

DEVELOPMENT AND VALIDATION OF THE READINESS TO COLLABORATE
SCALE (RCS)

By

Jennifer Murdoch

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

Dalhousie University
Halifax, Nova Scotia
July 2016

© Copyright by Jennifer Murdoch, 2016

TABLE OF CONTENTS

LIST OF TABLES	vi
LIST OF FIGURES	vii
ABSTRACT	viii
LIST OF ABBREVIATIONS USED	ix
ACKNOWLEDGEMENTS	xi
CHAPTER ONE - INTRODUCTION.....	1
Proposed Research.....	2
Research Objective	3
Assumptions of Study.....	5
Defining Readiness, Collaboration, Communication and Trust	9
<i>Definitions in the Literature: Readiness</i>	10
<i>Definitions in the Literature: Collaboration</i>	10
<i>Definitions in the Literature: Communication</i>	15
<i>Definitions in the Literature: Trust</i>	16
CHAPTER TWO – LITERATURE REVIEW	21
Introduction	21
Method for Literature Review	21
Interprofessional Collaboration	23
<i>Interprofessional Collaboration for Obstetrical Care</i>	28
Barriers to Interprofessional Collaboration	38
Team Effectiveness and Function.....	41
Factors Affecting the Desire to Work in a Team.....	48
Interprofessional Competencies	54
<i>Professional Clinical Competencies in Obstetrical Teams</i>	62
Teamwork in Other Industries	71
Team Surveys Available.....	79
Self-Evaluations	83

Influencing Policy	86
Gap in the Literature: Readiness	90
CHAPTER THREE - THEORETICAL AND CONCEPTUAL FRAMEWORK	93
Management Theory	95
Unfreeze, Change and Refreeze Theory	97
Systems Theory	100
Systems Theory and Interprofessional Collaboration	102
Systems Theory to Complexity Theory	104
Complex Adaptive Systems Theory	105
Conceptual Framework for Needs Based System and Health Human Resources Planning	107
CHAPTER FOUR - STUDY DEVELOPMENT	116
Approach	116
Study Design	117
Study Framework	117
Definitions used for study	118
<i>Readiness for Interprofessional Collaboration</i>	119
<i>Readiness for Interprofessional Communication</i>	120
<i>Readiness for Interprofessional Trust</i>	120
Scale	120
Content Validity Index	121
Study Population	122
<i>Sample Size</i>	123
Study Protocol - Content Validation	125
<i>Inclusion/Exclusion Criteria</i>	125
<i>Recruitment Strategy</i>	125
<i>Data Collection</i>	126
<i>Data Analysis</i>	126
Study Protocol - Construct Validation	127
<i>Inclusion Criteria/ Exclusion Criteria</i>	127
<i>Recruitment Strategy</i>	127
<i>Data Collection</i>	128
<i>Data Analysis</i>	129

Study Protocol - Criterion Validation.....	129
<i>High and Low Functioning Teams</i>	129
Data Handling.....	131
Errors	132
<i>Random and systematic errors</i>	132
<i>Type I and Type II errors</i>	134
CHAPTER - FIVE METHODS.....	135
Research Questions	135
Step 1: Item Generation.....	135
Step 2: Instrument Administration and Initial Item Reduction/ Phase 1 –	
Content Validity	136
<i>Interviews</i>	137
Step 3: Re-Administration of Revised Readiness to Collaborate Scale / Phase II	137
Step 4 – Principal Component Analysis – Construct Validity and Internal Consistency	
Reliability	138
Step 5: Criterion Validity	142
Step 6: Final Survey Developed - The Validated Readiness to Collaborate Scale.....	144
CHAPTER SIX - FINDINGS.....	145
Phase I – Content Validation	145
<i>Participant Demographics</i>	145
<i>Initial Item Reduction</i>	146
<i>Interviews</i>	146
<i>Content Validity Index (CVI)</i>	149
Phase II – Construct Validation.....	151
Initial Data Analysis	154
<i>Bartlett test of Spehericity and Keiser-Meyer-Olkin</i>	155
Principal Components Analysis (PCA) and Scree Plot	156
<i>Communalities</i>	158
<i>Oblique Rotation</i>	158
<i>Pattern Matrix</i>	160
<i>Factor Questions Post Rotations</i>	160
<i>Repeat Oblique Rotation and Chronbach’s Alpha</i>	161
<i>Internal Consistency – Chronbach’s Alpha</i>	162

Completion of the Readiness To Collaborate Scale	162
Criterion Validation -T-Test (comparing high and low function teams).....	163
CHAPTER SEVEN - DISCUSSION	166
Validation Overview.....	167
Research Questions and Response	168
The Conceptual Framework and the New Tool.....	184
The Utility of Readiness to Collaborate Scale in Industries other than Healthcare.....	185
Implications for Health System	186
Limitations and Strengths.....	190
Future Research.....	194
REFERENCES	197
Appendix 1: Phase I Questions and Item Deletion.....	246
Appendix 2: Communalities.....	251
Appendix 3: Consent - Content Validation Participants – Phase I.....	253
Appendix 4: Phase I Survey	257
Appendix 5: Content Validation Interview Guide.....	263
Appendix 6: Consent - Construct Validation Participants – Phase II.....	264
Appendix 7: Phase II Survey	268
Appendix 8: Positive and Negative Correlations Examples.....	273
Appendix 9: Primary Place of Work and Years in Service – Phase II	275
Appendix 10: Descriptive Statistics	276
Appendix 11: Total Variance Post Rotation.....	278
Appendix 12: Pattern Matrix – Post Rotation.....	280
Appendix 13: Factor 1 - Questions and Loadings – Post Rotation.....	282
Appendix 14: Factor 3 - Questions and Loadings – Post Rotation.....	283
Appendix 15: Factor 4 - Questions and Loadings – Post Rotation.....	284
Appendix 16: Factor 2 - Questions and Loadings – Post Rotation.....	285
Appendix 17: Repeat Rotation Question Added	286
Appendix 18: Final RCS with Chronbach’s Alpha	287
Appendix 19: Removed Questions – Exact Wording From Previously Validated Tools.....	288
Appendix 20: Final Readiness to Collaborate Scale (RCS)	289

LIST OF TABLES

Table 1: <i>Correlation Strengths</i>	139
Table 2: <i>Sensitivity and Specificity</i>	143
Table 3: <i>Phase I Content Validity Index (CVI) - using seven criteria to validate the Readiness to Collaborate Scale's structure and utility</i>	151
Table 4: <i>Phase II Participant Professions (n=140)</i>	152
Table 5: <i>Breakdown of Partial Respondents and % of Questions Answered</i>	154
Table 6: <i>KMO and Bartlett's Test</i>	156
Table 7: <i>Initial Total Variance Showing 13 Factors with Eigenvalues >1.0</i>	158
Table 8: <i>Practitioners Identified as Participating in High and Low Functioning Teams</i>	164
Table 9: <i>Criterion Validation for High and Low Functioning Team Respondents: t-Test</i>	164

LIST OF FIGURES

Figure 1: <i>Conceptual Framework for Health Human Resources and System Planning</i>	108
Figure 2: <i>Framework for Action on Interprofessional Education and Collaborative Practice</i>	113
Figure 3: <i>Study Framework</i>	118
Figure 4: <i>Initial Scree Plot Indicating 13 Possible Factors in the Tool with Eigenvalues >1.0</i>	157
Figure 5: <i>Rotated Factors Scree Plot Indicating Four Factors with Eigenvalues >1.0</i>	159

ABSTRACT

A gap in the literature has been identified regarding the lack of available measurement tools and approaches to measure and/or assess the readiness of post-licensure healthcare practitioners to participate effectively in an interprofessional collaborative team.

This study suggests that testing the readiness to collaborate of an individual practitioner to participate in an interprofessional team ultimately may support the creation of a high-functioning and successful team. In order to assist in this process, a new instrument has been developed and validated. Content, construct and criterion validation was done to answer the research questions that included: 1. What questions can be used to identify the readiness of a post-licensure health care provider to enter into an interprofessional team? 2. Can readiness to collaborate be measured under three distinct factors: interprofessional collaboration, communication and trust? 3. Will a group that has demonstrated excellence in interprofessional teaming, show higher scores in interprofessional collaboration, communication and trust versus a group that is considered lower functioning?

Content validation was done with a group of low-risk obstetrical providers (n=9) in Phase I. Phase II – Construct Validation included a group of low-risk obstetrical providers from BC Women and Children's Hospital in Vancouver and the IWK in Halifax (n=140). Through Principal Component Analysis, four factors were discovered: Readiness for Interprofessional Collaboration, Communication, Trust and Reluctance to Collaborate. This last factor, Reluctance to Collaborate, was not anticipated and emerged during the factor analysis. Finally, Borrill's (2001) five questions to determine high and low functioning teams were used for the criterion validation. A t-Test to determine significant difference was completed and *p* values indicated there was a difference between scores of those who were high functioning versus those who were low functioning demonstrating that the Readiness to Collaborate Scale (RCS) can identify those who are ready to participate in an interprofessional team, and those who are not.

The identification of practitioner's readiness should help to support capacity building and sustainability of effective interprofessional teams. The Readiness to Collaborate Scale with 41 validated questions is now ready to test individual readiness to collaborate in an interprofessional team.

LIST OF ABBREVIATIONS USED

ATHCTS - Attitudes Toward Health Care Teams Scale

BC - British Columbia

CA - Chronbach's Alpha

CanMEDS - Canadian Medical Education Directives for Specialists

CIHC - Canadian Interprofessional Health Collaborative

CPAT - Collaborative Practice Assessment Tool

CRM - Crew Resource Management

CVI - Content Validity Index

EICP - Enhanced Interdisciplinary Collaborative Practice initiative

HIROC - Healthcare Insurance Reciprocal of Canada

IPEC - Interprofessional Education Collaborative

ITEM - Integral Team Effectiveness Measure

IWK - Izaak Walton Killam

KMO - Keiser-Meyer-Olkin

MCP2 - Multidisciplinary Collaborative Primary Care Project

MOCINS - Model of Care Initiative in Nova Scotia

MORE OB - Managing Obstetrical Risk Efficiently

NASA - National Aeronautics and Space Administration

PCA - Principal Component Analysis

QUIPPED - Queen's University Interprofessional Patient Centred Education Direction

RCS – Readiness to Collaborate Scale

RIPLS - Readiness for Interprofessional Learning Scale

SOGC - The Society of Obstetricians and Gynaecologists

SPSS - Statistical Package for the Social Sciences

TCI - Team Climate Inventory

ACKNOWLEDGEMENTS

I would like to acknowledge all of the individuals who have given me their unwavering support throughout my PhD studies. A very special thank you to Dr. Gail Tomblin Murphy my PhD Supervisor, who both helped to inspire my work and guide my thesis to its completion. Dr. Tomblin Murphy's confidence in my ability to finish my study and positive reinforcement along the way made this possible for me. Thank you to the rest of my extraordinary committee, Dr. John Gilbert, Dr. Robert Alder, Dr. Audrey Steenbeek and Dr. Katherine Fierlbeck, for providing their knowledge and expertise; it was an honour and privilege to have such a group of scholars teaching and working with me. All of their contributions made my study that much richer. Thank you to the IDPhD Program at Dalhousie University for their scholarship funding and all of the help and support that Dr. Bill Barker and Dr. Jack Duffy provided to me. Thank you to all of the advisors who helped to shape this new survey instrument, the Readiness to Collaborate Scale, and support a robust validation process.

I want to acknowledge my family who, by cheering me on, helped me complete my thesis. To my husband Chris, for his unrelenting support, love and strength and to my mother, sister and children for listening and caring, and by their own sacrifices, helped to overcome the challenges we all faced throughout this time.

During my academic journey I have grown as a person and have learned so much from so many, I am grateful to each one of them and to the experiences that have shaped me to this point. As my study focuses on readiness, I thank each person who has helped me to be ready to now embark on the next chapter in my life.

CHAPTER ONE - INTRODUCTION

In an effort to create more efficient and effective health care services, decision makers and organizational leaders have looked to the implementation of interprofessional healthcare teams to deliver care together as opposed to the traditional model of healthcare delivery one that sees practitioners working alone in silos (Tomblin Murphy, Alder, MacKenzie & Rigby, 2010; Weinberg, Cooney-Miner, Perloff, Babington, & Avgar, 2011). In 2008, the World Health Organization Study Group on Interprofessional Education and Collaborative Practice created a set of definitions to assist the health researchers, educators, policy developers, decision makers and others in developing interprofessional education and interprofessional collaborative practice in their jurisdictions to both build capacity in collaborative practice as well as to examine some best practices to develop interprofessional healthcare teams.

These definitions aim at levelling the communications by reducing hierarchy in traditional healthcare teams while at the same time adding to the understanding of the different ways for countries to deliver education and healthcare. (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008). To ensure that our practitioners are ready and prepared to enter into interprofessional collaborative team based care models, the barriers and challenges as well as the enablers to their successful collaboration, including readiness for interprofessional collaboration, communication and trust must first be identified.

Proposed Research

The proposed research will develop and validate a readiness tool that may help to identify the barriers toward readiness for participating in an interprofessional team, specifically individual practitioner's ability to collaborate, communicate and trust. This research may also contribute to and support capacity building and sustainability within organizations and professional groups who are seeking to build strong and effective interprofessional collaborative teams.

This study will focus on individual healthcare practitioners in maternal newborn and low risk obstetrical service delivery. Identifying barriers to interprofessional collaborative practice may result in positive changes to the delivery of low-risk obstetrical care. Positive changes may include better cooperation, mutual trust, communication and a focus on shared knowledge and decision-making. Also, it is anticipated that the ongoing and collaborative integration and active involvement of these providers in the care of patients and families, may improve healthcare outcomes and resource allocation overall.

Specifically, this research will contribute to the health system by:

- Developing and validating a tool that will assist in identifying the readiness of practitioners to collaborate prior to the team being assembled may contribute to enhanced team functioning when strategies to address the barriers are put in place. By identifying the barriers to collaboration before the team is in place should avoid costly interventions and improve productivity within healthcare organizations. It is anticipated that by having team members who are able to collaborate immediately upon

entering a team will have far-reaching positive effects on efficiency, effectiveness and quality of care, thus, improving health outcomes overall.

- Supporting existing and new models of care initiatives by helping to identify barriers in some practitioners prior to entering collaborative interprofessional teams.
- The identification of individual barriers to practice may also provide sound strategies and policy interventions for governments and healthcare organizations to consider when implementing regional needs-based primary healthcare initiatives that involve interprofessional teams.

Research Objective

The objective of the proposed study is to develop and validate a tool called the “Readiness to Collaborate Scale” (RCS). When newly licenced practitioners leave their educational institutions, they may have had interprofessional education supporting them to work with other healthcare providers’ post-licensure (Gilbert, 2005; Mann, 2008; Martínez-Fernández et al., 2011). Some healthcare organizations are just beginning to explore interprofessional collaborative teams and therefore, new graduates may not have worked in interprofessional teams initially (Kozlowski & Bell, 2003; Gordon, 2011). This is supported in some studies that have pointed to the challenge among team members. These challenges include issues such as communication, role clarification and overall trust (Hall, 2005, Sergeant, 2008, Suter, 2009; Campbell, 2014). With this evidence in mind, it can be argued that interprofessional teams may not be successful when there is poor communication and confusion regarding roles and functions.

Furthermore, if team participants have difficulties trusting one another, the team may become weak and ineffective. By identifying some of these issues prior to entering into a team, strategies and interventions could be implemented thus stemming some of these problems individually before the team is assembled. A tool to test this readiness would be one way to identify barriers prior to interprofessional collaboration occurs. Based on the literature however, there are no such tools available for use. Therefore, the gap that has been identified in the literature is the lack of available measurement tools or approaches to measure or assess the readiness of post-license practitioners to participate in interprofessional collaborative healthcare teams (Kenaszchuk, 2012). Given this gap, it is suggested that if we are able to identify the readiness of a practitioner to collaborate before entering into a team, some of these challenges will be addressed and the subsequent team will have fewer difficulties working together. For example, a valid and effective tool for predicting interprofessional readiness of potential team members will allow us to address potential barriers to interprofessional team development and collaboration in a systematic and proactive manner instead of after the team is assembled and not functioning adequately.

At present there is no way to know in advance what professional and personal attributes exist that contribute to the readiness of individual practitioners to participate successfully in a team and to what extent these attributes impact the functionality of an interprofessional team. Without such an instrument as the Readiness to Collaborate Scale, it may be difficult to develop strategies for individuals or teams to overcome challenges in working in a collaborative manner.

Assumptions of Study

It has been often cited that interprofessional teams, although considered to enhance provider satisfaction, system outcomes and patient outcomes are faced with numerous barriers (Tomblin Murphy, Alder, MacKenzie and Rigby, 2010; Tilden, 2011). These may include: lack of consistent and quality interprofessional education (both pre and post licensure), lack of sustainable and attractive funding models as well as time and resources to ensure proper support (Conference Board of Canada. 2012). Additionally, there are barriers that exist among the healthcare practitioner themselves. For example, lack of role clarity as well as trust and hierarchy within the teams that can affect individual performance and thus impact the success of the team overall. Tomblin Murphy et al., (2013) examined the effectiveness of team based care and its impact on the system and health outcomes of people. In sites where the model was fully implemented, most of the outcomes measured for patient and family, provider, and system level improved (Tomblin Murphy, MacKenzie, Alder and Cruickshank, 2013). Therefore, when considering the barriers at the practice level, poor structure and governance coupled with ambiguous team compositions and size may result in further breakdowns in communication and collaboration (Conference Board of Canada, 2012; Campbell, 2014).

Some of these barriers may be overcome with thoughtful planning and resources to support the capacity within organizations, to build interprofessional teams that have a positive impact on practitioners, patients and system outcomes. One possible solution to address some of the system, practice and individual barriers to interprofessional teaming is to identify the readiness of individual practitioners to become part of an interprofessional team prior to it being assembled. This new tool may be a supportive

instrument to determine what individual barriers there are hence providing some insight to what is necessary at the practice and system level to support the team.

Learning among health care professionals most often occurs when they are involved in monitoring their own performance (Gagliardi, Brouwers, Finelli, Campbell, Marlow & Silver, 2011). Examining past performance against practice guidelines or standards has the potential to confirm current practice or create knowledge about a skill that may be lacking in an interprofessional team. Awareness of such a gap may prompt professionals to identify their learning needs and then plan to participate in appropriate learning activities to change and enhance their practice (Gagliardi et al., 2011).

In order to make the implementation of the new tool a success, it is essential that there is willingness on the part of the participants to explore and analyze both the positive and negative elements of their own readiness to enter an interprofessional team. The tool will likely yield better results when the process of looking at one's readiness to collaborate and identifying areas for improvement is not seen as something threatening (Vanhoof & Van, 2011). To create a non-threatening environment for practitioners to participate in, the process must be properly prepared in a way that is in line with the overall organizational policy framework regarding interprofessional collaboration and teamwork. For best results, the promise of organizational support during the self-evaluation and after will be critical for success (Vanhoof & Van, 2011).

According to Vanhoof and Van (2011), self-evaluation processes that comply with a set of principles have a greater chance of success than self-evaluations that are randomly administered with no context provided. This means, when the new tool is administered, all team members will be informed about the objectives, purpose for

conducting the survey and results of the evaluation prior to completion. Therefore, adopting the right communication processes before, during and after the administration of the tool will be critical to practitioners both participating and adopting the results. Meaningful engagement of practitioners and clear and transparent communication regarding the policy directive prior to being asked to participate in filling out the instrument will be key.

Additionally, organizations must be aware of the impact on their staff and resources when administering such a tool. For example, Vanhoof and Van (2011) recommend that organizations have plans soon after the survey is administered to engage participants in a reflection of the process. This reflection process is critical, as many practitioners who are asked to participate may feel threatened and uncomfortable. Asking practitioners to participate may be perceived as an obligation imposed from above or an under-handed mechanism to identify those who are not ‘team players’. Some may feel that the survey is a way to single out incompetent team players rather than an important means of identifying the readiness or barriers to interprofessional collaboration. Therefore, prior to the administration of the new tool, clarity around the intentions for the pending results is required.

This study will focus on validating the new tool in organizations that provide low-risk obstetrics and maternal newborn care. If obstetrical interprofessional collaborative practice is a priority in the organization, and the notion of identifying readiness is a supported initiative, decision makers and obstetrical practitioners will see this survey as a positive step forward in building interprofessional team capacity among the providers.

The following assumptions developed for this study, guide the premise and subsequent utility of this new tool, once validated:

1. The new tool will be one way to predict an individual's readiness to collaborate in an interprofessional team.
2. Results from the tool will shed light on attitudes to commitment to interprofessional collaboration among individual care providers.
3. The new tool has potential to extend the area of self-assessment research to the field of interprofessional collaboration while at the same time contributing to the current evidence that demonstrates that self-evaluations can identify employee attitudes and with this information, improve job performance and overall organizational performance.
4. Healthcare providers and organizations will be able to make strategic decisions about where to focus their efforts in terms of how to support individual practitioners to participate successfully in interprofessional collaborative teams.
5. Organizations will have confidence that the Readiness to Collaborate Scale is an accurate and valid measurement tool to determine the readiness of practitioners to enter into interprofessional teams.
6. Healthcare organizations will work toward shared objectives regarding supporting and recognizing the value in readiness to collaborate.
7. The new tool will be integrated into existing organizational policy.

Defining Readiness, Collaboration, Communication and Trust

Miriam Dictionary provides a definition of readiness: To be prepared mentally or physically for some experience or action and to be likely to do something that is indicated (<http://www.merriam-webster.com/dictionary/readiness>).

As the healthcare system evolves so does the language. In the field of team based healthcare, some researchers have, over the past decade, worked to define some of the terms that we use frequently today (Barr et al., 2005; Frank, 2005; Freeth, Hammick, Reeves, Koppel & Barr, 2005; Gilbert, 2005; Finch, 2007; Jessup, 2007; Framework for Action on Interprofessional Education and Collaborative Practice: Health Professions Networks Nursing & Midwifery Human Resources for Health, 2010; Portsmouth et al., 2008; Gilbert et al., 2010; World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008; Cuvar, 2011; Gaboury et al., 2011; Grando et al., 2011; Brandt, Young, Campbell, Choi, Seel, & Friedman, 2015). These include definitions for interprofessional collaboration and team based care in general.

This study will use the following terms: Readiness for interprofessional collaboration; Interprofessional communication; and interprofessional trust in order to develop a new tool to test the readiness of individual practitioners to enter into interprofessional collaborative teams. The new tool will be called “Readiness to Collaborate Scale”. To assist in this, the definitions of readiness and interprofessional collaboration, communication and trust are important to outline.

Definitions in the Literature: Readiness

Throughout the literature, authors have identified readiness as a key success factor. Readiness is described in part as the organizational members' beliefs, attitudes, and intentions toward a given change or intervention (Armenakis, 1993; Self, 2007). According to Weiner (2009), readiness for change within organizations is defined by the desire of team members to want change. Readiness fluctuates with the amount of demands, resource availability and other organizational factors that impact the change presented. When these factors are reasonable, it is more likely that change will occur (Vakola, 2014).

Definitions in the Literature: Collaboration

The following definition of collaboration developed by Health Canada, captures the positive impact resulting from a collaborative interprofessional team.

“Collaborative patient-centred practice is designed to promote the active participation of each discipline in providing quality patient care. It enhances patient and family-centered goals and values, provides mechanisms for continuous communication among caregivers, optimizes staff participation in clinical decision-making and fosters respect for the contribution of all disciplines” (Nolte, 2005, p. 4).

This definition provides a goal for teams to strive for and outlines the important outcomes of high quality interprofessional collaboration. Highlighted in this definition is the importance of participation and on-going collaboration and communication among caregivers who are focused on provision of interprofessional care. According to the World Health Organization Study Group on Interprofessional Education and

Collaborative Practice, (2008), collaboration is “an active and on-going partnership, often between people from diverse backgrounds, who work together to solve problems or provide services and share experiences” (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008 p. 2). The Study Group points out that it is different from cooperation and coordination; however, it is proposed that good collaboration would include both.

Building on general collaboration, the Study Group defines collaborative practice in health care as happening when “... multiple health workers from different professional backgrounds provide comprehensive services by working together synergistically along with patients, their families, carers and communities to deliver the highest quality of care across settings” (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008 p. 2). When healthcare practitioners work to provide healthcare to people in a collaborative practice environment, it is said that interprofessional collaboration is occurring. The study group defines this as “a patient-centred approach to health care delivery that synergistically maximizes the strengths and skills of each contributing health worker to optimize the quality of patient care” (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008 p. 3).

The Canadian Interprofessional Health Collaborative (CIHC) defines Interprofessional collaboration within the healthcare context as the process of developing and maintaining effective interprofessional working relationships with individual patients and their families as well as with individual providers and groups of practitioners to provide optimal health outcomes (Canadian Interprofessional Health Collaborative,

2010). CIHC further identifies key elements for successful collaboration that include: respect, trust, shared decision-making, and partnerships.

Although very similar to interprofessional collaboration and collaborative practice, interprofessional practice involves the actual team members in the mix and describes it as “occurs[ing] when practitioners from two or more professions work together with a common purpose, commitment and mutual respect” (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008 p. 3). Freeth et al., describes interprofessional collaborative practice as “two or more professions working together as a team with a common purpose, commitment and mutual respect” (Freeth et al., 2005, cited in Learning and Teaching for Interprofessional Practice Australia, 2009, p. 6). Sometimes the term interprofessional collaborative patient-centred care is used interchangeably and is defined in some literature when healthcare professionals work together with their patients and or clients while having continuous interaction with two or more other disciplines (Herbert, 2005; Herbert et al., 2007; Sitthisak, 2007).

Teamwork, according to the World Health Organization Study Group is “the process whereby a group of people, with a common goal, work together, often but not necessarily, to increase the efficiency of the task in hand. They see themselves as a team and meet regularly to achieve and evaluate those goals” (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008 p. 6). The Study Group’s definition of Interprofessional team aptly describes how the component parts of interprofessional collaboration and teamwork come together. The definition that is given for interprofessional team is “a group of people from different professional

backgrounds who deliver services and coordinate care programmes in order to achieve different and often disparate service user needs” (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008 p. 3). This illustrates that health care providers, when working in an interprofessional team, should have common goals and objectives to achieve quality patient care.

Some healthcare regulatory bodies have also defined interprofessional collaboration. For example, the College of Nurses of Ontario (College of Nurses of Ontario, 2005) in their Standards documents has defined interprofessional collaboration as “working together with one or more members of the health care team who each make a unique contribution to achieving a College of Nurses of Ontario common goal. Each individual contributes from within the limits of her/his scope of practice” (College of Nurses of Ontario, Practice Guideline: Utilization of Registered Nurses and Registered Practical Nurses, 2005, pg. 18). In this document, the College of Nurses of Ontario states that they are supportive of working together with other regulatory bodies and healthcare professionals to continue to work on the term “collaboration” to include other important factors such as “mutual respect, maximum use of collective resources, and awareness of individual accountabilities, and competence and capabilities within respective scopes of practice” (College of Nurses of Ontario, Practice Guideline: Utilization of Registered Nurses and Registered Practical Nurses, 2005, pg. 18). Although similar to the World Health Organization definition of interprofessional collaboration, the College of Nurses of Ontario’s definition focuses solely on the role of the nurse and his/her accountability to their standards of practice in the team and less so on the outcome of comprehensive patient-centred care.

Mickan and Rodger (2000) in their literature review on characteristics of effective teams, do not specifically define collaboration, but discuss terms closely related to collaboration: coordination and cohesion. The World Health Organization's Study Group for Interprofessional Education and Collaborative Practice (2008) purports that coordination and cohesion do not provide a fulsome picture of what collaboration is, however, these terms do help to add to the context in which good interprofessional collaboration exists. Mickan and Rodgers define coordination as "orderly interpersonal actions required to perform complex tasks" (Mickan & Rodger, 2000 p. 205) and cohesion as team members being able to "...cooperate interdependently around the team's task in order to meet team goals collaboration requires team members to harness what they know as a collective and work to limit the differences they have between them. The team then feels a sense of belonging and attraction to working together. Mickan and Rodgers state that effective teamwork stems from interprofessional education and that learning together supports communication and cohesion in future collaborative practice settings (Mickan & Rodgers, 2000; Campbell, 2014).

In considering these definitions, it appears that the basic premise of interprofessional collaboration is that practitioners share their knowledge and skills required to care for patients and their families. Despite the extensive debates about the terminology used for the concept of interprofessional practice the definitions reviewed describe what essentially appears to be a consistent lens on interprofessional working; that is, interprofessional collaboration is the integrated, collaborative working relationships between teams of professionals.

Definitions in the Literature: Communication

Communication can be seen as a key-influencing factor in interprofessional collaboration. Webster's Dictionary defines communication as "a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior" (Merriam-Webster, 2012). It is important to consider that communication is not just verbal in form. One study suggests that the majority of communication is more affected by body language, attitude, and tone, than based on the actual words said (O'Daniel, 2008). Interprofessional communication is one of the main cornerstones of effective and sustainable collaboration. It involves observable exchanges of information and knowledge that include subtle and sometimes overt demonstrations of attitudes, personal values and behaviours (Morison, 2007; Suter et al., 2009; Gordon et al., 2011; Campbell, 2014). Individuals need to listen to each other and collaborate in order to develop mutual knowledge, which enhances communication.

"Physicians and other health care professionals agree on the importance of effective communication among the members of a health care team. However, there are many challenges associated with effective interprofessional communication (between physicians and other health care providers), and these difficulties sometimes lead to unfavourable patient outcomes" (Canadian Medical Protection Association, 2011 p. 11). The Canadian Medical Protection Association brings forward the negative impacts for patient and clinical outcomes when poor or no communication exists.

A model of shared leadership with joint decision-making as a central tenant can also enhance communication (Murray –Davis et al., 2011). CIHC states that effective interprofessional communication requires teams to address differing and conflicting

perspectives viewpoints and work together to reach reasonable compromises that will not negatively affect the health outcomes of those patients and families being cared for (Canadian Interprofessional Health Collaborative, 2010). It is said that good communication influences openness and trust among individuals (Varpio & Regehr, 2013). Effective communication helps to foster not only individual points of view but also the ability to hear and understand others (Wilson, 2006). Interprofessional teams thrive in environments where good communication exists; thus providing greater satisfaction and empowerment within a healthy workplace (Firth-Cozens, 2004; Wilson, 2006; Reina et al., 2007; Campbell, 2014). Effective interprofessional collaborative teams therefore require good and predictable communication processes (Headrick et al., 1998; Kennedy, 2001; Belanger & Rodriguez, 2008; Choi & Ruona, 2011; Campbell 2014).

Definitions in the Literature: Trust

The definition of interprofessional trust is not entirely defined as such in the literature. Instead, there are some definitions that can be useful in the pursuit of a definition. For example, the basic dictionary definition of trust is the “assured reliance on the character, ability, strength, or truth of someone or something” (Merriam-Webster, 2012). While this definition clearly helps the reader understand what trust is, it only provides a small component of what trust in a team would be. Reina et al., (2007) describe trust in teams as follows: “Trust is essential for teamwork and foundational for healthy work environments. Without trust, the heart and soul of relationships are shattered, team collaboration compromised, and patient safety and outcomes undermined.

Yet, trust is a highly complex and emotionally provocative topic that means different things to different people” (Reina, Reina, & Rushton, 2007 p. 103).

Cook and Wall (1980) ascertained that trust among individuals and/or groups within the workplace is a highly important component to the sustainability of the organization as a whole (Cook & Wall, 1980). The authors have determined that there is three main approaches that can measure trust among co-workers. The first and most indirect method is inferring trust from other forms of behaviour. For example: when people in authoritative positions include and look for the participation of subordinate members of the organization in workplace activities. The second approach is to create a situation in which trust between co-workers is critical for the success of the project. The third approach, and the one most relevant to Cook and Wall’s study, is the measurement of trust through self-evaluation.

It is argued then, that interprofessional trust occurs when healthcare professionals who are working together in an interprofessional collaborative manner, have developed common goals and a shared and consistent approach to client-centred care (Varpio & Regehr, 2013) and are able to evaluate themselves using appropriate self-evaluation measures (Cook & Wall, 1980). This is achieved firstly through the individual’s trust of their own competencies of communication and understanding of what it means to work with others and secondly, through the mutual willingness of each individual to use their competencies within the team without the fear of being ridiculed or diminished.

Trust between and among clinicians is essential to supporting a safe and healthy workplace in the healthcare field. Research indicates that working in a trusting environment is beneficial and contributes to a satisfying work life and organizational

effectiveness; both of which have an impact on good patient outcomes (Firth-Cozens, 2004; Reina et al., 2007). Trust is the starting point for an interprofessional team to begin its journey toward needs-based healthcare for a population. As the team works toward common goals, shared agreements and consistent care to all people, a form of contractual trust evolves; one that is an expectation for the team to do its work in meeting the needs of the people together (Reina et al., 2007).

To ensure and support a safe clinical environment, team members should be clear about their *raison d'être* - their roles and responsibilities in the team should be identified clearly. With this clarity, trust among team members is built. When people understand their responsibilities and what is expected of them, they feel empowered and supported to be successful. This encourages the formation of healthy and successful interprofessional collaboration (Mickan & Rodgers, 2000).

The literature supports the notion that trusting individuals and team members are more willing to share their knowledge and skills without fear of being diminished or exploited than do those individuals who do not have trusting relationships among their peers. Additionally, in order to trust others that have different competencies, assumptions and priorities, one must trust oneself and have self-knowledge in one's own competencies of communication and have an understanding of what it means to work with others.

Summary: Much of the research in the area of collaboration to date has focused on the factors contributing to effective undergraduate interprofessional education with fewer studies focusing on collaboration in the post-licensure environment. However, the understanding of team members' roles and expertise, communication, trust and working

to ensure the team is successful in meeting the needs of the populations served are among the many factors that have been identified throughout the literature (Morison & Jenkins, 2007; Suter et al., 2009; Gaboury, Boon, & Moher, 2011; Stepney, 2011).

The definition of collaboration developed by Health Canada (Nolte, 2005) captures well the positive impact resulting from a collaborative interprofessional team. This definition promotes a higher quality of care realized through teams of practitioners coming together to meet the needs of people. Significant expectations by funders, decision-makers, organizational leaders and other system leaders, are currently being placed on interprofessional collaborative teams to improve the quality and efficiency of healthcare services for the population. Interprofessional collaborative healthcare has been identified as a framework for strengthening interprofessional communication and effective delivery of care (Gilbert, 2005; Nolte, 2005). The implementation of interprofessional collaborative teams is expected to generate better health outcomes; greater responsiveness to patient care needs and better use of resources (Price et al., 2003; D'Amour & Odanasan, 2005; Leggat, 2007; Sargent, 2008; Gaboury et al., 2011).

Supporting the readiness of individuals to successfully participate in interprofessional healthcare teams is an important factor toward facilitating more effective and efficient patient care. High-functioning interprofessional healthcare teams may improve delivery of care through combining their breadth of knowledge and appreciation of skills beyond the roles of their individual siloed professions (Gilbert, 2005; Nolte, 2005; Tomblin Murphy et al., 2010). Assembling healthcare teams that are ready to collaborate is one way to maximize these efforts. A readiness tool to identify the barriers to collaboration administered prior to the team being assembled will provide the

necessary information to develop strategies to strengthen the ability of individual to work together to deliver care.

CHAPTER TWO – LITERATURE REVIEW

Introduction

A literature review was conducted to identify relevant research in the field of individual readiness to collaborate in interprofessional teams as well as self-evaluation aimed at identifying readiness. Additionally, the literature review was conducted to determine if a tool or tools to test readiness to collaborate had already been developed, making the development and validation of the Readiness to Collaborate Scale redundant. The review of the literature uncovered important studies regarding interprofessional collaboration and in particular, interprofessional collaboration among those providers who care for women and their families of low obstetrical risk in addition to some of the challenges these providers face in effective team development. Also, literature regarding readiness to collaborate in other industries was reviewed to ensure that an instrument had not been created outside of healthcare that could potentially be modified to address the readiness barriers to collaboration within the healthcare system.

In order to understand the competencies required to deliver care to low risk obstetrical patients, literature regarding midwifery, obstetrical and family physician competencies was reviewed. Searches were done to compare competencies and scopes of practice among providers who deliver this unique care as well as challenges to team based care among this group of professionals.

Method for Literature Review

Following the method for systematic review outlined by Cooper (1998), articles, reviews, comparative studies and observational studies were reviewed through the

following electronic databases: Medline, PubMed, Embase, CINAHL and Google Scholar. Other relevant materials (research reports, grey literature, administrative reports, and articles) were collected through website searching. Search engines included Google, and Google Scholar. Government, Professional Associations and Regulatory Body Websites were also explored. The search focused on the literature published from 1990 to 2016. However, some key literature prior to 1990 has been included when it was considered to be of particular relevance; for example, literature pertaining to the history of competencies in human resource management.

Mesh headings searched include ‘readiness’, ‘interprofessional team based care’, ‘post-licensure interprofessional education’, ‘management competencies’, ‘human resources’, ‘well-woman care’, ‘low-risk obstetrical care’ and ‘obstetrical clinical competencies’. In addition, brief searches were performed to examine the individual scopes of practices for family physicians, midwives, obstetricians and nurses related to low-risk obstetrics and well woman care, in order to illustrate similarities between these groups.

All references were reviewed by title and abstract to determine their potential relevance to the review. References were in English and pertained to interprofessional collaborative practice, readiness and service delivery models. Literature pertaining directly to clinical skills and procedures were systematically removed. References that related directly to the subject matter of readiness for interprofessional collaboration in either the title or the abstract were selected for a more in depth review.

Interprofessional Collaboration

Driven by the crisis in the basic supply of traditional healthcare providers over the past several years, innovative ways to solve these problems are emerging throughout the literature (Kephart, Tomblin Murphy, O'Brien-Pallas, Alder, MacKenzie & Birch, 2007). One frequently advocated solution to address the gap between the supply of and requirements for providers is team care approaches to maximize and optimize the health workforce. Interprofessional collaborative patient-centred care is a clinical practice approach whereby healthcare professionals work together with their patients - having continuous interaction with two or more other disciplines. Collaborative patient-centred practice is designed to promote the active participation of each discipline in patient care (Herbert, 2005; Sitthisak, 2007; Utz, Kana, & Van Den Broek, 2015). The growing interest to implement collaborative teams of healthcare providers in community and acute care settings points to the attempt of organizations to manage the many competing healthcare systems issues faced today. For example, timely access to services, growing healthcare costs and declining numbers of healthcare providers available, has motivated decision-makers to deliver services differently; such as assembling interprofessional teams of providers who may deliver care in a more efficient manner than individual or groups of practitioners in the same provider group.

There are many ways to describe interprofessional collaboration (College of Nurses of Ontario, 2005; Freeth et al., 2005; Nolte, 2005; World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008; Canadian Interprofessional Collaborative, 2010). In the health literature, the terms multidisciplinary/multi-professional and interprofessional are often used interchangeably,

and sometimes simply refer to team working (Finch, 2000; Zwarenstein & Reeves, 2006; Leggat, 2007; Van der Lee, Driessen, Houwaart, Caccia, & Scheele, 2014; Bilodeau, Dubois, & Pepin, 2015; Guchait, Lei, & Tews, 2016; Yu, Halapy, Kaplan, Brydges, Hall, & Wong, 2016).

In 2005, the Enhancing Interdisciplinary Collaboration in Primary Healthcare Project created the principles and framework for interdisciplinary collaboration in primary healthcare. This framework describes how interprofessional collaboration can improve the effectiveness of service integration (Enhancing Interdisciplinary Collaboration in Primary Healthcare, 2006). According to the report titled *The principles and framework for interdisciplinary collaboration in primary health care*, a number of factors influence the health and well being of the population. These factors require healthcare providers from a number of diverse backgrounds to work together in a comprehensive manner. It is the combined knowledge and skills of these professionals that become a powerful mechanism to enhance and improve the population's health status (Enhancing Interdisciplinary Collaboration in Primary Health Care, 2006). The principles and framework for interdisciplinary collaboration tell us that even at the simplest level healthcare providers consult with patients, work in partnership with their clients and families, and in more complex situations, work with other healthcare providers to identify together, in partnership with patients and families, what is needed to meet their health needs. Interprofessional collaboration in this case focuses on the communication between and among providers to identify the adjustments and the number and type of healthcare services that are needed to deal with each issue independently and together.

The following six principles are outlined in the Principles and Framework for Interdisciplinary Collaboration (2006):

1. Focus on the patient/client
2. Population health approach
3. Quality care and services
4. Access
5. Trust and respect
6. Communication

These six principles provide a structure that assists healthcare providers and others to focus on the needs of the individual patients and focus on the health services that they require as well as encouraging interprofessional collaboration between and among the healthcare providers. Two of the key components for successful interprofessional collaboration rests in the fifth and sixth principle: trust and respect and communication. These have been identified throughout the literature as being core to effective team collaboration as well as positively impacting health, provider and system outcomes (Tomblin Murphy et al., 2010; Suter, 2009) To enhance and support shared decision-making, creativity and innovation among providers, it is imperative that a level of trust and respect exist. Furthermore, communication, both active listening and effective oral communication, is a cornerstone to collaboration. As such effective interprofessional communication and information sharing as well as decision-making among members of the team and their patients and families must be clear, precise and consistent.

Zwarenstein et al (2007) designed and evaluated an intervention intended to improve interprofessional collaborative communication and patient-centred care. The intervention was aimed at the development of a hospital-based staff communication protocol designed to promote collaborative communication between healthcare professionals and ultimately, enhance patient-centred care within the team (Zwarenstein et al., 2007). The authors found that a substantial amount of interprofessional communication lacks three key core elements such as self-introduction, description of professional role, and solicitation of other professional perspectives (Zwarenstein et al., 2007). With these findings, the new protocol, based on the three identified core elements was designed to improve the overall culture of communication among healthcare providers.

Strype et al (2014) have investigated how professionals in a collaborative team perceive collaboration. Through confirmatory factor analysis their work revealed a three-factor model of how interprofessional collaboration is perceived among team members. The factors in the study include: group climate, influence, and personal motivation. Their results show that the development of an interprofessional team should emphasize supportive group communications, an equal distribution of group influence, and finally, a personal value gained from being part of a collaborative team. These authors have pointed out the need for both exploring team functioning and acknowledging the individual's contribution to the successful collaboration in all three areas of interest, collaboration, trust and communication.

Careau et al (2015), have developed and validated a framework that aims at illustrating how interactions among individual practitioners contribute to good

collaboration in clinical settings (Careau, Brire, Houle, Dumont, Vincent, & Swaine, 2015). Their framework consists of five areas of interest that span from the care delivery needed from the team to the intentions and interactions of the practitioners who make up the team. Practitioners need to have a motivation to start collaborating with each other. The “intention sought by collaboration” factor of their framework supports the aim of this study by emphasizing that collaboration must be built on the individual practitioners’ ability to adjust to how they collaborate depending on the situation. This would include their ability to trust each other and to communicate with each other.

Despite clear generally accepted evidence outlining the benefits of an interprofessional approach to team based care and massive healthcare expenditures resulting from current models in place, there are a number of practical implication issues that have made an interprofessional team approach at times cumbersome and difficult to implement (Choi & Ruona, 2011; Bilodeau, Dubois, & Pepin, 2015; Bilodeau, Dubois, & Pepin, 2015; Guchait, Lei, & Tews, 2016; Yu, Halapy, Kaplan, Brydges, Hall & Wong, 2016). In the qualitative search synthesis conducted by Belanger & Rodrigues (2008), an analysis of 19 studies featured in peer reviewed journals between 2001 and 2008, revealed a fundamental issue: teams and team interaction remain problematic. One contributing factor to this problem maybe the fact that healthcare professionals are still primarily trained in silos and once in practice, continue to work mainly within their own professional groups; nurses with nurses, doctors with doctors, physiotherapists with physiotherapists etc. This has occurred for some professions quite deliberately in an attempt to define their identity, values, sphere of practice and role in patient care as unique and special to their own professional group. This has led to an aversion to

collaborating in interprofessional teams for some healthcare professions and instead, supported a model whereby their professional members can maintain common values and approaches to the care they provide (Canadian Midwifery Regulators; Canadian Nurses Association, 2005). Peterson, Medves, Davies and Graham (2007) interviewed twenty-five participants of six national healthcare provider associations including family physicians, obstetricians, midwives, nurses, nurse practitioners and rural physicians. They found that providers who work in silos have a negative perception of interprofessional care. However, it is not only educational and training environments that contribute to traditional post-licensure care models, but also the socialization that occurs during the providers introduction to the provision of care that contributes to the formation of silos (Belanger & Rodriguez, 2008).

Interprofessional Collaboration for Obstetrical Care

There is ample evidence that the delivery of maternity care, particularly in rural and remote areas of Canada is in crisis, largely as a result of the rapid decline and overall supply of professionals to provide this care (Druss et al., 2003; British Columbia Women's Hospital and Health Centre Maternity Care Enhancement Project, 2004; Fauveau, 2008; Smith, Brown, Stewart, Trim, Freeman, Beckhoff, and Kasperski, 2009; Martin and Kasperski, 2010; Graves, 2012; McIntyre, Francis, Chapman, 2012; Meffe, Moravac, Espin, 2012; Miller, Couchie, Ehman, Graves, Grzybowski & Medves, 2012; Morgan et al., 2014). The continuing decline in the number of Canadian family physicians that provide maternity care, particularly with intra-partum care, has been highlighted in a number of articles (Price et al., 2005; Tucker et al., 2005; Peterson et al., 2007; Morgan et al., 2014). These continuing trends, in combination with the decreasing

number of obstetricians being trained in intrapartum care, and number of students opting out of obstetrics to focus on gynaecology, have contributed to a general crisis in maternity care over the last decade (Price et al., 2005; Stempniak, 2016). These mounting issues has provided possibilities in new ways to serve women and their families of low obstetrical risk (Stempniak, 2016).

Collaborative practice, interprofessional education and post-licensure interprofessional education have been the focus of these innovations over the last decade (Stone, 2000; Barnett, 2002; Price et al., 2005; British Columbia Women's Hospital and Health Centre Maternity Care Enhancement Project, 2004; Baldwin, 2010; Farrell et al., 2015) and support for the implementation of collaborative interprofessional teams within obstetrical care was communicated at the Ontario conference entitled, "The Future of Maternity and Newborn Care in Canada" in 2000. Recommendations from this conference included that those practitioners who provided obstetrical care required mutual respect, collaboration and trust between and among one another with an interprofessional team model in all practice settings. In 2009, Midwives' Alliance of North America recommended to the Obama-Biden transition team on maternity healthcare in the United States that the promotion of interprofessional maternity care teams including midwives and family practice physicians for low risk clients was the solution to address the maternity crisis in the United States.

Declining access to maternity care is a reality for many pregnant women, especially those living at great distances from urban centres. Concerns regarding safety, mal-distribution and limited health human resources have contributed to reduced access to community based low-risk obstetrical care (Graves, 2012; Laschinger, & Wong, 2016;

Van Der Lee, Driessen, & Scheele, 2016). Although some organizations have attempted to implement obstetrical teams that care for low risk obstetrical patients in communities, all teams are not always working optimally nor are they contributing to the system as once hoped (Cuvar, 2011; Mitchell, Parker, and Giles, 2011). Some evidence shows that positive outcomes can be achieved and sustained within an integrated perinatal care system that includes interprofessional obstetrical teams (Miller, Couchie, Ehman, Graves, Grzybowski & Medves, 2012; Zhang, Haycock-Stuart, Mander & Hamilton, 2015).

For many years, hospital based obstetrical providers have been working in multidisciplinary teams; functioning in parallel in labour and delivery wards. In places such as the United Kingdom, midwives have also worked in these teams. Despite the organizational research citing clearly the benefits of collaboration and team based care like decreasing costs, and improving efficiency, obstetrical collaborative interprofessional teams focusing on low risk obstetrical care in primary care settings has not been the norm in Canada, particularly with the implementation and legislation of midwifery in Ontario in 1993 that promotes a siloed model of care that includes only midwives working with midwives.

Smith (2015) developed a conceptual framework for interprofessional collaboration between midwives and physicians using four overarching dimensions including organizational, procedural, relational, and contextual, as well as 12 concepts that include but are not limited to: trust, shared power, synergy, commitment, and respect (Smith, 2015). Through this work, the author discovered that if there is to be successful interprofessional collaborative practice between midwives and physicians, an inherent understanding of how it is successfully achieved is necessary. Recognizing the

effectiveness of collaboration in primary care settings, Smith (2015) points out that enhanced access and improved outcomes could be realized as well. Frameworks like this one will be useful in helping guide the construction of high functioning and effective interprofessional maternal newborn teams that include the professionals with the competencies required to deliver this care (Smith, 2015).

In August 2008 the College of Midwives of Ontario, as a regulatory body for the profession of midwifery in Ontario, was committed to working collaboratively to improve maternity care to women and infants and to address barriers to interprofessional collaboration. The College of Midwives of Ontario stated that they appreciated the opportunity to respond to a letter issued by the College of Family Physicians regarding the proposed amendments to midwifery scope of practice which would enhance the ability to work collaboratively (College of Midwives of Ontario, 2008) however, the model is not structured for interprofessional collaboration at this time. The Ontario College of Family Physicians indicated in their letter that they were disappointed to see that the College of Midwives of Ontario was not requesting changes to make it easier for them to work with other providers. The physicians expressed the belief that the College of Midwives of Ontario's proposed changes to the midwifery scope of practice seemed to be aimed at further distancing midwifery from their professional colleagues (Ontario College of Family Physicians, 2008).

This dialogue between the College of Midwives of Ontario and the College of Family Physicians indicates the inability of the groups to engage in a model of care delivery that supports interprofessional collaboration. Collaboration does mean simply having health care providers working in the same environment side by side and

consulting with one another when required, but a group of healthcare providers working collectively with one common goal in a shared care competency based framework.

In 2004, in partnership with the British Columbia Medical Association, the British Columbia Ministry of Health Services called for the development of a practice and business model to encourage physicians to provide maternity care services. Through this extensive consultation process, stakeholders pointed to the need for developing collaborative models of care. It was recognized that only by working together would solutions to the potential workforce crisis currently facing maternity care, be solved. This desire to work towards integrated models of care in an interprofessional approach was hinged on the recognition that maternity services must be appropriately flexible to meet the needs of the people, the resources available and the geography of the province. From this project, seven main recommendations arose. It was recommended that the British Columbia (BC) Ministry of Health Services continue to provide development and leadership in women-centered maternity care and to continue to support collaborative team based service models among all maternity care providers. Finally, that a process to establish a way in which to monitor and ensure the progress and implementation of these recommendations by the Ministry of Health Services be put in place was also recommended (British Columbia Women's Hospital & Health Centre Maternity Care Enhancement Project, 2004).

Innovative interprofessional teams have been pointed to as part of the solution for high quality, collaborative, and integrated care for women (Miller et al., 2012; Zhang et al., 2015). Despite health care providers and organizations proceeding with collaborative interprofessional practice, there is some evidence to suggest there are certain barriers to

interprofessional practice, including a breakdown in communication and trust between professionals that can have adverse consequences (Kennedy, 2001; Belanger & Rodriguez, 2008; Choi & Ruona, 2011). According to Cornthwaite et al., (2015), the key success factors of a functioning interprofessional team include some fundamental team work behaviours, good communication, proficient leadership and awareness of the team and the environment in which the team practices (Cornthwaite, Alvarez, & Siassakos, 2015). Even though it may stand to reason that a team can provide better care to people than an individual practitioner can, to be successful, communication must be open and honest and each member must have trust between them (Cuvar, 2011; Cornthwaite et al., 2015).

Some teams do not work collaboratively and although considered a team, work in silos much as they would in solo practice. Some organizations have assembled teams to help with productivity and access to service to find that the teams do not function well and instead reduce productivity and create barriers to access (Belanger & Rodriguez, 2008; Tomblin Murphy, Alder, MacKenzie & Rigby, 2010; Choi & Ruona, 2011). Brown, Smith, Stewart, Trim, Freeman, Beckhoff, & Kasperski (2009) further explain the resistance to collaboration among providers. In their study, participants were asked whether they would be willing to participate in five different proposed models of maternity care in Ontario (Brown, Smith, Stewart, Trim, Freeman, Beckhoff, and Kasperski, 2009). Historically, nurses have worked along-side physicians, primarily family physicians, in the delivery of maternity care. The author's found that participants expressed minimal interest in incorporating midwives into their approach, despite the fact that midwives had been in practice for more than a decade. Half of the participants

suggested that they would resist a change, endorsing a traditional model where labour and care delivery be provided by family physicians, obstetricians, and nurses. Less than one third of participants would even consider practicing in an interprofessional way (Brown et al., 2009).

Despite the comprehensiveness and inclusion of many of the clinical competencies needed to provide low obstetric risk care, issues pertaining to the clinical scope of practice and the way in which midwives provide care, have been raised (Price, Howard, Shaw, Zazulak, Waters & Chan, 2005; Vedam, Leeman, Cheyney, Fisher, Myers, Low, & Ruhl, 2014). Criticisms include the limited ability of midwives to collaborate, and their inability to apply core competencies (knowledge, skills and attributes) needed to enhance access to services (Maternity Care Enhancement Project, 2004; Brown et al., 2009). This problem may stem from the lack of readiness of the practitioners prior to them coming together in a team. One of the key issues regarding collaboration and an interprofessional approach to maternity care among obstetrical providers is the regulatory and medico-legal barriers that might prevent or inhibit health care professionals from working together (Lahey & Currie, 2012; Psaila, Schmied, Fowler, & Kruske, 2015). It is the function of all law to act as a barrier to some extent and this of course includes regulatory bodies like Colleges and Council's of Midwives, Physicians, and Nurses etc. However, this becomes problematic when the barriers are unnecessary and counterproductive to the functions of the regulatory body in accomplishing public safety (Lahey & Currie, 2004).

At the Health Council Summit held in Toronto in June 2005, participants heard that the current regulatory structures and professional liability insurance might inhibit

collaborative practice and scope of practice change. Historically, insurance plans focus on the individual practitioner and not on the actual work done. Programs need to have interprofessional team accountability. However, shifting this liability from the practitioner to the IP team is more than simply writing a new administrative guideline. This process requires the trust and understanding of all team members as well as the organization in which they work (Lahey & Currie, 2004).

In the Enhancing Interdisciplinary Collaboration in Primary Health Care Initiative (EICP) draft framework document published in May 2005, it indicates that approaches to shared liability should ensure that there is not a negative impact on team care. Some hospitals in Ontario have implemented the MORE OB program (2002) a risk management workshop sponsored by the Healthcare Insurance Reciprocal of Canada (HIROC); the hospital insurers. This program, and its successful completion by staff members, is now linked directly to staff privileges in many organizations. Those organizations that employed the MORE OB program have shown improved maternal and infant outcomes (Volpe & Lewko, 2008; Milne, Walker, & Vlahaki, 2013).

Successful collaboration among teams including obstetrical teams is not achieved easily. Barriers such as professional divisions and hierarchical frameworks, lack of role clarity, stereotyping and differing value systems have been widely reported (Coxon, 2005). It is also evident that, although all team members should share a vision of progress, some healthcare teams require flexible working practices and ‘distributed’ forms of leadership while others prefer to respect traditional role boundaries (Hudson, 2002a; Tomblin Murphy et al., 2010). One of the challenges for a collaborative team is the need for health professionals to work differently and to their full scope of practice to

meet the comprehensive and complex needs of patients and their families. For example, a team that is required to meet the unique needs of the low risk obstetrical population may require a higher level of trust and communication between colleagues to plan implement and evaluate patient care. Team members must possess a keen understanding of what it means to collaborate and understand and respect the philosophical differences of their team co-workers. Evidence indicates that possessing these attributes will enhance collaboration and may result in the provision of the best patient and family focused care. A recent study discovered that while midwives understood what skills and competencies were important in interprofessional collaborative care, they questioned the actual relevance of interprofessional education. They felt there was no evidence to indicate that competency based interprofessional education enhanced interprofessional collaboration (Murray-Davis et al., 2011).

Local access to maternity care in communities is essential to improve birth outcomes, system outcomes, and provider outcomes, with the potential of lowering cost overall (Price et al., 2005; Meuser, Bean, Goldman & Reeves, 2006; Ireland, 2007; Peterson, 2007). Fostering a collaborative maternity service care model will require an understanding of the delicate balance between the needs of the individuals and their families in the community, team members and the interprofessional team as a whole, keeping in mind the different professions and scopes of practice, including shared and different competencies (Avery, 2005; Ireland et al., 2007; Fauveau, 2008; Verma et al., 2009). The benefits resulting from the transition to collaborative healthcare are well documented. The research supports the recommendation for a collaborative maternity service care model as a means of addressing health human resources issues, but fails to

discuss the right number and mix of healthcare providers, their unique skills, knowledge and behaviours needed, as well as their overall readiness to work together to meet the needs of low-risk obstetrical and well-woman clientele.

New models of care must be developed to address the issues in both low-volume rural maternity units as well as busy and high-volume area units in urban settings (Nesbitt, 1996; Barnett, 2002; Price et al., 2005; Cornthwaite et al., 2015). This can be achieved by increasing the number of collaborative practices among various providers of maternity services (Hollander Analytical Services, 2003).

Summary: A common perception among some providers who deliver low risk obstetrical care is that by having more maternity care providers, such as midwives, family physicians, obstetricians' nurses and others will solve the maternity health human resources crisis. However, this may not be possible due to the overall shortage of health human resources globally. Given this shortage, many key decision makers are interested in addressing organizational and structural barriers such as the poor distribution of healthcare providers that contribute attrition and shortages of staff (Health Council of Canada, 2005; Tomblin Murphy et al., 2010; Tomblin Murphy et al., 2012). One solution to reduce attrition rates and some other organizational issues is to support and create more effective interprofessional collaboration among obstetrical healthcare practitioners who are ready to collaborate efficiently and effectively. However, making the change to interprofessional collaborative practice models among obstetrical providers is not an easy transition. Such resistance to change combined with the inability to correctly define interprofessional collaboration among providers makes the acceptance and adoption of

the interprofessional model a difficult task. Practitioners and organizations must realize that interprofessional care is not simply defined by healthcare providers working together within the same environment; interprofessional collaboration entails a group of providers working in a trusting, highly communicative and efficient effective model with patient-centered care as the focus.

Barriers to Interprofessional Collaboration

Despite the literature pointing to the fact that interprofessional healthcare teams may be an efficient and effective way of delivering healthcare to patients, interprofessional collaboration is not an easy task. Key elements of collaboration such as trust, communication, joint planning, knowledge sharing, interprofessional decision-making, and readiness to assume responsibility for outcomes of client care (Eby et. al., 2000; Jansen, 2008; Tomblin Murphy et. al., 2009), are often missing among providers where teams are being assembled. For example, interprofessional rivalries that might affect successful collaborative working relationships include those between midwives, family physicians and obstetricians in the delivery of obstetrical care to women of low obstetrical risk. Some of these rivalries include: professional identity, status and power of professions, and differences in accountability within professional regulatory bodies (Hudson, 2002; Lahey & Currie, 2004). Other researchers have suggested that within interprofessional teams, practitioner stereotyping may also exist which may result in a lack of trust. Additionally, if team members are unwilling to work collaboratively and to communicate and share information and expertise, patients' care may suffer and the team may collapse (Bailey, 2004). Kenny (2002) proposes that this lack of cohesiveness

among healthcare providers is more likely to take place in teams that are inexperienced about the idea of interprofessional care, or not aware of the advantages of interprofessional practice (Kenny, 2002). Although healthcare organizations often indicate that it is a simple request to have healthcare professionals work together, it cannot be assumed that professionals have been readied with the competencies (knowledge, skills and judgment) as well as the understanding of how to collaborate, communicate and trust to effectively work together (Pfaff, Baxter, Jack & Ploeg, 2014). The identification of healthcare providers who will work effectively in an interprofessional healthcare team prior to the team being assembled is an essential component towards the achievement of high-functioning teams in the future.

Interprofessional collaboration requires ongoing monitoring and evaluation by organizations to determine if the team has a positive impact (Tomblin Murphy, Alder, Birch, Tomblin & Purkis, 2009; Tomblin Murphy, Alder, MacKenzie & Rigby, 2010). This type of ongoing monitoring can be costly and not a priority for organizations, resulting in poor evidence to build and sustain teams. Additionally, investing in interprofessional continuing education from both organizations as well as educational institutions for health care providers is key to successful interprofessional collaboration but often neglected (Gilbert, 2005; Zwarenstein, 2005; Goldman, Meuser, Lawrie, Rogers & Reeves, 2009; Tomblin Murphy et al., 2010; Reeves, Goldman, Gilbert, Tepper, Silver, Suter, & Zwarenstein, 2011; Morgan et al., 2014; Parratt et al., 2014; Pfaff et. Al., 2014). In their study titled 'Health human resources planning for an influenza pandemic in Nova Scotia' (2013) Tomblin Murphy et al., (2013) provide some guidelines for organizations to use a competency-based approach to efficiently use health human resources and to

arrive at the best team compositions to meet the health care needs of people and their families. Specifically, they suggest that by educating existing staff in the competencies needed or simply recruiting new staff with the required competencies, are two ways planners can improve access to care based on the needs of people and potentially stem some of the barriers to collaboration (Tomblin Murphy et al., 2009, 2012, 2013).

Additionally, the authors emphasize the need for organizations to provide human and non-human supports such as access to organizational processes that eliminate waste and costly duplication in efforts. These investment may help to provide safe and efficient care thereby increasing numbers of patients being served along with better outcomes and overall productivity within the interprofessional team (Tomblin Murphy et. al., 2013).

Other barriers to collaborative practice, in general, include jurisdictional issues, outdated regulatory frameworks, lack of policy development, medico-legal issues that prevent practitioners from collaborating as much as possible and funding mechanisms (Hall, 2004; Lahey & Currie, 2012; Lewis, 2012). The lack of funding is a key issue impacting the ability to implement and support team structures (Jansen, 2008; Strype, Gundhus, Egge, & Ødegård, 2014; Zhang, Haycock-Stuart, Mander, & Hamilton. 2015). It is therefore important for decision-makers and healthcare leaders to advocate for funding and make sound investments, ones that will optimize existing staff and reduce barriers to interprofessional collaboration. By having healthcare providers work in fully supported interprofessional teams there is an opportunity for enhanced breadth of knowledge and appreciation of skills above and beyond the roles of their individual silo professions thus building a team with the right number and mix of providers to meet the

needs of people and provide an efficient and effective way for organizations to build service capacity (Tomblin Murphy et al., 2010).

Team Effectiveness and Function

Teams are an important part of a functioning healthcare organization. As significant contributors, they often bring efficient and high-quality care to patient populations. However, when not properly organized a team can cause problems for organizational success (Borrill et al., 2000; Borrill, 2001; Kozlowski & Bell, 2003; Atwal & Caldwell 2005; Price, Howard, Shaw, Zazulak, Waters & Chan, 2005; Belanger & Rodriguez, 2008; Sargeant, Loney & Murphy, 2008; Weinberg et al., 2011; Tomblin Murphy et al., 2013; Bethea, Holland & Reddick, 2014; Strype et al., 2014; Kozusznik, Rodríguez, Peiró & Glazer, 2015; Smith, 2015; Zhang et al., 2015; Guchait, Lei, & Tews, 2016; Yu, Halapy, Kaplan, Brydges, Hall, & Wong, 2016).

Teams are essential in projects that are tackling complex work and requiring a variety of knowledge, skills and behaviours including creativity and innovation (Atwell & Caldwell, 2005; Belanger & Rodriguez 2008; Cacioppe & Stace, 2009; Guchait, Lei, & Tews, 2016). Much of the organizational research has addressed aspects required for effective teams but few have examined the requirements for teams in the healthcare industry. Bandura (2000) discusses the ways in which individuals are the creators of their own experiences and those experiences shape their world. Bandura goes on to show that unless people can believe that the desirable events as well as the avoidance of undesirable events are of their own making, no action would ever occur. Therefore, "... The growing interdependence of human functioning ...through shared beliefs in the

power to produce effects by collective action” (Bandura, 2000, p. 75) is a way in which teams can commit to their mission (Bandura, 2000).

Currently, some literature focuses on measuring the overall effectiveness of a team. Some authors discuss how to both determine and prevent difficulties in the functioning of teams and ways to improve their overall performance as a collective and collaborative unit (Barr, 1998; Belanger & Rodriguez, 2008; Goldman et al., 2010; Tomblin Murphy et al., 2010; Gaboury et al., 2011; Richter, Dawson & West, 2011; Santos, Caetano & Tavares, 2015; Guchait, Lei, & Tews, 2016). Cacioppe and Stace (2008) developed a self-report instrument completed by team members called, the “Integral Team Effectiveness Measure” (ITEM) instrument. The tool was developed based on review of research and models of effective teams. Its purpose is to assess the strengths and weaknesses of teams. The authors discovered that although many elements are necessary for a team to work collaboratively, there are underlying common themes. They argue that by using the self-report instrument, the underlying theme or construct of integral team effectiveness can be measured. According to the authors the elements of effective integral teamwork included development of learning, positive relationship in culture, effective procedures and systems, right leadership and team roles and finally, appropriate vision and goals (Cacioppe, Stace, 2008). Santos et al., (2015) propose a team leadership training model as a way to improve the performance of leadership functions and foster team effectiveness.

There are other tools that measure how collaborative team’s function. For instance, the Collaborative Practice Assessment Tool (CPAT) was developed at Queen’s University through the Office of Interprofessional Education and Practice. This tool was

developed through funding from Health Canada and piloted through the Queen's University Interprofessional Patient Centred Education Direction (QUIPPED) initiative (QUIPPED 2007-2008). The CPAT is a tool used to assess the degree to which health care practitioners collaborate to provide comprehensive, timely and appropriate patient care (QUIPPED 2007-2008). The authors of this tool state that it may be appropriate for use in a variety of practice settings including acute care, long-term care, and family practice. The CPAT includes 56 items with nine domains. The domains include: mission and goals; relationships; leadership; role responsibilities and autonomy; communication; decision-making and conflict management; community linkages and coordination as well as perceived effectiveness and patient involvement. It also consists of three open-ended questions (Schroder, Medves, Paterson, Byrnes, Chapman, O'Riordan, Pichora & Kelly, 2011). Two pilot tests conducted in 2008-2009, reported reliability and validity of the CPAT tool for assessing collaborative practice within interprofessional teams (Schroder, C., et al., 2011). Again, this tool can be used to identify educational needs to enhance collaborative practice.

In the organizational literature there have been only a few studies reported related to team climate across a variety of industries including health care. Anderson & West (1998) applied the concepts of shared perceptions and organizational/team climate to understand how working groups' function. The Team Climate Inventory (TCI) provides a profile of a team against four different dimensions or climates that have been deemed to be important for team effectiveness and innovativeness (Anderson & West, 1998). The four dimensions include: vision, participative safety, task orientation, and support for innovation. More recently, Benjamin et al., (2014) tested the use of a validated tool for

team climate for learning in a multinational organization. The questionnaire for learning assesses the factors that facilitate team learning in a business context and analyze its relationship to group performance and support for innovation (Benjamin, Ramírez Heller, Rita, Berger, Felix, Brodbeck, 2014). Kozusznik et al., (2015) analyzed stress climates at work and the individual outcomes over time for the team members. The authors found that increase in stress climates occurred when members shared perceptions about events that either elicited stress or did not (eustress). As the level of stress decreased over time, so too did exhaustion. In the teams where the stress climate changed from none to significant, there was a correlated decreased level of energy among participants and overall productivity (Kozusznik, Rodríguez, Peiró, Glazer, 2015).

Although there are several studies examining personality traits, there has been little to clarify the understanding of the effects of team member personalities on the overall team functioning (LePine, 2003; Livi, Alessandri, Caprara, & Pierro, 2015; Bilodeau, Dubois, & Pepin, 2015; Guchait, Lei, & Tews, 2016; Yu, Halapy, Kaplan, Brydges, Hall & Wong, 2016). While numerous terms have been used to describe an individual's personality, the majority of these descriptors can be categorized into one of the five dimensions of personality that have been described as the 'Big 5' or Five-Factor Models of personality (Barrick & Mount, 1991). This model includes conscientiousness, agreeableness, extroversion, emotional stability and finally openness of experience. With these five categories in mind the creation of widely accepted questionnaires to measure certain personality traits and predicting corresponding job performance, were created (Barrick & Mount, 1991). Psychology researchers have described an equally dramatic shift from research that examines pathology within one's personality toward research that

looks at capacity and growth development in the individual (Bonanno, 2004). It is the openness and experience category referring to an individual's tendency for curiosity, imagination, broadmindedness and sophisticated thinking that is of most interest in this proposal.

Livi et al., (2015), examined the relationships between team members who are high performers with good attitudes toward work compared to those who are not. Team members who measure low in positivity performed better when others' scores were high. Their results support previous findings showing the beneficial effects of positivity on organizational behaviours and in particular the crucial role of others' positivity in balancing low positivity in team members (Livi et al., 2015). Other studies have also attempted to measure the outcome of teamwork however; little has been done to measure the readiness of individuals to participate in teams. One example was Martínez-Fernández, Mariona, and Cerrato's study (2011) that focused their work on indirect methods that evaluated conceptions of teamwork by students. In their study, they designed a questionnaire based on three learning structures. These learning structures included cooperativeness, competitiveness and individualistic structures. The main aim of the study (Martínez-Fernández, Corcelles & Cerrato-Lara, 2011) was to design a questionnaire with the purpose of developing a reliable instrument to be used with secondary classroom students to measure their conceptions of teamwork. By identifying prevalent conceptions of teamwork across this population, the authors were able to check if the factors that were defined, which were individualistic complimentary and cooperative conceptions of teamwork, could be validated (Martinez-Fernandez et al., 2011).

In spite of studies like the aforementioned, the concept of post-licensure interprofessional team readiness has continued to remain a gap in the literature. Several studies have suggested that interprofessional teams do not necessarily perform effectively and have generated results indicating a negative or no relationship between interprofessional composition, and positive outcomes (Zwarenstein & Reeves, 2000; Hudson, 2002; Homan, Van Kleef, & Sanchez-Burks, 2016; Guchait, Lei, & Tews, 2016). Additionally, interprofessional teams may experience friction, hostility and barriers to knowledge sharing all of which undermine the benefits of teamwork. Due to the fact that the types of providers who make up the interprofessional team may not always be linked to improved outcomes, further research into the link between interprofessional composition and readiness as well as the dynamics of individuals in the team is warranted (Mitchell & Giles, 2011; Thistlethwaite, Forman, Matthews, Rogers, Steketee, & Yassine, 2014; Guchait, Lei, & Tews, 2016; Firn, Preston, & Walshe, 2016).

As it becomes more evident that simply assembling a team and expecting it to have high-functioning outputs is not realistic, it further emphasizes the need for more research looking at preparation of individual practitioners prior to interprofessional team collaboration. Health professionals need preparation and support to work in collaborative practice teams (Thistlethwaite, Forman, Matthews, Rogers, Steketee, & Yassine, 2014). Therefore, interprofessional education and competency-based practice frameworks that provide a common lens for team based practice, are necessary (Thistlewaite et al., 2014). When teams in the healthcare system fail, there is potential for harm to come to patients. Poor communication is cited as a main cause of poor patient outcomes and errors in healthcare overall (Scotten, Manos, Malicoat & Paolo, 2015; O'Leary, 2016).

In Weller et al.'s article (2011) the authors identified communication as the most common contributory factor to effective team outcomes (Weller, 2011). According to the authors, it is therefore essential to have valid and reliable instruments to measure improvements in team behaviour (Weller, 2011). To seek out such a measure, the authors conducted a literature review to find a tool designed for the context of healthcare that did not require a lot of interpretation and that was easy to teach readers to use. As stated in the article, "this search revealed a lack of robustly evaluated measurement tools" that will measure the effectiveness of the team and the contributing factors needed for positive outcomes (Weller et al., 2011, p. 216). Given the lack of useable tools in the literature, the authors set out to develop and evaluate an instrument that was designed to measure team behaviour in critical care teams. The authors concluded that team behaviours could be reliably measured. The components that were used for this measurement included individual and team performance and monitoring and verbalizing situational information (Weller et al., 2011).

Other studies examine measuring team effectiveness. For example, Richter, Dawson & West (2011), did a meta-analysis of 61 independent samples to identify whether teams working in organizations contribute to the overall organizational effectiveness. The authors determined that team working had a significant but small positive relationship with staff performance and attitudes while stronger outcomes were linked to performance outcomes when accompanied by complementary human resource measures. With organizations moving towards team based structures in both the public and the private sectors, team based working is at the heart of many production and service organizations (Richter et al., 2011). In their study in 2008, Delarue, Van, Procter

and Burrige called for scientific inquiry in testing the effectiveness of teamwork. Their study responded by examining whether teams working in organizations are related to organizational effectiveness. Furthermore, they examined what were the conditions under which team working is more or less effective (Delarue, Van, Procter & Burrige, 2008).

Factors Affecting the Desire to Work in a Team

There is little known about areas of potential resistance to working in teams. More specifically, the relationship between professional's attitudes and their perception of what team based care will mean to them (Strype et al., 2014; Smith, 2015; Zhang et al., 2015; Bilodeau, Dubois, & Pepin, 2015; Guchait, Lei, & Tews, 2016; Yu, Halapy, Kaplan, Brydges, Hall, & Wong, 2016). However, in a study carried out by Peterson, Medves, Davies, and Graham (2007) midwife participants expressed concerns about the collaborative models' capacity to support woman-centered care, to respond to local community needs, and to promote continuity of care (Peterson, Medves, Davies & Graham, 2007). They described significant barriers such as structural factors like interprofessional rivalry among groups, turf protection and lack of mutual respect; all contributing to participants' lack of confidence in the interprofessional models' ability to meet health needs (Peterson et al., 2007).

Other evidence supports the notion that not all healthcare providers are ready and willing to enter into collaborative teams. Some studies suggest that employee attitudes toward potential change can impact morale, productivity and turnover intentions (Eby et al., 2000; Jansen, 2008; Tomblin Murphy et al., 2010; Marion & Balfe, 2011; Weinberg,

Cooney-Miner, Perloff, Babington & Avgar, 2011; Weller, Barrow & Gasquoine, 2011; Pfaff, Baxter, Jack & Ploeg, 2014; Van, Driessen, Houwaart, Caccia & Scheele, 2014; Strype et al., 2014; Zhang et al., 2015; Bilodeau, Dubois, & Pepin, 2015; Guchait, Lei, & Tews, 2016; Yu, Halapy, Kaplan, Brydges, Hall, & Wong, 2016)

Other studies point to how practitioners may decide to work or not work in an interprofessional team. In the study by Weller et al., (2011), evidence suggests that doctors and nurses do not always work collaboratively in health care settings and that this contributes to suboptimal patient care. However, there is little information on interprofessional collaboration between recent medical and nursing graduates working together for the first time in an interprofessional healthcare team. The aim of their research was to understand the nature of the interactions, activities and issues affecting new graduates in order to inform interventions to improve interprofessional collaboration in this context. The study examined the experiences of new physicians and nurses as they enter the health care environment and provides some insights into how interprofessional collaboration works at a grassroots level. They concluded that these professionals demonstrate professionalism, thoughtfulness, mutual respect and adaptability and an overall interest in working together however, did have some challenges regarding communication that interfered with optimum team collaboration. The authors offer suggested strategies, both educational and organizational ones, which may reinforce these positive attributes and further support their desire to act as an interprofessional team as well as interventions that may help to stem challenges affecting communication that may lead to inefficiencies and errors in their work (Weller et al., 2011).

Weinberg et al. (2011), examined aspects of interprofessional collaboration that had an affect on team capacity. These included task interdependence, norms of working together, and collaboration among providers on healthcare units. They collected survey data from unit-based staff in 45 units across nine hospitals and seven health systems in upstate New York. The results showed that measures for team structure and collaboration do not vary significantly between hospitals, only by unit and occupational group. It appeared that higher status providers such as physicians reported better team working environments among other professionals than did lower status providers such as nurses and other allied health care provider groups (Weinberg et al., 2011). It may be concluded from this study that some professional groups are more apt to working in teams than others and that status and decision-making power has a large influence on this.

In an effort to reduce injuries and prevent deaths from violence, interprofessional domestic violence fatality review teams have been developed across the United States and globally (Wilson and Websdale, 2006). Using knowledge from the interprofessional team including providers from health, justice, education and others, reasons for domestic violence and ways to prevent further injury and death have been examined. Through these interprofessional recommendations, these teams are developing promising practices and changes to the healthcare system that offer better services and interventions aimed at improving care and outcomes to this challenging population. The study illustrated that it is not possible for providers to function alone when working with other providers and reviewing cases of people who are or suffering or have suffered from domestic violence (Wilson & Websdale, 2006).

San, Martin-Rodrigues, D'Amour, and Leduc (2008) did a cross-sectional study of 312 patients to examine the effects of interprofessional collaboration (low versus high intensity collaboration) on patient satisfaction, uncertainty, pain management, and length of stay. Data on the level of interprofessional collaboration, patient satisfaction, and uncertainty were collected from professionals and patients. The findings suggest that a higher participation in interprofessional collaboration has a positive effect on patient satisfaction, reduces uncertainty, and improves pain management however does not influence length of stay (San, Martin-Rodrigues, D'Amour & Leduc, 2008).

Marion and Balfe (2011) carried out a study examining ways to improve outcomes of people with Rheumatoid Arthritis. They state that a reasonable approach to improving Rheumatoid Arthritis patient outcomes involves the implementation of interprofessional models of care. The authors express that there has been experience and evidence to support interprofessional care models for patients with various chronic diseases. However, potential problems to team delivered care include the costs of implementation, time required for team meetings and other administrative duties and the lack of incentives for clinicians to adopt collaborative care approaches. The authors state, that although interprofessional teams make sense, there is a lack of contemporary research on cost-effectiveness and therefore, outcomes preclude conclusions about their utility. Additionally, the authors conclude that new studies are needed to identify best practices and strategies for implementing and administering such models, for enhancing communication among members of the care team, and for resolving issues of provider compensation and patient outcomes assessment (Marion et al., 2011).

Currently, there is no agreement in the literature regarding the relationship between team climate and culture, and their relative power as predictors of interest in participating in interprofessional teams. Positive team climate is described in the literature when individuals in a team have common goals, interact regularly and take collective action through task interdependence to optimize shared understanding among team members (as individuals must interact, individuals must have some common goal which predisposes individuals toward collective action, and there must be sufficient task interdependence to develop shared understandings (Anderson & West, 1998; Loo, 2003). Positive team culture is described when there is an overall positive sense in the team environment among team members as well as a belief that the team supports high quality outcomes from all members (Willard-Grace, Dubé, Hessler, O'Brien, Earnest, Gupta, Grumbach, 2015).

Hann, Bower, Campbell, Marshall, and Reeves (2007) discuss the interplay of culture and climate, represented by shared values and beliefs, and their influence on quality of care in primary care teams. The team carried out a cross-sectional survey of 492 professionals in 42 general practices in England. Self-report measures of culture; the Competing Values Framework (Quinn & Rohrbaugh, 1983) and climate; the Team Climate Inventory (Anderson & West, 1998) were used, along with a medical record review (Hann, Bower, Campbell, Marshall & Reeves, 2007). The majority of practices could be characterized as *clan* culture type. Those who are working in a clan culture stress the importance of participation, cohesion, shared values, commitment and high morale (Maher, 2000; Cameron & Quinn, 2006).

Practices with a dominant clan culture scored higher on climate for participation and teamwork. There were no associations between culture and quality of care, with limited evidence of associations between climate and quality. The authors concluded that the findings of the study did not support the hypothesis that culture and climate are important predictors of quality of care in primary care or desire to participate in a team. Although a small sample, their results may suggest the need for further study of associations between team culture, climate and outcomes (Hann, Bower, Campbell, Marshall & Reeves, 2007).

Between April 2008 and June 2009, Gordon, Melvin, Graham, Fifer, Chiang, Sectish, and Landrigan (2011) set out to determine whether reorganizing physicians into hospital based teams in general paediatric wards in England would be associated with higher functioning team outcomes including increased face-to-face communication between physicians and nurses and better patient centred care. It was concluded that hospital based teams improve the frequency and quality of team communications, which may in turn create an improved environment for patient centric care (Gordon, Melvin, Graham, Fifer, Chiang, Sectish & Landrigan, 2011).

Summary: Several researchers have examined the ways in which healthcare providers in teams work together and the determinants of successful collaboration as it relates to the potential desire to participate in an interprofessional team. Findings have suggested that a higher intensity of interprofessional collaboration along with positive team climate and culture contribute to a higher positive effect on patient satisfaction and provider satisfaction. Improved attitudes among healthcare providers toward team based care can impact morale, productivity and turnover intentions (Eby et al., 2000; Jansen, 2008;

Tomblin Murphy, Alder et al., 2010; Marion et al., 2011; Weinberg et al., 2011; Weller et al., 2011). However, the costs associated with implementation of interprofessional teams, the extra time required for their administration, and the lack of incentives for clinicians to adopt collaborative care approaches may have a negative impact on the decision of providers and/or organizations to participate in and develop interprofessional teams.

Interprofessional Competencies

Many regulatory bodies that license healthcare providers mandate a set of specific competencies for entry to practice. These healthcare competencies refer to the skills, knowledge, procedures/tasks and attributes that licensed professionals are expected to perform within their scope of practice (Zemke, 1982; Schuiling, 2000; Fullerton, 2004; Givens, 2006; Verma, Broers, Paterson, Schroder & Medves, 2009; Farrell, Payne & Heye, 2015). By defining the entry-level competencies, some regulatory bodies have established a minimum set of standards that all providers within this group are expected to attain and maintain within their ongoing professional practice. Research has now been carried out to develop competencies that pertain directly to interprofessional collaboration (Canadian Interprofessional Health Collaborative, 2010; Hepp, Suter, Jackson, Deutschlander, Makwarimba, Jennings & Birmingham, 2015)

To illustrate the ways in which interprofessional collaborative competencies may support initiatives aimed at improving efficiencies and outcomes across the healthcare system, the following two examples are given:

Example I

Some governments across Canada have been examining new ways to deliver healthcare services to populations. One example of this innovation comes from the Nova Scotia Department of Health and Wellness is the Model of Care Initiative in Nova Scotia (MOCINS) (2008). The Nova Scotia government is committed to delivering health services in an innovative team delivered, patient and family-focused way. Facing the increasing costs of healthcare, combined with the reduced number of healthcare providers available, there was an urgency to examine a new way to deliver healthcare services to the population to better meet their needs. The overall mandate for the MOCINS was “to design, implement and evaluate a viable provincial model of care for acute care, in-patient care services that was to be patient centered, high quality, safe and cost effective” (Tomblin Murphy et al., 2013, p. 347.)

This initiative looked at optimizing the health workforce to ensure that patients and families had access to the right providers and the right number of providers at the right time. This was an essential component of sustainability for the health human resources crisis in Nova Scotia. The overall effectiveness of MOCINS as a sustainable care delivery model was rigorously evaluated (Tomblin Murphy et al., 2010). Evaluation focussed on the degree to which implementation of this new model was associated with

changes in patient, provider and system outcomes as well as how the model assisted in reducing the overall provincial health human resources shortages.

Example II

Another innovation from the Nova Scotia Department of Health and Wellness was the Competency-based Planning for Pandemic Influenza in Nova Scotia; work that was developed originally in Ontario (Ontario Health Plan for an Influenza Pandemic, 2008; Tomblin Murphy et al., 2013). This work focussed on interprofessional collaboration and the competencies required to meet the needs of populations suffering with Influenza. The initiative produced a validated list of specific competencies and estimated the potential number of patients during a pandemic influenza out-break that would require each of these competencies. The initiative provided concrete examples of the advantages of interprofessional collaboration and the importance of focussing on competencies to meet the needs of the population to provide better outcomes across the health care system.

Given the recent and persistent focus on competency requirements for health service professionals, a number of authors have examined the ways in which competencies relate to effective teamwork in their organizations. (Barr, 1998; Hall, 2005; Thylefors & Persson, 2005; Dubois & Singh 2009; Suter, Arndt, Arthur & Parboosingh, 2009; Thistlewaite et al., 2014; Hepp et al., 2015; Hettinger, & Gwozdek, 2015; Regan, Laschinger, & Wong, 2016; Van Der Lee, Driessen, & Scheele, 2016). Competencies for interprofessional teams pose a possible solution to improving outcomes and eliminating barriers to interprofessional collaboration. At the present time, research suggests that primary healthcare teams lack the capacity to function at a level that actually enhances

the individual contributions of the members, and overall team effectiveness (Hall, 2005; Sargeant, 2008; Suter et al., 2009). Thistlewaite et al., (2014) suggests that while developing better frameworks and practice guidelines for enhanced interprofessional collaboration is an admirable aim, this has resulted in more confusion with the introduction of varying definitions, particularly in relation to what interprofessional education and interprofessional collaborative practice is. The authors distinguish between competencies for health professions that are specific to their profession, are generic, or those that may only be achieved through interprofessional educational forums.

A recurring theme in the research reviewed is that the process of becoming a functioning, collaborative team requires investments of time, resources, and strong leadership (Price et al., 2003; British Columbia Women's Hospital and Health Centre Maternity Care Enhancement Project, 2004; Peterson et al., 2007; Hepp et al., 2015; Hettinger, & Gwozdek, 2015; Yu, Halapy, Kaplan, Brydges, Hall, & Wong, 2016). These studies, among others, indicate the need to have strong interprofessional education, in addition to high-quality clinical trainee experience, and continued interprofessional post-licensure education in order to make collaborative teams successful (Gilbert, 2005; Peterson et al., 2007; Hammick, Freeth, Koppel, Reeves & Barr, 2007; Thistlewaite et al., 2014; Yu, Halapy, Kaplan, Brydges, Hall, & Wong, 2016). Thistlewaite et al., (2014) also highlight the need for further examination and dialogue to establish common terms and language that may improve ways in which interprofessional education can translate into successful interprofessional collaborative practice environments.

The ability to work with professionals from other disciplines and deliver collaborative, patient-centered care is considered a critical element of professional

practice requiring a very specific set of competencies. These competencies include interprofessional competencies that are defined in a broad general way that go beyond knowledge acquisition and include the use of clinical, technical communication and problem solving skills (Gilbert, 2005; Banfield, 2007; Sargeant et al., 2008; Canadian Interprofessional Health Collaborative, 2010; Hettinger, & Gwozdek, 2015; Vanderbilt, Dail, & Jaber, 2015; O'Leary, 2016). The work of the Enhanced Interdisciplinary Collaborative Practice initiative (EICP) 2005 is guided by the definition of interprofessional collaboration encompassing the following attributes: development of a common purpose or care outcome; acceptance and recognition of complementary skills and expertise among different providers; effective coordination and communication among relevant providers (Nolte, 2005). In his paper Gilbert (2005) argues that for collaboration to be sustained, "the balance of these influences must be such that each collaborating party is able to identify sufficient benefit to itself individually as to outweigh the disadvantages of interprofessional collaboration" (Gilbert, 2005, p. 35). Sargeant et al., (2009) have explored perceptions of effective primary healthcare teams to determine the related learning needs of the healthcare professionals and the team itself. In their analysis of transcripts resulting from nine focus groups, five themes emerged: Understanding and respecting team members' roles; recognizing team members and teams require work; the overall understanding of primary healthcare; knowing how to work together for a shared patient outcome and; communication, which was identified as the essential factor in effective primary healthcare teams. These areas may inform the ongoing interprofessional competency discourse and add to the understanding of what teams need to be effective.

The Canadian Interprofessional Health Collaborative (CIHC) created a national interprofessional competency framework for use across the healthcare system to enhance the ability of providers, educators and employers to successfully establish, monitor and evaluate an interprofessional team. CIHC is a consortium made up of health organizations, educators, researchers and professionals as well as students from across Canada (CIHC, 2010). Their core mandate is to advance research and understanding in interprofessional education and collaborative practice and to provide evidence and information to help build strong and effective healthcare teams while improving the experience and outcomes of patients (CIHC, 2010). To that end, the Canadian Interprofessional Health Collaborative (CIHC) competency framework (2010) identifies six competencies including patient-centred care, communication, role clarification, conflict resolution, team functioning and collaborative leadership (Canadian Interprofessional Health Collaborative, 2010; Hepp et al., 2010). In 2010, Hepp et al. conducted 113 interviews with a variety of healthcare providers from varying professions. Through their research, the authors discovered that of the 6 CIHC interprofessional competencies, positive examples of communication and patient-centred care processes were identified. However, they discovered that there were some gaps in collaborative leadership and role clarification that impacted overall collaboration among the professionals. Additionally, conflict resolution and team functioning were not well developed among the group.

In Suter et al.'s (2009) analysis of interviews done with sixty health professionals, it was determined that competent collaborators were defined by two main competencies that were also identified by EICP and in Sargent et al.'s study (2009). These

competencies were communication and role understanding. Suter et al., (2009) identifies communication and role understanding as core competencies for collaborative practice. Understanding the roles of healthcare disciplines include the awareness of the professionals, their scopes of practice, expertise, responsibilities, skills and values (Belanger & Rodriguez, 2008). Trust and respect among professionals, skills and competency to manage conflict effectively and a willingness to collaborate are critical to high quality and efficient patient-centered care (Suter et al., 2009). Strong interprofessional education on a continued pre and post-licensure basis, must take place to ensure the components of interprofessional care are learned and understood. Shoemaker et al., (2015) did a randomized controlled study to examine how a virtual interprofessional educational activity could improve interprofessional competencies. All participants completed an original, survey that measured improvement in selected Interprofessional Education Collaborative (IPEC) competencies and the Readiness for Interprofessional Learning Scale (RIPLS). The use of a single, interprofessional educational activity resulted in having greater awareness of other professions scopes of practice and how different professions can collaborate in patient care thus improving interprofessional competencies across the groups (Shoemaker, De Voest, Booth, Meny & Victor, 2015).

Two basic levels of competencies including technical and behavioural are found in regulatory body clinical competency documents (Verma et al., 2009; Van Der Lee, Driessen, & Scheele, 2016). The first level, technical competencies predominantly focus on acquired knowledge, technical skills and abilities required throughout a professional's educational journey (Hallin, Keissling, Waldner & Henriksson, 2009; Shoemaker, 2015;

Vanderbilt, Dail, & Jaber, 2015). Examples of these technical competencies include knowledge of the applicable legislation and the knowledge and appreciation of methodologies that guide clinical policies and procedures. The second level of competencies is behavioral competencies. These include qualities such as communication skills. These competencies are more difficult to observe and measure, but are the key indicators of how an individual approaches his or her work (Hallin et al., 2009; O'Leary, 2016).

In her study, Leggat (2007) examines the criteria indicating how health professionals work together as an effective team. These criteria inform the identification of critical, effective teamwork competencies for health service managers. From this study and others, it is clear that the simple ability to perform an activity or skill can be the result of either having natural talent, or through acquisition of education and training (Leggat, 2007; Malin & Morrow 2007). One of Leggat's most important findings was that management and clinical teams may require different competencies (Leggat, 2007). While the under-representation of clinical care teams in this study made it difficult to observe the differences in reported competencies between the two, the fact that the sample of health service managers distinguished between competencies for clinical and management teams is an important finding that requires further study (Leggat, 2007).

Farrell et al. (2015) demonstrate in their study the need to incorporate interprofessional education into the socialization models used in advanced practice nursing programs to enhance interprofessional competencies. The authors show that being able to work effectively as member of a clinical team while a student is fundamental to success in the clinical environment post-graduation (Interprofessional

Education Collaborative Expert Panel 2011; Pfaff et al., 2014; Farrell et al., 2015). Interprofessional collaboration and coordination are needed to achieve seamless transitions for patients between providers, specialties, and health care settings and the authors state that in order to achieve this goal, continuous development of interprofessional competencies is a critical key success factor (Farrell et al., 2015; Van Der Lee, Driessen, & Scheele, 2016).

It is therefore suggested in the literature that competency identification is important for both management and interprofessional clinical teams and perceived differences within the competencies required by such individuals exists (Leggat, 2007; Malin & Morrow, 2007; Farrell et al., 2015; Van Der Lee, Driessen, & Scheele, 2016). Therefore, it is important, for the successful implementation of interprofessional teams, to ensure that members have strong competencies that include communication, a high level of trust and a clear understanding of collaboration to avoid unnecessary conflict and confusion regarding roles and responsibilities among the team (Farrell et al., 2015; Scotten et al., 2015; Fairman, 2016; O'Leary, 2016; Van Der Lee, Driessen, & Scheele, 2016).

Professional Clinical Competencies in Obstetrical Teams

So what is the role and function of clinical competencies for interprofessional healthcare teams? When considering the competencies required for a professional who is charged with the task of providing obstetrical care to women and families of low obstetric risk, we look at professionals in Canada and other parts of the world who have in their scope of practice, pre-natal, intrapartum and post-natal care. The main categories of such professionals who possess this entire scope of practice include midwives, family

physicians, obstetricians and nurses. Currently, there is a gap in the literature identifying the specific clinical competencies required for professionals who have this scope of practice and are working together in an interprofessional team (Van Der Lee, Driessen, & Scheele, 2016).

Core Competencies for Primary Maternity Services Part 1 was a project co-sponsored by the National Health Workforce Task Force and the Maternity Services Interjurisdictional Committee in Australia in October 2009. This project highlights the importance of an interprofessional approach to primary and maternity service providers in Australia to ensure quality and safety of maternity services for women, babies and families. The focus was the development of core competencies for primary maternity services and the care of pregnant, birthing and post-partum women who were considered to be of normal or low risk. The competencies provide guidance to the development of general educational principles and an educational framework to inform curricula development for primary maternity care services and maternity services across Australia. The purpose of this study was to assist education providers to ensure that the maternity workforce was trained and competent and capable of providing safe maternity care. The study was careful to note that the competencies were aimed at ensuring maternity services achieved the best outcomes for women and their families and were not aimed at blurring practice boundaries or developing a generic maternity health worker. In this case, a multi-disciplinary approach rather than an interprofessional approach was taken (National Health Workforce, 2009). Although similar, there are some differences between multi-disciplinary and interprofessional teams. A multi-disciplinary team combines several professionals working in parallel. Whereas an interprofessional team

has two or more professions working with one another, combining their unique skills and knowledge toward a common goal. Interprofessional teams are often more structured with conflict resolution and shared decision-making processes (Chamberlain-Salaun, Mills, & Usher, 2013).

In Canada, as in many other countries, midwives are one of the primary care providers who have a full scope of practice related to low-risk obstetrics. Midwives promote wellness among women, babies and families. They take the social, emotional, cultural and physical aspects of a woman's reproductive experience into consideration, and actively encourage informed-choice decision-making by providing women with complete, relevant and objective information in a non-authoritarian manner; typically perceiving themselves as a shared partner in the woman's care (Canadian Association of Midwives, 2008). Canadian midwives are fully responsible for the provision of primary health services within their scope of practice, making decisions in collaboration with their clients (Canadian Association of Midwives, 2008). When midwives identify conditions requiring care residing outside their scope of practice, referrals to appropriate care providers are made (Canadian Association of Midwives, 2008). To ensure clients receive the best and most high-quality care, Canadian midwives must commit themselves to reviewing up-to-date research on maternity care issues, and adopt a critically-appraising approach within their analysis of such research; subsequently incorporating relevant findings into their regular delivery of care.

While there are provincial and territorial differences in how midwifery is legislated, organized and practiced in Canada, the basic model of midwifery practice is the same across all regulated jurisdictions. Midwives provide care from early pregnancy

through to at least six-weeks post-partum to women and their infants (National Health Workforce Taskforce, 2009).

In 2005, the Royal College of Physicians and Surgeons of Canada published their *CanMEDS 2005 Physician Competency Framework*. As with other health professional's competencies, the CanMEDS competencies are multi-faceted and are part of the education and training of physicians (Frank, 2005). For example, competencies include:

- Teach several aspects of medicine around any case
- Ask effective educational questions that explore a variety of medical competencies
- Assess learner performance across multiple attributes and abilities (Frank 2005)

Within the CanMEDS (2005) document, a new definition of competence is forwarded. The Royal College states that: "Competency is the process of identifying the core abilities involved in translating the available evidence on effective practice into educationally useful elements" (Frank, 2005, p. 1). Traditionally, medical education has articulated competence around core medical expertise. In the CanMEDS (2005) construct, the medical expert or physician plays an essential role, one of an integrator as opposed to a solitary role in an individual's healthcare (Frank, 2005). As an integrator, the physician plays a key role in leading and facilitating interprofessional collaboration among other healthcare providers. The interconnection of roles a competent physician or the medical expert carries out includes communicator, collaborator, health advocate, manager, scholar and professional.

What follows are two examples, this time, specifically addressing a competency-based approach to low-risk obstetrical and well-woman care.

Example I

The Ontario Maternity Care Expert Panel was appointed in 2004 to make recommendations to improve maternity care in Ontario. The final report, published in 2006, titled “Emerging Crisis Emerging Solutions”, addressed similar issues to an earlier work called the MCP2. It provides recommendations to the provincial government in Ontario to address a looming maternity care crisis for the province. In 2006, the Ontario Women’s Health Council addressed the maternity care crisis. The summary recommendations included increasing the capacity of health human resources by attracting, supporting and retaining maternity care providers through the development of a system that values and respects all provider groups including midwives, nurses and physicians through harmonization of regulation and the creation of interprofessional teams with complimentary funding mechanisms. Additional recommendations included: comprehensive evaluation frameworks for collaborative models of care, continued system development, continued discussion on interprofessional education and collaborative maternity care as well as commitment by provinces and territories to implement these collaborative maternity care teams beyond the pilot projects that were funded.

Example II

The MORE OB (Managing Obstetrical Risk Effectively Program) (Salus, 2010) is a comprehensive three-year patient safety professional development and performance improvement program for caregivers and administrators in hospital obstetrics units. The program was initiated from visions of The Society of Obstetricians and Gynaecologists (SOGC) for the enhancement of patient safety (Salus, 2010; Morgan et al., 2014). The program’s structure is based on the proven principles of high reliability organizations including: safety as priority, effective communication, teamwork, decreased hierarchy in

emergencies, practices for emergencies, and reflective learning. The program integrates evidence based professional practice standards and guidelines with current and evolving patient safety concepts, principles and tools (Salus, 2010). Currently the MORE OB Program has been delivered for five years by a team of key interest groups including: the SOGC, The Royal College of Physicians and Surgeons of Canada, the College of Family Physicians of Canada, The Society of Rural Physicians of Canada, The Association of Women's Health, Obstetric and Neonatal Nurses and The Canadian Association of Midwives as well Accreditation Canada (Salus, 2010). Although the crisis in maternity care in Canada has received some attention, the potential solution of collaborative team based, competency driven approaches have been slow to gain ground (Youngson et al., 2003; Van Der Lee, Driessen, & Scheele, 2016). The barriers to collaboration hinge mainly on professional and discipline specific resistance to change, overall difficulty in letting go of existing models of siloed care, and adopting a shared care model with different professions.

Van Der Lee, Driessen, and Scheele, (2016), studied the collaboration between obstetricians and midwives in the Netherlands. In their study, midwives evaluated the collaborative performance of their obstetrician colleagues. The authors showed that the midwives in the study experienced a lack of trust and unequal power balance that affected their ability to collaborate effectively. The authors postulate that many of the issues reported in the study can be linked to the historic disconnect of both professions (Van Der Lee, Driessen, & Scheele, 2016). Understanding the historic context of interprofessional collaboration is important for understanding problems in collaboration between professional groups such as midwives and physicians and readiness to

collaborate. Recommendations to help decision makers see where the best investment for teams are, and identification of the individual providers that will be early adopters in the work, may be found in measuring readiness to collaborate in the first place. Some initiatives may see greater success if teams are consciously chosen based on the provider's readiness to collaborate as opposed to building teams solely on the skills and knowledge practitioners have (Utz et al., 2015).

It is evident through this literature review that individual professions encompassing intra-partum obstetrics within their scope of practice are characterized by competencies specific to each provider group. There is no information or literature that speaks to competencies across health provider roles, for example, the competencies required to provide low-risk obstetrical and well-woman care to a population regardless of profession. While it is evident that effective teamwork is consistently identified as a requirement for improved clinical outcomes in the provision of healthcare and low-risk obstetrics, there is limited knowledge of what makes these professionals become an effective team and even less information on how to develop such skills across the professions and have a joint set of competencies to guide that work. Ultimately, low-risk obstetrical and well-woman competencies are currently focused on midwives, General Practitioners (GP's) or family practice physicians, and obstetricians, independently from an interprofessional approach to collaborative team based care.

In collaborative primary maternity care models, team composition consists of the identification of a core team. The core team is comprised of health professionals that are the direct contact point for the woman. These professionals have the full scope of practice that includes pre-natal, intra-partum and post-natal care. In Canada, this team

most often consists of the following professionals: family physicians, midwives and obstetricians or a combination of them (CIHI, 2004). Women may see some or all of these professionals in the model, depending on the context of their specific maternity care needs. In some places, especially in rural locations, general practitioners with expertise in surgical and/or anaesthesia may also become core members (Society of Rural Physicians of Canada, 2003; Avery, 2005; Medical University of South Carolina – OBGYN, 2008). While most primary care professionals provide maternity care for women with low-risk pregnancies, obstetricians take the lead when attending to high-risk pregnancies.

The predominant model of care for these services in Canada is a multidisciplinary approach whereby providers work together in parallel and infrequently coordinate care for patients. Certain characteristics such as independent office locations, separate referral practices are evident. The next step is to create an interprofessional approach where a shared set of competencies across the continuum is used to deliver high-quality service to women of low obstetrical risk. This would be evidenced by the team demonstrating characteristics such as co-location, shared patient charts and shared call schedules. As was mentioned earlier, the Multi-Disciplinary Collaborative Primary Maternity Care Project, commonly known as MCP², was a multi-disciplinary project funded by Health Canada in 2006 (Salus 2010). This project included professions from all the relevant disciplines and undertook a comprehensive analysis of how best to develop interdisciplinary teams for the delivery of maternity care. The definition of the multi-disciplinary care model outlined in the MCP² report states: “The model is designed to promote the active participation of each discipline in providing quality care. It is woman-

centered, respects the goals and values of women and their families, provides mechanisms for continuous communication among caregivers, optimizes caregiver participation and clinical decision-making within and across disciplines and fosters respect for the contribution of all disciplines” (MCP2, 2006, p. 5).

In the field of low-risk obstetrical and well-woman care, the ability to demonstrate and pilot projects that focus on interprofessional post-licensure collaboration is imperative. Providers who share a set of competencies must come together to meet the needs of this population and apply a shared approach to patient outcomes and the overall delivery of these services.

Summary: Entry to register as a midwife or physician requires details of skills, knowledge and attitudes expected for the work within this scope of practice.

Additionally, the literature provides important messaging and lessons learned regarding the achievement of a seamless, primary healthcare competency-based approach to delivering well-woman care and low-risk obstetrical services to women and their families. Although there is very little research regarding shared clinical competencies in clinical care delivery and even less in low-risk obstetrics, some examples point to the promise and value of pursuing further research in this domain. Thus, further work is needed to develop a core set of interprofessional collaborative competencies for low-risk obstetrical and well-woman care as well as a way in which to measure the readiness of these providers to work in a shared-competency, interprofessional collaborative team.

Teamwork in Other Industries

Many industries, beyond healthcare, have embraced the use of teams to build capacity and improve productivity (Steckler & Fondas, 1995). For example, the corporate, sports, academic and aviation environments have all acknowledged that improved productivity, work satisfaction and better outcomes result from when teamwork has been implemented and supported (Steckler & Fondas, 1995; Olshansky, 2006; Cosenzo, Fatkin & Patton, 2007; Leape, Shore, Dienstag, Mayer, Edgman-Levitan, Meyer & Healy, 2012; Rosa, 2014). However, supporting healthy and effective teams can be challenging in many organizations across many different industries. The preconditions for team engagement of workers require everyone being treated with courtesy, honesty, respect, and dignity. Teams in any environment, whether they are healthcare practitioners, sport team members, engineers, pilots or others, need preparation to be ready to collaborate and to work in a focused and effective manner exercising respect for the unique contributions and the diversity an interprofessional group of people brings (Cosenzo, Fatkin & Patton, 2007; Valentine et al., 2015).

Teams in the corporate business world have similar goals as healthcare teams. For example, agenda setting, communication and conflict resolution as well as being able to influence and negotiate, are all qualities that are shared among teams in a variety of for profit and not for profit industries. Collaborative practice teams can be highly beneficial and even a survival factor for some organizations but difficult to implement and support due to lack of instruments to test readiness. Rosas et al., (2009) created a model to test the behavioural aspects of organizations working in collaboration with other organizations. Their preliminary results showed that their testing approach is feasible,

however further research is needed to develop a complete assessment for organizational collaborative readiness. One example of corporate industry seeking better outputs is cited in Masie's (2012) study that examines collaboration between the information technologies of higher education and the ones seen in corporate development and learning. The author asserts that both higher education and corporate learning are positioned well for ongoing collaboration, however both industries are almost completely disconnected. Some of the ways that technology leaders in both industries may find collaborative opportunities would be in pursuing joint meetings, shared research and innovative ways of expanding technologies such as tablet-based books as well as exploring opportunities for joint residency programs to help build team capacity. Although system and technological collaboration is attractive to some organizations due to the fact that there may be some economical benefits, the readiness of their staff to share systems and work together is critical. One way to test readiness of staff would be to utilize a readiness to collaborate tool first within the organizations. By understanding staff readiness to collaborate, and intervening according to the results, organizations can then move to more systemic collaboration such as sharing technologies and services.

An interesting combination of activities between the corporate industry and the sports industry to support and nurture better collaboration is the use of extreme sports to nurture camaraderie among staff and make meetings more interesting and fun. Corporations are beginning to now offer wide variety of games and sports for teambuilding activities and to improve collaboration and morale among workers (Tesdahl, 2011). This is a good example of a potential intervention an organization may

want to implement if the results of the RCS show reduced readiness to collaborate and/or reluctance to collaborate in an interprofessional team.

Readiness for Teamwork in other Industries

In the sporting field, Abdullah (2012) examines the importance of team composition when assembling sport teams. The concept of a united group, gathering around common goals and outcomes is critical to team performance. Healthy social interactions among team members as well as positive feedback contributes to success and cohesion among members. As cohesion improves, the author contends that feelings of loyalty build a sense of belonging and positive morale for individual players and the team as a whole (Abdullah, 2012). Although Abdullah (2012) has examined the need for cohesion among team members, testing for readiness to share goals and be cohesive in a sports team prior to actually joining the team itself, has not been studied or measured.

Another example in an industry other than health is found in the academic literature. Rosa's (2014) letter to the editor in the journal *Diagnostic Cytopathology* titled 'Academic Research in Medicine: The Need for Teamwork and Leadership', Rosa (2014) asserts that collaborative research offers the opportunity for practitioners to engage in a variety of studies thus gaining experience and appreciation for other perspectives. However, the author notes, as have others, that despite these benefits, challenges occur with the lack of collaboration among disciplines who looking to become a team (Pinto, (n.d); West & Poulton, 1997; Kenny, 2002; Hall, 2005; Kvarnstrm, 2008; Volpe & Lewko, 2008; Rosas et al., 2009; Wu Tiejun, 2013; Hesjedal, Hetland, & Iversen, 2015). It is clear throughout the literature that Interprofessional approaches to research can

provide new perspectives and solutions to health problems and disease states.

Demonstrating mutual respect, open communication among different disciplines and recognizing unique contributions can assist in better academic research and potential health outcomes (Reeves et al., 2008; San, Martin-Rodrigues, 2008; Tomblin Murphy et al., 2009; Milne, Walker, & Vlahaki, 2013; Tomblin Murphy et al., 2013; Kozusznik, 2015; Fairman, 2016). However, not all teams will be effective at doing this and additionally, there seems to be a dearth of tools to measure these concepts in individuals prior to a team being formed and none focus on the readiness of individuals to participate beforehand (Anderson & West, 1998; Hoegl & Gemuenden, 2001; Millward & Jeffries, 2001; Pearce & Sims, 2002; Alexander et al., 2005; Cooper et al., 2010; Valentine et al., 2015; Fairman, 2016).

Kosnik et al., (2007) in their paper titled '*Learning from the Aviation Industry*', discuss the reasons behind aviation accidents. The authors tell readers that although accidents are inevitable when dealing with humans, the breakdowns in performance leading to the accident are often due to system defects and poor decisions over time (Kosnik, Brown & Maund, 2007). Literature points to these defects being linked to failures in interpersonal communications and leadership (Kosnik et al., 2007; McKeel, 2012). The aviation and healthcare industries have been considered somewhat similar; seeing the physician like a pilot who has ultimate control over the life and death of many people with the team in place to support the directions of the leader (Gordon, 2006; McKeel, 2012). Unfortunately, like some physicians, pilots were taking on a 'do it my way or leave' approach, and it was proving to be fatal in some cases. Crews were

implementing orders despite knowing that the outcome would be negative (McKeel, 2012).

Naval Aviation stakeholders have been collaborating together for over a decade with the aim of improving ways to do business (Malone, Zortman, & Paparo, 2004). During this time, leaders in the industry have seen the need for a different and more effective way of addressing readiness of their teams and the use of human and non-human resources. A new initiative named the Naval Aviation Enterprise was created that included partnerships between Naval Aviation leaders (Anonymous, Naval Aviation Enterprise Tackles Readiness Challenges, 2015). They came together with the shared goal of delivering the right team, ready at the right cost, at the right time, for the present and into the future. This goal allowed a proactive approach to facing a range of readiness issues that included managing costs and creating a collaborative approach to solving complex problems. The focus for readiness in this case was Naval Aviation, war-fighting readiness. Through this work, the industry has identified what is referred to as 'readiness degraders' (Albright, Gerber, & Juras, 2014). These range from ensuring the right parts and supplies are available when needed in order to properly deploy crews. Understanding what is being done to address and solve current problems is now allowing leaders to identify the barriers that need to be addressed for successful resolution and collaboration. By working together as an enterprise, the Naval Aviation industry is now better positioned for impacting and influencing policies and procedures as well as finding solutions toward removing the readiness degraders that prevent a confident and competent naval aviation team. However, even with these initiatives aimed at preparing

a ready and competent team, tools and methods to test the individual readiness to participate in a collaborative team are lacking.

Additionally, in the aviation industry a teaching concept and workshop was developed, which aimed at reducing the frequency of human error and accident through focusing on team-centred decision-making processes (Gordon, 2006; Kosni et al., 2007; McKeel, 2012). Crew Resource Management (CRM) uses training for team building and has been used since 1979 particularly in the National Aeronautics and Space Administration (NASA), and widely in the airline industry. CRM workshops teach an interpersonal approach to decision-making, drawing on the learning and behaviours of social sciences and engineering to help improve outcomes and enhance human performance (Gordon, 2006). As such, CRM has also been used in some healthcare organizations to optimize the teams and strengthen team effectiveness overall. Despite its somewhat wide spread use in healthcare, Reeves et al. (2013) report little evidence to show CRM's true effectiveness across the health system. The authors state that little to no impact on individual and/or team behaviours were affected through the use of CRM however, many organizations continue to use it regularly (Reeves, Kitto, & Masiello, 2013).

A project focusing on CRM was conducted in 1991 (Helmreich, & Wilhelm, 1991). According to Helmreich and Wilhelm (1991), flight deck management staff and participants in the CRM indicate that crew resource management training is well received, relevant and highly significant. Results point to positive changes in attitudes regarding crew coordination and personal capabilities related to competencies required in aviation. Despite these positive results, there were a subset of participants who had a

negative reaction to the training; this resulted in negative attitudes in their regular activities. Upon analyzing these results, the authors discovered that it was personality factors and overall group dynamics that influenced the negative reactions toward training (Helmreich, & Wilhelm, 1991). Of particular interest are the author's reflections concerning next steps. They state that when individuals are identified as sub-optimal in terms of being able to collaborate, organizations must address them immediately through appropriate interventions. In conclusion, they call for further research into identification of the causes for negative attitudes to collaboration and the need for valid measures to test individual performance to assess competency to collaborate in the aviation industry. Given this observation, the new RCS may have applicability and relevance in industries beyond healthcare.

In 2014, Clay-Williams et al., assessed the delivery of modular crew resource management training to a group of healthcare providers. Through a modular training format, participants learned portable team skills such as communication and decision-making. Despite its successful use in other industries such as aviation (Gordon, 2006; Kosni et al., 2007; McKeel, 2012), the authors have stated that it has not been tested for interprofessional team training (Clay-Williams, Greenfield, Stone, & Braithwaite, 2014). Results of their study showed that 22% of participants were able to overcome workplace barriers to collaboration. However, as the authors pointed out, these participants came to the training voluntarily and may have been more aware of their own readiness to collaborate, thus more prepared to make changes in their workplace (Clay-Williams, Greenfield, Stone, & Braithwaite, 2014). Using the RCS initially, it may be possible to

identify those who in fact need training such as CRM and therefore, will be able to effect change in interprofessional team activity on a larger and more significant level.

Another example of CRM being used with success in the healthcare field is cited in a study titled “*Crew Resource Management in the Intensive Care Unit; a prospective 3-year cohort study*” (Haerkens, Kox, Lemson, Houterman, Hoeven & Pickkers, 2015). The author’s tested the outcomes of CRM after implementation in an intensive care unit team; indicators were complications, length of stay and mortality. In their study, the authors positioned the CRM intervention as training to reduce system flaws as opposed to individual limitations and had trainers from a variety of both healthcare and non-healthcare backgrounds; clinical medicine, military, aviation and psychology. Results indicated that there was a reduction in complications and other serious outcomes post-CRM intervention. Changes in team effectiveness were measured by the reduction of intensive care unit complication rate. Results were very positive. Initial overall complication rate was approximately 67/1000 patients and reduced to approximately 50/1000 post-CRM intervention (Haerkens et al., 2015). In conclusion, CRM may be one intervention for individuals post readiness assessment as the need to identify where individual’s barriers to collaborate, communicate and trust is a necessary step in tracking success in any intervention.

Summary: Many examples of industries that use teams and require effective collaboration in order to meet goals and achieve success is found throughout the literature. Some industries include team sports, academia and aviation to name a few. Although many of these industries stress the importance of team work and the positive

outcomes that can be achieved with a cohesive team, most have not looked at the readiness to collaborate in a team and therefore, valid measures to test readiness are not easily found (Cosenzo et al., 2007; Valentine et al., 2015). Even though there is an increasing emphasis on collaboration and strengthened relationships within teams and between disciplines (Amabile, Patterson, Mueller, & Wojcik, 2001; Raab, Will, Richards & O'Mara, 2013; Hesjedal, Hetland, & Iversen, 2015), challenges continue to exist in many teams. These challenges may point to the overall readiness of individuals to participate.

Team Surveys Available

In 2015, Valentine et al. conducted a review of survey instruments measuring team effectiveness published before 2012. Their search identified 39 surveys measuring various aspects of teamwork including communication, coordination and respect (Valentine et al., 2015). They span from examining attitudes among professions regarding their teamwork as in Jefferson Survey of Attitudes Toward Physician-Nurse Collaboration to taking a closer look at the indicators of successful teams such as the Interdisciplinary Team Performance Survey (Orchard, King, Khalili, & Bezzina, 2012). Of the 39 instruments reviewed by Valentine et al., (2015), ten were validated instruments demonstrating a lack of validated instruments available to measure teamwork. Despite the comprehensive list of instruments to use, none included instruments to test readiness to enter a team.

A study was completed in Scotland that examined individual professional groups' attitudes towards interprofessional learning, (Reid 2006). The original version of the

Readiness for Interprofessional Learning Scale (RIPLS) was published by Parsell and Bligh in 1999. The only aspect of reliability considered by the authors was the internal consistency. A revised version for use with undergraduate students was published in 2005 (McFadyen et al., 2005). That paper also reported internal consistency of the revised version.

In organizational literature there have been only few studies concerning team climate. Anderson and West (1998) applied the concepts of shared perceptions and organizational/team climate to understand how working groups' function. The Team Climate Inventory (TCI) provides a profile of a team against four different dimensions or climates that have been deemed to be important for team effectiveness and innovativeness (Anderson & West, 1998). The four factors include: (1) vision, (2) participative safety, (3) task orientation, and (4) support for innovation. In order to develop the TCI the researchers did an extensive review of published measures available relating to team climate. From that, measures were examined for their interrelationship with the four factors stated above. Through validation of their initial survey only items appropriate for these factors were retained. Furthermore, an additional level of analysis was done through a criterion validation. Ultimately, very few items or scales were retained (Anderson & West, 1998).

The Attitudes Toward Health Care Teams Scale (ATHCTS) is a measure with two subscales. The first one is Quality of Care/Process that contains 14 items and the second is Physician Centrality that contains 6 items. This unique scale examines team members' perception of both the quality of care provided by the team and the overall functionality of the team to deliver the care. Additionally, the survey measures team attitudes toward

physician authority within the team and their real or perceived control over information about patients. The authors tested both the reliability and validity of the scale. Although originally developed by Heinemann, Schmitt and Farrell (2002) as a 20-item research measure, it was modified in 2002 by Leipzig into a 21-item tool with three subscales: Attitudes Toward Team Value, Attitudes Toward Team Efficiency, and Attitudes Towards Physician's Shared Role on Team. The authors tested both the reliability and validity of the scale (Heinemann, Schmitt & Farrell, 2002; Leipzig, Hyer, Wallenstein, Vezina, Fairchild, Cassel & Howe, 2002; Canadian Interprofessional Health Collaborative, 2009). According to Heinemann et al., (2002) the measure has potential for use as a research tool and as a pre-and post-test tool for educational interventions with teams.

Bateman et al., (2002) designed the 'Team Effectiveness Audit Tool'. This survey was designed to assist already assembled teams in measuring their effectiveness. The full survey has 46 items and uses a 5-point Likert Scale. In Bateman's audit tool, there are six headings: Team synergy; Performance Objectives; Skills; Use of Resources, Innovation and Quality. What is unique about this tool is its utility to both assess the teams' effectiveness while, at the same time, examine areas that require strengthening. Therefore, the authors claim that this tool can also be used as a team building exercise. This audit tool is also used as a means of assessing an organization's effectiveness in supporting and facilitating good team collaboration.

The Collaborative Practice Assessment Tool (CPAT) assesses the degree to which health care practitioners collaborate to provide comprehensive, timely and appropriate patient care (QUIPPED, Queen's University 2008-2009). The validated tool is intended

for use in a variety of settings involving providers from diverse professions. It is divided into eight domains relevant to collaborative practice: Mission, Meaningful Purpose, Goals; General Relationships; Team Leadership; General Role Responsibilities, Autonomy; Communication and Information Exchange; Community Linkages and Coordination of Care; Decision-Making and Conflict Management; and Patient Involvement. At an individual level, CPAT identifies skills gaps related to collaborative practice. The aggregation of individual results creates an understanding of overall team functioning.

Summary: Throughout the literature numerous other tools are cited, aimed at measuring team effectiveness. Valentine et al., (2015) completed a review of survey instruments focussed on measuring team effectiveness (Valentine, Nembhard & Edmondson, 2015). Of the instruments identified, none focus on the elements of readiness and not all have been validated. Hence, validated instruments allowing for measurement to assess collaborative characteristics of individual practitioners prior to entering a team are needed. Although the literature has many tools to test the overall effectiveness of teams, few have examined the qualities and characteristics of the individuals that make up a team and fewer have studied the readiness of the individuals prior to participation in a team. Given the limitations of available research and measurement tools, and the continuing challenges with team development in healthcare, the development and validation of the Readiness to Collaborate Scale may be a relevant addition to the interprofessional collaborative research.

Self-Evaluations

Benjamin Franklin once asserted that three of the hardest things known to humans are

“steel, a diamond and to know one’s self”

(Found on website: http://www.brainyquote.com/quotes/authors/b/benjamin_franklin_3.html).

Self-assessments are used for a wide variety of purposes throughout organizations. These include performance appraisal processes such as the 360-degree feedback programs or as inputs to selection decisions for jobs or other roles within organizations. However, because of some contextual factors, self-ratings do not always reflect the reality of the situation nor do the ratings given by others about an individual (Halverson, et al., 2005; Holden & Passy, 2010). Self-awareness, as such, is an internal attribute, one that is not necessarily observable to others. Therefore, measuring it can be challenging (Halverson et al., 2005). Through the use of a new and validated self - evaluation tool, subjective information concerning an individual’s readiness to collaborate in an interprofessional team may be gathered. As such, this information may also provide participants with some feedback on how aware they are of their ability to collaborate in an interprofessional team. Given that some people may be unaware of their ability to collaborate while others might try to deliberately distort their scores, the Readiness to Collaborate Scale will use various already validated scales to determine the validity of the new scale as well as testing it against a group who has a track record of being in an excellent interprofessional team (Borrill, 2001).

Challenges with Self – Evaluations

Issues with analyzing self-evaluations are well documented in the literature, namely the accuracy of the findings (Halverson, Wall, Michie, Atwater & Yammarino,

1992; Patterson & Wood, 2004; Tonidandel, Barlow & Dipboye, 2005; Dai & De Meuse, 2008; Fleenor, Smither, Atwater, Braddy & Sturm, 2010; Holden & Passey, 2010; Gu, Wen, & Fan, 2015). Some researchers have looked at the efficacy of self-reports in certain contexts (Wall, Michie, Patterson & Wood, 2004; Halverson, Tonidandel, Barlow & Dipboye, 2005; Holden & Passy, 2010; Shantz & Booth, 2014). For example, self-reports that are designed to mine information on extended time periods may glean inaccurate information simply because the respondent cannot remember accurately what they are being asked (Schwartz, 2007). What is pertinent is that self-reports on things that people can tell us about, namely their current behaviour and experiences, can provide the researcher with "real time" data as it is focusing on the collection of concurrent rather than retrospective self-report data (Schwartz, 2007).

Some studies have provided insights to factors affecting self-ratings and self-assessments and the congruence between self and others' ratings. For example, some research has indicated that low-performing individuals are more likely to fake good results than others (De Meuse, Dai Hallenbeck, & Tang, 2008; Fleenor et al., 2010; Holden & Passy, 2010). Additionally, some of the literature suggests that those with high competencies will tend to systematically express lower scores than those who would otherwise rate them differently (De Meuse, Dai Hallenbeck, & Tang, 2008; Fleenor et al., 2010; Holden & Passy, 2010). Keeping this in mind, there will be significant effort to control such "faking" when the Readiness to Collaborate Scale is developed.

As mentioned, some researchers argue that an individual's response in a self-assessment does not reflect their true standing on the traits of interest. Respondents may feel a desire to present themselves in a positive light and will put their best foot forward.

These individuals may consciously manipulate their responses to inflate their scores as pointed out in the example and thus provide an inaccurate picture of their ability to collaborate in an interprofessional team. Atwater and Yammarino (1992) used a variety of ratings provided by naval officers and students to classify leaders as being under-estimators, in agreement, or over-estimators relative to the rating provided by others for that individual's performance. Being an over-estimator was negatively related to performance outcomes, while being in agreement or an under-estimator was associated with more positive outcomes. Although the authors concluded that over-estimators are not less effective leaders, recent findings support the importance of self-other agreement in predicting leadership performance (Halverson et al., 2005). As a result of some respondents not being able to rely on recall and count strategy (Schwartz, 2007), they may still be able to arrive at a plausible frequency and, therefore, be able to answer the question never, or does not agree, or always, and agrees strongly. When behaviours are highly regular, respondents can arrive at a frequency estimation based on their current experience. Therefore, the regularity of the behaviour and the specifics of that behaviour can be easily recorded.

The notion of 'gaming' and 'lying' on self assessments pose issues for managers and evaluators to determine the true state of each individual, making sound evidence-informed decisions about organizational policies and direction difficult (De Meuse, Dai Hallenbeck, & Tang, 2008; Fleenor et al., 2010; Holden and Passy, 2010). Some researchers have examined how to tackle the over-rating and gaming that is inevitable on most behavioural self-evaluations. Alvarez and Adelman (1986) studied the self rating of students with psychoeducational problems. These are students who have low-ability

emotionally and intellectually. The authors looked carefully at both over rating of these particular students and how to manage it when deciphering self-evaluation results. The researchers found that all of the surveys administered resulted in highly skewed results of over-rating. Interestingly, a further questionnaire was administered to determine self-protective actions on the part of the respondents' peers; thus revealing reasons why some of the answers given may not reflect a true representation of the person's ability. The authors devised the subsequent survey and found that when evaluating others' performance, and reasons for over-rating, the respondents were in fact evaluating their own reasons for over-rating themselves.

Summary: Self-reports or self-evaluations are a well-known method of data collection in many of the social and behavioural sciences (Halverson et al., 2005; Aday and Cornelius, 2006). Whereby overt behaviours can be measured by more objective measures, self-reports may be one insight we have into the internal state of a person's thoughts and feelings as they solicit personal information about individual experience that is mainly subjective in nature. However, to date, the literature does not include self-evaluations aimed at understanding readiness for interprofessional collaboration and as such, organizations have not been able to use such a tool to assess whether individuals are ready and if not, what may need to be done in order to help achieve readiness.

Influencing Policy

In order for organizations to adopt a readiness to collaborate tool and then, in turn, pursue new strategies that will support or enable individual practitioners to better

collaborate in an interprofessional team, implementers of organizational change and decision-makers are faced with two distinct outcomes. One is the 'ideal situation' where policymakers and decision-makers can jointly identify the desirable future or condition of the organization and interprofessional team and then create the policies, take the actions to move forward and monitor progress to allow for necessary adjustments. The other is the 'less desirable' situation. In this case, policymakers are unable to reach a consensus towards that desirable future condition and, instead, move away from present situations that are judged as undesirable even though no consensus exists about what the preferred alternative would be (Short, 2008; Lewis, 2012; Macintyre, 2012; Ekole, Fulton, Nyanzi, & Richins, 2016).

In a study by Shariff, (2014) both facilitators and barriers to influencing health policy emerged. Facilitators include being involved in health policy development and having knowledge about the processes for the development of health policy. Barriers included a lack of involvement in policy discussions and an overall negative attitude towards organizational and government processes (Shariff, 2014). Leaders are key in supporting and developing future policy makers. In the case of an organization wanting to adopt the use of a Readiness to Collaborate Scale, it would be important for the organization to develop internal knowledge about the proposed policies, that is, the benefits of the proposed policy and the potential sources of its opposition.

Although several jurisdictions are looking to collaborate more within their healthcare systems and utilize the healthcare professionals in a more productive and efficient way, there is still a lack of understanding of the impact of interprofessional teams in healthcare organizations. Therefore, in order for policies such as testing for the

readiness of practitioners to enter into interprofessional teams, a broader understanding of the key issues that impact organizations regarding team composition and competencies in general, is necessary. This understanding will help organizations and their decision-makers to anticipate the possible barriers to interprofessional collaborative practice and team based care (Oliver, Everett, Verma & de, 2012; Ekole et al., 2016; Firm, Preston, & Walshe, 2016).

However, at this point in time, little evidence has emerged indicating that policymakers have examined or even developed methods that might help the implementation of interprofessional collaboration in a fulsome manner (San Martin-Rodriguez et al., 2005; Zwarenstein, Reeves & Perrier, 2005; Weiner, 2009; Ekole et al., 2016). This is despite the fact that health service integration and interprofessional team development are seen as two of the most desirable components for consumers to access the healthcare team member of their choice (Leatt et al., 2000; Oandasan et al., 2006). The funding of healthcare services as well as the non-financial resources to sustain interprofessional team efforts, are two important areas for policymakers and decision-makers to focus on. Although interprofessional collaboration has been promoted throughout the literature as a valid solution to address complex health and social care issues, implementation challenges still exist for policy and decision makers.

In some cases, the lack of benefit has also been linked to the difficulty of promoting interprofessional service delivery and policy change (Jansen, 2008; Ekole et al., 2016). Although economic influences can contribute to the lack of acceptance of new policies, it should be noted that the provision of funding does not always enable team structures and processes to succeed (Jansen, 2008; Ekole et al., 2016). For example,

health service organizations across Canada have been funding the implementation of healthcare teams for more than thirty years; however, collaborative interprofessional team practice has not been a burgeoning event (Allan & Hecht, 2004; Jansen, 2008). Therefore, it could be argued that although complex political and/or policy issues may underpin funding support, barriers to influencing policy uptake of collaborative and interprofessional team practice continues (San Martin-Rodriguez et al., 2005; Jansen, 2008; Fim, Preston, & Walshe, 2016).

It can be argued that effective policy change is the result of organizational readiness for change (Weiner, 2009; Tomblin Murphy & Mackenzie, 2013). Weiner suggests that in order to effectively implement changes and for the change to, in fact, have the anticipated benefit it sets out to have, members need to feel committed to implementing the change and feel confident in their collective abilities to do so. This, in turn, may have a positive effect on policymakers to implement the change at the organizational level. Additionally, Weiner points out in his article that although having organizations ready for a change, the supporting evidence for successful change management and implementation is limited for this to take place. Organizational readiness for change has not been subject to the development or study that individual readiness for change has been, limited as it is (Weiner, 2009). Tomblin Murphy and Mackenzie (2013) argue that it is imperative for healthcare planners to consider all policy implications when making decisions and developing policy; including service delivery and needs of people and communities (Tomblin Murphy & Mackenzie, 2013). The author's point out however, that it is often the current state that drives most health system

policy regardless of the number of innovations in care delivery redesign that have been developed and evaluated (Tomblin Murphy et al., 2009; Tomblin Murphy et al., 2010)

Gap in the Literature: Readiness

The gap that has been identified in the literature is measurements to assess the readiness of a post-licensure practitioner to participate in an interprofessional collaborative health care team. Understanding the factors related to individual readiness to enter into an interprofessional team can be useful information for organizations to consider when assembling collaborative teams (Armenakis, Harris 1993; Goldman, Meuser, Lawrie et al., 2010; Choi & Ruona 2011; Pfortmiller, Mustain et al., 2011; Lawn, Lloyd, King, Sweet & Gum, 2014; Strype et al., 2014; Careau et al., 2015; Smith, 2015; Regan, Laschinger, & Wong, 2016).

Most of the literature focuses on readying organizations for changes such as integrated delivery, the introduction to an electronic health record or introducing a new intervention to enhance professional collaboration such as interprofessional primary care protocols (Cassidy, 2002; Amatayakul, 2005; Goldman, Meuser, Lawrie et al., 2010; Tomblin Murphy, MacKenzie, Alder & Cruickshank, 2013; Sweet & Gum, 2014; Strype et al., 2014; Careau et al., 2015; Smith, 2015; Regan, Laschinger, & Wong, 2016). But little research has been done to identify the best and most effective way of readying individuals to work together.

Organizational leaders are continually charged with introducing and implementing various initiatives to change their organizations. However, in reality, many of these efforts do not result in the intended aims and do not foster sustained and positive

change. The literature cites many factors that contribute to the effectiveness of changes once implemented. One such factor is readiness for change (Armenakis et al., 1993; Tomblin Murphy et al., 2013; Strype et al., 2014; Van et al., 2014). Being ready for a change such as moving from siloed practice to interprofessional practice may improve the successful outcome of the implementation.

In the organizational change literature published during the 1990s, Armenakis et al., (1993) identified four major themes: change content, change context, change process and change criterion issues (Armenakis et al., 1993). In addition to large system-oriented focus for change, the authors have also adopted a micro level perspective on change and have put more emphasis on the role of individuals in implementing the changes (Armenakis et al., 1993; Choi et al., 2011; Kozusznik et al., 2015; Li et al., 2015). The main underlying idea in this approach is “change in the individual organizational members’ behaviour is at the core of organizational change” (Choi et al., 2011, p. 49).

Readiness is reflected in organizational members’ beliefs, attitudes and intentions about the extent to which changes are needed and the organization’s capacity to successfully make those changes. Armenakis et al., (1993) states, “readiness is the cognitive precursor to the behaviours of either resistance to or support for a change effort” (Armenakis et al., 1993). Choi et al., (2011) supports Armenakis et al.’s. (1993) position by stating that organizations only change and act through their members and that successful change will persist over the long-term only when individuals change their on-the-job behaviours in appropriate ways and are truly ready for the shift in practice (Choi et al., 2011). To support this idea, it has been demonstrated that individuals are not passive recipients of change but actors who actively interpret and respond to what’s

happening in their environments (Choi et al., 2011). Change such as moving from a multidisciplinary team approach to an interprofessional team approach is one example whereby readiness for the change to work together is key.

Goldman, Meuser, Lawrie, Rogers and Reeves in their article titled “Interprofessional Primary Care Protocols: A Strategy to Promote and Evidence-Based Approach to Teamwork and Delivery of Care” (2010) discuss the complex changes and processes needed for collaborative teamwork. In their study, a project with a Family Health Team was undertaken to develop and implement a series of interprofessional protocols in four clinical areas. The findings from the protocol development demonstrated the value of the focus on the team itself. Processes such as proper identification of the team and the organization’s needs as well as appropriately assessing interprofessional sharing and the importance of facilitation and support were among some of the most important factors highlighted for successful implementation. Ultimately, the study determined that the move towards working in an interprofessional manner does require protocols that reflect the evidence as well as clear roles that articulate how healthcare providers need to relate to others and one another. (Goldman, Meuser, Lawrie et al., 2010). What the study did not address, are the factors that contribute to readiness to collaborate and how those factors may impact team composition and effectiveness.

Summary: The gap in the literature supports the development and validation of a new instrument called the *Readiness to Collaborate Scale*. This tool will address important areas germane to interprofessional collaboration according the literature including readiness for interprofessional collaboration, communication and trust.

CHAPTER THREE - THEORETICAL AND CONCEPTUAL FRAMEWORK

Several theories were reviewed for the purpose of determining the best theoretical framework for the study. The following chapter provides an overview of some of the more relevant theories and provides rationale for the theory chosen; complex adaptive system theory. Additionally, context for the use of the Conceptual Framework for Health Human Resources and System Planning (O'Brien-Pallas, Tomblin Murphy, Birch & Baumann, 2001) in order to inform the development of the new readiness tool has been included.

Classic management and systems theory (Taylor, 1917; Weber, 1947; Senge, 1990) have been used to describe organizational behaviour. They assume a similar perspective in responding to turbulence and change that is often seen in healthcare organizations of today (Ford, 2008). Theories such as classical organizational theory developed by Frederick Taylor in 1917 (Taylor, 1917) to more contemporary theories such as Peter Senge's systems theory in 1990 (Senge 1990), have examined perspectives regarding change and innovation in organizations. The readiness of organizations and individual practitioners to enter into interprofessional collaborative care teams is an example of organizational change that can help shape innovative health system research and potentially may have a positive impact on system provider and health outcomes of people (Taylor, 1917; Senge, 1990; O'Brien-Pallas, Tomblin Murphy, Birch & Baumann, 2001; Fraser, Jane, Ceri, & Ray, 2011; Tomblin Murphy et al., 2007; Tomblin Murphy et al., 2013). Although there is a growing number of interprofessional education and interprofessional collaborative practice initiatives, many have not been informed through the use of a theoretical framework (Barr, 2005; Hammick et al., 2007). As such, theories

play an important role in the planning, implementation and evaluation of interprofessional initiatives and help to contribute to a more rigorous research methodology when used appropriately.

In a 2011 article titled “A Scoping Review to Identify Organizational and Education Theories Relevant for Interprofessional Practice and Education”, Reeves et al., described theoretical frameworks as coherent and systematic articulations of a set of issues communicated as a meaningful whole (Reeves et al., 2011). Therefore, a theory can be used to describe observations and explain or predict phenomena like individual readiness for change and help to yield testable hypotheses (Reeves et al., 2011).

One theoretical perspective within organizational change research is the focus on organizational context. Context consists of the conditions and environment within which individuals function (Choi & Ruona, 2011). The importance of individual readiness in the context of organizational change is supported in the literature (Cunningham et al., 2002; Jones, Jimmieson & Griffiths, 2005). While there have been a number of assessment tools measuring the readiness of individuals prior to the introduction of change (Cunningham et al., 2002; Jones, Jimmieson & Griffiths, 2005), these instruments appear to only measure readiness from the perspective of change process, change content and change context and, to a lesser extent, on individual attributes. It is the individual attributes that the Readiness to Collaborate Scale will focus on.

As researchers have noted, the definitions of individual readiness for organizational change are conceptually similar to Lewin’s notion of the unfreezing step (Armenakis et al., 1993; Eby et al., 2000). The unfreezing step in the organizational change context includes the process by which organizational members’ attitudes about a

change initiative are altered in a way that they perceive the change as necessary and likely to be successful. In this respect, when individuals become ready for a change initiative, this indicates that the unfreezing step has been successful. Lewin's (1951) unfreeze, change, refreeze theory and its relevance to this study will be discussed in more detail later in this chapter.

Healthcare professionals are often confronted with situations where severe time constraints are imposed and even the slightest mistake in judgment can lead to mortality. Although healthcare professionals' unique stresses differ from other more traditional working teams, some of the more established communication and conflict resolution practices found outside of healthcare, can be applicable and useful in healthcare settings. Readiness for change has been defined in the literature as a comprehensive attitude that is influenced by the context, (i.e., what is being changed), the process (i.e., how the change is being implemented), and the context (i.e., the circumstances under which the change is occurring), and who are the individuals involved (Holt, Armenikas et al., 2007).

Management Theory

Frederick Taylor (1917) developed a scientific management theory often referred to as "Taylorism". At the beginning of the last century, his theory had four basic principles. The first was to find the one best way to do each task and the second was to carefully match each worker to the task identified. The third was to ensure that there was close supervision of the workers and to use a reward and a punishment mechanism to motivate the workers. The fourth was the task of management in planning and control. Initially, Taylor was very successful at improving production across organizations and his

methods, which include getting involved with ensuring the best equipment and people, yielded large increases in production (Taylor, 1917).

While Taylor's scientific management theory proved successful in the simple industrialized companies at the turn of the last century, it is not a theory that is matched well to the modern organizations of today. The concept of production first and people second led to declining production and quality and an overall dissatisfaction among workers and near complete loss of organizational pride. The modern day example in healthcare is 'fee for service' whereby physicians have been criticized for pushing patients through their clinics at alarming rates so that they can be highly productive and maintain a lucrative business (Allard, Jelovac & Leger, 2011).

In 1947, Weber's bureaucratic theory emphasized the need for a hierarchical structure of power (Weber, 1947). It recognized the importance of division of labour and specialization and stressed the need to have clear lines and distinctions of authority and control in organizations (Weber, 1947). This fed nicely into Taylor's notion that uniform rather than a differentiated process provides a good practice at the organizational level; however, Weber also put forth the notion that organizational behaviour is a network of human interactions where all behaviour could be understood by looking at cause and effect (Weber, 1947). Both Taylor and Weber's classical management theories were rigid. Their major deficiency was that they attempted to explain peoples' motivation to work strictly as a function of economic reward and neglected the pride and enjoyment of accomplishment and personal growth that working may provide.

Unfreeze, Change and Refreeze Theory

Dr. Lewin was a German-American Psychologist who contributed to the field of psychology by demonstrating that human behaviour was not only a product of one's own personality and makeup, but also was effected by the dynamic and changing environment in which a person lives. This means that one's behaviour is related both to one's personal characteristics and to the social situation in which one finds oneself.

Lewin's work in Field Theory, Group Dynamics, Democracy in Groups, and Action Research has greatly contributed to the understanding and knowledge of leadership and group dynamics. It is Lewin's work in field theory that also helps to develop the construct for this study. Systems Theory and Complex Adaptive Theory speak to the overarching concept of change and readiness. Lewin's Field theory focuses the broader context and speaks to the individual's reaction to potential change in their environment. For this study, a thorough understanding of what hinders and what motivates a change in human behaviour can strengthen interprofessional collaborative practice teams.

Human behaviour includes all the individual's characteristic traits, influences and outcomes (Lewin, 1951; Morrow, 1969). Coexisting factors that are normally conceived of as mutually interdependent create the environment for the individual (Lewin 1951). For example, individual trust, communication and understanding of what it means to collaborate may have an impact on an individual healthcare practitioners' ability to work in a traditional multidisciplinary siloed healthcare system with some of his or her colleagues. However, when considered interdependently, these factors may impact how that same practitioner is able to successfully collaborate in an interprofessional team

whereby the close interaction and relationship with others coupled with potential overlapping competencies and scopes of practice, are evident. According to Lewin, behaviour results from tensions between an individual's self-perceptions and the environment encountered (Smith, 2001).

Kurt Lewin theorized a three-stage model of change that has come to be known as the unfreezing-change-refreeze model (Lewin, 1951). This model suggests that what a person has learned in the past must be rejected and replaced with a new mind-set.

Stage 1 – Unfreezing: Motivated for change. This stage is built on the premise that individual behaviour is established by what has been observed in the past and the influence that a person has been subject to. The concept requires the introduction of new influences for change or the removal of existing factors that maintain the behaviour. When an individual acknowledges that their present condition is unacceptable and they are dissatisfied with their situation a gap between what is believed and what needs to be believed for change, occurs. During this time, what was believed may now be seen as invalid and this creates a state of anxiety. Learning anxiety triggers defensiveness and resistance because the pain of having to unlearn what previously had been accepted as a normal state of being. According to Schein (1999a), three stages occur in response to learning anxiety: denial; scapegoating or passing the buck; and manoeuvring and bargaining (Schein 1999a).

An example of the importance of acknowledging the impact of differing and individual perspectives among interprofessional healthcare team members is discussed in the article titled *“Interprofessional primary care protocols: A strategy to promote an evidence-based approach to teamwork and the delivery of care”* (Goldman et al., 2010).

In this study, Family Health Teams are trying to come to a consensus regarding the development and implementation of a variety of interprofessional protocols. Findings suggest that the collaborative process of reviewing the evidence and assessing the needs of the Family Health Team as well as learning about the different professional and organizational perspectives, showed to be important elements of the groups work. However, the study worked with volunteer practitioners who were motivated to participate. Therefore, it was recommended that initiatives to improve interprofessional collaboration needed to be addressed at the individual, practice, and organizational levels. (Goldman et al., 2010). This would include motivating and readying the individuals to be prepared to collaborate initially and move past possible anxieties for change to progress.

Stage 2 – Unfrozen: Changing to a new state (Lewin 1951). Once an individual has accepted they are dissatisfied with their situation, a desire to change will exist. It is at this time the identification of what needs to change occurs. When the unfrozen state exists, new information and concepts are realized allowing for the individual to recognize a new way of being is possible (Schein 1999a).

Stage 3 – Refreezing: Making the change stick (Lewin 1951). Refreezing is the final stage where new behaviour becomes habitual. This includes development of a new self-awareness and concept of self in general as well as the establishment of new interpersonal relationships (Schein 1999a).

Readiness is likely one of the most important factors involved in employees' initial support for any change initiative such as introduction to interprofessional teams. (Armenikas et al., 1993; Armenikas, 1999). Readiness itself is a unique construct and is

seen throughout several theoretical models (Lewin, 1951; Senge, 1990; Armenikas, 1999; Schein, 1999a).

As changes are introduced throughout organizations, differences and conflicts between employees and members of the organization may be confronted (Goldman et al., 2010). In healthcare organizations, professional conflicts, professional turfism and differences in philosophy may have a significant impact on the success of change initiatives. Therefore, a state of readiness must be created in order to ensure that healthcare professionals are ready for changes such as the assembly of interprofessional teams and collaborative practice.

Systems Theory

Systems Theory was originally proposed by the Hungarian Biologist Ludwig Von Bertalanffy in 1928 (Bertalanffy, 1950). One of the main underpinnings of System Theory is that all components of an organization are inter-related and that changing one variable will have an impact on other variables. Organizations can be viewed as open systems constantly interacting and adapting with the environment (Zemke, 1999). Systems Theory regards organizational systems as a whole whereby the interaction of the individual participants is seen to have purpose and each interaction is interdependent. Using this theoretical approach, it can be argued that the interventions or contributions of one profession at one point in a system can affect the way in which the entire organization can be affected (Reeves et al., 2011). According to Senge (1990), systems' thinking helps us to see how our own actions have shaped our current reality thereby giving us confidence that we can create a different reality in the future (Senge, 1990).

Peter Senge (1990) defines learning within an organization as enhancing one's capacity to take action. From within this perspective a learning organization continually enhances its capacity to create (Senge, 1990). Senge believes that organizations are evolving from controlling to predominantly learning entities. Further, Senge discusses what he describes as learning disabilities in a company or an organization (Senge, 1990). One of the most serious disabilities is when people form strong identifications with their position. This is a very common phenomenon in healthcare settings where healthcare providers have a strong professional identity; a doctor is a doctor, a nurse is a nurse, a midwife is a midwife and very little interaction or cross-fertilization of those roles and those professional identities is seen. They see themselves in specific roles and are unable to view their jobs as part of the larger system. This creates challenges and barriers to interprofessional collaborative care. Additionally, it potentially leads to animosity towards others in the team or across the organization, especially when things go wrong.

In his book, *The Fifth Discipline* (1990), Senge also refers to other learning disabilities as actual myths. He discusses the "myth of proactiveness" (Senge, 1990) whereby he describes "proactiveness is really reactivity with the gauge turned up to 500%" (Senge, 1990 p. 23). He suggests that another myth is that we actually learn from experience and he maintains that we actually only learn when the experience is followed by immediate feedback. Further to this notion, Senge believes that teams have acquired "skilled incompetence" where groups are highly skilled at protecting themselves from threat and consequently keeping themselves from learning (Senge, 1990).

It is this very vision and understanding of how people in organizations can shape the success of the organization and the successful participation of the individual worker

in the organization that helps to frame the usefulness of a readiness tool for interprofessional care in a healthcare setting. A readiness tool may illustrate to individual practitioners barriers to their ability to collaborate, communicate and trust. Because of the hierarchical structure that characterizes healthcare providers, the relationship between caregivers is often complex and strained, impacting on their ability to work in an interprofessional collaborative team to best meet the health needs of the populations they serve. While the areas of conflict between healthcare personnel are numerous, the most common are communication and trust (Hosmer, 1995).

Systems Theory and Interprofessional Collaboration

It is the notion of ongoing dialogue that is the common thread in Senge's *The Fifth Discipline* (1990). When dialogue is joined with systems thinking Senge argues there is the possibility of creating an environment with appropriate collaborative language that will mitigate individual personality and collaborative leadership style. Dialogue is the underpinning and central feature of his systems thinking approach. Because the working lives of healthcare professionals are generally dependent on constant interaction and dialogue with other healthcare providers, interprofessional collaboration is a key component to effective interactions in organizations and healthcare systems. The term 'collaboration' conveys the idea of sharing goals and communicating effectively within a trusting environment (D'Amour et al., 2005). However, as many organizations believe their teams are working in an interprofessional capacity, there is limited understanding of how the relationships between professionals are working and what creates a ready state to collaborate (D'Amour et al., 2005).

There have been other studies in system and organizational theory that have developed working group and team efficiency frameworks. Two such research teams include Richter, Dawson and West (2011) and Sicotte et al., (2002). Richter, Dawson and West proposed a model that takes into account inputs related to task, group composition, cultural context and organizational context (Richter, Dawson & West, 2011). Their model is titled “Model of Team Effectiveness”. Their model also includes process variables for effectiveness. For example, they point to the leadership, communication, decision-making and overall ability of organizational learning as key to team success (Richter, Dawson & West, 2011).

While the original concept of organizational learning was published over 40 years ago, formal frameworks of the concept were not fully explored until a couple of decades later, and even today, many variations of this concept exist. Learning organizations undergo a constant process of transformation in which change leads to adaptation, hence, facilitating more efficient operations and ultimate goal attainment (Senge, 1994). In other words, organizations constantly develop and revise their structures and systems to become more adaptable and responsive to the changing environment around them (Senge, 1990). The rationale for organizations that see learning and change as an important facet of their success, is that in situations of rapid change only those that are flexible, adaptive and productive will excel. For this to happen it is argued, organizations must foster commitment and capacity to learn at all levels within their system (Senge et al., 2000).

Peter Senge discusses team learning as the process of aligning and developing the capacity of a team in order to create the results its members are aiming for (Senge, 1990).

It builds on interpersonal relationships as well as a shared vision among team members but, moreover, it hinges on people's need to be able to act together, to be able to learn together "the discipline of team learning starts with dialogue, the capacity of members of a team to suspend assumptions and enter into genuine thinking together" (Senge, 1990 pg. 10).

Systems Theory to Complexity Theory

Complexity theory places system events within a matrix. This means that while some simple relationships between two practitioners in a system can occur, more complex inter-relationships between multiple practitioners can result in multiple dynamic influences that have impact on team functioning and the organization as a whole. Simple relationship events between practitioners may have a linear relationship in which the cause of an event is directly proportionate to the effect. For example, a practitioner who may not be ready to collaborate in a team may have different ways in which they communicate with other healthcare professionals. This may result in role confusion and ultimately lack of trust in the other professional's ability to handle the care and the team. Complex issues, on the other hand, are multidimensional and have features of high uncertainty and potential disagreement. For example, when several practitioners assemble in a team and all are not ready to collaborate in an interprofessional manner sharing care of a patient may have a negative impact on their health outcomes.

Complexity theorists propose that when linear thinking, for example assembling a team for a more efficient way of delivering healthcare services, is the one best solution to a complex problem the system may become immobile. Complex problems within

healthcare require a range of different strategies to facilitate a timely implementation of solutions. In the proposed research, the identification of barriers to the readiness of individual practitioners to collaborate involves looking at the complexity of trust, communication and understanding of collaboration. This multidimensional approach may function as a mechanism to identify a solution that is not futile or counterproductive. All in all, complexity theory maintains that a flexible range of approaches is required to support a multidimensional view of healthcare system problems (Paley & Eva, 2011; Hood, 2012).

Through team work, organizations can flexibly adapt and react to turbulent and dynamic environments both within a team as well as within the organization and thereby focus their efforts to handle tasks more efficiently, thus resulting in overall organizational effectiveness. Furthermore, working in teams fulfills some employees' social needs such as the need for social interaction and affiliation. Measuring the readiness of individual practitioners to communicate and trust one another will have a powerful impact on the success of these social interactions within the team once assembled (Judge et al., 2001; Jansen, 2008).

Complex Adaptive Systems Theory

2002; Brown, 2006; Holt et al., 2007; Cacioppe & Stace, 2009; Judge et al., 2011; Weinberg et al., 2011). Complexity theory is well established in a range of disciplines other than healthcare including computer science, physics and management studies. However, in some areas of healthcare, mostly in primary care, Complex Adaptive Systems Theory is emerging as an important paradigm (Miller et al., 1998; Brown, 2006;

Paley, 2011). To implement teams in an effective manner, key understandings of Complex Adaptive System Theory can be applied (Reeves et al., 2007). For example, complex adaptive systems such as healthcare have some common features. One, they have individuals who work together and make decisions on how to behave based on the norms within their environment. Two, these individuals do not act randomly instead they make decisions and rules based on what is needed and expected. Three, complex adaptive systems may react in large ways to small changes. For example, even a small infusion of funding to pull together practitioners to work in a team without identifying their individual readiness to collaborate may have a negative impact on the individual members of the team and ultimately the organization's vision for a new model of care to meet their population needs.

A commonly understood definition of complex adaptive systems is “a collection of individual agents with freedom to act in ways that are not always totally predictable and whose actions are interconnected” (Holden, 2005, p. 654). Sometimes Complex Adaptive System Theory is referred to as chaos theory but the two are not the same. Chaos theory is in fact, a subset of a complex adaptive system theory. Complex Adaptive System Theory is a new approach that looks beyond clinical processes in a linear fashion to the connections, diversity and interactions healthcare providers share in a system. This systems approach has been introduced into the interprofessional field and has expanded within the context of interprofessional education and collaboration. A growing number of theorists and researchers emphasize that people do not behave in linear fashions and planning for healthcare systems requires understanding relationships and taking a flexible approach to problem-solving (Cunningham et al.,

Assembling healthcare teams that bridge multiple disciplines across similar scopes of practice and, in some cases, overlapping competencies can be very labour and resource-intensive. Therefore, it is important to identify and understand those conditions that facilitate or hinder effective interprofessional collaboration. Theories such as complexity adaptive systems theory help us understand these complex interactions among team members and the effect on the organization as a whole. Organizations revolve around control. However, complex systems are not controllable and control is not possible with human beings. So how should an organization that wants to begin a change effort go about getting their healthcare professionals to take an interest? In an article by Ron Zemke (1999), an interview with Peter Senge provides some insights to the question above. Senge states, “We tell them not to waste time on that. Everybody’s trying to convince other people to do things they don’t want to do. Convincing isn’t very effective. The way to engage people is to ask what are their issues? What are they working on? Where are they stuck? Where are they solving the same problems over and over again?” (Zemke, 1999, p. 42).

The concept of Complex Adaptive Systems Theory is crucial to the understanding of interprofessional readiness. Therefore, a readiness tool to build on individuals desire to work together, build common rules and norms and to change to meet the needs of people is necessary.

Conceptual Framework for Needs Based System and Health Human Resources Planning

The Conceptual Framework for Health Human Resources and System Planning (2001) (Figure 1) was developed by O’Brien-Pallas, Tomblin Murphy, Birch and

Baumann (2001). The framework has been adopted by Canada's Federal/Provincial/Territorial (F/P/T) Advisory Committee on Health Delivery and Human Resources (ACHDHR, 2005) and is used to frame F/P/T funded initiatives. This conceptual framework considers factors such as social, political, geographic, economic, and technological factors that impact on health human resources policies. At the core is the recognition that health human resources must be matched as closely as possible to the health care needs of the population.

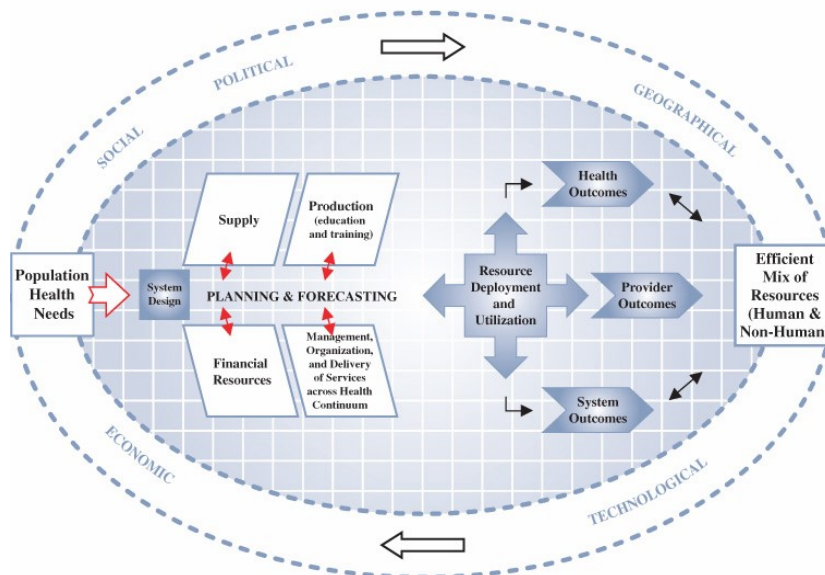


Figure 1: *Conceptual Framework for Health Human Resources and System Planning* (O'Brien-Pallas, Tomblin Murphy, Birch and Baumann, 2001)

Literature suggests that stronger, collaborative relationships across healthcare disciplines are associated with improved patient safety, quality of care, and outcomes. For example, Tomblin Murphy et al found that when collaborative models of care initiatives were supported staff used evidence to develop care plans. Additionally,

patients and their families were more involved when collaborative teams were in place (Chan, Wood, 2010; Tomblin Murphy, MacKenzie, Alder & Cruickshank, 2013; Bethea, Holland & Reddick, 2014). Often times, however, practitioner groups are reluctant to work closely with others from different professions for a variety of reasons, but mainly because they are not familiar with others scopes of practice and/or methods of care delivery (Vedam et al., 2014). Not all practitioners are ready to trust each other in a team setting and knowing who is and who is not to trust, may have an impact on successful collaboration for individuals over time. Additionally, interprofessional communication is a critical pillar for successful team delivered care. Interprofessional teams need participants who are not only excellent communicators but excellent listeners as well. Skilful and disciplined communication among and between individual practitioners is needed to carry out team based goals and objectives.

Healthcare systems are by and large, very complex and, as we see in the Conceptual Framework, healthcare system design and health human resources planning is dynamic and is influenced by a number of factors. The Conceptual Framework therefore assists researchers and decision makers interested in the successful implementation of system wide innovations such as interprofessional teams, by demonstrating the key features of effective health system planning consistent with the theory of Complex Adaptive Systems Theory.

Key features in the Framework include:

1. The identified need for healthcare services is based on scientific evidence that those services are effective in reducing health disparities and improving health status at a population level;

2. Requirements for health human resources are derived from the need for healthcare services that those human resources produce;
3. Healthcare services are the product of healthcare inputs that include both human and non-human resources;
4. The production of healthcare services and the use of health human resources in the production of those services take place in a defined social, cultural, economic and political environment;
5. The capacity of training programmes is just one of many policy levers available to policy makers to respond to projected gaps between future health human resources requirements and supply. (O'Brien-Pallas, Tomblin Murphy, Birch & Baumann, 2001)

Health Human Resources planning begins with identifying the health needs of populations being planned for. Within the framework, there are four main components that planners and decision makers need to consider. These include: Supply, financial considerations, and production of providers through training programs and the management and organization of the services. The key to health human resources is the supply of providers. As such, the framework shows that new providers are generated through training programs such as private and public universities and community colleges. In order to maintain this flow of providers, financial resources are required. These funds come mainly from governments to publicly funded institutions and from the tuitions that students pay. Once providers have graduated they enter into service delivery models where they are managed and organized to deliver healthcare services. As the

providers enter healthcare organizations they are then deployed into roles that align with their license to practice. As healthcare providers often fulfill both administrative and clinical duties, their employment can be in either. Additionally, these licensed practitioners may be utilized in different ways; some may be hired in a full-time or part-time capacity within the organizations they work in.

The healthcare needs of populations are not always the same and may differ from jurisdiction and culture. As a result, the system may be less defined and must change and adapt to meet the various needs over time. As such, the behaviours of healthcare system may be more easily influenced than controlled as pointed out in the Conceptual Framework (2001). With this in mind, it is important that health care initiatives and new programs funded by government jurisdictions acknowledge the needs of people and the complex nature of the health system in general (Sturmberg & Martin, 2010). It can therefore be argued that if successful initiatives and programs are to be supported to meet these needs within a sustainable healthcare system, the task of shifting a siloed approach to healthcare towards a competency-based team approach may be what is required to ensure quality care provided by a productive workforce. In turn, these teams must be ready to collaborate to avoid fragmentation and costly duplication of care and ultimately improve the health outcomes of people (Sturmberg, & Martin 2010; Tomblin Murphy et al., 2010; Tomblin Murphy et al., 2009).

The Conceptual Framework effectively outlines the fact that, in order to meet the health needs of the population, a strong and organized workforce that is supported by management, sufficient funding and quality education is needed. From this, successful deployment of the health workforce can be realized. When considering the deployment

of an interprofessional team, the exact same critical success factors are required: ultimately, it is a range of mechanisms that shape an effective interprofessional collaborative team. According to the Framework for Action on Interprofessional Education and Collaborative Practice (2010), these include:

- supportive management practices
- identifying and supporting champions
- the resolve to change the culture and attitudes of health workers
- a willingness to update, renew and revise existing curricula and;
- appropriate legislation that eliminates barriers to collaborative practice

(Framework for Action on Interprofessional Education and Collaborative Practice: Health Professions Networks Nursing & Midwifery Human Resources for Health, 2010)

There are strong relationships between the Conceptual Framework and a tool to determine the readiness of healthcare professionals to enter successfully into interprofessional teams.

This diagram from the Framework for Action on Interprofessional Education and Collaborative Practice (Figure 2) helps to illustrate the actual link between the Education component of the Conceptual Framework and collaborative practice ready; the importance of interprofessional education is seen as the springboard for interprofessional collaborative practice (Framework for Action on Interprofessional Education and Collaborative Practice: Health Professions Networks Nursing & Midwifery Human Resources for Health, 2010).

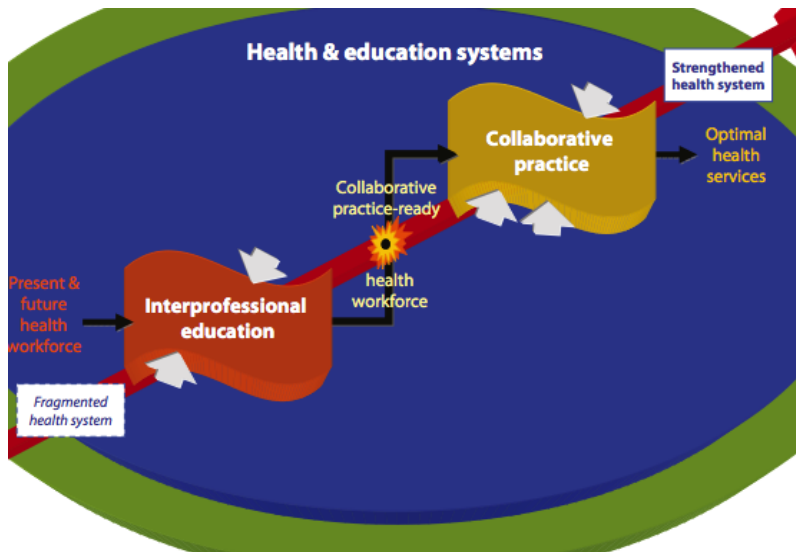


Figure 2: *Framework for Action on Interprofessional Education and Collaborative Practice*

(Gilbert, J., Yan, J., & Hoffman, S. 2010).

It is therefore proposed that in order to confirm the collaborative practice-readiness of healthcare providers to enter into interprofessional teams, a tool that identifies a practitioner’s ability to trust, communicate and collaborate in an interprofessional team would be essential. “A collaborative practice-ready health worker is someone who has learned how to work in an interprofessional team and is competent to do so” (Framework for Action on Interprofessional Education and Collaborative Practice: Health Professions Networks Nursing & Midwifery Human Resources for Health, 2010 p. 7).

Ultimately, the Conceptual Framework will act as a frame of reference for the contextual as well as the specific issues regarding the development and validation of the Readiness to Collaborate Scale (O’Brien-Pallas et al., 2001). The broader conceptualization sets out the linkages between the factors influencing overall health

human resources planning within a health care system. Furthermore, it focuses the individual components that are inherent in the successful implementation and deployment of interprofessional teams in the system; teams that will be trained and assembled with the right number and mix of health care providers to meet the needs of populations. When considering the readiness of individual practitioners to enter into teams, planners and providers should be aware of the necessary factors of health human resources needs-based planning. Therefore, in order for interprofessional teams to be a beneficial intervention to meet the needs of people, a clear understanding of the Conceptual Framework is critical.

In his book titled '*Interprofessional Teamwork for Health and Social Care*' (2010), Reeves helps to establish the need for further research into teams and calls for better and more theoretical and analytical evaluations by stating that interprofessional work is at the forefront of approaches to resolve service delivery issues such as access and quality of care. However, as many leaders in the field have pointed out, there remain a number of theoretical and conceptual gaps in our understanding of interprofessional collaboration and overall team work (Reeves, 2010). There is a growing need for research that is theoretically and conceptually driven and also has corresponding evaluative methods that are sound and measured by validated tools (Suter, et al., 2011). Suter et al., (2011) discuss the value of networks that are assembled to share information and evidence about the availability of validated tools and approaches. The authors argue that a strong network is critical to help mobilize knowledge and expertise about new ways to support and implement interprofessional education and collaboration.

The nature of interprofessional teams and the complex environments they are found in means that no single evaluation factor will suffice. Instead, evaluation must include examining the readiness of the individual practitioner and by taking into account of the explicit component parts of the Conceptual Framework such as the cost, production, management and overall supply of ready to collaborate health care providers that will be needed to meet the needs of populations. Results of the evaluation may offer key insights about the benefits of ensuring the readiness of practitioners for interprofessional collaboration to researchers, decision makers, funders, regulatory bodies and professional associations.

The Conceptual Framework strengthens the assumption that the team approach to care, given a well- functioning team that is prepared and ready to work together will provide a model that has less duplication, fragmentation of services and better quality of care, that is efficient and potentially cost-effective (O'Brien-Pallas et al., 2001; Tomblin Murphy et al., 2010, Tomblin Murphy et al., 2013; Fraser et al., 2011).

CHAPTER FOUR - STUDY DEVELOPMENT

Approach

This study employed a quantitative survey design approach that set out to validate a new scale; the Readiness to Collaborate Scale (RCS). The development and validation of the Readiness to Collaborate Scale was done with a group of obstetrical practitioners who provide care to women of low obstetric risk and their families. The study focussed on validation and internal consistency through the use of Principal Components Analysis (PCA) and Chronbach's Alpha (CA). The study did not include test-retest reliability. In order to test for test-retest reliability, two assumptions are required. The first is that the characteristic being measured, in this case readiness to collaborate does not change over the time period. This assumption may not hold true for respondents because they may enter a team prior to the next test. The second assumption is that the time between each test is sufficient enough that respondents do not remember their initial responses to the questions; this is at least two to four weeks between tests (Aday & Cornelius, 2006; Rouquette & Falissard, 2011). The study timeframe did not allow for this to occur.

It was anticipated the new tool would have three overarching categories (1) readiness for interprofessional collaboration (2) readiness for interprofessional communication and (3) readiness for interprofessional trust with two types of questions: rare and important behaviours as well as frequent behaviours. Although rare and important behaviours may be easier for the respondent to recount, frequent behaviours are considerably more demanding to report. Respondents may not have the detailed account of the numbers of times or the representations of individual episodes of a

behaviour stored in their memory. For example, when asked, "I am comfortable taking orders from another healthcare professional", they may have done that once or twice but to say that they always do it or they never do it may be more difficult. In the case of the new tool, the level of comfort and overall behaviour of an individual health care practitioner's experience of working with others and their ability to communicate, trust and collaborate in a team was measured.

Study Design

There were two phases to this quantitative research; Phase I - content validation and Phase II - construct validation that also included criterion validation. Each phase used different participants. To further develop the RCS, some interviews with subject matter experts also occurred. Using a systematic item-development framework as a guide (Hinken, 1998), this research focused on the development and validation of an instrument that can be used to gauge readiness for individual practitioners to enter into interprofessional collaborative teams. This study did not investigate any subsequent interventions that may have arisen from a practitioner taking the survey.

Study Framework

The study framework (Figure 3) used to plan the development and validation of the new instrument, The Readiness to Collaborate Scale, was informed through the following literature: *Designing and Conducting Health Surveys – A comprehensive guide (3rd ed.)* (Aday & Cornelius, 2006), *Nursing research: Generating and assessing*

evidence for nursing practice (Polit & Beck, 2008) as well as an article by Hinkin (1998) titled *A Brief Tutorial on the Development of Measures for Use in Survey Questionnaires*. Other studies regarding statistical analysis were also used to determine the method for validation (Cacioppe & Stace, 2009; Williams et al., 2012).

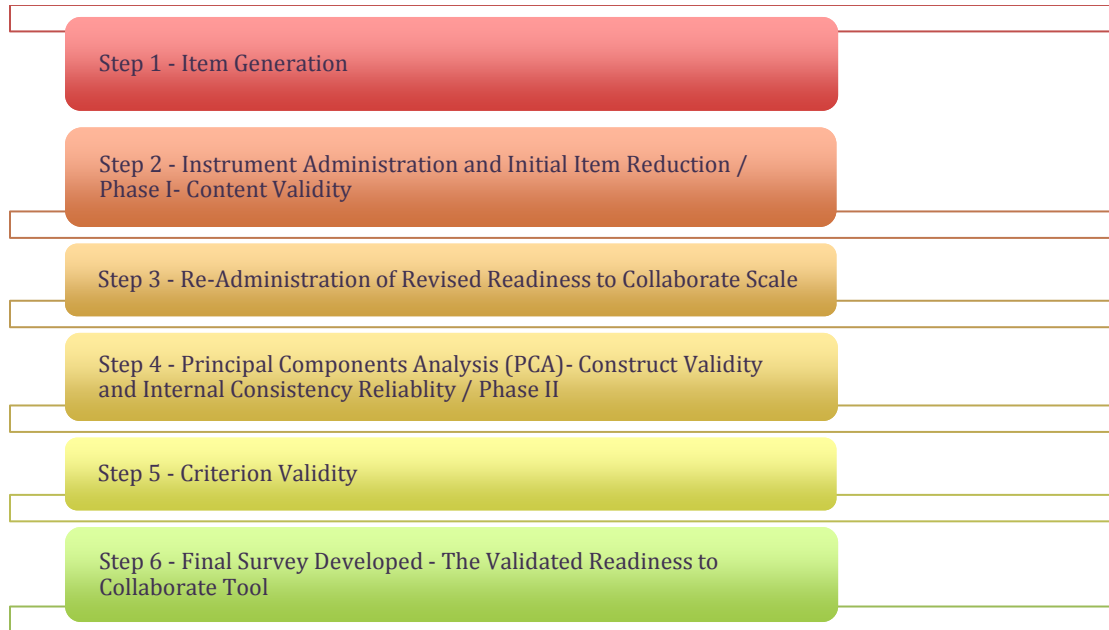


Figure 3: *Study Framework*
(Hinken, 1998)

Definitions used for study

The Readiness to Collaborate Scale has newly developed questions as well as adapted questions from other validated surveys that include: Readiness for Interprofessional Learning Scale - 2006 (RIPLS), Team Climate Inventory - 1998 (TCI), Attitudes Toward Healthcare Teams - 1999 (ATHT) Team Effectiveness Audit Tool –

2002 and the Collaborative Practice Assessment Tool (CPAT from Queen's University Interprofessional Patient-Centred Education Direction – 2007/2008 (QUIPPED) (Appendix 1). The initial scale was reviewed by a panel of approximately ten experts in the field of low-risk obstetrical care and included definitions of the constructs for readiness to collaborate: readiness for interprofessional collaboration, communication and trust. These definitions assisted the experts in their initial review of the questions. Definitions for the readiness for interprofessional collaboration, communication and trust were created based on the literature (Cook & Wall, 1980; College of Nurses of Ontario, Practice Guideline: Utilization of Registered Nurses and Registered Practical Nurses, 2005; Freeth et al., 2005; World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008; Canadian Medical Protection Association, 2011; Merriam-Webster, 2012;). Additionally, these definitions were informed by the theoretical and conceptual frameworks, as previously described in Chapter 3 and are described as follows:

Readiness for Interprofessional Collaboration

State of preparedness to participate cooperatively and interdependently with other professionals who, through the mutual awareness and respect of each other's similar and unique scopes of practice and competencies, and use of collective resources, synergistically optimize care to people in a client-centred, evidence informed approach (Freeth et al., 2005; World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008).

Readiness for Interprofessional Communication

State of preparedness to exchange information with other professionals including verbal and non-verbal demonstrations of position, professional and personal values and the overall sharing of mutual knowledge, skills and competencies; culminating into a joint decision, shared leadership, client-centred, interprofessional collaborative model (World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008; Merriam-Webster, 2012).

Readiness for Interprofessional Trust

State of preparedness to have faith in the integrity and acceptance of the good intentions of other professionals as well as to have confidence in their words and actions within the interprofessional team (Cook & Wall, 1980; Merriam-Webster, 2012).

Scale

The scale used for the survey was a five point Likert Scale. Likert-type scales are the most frequently used scales in surveys (Hinken, 1998) and are the most useful and suitable for use in principal components analysis. When responding to a Likert questionnaire item, respondents specify their level of agreement to a statement. The scale is named after Rensis Likert, who published a report describing its use (Likert, 1932).

Although a 7-point and 9-point scale can be used, Likert (1932) developed the scales to consist of five equally appearing intervals with three being the neutral midpoint. These five intervals are generally related to strongly disagree, disagree, neither agree or

disagree, agree, and strongly agree and are used to measure the frequency, degree, or disagreement of respondents (Likert, 1932). One drawback of using an odd number of ratings allows respondents to have a neutral opinion. For this reason, some researchers prefer to use a scale that is even numbered so respondents can make a definitive choice (Aday & Cornelius, 2006). The Likert scale is also called the *summative scale*, as the result of a questionnaire is often achieved by summing numerical assignments to the responses given (Aday & Cornelius, 2006).

Content Validity Index

In order for the panel to provide feedback and comment on the new items, a content validity index (CVI) was administered. Evaluating a scale's content validity is a critical early step in enhancing the overall validity of an instrument (Beck & Polit, 2006; Beck, Owen & Polit, 2007). Content validation measures the degree to which the scale has an appropriate sample of items to represent the construct of interest—that is, whether the domain of content for the construct is adequately represented by the items (Waltz, Strickland & Lenz, 2005). In the case of the Readiness to Collaborate Scale, these include: Communication, Collaboration and Trust. The Content Validity Index (CVI) therefore is a plausible method of estimating the structure and content of the new scale (Beck et al., 2007). The CVI measures all aspects of the survey and includes directed questions to the experts in the unlikely event the experts themselves were biased, or not proficient in the field (Beck et al., 2007). This implies that, at the beginning of the content validation process, good items and construct specifications are developed and a strong panel of experts are selected. Lynn (1986) and Haynes, Richard and Kubany

(1995) state that the concept of multiple iterations in a content validity effort may be necessary following a rigorous development process (Lynn, 1986; Haynes, Richard, Kubany, 1995; Beck et al., 2007).

Study Population

The target population for this study was post-licensure practitioners who are currently working in Canada and delivering care to low-risk obstetrical women. This group was chosen as they share a similar scope of practice and clinical competencies however very rarely participate in interprofessional teams together. These included: obstetricians (86%); family physicians (42.2%); midwives (100%) and to a lesser extent, nurses, licenced practical nurses and registered nurses (.039%). The percentages refer to the percentage of each profession in Canada that are involved in obstetrical care (Canadian Association of Midwives website:<http://www.canadianmidwives.org/province/> 2012; Canadian Institute for Health Information, 2012; Klein, Kaczorowski, Tomkinson, Hearps, Baradaran and Brant, 2011; Society of Obstetricians and Gynaecologists, 2008; Pong, Pitblado and Canadian Institute for Health Information. 2005).

Phase I of the study included a group of subject matter experts consisting of a mix of the above mentioned professionals. Revisions of the initial tool were made based on the results of Phase I. During Phase II, the revised tool was distributed to a second group of respondents. The results were used to perform the principal components analysis for construct validation. Since it was not feasible to survey all of the target population a sample was required.

Sample Size

Determining the appropriate size of the sample population for principal components analysis is challenging (Gaskin & Happell, 2014). Some literature suggests four to ten subjects per variable, with a minimum of 100 subjects to ensure stability of the correlation matrix, while other authors suggest up to 300 (Aday & Cornelius, 2006; Rouquette & Falissard, 2011). Rouquette and Flissard (2011) examined sample size as it related to the precision of Cronbach's Alpha. What they discovered was short scales do not allow smaller sample sizes and in fact, to properly reveal the component structure, a minimum of 300 subjects is acceptable (Rouquette & Falissard, 2011). The authors also recommend increasing the sample when the number of factors within the scale is large. Based on the research, one of the most important considerations in determining sample size is its relationship to the factor loadings (Gaskin & Happell, 2014). The more frequent and higher the loadings are on a factor, the smaller the sample can be. If communalities are high, sample data is considered very good (MacCallum, Widaman, Preacher & Hong, 2001). Five or more strongly loading items (.50 or better) are considered desirable and a solid factor (Costello & Osborne, 2005). When the communalities are not very high, the sample size has to compensate for this. In this study, communalities do not fall below 50% (Appendix 2).

However, according to Polit and Beck (2008), there is no simple formula to determine size of sample. The authors do however encourage researchers to use the largest sample of the population possible to help reduce error (Polit & Beck, 2008). Although some authors suggest specific calculations and expected sample sizes for factor analysis (Guadagnoli & Velicer, 1988, Hoelter, 1983; Aday & Cornelli, 2006; Polit &

Beck, 2008) other authors appear to not support their use (Gaskin & Happell, 2014). In 2014, Gaskin and Happell published a study to explore the way nursing researchers utilize principal components analysis. The focus was on five areas of decisions that are commonly made when doing this type of analysis: Sample size; choice between factor analysis and principal component analysis; numbers of factors to be retained; data extraction and method of factor rotation. In order to provide guidance and information to researchers, the authors reviewed the literature, assessed current and best practice for researchers and, provided recommendations for use in the future.

Through their literature review, done mainly with high ranking nursing journals and publications in 2012, Gaskin and Happell (2014) examined 54 factor and principal component analyses. The main findings from the review revealed that most researchers based their sample size on participants-to-items ratio and that more often than not (61%) principal component analysis was performed rather than factor analysis. Additionally, researchers mainly used eigenvalues greater than one and scree tests to determine numbers of factors/components to retain and principal components analysis for data extraction. Regarding rotations, they found that Varimax method of rotation was most commonly chosen. The authors concluded through this rigorous assessment of the literature that the well-established methods were in fact outdated and may have had an adverse effect on the solutions they generated. In other words, there is no exact way in which sample size can be calculated according to their review of the literature.

Further to their summation regarding sample size, Gaskin and Happell state that “Poor estimation of sample size requirements for factor analysis may lead to the recruitment of too many or too few participants, which not only affects the quality of the

solutions generated, but can also have adverse ethical and resource implications” (Gaskin & Happell, 2014 pg. 513). Therefore, based on Gaskin and Happell’s (2014) research examining best practices for sample size needed for principal components analysis, with approximately eight variables per factor, the sample size required is between 100 and 130. The actual number of Readiness to Collaborate Scales sent out to the practitioners in Phase II was approximately 1400 to account for non-response and/or ineligible responses with an aim to receive approximately 130 responses for analysis.

Study Protocol - Content Validation

Inclusion/Exclusion Criteria

Participation for the study was sought among those practitioners who are or have been employed in maternal newborn healthcare teams for at least three years and have been deemed experts in their field across Canada. Family physicians, midwives, obstetricians and nurses who have, in their work, participated in providing maternal newborn care services to women and families were the chosen sample of experts.

Recruitment Strategy

For the expert content validation of the study, existing personal and professional networks to recruit the subject matter experts was used. These participants were contacted directly by an email that contained a link to the study. Once they opened the link, the consent was included (Appendix 3). By clicking ‘continue’, they agreed to participate.

Data Collection

The experts were asked to answer the survey for Phase I Content Validation (Appendix 4). Specifically, these experts were asked whether or not the questions being posed were appropriate and adequate to represent the concept being studied. In order to achieve this, definitions of the three constructs (Readiness for Interprofessional Communication, Trust and Collaboration) were provided. The experts were then asked to rate their opinions on a 5-point Likert scale indicating the extent to which each item corresponded to the definition. A Content Validity Index (Table 1) was used to assist in this analysis. They were told that their feedback would inform the reformatting of the survey's content and its constructs. It was anticipated this portion of the study would take participants approximately 60 minutes. After the experts completed the survey, three were contacted via email for an interview; one midwife, one obstetrician and one family physician. The interview questions were semi-structured and were to obtain further comments regarding interprofessional collaboration and clarifications regarding specific questions in order to further edit the survey (Appendix 5).

Data Analysis

After the written and oral comments were collected, they were analyzed. The content validity index from the survey portion was used in the analysis and common themes were pulled out from the interviews. The items that did not appear to measure the intended constructs were removed or rewritten. Empirical definitions could be edited if necessary at this time. The revised survey for construct validation included both the

newly generated and adapted questions retained from the content validation process plus the corresponding exact questions from the already validated instruments.

Study Protocol - Construct Validation

Inclusion Criteria/ Exclusion Criteria

The target population for this phase of the project consisted of maternal newborn care providers who were working in Nova Scotia and British Columbia, specifically the IWK Health Centre and BC Women's Hospital and Health Centre. They included practitioners working either in solo practice, family health teams, community health centre teams and midwifery practice teams. Nova Scotia and British Columbia were chosen due to the fact that one is a rather small province in comparison to a larger province. This was to increase the external validity of the survey. The hospitals were chosen because all the target positions are employed in these locations.

Those that were not eligible to participate in the study included gynecologists who did not do any obstetrics, family physicians who have not done intrapartum care, and nurses who have not done maternal newborn care. Midwives must have been in general clinical practice.

Recruitment Strategy

Human resource departments at the IWK Health Centre in Halifax Nova Scotia and the BC Women's Hospital and Health Centre in Vancouver British Columbia were contacted by email. Representatives from the health centres human resource departments

emailed the doctors, nurses and midwives in the target population. Additionally, to expand the reach of recruitment efforts, the Maternity Care Discussion Group (MCDG) ListServe was used. The MCDG of the College of Family Physicians of Canada is an interprofessional online List Serve, with representation from the Society of Obstetricians and Gynaecologists of Canada (SOGC) the Canadian Association of Midwives (CAM) and other groups and maternity care providers including some researchers, policy-makers, and students and members from other countries. The founding chair and List Master of the MCDG is Dr. Michael C. Klein. Membership is now approximately 1200 members. As far as is known, MCDG is the only interdisciplinary maternity care list, worldwide. The approved invitation for Phase II was sent through the List Master to Family Physicians, Obstetricians, Midwives and Nurses who were on the List.

Data Collection

An email was sent from the human resource departments of the IWK and BC Women's to the target population. It included a brief description of the study and the potential to win a prize for participating, along with a link to the online survey. The survey link first led participants to the consent information (Appendix 6), requesting participants to read the consent form and agree to participate. Once consent was granted, participants were directed to the survey (Appendix 7). Participants were asked to complete the survey. The survey consisted of questions that participants rated on a 5-point Likert scale. It was anticipated that the survey would take approximately 10 to 15 minutes. Participants were told they could withdraw from the study at any time by selecting an electronic button that cleared all their information off the survey. Participants

could not request to remove their data once their survey was been submitted, as the survey in Phase II was completely anonymous.

Data Analysis

Construct and criterion validation as well as internal consistency, was completed. Construct validation was done through Principal Components Analysis (PCA) using SPSS to determine if the three constructs of communication, collaboration and trust were three distinct factors or in fact there were more than or less than three. When the distinct components and the questions loading onto those components was determined, internal consistency was calculated using Cronbach's Alpha. This test determined if there was internal consistency among all items within the individual component. A result of $>.7$ would indicate that the questions within the clusters are consistent and reliable and will demonstrate that all questions are measuring the same thing (Aday & Cornelius, 2006). As this study is only to validate a new tool, test-retest reliability was not completed.

Study Protocol - Criterion Validation

High and Low Functioning Teams

In a study conducted by Borrill, West, Shapiro and Rees the qualities of high functioning teams were examined (Borrill, West, Shapiro & Rees, 2000). During the course of the study information on team function was gathered from a national sample of over 400 health care teams. What was discovered is that teams who participate together and gather around a clear set of objectives, while focussing on quality and innovative

solutions, seem to provide better and more effective care to the patients they see. These types of teams also demonstrate creative solution building and innovative service delivery mechanisms that articulate into the provision of quality care to the people they serve. In fact, where a diverse group of professionals worked together in a primary care setting, higher levels of innovation were demonstrated (Borrill et al., 2000).

In 2001, Borrill et al. published the findings of their study that determined what characteristics played a role in effective teams. The objectives of the research were to establish if age, gender, qualifications, and team size as well as processes such as communication, decision-making and leadership, influenced team effectiveness (Borrill, C.S., 2001). Based on this study, a number of processes were identified that predict team effectiveness (Borrill, 2001). Their study indicated that the overall quality of a team was influenced by a clear set of objectives and high levels of participation by all members. Additionally, the more support for innovation by members also had a positive effective on the team. Team working was rated on a 1 to 5 Likert scale with a higher score indicating better team functioning. Using the questions that were asked in Borrill's study (2001), Phase II respondents were categorized as being part of or having been part of either a high or low functioning team. Criterion validation was therefore assessed through a t-test to contrast those respondents who identified themselves as having worked in or presently working in a high function team and those who did not. The difference between the two scores was compared and then determined whether it was significant ($p \leq .05$) or not. It was expected that the scores on the high functioning team (answered yes to all five questions) would be higher than the scores on the low functioning team (answered no to all five questions).

The following are the questions from Borrill's study:

1. Does your team have clear objectives?
2. Do you frequently work with other team members in order to achieve these team objectives?
3. Are there different roles for team members within this team?
4. Is your team recognized by others in the hospital as a clearly defined work team to perform a specific function?
5. Does your team effect change in the organization?

Respondents must answer 'yes' to all questions in order to be considered working in a high functioning team. Those who answer 'no' to all questions will be considered to be working in a low functioning team. This information will be used for the Criterion Validation portion of the study.

Data Handling

The following steps were conducted for handling and cleaning the data prior to the analysis.

1. Understand the data file architecture
2. Assess file completeness
3. Clean data set
4. Label data files

- a. Content
- b. Date
5. Convert to analytical file
6. Organization of the data files
7. File merging/linkage
8. File updating
9. Variable labels
 - a. Name
 - b. Components (numerator/denominator)
 - c. Valid range
 - d. Type of variable (nominal, ordinal, interval, continuous)
 - e. Date file
10. Data set(s) manual

Errors

Through out the study design, careful attention was paid to preventing common errors.

Random and systematic errors

There are two common errors: random errors and systematic errors. A random error is a chance fluctuation in measurement. A systematic error does not disappear and is always present in a measurement (Aday & Cornelius, 2006; Polit & Beck, 2008). An example of random error is if a survey respondent has had a difficult day with their team, and feels under confident or annoyed at his/her colleagues or, in contrast, has a

particularly positive day with the team, their responses on the Readiness to Collaborate Scale may be inflated or deflated. Therefore, if mood affects performance on the measure, it may artificially change the observed scores for some participants. However, random error does not have any consistent effects across the entire sample and instead randomly pushes scores up and down equally. In other words, if all random errors could be seen in a distribution they would have a sum total of 0 meaning, there would be as many negative errors as positive ones. By providing some variability to the data, random error will not affect the overall average performance for the group (Aday & Cornelius, 2006; Polit & Beck, 2008). This was managed by having a sample group that was similar as possible; that is, a group of maternal newborn health care providers. Systematic error is caused by anything that effects the measurement across the entire group of survey participants. For instance, if the Readiness to Collaborate Scale has an error in one or two questions, or a question has been worded incorrectly, this will affect all of the scores consistently. Unlike random error, systematic errors tend to be consistently either positive or negative. Systematic error is sometimes called measurement bias (Aday & Cornelius, 2006; Polit & Beck, 2008).

To overcome measurement bias careful steps throughout the study process were necessary. For this study, careful identification of the target population and sample was made. The survey was designed to reduce bias by ensuring that the questions were specific and matched the definitions as much as possible. The Content Validation process allowed for further refinement of these variables, ensuring that the questions were specific, objective, and clearly defined.

Type I and Type II errors

A Type I error is a false positive meaning a result shows there is a relationship between one thing and another when in fact there is not. For example, if results for the validation of the Readiness to Collaborate Scale indicated there was a relationship between interprofessional communications and being ready to collaborate when in fact there is not, a Type I error exists. Type II error is a false negative. For example, if results for the validation of the Readiness to Collaborate Scale indicate there is no relationship between interprofessional trust and readiness to collaborate when there is a relationship, a Type II error has occurred (Polit & Beck, 2008).

CHAPTER - FIVE METHODS

Research Questions

The research questions for this study were:

1. What questions can be used to identify the readiness of a post-licensure healthcare provider to enter into an interprofessional collaborative team?
2. Can readiness to collaborate be measured under three distinct components: readiness for interprofessional collaboration; readiness for interprofessional communication and; readiness for interprofessional trust?
3. Will a group that self-identifies as participating in a high functioning team show higher scores in readiness for interprofessional collaboration, communication and trust versus a group that self-identifies as never participating in a high functioning team?

Step 1: Item Generation

Valentine et al., (2011), in their article titled '*Measuring team work in health care settings: A review of survey instruments*' provided the framework to determine what validated instruments could be used to develop the Readiness to Collaborate Scale. The Readiness to Collaborate Scale included questions from validated tools that included: Readiness for Interprofessional Learning Scale - 2006 (RIPLS), Team Climate Inventory - 1998 (TCI), Attitudes Toward Healthcare Teams - 1999 (ATHT) Team Effectiveness Audit Tool – 2002 and the Queen's University Interprofessional Patient-Centred

Education Direction – 2007/2008 (QUIPPED) scale. Some questions used the exact wording from the aforementioned scales while some questions were adapted and others were completely original questions (Appendix 1).

When creating the items for the instrument, careful attention was given to ensure items were consistent in terms of perspective and that each item only addressed a single issue. Based on the literature, the scale had three overarching categories:

1. Readiness for Interprofessional Collaboration
2. Readiness for Interprofessional Communication
3. Readiness for Interprofessional Trust

Step 2: Instrument Administration and Initial Item Reduction/ Phase 1 – Content Validity

Phase I, Content Validation included the nine experts reviewing the initial survey (Appendix 4) which included 66 readiness questions a demographic question; ‘What is your Profession’ and; a Content Validity Index (Table 1). Each expert respondent was given the newly developed descriptions of interprofessional collaboration, communication and trust. Each respondent then rated the readiness questions against a 5-point Likert scale whereby 1 was ‘strongly disagree’ and 5 was ‘strongly agree’. Respondents rated each question to how well it linked to the descriptions of the constructs provided. Initially the questions fell into three main categories: Readiness for Interprofessional Collaboration, Communication and Trust. The questions were a combination of previously validated and originally drafted questions. Some questions were exact wording from existing validated tools, some were adaptations and some were

originally developed questions. Appendix 1 shows the original questions, the adapted questions and those that were used in their exact wording.

Interviews

Content Validation included interviews of some of the Phase I experts who completed the survey (n=3/9). Three practitioners from the group of nine experts were interviewed. These included: 1 Obstetrician, 1 Family Physician and 1 Midwife. The purpose of the interview was to generate thoughts on interprofessional collaboration and to engage the experts in further commentary regarding the survey itself. The sample size for the Content Validation was sufficient because, “the validity, meaningfulness, and insights generated from qualitative inquiry have more to do with the information-richness of the cases selected and the observational/analytical capabilities of the researcher than with sample size” (Sendjaya, S., Sarros, J., & Santora, J. 2008: pg. 3)

This process informed the deletion of items that were deemed to be conceptually inconsistent and/or changed those questions that needed better direction or wording.

Step 3: Re-Administration of Revised Readiness to Collaborate Scale / Phase II

The revised tool was re-administered to a new group of obstetrical providers in Canada (n=1487). Additionally, to obtain criterion validation, these practitioners were asked if they are or have been in a team. Results indicated if the respondent participated in a high or low functioning team (Borrill, 2001).

Step 4 – Principal Component Analysis – Construct Validity and Internal Consistency Reliability

Principal components analysis was performed on results from Phase II. The principal components analysis determined the extent to which the generated items clustered into the appropriate component for which they were developed. Subscales are: 1. Interprofessional Collaboration; 2. Interprofessional Communication and; 3. Interprofessional Trust. The actual principal components analysis was conducted by using Statistical Package for the Social Science (SPSS).

The steps are as follows:

- A. Correlation Matrix
- B. Principal Component Analysis (PCA)
 - Scree Plot
 - Identify the preliminary factors
- C. Oblique Rotation
 - D. Factor Matrix
 - E. Repeat Oblique Rotation

Correlation Matrix

The first step in the analysis was the generation of a Correlation Matrix. The correlation matrix determined clusters of shared variance between the variables. Pearson's correlation coefficient was used to measure the strength of the associations between variables. Pearson correlation measures the correlation between two variables X and Y , giving a value between +1 and -1 inclusive, where 1 is total positive correlation, 0 is no

correlation, and -1 is total negative correlation (Stommel, 2014). While the matrix can demonstrate relationships or correlations between the variables, it does not prove that one variable causes the other. For example, the correlation matrix did not prove that being ready to collaborate in an interprofessional team meant being ready to either communicate and/or trust in an interprofessional team.

Using SPSS, a 2 x 2 Correlation Matrix was created. Each number reflected correlation between two variables. When initially analyzing the Correlation Matrix, the following interpretation rules were used (Gaskin and Happell, 2014).

Table 1: *Correlation Strengths*

Value of r (correlation coefficients)	Strength of relationship
-1.0 to -0.5 or 1.0 to 0.5	Strong
-0.5 to -0.3 or 0.3 to 0.5	Moderate
-0.3 to -0.1 or 0.1 to 0.3	Weak
-0.1 to 0.1	None or very weak

(Hemphill, 2003).

Examples of correlations, both positive and negative, were identified (Appendix 8). Positive or negative scores indicate whether the score is positively or negatively correlated and the number provides the strength of the correlation (Hemphill, 2003). For example, Q4 ‘I want to work with a group of practitioners I feel proud of’ and Q3 ‘I understand the importance of valuing my co-workers’ have a positive correlation of .623. This means that if people score high on Q5, they will likely score high on Q4. Conversely, Q10 ‘I prefer to work on my own and consult when I need to’ and Q15

‘Interprofessional clinical team work will provide my patient with comprehensive care’ have a negative correlation of -0.343 . Although a weak correlation, this means that a person who scores relatively high on Q10 may score low on Q15 or visa versa. This step in the analysis revealed the connection or association, between the interprofessional collaboration, communication and trust questions and where they were maximally correlated with one another and minimally correlated with others thus helping to determine how many dependent variables there are to readiness to collaborate overall.

Principle component analysis

Identifying preliminary factors

Once the correlation matrix was complete, Principle Component Analysis began. PCA is considered the best method for data reduction (Polit & Beck, 2008; Gaskin & Happell, 2014). As such, PCA was used to analyze all of the variance between all of the questions in the survey. This included simplifying and bundling the items into a smaller, more comprehensive set of factors. In particular, it identified the principal directions in which the factors vary.

Scree Plot

The most common method of deciding the number of factors is to create a scree plot. The scree plot is a two dimensional graph with factors on the x-axis and eigenvalues on the y-axis. Eigenvalues are produced through PCA and represent the variance of each factor. They are not represented by percentages but scores that total to the number of items. In the Readiness to Collaborate Scale, each factor has an

eigenvalue that indicates the amount of variation in the items accounted for by each factor.

Data Extraction

Components were decided and data extraction occurred. The extraction method produced factor loadings for every item on every extracted component. This resulted in a simple structure, with most items loading on the first factor and smaller loadings on the remaining factors.

Oblique Rotation

Oblique rotation was calculated through SPSS using the 'Oblimin' method. The overall outcome of this exercise generated a simple structure of the components. Simple structure is a condition whereby variables load at near 1 or at near 0 on an eigenvector or factor. Eigenvectors are the linear combinations of the original variables and they described how variables "contribute" to each factor. Variables that load near 1 are significant in the interpretation of the factor while variables that load near 0 are not significant.

Factor Matrix

Correlations among factors were shown on a factor matrix. Loading the items, or questions, onto the factors showed variance better than .30. In other words, each item or variable was unique to the individual factor. If they are less than .3 or loading on more than one factor, the variable/question was removed (Tabachnick & Fidell, 2007). With a sample size of approximately 130 participants, loadings of .30 or higher was considered significant (Gaskin & Happell, 2014).

Internal Consistency Reliability

The main procedure for estimating the internal consistency among a number of different questions is corrected item-total correlation and alpha reliability coefficients. Corrected item total correlation is the correlation between an item and the rest of the survey, without that item considered part of the survey. If the correlation is low for an item, the item is not measuring the same thing the rest of the survey is measuring (Aday & Cornelius, 2006). Cronbach's Alpha, was used to predict positive correlations between each question. Cronbach's Alpha is a summary correlation that is better than an average as it tells the researcher that the items all rise and fall together and that each of the items reinforce the factors that are being measured. This determined internal consistency between all items within the individual component. A result of $>.7$ indicated that the questions within the clusters are consistent and reliable and will demonstrate that all questions are measuring the same thing (Aday & Cornelius, 2006). In order to get an accurate Alpha, responses on negatively worded items must be recoded to reverse the scoring (e.g., 1=5, 5=1). In other words, if there are questions for which the wording is reversed, the responses must be re-coded (Aday & Cornelius, 2006).

Step 5: Criterion Validity

Criterion Validity was done using a t-Test to contrast the two groups; low and high functioning teams based on Borrill's (2001) questions. The average scores of the low and high functioning interprofessional teams were compared. This was done to determine if the difference between the two scores was significant ($P < .05$). It was expected that the scores on the high functioning group would be higher than the scores on the low functioning group.

Sensitivity and Specificity

In order to confirm validity and reliability of the Readiness to Collaborate Scale, sensitivity and specificity of the new instrument will be done. Sensitivity of the RCS is determined by the number of practitioners who test as ready to collaborate by having high scores. Specificity of the RCS is determined by the number of practitioners who test as not ready to collaborate by having low scores (Chen, Chia- Wei, Chu, Hsin, Tsai, Chia- Fen, Yang, Hui- Ling, Tsai, Jui- Chen, Chung, Min- Huey, . . . Chou & Kuei- Ru, 2015). Sensitivity and specificity will be tested using a 2 x 2 table (Table 2) that will compare the performance of the new RCS to a gold standard test. Due to the fact that there is not such an instrument available like the RCS, applying the concept of clinical test validation using Borrill’s five questions during the test re-test phase will provide a gold standard set of data that can be used (Rutjes, Reitsma, Coomarasamy, Khan, & Bossuyt, 2007).

Table 2: *Sensitivity and Specificity*

	Ready to Collaborate	Not Ready to Collaborate
RCS Ready to Collaborate	A = True Ready	B
RCS Not Ready to Collaborate	C	D = True Not Ready

Sensitivity will correctly identify those who are ready to collaborate (A) from all individuals surveyed showing as ready (A+C). Specificity will correctly identify those who are not ready to collaborate (D) from all individuals surveyed who show as not being ready (B+D).

Step 6: Final Survey Developed - The Validated Readiness to Collaborate Scale

The final Readiness to Collaborate Scale only retained the new items under the identified constructs minus the questions with exact wording from other validated surveys.

CHAPTER SIX - FINDINGS

The following chapter describes the findings of the study. The chapter includes Phase I and Phase II activities. Phase I activities contain the findings from the Content Validation process including survey response and the initial item reduction. Phase II contains findings from the Construct Validation process including principal component analysis and final description of the factors of the new scale.

The aim of the study was to develop a new tool that would be able to measure the readiness of practitioners entering and participating in an interprofessional team effectively. The initial objective was to determine if an instrument, the new Readiness to Collaborate Scale, could in fact measure interprofessional team readiness and; secondly, to determine, the number of factors present in the instrument. Finally, whether or not the new tool could predict those practitioners who were participating in an already high functioning team. This last objective provided criterion validation for the new instrument.

Phase I – Content Validation

Participant Demographics

Overall, thirteen practitioners were invited to complete the survey, of which ten responded, resulting in a response rate of 77%. However, only nine completed the survey. All of them work with women of low obstetrical risk and, have full scope of low-risk obstetrical care, including prenatal, intrapartum and post-partum care within their

professional license and have in various degrees, worked on teams that delivered prenatal, intrapartum and postnatal care. These nine participants were further broken down into: one Obstetrician, three Family Physicians/General Practitioners, two Nurses and three Midwives.

Initial Item Reduction

Based on the Content Validation process that included both expert survey response and three expert interviews, a total of seventeen questions were removed from the original tool, leaving 49 readiness questions. The process of initial item reduction allowed for questions that did not meet the definitions of Readiness to Collaborate, Communicate and/or Trust as well as those that did not aim at readiness to collaborate in an interprofessional team in general to be removed. Based on the literature, questions that were ranked with total scores >70% were kept and those below were discarded (Gaskin, C. J., and Happell, B. 2013; Rattray J., Jones, M., 2007; Polit, D. F., and Beck, C. T., 2006). Ultimately, 12 of the newly developed questions, two of the adapted questions and three of the exact worded questions were removed as a result of Phase I Content Validation.

Interviews

Content Validation included interviews of some of the Phase I experts who completed the survey (n=3/9). Three practitioners from the group of nine experts were interviewed. These included: 1 Obstetrician, 1 Family Physician and 1 Midwife. The purpose of the interview was to generate thoughts on interprofessional collaboration and to engage the experts in further commentary on the survey itself.

Common reflections that emerged from these semi-structured questions included: poor definitions of collaboration throughout the health system and organizations as well as difficulty in clearly defining interprofessional collaboration, as these terms are often interchanged with multidisciplinary definitions. One expert believed that collaboration occurred when the team took the direction from the doctor and implemented their instructions as directed, clearly describing the belief that the physician was the leader. All three participants highlighted the importance of team based. All three practitioners indicated that they have always worked in a team and could not conceive working in isolation, yet their terms of engagement differed. For example, interviewees suggested that the goal of interprofessional collaboration among most practitioners was to enhance overall patient care. However, there was a strong belief that many organizations assembled teams to improve productivity and contain costs (e.g. co-location and shared administration) with little emphasis on patient care and/or practitioner satisfaction.

When asked about personal barriers to collaboration, there were two main themes: trust of other practitioners and belief that they themselves could do the task better. For example, delegating activities and ‘signing out’ to another practitioner, even of the same profession, was rarely done, especially among the primary care providers. When asked what the term ‘shared-responsibility’ meant, two of the three experts interviewed stated that it was linked to the requirement of regulatory bodies to ensure appropriate scope of practice and guidelines, and was observed by all team members. Ultimately, there was agreement that, although they were willing to enter an interprofessional team, individually, they needed coaching and ongoing support from team members and their organization.

Further consideration and discussion of some items was explored as part of the interview process. Three questions were reworded based on the following. Question 42 ‘I can share information freely with my colleagues better than keeping it to myself ‘ was reworded to read ‘I can share information freely with my colleagues about clinical challenges I have’ after two of the three experts mentioned that the original question was aiming to reveal individual practitioners overall comfort with clinical challenges as opposed to concealing clinical problems they may have. Also, it was suggested that Q50 would be more appropriate if reworded from ‘I am able to implement an order from a team member without question’ to: ‘I am able to implement an order from a team member of another discipline’ as this wording pushes the respondent to consider trusting another disciplines clinical judgement through implementing their order. Although ‘order’ is typically used when referring to a physician, the term is meant to also include other healthcare providers such as nurses. For example, a nurse may suggest to a physician to order an intravenous infusion for hydration that the physician would either accept or decline.

Finally, Q51 ‘I need to know exactly what my colleague does in order to trust their clinical judgment’ was reworded to read ‘I need to know exactly what my colleague’s scope of practice is in order to trust their clinical judgment’. This was because some experts felt that it was necessary to understand the scope of practice as opposed to the individual actions of their colleagues in different professions. Two questions on the survey spurred further discussion in interviews. Question 12 ‘I prefer to work on my own and consult when I need to’ (55.55%) and Q26 ‘Working in teams unnecessarily complicates things most of the time’ (66.6%) both originally ranked low

and initially were removed. However, when discussed with the three experts, the questions were kept. Experts shared that teamwork takes more effort than working solo and although could be seen as being complicated at times, the participants did not feel less committed to working collaboratively. It was suggested that complications and preferences to work alone were often due to lack of role clarity. To address role clarity and it's importance in interprofessional teams (Headrick et al. 1998; Kennedy, 2001; Belanger and Rodriguez, 2008; Choi and Ruona, 2011; Mitchell et al., 2011; Campbell 2014), a new question was developed and added to the next iteration of the survey; 'I am aware of the roles of all of my colleagues'. Interestingly, two of the seventeen questions removed did rank above 70% and were taken out of the survey based on discussions during the interviews. Question 10 'I expect my colleagues to work to their full scope of practice' (77.78%) and Q62 'Establishing trust with my patients is important to me' (88.89%) were removed. Question 10 was not considered germane to collaboration but instead related to professionalism. Question 62 was more aimed at the relationship between patient and provider as opposed to interprofessional collaboration.

Content Validity Index (CVI)

Scale content validity relates to the degree to which a scale has an appropriate sample of items to represent the construct of interest—that is, whether the domain of content for the construct is adequately represented by the items (Waltz, Strickland and Lenz, 2005). In the case of the Readiness to Collaborate Scale, these items and constructs include: Communication, Collaboration and Trust.

The Content Validity Index (CVI) estimated the validity of the new tool (Yaghmale, 2003; Beck et al., 2007). This implies that at the beginning of the content validation process, good items and construct specifications were developed and a panel of experts were selected. The CVI had seven questions (Table 1): clarity and simplicity of the instrument; time and effort to complete; instructions and definitions provided; 5-point scale adequate; measures perceptions of what collaborative practice could be; likelihood of instrument being used by health professionals and decision makers and; applicability to practice setting (Lynn, 1986; Haynes, Richard, Kubany, 1995; Yaghmale, 2003; Beck et al., 2007). Polit and Beck (2006) describe a method of calculating CVI by adding up all of the scores and dividing by the number of experts. In the case of the Readiness to Collaborate Scale, not all questions were answered. Therefore, the average number of experts that answered the questions was used ($n=8.7$). This was calculated by adding up the scores, ($n=61$) and dividing it by the number of questions answered ($n=7$). A scale with excellent content validity should have an CVI of 0.8 to 0.9 among experts that rated each category as a 4 or 5 (Polit and Beck 2006; Shi, Mo and Sun, 2012).

Based on the number of 4's and 5's ranked on the CVI divided by the average number of Experts who responded ($n=8.7$), the survey has an overall rating of 90% (Total of all percentages = $631\%/7\text{questions} = 90\%$). Experts reported that the tool did measure their perception of interprofessional collaboration and also reported that the new tool would be helpful to be used by healthcare organizations and others (80%). For instance, organizations could implement this tool prior to assembling a team to ensure all members are ready to collaborate.

Table 3: *Phase I Content Validity Index (CVI) - using seven criteria to validate the Readiness to Collaborate Scale's structure and utility*

	Unacceptable - 1	2	3	4	Excellent - 5	% = (4's+5's)/ Average # of *Experts
Clarity and simplicity of the instrument			1	4	4	(4+4)/8.7=92%
Time and effort to complete				2	7	(7+2)/8.7=103%
Instructions and definitions provided			1	2	6	(6+2)/8.7=92%
5-point Likert scale adequate for measuring questions				2	6	(6+2)/8.7=92%
Measures your perceptions of what collaborative practice could be			1	4	3	(4+3)/8.7=80%
Likelihood of instrument being used by health professionals and decision makers			2	4	3	(4+3)/8.7=80%
Applicable to your practice setting			1	4	4	(4+4)/8.7=92%

* *Expert Rating on a Scale of 1 – 5 Whereby 1 is Unacceptable and 5 is Excellent. Validity measured based on scores of 4/5 and 5/5*

Phase II – Construct Validation

Participant Demographics

The number of respondents was n=174 and the number of completed surveys were 140. The actual number of Readiness to Collaborate Scales that were sent out to the

practitioners was 1487 to account for non-response and/or ineligible responses. Based on the literature, the number of respondents required with communalities >50% is 100 – 130 (MacCallum et al., 2001; Gaskin & Happell, 2014). Phase II, included providers from the same categories as in Phase I but also included: nurses and midwifery and nursing students. (Table 2).

Table 4: *Phase II Participant Professions (n=140)*

Participant Profession	Number	%
Obstetrician	9	6%
Family Physician/General Practitioner	37	26%
Midwife	49	36%
Nurse	39	28%
Other (midwifery and nurse students/clerks)	6	4%

Of the 140 participants, 139 (99%) indicated their primary place of work (Appendix 9). Place of work is defined as the environment where most work related activity is conducted (Polit and Beck, 2006). Working in a hospital as a member of an in-hospital team with different professions was the most commonly reported place of work (n=61, 44%) followed by those who, in addition to working in a hospital, also work in a community-based team with the same professions as their own. The remaining 33% of respondents worked either in hospital with the same professions (17%) or in the community with different professions (16%). Additionally, 49 of the respondents provided data on their collaborative working arrangements. The fewest number of

respondents (n=2, 4%) worked in a consultant role only. Consultants typically do not do any clinical work, and instead are available for consultation. This role is different from a solo practitioner who works alone and independently performs all clinical aspects of their role. The most reported collaborative arrangement was a shared-call system with the same profession (67%). An example of this would be midwives who would share an on-call roster for the clients in their clinic. Solo practitioners who do clinical work and practitioners who share an on-call schedule with different professions than their own, accounted for the remaining 28% of respondents. Of the 140 respondents, 131 indicated their years in service. Most (n=47, 35.9%) have been working for 16 years or more; while those who have been in practice for 0-5, 6-10, 11-15 years, (n = 38, 29.0%), (n = 22, 16.8%) and (n=22, 16.8%) respectively, account for the balance. Those who are retired contributed to approximately 1.5% of the total (n=2).

Item Response Rate

Of the 140 respondents, nine partially answered the full survey; accounting for approximately .06% while 131 completed all 50-readiness questions (93%) (Table 3). The nine professions who partially answered the survey were: three physicians, four nurses, one midwife and one student midwife.

Table 5: *Breakdown of Partial Respondents and % of Questions Answered*

Professions	Number of Partial Respondents	% Answered From All 50 Questions
ALL	9	15%
1 Physician, 2 Nurses, 1 Midwife, 1 Student	5	31%
1 Nurse, 1 Midwife, 1 Student	3	45%
1 Nurse	1	66%

Missing Data

Of 140 respondents answering 50 readiness questions in the Phase II survey (n= 7000 items), the total number of missing inputs for the survey is 337; ranging from 4 – 12 items on questions with missing data (Appendix 10). Therefore, the percentage of missing data is .048%. Due to the number of subjects in the study, it was not reasonable to delete the participants who did not complete the survey. Therefore, missing values were replaced with the variable mean (Sainani, 2015). For example, on Q9, respondent’s average answer on the 5 point Likert Scale was 4.82. Therefore, the four missing respondents on that question would be scored at 4.82. This method is appropriate in this study due to the small percentage of missing items.

Initial Data Analysis

Appendix 10 shows Descriptive Statistics on the questions from Phase II. The Standard Deviation of many of the individual items tells us that the spread of the 140 individual respondents’ scores across the scale is similar with some interesting exceptions. For example, Q7 – ‘I feel useful to my work colleagues’ - has a mean score

of 4.35 and a standard deviation of .822 while Q9 – ‘I acknowledge that there are others who may know more than me among my colleagues’ – has a mean score of 4.82 and a standard deviation of .552. In three questions respondents scored a mean value far below 4.31. These included: Q10 (2.90), Q23 (2.16) and Q51 (2.29). These calculations were achieved through a correlation matrix.

Bartlett test of Sphericity and Keiser-Meyer-Olkin

Bartlett test of Sphericity and Keiser-Meyer-Olkin (KMO) test was used to examine the correlation of the different variables and whether conducting factor analysis was appropriate as well as an assessment of sampling adequacy during the factor analyzing (Table 5). Each individual variable has a KMO and their sum is the KMO overall statistic. KMO varies from 0 to 1.0 and KMO overall should be .60 or higher to proceed with factor analysis. The study KMO is .833 demonstrating good sampling to predict factors.

Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix; i.e. all diagonal elements are 1 and all off-diagonal elements are 0, implying that there is a redundancy within the variables that can be surmised with a few factors. The analysis therefore concludes that there are correlations in the data set that are appropriate for factor analysis.

Table 6: *KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.833
Bartlett's Test of Sphericity	Approx. Chi-Square	3343.799
	Df (degree of freedom)	1225
	Sig.	.000

Principal Components Analysis (PCA) and Scree Plot

The initial principal component analysis (PCA) was conducted on Phase II results (50 questions) of the Readiness to Collaborate Scale (Appendix 7). Initially, an eigenvalue ≥ 1 was used to determine the number of factors, in combination with a scree plot (Gaskin & Happell, 2014). When examining the scree plot the eigenvalues plotted are against the factor numbers. The scree plot for the data analyzed is presented in Figure 4. Before the line makes an abrupt change in direction to becoming flatter, we see there are approximately 13 factors. Thus the scree plot shown does not entirely support the earlier three-factor survey.

The total variance of the 13 factors in the scree plot showed that the first four factors explain approximately 44% of the variance in the data (Table 6). The remaining nine factors only account for another 20%, thus reducing their merit and strength as a stand-alone factor. Results of the Correlation Matrix indicated that Factor 1 represents the majority of core qualities of readiness to collaborate. This is based on correlations of

>.4. However, Factor 2, 3, 4, 5, 6 and 7 also possess some variables with correlations >.4, most of the correlations are at >.3. The Initial assessment of number of factors would therefore suggest there are between 1 and 7 factors. Given the close variation, an oblique rotation of these factors was completed to further delineate the factors that make up the new tool.

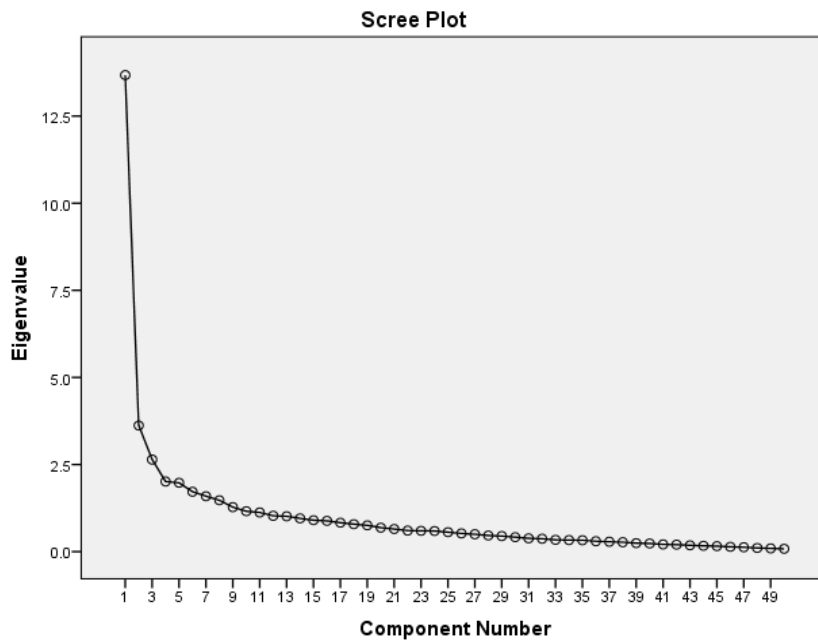


Figure 4: *Initial Scree Plot Indicating 13 Possible Factors in the Tool with Eigenvalues >1.0*

Table 7: *Initial Total Variance Showing 13 Factors with Eigenvalues >1.0*

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	13.676	27.353	27.353
2	3.620	7.239	34.592
3	2.642	5.284	39.877
4	2.012	4.024	43.901
5	1.975	3.950	47.851
6	1.720	3.440	51.291
7	1.590	3.181	54.472
8	1.474	2.949	57.421
9	1.277	2.553	59.974
10	1.159	2.317	62.291
11	1.125	2.249	64.541
12	1.029	2.057	66.598
13	1.015	2.029	68.627

Extraction method – Principal Components Analysis

Communalities

Communality measures the proportion of common variance explained by the 13 factors present in the latent variable of readiness to collaborate. For example, 71.6% of the variance of all 13 factors can be explained by Q14 ‘Interprofessional teamwork improves patient outcomes’ (Appendix 2). According to Mundfrom’s (2005) criterion, an individual value of >0.7 or an average value of >0.6 indicates sufficient communality (Mundfrom, Shaw, Tian, 2005). In this sample, 20 items (Q:8,9,14,15,16,18,19,20,21,29,33,34,35,36,40,42,45,46,48,51) had values of >0.7.

Oblique Rotation

Due to the underlying assumption that variables in the factor analysis were correlated, the use of an oblique rotation (SPSS - Direct Oblimin) to allow for the

maximum amount of non-correlation and factor loading, was completed (Costello & Osborne, 2005; Yong, & Pearce 2013). There are two objectives when doing rotations. The first is for further data reduction to help reduce factors and two, to increase the understanding of the factors. The outcome is a simple structure that allows for clear interpretation. Ultimately, the simple structure attempts to have each factor define a distinct cluster of interrelated variables so that interpretation is easier (Gie Yong, & Pearce, 2013). For example, variables that relate to interprofessional trust should load highly on trust factors but should have close to zero loadings on the interprofessional communication factor.

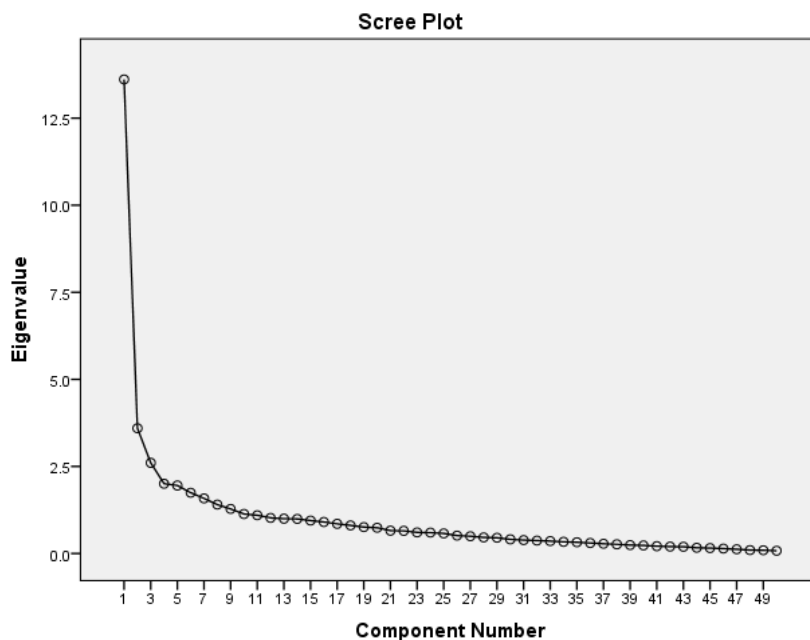


Figure 5: Rotated Factors Scree Plot Indicating Four Factors with Eigenvalues >1.0

The rotation produced a Scree Plot that indicated four factors (Figure 5). The first factor shows the most variance while the remaining three continued to show variance until the fifth when the factors became closer in variance and flattened out on the Scree

Plot. The total variance shows that approximately 44% of the variance can be explained in the first four factors while the remaining factors only contribute to minor variances in the Tool (Appendix 11). Additionally, the completed rotation created a simple structure or pattern matrix of the factors (Appendix 12). One factor was selected based on the most plausible solution and construct. The pattern and structure matrices were compared to reveal the influence of shared variance. Shared variance indicates the relationship of variance between factors (Kay, 2009).

Pattern Matrix

With Rotation, the Pattern Matrix (Appendix 12) indicates clearly that there is a simple structure with four distinct factors. Principal components analysis was the factor analysis used for data reduction. Initially, three main factors were being extracted but instead thirteen factors were extracted on the PCA. After oblique rotation, a simple pattern matrix indicated variables that loaded highly on four factors which is what was chosen for the study.

Factor Questions Post Rotations

Upon review, Factor 1, previous to rotation, had numerous variables loading onto it. After rotation, this factor has six questions loading at $>.45$ (Appendix 13). When reviewing the questions that load onto Factor 1, they seem to match the construct of Readiness for Interprofessional Collaboration. All questions will be answered positively (high on the Likert scale) if the respondent is ready to collaborate in an interprofessional team.

Factor 3 has loadings between $-.460$ and $.780$ (Appendix 14). Questions appear to fit into the construct of Readiness for Interprofessional Trust. Seven of the eight questions have positive loadings; those answering high on the Likert scale will agree with these questions. One of the questions, Q51, 'I am threatened when I express new and different ideas to my colleagues about a course of care' should be answered low on the Likert scale, indicating a negative response to this question.

Factor 4 loadings were between $.452$ and $.768$ (Appendix 15). This factor indicates questions that fit into the construct of Readiness for Interprofessional Communication. Those who respond high on the Likert scale indicate a readiness to communicate within and among team members.

The results in Factor 2 show a distinct group of negative loadings (Appendix 16). For example, a respondent who scores low on the 5 point Likert scale to Q44, 'Interprofessional teams help build professional relationships', clearly indicates their reluctance to believe that interprofessional teamwork will improve and build other professional relationships. Similarly, those who answer negatively to Q15, 'Interprofessional clinical team work will provide my patient with comprehensive care', indicates that they do not believe that utilizing a team based model will in fact improve patient care.

Repeat Oblique Rotation and Chronbach's Alpha

Chronbach's Alpha was completed on the factors that emerged from the first rotation (Costello & Osborne, 2005; Aday et al., 2011; Yong & Pearce 2013). Findings indicated that Factor 2, 3 and 4 had internal consistency of $>.7$, however, Factor 1 had a CA of only $.55$. The initial rotation used a correlation cut off of $.45$. With this finding, a

repeat rotation was carried out using items that had loadings of $>.39$. The second rotation indicated a minor improvement on the first factor from $.559$ to $.585$. Although this factor is loading less than $.7$, the other factors remain strong with CA's of $.85$ (Factor 2), $.72$ (Factor 3) and $.89$ (Factor 4). See Appendix 17 for added questions.

Internal Consistency – Chronbach's Alpha

To measure the instrument's internal consistency, Cronbach's Alpha (CA) for each Factor was completed (Appendix 18). Factor 1: $.58$; Factor 2: $.85$; Factor 3: $.72$ and; Factor 4: $.89$. In general, a value of $>.7$ is considered an acceptable value, indicating sufficient internal consistency (Cao et al., 2015). In addition, the number of items influences the value of CA. As the number of items increase CA will also increase. Subsequently, Factor 2 that consists of 16 items had a higher CA than Factor 1 with 8 items. When Chronbach's Alpha for the entire Readiness to Collaborate Scale as a whole was done, a CA of $.92$ was indicated. This shows strong internal consistency of the new survey.

Completion of the Readiness To Collaborate Scale

As per the Study Design framework – step 6, any question that had the exact wording from previously validated tools were removed (Heinemann et al., 1999). In total five exact questions were removed after the factor analysis (Appendix 19)

Three additional questions were also removed based on loadings $<.39$. These included:

- Q2, 'I can identify the people I work with'
- Q21, 'Interprofessional clinical teams are non-hierarchical' and;

- Q45 ‘Interprofessional collaboration will only work if practitioners trust one another’.

The new Readiness to Collaborate Scale has a total of 42 validated original and modified questions; 41 readiness questions and 1 demographic questions (Appendix 20).

Criterion Validation -T-Test (comparing high and low function teams)

In addition to completing the survey, respondents were asked five questions during the second phase construct validation to determine level of participation in a functioning team (Borrill, C.S., 2001).

The questions were derived from Borrill’s work and included the following:

1. Does your team have clear objectives?
2. Do you frequently work with other team members in order to achieve these team objectives?
3. Are there different roles for team members within this team?
4. Is your team recognized by others in the hospital as a clearly defined work team to perform a specific function?
5. Does your team effect change in the organization?

The results indicated that when a group of self-identified high functioning team participants answered yes to all five questions of Borrill’s survey (Borrill, 2001) compared to a group of self-identified low functioning team participants who answered no to all five questions, a difference in their overall scores on the Readiness to Collaborate Scale was noted. Of the 140 respondents, 131 answered all five questions.

Table 7 illustrates the breakdown of functional team participants as described by Borrill

(2001). Those who answered yes to all 5 questions are considered by Borrill (Borrill, C.S., 2001) to be part of a fully functional team.

Table 8: *Practitioners Identified as Participating in High and Low Functioning Teams*

# Yes/ 5 questions	n	%	Participation in a Functioning Team
5/5	31	23.70%	Fully Functioning Team 5/5
4/5	36	27.50%	
3/5	21	16.00%	
2/5	11	8.40%	
1/5	11	8.40%	
0/5	21	16.00%	Not Functioning Team 0/5

The score on the high functioning team is approximately 10% higher than the low functioning team (Table 8). The mean for the high functioning participants is 209.887 and the low functioning mean is 196.862 indicating statistical significance (p value $<.05$). Both these values indicate that the difference in groups is not due to chance but due to the groups overall readiness to collaborate in an interprofessional team.

Table 9: *Criterion Validation for High and Low Functioning Team Respondents: t-Test*

Participant	N	Mean	Std. Deviation	Std. Error Mean
High Functioning	31	209.887	11.8564	2.1295
Low Functioning	21	196.862	15.0094	3.2753

Summary of Findings: A two-phased approach was undertaken to determine content and construct validation as well as criterion validation. Through Construct validation the new scale has four main factors: Readiness for Interprofessional Collaboration,

Communication, Trust and Reluctance for Interprofessional Collaboration. The new tool has 41 validated readiness questions that can be answered on a 5-point Likert Scale whereby 1 was strongly disagree and 5 was strongly agree. Phase I, Content Validation, included 9 low-risk obstetrical providers and included Obstetricians, Family Physicians/General Practitioners, Nurses and Midwives. Phase II, Construct Validation had 140 respondents: 9 Obstetricians; 37 Family Physicians/General Practitioners; 39 Nurses; 49 Midwives and; 6 others (clinical students/residents from nursing and midwifery).

Chronbach's Alpha was completed on the factors. Factor 1: .58; Factor 2: .85; Factor 3: .72 and; Factor 4: .89. When Chronbach's Alpha for the entire Readiness to Collaborate Scale as a whole was performed, a CA of .92 was indicated. This shows strong internal consistency of the new survey. To complete the validation of the new survey tool, criterion validation was carried out. A t-test was run to provide statistical evidence of this finding. The score on the high functioning team was approximately 10% higher than the low functioning team. The *p* value for the high functioning participants is .005 and the low functioning *p* value is .007. Approximately 24% of respondents are or have been involved in a team that is considered fully functioning. Conversely, approximately 16% indicated they are not, nor ever were, involved in a functioning team.

CHAPTER SEVEN - DISCUSSION

The purpose of this study was to develop and validate a new survey instrument that aimed at identifying individual practitioners' readiness to collaborate, communicate and trust in an interprofessional team. Through content, construct and criterion validation processes, the instrument was validated among a group of healthcare practitioners in maternal newborn and low-risk obstetrical service delivery. Being ready to collaborate and understanding the factors related to readiness to collaborate either in a healthcare or non-healthcare team is an essential component to successful team effectiveness and potentially overall organizational success.

In the following chapter, discussion and considerations regarding the new Readiness to Collaborate Scale (RCS) within the context of the health services system and the contribution of the new RCS to the knowledge about interprofessional collaboration will be outlined. Additionally, results reported in Chapter Six will be discussed. Although the development and validation of the new RCS was done within the healthcare system, potential application of the survey into other industries will be addressed. Finally, strengths and limitations of the study are outlined and recommendations for future research are proposed.

Validated team assessment tools that have been developed include those that measure the effectiveness of already assembled teams, and those that measure the educational structures needed to develop high functioning teams (Anderson & West, 1998; Heinemann et al., 1999; Millward & Jeffries, 2001; Bateman et al., 2002; Doolen, Hacker, VanAken, 2003; Reid et al., 2006; QUIPPED, 2007-2008; Kozusznik et al., 2015; Valentine et al., 2015). These tools are targeted at individuals who are currently

participating in teams and include a number of items aimed at determining the overall productivity, engagement and success of teams. However, there is little, if any, research conducted to identify the characteristics and qualities of an individual prior to participating in a team. The focus has been on an individual's experience of being in the team, not her/his readiness to participate in a team. Rosas and Camarinha-Matos (2009) investigated the readiness of organizations to collaborate on joint projects. They stated that there is 'incompleteness of information and uncertainties associated with the readiness assessment process' (Rosas and Camrinha-Matos pg. 4711. 2009), demonstrating the requirement of other forms of measures to test readiness. Using a combination of already validated questions from existing relevant tools (Anderson and West, 1998; Heinemann 1999; Bateman, 2200; Reid et al., 2006; QUIPPED 2007), together with carefully written new questions, a 42-item survey constructed to test the readiness of individuals to enter and participate effectively in a team has been completed; the new Readiness to Collaborate Scale.

Validation Overview

The Readiness to Collaborate Scale was developed based on the gaps in the literature surrounding ways in which organizations and health care providers can evaluate individual practitioner's readiness to collaborate in interprofessional teams. New definitions of these constructs were developed and tested against a series of both new and existing questions from validated surveys, mainly focusing on team effectiveness and interprofessional learning. These new constructs and definitions are new to the literature and therefore have added value to the ongoing understanding of interprofessional collaboration and readiness.

Chronbach's Alpha was completed on the factors that emerged from the first rotation (Costello & Osborne, 2005; Aday et al., 2011; Yong & Pearce 2013). Findings showed that Factor 1 had a CA of only .55. A study by Cao et al (Cao, Chen, Diao, Tian, Liu, and Jiang, 2015) faced a similar challenge whereby factors on a new survey they were validating loaded less than .7. Learning's from this study are supported in the literature showing when there are more items in a factor the larger the Cronbach's Alpha (CA) for that factor; and the goal of the factor analysis is to provide construct validation for the instrument as a whole. The Factor Analysis demonstrated that the items in the instrument as a whole (42 items) have been summarized in four factors that make sense in terms of readiness for collaboration. Therefore, Chronbach's Alpha for the entire instrument was completed resulting in a CA of .92 for the whole scale.

Research Questions and Response

Through a systematic process that included content, construct and criterion validation as well as factor analysis and calculation of Chronbach's Alpha, the following research questions have been answered.

1. What questions can be used to identify the readiness of a post-licensure health care provider to enter into an interprofessional team?

For the development of the RCS, five validated instruments were used. These included: Team Effectiveness Audit Tool (Bateman, 2002); the Collaborative Practice Assessment Tool (CPAT) (Quipped, Queens University 2007-2008); the Team Climate Inventory (Anderson & West, 1998); Heinemann's Attitudes Toward Health Care Teams Scale (ATHCTS) (1999) and; the Readiness for Interprofessional Learning Scale

(RIPLS), (Reid et al., 2006). Each existing instrument contributed valuable insights to the development of the tool. However, all tools were limited in their scope regarding the elements required to assess readiness to enter into an interprofessional team.

Through a process of Content and Construct Validation, a series of questions were created based, in part, by using the mentioned existing tools. These questions aimed to assess an individual practitioners' readiness to collaborate, communicate and trust in an interprofessional team. The final survey has a total of 42 questions including one demographic question. Eighteen of the questions were derived from existing validated questions while the remaining 23 were originally created. All questions are considered valid and accurately gauge readiness to collaborate (Appendix 21).

Answers to correlated questions are of particular significance as results may point to areas requiring intervention and provide queues to help enhance understanding of an individual's readiness to collaborate. Organizations wishing to use the new Readiness to Collaborate Scale will require this information to develop interventions that target areas for development and training. For example, organizations may have particular interest in an individual who scores low on Q12 'I would willingly enter an interprofessional clinical team' and higher on Q23 'Working in teams unnecessarily complicates things most of the time' as they may wish to target interventions that aim to educate individuals on the benefits of teamwork and the positive contributions that teams make to organizations (Borrill, 2001).

2. *Can readiness to collaborate be measured under three distinct factors: interprofessional collaboration, communication and trust?*

Factor analysis has demonstrated that not only three but, four distinct factors can be used to measure readiness to collaborate. They include the original three; readiness to collaborate, communicate and trust and a new factor that further strengthens the scales utility i.e. reluctance for interprofessional collaboration. These four factors together build a robust tool that will assist in identification of areas of strength and opportunity among individual practitioners who are seeking to participate in an interprofessional team.

Factor 1: Readiness for Interprofessional Collaboration

The first factor identified is readiness for interprofessional collaboration. This factor has eight questions and although has the lowest CA (.58), remains an important construct for the new tool. Numerous studies that have examined team functioning support that there is a gap in the research regarding readiness and have provided understanding of how individual readiness to collaborate may appear (Armenakis, Harris 1993; Goldman, Meuser, Lawrie et al 2010; Choi and Ruona 2011; Pfortmiller, Mustain et al 2011; Lawn, S., Lloyd, A., King, A., Sweet, L., & Gum, L. 2014; Strype, J., Gundhus, H., Egge, M., & Ødegård, A. 2014). Not all teams that are assembled produce positive outcomes. Sometimes teams that are assembled in haste, and without the required organizational support, erode quickly and lose any positive outcomes that may have been anticipated initially (Hall, 2005; Sargeant, 2008; Suter et al. 2009). Some literature that has focused on organizational readiness for team collaboration has provided insights leading to further understanding of individual readiness.

Studies have identified the importance of policy, planning and system development using evidence to support successful implementation of team development and collaboration (Goldman et al., 2010). Research on positive system-wide impacts, practitioner productivity such as working to full scope of practice and avoidance of unnecessary duplication of services, point to how collaborative teams improve health, system and provider outcomes (Cassidy, 2002; Amatayakul, 2005; Goldman, Meuser, Lawrie et al 2010; Tomblin Murphy, MacKenzie, Alder & Cruickshank, 2013; Tomblin Murphy et al., 2013).

The Readiness to Collaborate Scale has now provided an evidence-informed tool to support testing the readiness of practitioners in order to help position organizations to best support successful team collaboration and meet the needs of their populations. It is therefore expected that results from the RCS may also support the need for resources that are committed to improving readiness of individual practitioners to participate in interprofessional teams. The RCS provides a tangible validated method to ensure that organizations can target their professional development exercises and policies for team development in ways that will best support individual practitioners who will eventually work together in them.

Given the understanding that high functioning and well-supported teams do improve outcomes and productivity across the healthcare system (West et al., 2002), testing the readiness of individuals prior to moving into a team is important. In the RCS, eight questions have been identified to measure readiness to collaborate. These eight questions have the greatest impact for the survey accounting for approximately 62% of the total variance of all questions in the survey. Collaborative team members encourage

each other to interact and to take part in group problem solving and decision-making activities. They work toward making decisions together by polling each other for better understanding of issues while at the same time, establishing norms for dealing with sensitive concerns. Team members observe each other and provide constructive feedback on how they are doing as individuals and as a team. Those who are ready to collaborate will engage in activities that will support change and manage challenges effectively together. These qualities and characteristics will help build positive relationships among team members (Reina et al., 2007; Thistlethwaite et al., 2014; Scotten et al., 2015). It is therefore important to gauge the level of individual readiness and individual attributes to collaborate in order to fully understand the varying areas of readiness among practitioners who will ultimately share tasks, resources, responsibilities and leadership.

The eight questions in the Readiness to Collaborate Scale aim to measure individuals readiness to engage in a collaborate team. Questions such as: Q8 ‘Patients ultimately benefit if health care practitioners work together to solve patient problems’ and Q4 ‘I acknowledge that there are others who may know more than me among my colleagues’ may provide insights to an individuals understanding and acceptance of team input and how it can benefit patients and improve health outcomes.

Factor 3: Readiness for Interprofessional Trust

This factor, Readiness for Interprofessional Trust was identified in the literature prior to the principal components analysis and validation and therefore, is being described first, prior to Factor 2.

Interprofessional trust figures prominently in studies that examine factors related to successful teams. However, looking at these attributes in the aggregate and not from an individual perspective only provides a picture of the team as a whole and not the individuals who make up the team and who may be contributing to the lack or presence of trust in the team. For example, some of the literature focuses on how trust among already assembled teams positively impacts outcomes (Lewin, 1951; Morrow, 1969; Goldman et al., 2010; Tomblin Murphy et al., 2013). The literature also addresses teams that do not have trusting and/or good communication between them and shows how this problem results in poor teamwork and lack of overall effectiveness (Smith, 2001; Farrell et al., 2015; Scotten et al., 2015).

Interprofessional trust is a key competency required for the success of the team and stems from knowledge of, and appreciation for, the contributions made by other team members (Hall, 2005, Sergeant, 2008, Suter, 2009; Campbell, 2014). Trust between individuals and other providers evolve as knowledge and understanding of competencies, skills and scopes of practice are gained. Trust is also essential to ensuring that the team functions efficiently and maximizes the contributions of all members (Reina, et al., 2007).

The RCS has identified nine questions aimed at gauging the readiness of an individual practitioner to trust and participate in an interprofessional team. Relationships must be strong and resilient in interprofessional teams. Individuals scoring high on questions such as Q21 ‘I can express to my colleagues when things they have suggested to do have not worked’ and Q25 ‘When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement’ demonstrate that they are secure in their

own practice and able to reach out to colleagues when needed. This requires a great deal of trust particularly if the other provider is not from the same profession.

Team members have an opportunity to be positive role models to support and inspire their colleagues as well as recognize and understand the contributions of each provider to the team. When scoring high on questions such as Q24 ‘I know that my colleagues are properly trained and are competent to do their job’ and Q26 ‘I am aware of the roles of all of my colleagues’, this points to individuals who are knowledgeable about what patients may need and with that knowledge are able to encourage their colleagues. An interprofessional team that is built with a group of professionals who are ready to trust will result in positive health and system outcomes (Reina et al., 2007; Varpio and Regehr, 2013; Strype et al., 2015). In a study by Wu et al., (2013), team conflict is negatively correlated with team effectiveness and team trust is the mediator between the two. According to their study, team conflict is harmful to team effectiveness but with team trust; the negative impact of overt conflict may be reduced (Wu Tiejun, Wang Wenjun, Bi Xin, & Liu Dianzhi, 2013). The researchers assert that if the team experiences a breakdown in collaboration, trust and communication, it will be trust that ‘glues’ the group together. Therefore, if individual professionals in the workplace are willing to respect their colleagues roles and scope of practice and believe in their contributions and clinical considerations regarding patient care, barriers to effective interprofessional trust can be overcome (Gilbert, 2005; Nolte, 2005; Wu et al., 2013).

Factor 4: Readiness for Interprofessional Communication

This factor, Readiness for Interprofessional Communication was identified in the literature prior to the principal components analysis and validation and therefore, is being described first, prior to Factor 2.

Effective communication is a key competency, which is fundamental to positive interprofessional collaboration. It has been linked to enhanced patient outcomes and positive working environments among staff (Morgan et al., 2014; Tomblin et al., 2013). Communication that is clear and unequivocal in interprofessional teams can be linked directly to reduced morbidity and mortality in some cases (Haerkens et al., 2015). Although communication principles are emphasized in many healthcare educational curricula as an important component of professional practice, actual practitioner interaction skills in team health care delivery remain relatively unstudied (Miller, Reeves, Zwarenstein, Beales, Kenaszchuk, & Conn, 2008). The same is true for readiness of team members to communicate together effectively. Despite an ever-growing interest in using interprofessional approaches to promote effective communication and collaboration among providers, few examples show how working toward effective communication and collaboration will benefit teams and organizations (Zwarenstein et al., 2007).

Organizations that choose to implement the RCS may find that many of the barriers among practitioners stem from poor interprofessional communication. Therefore, it is critical for organizations to be aware of how their staff communicate in general and how ready individuals are to communicate in an interprofessional team setting. The RCS, through a series of thirteen validated questions gauging both formal and informal

communication interactions will identify individuals who are not ready to enter into an interprofessional team and communicate effectively. With these results, organizations can effectively address these challenges with interventions prior to the team being assembled.

When scored high, questions such as Q33 'I look for opportunities to communicate with my co-workers' and Q34 'I am ready to solve clinical and/or system problems with my colleagues' demonstrate readiness regarding the skills and competencies needed in proactive communication in a team. Questions such as Q37 'I am able to clearly articulate my role and responsibility' and Q36 'When a patient makes a complaint that pertains to my practice, I am ready to address the issue openly and discuss with my colleagues how it can be avoided in the future' identify those who see communication within and among colleagues necessary to maintain their own professional integrity as well as the integrity of the team overall.

There are a variety of reasons why high quality interprofessional communication is necessary. Effective communication is related not only to what happens within the team, but also to how the team communicates with the organization, patients and other staff. Therefore, identification of barriers to interprofessional communication using the RCS should be seen by healthcare organizations as an effective and efficient use of time and resources. This is because without good and effective communication, system, provider and health outcomes of people may be in jeopardy (Borrill, 2000; Borrill, 2001; Reeves et al., 2008; San, Martin-Rodrigues, 2008; Tomblin Murphy et. al., 2009; Tomblin Murphy et al., 2013; Walker, & Vlahaki, 2013; Kozusznik, 2015).

Factor 2: Reluctance to Collaborate

The study has successfully identified a four-factor survey tool that includes the following: Readiness for Interprofessional Collaboration; Readiness for Interprofessional Communication; Readiness for Interprofessional Trust and Reluctance to Collaborate. The final factor was identified during the factor analysis in Phase II and was not expected when the study began. This factor accounts for approximately 34% of the variation in the survey (Appendix 16). This means that Factor 2 has the second highest amount of variance that contributes to the latent construct of readiness to collaborate in the tool based on eigenvalues of > 1 . Of the 11 questions that have been retained for this factor, only one has a positive loading while the remaining ten have negative loadings. This means, that if scored high on these ten questions, individuals would be considered *not* reluctant to collaborate. In other words, these ten questions are negatively related to Reluctance to Collaborate. The one question, Q18 'I prefer to work on my own and only consult when I need to' is positively loaded onto this factor, meaning that those who score high on this question could be considered reluctant to collaborate. This could only be determined along with the analysis of the rest of their scores across the other three factors. All in all, this factor can be used as a confirmation of the results of the other three factors. High scores on Factor 1, 3 and 4 can be confirmed by corresponding high scores on Factor 2, indicating an overall readiness to collaborate.

Interprofessional collaboration has been described as an opportunity to meet the demands of complex healthcare systems and organizations (Tomblin Murphy et al., 2013) through making best use of available resources and ensuring that all care providers work to the full extent of their scope of practice. However, interprofessional collaboration is

often seen as a potential threat to professional autonomy (Ontario College of Family Physicians, 2008). Reluctance to collaborate can be attributed to a variety of issues that create difficulties within teams and negatively influence individual's interest in participating in teams (Brown, Smith, Stewart, Trim, Freeman, Beckhoff, & Kasperski, 2009). Some research states that maintaining and sustaining interprofessional teams is more difficult and cumbersome than beneficial due to the challenges of collaborating effectively (San Martin-Rodriguez et al., 2005; Jansen, 2008; Kvarnstrm, 2008; Richter et al., 2011; Valentine et al., 2015). Some teams that are created by accident and/or by professional agenda alone are often dysfunctional with poor communication and rising resentments between team members (Kavanagh, S., and Cowan J., 2004).

Kvarnstrm (2008) studied the difficulties perceived by health professionals in interprofessional teamwork. The main findings of the study showed the various difficulties that teams experienced when individual members of the team were acting in their professional silo as opposed to working together. The author found that when members did not collaborate, available resources such as funding for continuing team based education that aimed to assist and strengthen teams, were not used; ultimately adversely affecting an overall team based approach to patient care (Kvarnstrm, 2008). The authors noted that teams such as these had difficulties coming to agreement on patient care. This type of difficulty could impact individuals' willingness to participate in a team. Amante et al., (2013) examined the willingness of university academic faculty to work with librarians. A tool called the 'Librarian-Library/Faculty Relationship Model' was used to demonstrate the areas of most relevance in the collaborative relationship. Their study confirmed that 14% of the willingness of faculty to collaborate with

librarians could be attributed to some key attributes of faculty. These included: gender, age, department, profession, and the length of career (Amante, M., Extremerio, A., & Da Costa, A. 2013). Of interest, no interpersonal variables were noted such as communication style. Based on Amante's study (2013) it may be assumed that variables such as professional designation and length of career can be attributed to the trustworthiness of an individual based solely on their experience. Therefore individuals who do not have the breadth and depth of experience others in the team have may result in a reluctance to collaborate. The identification of this unexpected factor called Reluctance to Collaborate in the new tool is therefore an important contribution to the body of knowledge concerning the willingness for interprofessional collaboration.

Another study set out to identify factors that influenced willingness to collaborate between practitioners who worked in HIV research (Pinto, 2013). Results showed that perceptions of researchers' availability, benefits of the research and the preparedness of the agency doing the research were associated with overall willingness to engage and pursue HIV prevention research. These findings supported the fact that researchers need to be available professionally and socially and that the research that is being conducted needs to be beneficial to both the research community and the end user. Finally, the authors state, that agencies must be well resourced to ensure that research activities may be carried out successfully. This last point is important as it speaks to the leadership that organizations need to provide in terms of supporting successful innovation and research activities. One possible way organizations can provide this type of support and leadership is ensuring their research teams are ready to collaborate and not reluctant to work together before embarking on their projects. The RCS is an instrument that would

address this prior to teams being assembled and resources being applied to costly projects and initiatives.

New Factor Definition: Reluctance to Collaborate

A new definition for the fourth new factor has been developed “Reluctance for Interprofessional Collaboration”. This definition is the same as Readiness for Interprofessional Collaboration with slight modifications:

Lack of preparedness, awareness, respect and/or interest by a professional to act cooperatively and interdependently with other professionals in an interprofessional team.

This final factor is of particular interest as it adds a dimension to the tool; strengthening what can be determined from an individual’s score on ‘readiness to collaborate’, ‘readiness to trust’ and ‘readiness to communicate’. With a high score on the ‘Reluctance to Collaborate’ factor, it is expected that there will be corresponding high(er) scores on the other three factors, indicating a willingness to collaborate. Conversely, with a low score on ‘Reluctance to Collaborate’, it will be expected that there will be low(er) scores on the remaining factors. For example, if a respondent gives a low score on Q12 ‘Interprofessional collaboration will improve my ability to understand clinical problems’ (Factor: Reluctance to Collaborate) and a low score on Q24 ‘I know that my colleagues are properly trained and are competent to do their job’ (Factor: Readiness for Interprofessional Trust), it can be assumed that this individual may not trust enough and/or be ready and willing to enter an interprofessionaol team. If a respondent provides a high score on Q9 ‘Interprofessional teams help build professional

relationships' (Factor: Reluctance to Collaborate) and a corresponding high score on Q40 'I look for opportunities to communicate with my co-workers' (Factor: Readiness for Interprofessional Communication), it may be considered that this individual is more prepared and willing to enter into an interprofessional team. Some other questions in the Reluctance to Collaborate factor point to the level of trust and overall knowledge an individual possesses regarding their colleague's abilities. If an individual scores low on questions such as Q15 'I am able to implement an order from a team member of another discipline' and low on Q17 'I would feel comfortable with another professional (same or different profession than mine), knowing more than me on a subject matter' (Reluctance to Collaborate) and low on Q25 'When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement' (Readiness for Interprofessional Trust), this may potentially point to a lack of trust and ultimately a reluctance to collaborate.

All in all, it will be the comparison of the scores of Factor 2: Reluctance to Collaborate to the other factors that will also help to assess readiness. Although some individuals may have low scores on Factor's 1, 3 and 4 showing lack of readiness in one of those three areas, the score on Factor 2 will help to identify overall interest or reluctance to collaborate, helping determine the best intervention to support readiness if necessary. By identifying these individuals, organizations will have a better idea of where potential challenges with the future team may occur. In order for interprofessional teams to be successful, individual team members must see that collaboration with their colleagues will enhance their work as well as their work environment. Additionally, they must see that effective and ready team members will further improve the outcomes for patients, the system and the team as a whole (Zwarenstein et al., 2007; Tomblin

Murphy et al., 2013). Implementation and use of the new RCS has potential to address those who are reluctant to collaborate and identify their individual challenges so that focussed interventions may be implemented prior to the team being assembled.

3. Will a group that has demonstrated excellence in interprofessional teaming, show higher scores in interprofessional collaboration, communication and trust versus groups that are considered lower functioning as an interprofessional team?

Concurrent validity has revealed clearly that when comparing two group's responses to Borrill's (2001) five questions, determining the level of team functioning, there is a difference in scores on the new RCS. Criterion validation has shown there is a correlation between readiness to collaborate and quality of teams ie: those working in good teams have higher readiness scores. Those respondents that answered 'yes' (participating in high functioning teams) to all questions and those who answered 'no' (participating in low functioning teams) to all questions showed a significant difference in readiness when compared to one another. Scores for high functioning team members (M= 209.8, SD= 11.8) and low functioning team members (M= 196.8, SD= 15.0) demonstrated a p value = .001. This indicates that the tool may accurately distinguish between those who are more ready to collaborate than others.

Borrill et al., (2000) showed functioning healthcare teams are identified by their ability to work together to meet clear objectives while at the same time, focus on innovation and quality health outcomes for their patients. The authors have also shown that high functioning teams demonstrate innovative solution building that often results in better ways to deliver care. Tomblin Murphy (2013) showed that functioning teams had

improved productivity among all staff, fewer re-admission rates and less overtime logged. In 2001, Borrill et al. published the findings of a subsequent study that confirmed roles of team members in effective teams. Examining levels of communication, decision-making and leadership among team members, Borrill demonstrated that functioning teams influenced team effectiveness overall (Borrill, C.S., 2001).

Using Criterion Validation, respondents who scored 'Yes' on all five questions (high functioning) were compared to those who scored 'No' (low functioning) on all the questions. Results showed that there was a significant difference between the two groups. From these results, it can be concluded that approximately 24% of respondents are or have been involved in a team that is considered to be fully functioning (Borrill, 2001). This would mean, according to Borrill, that these individuals were involved in teams that had a clear sense of what their objectives are/were; they work with other team members regularly; they perceive that roles and responsibilities differing among team members; they consider their team as modeling effective team dynamics and; as a result of modeling good team dynamics, they believe they have a positive impact on the organization as a whole which would include improved organizational efficiency and effectiveness (Borrill, 2001). Conversely, approximately 16% of the respondents were unable to answer yes to even one of Borrill's questions; indicating they are not, nor ever were, involved in a functioning team. What has not been determined is if there is a causal relationship between working in a good team and being ready to collaborate versus working in a poor team and not being ready to collaborate. This may be proven when tested in the field.

Functioning teams are an important factor in system and provider productivity (Borrill et al., 2000; O'Toole, Cabral, R, Blumen and Blake, 2011; Tomblin Murphy et al., 2013). Team based care has consistently been associated with improved clinical outcomes and as such, having a team that is ready and prepared to work together is critical. However, strategies for identifying, promoting and sustaining a team based approach in practice are less researched. This tool aims at supporting the research and adding to the body of knowledge through the identification of readied practitioners to participate in an interprofessional team.

The Conceptual Framework and the New Tool

The study along with the newly developed and validated RCS has been informed by and aligned with the Conceptual Framework for Health Human Resources and System Planning (O'Brien-Pallas, Tomblin Murphy, Birch and Baumann, 2001). The framework clearly shows that effective health human resources planning is supported by good system policies and programs as well as quality education and training. From this, successful deployment and appropriate use of the health workforce can be realized. Successful interprofessional teams, deployed into the health care system, require the same supports. They need to be supported within their organization, not only when assembled but prior to coming together. Organizations can assist by making continuing education and specific interventions available such as interprofessional educational rounds and joint policy and procedural development.

There are relationships between the Conceptual Framework and the new RCS. The new tool integrates current knowledge of interprofessional team building and the

Conceptual Framework effectively by demonstrating that readied interprofessional teams are best deployed throughout the healthcare system through supportive interventions, policies and programs that encourage interprofessional team based care. Ready and effective teams will then result in improved patient, provider and system outcomes by ensuring the right number and mix of providers are prepared to work in strong and truly collaborative teams (O'Brien-Pallas et al., 2001; Tomblin Murphy et al., 2010). It is important that factors contributing to successful interprofessional collaboration be understood. As disciplines work together to achieve common goals and healthcare organizations and policy makers strive to ensure a productive and effective healthcare system that meets the needs of people, care delivered by ready to collaborate interprofessional teams is critical (Tomblin Murphy et al., 2010). Through this study, factors that include readiness for interprofessional collaboration, trust and communication as well as reluctance to collaborate figure prominently as key components for successful and productive teams.

The Utility of Readiness to Collaborate Scale in Industries other than Healthcare

Through this study, a new tool to test readiness for interprofessional teaming has been validated with a group of low-risk obstetrical practitioners. The question of whether this tool may also be useful in other industries has also been explored with respect to the literature. For example, identifying readiness to collaborate in the business management sector or academic sector may be a worthwhile exercise to enhance productivity in those industries. Brandt et al., (2015) completed a study examining health center leadership and partnerships with academic centres for health research projects. The authors found that

organizational benefit, active engagement of staff, and clear roles for partners were important factors for successful partnerships. They found that improved patient outcomes, additional resources for the center and academic partnerships were considered benefits of collaboration (Brandt, Young, Campbell, Choi, Seel, Friedman, 2015).

Continued research on readiness to collaborate and its effect on system outcomes will help to increase knowledge and understanding of collaborative practice beyond the healthcare industry. The RCS may be of benefit to determine what qualities are needed to have successful collaborative teams across different types of industries. The construction and validation of this new scale is an important step toward that goal.

Implications for Health System

Throughout the health care system and many healthcare organizations, there has been a great deal of interest in the role of individual practitioners and the teams they work in (LePine, 2003; Atwal and Caldwell, 2005; Tomblin Murphy et al., 2010; Tomblin Murphy et al., 2013). More importantly, there is a growing interest in how teams are structured in organizations and how they work interdependently to accomplish outcomes that are attributable to the team rather than the individuals who compose it (Tomblin Murphy et al., 2010). Unfortunately, findings from research on the relationship between individual team members and the overall team effectiveness have neither accumulated nor been analyzed well (LePine, 2003). The way a team is composed has been long thought to have a powerful influence on how the team functions and how effective it is in the system. Team processes and outcome criteria such as communication, conflict,

accuracy of decisions and productivity have been used to reflect function and effectiveness (Heslin, 1964; Kozlowski and Bell, 2003).

In their study, Grando (2011) found that many of the professionally trained healthcare staff that included nurses, doctors and other healthcare providers spent a high proportion of their time doing things that did not require their expertise (Grando 2011). “These issues need to be addressed in order to optimize the relationships between staff, clarify the roles of team members and ensure service users receive the most appropriate care from the most appropriate practitioner” (Grando, 2011, p. 2). Many of these conflicts and issues arise due to healthcare professional being unable to determine the appropriate way to collaborate. (Tomblin Murphy et al., 2010). Chung et al (2012), support this further in their review of the literature. They found that leadership and funding from decision makers is needed to promote better collaborative team functioning

The themes emerging from the literature suggest that successful collaborative relationships between health professionals require ongoing supportive interventions from engaged organizations that are aimed at improving the effectiveness of joint working in healthcare teams (Chung, V., Ma, P., Hong, L., Griffiths, S., & Baradaran, H. 2012). Haddara and Lingard in their paper titled “*Are We All on the Same Page? A Discourse Analysis of Interprofessional Collaboration*” (2013), emphasize the issue of power and the goal of equalizing the hierarchy often found in healthcare systems and particularly in some clinical teams. They discuss shared leadership models and tools for measuring interprofessional collaboration (Haddara, W., & Lingard, L. 2013). This clearly supports the use of this newly developed tool in helping to bring awareness to individuals about their readiness to participate in an interprofessional team and the value and contribution

of other health providers in their team regardless of professional designation. Li et al (2015) furthers the discourse by pointing out that, because teams are composed of individuals who collectively contribute to team success, research tends to focus on how teams perform overall while often overlooking the potential unique characteristics of individual members on team outcomes (Li, N., Zhao, H., Walter, S., Zhang, X., Yu, J., & Chen, Gilad. 2015).

In order for organizations to adopt the RCS and then, in turn, pursue new strategies that will support or enable individual practitioners to better collaborate in an interprofessional team, implementers of change and decision-makers need to jointly identify the desirable future of the organization, the interprofessional team and the healthcare needs of their population. Adopting the RCS will require organizations to develop internal knowledge about their vision and direction for interprofessional collaborative teams and what types of interventions will be required when administering the tool. Better understanding of these impacts will help organizations and their decision-makers to anticipate the possible barriers to implementation (Oliver, Everett, Verma and de, 2012). However, at this point in time, little evidence has emerged to indicate that policymakers have examined or even developed methods that might help the implementation of interprofessional collaboration (San Martin-Rodriguez et al., 2005; Zwarenstein, Reeves and Perrier, 2005; Weiner, 2009). This is despite the fact that health service integration and interprofessional team development is seen as one of the most desirable components for consumers to access the healthcare team member of their choice (Leatt et al., 2000; Oandasan et al., 2006).

The funding of professional healthcare services as well as the non-financial resources to sustain interprofessional team efforts are two important areas for policymakers and decision-makers to focus on. Although interprofessional collaboration has been promoted throughout the literature as a valid solution to address complex health and social care issues, implementation challenges still exist for policy and decision makers. In some cases, the lack of cost benefit analysis has also been linked to the difficulty of promoting interprofessional service delivery and policy change (Jansen, 2008). Although economic influences can contribute to the lack of uptake of new policies, it should be noted that the provision of funding does not always enable team structures and processes to succeed (Jansen, 2008). For example, health service organizations across Canada have been funding the implementation of healthcare teams for more than thirty years. However, collaborative interprofessional team practice has not been central to these efforts and interprofessional team practice has not been successful (Allan & Hecht, 2004; Jansen, 2008; Putnam, Ikeler, Raup, & Cantu, 2014; Gucciardi, Espin, Morganti, & Dorado, 2016). Tomblin Murphy and Mackenzie (2013) argue that it is imperative for healthcare planners to consider all policy implications when making decisions and developing service delivery policy that addresses the needs of people and communities (Murphy, G., & Mackenzie, A., 2013). The authors point out however, that it is often the status quo that drives most health system policy regardless of the number of innovations in care delivery redesign that have been developed and evaluated (Tomblin Murphy et al., 2009; Tomblin Murphy et al., 2010). Additionally, the importance and necessity of interprofessional collaboration presents challenges for educators as they determine how best to achieve interprofessional collaboration through interprofessional

education (Gilbert, 2005; Mann, 2008; Martínez-Fernández et al., 2011; Shoemaker, M., De Voest, M., Booth, A., Meny, L., and Victor, J., 2015). Simulation-based teaching has been shown to enhance students understanding of professional roles and promote positive attitudes toward team members, however, the evidence to provide direction on necessary conditions to support interprofessional outcomes is lacking (Santos, Caetano, & Tavares, 2015). Educators may consider the tool as a mechanism to determine where best to focus training activities and programs during the practice portion of health professional training.

Limitations and Strengths

Limitations of this study include: focus only on validation of the tool (it has not been tested in the field) and to a lesser extent, missing data and sample size. According to Sainani (2015), single imputation methods such as using the mean variable is justified if there is less than 10% missing data. The missing data is attributed to the nine respondents who did not complete the survey. This data is missing completely at random; missing data comes from a random selection of the complete complement of subjects (n=140) (Donders, van der Heijden, Stijnen, & Moons, 2006).

It appears that the majority of the missing data occurred towards the end of the survey. From Q32 to the end of the survey, the numbers of missing answers varied from eight to twelve per each of the nine participants who did not answer. As there are no questions of an overt personal nature that are placed at the mid point to end of the questionnaire, it can be assumed that it was not the question being avoided, but instead fatigue in completing the survey (Egleston, Miller, Meropol, 2011). The final survey will

have 41 readiness questions that may help to reduce survey fatigue. Even though the missing data are attributable to nine respondents and occur primarily at the end of the survey, analysis using the mean of the variable is a limitation to the study. Through criterion validation, the study has only been able to demonstrate concurrent validity with a group of self-identified high functioning team participants (Borrill, 2000). Predictive validity will be tested when the tool is used in the field. Strengthening the validation of the new tool will be achieved by testing and re-testing, on larger groups with a greater range of healthcare providers, with measures at intervals along a time continuum, to ensure the tool remains stable and constructs remain strong. Regarding sample size, although not entirely inadequate, the sample may be slightly small. According to Gaskin and Happell (2014) a sample size of between 100 and 130 is needed when the factors have eight to ten variables each. Factor 1 has eight variables whereby Factors 2, 3, and 4 have eleven, nine and thirteen respectively.

There are inherent limitations and challenges with any self-evaluation (Halverson, Wall, Michie, Atwater & Yammarino, 1992; Patterson & Wood, 2004; Tonidandel, Barlow & Dipboye, 2005; Dai & De Meuse, 2008; Fleenor, Smither, Atwater, Braddy & Sturm, 2010; Holden & Passey, 2010; Gu, Wen, & Fan, 2015). For the RCS, there may be reasons why individual respondents rate themselves higher than their true beliefs. This higher rating could be due to ego and/or self-protective needs. Whatever the reason, users of the new RCS must be aware of this consideration when analysing the results of the behavioural questions. The questions are geared toward the individual's potential experience and perspective of entering into and participating in a team. For example, questions such as Q8 'Patients ultimately benefit if health care practitioners work

together to solve patient problems’ and Q13 ‘Interprofessional collaboration will help me come up with better clinical solutions for my patients than I would do independently’ attempt to gauge the respondents’ thoughts about how the team may function in their ideal world. There are some questions, however, that ask for a respondent’s thoughts on her/his existing behaviour such as Q23 ‘I can share information freely with my colleagues about clinical challenges I have’ and Q20 ‘I freely accept help and ideas from my colleagues that will enable me to do a better job’ that may pose issues such as over rating her/his true behaviour and thoughts in order to ensure they are not seen as poor potential participants. However, in order to ameliorate this issue, the new tool has identified a new Factor i.e. Reluctance to Collaborate. These questions, when assessed within the context of the whole survey, may reveal a more accurate picture of the respondent’s readiness to collaborate in an interprofessional team.

Another limitation of this new tool may reside in the interpretation of results when implemented. If a subject is ready, but believes her/his co-workers are not, responses may be skewed. For example, if Q23 ‘I can share information freely with my colleagues about clinical challenges I have’ is answered with a low score (disagree), the respondent may be reflecting on their current working environment and the people they are working with. In other words, it may be an overarching issue of trust that prevents the respondent from wanting to share clinical challenges, not a reluctance to trust or collaborate. This issue may be resolved with a message provided by the organization administering the RCS stating ‘Please answer these questions assuming your working environment and co-workers are, in your opinion, willing to collaborate’.

If using the tool in other industries separate from healthcare, further research to ensure the validity of the tool for those industries will need to be conducted. This will be most important if some questions need altering to meet the industry context (Juniper, 2009). For example, Q12 'Interprofessional collaboration will improve my ability to understand clinical problems' may need to be changed by eliminating 'clinical' and instead use a term that fits the industry such as 'business' for the corporate world. Finally, this tool was validated only with a group of obstetrical practitioners who provide low risk obstetrical care. However, it is fully anticipated that it would be of benefit for any healthcare provider groups or potentially non-healthcare group, looking to gauge their readiness to enter successfully into an interprofessional collaborative team.

Interprofessional collaboration is advocated throughout the literature; however, very little work to date has been conducted that examines factors required to be ready for collaboration. The strength of this study lies in the unique area of investigation; determining readiness to collaborate in an interprofessional team. Additionally, this new tool has been validated through content, construct and criterion methodology, ensuring that it is a valid tool for use in the healthcare setting. The ability to collaborate, communicate and trust has been identified as a key success factors across a variety of industries (Gordon, 2006; Kosni et al., 2007; McKeel, 2012; Tomblin Murphy, MacKenzie, Alder, Langley, Hickey & Cook, 2013; Clay-Williams et al., 2014; Haerkens et al., 2015). Given that the new RCS provides constructs that are generalizable in most industries concerned with team based working, research or simple day-to-day activities, leaders and decision makers may find using it advantageous in strengthening their staff and overall productivity across a variety of industries.

Overall, the RCS has a high probability of both being used and bringing helpful insights about an individual's readiness to collaborate in an interprofessional team.

Future Research

Future research may include testing this tool across of number of different acute and/or community based healthcare settings, for example, mental health and/or chronic disease management. Subsequent results could be analyzed and interventions implemented, such as interprofessional case reviews that aim to enhance interprofessional understanding and potentially address individual issues pertaining to reluctance to collaborate, trust and/or communicate with other care providers. When the intervention(s) is complete and the team is finally assembled, the survey could be administered once again to identify improvement, and the impacts of the intervention on interprofessional team functioning.

A positive and supported interprofessional team approach will enable practitioners from different disciplines to share unique perspectives and achieve common goals (Lumague M, Morgan A, Mak D, et al., 2006; Li, N., Zhao, H., Walter, S., Zhang, X., Yu, J., & Chen, Gilad. 2015). Therefore, by examining the readiness of individuals who will make up an interprofessional team, better and more successful outcomes may be realized. Positive outcomes include improved patient health, system and provider outcomes (Tomblin Murphy et al., 2013). It is suggested that when organizations and individual practitioners recognize that interprofessional collaboration is more beneficial than individual efforts, outcomes will improve. Individuals that are ready to collaborate will contribute to successful team outcomes and will assist in reducing costly efforts

aimed at fixing broken teams (Tomblin Murphy et al., 2013; Chung et al., 2012). Additionally, those individuals who have been identified as not ready prior to joining a team can benefit from professional development interventions aimed at improving ability to collaborate, communicate and trust (Chung et al., 2012). Professionals are not necessarily prepared through their education or socialization in the work environment to participate in ways that characterize collaborative practice. Leaders should reflect on their efforts to support interprofessional teams and consider the factors that contribute to optimizing the readiness of the team that includes interprofessional collaboration, communication and trust as well as the identification of those who are reluctant to collaborate overall.

Review of the literature indicates that there are no existing survey tools available to measure the readiness of individual practitioners to enter interprofessional collaborative practice in the healthcare field. Based on the available literature concerning team effectiveness, this new tool has added to the body of interprofessional collaborative research and has relevance and utility in the healthcare system by offering a way for individuals and organizations to identify readiness for interprofessional team participation. Furthermore, the RCS, with some minor adjustments, may also be used in other industries to determine readiness to collaborate. By understanding the readiness of practitioners to participate in teams prior to assembly may position the team for success at the outset as opposed to implementing potentially costly interventions to ‘fix’ problems once the team is formed.

Summary: Through an extensive literature review, and examination of existing tools both within healthcare and within industries outside of health care, it appears no such instrument exists to test the readiness of individuals to enter and participate in a team. Given the importance of team composition and contribution in most industries, ensuring that participants are ready prior to entering the team, wherever that may be, is relevant and so too would be testing their readiness with the Readiness to Collaborate Scale. Embracing cooperation rather than competition between various healthcare provider groups and building solid interprofessional collaborative teams can have a positive impact on patients, providers and systems (Tomblin Murphy et al., 2010).

REFERENCES

- Abdullah Promise Opute. (2012). Maximizing effectiveness in team sports: The personal audit tool. *Team Performance Management*, 18(1/2), 78-101.
- Aday, Lu Ann & Cornelius, Llewellyn J. (2006). *Designing and Conducting Health Surveys – A comprehensive guide*. (3rd ed.)
- Advisory Committee on Health Delivery and Human Resources (ACHDHR) (2005). *A Framework for Collaborative Pan-Canadian Health Human Resources Planning*. Available at: http://www.hc-sc.gc.ca/ahec-asc/alt_formats/ccs-scm/pdf/public-consult/col/hhr-rhs/PanCanHHR_Framework_sept-05_e.pdf
- Albright, T., Gerber, C., & Juras, P. (2014). How Naval Aviation Uses the Balanced Scorecard. *Strategic Finance*, 96(4), 21-28.
- Alexander JA, Lichtenstein R, Jinnett K, et al.. Cross-functional team processes and patient functional improvement. *Health Serv Res*. 2005;40:1335–1355.
- Allard, M., Jelovac, I., & Leger, P. T. (2011). Treatment and referral decisions under different physician payment mechanisms. *Journal of Health Economics*, 30, 5, 880-893
- Allen, N., & Hecht, T. (2004). The ‘romance of teams’: Toward an understanding of its psychological underpinnings and implications. *Journal of Occupational and Organizational Psychology*, 77(4), 439-461.
- Alvarez, V., & Adelman, H. (1986). Overstatements of self-evaluations by students with psychoeducational problems. *Journal of Learning Disabilities*, 19(9), 567-71.

- Amabile, T., Patterson, C., Mueller, J., & Wojcik, T. (2001). Academic-practitioner collaboration in management research: A case of cross-profession collaboration. *Academy of Management Journal*, 44(2), 418-431.
- Amante, M., Extremeño, A., & Da Costa, A. (n.d.). Modelling variables that contribute to faculty willingness to collaborate with librarians: The case of the University Institute of Lisbon (ISCTE-IUL), Portugal. *Journal of Librarianship and Information Science*, 45(2), 91-102.
- Amatayakul, M. (2005). EHR Assess readiness first. *Healthcare Financial Management; Journal of the Healthcare Financial Management Association*, 59(5), 112-3.
- American College of Nurse-Midwives. (2010). Retrieved from <http://www.healthfinder.gov/orgs/HR1288.htm>
- An Gie Yong, & Sean Pearce. (2013). A Beginners Guide to Factor Analysis: Focusing on Exploratory Factor Analysis. *Tutorials in Quantitative Methods for Psychology*, 09(2), 79-94.
- Anderson, Neil R., West, Michael A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. *Journal of Organizational Behavior*, 19, 235-258.
- Anonymous. (2015). Naval Aviation Enterprise Tackles Readiness Challenges. *Naval Aviation News*, 97(1), 22-25.
- Armenakis, A. A., & Bedeian, A. G. (1999). Organizational change: A review of theory and research in the 1990s. *Journal of Management*, 25, 293-315.
- Armenakis A. A., Harris S. G., & Mossholder K.W. (1993) Creating readiness for organizational change. *Human Relations* 46:681-703

- Atwal, A., and K. Caldwell. 2005. Do all health and social care professionals interact equally: A study of interactions in multidisciplinary teams in the UK. *Scandinavian Journal of Caring Sciences* 19: 268–73.
- Atwater, L. E., & Yammarino, F. J. (1992). Does self–other agreement on leadership perceptions moderate the validity of leadership and performance predictions? *Personnel Psychology*, 45, 141–164.
- Australia. Department of Education, Science & Training. *Midwifery education: Literature review and additional information*. (Internet) Australia: Department of Education, Science & Training, 2001. (<http://www.dest.gov.au/archive/HIGHERED/nursing/pubs/midwifery/10.htm>)
- Australian Nursing and Midwifery Council. (2006). *National Competency Standards for the Midwife*.
- Avery, M.D. (2005). The history and evolution of the core competencies for basic midwifery practice. *Journal of Midwifery & Women's Health*, 50(2), 102-107. doi:10.1016/j.jmwh.2004.12.006
- Bachman, D.H. & Furlong-Lind, R. (1997). Perinatal social work and the high risk obstetrics patient. *Social Work in Health Care*, 24(3), 3-19.
- Bailey D (2004) The contribution of work-based supervision to interprofessional learning on a masters programme in community mental health. *Active Learning in Higher Education*, 5 (3), 263-278.

- Baldwin, M., Hashima, J.M., Guise, W.G., Edelman, A. & Segel, S. (2010). Patient-centred collaborative care: The impact of a new approach to postpartum rounds on residents' perception of their work environment. *Journal of Graduate Medical Education*, 2 (1), 67-72. doi:10.4300/JGME-D-09-00058.1
- Bandura, A. (2000). Exercise of Human Agency Through Collective Efficacy. *Current Directions in Psychological Science*, 9, 3, 75-78.
- Banfield, V. & Lackie, K. (2009). Performance-based competencies for culturally responsive interprofessional collaborative practice. *Journal of Interprofessional Care*, 23(6), 611-620. doi:10.3109/13561820902921654
- Barnett, R., White, S. & Horne, T. (2002). *Voices from the frontlines: Models of women-centered care in Manitoba and Saskatchewan*. (www.pwhce.ca)
- Barr, H. (1998). Competent to collaborate: Towards a competency based model for interprofessional education. *Journal of Interprofessional Care*, 12(2), 181-187.
- Barr, H., Koppel, I., Reeves, S., Hammick, M., & Freeth, D. S. (2005). *Effective interprofessional education: Assumption, argument and evidence*. London: Blackwell Science.
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1-26.
- Bateman, B., Wilson, F. C., & Bingham, D. (April 03, 2002). Team effectiveness - development of an audit questionnaire. *The Journal of Management Development*, 21, 3, 215-226.

- Beck, C. T., & Polit, D. F. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health, 29*(5), 489-97.
- Beck, C. T., Owen, S. V., & Polit, D. F. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health, 30*(4), 459-67.
- Belanger, E. & Rodriguez, C. (2008). More than the sum of its parts? A qualitative research synthesis on multi-disciplinary primary care teams. *Journal of Interprofessional Care, 22* (6). 587-597. doi: 10.1080/13561820802380035
- Benjamin, Ramirez Heller, Rita, Berger, & Felix, C. Brodbeck. (2014). Does an Adequate Team Climate for Learning Predict Team Effectiveness and Innovation Potential? A Psychometric Validation of the Team Climate Questionnaire for Learning in an Organizational Context. *Procedia - Social and Behavioral Sciences, 114*, 543-550.
- Bertalanffy, Ludwig von (1950). The theory of open systems in physics and biology. *Science, 111*: 23–8.
- Bertalanffy, Ludwig von (2001). *General System Theory – Foundations, Development, Applications*, 13th printing of revised ed. New York: George Braziller, Inc.
- Bethea, D. P., Holland, C. A., & Reddick, B. K. (2014). Storming the gates of interprofessional collaboration. *Nursing Management (Springhouse), 45*(9), 40-45.

- Bhutta, Z. A., Das, J. K., Bahl, R. E., Lawn, J. J., Salam, R. B., Paul, V., . . . Walker, N. (2014). Can Available Interventions End Preventable Deaths in Mothers, Newborn Babies, and Stillbirths, and at What Cost? *Obstetrical & Gynecological Survey, 69*(11), 641-643.
- Bilodeau, K., Dubois, S., & Pepin, J. (2015). Interprofessional patient-centred practice in oncology teams: Utopia or reality? *Journal of Interprofessional Care, 2015, Vol.29*(2), P.106-112, 29(2), 106-112.
- Biringer, A., Macted, J., and Graves, L., (2009). Family Medicine Maternity Care: Implications for the Future – A Discussion Paper of the Maternity and Newborn Care Committee. *The College of Family Physicians of Canada*.
- Bonanno, G. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist, 59*, 72–82.
- Borrill, C. S. (2001). The effectiveness of health care teams in the National Health Service: Report. Aston: University of Aston.
- Borrill, C., West, M., Shapiro, D., & Rees, A. (2000). Team working and effectiveness in health care. *British Journal of Health Care Management, 6*(8), 364-371.
- Brandt, H., Young, V., Campbell, D., Choi, S., Seel, J., & Friedman, D. (2015). Federally Qualified Health Centers' Capacity and Readiness for Research Collaborations: Implications for Clinical-Academic-Community Partnerships. *Clinical and Translational Science, 8*(4), 391-3.

- British Columbia Women's Hospital & Health Centre Maternity Care Enhancement Project. (2004). *Supporting local collaborative models for sustainable maternity care in British Columbia recommendations*. Retrieved from http://www.health.gov.bc.ca/library/publications/year/2004/mcep_recommend_de c2004.pdf
- Brown, C. A. (2006). The application of complex adaptive systems theory to clinical practice in rehabilitation. *Disability & Rehabilitation, 28*, 9, 587-593.
- Brown, J.B., Smith, C., Stewart, M., Trim, K., Freeman, T., Beckhoff, C. & Kasperski, J.M. (2009). Levels of acceptance of different models of maternity care. *Canadian Nurse, 105* (1), 19-23.
- Cacioppe, R., & Stace, R. (2009). Integral team effectiveness: validity analysis of a theory-based team measure. *Team Performance Management, 15*, 220-234
- Cameron, K.S. & Quinn, R.E. (2006). *Diagnosing and changing organizational culture: Based on the competing values framework*. San Francisco, CA: Jossey-Bass.
- Campbell, C. (January 01, 2014). Interprofessional communication and teambuilding using applied improvisational exercises. *Creative Nursing, 20*, 2, 116-21.
- Canadian Association of Midwives. (2008). *Midwifery in Canada.*, Retrieved from <http://www.canadianmidwives.org/htm>
- Canadian Association of Midwives. (2012-2013) Annual Report. (<http://www.canadianmidwives.org/annual-reports.html>)
- Canadian Institute for Health Information (2012). *Regulated Nurses: Canadian Trends, 2007 to 2011*

- Canadian Institute for Health Information (2004). *Giving Birth in Canada: Providers of Maternity and Infant Care*.
- Canadian Interprofessional Health Collaborative (2009) Program Evaluation for Interprofessional Initiatives: Evaluation Instruments/Methods of the 20 IECPCP Projects. A report for the Evaluation Subcommittee
- Canadian Interprofessional Health Collaborative. (2010). National interprofessional competency framework - Quick reference guide. Retrieved from http://www.cihc.ca/files/CIHC_IPCompetenciesShort_Feb1210.pdf
- Canadian Midwifery Regulators Consortium. (n.d.) *The competent manager: A model for effective performance Canadian competencies for midwives*. Retrieved February 1st, 2010 from <http://cmrc-ccosf.ca/node/2>
- Cantu, C., Beyerlein, Michael, Kelly, Kimberly, Robinson, Karen, & Taylor, Daniel. (2007). Evaluating team effectiveness: Examination of the TEAM Assessment Tool.
- Cao, X., Chen, L., Diao, Y., Tian, L., Liu, W., & Jiang, X. (2015). Validity and Reliability of the Chinese Version of the Care Transition Measure. *PLoS ONE*, 10(5), e0127403. doi:10.1371/journal.pone.0127403
- Careau, Brice, Houle, Dumont, Vincent, & Swaine. (2015). Interprofessional collaboration: Development of a tool to enhance knowledge translation. *Disability & Rehabilitation*, 2015, Vol.37(4), P.372-378, 37(4), 372-378.

- Cassidy, G., Martin, D.M., Martin, G.H.B., & Roy, A. (2002). Health checks for people with learning disabilities: Community learning disability teams working with general practitioners and primary health care teams. *Journal of Learning Disabilities* 6(2), 123.
- Chamberlain-Salaun, J., Mills, J., & Usher, K. (2013). Terminology used to describe health care teams: An integrative review of the literature. *Journal of Multidisciplinary Healthcare*, 6, 65-74.
- Chan AK, Wood V., 2010. Preparing tomorrow's healthcare providers for interdisciplinary collaborative patient-centered practice today. *UBCMJ*. 1(2):22-24.
- Chen, Chia-Wei, Chu, Hsin, Tsai, Chia-Fen, Yang, Hui-Ling, Tsai, Jui-Chen, Chung, Min-Huey, . . . Chou, Kuei-Ru. (2015). The reliability, validity, sensitivity, specificity and predictive values of the Chinese version of the Rowland Universal Dementia Assessment Scale. *Journal of Clinical Nursing*, 24(21-22), 3118-3128.
- Choi, M., & Ruona, W. E. A. (2011). Individual readiness for organizational change and its implications for human resource and organization development. *Human Resource Development Review*, 10, 1, 46-73.
- Chung, V., Ma, P., Hong, L., Griffiths, S., & Baradaran, H. (2012). Organizational Determinants of Interprofessional Collaboration in Integrative Health Care: Systematic Review of Qualitative Studies (Interprofessional Collaboration in Integrated Care). 7(11), E50022.

- Clay-Williams, R., Greenfield, D., Stone, J., & Braithwaite, J. (2014). On a Wing and a Prayer: An Assessment of Modularized Crew Resource Management Training for Health Care Professionals. *Journal of Continuing Education in the Health Professions*, 34(1), 56-67.
- Collaborative Practice Assessment Tool (CPAT) (2009). Property of the Office of Interprofessional Education and Practice, Queen's University.
- College of Midwives of Ontario. (2008). *Response to the Ontario College of Family Physicians regarding the CMO's scope of practice submission*. Retrieved from http://www.cmo.on.ca/about_college.php
- College of Nurses of Ontario (2005) Practice Guideline: Utilization of RNs and RPNs, p. 18
- College of Nurses of Ontario. (2008). *Interprofessional collaboration among health colleges and professions*. (<http://www.cno.org/>)
- Conference Board of Canada. (2012). *Improving Primary Health Care Through Collaboration: Briefing 2--Barriers to Successful Interprofessional Teams*. Ottawa: The Conference Board of Canada.
- Connaughton, S., Leon, M., & Herbert, J. (2014). Collaboration, Partnerships, and Relationships within a Corporate World. *Canadian Journal of Archaeology*, 38(2), 1.
- Cook, J. and Wall, T. (1980). *New work attitude measures of trust, organizational commitment and personal need non-fulfilment*. *Journal of Occupational Psychology*, 53, 1, 39-52.

- Cooper, H. (1998). *Synthesizing Research: A guide for literature reviews* (3rd ed.)
Thousand Oaks, CA: Sage Publications.
- Cooper S, Cant R, Porter J. Rating medical emergency teamwork performance:
Development of the Team Emergency Assessment Measure (TEAM).
Resuscitation. 2010;81:446–452.
- Cornthwaite, Alvarez, & Siassakos. (2015). Team training for safer birth. *Best Practice & Research Clinical Obstetrics & Gynaecology*, Best Practice & Research Clinical Obstetrics & Gynaecology.
- Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation*, 10(7).
- Cosenzo, K., Fatkin, L., & Patton, D. (2007). Ready or not: Enhancing operational effectiveness through use of readiness measures. *Aviation, Space, and Environmental Medicine*, 78(5 Suppl), B96-106
- Coxon K (2005) Common experiences of staff working in the integrated health and social care organisations: a European perspective. *Journal of Integrated Care*. 13(2), 13-21.
- Cunningham, C. E., Woodward, C. A., Shannon, H. S., MacIntosh, J., Lendrum, B., Rosenbloom, D., et al., (2002). Readiness for organizational change: A longitudinal study of workplace, psychological, and behavioral correlates. *Journal of Occupational and Organizational Psychology*, 75, 377-392.

- Cuvar, K.M., (2011) What Makes an Interprofessional Healthcare Team Successful?
MNRS – Midwest Nursing Research Society. Retrieved from:
<http://hdl.handle.net/10755/159885>
- Dai, G., & De Meuse, K. P. (2008). Faking and socially desirable responding in personality assessment. New York: Korn/Ferry Institute.
- D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., Beaulieu, M. (2005) The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care*, Supplement 1: 116-131
- Delarue, A., Van, H. G., Procter, S., & Burridge, M. (2008). Teamworking and organizational performance: A review of survey-based research. *International Journal of Management Reviews*, 10, 2, 127-148.
- De Meuse, K. P., Dai, G., Hallenbeck, G. S., & Tang, K. (2008). Global talent management: Using learning agility to identify high potentials around the world. New York: Korn/Ferry Institute
- Dieticians of Canada. (2010). *A career in nutrition – What does a dietitian do?* (http://www.dietitians.ca/public/content/career_in_nutrition/index.asp)
- Donders, A. R. T., van der Heijden, G. J., Stijnen, T., & Moons, K. G. (2006). Review: a gentle introduction to imputation of missing values. *Journal of clinical epidemiology*, 59(10), 1087-1091.
- Doolen TL, Hacker ME, Van Aken EM. The impact of organizational context on work team effectiveness: a study of production team. *Ieee Trans Eng Manage.* 2003;50:285–296.

- Dougherty, M., & Larson, E. (2010). The nurse-nurse collaboration scale. *The Journal of Nursing Administration, 40*(1), 17-25.
- Doulas of North American (DONA). (2005). *Standards of practice for birth doulas*. (http://www.dona.org/aboutus/standards_birth.php)
- Druss, B.G., Marcus, S.C., Olfson, M., Tanielian, T. & Pincus, H.A. (2003). Trends in care by nonphysician clinicians in the United States. *The New England Journal of Medicine, 348* (2), 130-137.
- Dubois, C.A. & Singh, D. (2009). From staff-mix to skill-mix and beyond: Towards a systemic approach to health workforce management. *Human Resources for Health, 7*(87), 87-106 doi: 10.1186/1478-4491-7-87
- Eby, Lillian T., Danielle M Adams, Joyce E A Russell, & Stephen H Gaby. (2000). Perceptions of organizational readiness for change: Factor related to employees' reactions to the implementation of team based selling. *Human Relations, 53*(3), 419-442. January 30, 2012, from ABI/INFORM Global. (Document ID: 50806364).
- Edmondson A. Psychological safety and learning behavior in work teams. *Adm Sci Q. 1999;44:350–383*
- Egleston, B., Miller, S., & Meropol, N. (2011). The impact of misclassification due to survey response fatigue on estimation and identifiability of treatment effects. *Statistics in Medicine, 30*(30), 3560-3572.
- Ekole, E., Fulton, Larry, Nyanzi, Susan, & Richins, Suzanne. (2016). *Relational Intelligence: A Framework to Enhance Interprofessional Collaborative Care*, ProQuest Dissertations and Theses.

- Enhancing Interdisciplinary Collaboration in Primary Health Care. (2006). *The principles and framework for interdisciplinary collaboration in primary health care*. Retrieved from http://www.caslpa.ca/PDF/EICP_Principles_and_Framework_final.pdf
- Fairman, J. (2016). Interprofessional Learning: An Old Idea in a New Package. *Nursing History Review*, 24, 110-116.
- Farrell, K., Payne, C., & Heye, M. (2015). Integrating interprofessional collaboration skills into the advanced practice registered nurse socialization process. *Journal of Professional Nursing : Official Journal of the American Association of Colleges of Nursing*, 31(1), 5-10.
- Fauveau, V., Sherray, D.R. & de Bernis (2008). Human resources for maternal health: Multi-purpose or specialist? *Human Resources for Health*, 6(21)
doi:10.1186/1478-4491-6-21
- Finch, J. (2000). Interprofessional education and teamworking: A view from the education providers. *British Medical Journal*, 324, 1138-1140.
doi:10.1136/bmj.321.7269.1138
- Firn, J., Preston, N., & Walshe, C. (2016). What are the views of hospital-based generalist palliative care professionals on what facilitates or hinders collaboration with in-patient specialist palliative care teams? A systematically constructed narrative synthesis. *Palliative Medicine*, 30(3), 240-56.
- Fleenor, J. W., Smither, J. W., Atwater, L. E., Braddy, P. W., & Sturm, R. E. (2010). Self-other rating agreement in leadership: A review. *The Leadership Quarterly*, 21, 1005-1034.

- Ford, J. D., Ford, L. W., & D'Amelio, A. (2008). Resistance to change: The rest of the story. *Academy of Management Review*, 33, 362-377.
- Frank, J.R. (Ed.). (2005). *The CanMEDS 2005 physician competency framework: Better standards. Better physicians. Better care.*
(<http://rcpsc.medical.org/canmeds/index.php>)
- Fraser, M., Trish, G., Charlotte, H., Jane, H., Ceri, B., & Ray, P. (2011). A new workforce in the making?: A case study of strategic human resource management in a whole-system change effort in healthcare. *Journal of Health Organization and Management*, 25, 1, 55-72.
- Fullerton, J.T., Thompson, J.B. & Lacey, B.M. (2004). Examining the evidence for the International Confederation of Midwives' essential competencies of midwifery practice. *Journal of Midwifery*, 21 (1), 2-13. doi: 10.1016/j.midw.2004.004.
- Gaboury, I., M, L. L., Boon, H., & Moher, D. (2011). Interprofessional collaboration within integrative healthcare clinics through the lens of the relationship-centered care model. *Journal of Interprofessional Care*, 25, 2, 124-130.
- Gagliardi, A. R., Brouwers, M. C., Finelli, A., Campbell, C. E., Marlow, B. A., & Silver, I. L. (December 07, 2011). Physician Self-Audit: A Scoping Review. *Journal of Continuing Education in the Health Professions*, 31, 4, 258-264.
- Gaskin, C. J., & Happell, B. (March 01, 2014). On exploratory factor analysis: A review of recent evidence, an assessment of current practice, and recommendations for future use. *International Journal of Nursing Studies*, 51, 3, 511-521.
- Gilbert, J.H.V. (2005). Interprofessional Education for Collaborative Patient-Centred Practice. *Nursing Leadership*, 18(2)

- Gilbert, J., Yan, J., & Hoffman, S. (2010). A WHO Report: Framework for Action on Interprofessional Education and Collaborative Practice. *Journal of Allied Health, 39*(3), 196-7.
- Givens-King, M. & Erikson, G.P. (2006). Development of public health nursing competencies: An oral history. *Public Health Nursing, 23*(2), 196-201. doi: 10.1111/j.1525-1446.2006.230212.x
- Godfrey, M. M., Andersson-Gare, B., Nelson, E. C., Nilsson, M., & Ahlstrom, G. (January 01, 2014). Coaching interprofessional health care improvement teams: the coachee, the coach and the leader perspectives. *Journal of Nursing Management, 22*, 4, 452-464.
- Goldman, J., Meuser, J., Lawrie, L., Rogers, J., & Reeves, S. (2010). Interprofessional primary care protocols: A strategy to promote an evidence-based approach to teamwork and the delivery of care. *Journal of Interprofessional Care, 24*, 6, 653-665.
- Goldman, J., Onil, B., Zwarenstein, M., & Reeves, S. (2009). Improving the clarity of the interprofessional field: Implications for research and continuing interprofessional education. *Journal of Continuing Education in the Health Professions, 29*, 3, 151-156.
- Gordon, M. B., Melvin, P., Graham, D., Fifer, E., Chiang, V. W., Sectish, T. C., & Landrigan, C. P. (2011). Unit-based care teams and the frequency and quality of physician-nurse communications. *Archives of Pediatrics & Adolescent Medicine, 165*, 5, 424-8.
- Gordon, S. (2006). Crew Resource Management. *Nursing Inquiry, 13*(3), 161-162

- Grando, M. A., Peleg, M., Cuggia, M., & Glasspool, D. (2011). Patterns for collaborative work in health care teams. *Artificial Intelligence in Medicine*, 53, 3, 139-160.
- Graves, L. (January 01, 2012). New approaches for rural maternity care. *Canadian Family Physician Médecin De Famille Canadien*, 58, 10, 1067-8
- Gu, Wen, & Fan. (2015). The impact of wording effect on reliability and validity of the Core Self-Evaluation Scale (CSES): A bi-factor perspective. *Personality and Individual Differences*, 83, 142-147.
- Gucciardi, E., Espin, S., Morganti, A., & Dorado, L. (2016). Exploring interprofessional collaboration during the integration of diabetes teams into primary care. *BMC Family Practice*, 17(1), 12.
- Guchait, P., Lei, P., & Tews, M. (2016). Making Teamwork Work: Team Knowledge for Team Effectiveness. *The Journal of Psychology*, 150(3), 300-317.
- Haddara, W., & Lingard, L. (2013). Are We All on the Same Page? A Discourse Analysis of Interprofessional Collaboration. *Academic Medicine*, 88(10), 1509-1515.
- Haerrens, M., Kox, M., Lemson, J., Houterman, S., Hoeven, J., & Pickkers, P. (2015). Crew Resource Management in the Intensive Care Unit: A prospective 3-year cohort study. *Acta Anaesthesiologica Scandinavica*, 59(10), 1319-1329.
- Hall, Pippa (2005). Interprofessional Teamwork: Professional Cultures as Barriers. *Journal of Interprofessional Care*, May Supplement 1, 188-196.
- Hallin, K., Kiessling, A., Waldner, A., and Henriksson (2009). Active interprofessional education in a patient based setting increases perceived collaborative and professional competence. *Medical Teacher*, 31, 151-157.

- Halverson, S. K., Tonidandel, S., Barlow, C. B., & Dipboye, R. L. (2005). Self–other agreement on a 360-degree leadership evaluation. In S. Reddy (Ed.), *Multi-source performance assessment: Perspective and Insights* (pp. 125–144). Hyderabad, India: ICFAI University Press.
- Hammick, M., Freeth, D., Koppel, I., Reeves, S., & Barr, H. (2007). A best evidence systematic review of interprofessional education: BEME Guide no. 9. *Medical Teacher*, 29, 735–751.
- Hann, M., Bower, P., Campbell, S., Marshall, M., & Reeves, D. (2007). The association between culture, climate and quality of care in primary health care teams. *Family Practice*, 24, 4, 323-329.
- Hanna, Aura, (2007) *Maternal and Newborn Care in Canada*. OMA Policy Paper; Ontario Medical Review.
- Harris, S. J., Janssen, P. A., Saxell, L., Carty, E. A., MacRae, G. S., & Petersen, K. L. (January 01, 2012). Effect of a collaborative interdisciplinary maternity care program on perinatal outcomes. *Cmaj : Canadian Medical Association Journal = Journal De L'association Medicale Canadienne*, 184, 17, 1885-92.
- Haynes, S., Richard, D., & Kubany, E. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment*, 7, 238–247.
- Health Council of Canada. (2005) *Modernizing the management of health human resources in Canada: identifying areas for accelerated change*. Report from a national summit.

- Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. *Evaluation & the Health Professions*, 22, 1, 123-42.
- Heinemann GD, Schmitt MH & Farrell MP. (2002) Attitudes toward health care teams. In Heinemann GD & Zeiss AM. (Eds). Team performance in health care: Assessment and development. (pp. 155-159). New York: Kluwer Academic/Plenum Publishers, 2002.
- Helena, P., Paula, R., Helen, D., Tom, H., Dale, W., Amy, C., Christine, B., ... Christine, A. (January 01, 2011). Preparing for collaborative working in mental health: an interprofessional education project with clinical psychology trainees and nursing students. *The Journal of Mental Health Training, Education and Practice*, 6, 1, 47-57.
- Helmreich, R., & Wilhelm, J. (1991). Outcomes of Crew Resource Management Training. *The International Journal of Aviation Psychology*, 1(4), 287-300.
- Hemphill, J. (2003). Interpreting the magnitudes of correlation coefficients. *The American Psychologist*, 58(1), 78-9.
- Hepp, S., Suter, E., Jackson, K., Deutschlander, S., Makwarimba, E., Jennings, J., & Birmingham, L. (2015). Using an interprofessional competency framework to examine collaborative practice. *Journal of Interprofessional Care*, 2015, Vol.29(2), P.131-137, 29(2), 131-137.
- Herbert, C. (2005). Changing the culture: Interprofessional education for collaborative patient-centred practice in Canada. *Journal of Interprofessional Care*, 19, 1-4.

- Hesjedal, E., Hetland, H., & Iversen, A. (2015). Interprofessional collaboration: Self-reported successful collaboration by teachers and social workers in multidisciplinary teams. *Child & Family Social Work, 20*(4), 437-445.
- Heslin, R. (1964). Predicting group task effectiveness from member characteristics. *Psychological Bulletin, 62*, 248–256.
- Hettinger, L., & Gwozdek, A. (2015). Utilizing Community-Based Education as a Springboard for Interprofessional Collaboration. *Access : The Newsmagazine of the American Dental Hygienists' Association, 29*(3), 10-13.
- Hinkin, T. R. (1998). A Brief Tutorial on the Development of Measures for Use in Survey Questionnaires. *Organizational Research Methods, 1*, 1, 104-12
- Hoegl M, Gemuenden HG. Teamwork quality and the success of innovative projects: a theoretical concept and empirical evidence. *Organ Sci. 2001;12:435–449.*
- Holden, L. M. (2005). Nursing Theory and Concept Development or Analysis: Complex adaptive systems: concept analysis. *Journal of Advanced Nursing, 52*, 6, 651-657.
- Holden, R. R., & Passey, J. (2010). Socially desirable responding in personality assessment: Not necessarily faking and not necessarily substance. *Personality and Individual Differences, 49*, 5, 446-450.
- Hollander Analytical Services LTD. (2003). *Assessing new models for the delivery of medical services: Inventory and synthesis summary report.*
(www.physicianhr.ca)
- Holt, D. T., Armenakis, A. A., Feild, H. S., & Harris, S. G. (2007). Readiness for Organizational Change: The Systematic Development of a Scale. *The Journal of Applied Behavioral Science, 43*, 2, 232-255.

- Homan AC, Hollenbeck JR, Humphrey SE, Van Knippenberg D, Ilgen DR and Van Kleef GA (2008) Facing differences with an open mind: Openness to experience, salience of intragroup differences, and performance of diverse work groups. *Academy of Management Journal* 51(6): 1204–1222.
- Homan, A., Van Kleef, G., & Sanchez-Burks, J. (2016). Team members' emotional displays as indicators of team functioning. *Cognition and Emotion*, 30(1), 134-149.
- Hood, R. (2012). A critical realist model of complexity for interprofessional working. *Journal of Interprofessional Care*, 26, 1, 6-12.
- Hudson, B. (2002). Interprofessionalism in health and social care: The Achilles' heel of partnership? *Journal of Interprofessional Care*, 16(1), 7–17.
- Interprofessional Education Collaborative Expert Panel (2011). Core competencies for interprofessional collaborative practice: Report of an expert panel. Washington, D.C: Interprofessional Education Collaborative (retrieved from, www.aacn.nche.edu/leading-initiatives/IPECReport.pdf; www.aacn.nche.edu/education-sources/IPECProceedings.pdf).
- Ireland, J., Bryers, H., van Teilingen, E., Hundley, V., Farmer, J., Harries, F., Caldow, J. (2007). Competencies and skills for remote and rural maternity care: A Review of the literature. *Journal of Advanced Nursing*, 58(2), 105-115. doi:10.1111/j.1365-2648.2007.04246.x
- Jansen, L. (2008) Collaborative and interdisciplinary health care teams: ready or not? *Journal of Professional Nursing : Official Journal of the American Association of Colleges of Nursing*, 24, 4.

- Jessup, R. L. (August 01, 2007). Interdisciplinary versus multidisciplinary care teams: do we understand the difference?. *Australian Health Review*, 31, 3, 330-1.
- Jones, R. A., Jimmieson, N. L., & Griffiths, A. (2005). The impact of organizational culture and reshaping capabilities on change implementation success: The mediating role of readiness for change. *Journal of Management Studies*, 42, 361-386.
- Judge, T. A., Kammeyer-Mueller, J. D., & The Role of Personality in Human Resource Management. (2011). Implications of core self-evaluations for a changing organizational context. *Human Resource Management Review*, 21, 4, 331-341.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, 127, 376-407.
- Juniper, E. (2009). Validated questionnaires should not be modified. *The European Respiratory Journal*, 34(5), 1015-7.
- Kasperski JM, (2004). Babies Can't Wait: Primary Care in Obstetrics Crisis. A Solution Focused PHCTF Research Project
- Kay, B. (2009). Wanted: Guidelines for reporting correlations. *Advances in Physiology Education*, 33(2), 134.
- Kenaszchuk, C., Reeves, S., Nicholas, D. & Zwarenstein, M. (2010) Validity and reliability of a multiple-group measurement scale for interprofessional collaboration. *BMC Health Services Research*, 10, 83.

- Kenaszchuk, C. (March 29, 2012). Measuring teamwork in health care settings: A review of survey instruments M.A. Valentine, I.M. Nembhard , A.C. Edmondson
Measuring teamwork in health care settings: A review of survey instruments
(2011). Working Paper Boston, MA: Harvard Business School Available at:
<http://www.hbs.edu/research/pdf/11-116.pdf>. *Journal of Interprofessional Care*.
- Kennedy P (2001) Mental health ‘collaborative’ challenges care culture. *Psychiatric Bulletin*. 27: 164-166.
- Kenny G (2002) Interprofessional working: opportunities and challenges. *Nursing Standard*. 17, 6, 33-35.
- Kephart, G., Tomblin Murphy, G., O'Brien-Pallas, L., Alder, R., MacKenzie, A., & Birch, S. (2007). Human Resources Planning and the Production of Health: A Needs-Based Analytical Framework. *Canadian Public Policy / Analyse De Politiques*, 33.
- Klein, M. C., Kaczorowski, J., Tomkinson, J., Hearps, S., Baradaran, N., & Brant, R. (April 01, 2011). Family physicians who provide intrapartum care and those who do not: Very different ways of viewing childbirth. *Canadian Family Physician*, 57, 4.)
- Kosnik, L., Brown, J., & Maund, T. (2007). Learning from the aviation industry. *Nursing Management*, 38(1), 25-30.
- Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 333–375). Hoboken, NJ: Wiley & Sons.

- Kozusznik, M., Rodríguez, I., Peiró, J., & Glazer, Sharon. (2015). Eustress and Distress Climates in Teams: Patterns and Outcomes. *International Journal of Stress Management*, 22(1), 1-23.
- Kvarnström, S. (2008). Difficulties in collaboration: A critical incident study of interprofessional healthcare teamwork. *Journal of Interprofessional Care*, 2008, Vol.22(2), P.191-203, 22(2), 191-203.
- Lahey, W. & Currie, R. (2004) “Regulatory and Medico-Legal Barriers to Interdisciplinary Practice”, Health Canada
- Leape, L., Shore, M., Dienstag, J., Mayer, R., Edgman-Levitan, S., Meyer, G., & Healy, G. (2012). Perspective: A culture of respect, part 2: Creating a culture of respect. *Academic Medicine: Journal of the Association of American Medical Colleges*, 87(7), 853-8.
- Leatt, P., Pink, G. H., & Guerriere, M. (2000). Towards a Canadian model of integrated healthcare. *Healthcare Papers*, 1, 13–35.
- Leggat, S. (2007). Effective healthcare teams require effective team members: Defining teamwork competencies. *BMC Health Services Research*, 7(17), doi:10.1186/1472-6963-7-17
- Leipzig RM, Hyer K, Elk K, Wallenstein S, Vezina ML, Fairchild S, Cassel CK & Howe JL. (2002) Attitudes toward working on interdisciplinary healthcare teams: A comparison by discipline. *Journal of the American Geriatric Society*, 50(6):1141-1148.

- LePine, J. A., Hanson, M. A., Borman, W. C., & Motowidlo, S. J. (2000). Contextual Performance and Teamwork: Implications For Staffing. *Research in Personnel and Human Resources Management*, 19, 53-90.
- LePine, J. A. (2003). Team adaptation and postchange performance: effects of team composition in terms of members' cognitive ability and personality. *The Journal of Applied Psychology*, 88, 1, 27-39.
- Lewin, K. (1951) *Field theory in social science; selected theoretical papers*. D. Cartwright. New York: Harper & Row.
- Lewis, J. M. (January 01, 2012). Influencing public policy on oral health. *Community Dentistry and Oral Epidemiology*, 40, 148-53.
- Li, N., Zhao, H., Walter, S., Zhang, X., Yu, J., & Chen, Gilad. (2015). Achieving More With Less: Extra Milers' Behavioral Influences in Teams. *Journal of Applied Psychology*, 100(4), 1025-1039.
- Livi, Alessandri, Caprara, & Pierro. (2015). Positivity within teamwork: Cross-level effects of positivity on performance. *Personality and Individual Differences*, 85, 230-235.
- Loo, R. (2003). Assessing "team climate" in project teams. *International Journal of Project Management*, 21(7), 511-517.
- Luecht, R., Madsen, M., Taugher, M., & Petterson, B. (1990). Assessing professional perceptions: Design and validation of an interdisciplinary education perception scale. *Journal of Allied Health*, 19(2), 181-191.
- Lumague M, Morgan A, Mak D, et al., Interprofessional education: the student perspective. *J Interprof Care*. 2006;20(3): 246-253.

- Lyles, R. H., Guo, Y., & Greenland, S. (December 01, 2012). Reducing bias and mean squared error associated with regression-based odds ratio estimators. *Journal of Statistical Planning and Inference, 142*, 12, 3235-3241.
- Lynn, Mary R. (1986). Determination and Quantification of Content Validity. *Nursing Research November/December 35*, (6).
- MacCallum, R. C., Widaman, K. F., Preacher, K. J., & Hong S. (2001). Sample size in factor analysis: The role of model error. *Multivariate Behavioral Research, 36*, 611-637.
- Macintyre, S. (March 01, 2012). Evidence in the development of health policy. *Public Health, 126*, 3, 217-219.
- Maher, M. A. (January 01, 2000). Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework Kim S. Cameron and Robert E. Quinn. *Journal of Organizational Change Management, 13*, 300-303.
- Malin, N. & Morrow, G. (2007). *Sure start "trailblazer" program 1(4)*: 445-447.
- Malone, M., Zortman, J., & Paparo, S. (2004). Naval Aviation Must Balance Current and Future Readiness. *United States Naval Institute. Proceedings, 130(7)*, 66-67.
- Mann, K., Sargeant, J., Dorman, T., Van, D. V. C., Eva, K., Armson, H., Chesluk, B., ... Loney, E. (September 01, 2011). Tensions in informed self-assessment: How the desire for feedback and reticence to collect and use it can conflict. *Academic Medicine, 86*, 9, 1120-1127.

- Mann, Karen V, PhD & Judith A. McFetridge-Durdle, PhD, RN. Seamless Care: An Interprofessional Education Project for Innovative Team based Transition Care (2007-2008). Dalhousie University, School of Nursing. Funded Project from Health Canada Pan- Canadian Health Human Resources Strategy.
- Marion, C. E., & Balfe, L. M. (2011). Potential advantages of interprofessional care in rheumatoid arthritis. *Journal of Managed Care Pharmacy: Jmcp*, 17,9.
- Marrow, A. J. (1969) *The Practical Theorist: The Life and Work of Kurt Lewin*, New York: Basic Books.
- Martin, C. M., & Kasperski, J. (2010). Developing interdisciplinary maternity services policy in Canada. Evaluation of a consensus workshop. *Journal of Evaluation in Clinical Practice*, 16, 1, 238-45.
- Martínez-Fernández, Reinaldo J., Mariona Corcelles & Maria Cerrato-Lara (2011): The Conceptions about Teamwork Questionnaire: design, reliability and validity with secondary students, *Educational Psychology*, 31:7, 857-871
- Masie, E. (2012). Connecting 2 Worlds: Collaboration between Higher Education and Corporate Learning. *EDUCAUSE Review*, 47(2), 14.
- Maternity Care Enhancement Project. *Supporting Local Collaborative Models for Sustainable Maternity Care in British Columbia: Recommendations from the Maternity Care Enhancement Project*. December 2004
- Mavor, K. I., Louis, W. R., & Sibley, C. G. (January 01, 2010). A bias-corrected exploratory and confirmatory factor analysis of right-wing authoritarianism: Support for a three-factor structure. *Personality and Individual Differences*, 48, 1, 28-33.

- McKeel, G. (2012). Crew Resource Management. *Marine Corps Gazette*, 96(5), 44-46.
- McIntyre, M., Francis, K., Chapman, Y., & Place of Birth. (October 01, 2012). Primary maternity care reform: Whose influence is driving the change? *Midwifery*, 28, 5.)
- Meuser, J., Bean, T., Goldman, J. & Reeves, S. (2006). Family health teams: A new Canadian interprofessional initiative. *Journal of Interprofessional Care*, 20(4), 436-438. doi:10.1080/13561820600874726
- Medical University of South Carolina, Obstetrics & Gynecology (2008). *Scope of Practice PGY1 – PGY4*. Retrieved from <http://www.musc.edu/gmehandbook/appendix5/>
- Mickan, S., & Rodger, S. (2005). Effective Health Care Teams: A model of six characteristics developed from shared perceptions. *Journal of Interprofessional Care*, 2005, Vol.19(4), P.358-370, 19(4), 358-370.
- Miller, K. J., Couchie, C., Ehman, W., Graves, L., Grzybowski, S., & Medves, J. (January 01, 2012). Rural maternity care. *Journal of Obstetrics and Gynaecology Canada: Jogc = Journal D'obstétrique Et Gynécologie Du Canada : Jogc*, 34, 10, 984-91.
- Miller, W. L., Crabtree, B. F., McDaniel, R., & Stange, K. C. (1998). Understanding change in primary care practice using complexity theory. *The Journal of Family Practice*, 46, 5, 369-76.
- Miller, K., Reeves, S., Zwarenstein, M., Beales, J., Kenaszchuk, C., & Conn, L. (2008). Nursing emotion work and interprofessional collaboration in general internal medicine wards: A qualitative study. *Journal of Advanced Nursing*, 64(4), 332-343.

- Millward LJ, Jeffries N. The team survey: a tool for health care team development. *J Adv Nurs*. 2001;35:276 – 287.
- Milne, J., Walker, D., & Vlahaki, D. (2013). Reflections on the Canadian MORE(OB) obstetrical risk management programme. *Best Practice & Research. Clinical Obstetrics & Gynaecology*, 27(4), 563-9.
- Mitchell, R., Parker, V., & Giles, M. (2011). When do interprofessional teams succeed? Investigating the moderating roles of team and professional identity in interprofessional effectiveness. *Human Relations*, 64, 10, 1321-1343.
- Modernizing the Management of Health Human Resources in Canada: Identifying Areas for Accelerated Change Report from a National Summit June 23, 2005 *Health Council of Canada - Chapters 1 - 4 March 2013.docx*
- Morgan, L., Carson, G., Gagnon, A., & Blake, J. (January 01, 2014). Collaborative practice among obstetricians, family physicians and midwives. *Cmaj : Canadian Medical Association Journal = Journal De L'association Medicale Canadienne*, 186, 17, 1279-80.
- Morison, S., & Jenkins, J. (2007). Sustained effects of interprofessional shared learning on student attitudes to communication and team working depend on shared learning opportunities on clinical placement as well as in the classroom. *Medical Teacher*, 29, 5, 450-456.
- Multidisciplinary Collaboration Primary Maternity Care Project. (2006). *MCP² Final Report*. (http://www.mcp2.ca/english/studies_reports.asp)

- Multidisciplinary Collaborative Primary Maternity Care Project, 2006. “Guidelines and Implementation Tools for Multidisciplinary Collaborative Primary Maternity Care Models”.
- Mundfrom DJ, Shaw DG, Tian LK (2005) Minimum sample size recommendations for conducting factor analysis. *International Journal of Testing* 5:2 p 159-168
- Murphy, G., & Mackenzie, A. (2013). Using evidence to meet population healthcare needs: Successes and challenges. *Healthcare Papers*, 13(2), 9-21.
- National Health Workforce Taskforce & Maternity Services Interjurisdictional Committee. (2009). *Core competencies for primary maternity services part 1*.
- National Physician Data Base 2011-2012 – Spending and Health Workforce. (September 26, 2013) Canadian Institute for Health Information.
- National Physician Data Base 2012-2013 – Data Release. Methodological Notes (September 26, 2013) Canadian Institute for Health Information.
- Nesbitt, T.S. (1996). Rural maternity care: New models of access. *Birth*, 23(3), 161-165.
- Nolte, J. (2005). *Enhancing interdisciplinary collaboration in primary healthcare*. Retrieved from www.eicp-acis.ca
- Noordzij, M., Dekker, F. W., Zoccali, C., & Jager, K. J. (January 01, 2011). Sample size calculations. *Nephron. Clinical Practice*, 118, 4, 319-23.
- Nova Scotia Regulated Health Professions Network. October 23, 2012
‘Backgrounder’
- Oandasan, I., et al., (2006). Teamwork in health care: Promoting effective teamwork in health care in Canada. Ottawa, Canada: Canadian Health Services Research Foundation.

- O'Brien-Pallas, L., Tomblin Murphy, G., Birch, S. & Baumann, A. (2001). Framework for analyzing health human resources. In *Canadian Institute for Health Information. Future development of information to support the management of nursing resources: Recommendations*. Ottawa: CIHI
- O'Brien, R. M. R. N. P. D. B., Chalmers, D. S. M. P. D. B., Fell, M. S. D., Heaman, R. N. M. N. P. D. M., Darling, R. M. M. S. E. K., & Herbert, B. N. B. E. M. S. P. (January 01, 2011). The Experience of Pregnancy and Birth with Midwives: Results from the Canadian Maternity Experiences Survey. *Birth*, 38, 3.)
- O'Leary, D. (2016). Exploring the importance of team psychological safety in the development of two interprofessional teams. *Journal of Interprofessional Care*, 30(1), 29-34.
- Olshansky, E. (2006). Athletics as a metaphor for teamwork in academics. *Journal of Professional Nursing: Official Journal of the American Association of Colleges of Nursing*, 22(3), 143-4.
- Orchard, Carole A., King, Gillian A., Khalili, Hossein, & Bezzina, Mary Beth. (2012). Assessment of Interprofessional Team Collaboration Scale (AITCS): Development and Testing of the Instrument. *Journal of Continuing Education in the Health Professions*, 32(1), 58-67.
- O'Toole, T., Cabral, R., Blumen, J., & Blake, D. (2011). Building high functioning clinical teams through quality improvement initiatives. *Quality in Primary Care*, 19(1), 13-22.
- Oliver, K., Everett, M., Verma, A., & de, V. F. (June 01, 2012). The human factor: Re-organisations in public health policy. *Health Policy*, 106, 1, 97-103.

- Ontario College of Family Physicians. (2008). *Submission from the Ontario College of Family Physicians (OCFP) to The Health Professions Regulatory Advisory Council (HPRAC) In Respect to The College of Midwives of Ontario Scope of Practice*. Ontario: Author.
- Ontario Health Plan for an Influenza Pandemic, 2008. Ontario: Author
- Paley, J., & Eva, G. (2011). Complexity theory as an approach to explanation in healthcare: A critical discussion. *International Journal of Nursing Studies*, 48, 269-276.
- Paquet, M., Courcy, F., Lavoie-Tremblay, M., Gagnon, S., & Maillet, S. (May 01, 2013). Psychosocial Work Environment and Prediction of Quality of Care Indicators in One Canadian Health Center. *Worldviews on Evidence-Based Nursing*, 10, 2, 82-94.
- Parker, K., Jacobson, A., Mcguire, M., Zorzi, R., & Oandasan, I. (2012). How to build high-quality interprofessional collaboration and education in your hospital: The IP-COMPASS tool. *Quality Management in Health Care*, 21(3), 160-8.
- Parratt, J., Fahy, K., & Hastie, C. (2014). Midwifery students' evaluation of team based academic assignments involving peer-marking. *Women and Birth: Journal of the Australian College of Midwives*, 27(1), 58-63.
- Parsell, G. & Bligh, J. (1999). The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Medical Education*, 33, 095-100. doi:10.1046/j.1365-2923.1999.00298x

- Pearce CL, Sims HP Jr. Vertical versus shared leadership as predictors of the effectiveness of change management teams: an examination of aversive, directive, transactional, transformational, and empowering leader behaviors. *Group Dynamics: Theory Res Pract.* 2002;6:172 – 197.
- Peterson, W., Medves, J., Davies, B. & Graham, I. (2007). Multi-disciplinary collaborative maternity care in Canada: Easier said than done. *Journal of Obstetrics and Gynecology of Canada*, 29(11), 880-886.
- Pfaff, K. A., Baxter, P. E., Jack, S. M., & Ploeg, J. (August 01, 2014). Exploring new graduate nurse confidence in interprofessional collaboration: A mixed methods study. *International Journal of Nursing Studies*, 51, 8, 1142-1152.
- Pfortmiller, D. T., Mustain, J. M., Lowry, L. W., & Wilhoit, K. W. (2011). Preparing for organizational change: project: SAFETYfirst. *Computers, Informatics, Nursing: Cin*, 29, 4, 68-74.
- Pinto, R. (n.d.). What Makes or Breaks Provider–Researcher Collaborations in HIV Research? A Mixed Method Analysis of Providers’ Willingness to Partner. *Health Education & Behavior*, 40(2), 223-230.
- Polit, D. F., & Beck, C. T. (January 01, 2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29, 5, 489-97.
- Polit, D. F., & Beck, C. T. (2008). *Nursing research: Generating and assessing evidence for nursing practice*. Philadelphia: Wolters Kluwer Health/lippincott Williams & Wilkins.

- Pong, R. W., Pitblado, J. R., & Canadian Institute for Health Information. (2005)
Geographic distribution of physicians in Canada: Beyond how many and where.
Ottawa: Canadian Institute for Health Information = Institut canadien
d'information sur la santé.
- Price, D., Howard, M., Shaw, E., Zazulak, J., Waters, H. & Chan, D. (2005).
Collaborative interdisciplinary program for declining resource. *Family Medicine
Obstetrics*, 51, 68-74.
- Psaila, K., Schmied, V., Fowler, C., & Kruske, S. (2015). Interprofessional collaboration
at transition of care: Perspectives of child and family health nurses and
midwives. *Journal of Clinical Nursing*, 24(1-2), 160-172.
- Putnam, J. H., Ikeler, S., Raup, G., & Cantu, K. (2014). There's no "I" in team:
Evaluating nurse-physician collaboration. *Nursing Management
(Springhouse)*, 45(1), 10-13.
- Quinn, R. E., & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: Towards
a competing values approach to organizational analysis. *Management Science*, 29,
363–377
- QUIPPED, *Queen's University Interprofessional Patient-Centred Education Direction.*
(2007-2008). Queen's University. Funded Project from Health Canada Pan-
Canadian Health Human Resources Strategy.
- Raab, C., Will, S., Richards, S., & O'Mara, E. (2013). The Effect of Collaboration on
Obstetric Patient Safety in Three Academic Facilities. *Journal of Obstetric,
Gynecologic, & Neonatal Nursing*, 42(5), 606-616.

- Ragland, N.P., Payakachat, N., Hayes, E.B., Banken, J., Dajani, N.K. & Ott, R.E. (2010). Depression and diabetes: Establishing the pharmacist's role in detecting comorbidity in pregnant women. *Journal of the American Pharmacists Association*, 50 (2), 195-199.
- Rattray, J., & Jones, M. (2007). Essential elements of questionnaire design and development. *Journal of Clinical Nursing*, 16(2), 234-243.
- Reeves, S. (2010). *Interprofessional teamwork for health and social care*. Chichester, West Sussex: Wiley-Blackwell.
- Reeves, S., & Freeth, D. (2006). Re-examining the evaluation of interprofessional education for community mental health teams with a different lens: understanding presage, process and product factors. *Journal of Psychiatric & Mental Health Nursing*, 13, 6, 765-770.
- Reeves, S., Goldman, J., Gilbert, J., Tepper, J., Silver, I., Suter, E. & Zwarenstein, M. (2011). 'A scoping review to improve conceptual clarity of interprofessional interventions'. *Journal of Interprofessional Care*, 25, 167-174.
- Reeves, S., Kitto, S., & Masiello, I. (2013). Crew resource management: How well does it translate to an interprofessional healthcare context? *Journal of Interprofessional Care*, 2013, Vol.27(3), P.207-209, 27(3), 207-209.
- Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D.S., Hammick, M., & Koppel, I. (2008). Interprofessional education: Effects on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, Art. No.: CD002213. DOI: 10.1002/14651858.CD002213.pub2.

- Regan, S., Laschinger, H., & Wong, C. (2016). The influence of empowerment, authentic leadership, and professional practice environments on nurses' perceived interprofessional collaboration. *Journal of Nursing Management*, 24(1), E54-E61.
- Regulated Health Professions Network Act. Bill No. 147. November 22, 2012. *4th Session, 61st General Assembly Nova Scotia, 61 Elizabeth II, 2012.*
- Regulated Health Professions Network Regulations (October 31, 2012) Consultation DRAFT made under Section of the *Regulated Health Professions Network Act* S.N.S. 2012, c.
- Reid, R., Allstaff, K., Bruce, D.A. (2008). An educated workforce which works collaboratively. *Journal of Interprofessional Care* (In press).
- Reid, R., Bruce, D., Allstaff, K., & McLernon, D. (2006). Validating the Readiness for Interprofessional Learning Scale (RIPLS) in the postgraduate context: are health care professionals ready for IPL? *Medical Education*, 40, 415-422.
- Reina, M. L., Reina, D. S., & Rushton, C. H. (January 01, 2007). Trust: the foundation for team collaboration and healthy work environments. *Aacn Advanced Critical Care*, 18, 2.)
- Richter, A. W., J. F. Dawson & M. A. West (2011): The effectiveness of teams in organizations: a meta-analysis, *The International Journal of Human Resource Management*, 22:13, 2749-2769
- Rosa, M. (2014). Academic research in medicine: The need for teamwork and leadership. *Diagnostic Cytopathology*, 42(6), 553-554.
- Rosas, J., & Camarinha-Matos, L. (2009). An approach to assess collaboration readiness. *International Journal of Production Research*, 47(17), 4711-4735.

- Rouquette, A. and Falissard, B. (2011), Sample size requirements for the internal validation of psychiatric scales. *Int. J. Methods Psychiatr. Res.*, 20: 235–249.
doi: 10.1002/mpr.352
- Rutjes, A., Reitsma, J., Coomarasamy, A., Khan, K., & Bossuyt, P. (2007). Evaluation of diagnostic tests when there is no gold standard. A review of methods. *Health Technology Assessment (Winchester, England)*, 11(50), Iii, ix-51.
- Sainani, K. (2015). Dealing With Missing Data. *PM & R: The Journal of Injury, Function, and Rehabilitation*, 7(9), 990-4.
- Salus Global Corporation. (2010). *The MORE^{OB} program: Managing obstetrical risk effectively*. (http://salusgc.com/moreob_overview.html)
- San Martin-Rodriguez, L., Beaulieu, M., D'Amour, D., & Ferrada Videla, M. (2005). The determinants of successful collaboration: A review of theoretical and empirical studies. *Journal of Interprofessional Care*, 19, (Suppl. 1), 132–147.
- San, Martin-Rodrigues L., D'Amour, D., & Leduc, N. (2008). Outcomes of interprofessional collaboration for hospitalized cancer patients. *Cancer Nursing*, 31, 2.
- Santos, Caetano, & Tavares. (2015). Is training leaders in functional leadership a useful tool for improving the performance of leadership functions and team effectiveness? *The Leadership Quarterly*, 26(3), 470-484.
- Sargeant, J., Loney, E. & Murphy, G. (2008). Effective inter-professional teams: “Contact is not enough” to build a team. *Journal of Continuing Education in Health*, 28(4), 228-234.

- Schau, C. (October 01, 1995). The Development and Validation of the Survey of Attitudes Toward Statistics. *Educational and Psychological Measurement*, 55, 5, 868-75.
- Schein, E. H. (1999a). Kurt Lewin's change theory in the field and in the classroom: Notes toward a model of managed learning. *Reflections*, 1(1), 59-74. (Reprinted from *System Practice*, 9(1) pp. 27-47, 1996).
- Schroder, C., Medves, J., Paterson, M., Byrnes, V., Chapman, C., O'Riordan, A., Pichora, D., Kelly, C. (January 01, 2011). Development and pilot testing of the collaborative practice assessment tool. *Journal of Interprofessional Care*, 25, 3, 189-95.
- Schuiling, K. & Slager, J. (2000). Scope of practice: Freedom within limits. *Journal of Midwifery & Women's Health*, 45(6), 465-471.
- Schwarz, N. (2007). A review of the cognitive and communicative processes underlying retrospective and concurrent self-reports in health research. Retrospective and concurrent self-reports: The rationale for real-time data capture. In A. A. Stone, S. S. Shiffman, A. Atienza, & L. Nebeling (Eds.), *The science of real-time data capture: Self-reports in health research* (pp. 11-26). New York: Oxford University Press.
- Scotten, Manos, Malicoat, & Paolo. (2015). Minding the gap: Interprofessional communication during inpatient and post discharge chasm care. *Patient Education and Counseling*, 98(7), 895-900.
- Sean Kavanagh, & Jane Cowan. (2004). Reducing risk in health-care teams: An overview. *Clinical Governance: An International Journal*, 9(3), 200-204.

- Self, Dennis R., (2007). Organizational change – overcoming resistance by creating readiness. *Development and Learning in Organizations*, 21(5), 11-13.
- Sendjaya, S., Sarros, J., & Santora, J. (2008). Defining and Measuring Servant Leadership Behaviour in Organizations. *Journal of Management Studies*, 45(2), 402-424.
- Shantz, A., & Booth, J. (2014). Service employees and self-verification: The roles of occupational stigma consciousness and core self-evaluations. *Human Relations*, 67(12), 1439-1465.
- Shariff, N. (2014). Factors that act as facilitators and barriers to nurse leaders' participation in health policy development. *BMC Nursing*, 13, 20.
- Shi, J., Mo, X., & Sun, Z. (January 01, 2012). [Content validity index in scale development]. *Zhong Nan Da Xue Xue Bao. Yi Xue Ban = Journal of Central South University. Medical Sciences*, 37, 2, 152-5.
- Sit, Luther, Buysse, Dills, Eng, Okun, Wisner. (2015). Suicidal ideation in depressed postpartum women: Associations with childhood trauma, sleep disturbance and anxiety. *Journal of Psychiatric Research*, 66-67, 95-104.
- Steckler, Nicole, & Fondas, Nanette. (1995). Building team leader effectiveness: A diagnostic tool. *Organizational Dynamics*, 23(3), 20-35.
- Stommel, M., & Dontje, K. J. (2014). *Statistics for advanced practice nurses and health professionals*.
- Senge, P. (1990) “The art & practice of the learning organization.” In *The New Paradigm in Business: Emerging Strategies for Leadership and Organizational Change* (eds. Ray, M. and Rinzler, A.) 1993 by the World Business Academy.

- Senge, P. et. al. (1994) *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*
- Senge, P., Cambron-McCabe, N. Lucas, T., Smith, B., Dutton, J. and Kleiner, A. (2000) *Schools That Learn. A Fifth Discipline Fieldbook for Educators, Parents, and Everyone Who Cares About Education*, New York: Doubleday/Currency
- Senge, Peter M. (1990), *The Fifth Discipline*, Doubleday/Currency, ISBN 0385260946
- Scientific Management, comprising *Shop Management, The Principles of Scientific Management* and Testimony Before the Special House Committee, by Frederick Winslow Taylor, Harper & Row, 1911
- Shoemaker, M., De Voest, M., Booth, A., Meny, L., & Victor, J. (2015). A virtual patient educational activity to improve interprofessional competencies: A randomized trial. *Journal of Interprofessional Care*, 2015, Vol.29(4), P.395-397, 29(4), 395-397.
- Short, N. M. (September 01, 2008). Influencing Health Policy: Strategies for Nursing Education to Partner With Nursing Practice. *Journal of Professional Nursing*, 24, 5, 264-269.
- Sicotte, C., D'Amour, D., & Moreault, M.P. (2002). Interdisciplinary collaboration within Quebec Community Health Care Centres. *Social Science & Medicine*, 55, 991–1003.
- Sitthisak, O., Gilbert, L., Davis, H.C. & Gobbi. (2007). *Adapting healthcare competencies to a formal competency model*. University of Southampton, Highfield, Southampton, SO17 1BJ, United Kingdom

- Smith, M. K. (2001) *Kurt Lewin, groups, experiential learning and action research*. The Encyclopedia of Informal Education. <http://www.infed.org/thinkers/et-lewin.htm>
- Smith, C., Brown, J. B., Stewart, M., Trim, K., Freeman, T., Beckhoff, C., & Kasperski, J. (2009). Ontario care providers' considerations regarding models of maternity care. *Journal of Obstetrics and Gynaecology Canada: Jogc = Journal D'obstétrique Et Gynécologie Du Canada : Jogc*, 31, 5, 401-8.
- Smith, D. C. (2015), Midwife–Physician Collaboration: A Conceptual Framework for Interprofessional Collaborative Practice. *Journal of Midwifery & Women's Health*, 60: 128–139. doi: 10.1111/jmwh.12204
- Society of Rural Physicians of Canada. (2003). *Primary care renewal policy: Recommended rural strategies*. Retrieved from <http://www.srpc.ca>
- Society of Obstetricians and Gynecologists (2008) Health Human Resources Project on Intrapartum Emergency Obstetrical Care
- Sollami, A., Caricati, L., & Sarli, L. (2015). Nurse physician collaboration: A meta-analytical investigation of survey scores. *Journal of Interprofessional Care*, 2015, Vol.29(3), P.223-229, 29(3), 223-229.
- Stempniak, M. (2016). Hospitals increasingly add birth centers to labour and delivery offerings. *Hospitals & Health Networks*, 90(1), 17.
- Stepney, P., Callwood, I., Ning, F., and Downing, K., (2011). Learning to collaborate: a study of nursing students' experience of interprofessional education at one UK university, *Educational Studies*, 37:4, 419-434
- Stone, P.W., Zwanziger, J., Walker, P.H & Buenting, J. (2000). Economic analysis of two models of low-risk maternity care: A freestanding birth center compared to traditional care. *Research in Nursing & Health*, 23(4), 279-289.

- Strype, J., Gundhus, H., Egge, M., & Ødegård, A. (2014). Perceptions of interprofessional collaboration.
- Sturmberg, J. P., & Martin, C. M. (2010). The dynamics of health care reform learning from a complex adaptive systems theoretical perspective. *Nonlinear Dynamics, Psychology, and Life Sciences, 14*, 4, 525-40.
- Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E. & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal of Interprofessional Care, 23* (1), 41-51.
- Suter, E., Lait, J., Macdonald, L., Wener, P., Law, R., Khalili, H., & McCarthy, P. L. (2011). Strategic approach to building research capacity in inter-professional education and collaboration. *Healthcare Quarterly* (Toronto, Ont.), *14*, 2, 54-60
- Sutherns, R., & Bourgeault, I. L. (January 01, 2008). Accessing Maternity Care in Rural Canada: There's More to the Story Than Distance to a Doctor. *Health Care for Women International, 29*, 8-9.
- Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics (5th ed.). Upper Saddle River, NJ: Pearson Allyn & Bacon.
- Taylor, F. W. (1917). *The Principles of Scientific Management*. New York: Harper
- Tesdahl, D. (2011, July 01). When Sports Go Bad. *Successful Meetings*, p. 15.
- Thistlethwaite, J. E., Forman, D. R., Matthews, L. D., Rogers, G., Steketee, C., & Yassine, T. (2014). Competencies and Frameworks in Interprofessional Education: A Comparative Analysis. *Academic Medicine, 89*(6), 869-875.

- Thylefors, I. and Persson, D. (2005). Team types, perceived efficiency and climate in Swedish cross-professional teamwork. *Journal of Interprofessional Care*, March 19(2), 102-114.
- Tian, G.-L., Tang, M.-L., Zhenqiu, L., Ming, T., & Tang, N.-S. (January 01, 2011). Sample size determination for the non-randomised triangular model for sensitive questions in a survey. *Statistical Methods in Medical Research*, 20, 3, 159-173.
- Tilden, V. P. (January 01, 2011). The tides of change: Are we ready for interprofessional collaboration? *Nursing Outlook*, 59, 3.)
- Thannhauser, J., Russell-Mayhew, S., & Scott, C. (2010). Measures of interprofessional education and collaboration. *Journal of Interprofessional Care*, 2010, Vol.24(4), P.336-349,24(4), 336-349.
- Tomblin Murphy, Alder, Birch, Tomblin and Purkis, (2009). Health human resource planning for an influenza pandemic in Nova Scotia.
- Tomblin Murphy, Alder, MacKenzie and Rigby (2010). Models of care initiative in Nova Scotia (MOCINS): Final evaluation report.
- Tomblin, M. G., Birch, S., MacKenzie, A., Alder, R., Lethbridge, L., & Little, L. (May 01, 2012). Eliminating the shortage of registered nurses in Canada: An exercise in applied needs-based planning. *Health Policy*, 105, 192-202.
- Tomblin Murphy G, MacKenzie A, Alder R, Birch S, Kephart G, O'Brien-Pallas L. (2009). An Applied Simulation Model for Estimating the Supply of and Requirements for Registered Nurses Based on Population Health Needs. *Policy, Politics & Nursing Practice*; 10(4): 240-251.

- Tomblin, M. G., MacKenzie, A., Alder, R., & Cruickshank, C. (January 01, 2013). Evaluation of a changed model of care delivery in a Canadian province using outcome mapping. *The International Journal of Health Planning and Management*, 28, 4.)
- Tomblin Murphy, G., MacKenzie A., and Birch, S. (2007). Needs-based health human resources planning the challenge of linking needs to provider requirements. Ottawa, Ontario Canadian Nurses Association.
- Tomblin, M. G., MacKenzie, A., Alder, R., Langley, J., Hickey, M., & Cook, A. (January 01, 2013). Pilot-testing an applied competency-based approach to health human resources planning. *Health Policy and Planning*, 28, 7, 739-49.
- Tucker, J., Hundley, V. Bryers, K.A., Caldow, J., Farmer, J., Harris, F., Ireland, J. van Teijlingen, E. (2005). Sustainable maternity services in remote and rural Scotland? A qualitative survey of staff views on required skills, competencies and training. *Quality Safe Healthcare*, 14(1), 35-40. doi:10.1136/qshc.2004.010561
- Utz, Kana, & Van Den Broek. (2015). Practical aspects of setting up obstetric skills laboratories – A literature review and proposed model. *Midwifery*, 31(4), 400-408.
- Vakola, Maria (2014). What's in there for me? Individual readiness to change and the perceived impact of organizational change. *Leadership & Organization Development Journal*, 35(3), 195-209.
- Valentine, M. A., Nembhard, I. M., & Edmondson, A. C. (2015). Measuring Teamwork in Health Care Settings: A Review of Survey Instruments. *Medical Care*, 53(4), E16-E30.

- Van, C., Costa, D., Mitchell, B., Abbott, P., & Krass, I. (2012). Development and validation of the GP frequency of interprofessional collaboration instrument (FICI-GP) in primary care. *Journal of Interprofessional Care*, 2012, Vol.26(4), P.297-304, 26(4), 297-304.
- Van, L. N., Driessen, E. W., Houwaart, E. S., Caccia, N. C., & Scheele, F. (January 01, 2014). An examination of the historical context of interprofessional collaboration in Dutch obstetrical care. *Journal of Interprofessional Care*, 28, 2, 123-7.
- Van der Klink, N. & Boon, J. (2002). The investigation of competencies within professional domains. *Human Resources Development International*, 5 (4), 411-424. doi:10.1080/13678860110059384
- Van Der Lee, N., Driessen, E., & Scheele, F. (2016). How the past influences interprofessional collaboration between obstetricians and midwives in the Netherlands: Findings from a secondary analysis *Journal of Interprofessional Care*, 30(1), 71-6.
- Van Roosmalen, T., Laumann, Karin, & Norges Teknisk-Naturvitenskapelige Universitet, Fakultet For Samfunnsvitenskap Og Teknologiledelse, Psykologisk Institutt. (2012). *The Development of a Questionnaire on the Subjective Experience of Teamwork, Based on Salas, Sims and Burke's "the Big Five of Teamwork" and Hackman's Understanding of Team Effectiveness*.
- Vanderbilt, A., Dail, M., & Jaber, P. (2015). Reducing health disparities in underserved communities via interprofessional collaboration across health care professions. *Journal of Multidisciplinary Healthcare*, 8, 205-8.

- Vanhoof, J., & Van, P. P. (July 01, 2011). Designing and Evaluating the Process of School Self-Evaluations. *Improving Schools, 14, 2*, 200-212.
- Varpio, L., & Regehr, G. (December 01, 2013). What to Do About Trust? A Source of Contradiction in Interprofessional Collaboration. *Journal of Graduate Medical Education, 5, 4*, 703-704.
- Vegetarian Resource Group. Website. (www.vrg.org 2011 resource)
- Vedam, S., Leeman, L., Cheyney, M., Fisher, T., Myers, S., Low, L., & Ruhl, C. (2014). Transfer from Planned Home Birth to Hospital: Improving Interprofessional Collaboration. *Journal of Midwifery & Women's Health, 59(6)*, 624-634.
- Verma, S., Broers, T., Paterson, M., Schroder, C., Medves, J.M. & Morrison, C. (2009). Core competencies: The next generation comparison of a common framework for multiple professions. *Journal of Allied Health, 38(1)*, 47-53.
- Volpe, R. & Lewko, J. (2008) Science and Sustainability in the Prevention of Neurotrauma: An Ontario Neurotrauma Foundation Review of Best Practice. University of Toronto, Toronto Ontario.
- Wall, T. D., Michie, J., Patterson, M., & Wood, S. J. (2004). On the validity of subjective measures of company performance. *Personnel Psychology, 57*, 95-119.
- Waltz, C.F., Strickland, O.L., & Lenz, E.R. (2005). *Measurement in Nursing and Health Research* (3rd ed.) New York: Springer.
- Weber, M. (1947) *The Theory of Social and Economic Organization* (London: Oxford University Press).

- Weinberg, D. B., Cooney-Miner, D., Perloff, J. N., Babington, L., & Avgar, A. C. (2011). Building collaborative capacity: promoting interdisciplinary teamwork in the absence of formal teams. *Medical Care*, 49, 8, 716-23.
- Weiner, B. J. (January 01, 2009). A theory of organizational readiness for change. *Implementation Science : Is*, 4.
- Weiss, M., & Hoegl, M. (2015). The History of Teamwork's Societal Diffusion. 46(6), 589-622.
- Weller, J. M., Barrow, M., & Gasquoine, S. (2011). Interprofessional collaboration among junior doctors and nurses in the hospital setting. *Medical Education*, 45, 5, 478-87
- West, M.A. and Poulton, B.C. (1997), "A failure of function: teamwork in primary health care", *Journal of Interprofessional Care*, Vol. 11, pp. 205-16.
- West, T. D., Gupta, M., Balas, E. A., & West, D. A. (2002). Identifying cost management strategies in dialysis clinics: sustainable savings with positive outcomes. *The American Journal of Managed Care*, 8, 5, 449-60.
- Weusten, P. D. J. J. A. M. (January 01, 2011). Representative Drug Sampling: Sample Size Calculations Revisited. *Journal of Forensic Sciences*, 56, 2.)
- Willard-Grace, R., Dubé, K., Hessler, D., O'Brien, B., Earnest, G., Gupta, R., . . . Grumbach, K. (2015). Panel management, team culture, and worklife experience. *Families, Systems & Health : The Journal of Collaborative Family Healthcare*, 33(3), 231-41.

- Williams, B., Boyle, M., & Brown, T. (July 01, 2012). Construct validation of the readiness for interprofessional learning scale: A Rasch and factor analysis. *Journal of Interprofessional Care*, 26, 4, 326-332.
- Wilson, J. S., & Websdale, N. (2006). Domestic violence fatality review teams: An interprofessional model to reduce deaths. *Journal of Interprofessional Care*, 20, 5, 535-544.
- World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2008
- Wu Tiejun, Wang Wenjun, Bi Xin, & Liu Dianzhi. (2013). Mediating Effect of Team Trust Between Team Conflict and Team Effectiveness in Self-management Teams. *Journal of Applied Sciences*, 13(9), 1504-1508.
- Yadav, S. (2010). Sports sociology in different communities. *British Journal of Sports Medicine*, 44, I75.
- Yaghmale, F. 2003. Content validity and its estimation. *Journal of Medical Education*, 3 (1) (2003), pp. 25–27
- Youngson, R., Wimbrow T., & Stacey T. (2003). A crisis in maternity services: the courage to be wrong. *Quality and Safety in Healthcare*, 12, 398-400.
- Yu, C., Halapy, H., Kaplan, D., Brydges, R., Hall, S., & Wong, R. (2016). Effects of a Longitudinal Interprofessional Educational Outreach Program on Collaboration. *The Journal of Continuing Education in the Health Professions*, 36(1), 24-31.
- Yu, K., Liang, F., Ciampa, J., & Chatterjee, N. (January 01, 2011). Efficient p-value evaluation for resampling-based tests. *Biostatistics*, 12, 3, 582-593.

- Zemke, R. (1982). Job competencies: Can they help you design better training? *Training*, 19(5), 28-21.
- Zhang, Haycock-Stuart, Mander, & Hamilton. (2015). Navigating the self in maternity care: How Chinese midwives work on their professional identity in hospital setting. *Midwifery*, 31(3), 388-394.
- Zwarenstein, M., & Reeves, S. (2000). What's so great about collaboration? *British Medical Journal*, 320, 7241, 1022.
- Zwarenstein, M., Reeves, S. & Perrier, L. (2005). Effectiveness of pre-licensure interprofessional education and post-licensure collaborative interventions. *Journal of Interprofessional Care*, 1, 148-157.
- Zwarenstein, M., Reeves, S., Russell, A., Kenaszchuk, C., Conn, L., Miller, K., . . . Thorpe, K. (2007). Structuring communication relationships for interprofessional teamwork (SCRIPT): A cluster randomized controlled trial. *Trials*, 8, 23.

Appendix 1: Phase I Questions and Item Deletion

	Phase I Item Number	Phase I Questions/Variables	Source		Response Rate /% of Agreement from Phase I (4's and 5's) Index - CVI
New Question = X Adapted Question = O Exact use = *	1	What is your profession?	N/A	Properties of Original Question	N/A
O	2	I can identify the people I work with.	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	88.89
O	3	I feel a sense of purpose when working with others	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	77.78
O	4	I understand the importance of valuing my co-workers	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	77.78
O	5	I want to work with a group of practitioners I feel proud of	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	88.89
X	6	I like to collaborate with others to set targets for success	N/A	N/A	100
X	7	I feel useful to my work colleagues	N/A	N/A	77.78
O	8	I am ready to solve clinical and/or system problems with my colleagues	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	77.78
O	9	My colleagues and I know exactly who our patient population is	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	66.66 Removed 0
O	10	I expect my colleagues to work to their full scope of practice	QUIPPED , Queen's University Interprofessional Patient-Centred Education Direction. (2007-2008). Queen's University. Funded Project from Health Canada Pan-Canadian Health Human Resources Strategy	CA 0.8	77.78 Removed 0
0	11	I acknowledge that there are others who may know more than me among my colleagues	QUIPPED , Queen's University Interprofessional Patient-Centred Education Direction. (2007-2008). Queen's University. Funded Project from Health Canada Pan-Canadian Health Human Resources Strategy	CA 0.81	88.89
x	12	I prefer to work on my own and consult when I need to.	N/A	N/A	55.55 Kept based on Interview
x	13	I see myself as part of a team.	N/A	N/A	100
x	14	I would willingly enter an IP clinical team.	N/A	N/A	77.78
x	15	I can easily work along with other professionals in any clinical setting.	N/A	N/A	77.78
x	16	interprofessional teamwork improves patient outcomes.	N/A	N/A	100
x	17	IP clinical team work will provide my patient with comprehensive care.	N/A	N/A	88.89
x	18	IP collaboration will improve my ability to understand clinical problems.	N/A	N/A	100
x	19	IP collaboration allows me to cultivate my professional diversity.	N/A	N/A	44.44 Removed

X	20	Learning team working skills is essential for all professionals.	Reid, R., Bruce, D., Allstaff, K., & McLernon, D. (2006). Validating the Readiness for Interprofessional Learning Scale (RIPLS) in the postgraduate context: are health care professionals ready for IPL? <i>Medical Education</i> , 40, 415-422.	N/A	97.77
x	21	The function of non physicians is to provide support for physicians.	N/A	N/A	25 Removed
x	22	Interprofessional teamwork should only be done with professionals from my own discipline.	N/A	N/A	44.44 Removed
*	23	The give and take among team members helps everyone make better patient care decisions	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.	CA 0.87 FL .687 test-retest	66.67 Removed *
*	24	Developing a patient care plan with other team members avoids errors in delivering care	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.	CA 0.87 FL .605 test-retest	77.78
*	25	Being part of a health care team weakens relationships with colleagues in one's own profession	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.	CA 0.87 FL .409 test-retest	44.44 Removed *
*	26	Working in teams unnecessarily complicates things most of the time	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.	CA 0.72 FL .451 test-retest	66.66 Kept based on Interview
O	27	I look for opportunities to communicate with my co-workers.	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	77.77
O	28	I discuss new ways to do things with my colleagues to improve systems or patient care	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	88.89
O	29	My colleagues and I regularly discuss policies and protocols together that pertain to our patient population	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	87.5
O	30	When a patient makes a complaint that pertains to my practice, I am ready to address the issue openly and discuss with my colleagues how it can be avoided in the future	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	100
X	31	Shared decision-making is important.	N/A	N/A	88.89
X	32	I am able to clearly articulate my role and responsibility	N/A	N/A	100
X	33	Conflict is best dealt with directly with the person involved.	N/A	N/A	100
X	34	Communication skills are essential for team work.	N/A	N/A	88.89
X	35	IP collaboration allows me to maintain my professional identity.	N/A	N/A	66.66 Removed
X	36	Patients ultimately benefit if health care practitioners work together to solve patient problems.	N/A	N/A	88.89
X	37	Clinical problem solving skills should only be learned with professionals from my own discipline	N/A	N/A	44.44 Removed

X	38	I would feel comfortable with another professional (same or different profession than mine), knowing more than me on a subject matter.	N/A	N/A	88.89
*	39	Team meetings foster communication among team members from different disciplines	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. Evaluation & the Health Professions, 22, 1, 123-42.	CA 0.87 FL .591 test-retest	77.78
*	40	In most instances, the time required for team meetings could be better spent in other ways	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. Evaluation & the Health Professions, 22, 1, 123-42.	CA 0.87 FL .497 test-retest	66.66 Removed *
*	41	The physician should not always have the final word in decisions made by health care teams	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. Evaluation & the Health Professions, 22, 1, 123-42.	CA 0.75 FL .718 test-retest	88.89
O	42	I can share information freely with my colleagues better than keeping it to my self	Anderson, Neil R., West, Michael A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. Journal of Organizational Behavior, 19, 235-258.	CA .89	77.77 Reworded
O	43	I frequently have conversations with my colleagues formally and informally	Anderson, Neil R., West, Michael A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. Journal of Organizational Behavior, 19, 235-258.	CA .73	75
O	44	I know that my colleagues are properly trained and are competent to do their job	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	100
O	45	My colleagues identify training and development needs as they arise	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	78.11
O	46	I value that my colleagues can 'jump in' and help out with a patient if I am not there	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	100
X	47	I can express to my colleagues when things they have suggested to do have not worked	N/A	N/A	88.89
O	48	When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement	Team Effectiveness Audit Tool - <i>A Questionnaire for Managers and Team Member</i> . Bateman, 2002.	CA 0.98 Test-retest	100
0	49	I can tell my colleagues when I am personally unwell	QUIPPED , Queen's University Interprofessional Patient-Centred Education Direction. (2007-2008). Queen's University. Funded Project from Health Canada Pan-Canadian Health Human Resources Strategy	CA 0.89	87.5
X	50	I am able to implement an order from a team member without question.	N/A	N/A	66.66 Reworded
X	51	I need to know exactly what my colleague does in order to trust their clinical judgment.	N/A	N/A	88.88 Reworded
X	52	Interprofessional teams help build professional relationships.	N/A	N/A	88.89
X	53	Competency based IP teams will only work if practitioners trust one another	N/A	N/A	69.23 Removed
X	54	I trust practitioners whom I encounter in a clinical setting.	N/A	N/A	66.66 Removed
X	55	Leadership is shared in an IP clinical team.	N/A	N/A	77.77
X	56	IP clinical teams are non-hierarchical.	N/A	N/A	77.78

X	57	I tolerate differences in other professional groups.	N/A	N/A	55.55 Removed
X	58	I tolerate short-comings in clinical knowledge in other professional groups.	N/A	N/A	66.66 Removed
X	59	Clinical trainees who have learned in an IP educational model come well prepared to my practice.	N/A	N/A	55.55 Removed
X	60	IP collaboration will help me come up with better clinical solutions for my patients than I would do independently.	N/A	N/A	88.88

X	61	IP collaboration will only work if practitioners trust one another.	N/A	N/A	88.89
X	62	Establishing trust with my patients is important to me.	N/A	N/A	88.89 Removed based on Phase I interviews
X	63	I have to acquire many more skills and greater knowledge than other health care practitioners.	N/A	N/A	44.44 Removed
*	64	Having to report observations to the team helps team members better understand the work of other health professionals	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. Evaluation & the Health Professions, 22, 1, 123-42.	CA 0.87 FL .524 test-retest	100
*	65	Health professionals working on teams gain valuable tips on patient care from one another	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. Evaluation & the Health Professions, 22, 1, 123-42.	CA 0.87 FL .459 test-retest	88.89
O	66	I freely accept help and ideas from my colleagues that will enable me to do a better job	Anderson, Neil R., West, Michael A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. Journal of Organizational Behavior, 19, 235-258.	CA .79	88.89
O	67	I am threatened when I express new and different ideas to my colleagues about a course of care	Anderson, Neil R., West, Michael A. (1998). Measuring climate for work group innovation: development and validation of the team climate inventory. Journal of Organizational Behavior, 19, 235-258.	CA .73	78.11
	68	Scale Content Validity Index			N/A
					17 Removed
		66 original questions left 49			

Appendix 2: Communalities

Variables	Extraction
Q2	.642
Q3	.678
Q4	.632
Q5	.693
Q6	.674
Q7	.658
Q8	.743
Q9	.728
Q10	.646
Q11	.625
Q12	.673
Q13	.653
Q14	.716
Q15	.806
Q16	.717
Q17	.649
Q18	.703
Q19	.745
Q20	.706
Q21	.747
Q22	.589
Q23	.639
Q24	.614
Q25	.668
Q26	.645
Q27	.640
Q28	.694
Q29	.700
Q30	.679
Q31	.821
Q32	.661
Q33	.721
Q34	.724
Q35	.700
Q36	.738
Q37	.592

Q38	.609
Q39	.692
Q40	.740
Q41	.645
Q42	.705
Q43	.686
Q44	.645
Q45	.724
Q46	.730
Q47	.636
Q48	.748
Q49	.668
Q50	.668
Q51	.756

Initial Communalities from Factor Analysis- Phase II

CONSENT FORM

Validation of a new instrument to assess the readiness of post-license practitioners to enter into interprofessional (IP) collaborative teams;

The Readiness to Collaborate Scale

Content Validation of the Readiness to Collaborate Scale

Principal investigator: Jennifer Murdoch, RN, RM, MHSc, PhD (c), Dalhousie University

Supervisor: Gail Tomblin Murphy, RN, PhD
Professor School of Nursing (Faculty of Health Professions), and Department of Community Health and Epidemiology (Faculty of Medicine)
Dalhousie University

Introduction and Purpose

I invite you to take part in a research study that I am conducted as a PhD graduate student in Interdisciplinary Studies at Dalhousie University. Your participation in this study is voluntary and you may withdraw from the study at any time. Your employment performance evaluation will not be affected by whether or not you participate. It is completely confidential. Nobody from your organization will see your responses. The study is described below. This description tells you about the risks, inconvenience, or discomfort which you might experience. Participating in the study might not benefit you, but we might learn things that will benefit others. You should discuss any questions you have about this study with Jennifer Murdoch.

Healthcare providers and administrators are under increasing pressure to improve the way in which healthcare services are delivered. Teams are being assembled in a variety of health sectors, and although there has been some effort to support this work, challenges continue to exist. You are on the frontlines of this emerging work.

This study is assessing the ability of a new survey tool to measure the readiness of an individual practitioner to enter into a team and work in an interprofessional collaborative team. “Readiness to Collaborate Scale,” a newly developed survey tool, may help to identify some barriers and the overall readiness to collaborate prior to the team being assembled. Future interventions to improve practitioner’s readiness to collaborate in an interprofessional team may be recommended in some cases. As part of a PhD dissertation, this tool is being developed to test the readiness of maternal newborn care providers to work together. However, it is hoped that the survey will have broad applications across a variety of different clinical teams in the future.

The “Readiness to Collaborate Scale” will not only be used for interprofessional (IP) team building, but is specifically a tool for assessing perception and readiness to enter an interprofessional team. One example of an IP team is a team that shares the care of maternal newborn patients. Each member has the ability to do prenatal, intrapartum and postpartum care for women and newborns.

How will the researchers do the study?

This study is using a non-experimental survey method. There will be no manipulation of your work environment at any point during this study. A new survey, the Readiness to Collaborate Scale, is in the process of being refined. The thoughts and opinions of those who have or are working in a team will serve to modify and ameliorate this measurement tool. We are planning on having 10 to 15 participants for this phase of the research. The participants in this phase are considered experts in their field and have or are working in a healthcare team for at least five years. In phase 2 of the study, we are inviting approximately 2500 maternal newborn care providers, half from the IWK Health Centre, and half from the BC Women's Hospital and Health Centre.

What will I be asked to do?

The Readiness to Collaborate Scale is ready for validation and we are seeking your expert opinion on the content and format of the draft tool. You will be given a survey using a 5-point rating scale about readiness for team collaboration. You will also be given a tool to consolidate your comments on the survey itself. This will all be done on an online survey using the Opinio platform administered through Dalhousie University.

As an expert in your field, you are asked to give your opinions on the survey's content and format. Please note which items you perceive as ambiguous or cannot be answered on a rating scale. Also state if there are items that are inappropriate or inadequate at measuring readiness to collaborate. You will be given definitions of the three constructs; communication, trust and collaboration to aid in this process. This should take you approximately 60 minutes. Your insights regarding the context, content and appropriateness of the questions, subscales and overall usefulness of the survey will be very much appreciated.

Please provide your email address on the survey. Your comments on this survey will not be anonymous to the researcher. You will be later contacted to be interviewed about the same new survey measure. This is simply to clarify any questions the researcher may have to better update the survey tool.

If you choose to take part in this study, you will complete the survey on-line by going to the URL site: <https://surveys.dal.ca/opinio/s?s=#####>. The survey is done in a web-based format, allowing you to take part at a time that is convenient for you. The survey is housed on the secure Dalhousie server. Once you have entered the survey, you will answer the questions by clicking on the correct response button. Clicking on the "next" button at the bottom of the page will take you to the next set of questions. Keep doing this until you have reached the end of the questions. When you are finished, click on the "finish" button and your survey will be submitted to the Opinio survey storage site where it will remain until the survey administrator extracts the data for analysis.

This is a secure site. You can save an incomplete response and return to complete it at a later date. If you choose to save the survey to complete later, click on the "save" button. When you do this, the Opinio program will prompt you to provide an email address to which it can send you the URL link to retrieve your survey. This is done because your survey is not complete and therefore it cannot be stored in the main survey file (where it will go when you complete it by clicking on "finish" at the end of the

survey). The email address you provide is used by the survey program for this purpose only - the address is not stored in the survey administration system. This means that no one can tell that you used this feature, nor will nor will your email address be visible to anyone, including the study coordinator.

Potential Harms and Benefits

There are no anticipated burdens, risks or potential harms for participation in this study. However, if you are currently working in a team and are unhappy, this survey may cause some stress or discomfort. You will not have to answer any questions if you feel uncomfortable.

There are no anticipated direct benefits for those participating in this study. However, this research may benefit those in your field in the future. The validation of the Readiness to Collaborate Scale may decrease or even eliminate team problems due to early detection of personal collaboration/trust problems. The tool may help your field in assessing people's perception and readiness to enter an interprofessional team. The Readiness to Collaborate Scale may increase team/group cohesion as well as their effectiveness by determining problems so that steps can be taken to fix any issues.

Can I withdraw from the study?

You may withdraw from the study at any point during your completion of the survey. Since your contact information will be attached to your survey, you may choose to withdraw your data after it has been submitted. Whether you choose to participate or not, there will be no effect on your employment.

Costs and Reimbursement

Your participation in the validation of the "Readiness to Collaborate Scale" tool is voluntary. You will not incur any costs from participating. There will be no compensation for your participation in this study.

Conflicts of Interest

There are no actual, perceived or potential conflicts of interest on the part of the researchers or the institutions involved.

How will I be informed of the study results?

This study is seeking to validate a survey tool. There will not be results that will be relevant to you or your organization at this time. If you would like a copy of the final survey, please provide your email address at the end of the survey in the appropriate box.

How will my privacy be protected?

Should you agree to participate, there will be no identifiable information about you in the results and all results from all respondents will be aggregated for purposes of analysis. Only grouped data will be reported during the dissemination of the findings. Individual responses will not be reported. If the results of the study are reported in a publication, this document will not contain any information that would identify you. Study records will be stored on a password protected hard drive.

All data will be collected by Jennifer Murdoch. All data will be stored on a password protected hard drive in a locked filing cabinet. The data will be destroyed seven years after the results have been published. Representatives of the Research Ethics Board at Dalhousie University or the IWK Health Center may contact you or require access to your study-related records to monitor the conduct of the researchers.

What if I have study questions or problems?

If you have any further questions about this study, please feel free to contact Jennifer Murdoch at (902) 820-2295, jennifer.murdoch@dal.ca. We would very much appreciate your participation in this research project.

If anything in the study made you feel uncomfortable or upset in regards to your workplace environment, you may contact the IWK Health Centre's Employee Assistance Program (EAP) at 1-800-461-5558.

What are my Research Rights?

Return of the survey indicates that you have agreed to take part in this research and for your responses to be used. In no way does this waive your legal rights nor release the investigator, sponsors, or involved institution from their legal and professional responsibilities. If you have any questions at any time during or after the study about research in general you may contact the Research Office of the IWK Health Centre at (902) 470-8520, Monday to Friday between 8:00a.m. and 4:00p.m.

Providing consent demonstrates that you understood to your satisfaction the information about the research study and represents your consent to participate in the study.

Thank you for your cooperation,

Jennifer Murdoch
RN, RM, MHSc, PhD (c)
Dalhousie University

I have read the Consent Form, have had the nature of the study explained to me and I agree to participate. I realize that my participation is voluntary and that I am free to withdraw from the study at any time. All questions have been answered to my satisfaction. By submitting my survey, I give consent to use my survey data.

Appendix 4: Phase I Survey

The Readiness to Collaborate Scale (Content Validation - Phase I)

1. What is your profession? Please check one.

- | | | | |
|------------------|--------------------------|--------------------------|--------------------------|
| Physician | <input type="checkbox"/> | Nurse | <input type="checkbox"/> |
| Family Physician | <input type="checkbox"/> | Nurse Practitioner | <input type="checkbox"/> |
| Obstetrician | <input type="checkbox"/> | Licensed Practical Nurse | <input type="checkbox"/> |
| Midwife | <input type="checkbox"/> | Other (explain) | _____ |

Below are the descriptions of the constructs used in this measurement tool.

Description of terms:

Readiness for Interprofessional Collaboration: The state of preparedness of a healthcare practitioner to participate cooperatively and interdependently with other healthcare professionals who, through the mutual awareness and respect of each other’s similar and unique scopes of practice and competencies, and use of collective resources, synergistically optimize care to people in a client-centred, evidence informed approach.

Readiness for Interprofessional Communication: The state of preparedness of a healthcare practitioner to exchange information with another healthcare provider including verbal and non-verbal demonstrations of position, professional and personal values and the overall sharing of mutual knowledge, skills and competencies; culminating into a joint decision, shared leadership client-centred, interprofessional collaborative model.

Readiness for Interprofessional Trust: The state of preparedness of a healthcare practitioner to have faith in the integrity and acceptance of the good intentions of another healthcare professional as well as to have confidence in their words and actions within the interprofessional team.

Please rate the following questions on their representativeness of the above descriptions.

Readiness for Interprofessional (IP) Collaboration

Items	Unacceptable				Excellent	N/A
2. I can identify the people I work with.	1	2	3	4	5	N/A
3. I feel a sense of purpose when working with others.	1	2	3	4	5	N/A
4. I understand the importance of valuing my co-workers.	1	2	3	4	5	N/A
5. I want to work with a group of practitioners I feel proud of.	1	2	3	4	5	N/A
6. I like to collaborate with others to set targets for success.	1	2	3	4	5	N/A
7. I feel useful to my work colleagues.	1	2	3	4	5	N/A

Items	Unacceptable				Excellent	N/A
8. I am ready to solve clinical and/or system problems with my colleagues.	1	2	3	4	5	N/A
9. My colleagues and I know exactly who our patient population is.	1	2	3	4	5	N/A
10. I expect my colleagues to work to their full scope of practice.	1	2	3	4	5	N/A
11. I acknowledge that there are others who may know more than me among my colleagues.	1	2	3	4	5	N/A
12. I prefer to work on my own and consult when I need to.	1	2	3	4	5	N/A
13. I see myself as part of a team.	1	2	3	4	5	N/A
14. I would willingly enter an IP clinical team.	1	2	3	4	5	N/A
15. I can easily work along with other professionals in any clinical setting.	1	2	3	4	5	N/A
16. Interprofessional teamwork improves patient outcomes.	1	2	3	4	5	N/A
17. IP clinical team work will provide my patient with comprehensive care.	1	2	3	4	5	N/A
18. IP collaboration will improve my ability to understand clinical problems.	1	2	3	4	5	N/A
19. IP collaboration allows me to cultivate my professional diversity.	1	2	3	4	5	N/A
20. Learning team working skills is essential for all professionals.	1	2	3	4	5	N/A
21. The function of non-physicians is to provide support for physicians.	1	2	3	4	5	N/A
22. Interprofessional teamwork should only be done with professionals from my own discipline.	1	2	3	4	5	N/A
23. The give and take among team members helps everyone make better patient care decisions.	1	2	3	4	5	N/A
24. Developing a patient care plan with other team members avoids errors in delivering care.	1	2	3	4	5	N/A
25. Being part of a health care team weakens relationships with colleagues in one's own profession.	1	2	3	4	5	N/A
26. Working in teams unnecessarily complicates things most of the time.	1	2	3	4	5	N/A

Readiness for Interprofessional (IP) Communication

Items	Unacceptable				Excellent	N/A
27. I look for opportunities to communicate with my co-workers.	1	2	3	4	5	N/A
28. I discuss new ways to do things with my colleagues to improve systems or patient care.	1	2	3	4	5	N/A
29. My colleagues and I regularly discuss policies and protocols together that pertain to our patient population.	1	2	3	4	5	N/A
30. When a patient makes a complaint that pertains to my practice, I am ready to address the issue openly and discuss with my colleagues how it can be avoided in the future.	1	2	3	4	5	N/A
31. Shared decision-making is important.	1	2	3	4	5	N/A
32. I am able to clearly articulate my role and responsibility.	1	2	3	4	5	N/A
33. Conflict is best dealt with directly with the person involved.	1	2	3	4	5	N/A
34. Communication skills are essential for team work.	1	2	3	4	5	N/A
35. IP collaboration allows me to maintain my professional identity.	1	2	3	4	5	N/A
36. Patients ultimately benefit if health care practitioners work together to solve patient problems.	1	2	3	4	5	N/A
37. Clinical problem solving skills should only be learned with professionals from my own discipline.	1	2	3	4	5	N/A
38. I would feel comfortable with another professional (same or different profession than mine), knowing more than me on a subject matter.	1	2	3	4	5	N/A
39. Team meetings foster communication among team members from different	1	2	3	4	5	N/A

Items	Unacceptable				Excellent	N/A
disciplines.						
40. In most instances, the time required for team meetings could be better spent in other ways.	1	2	3	4	5	N/A
41. The physician should not always have the final word in decisions made by health care teams.	1	2	3	4	5	N/A
42. I can share information freely with my colleagues better than keeping it to myself.	1	2	3	4	5	N/A
43. I frequently have conversations with my colleagues formally and informally.	1	2	3	4	5	N/A

Readiness for Interprofessional (IP) Trust

Items	Unacceptable				Excellent	N/A
44. I know that my colleagues are properly trained and are competent to do their job.	1	2	3	4	5	N/A
45. My colleagues identify training and development needs as they arise.	1	2	3	4	5	N/A
46. I value that my colleagues can 'jump in' and help out with a patient if I am not there.	1	2	3	4	5	N/A
47. I can express to my colleagues when things they have suggested to do have not worked.	1	2	3	4	5	N/A
48. When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement.	1	2	3	4	5	N/A
49. I can tell my colleagues when I am personally unwell.	1	2	3	4	5	N/A
50. I am able to implement an order from a team member without question.	1	2	3	4	5	N/A
51. I need to know exactly what my colleague does in order to trust their clinical judgement.	1	2	3	4	5	N/A
52. Interprofessional teams help build professional relationships.	1	2	3	4	5	N/A
53. Competency based IP teams	1	2	3	4	5	N/A

Items	Unacceptable				Excellent	N/A
will only work if practitioners trust one another.						
54. I trust practitioners who I encounter in a clinical setting.	1	2	3	4	5	N/A
55. Leadership is shared in an IP clinical team.	1	2	3	4	5	N/A
56. IP clinical teams are non-hierarchical.	1	2	3	4	5	N/A
57. I tolerate differences in other professional groups.	1	2	3	4	5	N/A
58. I tolerate short-comings in clinical knowledge in other professional groups.	1	2	3	4	5	N/A
59. Clinical trainees who have learned in an IP educational model come well prepared to my practice.	1	2	3	4	5	N/A
60. IP collaboration will help me come up with better clinical solutions for my patients than I would do independently.	1	2	3	4	5	N/A
61. IP collaboration will only work if practitioners trust one another.	1	2	3	4	5	N/A
62. Establishing trust with my patients is important to me.	1	2	3	4	5	N/A
63. I have to acquire many more skills and greater knowledge than other health care practitioners.	1	2	3	4	5	N/A
64. Having to report observations to the team helps team members better understand the work of other health professionals.	1	2	3	4	5	N/A
65. Health professionals working on teams gain valuable tips on patient care from one another.	1	2	3	4	5	N/A
66. I freely accept help and ideas from my colleagues that will enable me to do a better job.	1	2	3	4	5	N/A
67. I am threatened when I express new and different ideas to my colleagues about a course of care.	1	2	3	4	5	N/A

Content Validation Index

Questions on tool format and function	Unacceptable				Excellent
1. Clarity & simplicity of instrument	1	2	3	4	5
2. Time & effort to complete	1	2	3	4	5
3. Instructions and definitions provided	1	2	3	4	5
4. Are important areas missing?	1	2	3	4	5
5. Items redundant	1	2	3	4	5
6. 5-point scale adequate	1	2	3	4	5
7. Measures your perceptions of what collaborative practice could be	1	2	3	4	5
8. Likelihood of instrument being used by health professionals and decision makers	1	2	3	4	5
9. Applicable to your practice setting?	1	2	3	4	5

Appendix 5: Content Validation Interview Guide

Date: _____

Discipline: _____

Impressions of interprofessional collaboration

1. How you would define 'collaboration' when using that word about healthcare?
2. What do you understand by the term 'interprofessional care'?
3. What do you understand to be the goal of 'interprofessional collaboration' (IPC)?
4. How would you describe a successful 'interprofessional healthcare team'?

Readiness to Collaborate

1. How important for you, is interprofessional team based care?
2. What for you is the ultimate outcome of collaboration in healthcare?
3. How would you describe your personal barriers to collaboration?
4. How would you describe some of the factors that encourage/discourage possible engagement in collaborative care?
5. Do you have any comments regarding the Readiness to Collaborate Scale?
 - a. Do you have any comments on any specific questions?
 - b. Do you have any suggested changes on any specific question

Appendix 6: Consent - Construct Validation Participants – Phase II

CONSENT FORM

Validation of a new instrument to assess the readiness of post-license practitioners to enter into interprofessional (IP) collaborative teams;

The Readiness to Collaborate Scale

Construct Validation of the Readiness to Collaborate Scale

Principal investigator: Jennifer Murdoch, RN, RM, MHSc, PhD (c), Dalhousie University

Supervisor: Gail Tomblin Murphy, RN, PhD
Professor School of Nursing (Faculty of Health Professions), and Department of Community Health and Epidemiology (Faculty of Medicine)
Director, WHO/PAHO Collaborating Centre on Health Workforce Planning and Research
Dalhousie University

Introduction and Purpose

I invite you to take part in a research study I am conducting as a PhD graduate student in Interdisciplinary Studies at Dalhousie University. Your participation in this study is voluntary and you may withdraw from the study at any time. Your employment performance evaluation will not be affected by whether or not you participate. It is completely confidential. Nobody from your organization will see your responses. The study is described below. This description tells you about the risks, inconvenience, or discomfort which you might experience. Participating in the study might not benefit you, but we might learn things that will benefit others. You should discuss any questions you have about this study with Jennifer Murdoch.

Healthcare providers and administrators are under increasing pressure to improve the way in which healthcare services are delivered. Teams are being assembled in a variety of health sectors, and although there has been some effort to support this work, challenges continue to exist. You are on the frontlines of this emerging work.

This study is assessing the ability of a new survey tool to measure the readiness of an individual practitioner to enter into a team and work in an interprofessional collaborative team. “Readiness to Collaborate Scale,” a newly developed survey tool, may help to identify some barriers and overall readiness to collaborate prior to the team being assembled. Future interventions to improve practitioner’s readiness to collaborate in an interprofessional team may be recommended in some cases. As part of a PhD dissertation, this tool is being developed to test the readiness of maternal newborn care providers to work together. However, it is hoped that the survey will have broad applications across a variety of different clinical teams in the future.

The “Readiness to Collaborate Scale” will not only be used for interprofessional (IP) team building, but is specifically a tool for assessing perception and readiness to enter an interprofessional team. One example of an IP team is a team that shares the care of maternal newborn patients. Each member has the ability to do prenatal, intrapartum and postpartum care for women and newborns.

How will the researchers do the study?

This study is using a non-experimental survey method. There will be no manipulation of your work environment at any point during this study. A new survey, the Readiness to Collaborate Scale, is in the process of being refined. The completion of this survey by those who have or are working in an interprofessional team will serve to adjust, fix, and validate this measurement tool. This survey is being distributed to maternal newborn care providers who have or are working in a team in Nova Scotia and British Columbia. We are inviting approximately 2500 maternal newborn care providers, half from the IWK Health Centre, and half from the BC Women's Hospital and Health Centre.

What will I be asked to do?

The Readiness to Collaborate Scale is ready for validation and we are seeking participation to assist in this process. You are being asked to complete an online survey using the Opinio platform administered through Dalhousie University. This survey should take you approximately 10-15 minutes. You will be asked to rate yourself on various items that will look at your readiness for interprofessional collaboration, communication and trust.

If you choose to take part in this study, you will complete the survey on-line by going to the URL site: <https://surveys.dal.ca/opinio/s?s=#####>. The survey is done in a web-based format, allowing you to take part at a time that is convenient for you. The survey is housed on the secure Dalhousie server. Once you have entered the survey, you will answer the questions by clicking on the correct response button. Clicking on the "next" button at the bottom of the page will take you to the next set of questions. Keep doing this until you have reached the end of the questions. When you are finished, click on the "finish" button and your survey will be submitted to the Opinio survey storage site where it will remain until the survey administrator extracts the data for analysis.

This is a secure site. You can save an incomplete response and return to complete it at a later date. If you choose to save the survey to complete later, click on the "save" button. When you do this, the Opinio program will prompt you to provide an email address to which it can send you the URL link to retrieve your survey. This is done because your survey is not complete and therefore it cannot be stored in the main survey file (where it will go when you complete it by clicking on "finish" at the end of the survey). The email address you provide is used by the survey program for this purpose only - the address is not stored in the survey administration system. This means that the no one can tell that you used this feature, nor will nor will your email address be visible to anyone, including the study coordinator.

Potential Harms and Benefits

There are no anticipated burdens, risks or potential harms for participation in this study. However, if you are currently working in a team and are unhappy, this survey may cause some stress or discomfort. Additionally, it must be clearly understood that there is no employment impact for any respondent. These are completely confidential and anonymous surveys; neither the researcher nor the HR departments or units where the respondent works is identifiable or revealed. This is an anonymous survey so no one will

know what answers you reported. Also, you will not have to answer any questions if you feel uncomfortable.

There are no anticipated direct benefits for those participating in this study. However, this research may benefit those in your field in the future. The validation of the Readiness to Collaborate Scale may decrease or even eliminate team problems due to early detection of personal collaboration and/or trust problems. The tool may help your field in assessing people's perception and readiness to enter an interprofessional team. The Readiness to Collaborate Scale may increase team/group cohesion as well as their effectiveness by determining problems so that steps can be taken to fix any issues.

Can I withdraw from the study?

You may withdraw from the study at any point during your completion of the survey. However, you may not withdraw from the study after submission of the survey as the results are anonymous and we will not be able to determine which data is yours. Whether you choose to participate or not, there will be no effect on your employment at the IWK Heath Centre.

Costs and Reimbursement

Your participation in the validation of the "Readiness to Collaborate Scale" tool is voluntary. You will not incur any costs from participating. As compensation for your time, you will be entered into a prize draw for one \$100 gift card of your choice (i.e. spa, grocery store, restaurant, Visa). At the end of the survey, you will be asked to provide your email address if you wish to be entered into the prize draw. This draw will take place once all the data from your organization has been collected and the survey has closed.

Conflicts of Interest

There are no actual, perceived or potential conflicts of interest on the part of the researchers or the institutions involved.

How will I be informed of the study results?

This study is seeking to validate a survey tool. There will not be results that will be relevant to you or your organization at this time. If you would like a copy of the final survey, please provide your email address at the end of the survey in the appropriate box.

How will my privacy be protected?

Should you agree to participate, there will be no identifiable information about you and all results from all respondents will be aggregated for purposes of analysis. No identifying information of participants will be linked to the data. If you provide your email address for the prize draw or to receive a copy of the final survey, your email will be removed from the dataset prior to the analysis.

Only grouped data will be reported during the dissemination of the findings. Individual responses will not be reported. If the results of the study are reported in a publication, this document will not contain any information that would identify you. Study records will be stored on a password protected hard drive.

All data will be collected by Jennifer Murdoch. All data will be stored on a password protected hard drive in a locked filing cabinet. The data will be destroyed seven years after the results have been published. Representatives of the Research Ethics Board at the IWK Health Center may contact you or require access to your study-related records to monitor the conduct of the researchers.

What if I have study questions or problems?

If you have any further questions about this study, please feel free to contact Jennifer Murdoch at (902) 820-2295, jennifer.murdoch@dal.ca. We would very much appreciate your participation in this research project.

If anything in the study made you feel uncomfortable or upset in regards to your workplace environment, you may contact the IWK Health Centre's Employee Assistance Program (EAP) at 1-800-461-5558.

What are my Research Rights?

Return of the survey indicates that you have agreed to take part in this research and for your responses to be used. In no way does this waive your legal rights nor release the investigator, sponsors, or involved institution from their legal and professional responsibilities. If you have any questions at any time during or after the study about research in general you may contact the Research Office of the IWK Health Centre at (902) 470-8520, Monday to Friday between 8:00a.m. and 4:00p.m.

Providing consent demonstrates that you understood to your satisfaction the information about the research study and represents your consent to participate in the study.

Thank you for your cooperation,

Jennifer Murdoch
RN, RM, MHSc, PhD (c)
Dalhousie University

I have read the Consent Form, have had the nature of the study explained to me and I agree to participate. I realize that my participation is voluntary and that I am free to withdraw from the study at any time. All questions have been answered to my satisfaction. By submitting my survey, I give consent to use my survey data.

Appendix 7: Phase II Survey

The Readiness to Collaborate Scale

What is your profession? Please check one.

- | | | | |
|------------------|--------------------------|--------------------------|--------------------------|
| Physician | <input type="checkbox"/> | Nurse | <input type="checkbox"/> |
| Family Physician | <input type="checkbox"/> | Nurse Practitioner | <input type="checkbox"/> |
| Obstetrician | <input type="checkbox"/> | Licensed Practical Nurse | <input type="checkbox"/> |
| Midwife | <input type="checkbox"/> | Other (explain) | _____ |

Please rate yourself on the following questions.

Readiness for Interprofessional (IP) Collaboration

Items	Strongly Disagree				Strongly Agree
1. I can identify the people I work with.	1	2	3	4	5
2. I feel a sense of purpose when working with others.	1	2	3	4	5
3. I understand the importance of valuing my co-workers.	1	2	3	4	5
4. I want to work with a group of practitioners I feel proud of.	1	2	3	4	5
5. I like to collaborate with others to set targets for success.	1	2	3	4	5
6. I feel useful to my work colleagues.	1	2	3	4	5
7. I am ready to solve clinical and/or system problems with my colleagues.	1	2	3	4	5
8. I acknowledge that there are others who may know more than me among my colleagues.	1	2	3	4	5
9. I prefer to work on my own and consult when I need to.	1	2	3	4	5
10. I see myself as part of a team.	1	2	3	4	5
11. I would willingly enter an IP clinical team.	1	2	3	4	5
12. I can easily work along with other professionals in any clinical setting.	1	2	3	4	5
13. Interprofessional teamwork improves patient outcomes.	1	2	3	4	5
14. IP clinical team work will provide my patient with comprehensive care.	1	2	3	4	5
15. IP collaboration will improve my ability to understand clinical problems.	1	2	3	4	5

Items	Strongly Disagree				Strongly Agree
16. Learning team working skills is essential for all professionals.	1	2	3	4	5
17. Developing a patient care plan with other team members avoids errors in delivering care.	1	2	3	4	5
18. Patients ultimately benefit if health care practitioners work together to solve patient problems.	1	2	3	4	5
19. Leadership is shared in an IP clinical team.	1	2	3	4	5
20. IP clinical teams are non-hierarchical.	1	2	3	4	5
21. IP collaboration will help me come up with better clinical solutions for my patients than I would do independently.	1	2	3	4	5
22. Working in teams unnecessarily complicates things most of the time.	1	2	3	4	5

Readiness for Interprofessional (IP) Communication

Items	Strongly Disagree				Strongly Agree
23. I look for opportunities to communicate with my co-workers.	1	2	3	4	5
24. I discuss new ways to do things with my colleagues to improve systems or patient care.	1	2	3	4	5
25. My colleagues and I regularly discuss policies and protocols together that pertain to our patient population.	1	2	3	4	5
26. When a patient makes a complaint that pertains to my practice, I am ready to address the issue openly and discuss with my colleagues how it can be avoided in the future.	1	2	3	4	5
27. Shared decision-making is important.	1	2	3	4	5
28. I am able to clearly articulate my role	1	2	3	4	5

Items	Strongly Disagree				Strongly Agree
and responsibility.					
29. Conflict is best dealt with directly with the person involved.	1	2	3	4	5
30. Communication skills are essential for team work.	1	2	3	4	5
31. Team meetings foster communication among team members from different disciplines.	1	2	3	4	5
32. I can share information freely with my colleagues about clinical challenges I have.	1	2	3	4	5
33. I frequently have conversations with my colleagues formally and informally.	1	2	3	4	5

Readiness for Interprofessional (IP) Trust

Items	Strongly Disagree				Strongly Agree
34. I am aware of the roles of all of my colleagues	1	2	3	4	5
35. I know that my colleagues are properly trained and are competent to do their job.	1	2	3	4	5
36. My colleagues identify training and development needs as they arise.	1	2	3	4	5
37. I value that my colleagues can 'jump in' and help out with a patient if I am not there.	1	2	3	4	5
38. I can express to my colleagues when things they have suggested to do have not worked.	1	2	3	4	5
39. When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement.	1	2	3	4	5
40. I can tell my colleagues when I am personally unwell.	1	2	3	4	5
41. I am able to implement an order from a team member of another discipline.	1	2	3	4	5
42. I need to know exactly what my	1	2	3	4	5

Items	Strongly Disagree				Strongly Agree
colleague's scope of practice is in order to trust their clinical judgement.					
43. Interprofessional teams help build professional relationships.	1	2	3	4	5
44. IP collaboration will only work if practitioners trust one another.	1	2	3	4	5
45. Having to report observations to the team helps team members better understand the work of other health professionals.	1	2	3	4	5
46. Health professionals working on teams gain valuable tips on patient care from one another.	1	2	3	4	5
47. I freely accept help and ideas from my colleagues that will enable me to do a better job.	1	2	3	4	5
48. I would feel comfortable with another professional (same or different profession than mine), knowing more than me on a subject matter.	1	2	3	4	5
49. The physician should not always have the final word in decisions made by health care teams	1	2	3	4	5
50. I am threatened when I express new and different ideas to my colleagues about a course of care.	1	2	3	4	5

Years in service - please check one

0 - 5
 5 - 10
 10 - 15
 over
 Retired/Out of Practice

Practice Environment (circle all that apply)

Co-located practice
 Share call with same profession but not in a team

In hospital team

Community based team
 Solo practice

Consultant only

If practicing in a team please check yes or no to the following questions

- Yes
 No
 Don't know
1. Does your team have clear objectives?
 2. Do you frequently work with other team members in order to achieve these team objectives?
 3. Are there different roles for team members within this team?
 4. Is your team recognized by others in the hospital as a clearly defined work team to perform a specific function?
 5. Does your team effect change in the organization?

Appendix 8: Positive and Negative Correlations Examples

Example Positive Correlations

Questions	Coefficient (r=Positive Strong)
Q31, Q4 Communication skills are essential for team work / I want to work with a group of practitioners I feel proud of	.733
Q16, Q15 IP collaboration will improve my ability to understand clinical problems / IP clinical teamwork will provide my patient with comprehensive care.	.708
Q19, Q18 Patients ultimately benefit if health care practitioners work together to solve patient problems / Developing a patient care plan with other team members avoids errors in delivering care	.647
Q4, Q3 I want to work with a group of practitioners I feel proud of / I understand the importance of valuing my co-workers	.623
Q15, Q12 IP clinical team work will provide my patient with comprehensive care / I would willingly enter an IP clinical team.	.597
Q47, Q44 Health professionals working on teams gain valuable tips on patient care from one another / Interprofessional teams help build professional relationships.	.569

Example Negative Correlations

Questions	Coefficient (r=Negative Moderate to Low)
Q12, Q23 I would willingly enter an IP clinical team / Working in teams unnecessarily complicates things most of the time	-.392
Q23, Q15 Working in teams unnecessarily complicates things most of the time / IP clinical teamwork will provide my patient with comprehensive care.	-.368
Q44, Q23 Interprofessional teams help build professional relationships / Working in teams unnecessarily complicates things most of the time	-.350
Q10, Q15 I prefer to work on my own and consult when I need to / IP clinical team work will provide my patient with comprehensive care	-.343

Appendix 9: Primary Place of Work and Years in Service – Phase II

Location and Team Arrangement	Number	%
In-hospital (all same prof.)	24	17%
In-hospital (different prof.)	61	44%
Community based team (all same prof.)	31	22%
Community based team (all different prof.)	23	16%

Collaborative Arrangement	Number	%
Consultant only	2	4%
Shared call with same profession	33	67%
Shared call with different professions	5	10%
Solo Practice	9	18%

Years in Service	Number	%
0-5	38	29.0%
6-10	22	16.8%
11-15	22	16.8%
16 and over	47	35.9%
Retired/Out of Practice	2	1.5%

Phase II participants (n=140): primary location and team at work (n=139); collaborative team arrangement (n=49) and; years in service (n=131)

Appendix 10: Descriptive Statistics

Questions	Mean answer	Std. Deviation	Missing #
Q2	4.40	.757	0
Q3	4.50	.703	0
Q4	4.82	.484	0
Q5	4.86	.468	0
Q6	4.46	.790	0
Q7	4.35	.822	0
Q8	4.50	.763	0
Q9	4.82	.552	4
Q10	2.90	1.034	4
Q11	4.54	.644	4
Q12	4.45	.863	5
Q13	4.32	.726	5
Q14	4.72	.665	4
Q15	4.62	.635	4
Q16	4.57	.685	4
Q17	4.79	.510	6
Q18	4.45	.801	6
Q19	4.78	.541	6
Q20	4.10	.908	6
Q21	3.69	1.062	6
Q22	4.46	.706	6
Q23	2.16	.959	6
Q24	4.34	.736	9
Q25	4.37	.790	8
Q26	4.07	.923	8
Q27	4.34	.738	8
Q28	4.64	.615	8
Q29	4.48	.683	8
Q30	4.52	.673	8
Q31	4.92	.391	9
Q32	4.53	.700	11
Q33	4.18	.835	9
Q34	4.43	.760	8
Q35	4.27	.794	10
Q36	4.26	.712	11
Q37	3.87	.808	10
Q38	4.61	.673	10

Q39	4.00	.796	10
Q40	4.32	.749	11
Q41	4.09	.901	10
Q42	4.34	.829	9
Q43	3.52	1.048	9
Q44	4.69	.551	9
Q45	4.68	.563	10
Q46	4.27	.730	9
Q47	4.63	.535	12
Q48	4.67	.500	10
Q49	4.81	.482	9
Q50	4.26	1.063	9
Q51	2.29	1.076	9

Descriptive Statistics: Item/Question Mean Answer – Standard Deviation –Total Missing Items for Phase II Survey Results = 337

Appendix 11: Total Variance Post Rotation

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	13.613	27.225	27.225	13.613	27.225	27.225	7.865
2	3.596	7.192	34.417	3.596	7.192	34.417	8.646
3	2.603	5.207	39.624	2.603	5.207	39.624	3.764
4	2.004	4.008	43.632	2.004	4.008	43.632	9.118
5	1.952	3.905	47.537				
6	1.745	3.491	51.027				
7	1.582	3.164	54.192				
8	1.403	2.807	56.998				
9	1.279	2.558	59.556				
10	1.135	2.269	61.825				
11	1.098	2.196	64.021				
12	1.023	2.046	66.067				
13	1.000	2.000	68.067				
14	.994	1.988	70.054				
15	.946	1.891	71.946				
16	.905	1.809	73.755				
17	.851	1.702	75.457				
18	.807	1.614	77.071				
19	.758	1.517	78.588				
20	.740	1.479	80.067				
21	.655	1.310	81.377				
22	.651	1.302	82.678				
23	.604	1.208	83.886				
24	.599	1.198	85.084				
25	.576	1.151	86.236				
26	.514	1.029	87.264				
27	.496	.993	88.257				
28	.463	.926	89.184				
29	.453	.906	90.089				
30	.407	.814	90.903				
31	.385	.770	91.673				
32	.371	.741	92.414				
33	.355	.710	93.124				
34	.335	.670	93.794				

35	.323	.646	94.440				
36	.302	.604	95.044				
37	.280	.560	95.604				
38	.263	.526	96.130				
39	.242	.485	96.615				
40	.231	.462	97.077				
41	.210	.420	97.497				
42	.199	.399	97.896				
43	.194	.388	98.285				
44	.166	.332	98.617				
45	.157	.313	98.930				
46	.141	.283	99.213				
47	.122	.244	99.457				
48	.097	.194	99.651				
49	.094	.189	99.840				
50	.080	.160	100.000				

Total Variance Explained for Each Item – Highlighting the Four Factors Chosen for the Readiness to Collaborate Scale

Appendix 12: Pattern Matrix – Post Rotation

Variable	Component			
	1	2	3	4
Q31	0.819			
Q5	0.738			
Q9	0.671			
Q4	0.587			
Q17	0.526			
Q30	0.521			
Q19	0.432			
Q38	0.359			
Q2				
Q44		-0.759		
Q15		-0.726		
Q47		-0.687		
Q16		-0.68		
Q22		-0.643		
Q12		-0.626		
Q23		0.597		
Q42		-0.567		
Q14		-0.543		
Q49		-0.524		
Q10		0.489		
Q20		-0.456		
Q46		-0.45		
Q48		-0.409		
Q18		-0.396		
Q32		-0.387		
Q21				
Q45				
Q39			0.708	
Q41			0.577	
Q33			0.508	
Q36			0.484	
Q40			0.481	
Q35			0.48	
Q37			0.47	
Q51			-0.46	
Q43			0.349	
Q50				

Q26				0.768
Q25				0.757
Q7				0.657
Q24				0.64
Q8				0.628
Q34				0.546
Q27				0.539
Q29				0.514
Q11				0.501
Q28				0.5
Q3				0.452
Q6				0.401
Q13				0.368

Pattern Matrix – Rotation Method Oblimin showing loadings onto each four factors

Appendix 13: Factor 1 - Questions and Loadings – Post Rotation

Factor 1: Readiness for Interprofessional Collaboration	Coefficient
Q31: Communication skills are essential for teamwork.	.819
Q4: I want to work with a group of practitioners I feel proud of.	.738
Q8: I acknowledge that there are others who may know more than me among my colleagues.	.671
Q3: I understand the importance of valuing my co-workers.	.587
Q17: Learning team working skills is essential for all professionals.	.526
Q30: Conflict is best dealt with directly with the person involved.	.521

Appendix 14: Factor 3 - Questions and Loadings – Post Rotation

Factor 3: Readiness for Interprofessional Trust	Coefficient
Q39: I can express to my colleagues when things they have suggested to do have not worked.	.708
Q41: I can tell my colleagues when I am personally unwell	.577
Q33: I can share information freely with my colleagues about clinical challenges I have	.508
Q36: I know that my colleagues are properly trained and are competent to do their job	.484
Q40: When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement	.481
Q35: I am aware of the roles of all of my colleagues.	.480
Q37: My colleagues identify training and development needs as they arise	.470
Q51: I am threatened when I express new and different ideas to my colleagues about a course of care	-.460

Appendix 15: Factor 4 - Questions and Loadings – Post Rotation

Factor 4: Readiness for Interprofessional Communication	Coefficient
Q26: My colleagues and I regularly discuss policies and protocols together that pertain to our patient population.	.768
Q25: I discuss new ways to do things with my colleagues to improve systems or patient care	.757
Q7: I feel useful to my work colleagues	.657
Q24: I look for opportunities to communicate with my co-workers.	.640
Q8: I am ready to solve clinical and/or system problems with my colleagues	.628
Q34: I frequently have conversations with my colleagues formally and informally	.546
Q27: When a patient makes a complaint that pertains to my practice, I am ready to address the issue openly and discuss with my colleagues how it can be avoided in the future	.539
Q29: I am able to clearly articulate my role and responsibility	.514
Q11: I see myself as part of a team.	.501
Q28: Shared decision-making is important.	.500
Q3: I feel a sense of purpose when working with others	.452

Appendix 16: Factor 2 - Questions and Loadings – Post Rotation

Factor 2: Reluctance for Interprofessional Collaboration	Coefficient
Q44: Interprofessional teams help build professional relationships.	-.759
Q15: IP clinical teamwork will provide my patient with comprehensive care.	-.726
Q47: Health professionals working on teams gain valuable tips on patient care from one another	-.687
Q16: IP collaboration will improve my ability to understand clinical problems.	-.680
Q22: IP collaboration will help me come up with better clinical solutions for my patients than I would do independently.	-.643
Q12: I would willingly enter an IP clinical team.	-.626
Q23: Working in teams unnecessarily complicates things most of the time	.597
Q42: I am able to implement an order from a team member of another discipline	-.567
Q14: Interprofessional teamwork improves patient outcomes.	-.543
Q49: I would feel comfortable with another professional (same or different profession than mine), knowing more than me on a subject matter.	-.524
Q10: I prefer to work on my own and consult when I need to.	.489
Q20: Leadership is shared in an IP clinical team.	-.456

Appendix 17: Repeat Rotation Question Added

Factor 1 Added Questions Post Repeat Rotation

Factor 1: Readiness for Interprofessional Collaboration	Coefficient
Q19: Patients ultimately benefit if health care practitioners work together to solve patient problems.	.432
Q38: I value that my colleagues can 'jump in' and help out with a patient if I am not there	.359

Factor 2 Added Questions Post Repeat Rotation

Factor 2: Reluctance for Interprofessional Collaboration	Coefficient
Q 46: Having to report observations to the team helps team members better understand the work of other health professionals	.450
Q 48: I freely accept help and ideas from my colleagues that will enable me to do a better job	.409
Q 18: Developing a patient care plan with other team members avoids errors in delivering care	.396
Q 32: Team meetings foster communication among team members from different disciplines	.387

Factor 3 Added Questions Post Repeat Rotation

Factor 3: Readiness for Interprofessional Trust	Coefficient
Q 43: I need to know exactly what my colleague's scope of practice is in order to trust their clinical judgement.	.349

Factor 4 Added Questions Post Repeat Rotation

Factor 4: Readiness for Interprofessional Communication	Coefficient
Q 6: I like to collaborate with others to set targets for success	.401
Q 13: I can easily work along with other professionals in any clinical setting.	.368

Appendix 18: Final RCS with Chronbach's Alpha

Item Number	Final Survey - Questions/Variables	Factor CA	Item Number	Final Survey - Questions/Variables	Item CA	Factor CA	Item Number	Final Survey - Questions/Variables	Item CA	Factor CA	Item Number	Final Survey - Questions/Variables	Item CA
1	What is your Profession? General Practitioner Family Physician Obstetrician Midwife Nurse Nurse Practitioner Other (Please Explain)	Collaboration CA .58	2	Communication skills are essential for teamwork.	0.51	Trust CA .72	16	Interprofessional teamwork improves patient outcomes.	0.77	Communication CA .89	29	I need to know exactly what my colleagues scope of practice is in order to trust their clinical judgment.	0.7
			3	I want to work with a group of practitioners I feel proud of.	0.49		17	I would feel comfortable with another professional (same or different profession than mine), knowing more than me on a subject	0.78		30	My colleagues and I regularly discuss policies and protocols together that pertain to our patient population	0.88
			4	I acknowledge that there are others who may know more than me among my colleagues.	0.57		18	I prefer to work on my own and consult when I need to.	0.86		31	I discuss new ways to do things with my colleagues to improve systems or patient care	0.87
			5	I understand the importance of valuing my co-workers.	0.55		19	Leadership is shared in an IP clinical team.	0.76		32	I feel useful to my work colleagues	0.87
			6	Learning team-working skills is essential for all professionals.	0.39		20	I freely accept help and ideas from my colleagues that will enable me to do a better job	0.78		33	I look for opportunities to communicate with my co-workers.	0.87
			7	Conflict is best dealt with directly with the person involved.	0.49		21	I can express to my colleagues when things they have suggested to do have not worked.	0.54		34	I am ready to solve clinical and/or system problems with my colleagues	0.87
			8	Patients ultimately benefit if health care practitioners work together to solve patient problems.	0.49		22	I can tell my colleagues when I am personally unwell	0.59		35	I frequently have conversations with my colleagues formally and informally	0.87
			9	I value that my colleagues can 'jump in' and help out with a patient if I am not there	0.59		23	I can share information freely with my colleagues about clinical challenges I have	0.58		36	When a patient makes a complaint that pertains to my practice, I am ready to address the issue openly and discuss with	0.88
			10	Interprofessional teams help build professional relationships.	0.76		24	I know that my colleagues are properly trained and are competent to do their job	0.58		37	I am able to clearly articulate my role and responsibility	0.87
		11	IP clinical team-work will provide my patient with comprehensive care.	0.78	25		When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement	0.57	38		I see myself as part of a team.	0.87	
		12	IP collaboration will improve my ability to understand clinical problems.	0.76	26		I am aware of the roles of all of my colleagues.	0.58	39		Shared decision making is important.	0.88	
		13	IP collaboration will help me come up with better clinical solutions for my patients than I would do independently.	0.77	27		My colleagues identify training and development needs as they arise	0.57	40		I feel a sense of purpose when working with others	0.87	
		14	I would willingly enter an IP clinical team.	0.79	28		I am threatened when I express new and different ideas to my colleagues about a course of care	0.79	41		I like to collaborate with others to set targets for success	0.87	
		15	I am able to implement an order from a team member of another discipline	0.77					42		I can easily work along with other professionals in any clinical setting.	0.87	
				Reluctancy CA .85									

Appendix 19: Removed Questions – Exact Wording From Previously Validated Tools

Questions Removed	Original Tool
Q18: ‘Developing a patient care plan with other team members avoids errors in delivering care’	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.
Q47: ‘Health professionals working on teams gain valuable tips on patient care from one another’	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.
Q46 ‘Having to report observations to the team helps team members better understand the work of other health professionals’	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.
Q32 ‘Team meetings foster communication among team members from different disciplines’ and;	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.
Q23 ‘Working in teams unnecessarily complicates things most of the time’	Heinemann, G. D., Schmitt, M. H., Farrell, M. P., & Brallier, S. A. (January 01, 1999). Development of an Attitudes Toward Health Care Teams Scale. <i>Evaluation & the Health Professions</i> , 22, 1, 123-42.

Appendix 20: Final Readiness to Collaborate Scale (RCS)

The Readiness to Collaborate Scale (RCS)

1. What is your profession? Please check one.

- | | | | |
|------------------|--------------------------|--------------------------|--------------------------|
| Physician | <input type="checkbox"/> | Nurse | <input type="checkbox"/> |
| Family Physician | <input type="checkbox"/> | Nurse Practitioner | <input type="checkbox"/> |
| Obstetrician | <input type="checkbox"/> | Licensed Practical Nurse | <input type="checkbox"/> |
| Midwife | <input type="checkbox"/> | Other (explain) | _____ |

Please rate yourself on the following questions.

	Strongly Disagree				Strongly Agree
Question	1	2	3	4	5
2.Communication skills are essential for teamwork.					
3.I want to work with a group of practitioners I feel proud of.					
4.I acknowledge that there are others who may know more than me among my colleagues					
5.I understand the importance of valuing my co-workers.					
6.Learning team working skills is essential for all professionals.					
7.Conflict is best dealt with directly with the person involved.					
8.Patients ultimately benefit if health care practitioners work together to solve patient problems.					
9.I value that my colleagues can 'jump in' and help out with a patient if I am not there					
10.Interprofessional teams help build professional relationships.					
11.IP clinical team work will provide my patient with comprehensive care					

	Strongly Disagree				Strongly Agree
Question	1	2	3	4	5
12.IP collaboration will improve my ability to understand clinical problems.					
13.IP collaboration will help me come up with better clinical solutions for my patients than I would do independently					
14.I would willingly enter an IP clinical team					
15.I am able to implement an order from a team member of another discipline					
16.Interprofessional teamwork improves patient outcomes					
17.I would feel comfortable with another professional (same or different profession than mine), knowing more than me on a subject matter					
18.I prefer to work on my own and consult when I need to					
19.Leadership is shared in an IP clinical team					
20.I freely accept help and ideas from my colleagues that will enable me to do a better job					
21.I can express to my colleagues when things they have suggested to do have not worked					
22.I can tell my colleagues when I am personally unwell					
23.I can share information freely with my colleagues about clinical challenges I have					
24.I know that my colleagues are properly trained and are competent to do their job					
25.When I make a mistake, I like to discuss it with my colleagues and make a plan for improvement					

	Strongly Disagree				Strongly Agree
Question	1	2	3	4	5
26.I am aware of the roles of all of my colleagues					
27.My colleagues identify training and development needs as they arise					
28.I am threatened when I express new and different ideas to my colleagues about a course of care					
29. I need to know exactly what my colleague's scope of practice is in order to trust their clinical judgment					
30.My colleagues and I regularly discuss policies and protocols together that pertain to our patient population					
31.I discuss new ways to do things with my colleagues to improve systems or patient care					
32.I feel useful to my work colleagues					
33.I look for opportunities to communicate with my co-workers					
34.I am ready to solve clinical and/or system problems with my colleagues					
35.I frequently have conversations with my colleagues formally and informally					
36.When a patient makes a complaint that pertains to my practice, I am ready to address the issue openly and discuss with my colleagues how it can be avoided in the future					
37.I am able to clearly articulate my role and responsibility					

	Strongly Disagree				Strongly Agree
Question	1	2	3	4	5
38.I see myself as part of a team					
39.Shared decision-making is important					
40.I feel a sense of purpose when working with others					
41.I like to collaborate with others to set targets for success					
42.I can easily work along with other professionals in any clinical setting					