/gpsc_incentive.html

Byrne, M. W., & Keefe, M. R. (2002). Building research competence in nursing through mentoring. *Journal of Nursing Scholarship, 34*(4), 391-396. doi: 10.1111/j.1547-5069.2002.00391.x

Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand McNally & Company

Campbell, J. (2008). The effect of nurse champions on compliance with Keystone Intensive Care Unit Sepsis-screening protocol. *Critical Care Nursing Quarterly, 31*(3), 251-269. doi: 10.1097/01.CNQ.0000325050.91473.0b

Canadian Institutes of Health Research (CIHR) (2010). *CIHR three-year implementation plan and progress report 2010–13. Health research roadmap: Creating innovative research for better health and health care*. Retrieved from http://www.cihr-irsc.gc.ca/e/42152.html#a5

Canadian Nurses Association (2004). *Achieving Excellence in Professional Practice: A guide to preceptorship and mentoring*. Retrieved from http://www.cna-aiic.ca/~/media/cna/page-content/pdf-en/achieving_excellence_2004_e.pdf?la=en

Canadian Nurses Association (2008). *Advanced nursing practice: A national framework*. Retrieved from http://www.cna-aiic.ca/~/media/cna/page-content/pdf-en/anp_national_framework_e.pdf

Canadian Nurses Association (2010). *Position statement: Evidence-informed decision-making and nursing practice.* Retrieved from http://www.nanb.nb.ca/PDF/CAN Evidence_Informed_Decision_Making_and_Nursing_Practice_E.pdf

Chan, D. S. (2004). Nursing students' perceptions of hospital learning environments--an Australian perspective. *International Journal of Nursing Education Scholarship, 1*, Article4. doi: 10.2202/1548-923x.1002

Cochrane Effective Practice and Organisation of Care Review Group (EPOC) (2008). Data collection checklist. Retrieved from http://www.epoc.cochrane.org.

College of Nurses of Ontario (2002). *Professional standards*. Retrieved from http://www.cno.org/Global/docs/prac/41006_ProfStds.pdf

College of Nurses of Ontario (2013). *Self assessment*. Retrieved from http://www.cno.org/en/myqa/self-assessment/

College of Registered Nurses of British Columbia (2014). *Professional development plan*. Retrieved from https://crnbc.ca/QA/RN/ProfDevPlan/Pages/Default.aspx

Colon-Emeric, C. S., Lekan, D., Utley-Smith, Q., Ammarell, N., Bailey, D., Corazzini, K., et al. (2007). Barriers to and facilitators of clinical practice guideline use in nursing homes. *Journal of the American Geriatrics Society, 55*(9), 1404-1409. doi: 10.1111/j.1532-5415.2007.01297.x

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. (2nd ed.). Thousand Oaks, California: Sage Publications.

Cummings, G. G., Hutchinson, A., Scott, S, Norton, P., & Estabrooks, C. A**.** (2010). The relationship between characteristics of context and research utilization in a pediatric setting. *BMC Health Services Research, 10*(168), 1-10. Retrieved from http://www.biomedcentral.com/1472-6963/10/168

Dalley, K., Candela, L., & Benzel-Lindley, J. (2008). Learning to let go: The challenge of de-crowding the curriculum. *Nurse Education Today, 28*(1), 62-69. doi: 10.1016/j.nedt.2007.02.006

Davies, B., & Higuchi, K. (2010). Guideline implementation for improved client/patient outcomes (GICOM): A longitudinal multi-site study. Unpublished manuscript.

Davies, B., Edwards, N., Ploeg, J., & Virani, T. (2008). Insights about the process and impact of implementing nursing guidelines on delivery of care in hospitals and community settings. *Biomedical Center Health Services Research, 8*, 29. doi: 10.1186/1472-6963-8-29

Davis, O. C., & Nakamura, J. (2010). A proposed model for an optimal mentoring environment for medical residents: A literature review. *Academic Medicine: Journal of the Association of American Medical Colleges, 85*(6), 1060-1066. doi: 10.1097/ACM.0b013e3181dc4aab.

De Laat, E. H., Schoonhoven, L., Pickkers, P., Verbeek, A. L., & Van Achterberg, T. (2006). Implementation of a new policy results in a decrease of pressure ulcer frequency. *International Journal for Quality in Health Care, 18*(2), 107-112. doi: 10.1093/intqhc/mzi088

Dearholt, S. L., White, K. M., Newhouse, R., Pugh, L. C., & Poe, S. (2008). Educational strategies to develop evidence-based mentors. *Journal for Nurses in Staff Development, 24*(2), 53-59. doi: 10.1097/01.NND.0000300873.20986.97.

DiCenso, A., Ciliska,G., & Guyatt, D. (2005).Introduction to evidence-based nursing. In A. DiCenso, G. Ciliska, & D. Guyatt (Eds.), *Evidence-based nursing: A guide to clinical practice* (pp.3-19). St. Louis, MO: Elsevier Mosby.

Doerksen, K. (2010). What are the professional development and mentorship needs of advanced practice nurses? *Journal of Professional Nursing, 26*(3), 141-151. doi: 10.1016/j.profnurs.2009.04.005

Dogherty, E. J., Harrison, M. B., & Graham, I. D. (2010). Facilitation as a role and process in achieving evidence-based practice in nursing: A focused review of concept and meaning. *Worldviews of Evidenced-Based Nursing, 7*(2), 76-89. doi: 10.1111/j.1741-6787.2010.00186.x

Dogherty, E., Harrison, M., Baker, C., & Graham, I. (2012). Following a natural experiment of guideline adaptation and early implementation: A mixed-methods study of facilitation. *Implementation Science, 7*(1), 9. Retrieved from http://www.implementationscience.com/content/pdf/1748-5908-7-9.pdf

Dorsey, L. & Baker, C. (2004). Mentoring undergraduate nursing students. *Nurse Educator, 29*, 260–265. doi: 10.1097/00006223-200411000-00013

Dougherty, T. W., & Dreher, G. F. (2007). Mentoring and career outcomes: Conceptual and methodological issues in an emerging literature. In B. R. U Ragins, & K. E. Kram (Ed.), *The handbook of mentoring at work, theory, research, and practice* (pp. 51-93). Thousand Oaks, CA: Sage Publications.

Doumit, G., Gattellari, M., Grimshaw, J., & O'Brien, M. A. (2007). Local opinion leaders: Effects on professional practice and health care outcomes. *Cochrane Database System Reviews* (1), CD000125. doi: 10.1002/14651858.CD000125.pub3

Eby, L. T., Rhodes, J. E., & Allen, T. D. (2007). Definition and evolution of mentoring. In T. D. Allen & L. T. Eby (Eds.), *The Blackwell handbook of mentoring: A multiple perspectives approach* (pp. 7-20). Oxford, UK: Blackwell Publishing.

Egan, T. M., & Song Z. (2008). Are facilitated mentoring program beneficial? A randomized experimental field study, *Journal of Vocational Behaviour, 72*, 351-362. doi: 10.1016/j.jvb.2007.10.009

Eller, L. S., Lev, E. L., & Feurer, A. (2014). Key components of an effective mentoring relationship: A qualitative study. *Nurse Education Today, 34*(5), 815-820. doi: 10.1016/j.nedt.2013.07.020

Elo, S., & Kyngas, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107-115. doi: 10.1111/j.1365-2648.2007.04569.x.

Estabrooks, C. A., Squires, J. E., Cummings, G. G., Birdsell, J. M., & Norton, P. G. (2009). Development and assessment of the Alberta Context Tool. *BMC Health Services Research, 9*, 234. doi: 10.1186/1472-6963-9-234.

Faculty of Graduate and Postdoctoral Studies at the University of Ottawa (2012). *Preparing a thesis or a research paper at the University of Ottawa*. Retrieved from http://www.grad.uottawa.ca/default.aspx?tabid=1373

Ferguson, L. M. (2011). From the perspective of new nurses: What do effective mentors look like in practice? *Nurse Education in Practice, 11*(2), 119-123. doi: 10.1016/j.nepr.2010.11.003

Field, M. J. & Lohr, K. N. (Eds). (1992). *Guidelines for clinical practice: From development to use*. Retrieved from http://www.nap.edu/openbook.php?record_id=1863

Fitzgerald, D. C. (2007). Aging, experienced nurses: their value and needs. *Contemporary Nurse, 24*(2), 237-242. doi: 10.5555/conu.2007.24.2.237

Fitzpatrick, R., Davey, C., Buxton, M. J., & Jones, D. R. (1998). Evaluating patient-based outcome measures for use in clinical trials. *Health Technology Assessment, 2*(14), i-iv, 1-74. doi: 10.3310/hta2140

Flodgren, G., Parmelli, E., Doumit, G., Gattellari, M., O'Brien, M. A., & Grimshaw, J. (2011). Local opinion leaders: Effects on professional practice and health care outcomes. *Cochrane Database System Reviews, 10*(8), CD000125. doi: 10.1002/14651858.CD000125.pub4.

Francis, J. J., Johnston, M., Robertson, C., Glidewell, L., Entwistle, V., et al. (2010). What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychology and Health, 25* (10), 1229–1245. doi: 10.1080/08870440903194015.

Francke, A. L., Smit, M. C., de Veer, A. J., & Mistiaen, P. (2008). Factors influencing the implementation of clinical guidelines for health care professionals: A systematic meta-review. *BMC Medical Informatics and Decision Making, 8*, 38. doi: 10.1186/1472-6947-8-38

French, P. (2002). What is the evidence on evidence-based nursing? An epistemological concern. *Journal of Advanced Nursing, 37*(3), 250-257. doi: 10.1046/j.1365-2648.2002.02065.x

Funderburk, A. E. (2008). Mentoring: the retention factor in the acute care setting. *Journal for Nurses in Staff Development, 24*(3), E1-5. doi: 10.1097/01.nnd.0000320652.80178.40

Gagliardi, A. R., Webster, F., Perrier, L., Bell, M., & Straus, S. (2014). Exploring mentorship as a strategy to build capacity for knowledge translation research and practice: A scoping systematic review. *Implementation Science, 9*(122), 122. doi: 10.1186/s13012-014-0122-z.

Gifford, W. A., Davies, B. L., Graham, I. D., Tourangeau, A., Woodend, A. K., & Lefebre, N. (2013b). Developing leadership capacity for guideline use: A pilot cluster randomized control trial. *Worldviews on Evidence-Based Nursing, 10*(1), 51-65. doi: 10.1111/j.1741-6787.2012.00254.x

Gifford, W. A., Davies, B. L., Ploeg, J., Eldred, S., & Bajnok, I. (2013c). Moving knowledge to action: A qualitative study of the Registered Nurses' Association of Ontario Advanced Clinical Practice Fellowship program. *Nursing Leadership, 26*(1), 32-57. doi:10.12927/cjnl.2013.23302

Gifford, W. A., Davies, B., Edwards, N., & Graham, I. D. (2006). Leadership strategies to influence the use of clinical practice guidelines. *Nursing Leadership (Toronto, Ont.), 19*(4), 72-88. doi:10.12927/cjnl.2006.18603

Gifford, W. A., Graham, I. D., & Davies, B. L. (2013a). Multi-level barriers analysis to promote guideline based nursing care: A leadership strategy from home health care. *Journal of Nursing Management, 21*(5), 762-770. doi: 10.1111/jonm.12129.

Gifford, W., Davies, B., Tourangeau, A., & Lefebre, N. (2011). Developing team leadership to facilitate guideline utilization: Planning and evaluating a 3-month intervention strategy. *Journal of Nursing Management, 19*(1), 121-132. doi: 10.1111/j.1365-2834.2010.01140.x

Ginexi, E. M., & Hilton, T. F. (2006). What's next for translation research? *Evaluation & the Health Professions, 29*(3), 334-347. doi: 10.1177/0163278706290409

Godshalk, V. M., & Sosik, J. J. (2007). Mentoring and leadership. In B. R. Ragins, & K. E. Kram (Eds.), *The handbook of mentoring at work, theory, research, and practice* (pp. 149-178). Thousand Oaks, CA: Sage Publications.

Goode, C. J., Fink, R. M., Krugman, M., Oman, K. S., & Traditi, L. K. (2011). The Colorado patient-centered interprofessional evidence-based practice model: A framework for transformation. *Worldviews on Evidence-Based, 8* (2), 96-105. doi: 10.1111/j.1741-6787.2010.00208.x. Epub 2010 Dec 6.

Graham, I. D., Bick, D., Tetro, J., Straus, S.E., & Harrison, M. B. (2010). Measuring outcomes of evidence-based practice: Distinguishing between knowledge use and impact. In D. Bick & I. D. Graham (Eds.), *Evaluating the impact of implementing evidence-based practice* (pp. 18–37). West Sussex, UK: Blackwell and Sigma Theta Tau International, Honor Society of Nursing.

Greer, A. G., Pokorny, M., Clay, M. C., Brown, S., & Steele, L. L. (2010). Learner-centered characteristics of nurse educators. *International Journal of Nursing Education Scholarship, 7*, Article6. doi: 10.2202/1548-923x.1710

Grimshaw, J. M., Eccles, M. P., Lavis, J. N., Hill, S. J., & Squires, J. E. (2012). Knowledge translation of research findings. *Implementation Science, 7*, 50. doi: 10.1186/1748-5908-7-50

Grinspun, D. (2013). *RNAO's Best Practice Guidelines Program: Canadian Foundation for Healthcare Improvement CEO's Forum*. Retrieved from http://www.cfhi-fcass.ca/sf-docs/default-source/ceo-forum-2013-ppts/GRINSPUN-1430-1530-E.pdf?sfvrsn=0

Grossman, S. C. (2007). *Mentoring in nursing: A dynamic and collaborative process*. New York, NY: Springer Publishing Company.

Guideline International Network (2014). *About G-I-N: Introduction*. Retrieved from http://www.g-i-n.net/about-g-i-n/introduction

Haggard, D. L., Dougherty, T. W., Turban, D. B., & Wilbanks, J. E. (2011). Who is a mentor? A review of evolving definitions and implications for research. *Journal of Management, 37,* 280-304. doi: 10.1177/0149206310386227

Haines, A., Kuruvilla, S., & Borchert, M. (2004). Bridging the implementation gap between knowledge and action for health. *Bulletin world health organization, 82*(10), 724-731; discussion 732. doi: http://dx.doi.org/10.1590/S0042-96862004001000005

Halfer, D., Graf, E., & Sullivan, C. (2008). The organizational impact of a new graduate pediatric nurse mentoring program. *Nursing Economic$, 26*(4), 243-249.

Harrington, S. (2011). Mentoring new nurse practitioners to accelerate their development as primary care providers: A literature review. *Journal of the American Academy of Nurse Practitioners, 23*(4), 168-174. doi: 10.1111/j.1745-7599.2011.00601.x

Health Canada. (2002). *Best practices - Treatment and rehabilitation for seniors with substance use problems*. Retrieved from http://www.hc-sc.gc.ca/hc-ps/pubs/adp-apd/treat_senior-trait_ainee/index-eng.php#a1.4.2

Hegeman, C., Hoskinson, D., Munro, H., Maiden, P., & Pillemer, K. (2007). Peer mentoring in long-term care. *Gerontology & Geriatrics Education, 28*(2), 77-90. doi: 10.1300/J021v28n02_06

Higgins J. P. T., & Green. S. (2011) (Ed.). *Cochrane handbook for systematic reviews of interventions.* Retrieved from http://handbook.cochrane.org/

Hodnett, E. D., Kaufman, K., O'Brien-Pallas, L., Chipman, M., Watson-MacDonell, J., & Hunsburger, W. (1996). A strategy to promote research-based nursing care: Effects on childbirth outcomes. *Research in Nursing & Health, 19*(1), 13-20. doi: 10.1002/(sici)1098-240x(199602)19:1<13::aid-nur2>3.0.co;2-o

Hopewell, S., Boutron, I., Altman, D. G., & Ravaud, P. (2013). Incorporation of assessments of risk of bias of primary studies in systematic reviews of randomised trials: A cross-sectional study. *BMJ Open, 3*(8), e003342. doi: 10.1136/bmjopen-2013-003342

Hunt, M. R. (2009). Strengths and challenges in the use of interpretive description: Reflections arising from a study of the moral experience of health professionals in humanitarian work. *Qualitative Health Research, 19*(9), 1284-1292. doi: 10.1177/1049732309344612.

Huybrecht, S., Loeckx, W., Quaeyhaegens, Y., De Tobel, D., & Mistiaen, W. (2011). Mentoring in nursing education: Perceived characteristics of mentors and the consequences of mentorship. *Nurse Education Today, 31*(3), 274-278. doi: 10.1016/j.nedt.2010.10.022

Idell, C. S, Grant, M., & Kirk, C. (2007). Alignment of pain reassessment practices and national comprehensive cancer network guidelines. *Oncology Nursing Forum, 34*(3), 661-671. doi: 10.1188/07.ONF.661-671

International Committee of Medical Journal Editors (2014). *Recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals*. Retrieved from http://www.icmje.org/recommendations/

International Council of Nurses. (2010). *Why a research network?* Retrieved from http://www.icn.ch/networks/why-a-research-network/

Johnston, C. C., Gagnon, A., Rennick, J., Rosmus, C., Patenaude, H., Ellis, J., . . . Byron, J. (2007). One-on-one coaching to improve pain assessment and management practices of

pediatric nurses. *Journal of Pediatric Nursing, 22*(6), 467-478. Retrieved from http://dx.doi.org/10.1016/j.pedn.2007.07.004

Jokelainen, M., Turunen, H., Tossavainen, K., Jamookeeah, D., & Coco, K. (2011). A systematic review of mentoring nursing students in clinical placements. *Journal of clinical nursing, 20*(19-20), 2854-2867. doi: 10.1111/j.1365-2702.2010.03571.x. Epub 2011 Mar 24.

Kammeyer-Mueller, J. D., & Judge, T. A. (2008). A quantitative review of mentoring research: Test of a model. *Journal of Vocational Behaviour 72*, 269–283. doi:10.1016/j.jvb.2007.09.006

Koh, S., Manias, E., Hutchinson, A., Donath, S., & Johnston, L. (2008). Nurses' perceived barriers to the implementation of a fall prevention clinical practice guideline in Singapore hospitals. *BMC Health Services Research, 8*(1), 1-10. doi: 10.1186/1472-6963-8-105

Kowtko, C., & Watts, L. K. (2008). Mentoring in health sciences education: A review of the literature. *Journal of Medical Imaging and Radiation Sciences, 39*(2), 69-74. doi: 10.1016/j.jmir.2008.04.003

Kram, E. K. (1983). Phases of the mentor relationship. *Academy of Management Journal, 26*(4), 608-625. doi: 10.2307/255910

Kram, E. K. (1988). *Mentoring at work: Developmental relationships in organizational life.* Lanham, Maryland: University Press of America.

Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing.* Thousand Oaks, CA: Sage Publication

LaFleur, A. K., & White, B. J., (2010). Appreciating mentorship: The benefits of being a mentor. *Professional Case Management, 15*(6), 305–311. doi: 10.1097/NCM.0b013e3181eae464.

Levin, R. F., Fineout-Overholt, E., Melnyk, B. M., Barnes, M., & Vetter, M. J. (2011). Fostering evidence-based practice to improve nurse and cost outcomes in a community health setting: A pilot test of the advancing research and clinical practice through close collaboration model. *Nursing Administration Quarterly, 35*(1), 21-33. doi: 10.1097/NAQ.0b013e31820320ff

Liberati, A., Altman, D.G., Tetzlaff, J., Mulrow, C., Gotzsche, P.C., Ioannidis, J.P. et al. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *Journal of Clinical Epidemiology*, 62(10), e1-34. doi: http://dx.doi.org/10.1136/bmj.b2700

Lincoln, Y., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Logan, J. & Graham, I. D. (2010). The Ottawa Model of Research Use. In J. Rycroft-Malone & T. Bucknall (Eds.), *Models and frameworks for implementing evidence-based Practice: Linking evidence to action*. (pp. 83-107). West Sussex, UK: Blackwell and Sigma Theta Tau International, Honor Society of Nursing.

Lugtenberg, M., Burgers, J. S., & Westert, G. P. (2009). Effects of evidence-based clinical practice guidelines on quality of care: A systematic review. *Quality and Safety in Health Care, 18*(5), 385-392. doi: 10.1136/qshc.2008.028043

Luhanga, F. L., Billay, D., Grundy, Q., Myrick, F., & Yonge, O. (2010). The one-to-one relationship: Is it really key to an effective preceptorship experience? A review of the literature. *International Journal of Nursing Education Scholarship, 7*, Article 21. doi: 10.2202/1548-923x.2012

Mariano, D. K., Caley, L. M., Eschberger, L., Woloszyn, A., Volker, P., Leonard, M. S., & Tung, Y. (2009). Building evidence-based practice with staff nurses through mentoring.

Journal of Neonatal Nursing, 15(3), 81-87. doi: http://dx.doi.org/10.1016/j.jnn.2009.01.005

McCloughen, A. F., O'Brien, L. F., & Jackson, D. (2009). Esteemed connection: Creating a mentoring relationship for nurse leadership. *Nursing Inquiry, 16* (4), 326–336. doi: 10.1111/j.1440-1800.2009.00451.x.

McCloughen, A., O'Brien, L., & Jackson, D. (2011). Nurse leader mentor as a mode of being: Findings from an Australian hermeneutic phenomenological study. *Journal of Nursing Scholarship, 43*(1), 97–104. doi: 10.1111/j.1547-5069.2010.01377.x. Epub 2011 Jan 4.

Melnyk, B. M., & Fineout-Overholt, E. (2010).The ARCC (Advancing Research and Clinical Practice through Close Collaboration): A model for system-wide implementation and sustainability of evidence-based practice. In J. Rycroft-Malone & T. Bucknall (Eds.), *Models and frameworks for implementing evidence-based Practice: Linking evidence to action* (pp.170-183). West Sussex: Wiley-Blackwell & Sigma Theta Tau International, Honor Society of Nursing.

Melnyk, B. M., Fineout-Overholt, E., & Mays, M. Z. (2008). The evidence-based practice beliefs and implementation scales: Psychometric properties of two new instruments. *Worldviews on Evidence-Based Nursing, 5*(4), 208-216. doi: 10.1111/j.1741-6787.2008.00126.x

Melnyk, B. M., Fineout-Overholt, E., Giggleman, M., & Cruz, R. (2010). Correlates among cognitive beliefs, EBP implementation, organizational culture, cohesion and job satisfaction in evidence-based mentors from a community hospital system. *Nursing Outlook, 58,* 301-308. doi: 10.1016/j.outlook.2010.06.002.

Mills, J., Lennon, D., & Francis, K. (2006). Mentoring matters: Developing rural nurses knowledge and skills. *Collegian, 13*(3), 32-36. doi: 10.1016/S1322-7696(08)60530-2

Moher D., Liberati A., Tetzlaff J., Altman D., & The PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA Statement. *Open Medicine,* 3, 123-130. doi: 10.1371/journal.pmed.1000097

Moher, D., Pham, B., Lawson, M. L., & Klassen, T. P. (2003). The inclusion of reports of randomised trials published in languages other than English in systematic reviews. *Health Technology Assessment, 7*(41), 1-90. doi: 10.3310/hta7410

Morse, J. M. (1995). The significance of saturation, *Qualitative Health Research, 5* (2), 147-149. doi: 10.1177/104973239500500201

Murray, M.A., Brunier, G., Chung, J.O., Craig, L.A., Mills, C., Thomas, A. et al. (2009). A systematic review of factors influencing decision-making in adults living with chronic kidney disease. *Patient Education and Counseling,* 76 (2), 149-158.

Myall, M., Levett-Jones, T., & Lathlean, J. (2008). Mentorship in contemporary practice: The experiences of nursing students and practice mentors. *Journal of Clinical Nursing, 17*(14), 1834-1842. doi: 10.1111/j.1365-2702.2007.02233.x

O'Brien, M. A., Rogers, S., Jamtvedt, G., Oxman, A. D., Odgaard-Jensen, J., Kristoffersen, D. T., . . . Harvey, E. L. (2007). Educational outreach visits: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* (4), CD000409. doi: 10.1002/14651858.CD000409.pub2

Ontario Hospital Association. (2011). *Ontario Hospital Association Quality & Patient Safety Plan (QPSP).* Retrieved from http://www.oha.com/Services/PatientSafety/Documents/4304%20OHA%20PatientSafetyBrochure%20FA%20rev3.pdf

Ontario Ministry of Health (2010). Excellent Care for All Act: Bill 46, Chapter 14 of the Statutes of Ontario: An Act respecting the care provided by health care organizations. Retrieved from http://www.ontla.on.ca/bills/bills-files/39_Parliament/Session2/b046ra.pdf

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Beverly Hills, CA: Sage Publications.

Ploeg, J., Davies, B., Edward, N., Gifford, W. & Miller, P. E. (2007). Factors influencing best-practice guideline implementation: Lessons learned from administrators, nursing staff, and project leaders. *Worldviews on Evidence-Based Nursing, 4*(4), 210-219. doi: 10.1111/j.1741-6787.2007.00106.x

Ploeg, J., de Witt, L., Hutchison, B., Hayward, L., & Grayson, K. (2008). Evaluation of a research mentorship program in community care. *Evaluation and Program Planning, 31*(1), 22-33. doi: 10.1016/j.evalprogplan.2007.10.002

Ploeg, J., Skelly, J., Rowan, M., Edwards, N., Davies, B., Grinspun, D., . . . Downey, A. (2010). The role of nursing best practice champions in diffusing practice guidelines: A mixed methods study. *Worldviews of Evidence Based Nursing, 7*(4), 238-251. doi: 10.1111/j.1741-6787.2010.00202.x

Public Health Resource Unit (2006). *Critical appraisal of qualitative studies*. Retrieved from http://www.sph.nhs.uk/sph-files/casp-appraisal-tools/Qualitative%20Appraisal%20Tool.pdf

QRS International, (2012). NVivo qualitative data analysis software (Version 10) [computer software]. Retrieved from http://www.qsrinternational.com/support_downloads.aspx

Ragins, B. R., & Kram, K. E. (2007). The roots and meaning of mentoring. In B. R. Ragins, & K. E. Kram (Ed.), *The handbook of mentoring at work, theory, research, and practice* (pp. 3-16). Thousand Oaks, CA: Sage Publications.

Rashotte, J., Thomas, M., Gregoire, D., & Ledoux, S. (2008). Implementation of a two-part unit-based multiple intervention: Moving evidence-based practice into action. *The Canadian Journal of Nursing Research, 40*(2), 94-114. Retrieved from http://www.ingentaconnect.com.proxy.bib.uottawa.ca/content/mcgill/cjnr/2008/00000040/00000002/art00008?token=004e1bb10170cfb1e4b383a4b3b2570742b46246c6a2d384b46282a726e2d5b426c6f642f466f4

Registered Nurses' Association of Ontario (RNAO) (2006). *Registered Nurses' Association of Ontario guidelines development methodology: Report*. Retrieved from http://rnao.ca/sites/rnao-ca/files/storage/related/2427_Methodology_report_formatted_-_Oct_2006_-_FINAL.pdf

Registered Nurses' Association of Ontario (RNAO) (2014). *Advanced Clinical Practice Fellowship Program: Request for proposals, 2015-2016*. Retrieved from http://rnao.ca/sites/rnao-ca/files/ACPF_Cycle_34_Request_For_Proposals.pdf

Registered Nurses' Association of Ontario (RNAO) (n.d.). *Clinical practice guidelines program.* Retrieved from http://rnao.ca/bpg/guidelines/clinical

Rodgers, B. L. (1989). Concepts, analysis and the development of nursing knowledge: The evolutionary cycle. *Journal of Advanced Nursing, 14*(4), 330-335. doi: 10.1111/j.1365-2648.1989.tb03420.x

Russell, J. E. A., & Adams, D. M. (1997). The changing nature of mentoring in organizations: An introduction to the special issue on mentoring in organizations. *Journal of Vocational Behaviour, 51*(1), 1-14. doi: http://dx.doi.org/10.1006/jvbe.1997.1602

Salsberg, J., & Macaulay, A. C. (2013). Linkage and exchange interventions. In S. Straus, J. Tetroe & I. D. Graham (Eds.), *Knowledge translation in health care: Moving from evidence to practice* (2nd ed.) (pp. 176-182). Oxford, UK: Blackwell Publishing.

Sambunjak, D., Straus, S. E., & Marusic, A. (2006). Mentoring in academic medicine: A systematic review. *JAMA, 296*(9), 1103-1115. doi: 10.1001/jama.296.9.1103

Sambunjak, D., Straus, S. E., & Marusic, A. (2010). A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *Journal of General Internal Medicine, 25*(1), 72-78. doi: 10.1007/s11606-009-1165-8

Santoro, N., McGinn, A. P., Cohen, H. W., Kaskel, F., Marantz, P. R., Mulvihill, M., & Schoenbaum, E. (2010). In it for the long-term: Defining the mentor-protégé relationship in a clinical research training program. *Academic Medicine, 85*(6), 1067-1072. doi: 10.1097/ACM.0b013e3181dbc5c7

Scott, S. D, Albrecht, L., O'Leary, K., Ball, G. D. C., Hartling, L., Hofmeyer, A., et al. (2012). Systematic review of knowledge translation strategies in the allied health professions. *Implementation Science, 7*(1), 70. doi:10.1186/1748-5908-7-70

Semin-Goossens, A., Helm, J. M. J., & Bossuyt, P. M. M. (2003). A failed model-based attempt to implement an evidence-based nursing guideline for fall prevention. *Journal of Nursing Care Quality, 18*(3), 217–225. doi: 10.1097/00001786-200307000-00008

Shamseer, L., Moher, D., Clarke, M., Ghersi, D., Liberati, A. D., Petticrew, M., . . . the, P.-P. G. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ, 349*, g7647. doi: 10.1136/bmj.g7647

Shea, B. J., Grimshaw, J. M., Wells, G. A., Boers, M., Andersson, N., Hamel, C., . . . Bouter, L. M. (2007). Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Medical Research Methodology, 7*, 10. doi: 10.1186/1471-2288-7-10

Shea, B., Boers, M., Grimshaw, J. M., Hamel, C., & Bouter, L. M. (2006). Does updating improve the methodological and reporting quality of systematic reviews? *BMC Medical Research Methodology, 6*, 27. doi: 10.1186/1471-2288-6-27

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*, 63–75. Retrieved from http://www.crec.co.uk/docs/Trustworthypaper.pdf

Shershneva, M. B., Wang, M., Lindeman, G. C., Savoy J. N., & Olson, C. A. (2010). Commitment to practice change: An evaluator's perspective. *Evaluation and the Health Professions, 33*(3): 256–275. doi: 10.1177/0163278710363960. Epub 2010 May 10.

Siu, G. P., & Sivan, A. (2011). Mentoring experiences of psychiatric nurses: From acquaintance to affirmation. *Nurse Education Today, 31*(8), 797-802. doi: 10.1016/j.nedt.2010.11.014

Stetler, C. B., & Caramanica, L. (2007). Evaluation of an evidence-based practice initiative: Outcomes, strengths and limitations of a retrospective, conceptually-based approach. *Worldviews of Evidence Based Nursing, 4*(4), 187-199. doi: 10.1111/j.1741-6787.2007.00097.x

Stewart, B. M., & Krueger, L. E. (1996). An evolutionary concept analysis of mentoring in nursing. *Journal of Professional Nursing, 12*(5), 311-321. doi: http://dx.doi.org/10.1016/S8755-7223(96)80011-1

Straus, S. E., Brouwers, M., Johnson, D., Lavis, J. N., Legare, F., Majumdar, S. R., et al. (2011). Core competencies in the science and practice of knowledge translation: Description of a

Canadian strategic training initiative. *Implementation Science, 6*(1), 127. doi: 10.1186/1748-5908-6-127.

Straus, S. E., Chatur, F., & Taylor,M. (2009). Issues in the mentor–mentee relationship in academic medicine: A qualitative study. *Academic Medicine,* 84(1), 135-139. doi: 10.1097/ACM.0b013e31819301ab.

Straus, S. E., Johnson, M. O., Marquez, C., & Feldman, M. D. (2013b). Characteristics of successful and failed mentoring relationships: A qualitative study across two academic health centers. *Academic Medicine, 88*(1), 82-89. doi: 10.1097/ACM.0b013e31827647a0

Straus, S. E., Straus, C., & Tzanetos, K. (2006). Career choice in academic medicine: Systematic review. *Journal of General Internal Medicine, 21*(12), 1222-1229. doi: 10.1111/j.1525-1497.2006.00599_1.x

Straus, S. E., Tetroe, J., & Graham, I. D. (2013a). Knowledge translation: What it is and what it isn't. In S. Straus, J. Tetroe & I. D. Graham (Eds.), *Knowledge translation in health care: Moving from evidence to practice* (2nd ed.) (pp. 3-13). Oxford: Blackwell Publishing.

Straus, S., E., & Sackett, D., L. (2014). *Mentorship in academic medicine*. Oxford: Wiley Blackwell.

Straus, S., Graham, I. D., Taylor, M., & Lockyer, J. (2008). Development of a mentorship strategy: A knowledge translation case study. *Journal of Continuing Education in Health Professions, 28*(3), 117-122. doi: 10.1002/chp.179.

Thomas, L., Cullum, N., McColl, E., Rousseau, N., Soutter, J., & Steen, N. (2000). Guidelines in professions allied to medicine. *Cochrane Database of Systematic Review* (2), CD000349. doi: 10.1002/14651858.cd000349

Thompson, D. S., Estabrooks, C. A., Scott-Findlay, S., Moore, K., & Wallin, L. (2007). Interventions aimed at increasing research use in nursing: a systematic review. *Implementation Science, 2*, 15. doi: 10.1186/1748-5908-2-15

Thompson, G. N., Estabrooks, C. A., & Degner, L. F. (2006). Clarifying the concepts in knowledge transfer: a literature review. *Journal of Advanced Nursing, 53*(6), 691-701. doi: 10.1111/j.1365-2648.2006.03775.x

Thorne, S. (2008). *Interpretive description*. Walnut Creek, CA: Left Coast Press, Inc.

Thorne, S., Kirkham, S. R., & MacDonald-Emes, J. (1997). Interpretive description: A noncategorical qualitative alternative for developing nursing knowledge. *Research in Nursing & Health, 20*,109-177. Doi: 10.1002/(SICI)1098-240X(199704)20:23.3.CO;2-B

Thorne, S., Kirkham, S. R., & O'Flynn-Magee, K. (2004). The analytic challenge in interpretive description. *International Journal of Qualitative Methods, 3* (1), 1-17. Retrieved from http://ejournals.library.ualberta.ca/index.php/IJQM/article/view/4481/3619

Timmerman, T., Teare, G., Walling, E, Delaney, C., & Gander, L. (2007). Evaluating the implementation and outcomes of the Saskatchewan Pressure Ulcer Guidelines in long-term care facilities. *Ostomy & Wound Management, 53*(2), 28-43.doi:17293628

Torgerson, C. (2003). *Systematic reviews.* London, UK: Continuum International Publishing Group.

Tourigny, L., & Pulich, M. (2005). A Critical Examination of Formal and Informal Mentoring Among Nurses. *The Health Care Manager, 24*(1), 68-76. doi: 10.1097/00126450-200501000-00011

Tri Council Policy Statement (2010). *Ethical conduct for research involving humans*. Retrieved from http://www.pre.ethics.gc.ca/pdf/eng/tcps2/TCPS_2_FINAL_Web.pdf

Turban, D. B., & Lee, F. K. (2007). The role of personality in mentoring relationships. In B. R. U. Ragins, & K. E. Kram (Ed.), *The handbook of mentoring at work, theory, research, and practice* (pp. 21-50). Thousand Oaks, CA: Sage Publications.

Turner, T.**,** Misso, M.**,** Harris, C., & Green, Sally. (2008). Development of evidence-based clinical practice guidelines (CPGs): Comparing approaches. *Implementation Science, 3(*45), 1-8. doi:10.1186/1748-5908-3-45

Udlis K. (2008). Preceptorship in undergraduate nursing education: An integrative review. *Journal of Nursing Education*, 47(1), 20-29. doi: 10.3928/01484834-20080101-09

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing Health Science, 15*(3), 398-405. doi: 10.1111/nhs.120

Wakefield, J. G. (2004). Commitment to change: Exploring its role in changing physician behavior through continuing education. *The Journal of Continuing Education in the Health Professions, 24*,197-204. doi: 10.1002/chp.1340240403

Walker L. & Avant K (2005). *Strategies for Theory Construction in Nursing*. (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Wallen, G. R., Mitchell, S. A., Melnyk, B., Fineout-Overholt, E., Miller-Davis, C., Yates, J., & Hastings, C. (2010). Implementing evidence-based practice: Effectiveness of a structured multifaceted mentorship programme. *Journal of Advanced Nursing, 66*(12), 2761-2771. doi: 10.1111/j.1365-2648.2010.05442.x

Wilkinson, J., Johnson, N., & Wimpenny, P. (2010). Models and approaches to inform the impacts of implementation of evidence-based practice. In D. Bick & I. D. Graham (Eds.), *Evaluating the impact of implementing evidence-based practice* (pp. 38–66). West Sussex, UK: Blackwell and Sigma Theta Tau International, Honor Society of Nursing.

Yonge, O., Billay, D., Myrick, F., & Luhanga, F. (2007). Preceptorship and mentorship: Not merely a matter of semantics. *International Journal of Nursing Education Scholarship, 4*, Article 19. doi: 10.2202/1548-923x.1384

Zimbardo, P. G., & Leippe, M. R. (1991). *The psychology of attitude change and social influence*. Philadelphia, Pennsylvania: Temple University Press.

Appendices

Appendix A. Glossary of Terms

Champions	"Champions are advocates of new ideas, products or projects. They are actively involved in all stages of the innovation process, and may use different skill sets during each of the stages…What distinguishes champions from other roles is their overwhelming enthusiasm and visionary qualities" (Thompson, Estabrooks, & Degner, 2006, p. 695).
Educational Outreach Visitors	"A personal visit by a trained person to health professionals in their own settings. This type of 'face-to-face' visit has been referred to as university-based educational detailing, public interest detailing, and academic detailing" (O'Brien et al., 2007, p. 2).
Facilitators	"Provide support to help individuals and groups realize what they need to change and how to make changes to incorporate evidence into practice" (Dogherty, Harrison, & Graham, 2010, p. 2).
Leaders	"A multidimensional process of influence to enable nurses to use research evidence in clinical practice, and includes behaviours and activities of managers…that exert direct and indirect influence on individuals, their environment, and organizational infrastructures" (Gifford, Davies, Edwards, Griffin, & Lybanon, 2007, p. 3).
Opinion Leaders	"The degree to which an individual is able to influence other individuals' attitudes or overt behaviour informally in a desired way with relative frequency" (Rogers, 2003, p. 27).
Preceptors	"A one-to-one relationship between a staff RN and a nursing student during an intense, time-limited clinical experience, with the support of nursing faculty to facilitate student learning and provide evaluation of course objectives" (Udlis, 2008. p. 20).

References

Dogherty, E. J., Harrison, M. B., & Graham, I. D. (2010). Facilitation as a role and process in achieving evidence-based practice in nursing: A focused review of concept and meaning. *Worldviews of Evidenced-Based Nursing, 7*(2), 76-89. doi: 10.1111/j.1741-6787.2010.00186.x

Gifford, W., Davies, B., Edwards, N., Griffin, P., & Lybanon, V. (2007). Managerial leadership for nurses' use of research evidence: an integrative review of the literature. *Worldviews of Evidenced-Based Nursing, 4*(3), 126-145. doi: 10.1111/j.1741-6787.2007.00095.x

O'Brien, M. A., Rogers, S., Jamtvedt, G., Oxman, A. D., Odgaard-Jensen, J., Kristoffersen, D. T., . . . Harvey, E. L. (2007). Educational outreach visits: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* (4), CD000409. doi: 10.1002/14651858.CD000409.pub2

Rogers, E. M. (2003). *Diffusion of innovations*. (5th ed.). New York, NY: Free Press.

Thompson, G. N., Estabrooks, C. A., & Degner, L. F. (2006). Clarifying the concepts in knowledge transfer: a literature review. *Journal of Advanced Nursing, 53*(6), 691-701. doi: 10.1111/j.1365-2648.2006.03775.x

Udlis K. (2008). Preceptorship in undergraduate nursing education: An integrative review. *Journal of Nursing Education*, 47(1), 20-29. doi: 10.3928/01484834-20080101-09

Appendix B. Ovid MEDLINE database <1989 - March 2012> Search Strategy Keywords

Population	
1.	healthcare professionals
2.	allied health professionals
3.	nurses
4.	physiotherapy
Intervention	
5.	social influence
6.	interpersonal relationship
7.	personal interaction
8.	mentoring
9.	mentorship
10.	mentor
11.	leaders
12.	preceptors
13.	knowledge broker
14.	educational outreach visitor/academic detailing
15.	opinion leader
16.	facilitators
17.	interactivity
18.	professional development
19.	professional role
20.	evidence-based practice
21.	evidence use
22.	diffusion of innovation
23.	knowledge transfer
24.	knowledge translation
25.	research utilization
26.	research implementation
27.	knowledge exchange
28.	research use
29.	guideline implementation
30.	clinical practice guideline
Designs	
31.	controlled clinical trial
32.	quasi-experimental
33.	before and after studies
34.	interrupted time series
35.	Prospectively
36.	baseline data
37.	follow-up
38.	random allocation
39.	randomized controlled trial
40.	double-blind method
41.	single-blind method

42.	placebos
43.	random
Setting	
44.	clinical practice
45.	hospital
46.	community
47.	long term

Appendix C. Ovid MEDLINE database <1988 - March 2012> Search Strategy

A. Example for Electronic Database Search: Ovid MEDLINE Database

1. Health Personnel/
2. Allied Health Personnel/
3. Community Health Workers/
4. exp Dental Auxiliaries/
5. Emergency Medical Technicians/
6. Home Health Aides/
7. exp Nurses Aides/
8. Operating Room Technicians/
9. Pharmacist Aides/
10. Physical Therapists/de
11. exp Physical Assistants/
12. Caregivers/
13. exp Dental Staff/
14. exp Dentists/
15. exp Medical Staff/
16. Nurses/
17. Nurse Anesthetists/
18. Nurse Clinicians/
19. Nurse Midwives/
20. Nurse Healthcare professionals/
21. Nurses, Male/
22. exp Nursing Staff/
23. Pharmacists/
24. exp Medical Staff, Hospital/
25. exp Physicians/
26. physician*.tw.
27. nurs*.tw.
28. doctor*.tw.
29. midwi*.tw.
30. physiotherapist*.tw.
31. (occupational adj2 therapist*).tw.
32. therapist*.tw.
33. psychologist*.tw.
34. (speech adj2 language adj2 pathologist*).tw.
35. audiologist*.tw.
36. (health adj2 care provider*).tw.
37. (field adj2 worker*).tw.
38. (health adj2 person*).tw.
39. psychiatrist*.tw.
40. pharmacist*.tw.
41. dentist*.tw.
42. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or

35 or 36 or 37 or 38 or 39 or 40 or 41
43. Mentors/
44. mentor*.tw.
45. Leadership/
46. leaders*.tw.
47. facilitat*.tw.
48. (opinion adj2 leader*).tw.
49. (educational adj2 outreach adj2 visitor*).tw.
50. (academic adj2 detail*).tw.
51. preceptor*.tw.
52. (knowledge adj2 broker*).tw.
53. 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52
54. shared learn*.tw.
55. exp Evidence-Based Practice/
56. evidence-based practice.tw.
57. (research adj utilization).tw.
58. (research adj implement*).tw.
59. (research adj translat*).tw.
60. (guideline* adj implement*).tw.
61. "diffusion of innovation"/
62. (knowledge adj2 exchange).tw.
63. (knowledge adj2 translation).tw.
64. practice development.tw.
65. professional development.tw.
66. 54 or 55 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65
67. 42 and 53 and 66
68. limit 67 to yr="1988 - 2012"

B. Hand Searching Conducted of:

1. Journals:Worldviews on Evidence-Based Nursing, Implementation Science, Journal of Nursing Scholarship, International Journal of Evidence Based Coaching and Mentoring, International Journal of Evidence-based Healthcare, Systematic Reviews.
2. Colloquium proceedings: Knowledge Utilization 1 to 11

Appendix D. Title and Abstract Screening Criteria

Criteria		Yes	No
1. Population	Healthcare professionals responsible for patient care (i.e. physicians, nurses, physiotherapists).	□	□
2. Intervention	a. Mentoring/intervention to enhance use of evidence in clinical practice.	□	□
	Mentoring is defined, at a minimum, as: b. Mentor/healthcare provider is more experienced than mentee/learner/healthcare provider (as it relates to the specific task);	□	□
	c. Individualized mentoring/support based on mentees'/ learners'/healthcare providers' needs;	□	□
	d. Interpersonal relationship as indicated by mutual benefit, engagement and commitment.	□	□
3. Comparator	Intervention group compared to a control group or other intervention.	□	□
4. Outcomes	Include one of the following: • Knowledge and skills about the evidence to be used.	□	□
	• Belief/attitude toward use of research or guidelines.	□	□
	• Intention/actual use of research or guidelines.	□	□
	• Purchasing of required equipment, changes in policies and procedures.	□	□
	• Changes in patient outcomes as a result of using the evidence or guideline.	□	□
	• Changes in healthcare provider outcomes as a result of using the evidence or guideline.	□	□
	• Changes in organizational outcomes as a result of using the evidence or guideline.	□	□
5. Study Designs	1. Randomized controlled trial (RCT); or	□	□
	2. Controlled clinical trial (CCT); or	□	□
	3. Controlled before and after study (CBA); or	□	□
	4. Interrupted time series (ITS); or	□	□
	5. Pre/post-test studies.	□	□

Instructions:

1. For population, if Yes = Include and move to criteria 2; if No = Exclude.
2. For intervention,
   - If (a) is yes, include and move to (b); if No, exclude;
   - If (b) is yes, include and move to (c); if No, exclude;
   - If (c) is yes, include and move to (d); if No, exclude;
   - If (d) is yes, include and move to criteria No. 3; if No, exclude.
3. For comparator, if Yes = Include and move to criteria No. 4; if No = Exclude.
4. For outcomes, if Yes = Include and move to criteria No 5; if No = Exclude.
5. For study design, if Yes = Include; if No = Exclude.

Appendix E. Letter of Support

March 25, 2013

Re: Letter of Support: Ghadah Abdullah's Research Study

To whom it may concern:

It is with great pleasure that I write this letter on behalf of the Registered Nurses' Association of Ontario (RNAO), to provide strong support for the doctoral research proposal of Ghadah Abdullah titled: "***Understanding Mentoring as a Knowledge Translation Intervention for Implementing Nursing Practice Guidelines.***"

RNAO is the professional association representing registered nurses in Ontario. Our mission is to foster knowledge-based nursing practice, promote quality work environments, deliver excellence in professional development, and advance healthy public policy to improve health. We promote the full participation of present and future registered nurses in improving health, and shaping and delivering health-care services.

RNAO has long advanced the role of nurses as knowledge professionals. To support nurses in this endeavor, RNAO has lead a myriad of programs, including the internationally renowned Best Practice Guidelines (BPG) Program launched in 1999, and the Advanced Clinical Practice Fellowship (ACPF) Program launched on the same year. The mandate of the BPG program is to develop, disseminate, and actively support the uptake of evidence-based clinical and healthy work environment BPGs, and to evaluate their impact on patients, organizational and health system outcomes. The mandate of the ACF program is to advance knowledge development and knowledge-based practice, through a self-directed, mentor-supported intensive 12 week learning experience. It is this later program that is the focus of Ms. Abdullah's doctoral research "*Understanding Mentoring as a Knowledge Translation Intervention for Implementing Nursing Best Practice Guidelines,*" a study that will advance our understanding of the effectives of ACF and mentoring on the uptake of guidelines in practice.

As a key decision maker, RNAO welcomes the opportunity to support Ms Abdullah's doctoral research, once approval from the University of Ottawa Research Ethics Board has been received. Upon her being granted approval, RNAO is prepared to provide the following support with the understanding that RNAO will receive a full report of the research findings, and has the opportunity to be involved in the authorship of any related publications: .:

- Support the recruitment of Best Practice Guideline Implementation/Knowledge Transfer Fellowships fellows and primary mentors who participated in a fellowship between 2009-2012. This would involve establishing initial contact and

Registered Nurses' Association of Ontario L'Association des infirmières et infirmiers autorisés de l'Ontario
158 Pearl Street, Toronto, ON M5H 1L3 ~ Ph. 416 599 1925 ~ Toll-free 1 800 268 7199 ~ Fax 416 599 1926 ~ www.RNAO.ca

providing interested individuals with REB approved information letters so they can be in contact with the researcher should they be willing to participate. Any financial cost will be the sole responsibility of Ms. Abdullah.

- Support the participation of, up to three, RNAO management team members and project staff in qualitative interviews.
- Provide access to relevant fellowship program documents such as workshop materials (i.e. *Fellowships Info Sessions, Getting Started, All About Learning Plans! and Question and Answer Sessions for Applicants*).

If you have any questions regarding this letter of support, please contact me at

Warm regards,

Primary Investigator: Ghadah Abdullah, MSc, RN (Saudi Arabia), PhD (Candidate) in Nursing, School of Nursing,

Thesis Supervisor: Dawn Stacey RN, PhD, CON(C)
University Research Chair in Knowledge Translation to Patients
Scientist,
Associate Professor,

uOttawa

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Appendix F. Recruitment Email for Mentors and Fellows

Email Sujet line: Invitation for ACPF Fellows and Mentors/ Invitation pour les fellows et les mentors de l'*ACPF*

Français ci-dessous

Dear: [Name of the Fellow or Primary Mentor]

We are interested in learning more about how mentoring works within the RNAO Best Practice Guidelines Implementation/Knowledge Transfer Fellowship program. You are invited to participate in a research study because you have participated in the ACPF program as a fellow or mentor. The study is being conducted as part of a doctoral thesis by Ghadah Abdullah, MSc, PhD (candidate), RN (Saudi Arabia) under the supervision of Dawn Stacey RN, PhD at the University of Ottawa.

If you agree to participate, your involvement would include being interviewed for about 30-45 minutes at a convenient time and location (in person or telephone) to discuss your experiences in the program. The purpose of the study is to explore the use of formal mentoring for facilitating the implementation of nursing guidelines. This research will provide further understanding of the relationship between mentors and fellows, in particular in the context of the Best Practice Guideline Implementation/Knowledge Transfer fellowship. The study will also explore how mentoring influences nursing guideline implementation.

Deadline to respond is October 4th 2013. Participants will be selected on a first come/first served basis until the targeted number of participants is reached. Please see the attached consent form for more details.

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The RNAO will not be provided with names of individuals who agree to participate.

If you are interested in finding out more about the study, or are interested in participating, please contact:

Ghadah Abdullah, MSc, RN (Saudi Arabia), PhD (Candidate) in Nursing,

Email:

Sincerely,

[Madame, Monsieur, Nom du fellow ou du mentor principal]

Nous souhaitons approfondir nos connaissances sur la façon dont le mentorat fonctionne au sein du programme de fellowship ACPF Implementation/Knowledge Transfer de l'AIIAO. Vous êtes donc invité(e) à participer à une étude de recherche puisque vous avez été fellow ou mentor au sein du programme ACPF. La recherche est menée dans le cadre de la thèse de doctorat de Ghadah Abdullah, MSc, PhD (doctorante), IA (Arabie saoudite), à l'Université d'Ottawa, sous la supervision de Dawn Stacey, IA, PhD.

Si vous consentez à participer, votre participation consisterait d'une entrevue d'environ 30 à 45 minutes à un moment et à un endroit qui vous conviennent (en personne ou par téléphone) pour discuter de vos expériences au sein du programme. Le but de l'étude est d'explorer l'utilisation d'un programme formel

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de mentorat pour faciliter l'implantation de lignes directrices sur les pratiques exemplaires. Cette recherche fournira une compréhension accrue de la relation entre les mentors et les fellows, plus particulièrement dans le contexte du programme de fellowship Best Practice Guideline Implementation/Knowledge Tranfer. La recherche explorera également comment le mentorat influence l'implantation des pratiques exemplaires.

L'échéancier pour faire parvenir votre réponse est le 4 octobre 2013. Les participants seront choisis sur le principe du « premier arrivé, premier servi » jusqu'à ce que le nombre visé de participants soit atteint. Pour plus de renseignements, veuillez consulter le formulaire de consentement ci-joint.

L'AIIAO ne recevra pas les noms des personnes qui consentiront à participer à l'étude.

Si vous désirez obtenir plus d'information concernant cette étude ou souhaitez participer, veuillez communiquer avec la chercheure :

Ghadah Abdullah, MSc, IA (Arabie saoudite), PhD (doctorante) en Sciences infirmières, École des sciences infirmières, Centre de recherche sur les pratiques exemplaires en soins infirmiers

Courriel :

Veuillez agréer, Madame, Monsieur, l'expression de mes sentiments les meilleurs.

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Appendix G. Recruitment Email for Program leaders

Dear: *Name of the Program Leader*

We are interested in learning more about how mentoring works within the RNAO Best Practice Guidelines Implementation/Knowledge Transfer Fellowship program. You are invited to participate in this study because you were/are involved in the development and/or management of this program for a minimum of six months.

If you agree to participate, your involvement would include being interviewed for about 30-45 minutes at a convenient time and location (in person or telephone) to discuss your experiences in the program. The purpose of the study is to explore the use of formal mentoring for facilitating the implementation of nursing guidelines. This research will provide further understanding of the relationship between mentors and fellows, in particular in the context of the Best Practice Guideline Implementation/Knowledge Transfer fellowship. The study will also explore how mentoring influences nursing guideline implementation.

The study is being conducted as part of a doctoral thesis by Ghadah Abdulla MSc, PhD (candidate), RN (Saudi Arabia) under the supervision of Dawn Stacey RN, PhD at the University of Ottawa.

Please see the attached consent form for more details.

If you are interested in finding out more about the study, please contact:

Ghadah Abdullah, MSc, RN (Saudi Arabia), PhD (Candidate) in Nursing,

Email:

You will be selected based on first come/first served rule
The RNAO will not be provided with names of individuals who agree to participate.

Sincerely,

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Appendix H. Information Letter and Consent Form

Understanding Mentoring as a Knowledge Translation Intervention for Implementing Nursing Practice Guidelines: A Qualitative Study

Primary Investigator:

Ghadah Abdullah, MSc, RN (Saudi Arabia),
PhD (Candidate) in Nursing, School of Nursing,

PhD Supervisor:
Dawn Stacey RN, PhD, CON(C)
University Research Chair in Knowledge Translation to Patients
Scientist,
Associate Professor,

Information Letter

Invitation to Participate: You are invited to participate in the above mentioned research study conducted by Ghadah Abdullah, MSc, RN (Saudi Arabia), PhD (Candidate), as part of a thesis study supervised by Dr. Dawn Stacey RN, PhD, CON(C).

Purpose of the Study: The purpose of the study is to explore the use of formal mentoring for facilitating the implementation of nursing guidelines. This research will provide further understanding of the relationship between mentors and fellows, in particular in the context of the Best Practice Guideline Implementation/Knowledge Transfer fellowship. The study will also explore how mentoring influences nursing guideline implementation.

Participation: I understand that I will be asked to participate in a face-to-face or telephone tape-recorded interview. The interview will be arranged at a time and location convenient to me (e.g. in person or over the telephone). My participation will essentially consist of being interviewed for approximately 30-45 minutes. I understand that I have the option to be contacted by the researcher to participate in a follow-up interview to review the preliminary study findings and confirm preliminary findings. This second interview will take approximately 20-30 minutes.

Risks: No risks are anticipated except my time. My participation in this study might include expressing some negative opinions and this may cause me to feel. some level of discomfort. These negative opinions will be kept confidential. I have received assurance from the researcher that every effort will be made to minimize any risks.

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Benefits: This research will provide further understanding of the role of mentoring as a knowledge translation intervention for increasing use of guidelines in clinical practice. This information will contribute to knowledge regarding mentoring as an intervention to help enhance practice change in clinical settings.

Confidentiality and Anonymity: I understand that the contents of my interview will be used only for the purposes of this research. I have received assurance from the researcher that the information I will share will remain strictly confidential. To protect my **anonymity,** all information identifying me will be removed from the interview transcripts and a code will be assigned. I understand that my responses during the interview may be quoted by the investigator but only after all personal identification information is removed and the content of the quote does not disclose my identity. My identity will not be revealed in any publications or presentations resulting from the research.

Conservation of Data: All data related to the study such as transcripts and audio tapes will be kept in a locked cabinet in the locked Nursing Best Practice Research Centre at the University of Ottawa's School of Nursing. Electronic transcripts and computer files will be password protected on the researcher's computer located in the locked Nursing Best Practice Research Centre. The only people with access to the data will be the thesis student's supervisor (Dr. Dawn Stacey RN, PhD, CON(C)).The thesis committee members (Dr. Barbara Davies, PhD, RN, Dr. Jenny Ploeg, PhD, RN, and Dr. Kathryn A. Smith Higuchi, PhD, RN) will not have access to the data, but they will have access only to the results which will be reported as grouped or aggregate data and therefore it will impossible to identify the participants in the study report. As per University policy, tapes, transcripts, papers and computer files will be kept in the locked Nursing Best Practice Research Centre at the University of Ottawa, School of Nursing for ten years after data collection and will then be destroyed.

Voluntary Participation: I know that I am under no obligation to participate. If I choose to participate, I may withdraw from the study at any time without suffering any adverse consequences. If I do choose to withdraw from the study, I will get to decide if my data will be used in this research project.

If you have any questions about the study, you may contact the researcher or her supervisor.

If you have any questions regarding the ethical conduct of this study, you may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5.

Tel.:

Email:

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Consent Form

Understanding Mentoring as a Knowledge Translation Intervention for Implementing Nursing Practice Guidelines: A Qualitative Study

Consent to Participate in Research

I understand that I am being asked to participate in a research study about the use of formal mentoring within the Best Practice Guideline Implementation/Knowledge Transfer Fellowship. This study has been explained to me by Ghadah Abdullah.

I have read this 3 page information letter and consent form. All my questions have been answered to my satisfaction. If I decide at a later stage in the study that I would like to withdraw my consent, I may do so at any time.

I voluntarily agree to participate in this study.

A copy of the signed information letter and/or consent form will be provided to me.

Signatures

_____
Participant's Name (Please print.)

_____ _____
Participant's Signature Date

Investigator Statement

I carefully explained to the research participant the nature of the above research study. To the best of my knowledge, the research participant signing this consent form understands the nature, demands, risks and benefits involved in participating in this study. I acknowledge my responsibility to care for the well-being of the above research participant, to respect her/his rights and wishes, and to conduct the study according to applicable good clinical practice guidelines and regulations.

_____
Name of Investigator (Please print.)

_____ _____
Signature of Investigator Date

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Appendix I. Semi-Structured Interview Guide for Fellows and Mentors

1. Tell me about your experience as a [fellow, mentor] with the BPG Implementation/KnowledgeTransfer fellowship?
Prompts: your role, the focus, how you were paired?

2. In general what were the learning objectives of the fellowship? What was done to achieve these objectives?

Now, I would like to focus on the experience of mentoring.

3. Based on your experience what did mentoring look like?
Prompts: How often did you meet? Where? How would you describe your relationship?

4. What types of mentoring strategies were used?
Prompts: attending education session, individual office meeting, performance feedback, observation, educational materials, informal breakfast/lunch meeting

5. What types of resources were available to support you in your role as a (mentor, fellow)?

6. One of the key characteristics of mentoring is the focus on the learning needs of the fellow. Can you tell me how easy or difficult it was to establish these learning needs and to maintain a focus on these needs?
Prompts: How did you establish your learning needs? How did your learning needs change or not throughout the fellowship?

7. From your perspective, how did your mentoring experience impact on you (fellow/mentor), patients, colleagues, and the organization?
Prompt: how was impact measured?

8. Do you have any further comments?

9. Are you willing to be contacted to review the findings? □Yes □No

Thank you very much for your time.

Appendix J. Semi-Structured Interview Guide for Program Leaders

1. Tell me about your experience in the development and/or management of the BPG Implementation/KnowledgeTransfer fellowship?

2. How does the RNAO help fellows find suitable mentors, if necessary?
Prompt: selection, matching

Now, I would like to focus on the experience of mentoring.

3. Based on your experience what does mentoring in this program look like?

4. What types of mentoring strategies are used?
Prompts: attending education session, individual office meeting, performance feedback, observation, educational materials, informal breakfast/lunch meeting

5. What types of resources are available to support mentors and fellows?

6. One of the key characteristics of mentoring is the focus on the learning needs of the fellow. Can you tell me how easy or difficult it is for fellows to establish their learning needs and maintain a focus on these needs?

7. From your perspective, how does the mentoring experience impact fellows, mentors, fellow's organization, patients, the RNAO program, and the Ontario healthcare system?
Prompt: how is impact measured?

8. Is there someone involved in the development, shaping and/or managing of the program that you would recommend we interview for this study?

9. Do you have any further comments?

10. Are you willing to be contacted to review the findings? □Yes □No

Thank you very much for your time.

Appendix K. Demographic Questionnaire

Please tell us about yourself

1. What is your age?
□ 25 or under
□ 26-40
□ 41-55
□ 56 or older

2. What sex are you?
□ Male
□ Female

3. How long have you been involved in the nursing profession? _____ years

4. What is the highest level of education you completed?
□ Diploma
□ Baccalaureate degree
□ Master's degree
□ Doctoral degree
□ Other _____

5. What is your current position?
□ Staff nurse
□ Leadership position (manager, APN)
□ Other. Specify _____

6. Where are you currently working?
□ Acute care (community or academic health science hospital)
□ Complex continuing care/ LTC
□ Community care/ home care
□ Public health
□ Other. Specify _____

7. How long have you been in your current position? _____ years

For fellows and mentors only:

8. Where were you working at the time of the fellowship?
□ Acute care (community or academic health science hospital)
□ Complex continuing care/ LTC
□ Community care/ home care
□ Public health
□ Other. Specify _____

9. What was your position at the time of the fellowship?
□ Staff nurse
□ Leadership position (manager, APN)
□ Other. Specify _____

Appendix L. University of Ottawa Ethics Approval

File Number: H04-13-03 **Date (mm/dd/yyyy):** 03/26/2014

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

University of Ottawa
Office of Research Ethics and Integrity

Ethics Approval Notice

Health Sciences and Science REB

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

First Name	Last Name	Affiliation	Role
Dawn	Stacey	Health Sciences / Nursingy	Supervisor
Ghadah	Abdullah	Health Sciences / Nursingy	Student Researcher

File Number: H04-13-03

Type of Project: PhD Thesis

Title: Understanding Mentoring as a Knowledge Translation Intervention for Implementing Nursing Practice Guidelines: A Qualitative Study

Renewal Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
06/03/2014	06/02/2015	Ia

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

Special Conditions / Comments:
N/A

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Appendix M. Excluded Studies

First Author, Year	Title	Reason for Exclusion
		Ineligible Population
Dobbins, 2009	A description of a knowledge broker role implemented as part of a randomized controlled trial evaluating three knowledge translation strategies.	Decision-maker not responsible for patient care.
Dorgo, 2008	The effectiveness of a peer-mentored older adult fitness program on perceived physical, mental, and social function.	Older adults patients
		Non-Intervention Designs
Bolton, 2005	Engaging nurse leaders in health services research.	Qualitative
Mascola, 2008	Guided mentorship in evidence-based medicine for psychiatry: a pilot cohort study supporting a promising method of real-time clinical instruction.	Prospective cohort
Diaz, 2010	Acute care surgery program: mentoring fellows and patients outcomes.	Retrospective descriptive study
Dearholt, 2008	Educational strategies to develop evidence-based practice mentors.	Post-study only design
Bhaloo, 2008	From pilot project to annual success: creating an evidence-based leadership program for medical directors in long-term care.	Survey
Wangensteen, 2011	Research utilisation and critical thinking among newly graduated nurses: predicators for research. A quantitative cross-sectional study.	Cross-sectional survey
Willenbring, 2004	Beliefs about evidence-based practices in addiction treatment: a survey of veterans' administration program leaders.	Survey
Young, 2003	Role for opinion leaders in promoting evidence-based surgery.	Postal survey
Aarons, 2006	Transformational and transactional leadership: association with attitudes toward evidence-based practice.	Survey
Carlson, 2012	The expert rate: supervisory behaviours that impact	Survey

	the implementation of evidence-based practices.	
Melnyk, 2010	Correlates among cognitive beliefs, EBP implementation, organizational culture, cohesion and job satisfaction in evidence-based practice mentors from a community hospital system.	Descriptive correlational study
Gerrish, 2012	Factors influencing advanced practice nurses' ability to promote evidence-based practice among frontline nurses.	Case studies
Gerrish, 2011a	The role of advanced practice nurses in knowledge brokering as a means of promoting evidence-based practice among clinical nurses.	Case studies
Gerrish, 2011b	Factors influencing the contribution of advanced practice nurse to promoting evidence-based practice among front-line nurses: findings from a cross-sectional survey.	Cross-sectional survey
O'Neil, 2008	Preceptorship in home care.	Survey
Dogherty, 2012	Following a natural experiment of guideline adaptation and early implementation: a mixed methods study of facilitation.	Mixed methods study
Doumit, 2011	Opinion leaders and changes over time: a survey.	Survey
Grimshaw, 2006	Is the involvement of opinion leaders in the implementation of research findings a feasible strategy?	Postal questionnaire survey
Stetler, 2006	Role of external facilitation in implementation of research findings: a qualitative evaluation of facilitation experiences in the veterans' health administration.	Qualitative post-hoc evaluation
Roe, 2012	Mentoring for evidence-based practice: a collaborative approach.	Survey
Wilkinson, 2011	An exploration of the roles of nurse managers in evidence-based practice implementation.	Qualitative case study
		Ineligible Intervention
		Interventions not

		examining social influence roles
Johansson, 2010	Evidence-based practice: the importance of education and leadership.	
Hart, 2008	Effectiveness of a computer-based educational program on nurses' knowledge, attitude, and skill level related to evidence-based practice.	
Varnell, 2008	Effect of an educational intervention on attitudes toward and implementation of evidence-based practice.	
Edwards, 2007	Promoting evidence-based childhood fever management through a peer-education program based on the theory of planned behaviour.	
Yackel, 2010	A nurse-facilitated depression screening program in an army primary care clinic.	
Poe, 2011	Building nursing intellectual capital for safe use of information technology: a before-after study to test an evidence-based peer coach intervention.	
		Interventions not supporting the uptake of evidence in clinical practice
Bhandari, 2003	A randomized trial of opinion leader endorsement in a survey of orthopaedic surgeons: effect on primary response rates.	
Markey, 2001	Promotion evidence-based medicine in general practice-the impact of academic detailing.	
Harrow, 2001	Evidence and leadership: the tools for change.	
Logan, 1995	The staff nurse as a research facilitator.	
Rurledge, 2011	Clinical expert facilitators of evidence-based practice.	
Gawlinski, 2011	Advancing nursing research through a mentorship program for staff nurses.	
		Interventions not meeting mentoring characteristics

Hodnett, 1996	A strategy to promote research-based nursing care: Effects on childbirth outcomes
Gifford, 2011	Developing team leadership to facilitate guideline utilization: planning and evaluating a 3-month intervention strategy.
Ellis, 2005	From workshop to work practice: an exploration of context and facilitation in the development of evidence-based practice.
Zillick, 2008	An evaluation of educational outreach to improve evidence-based prescribing in Medicaid: a cautionary tale.
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