I, Amy J. Costanzo, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Nursing Research.

It is entitled:
The Culture of Interprofessional Collaborative Practice on Two Adult Acute-Care Medical-Surgical Units

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The Culture of Interprofessional Collaborative Practice on Two Adult Acute-care Medical-Surgical Units

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Doctor of Philosophy

Of the College of Nursing

by

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(March 15, 2017)

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Abstract

Background: In 1999 the Institute of Medicine (IOM) report, *To Err is Human*, created awareness of healthcare error prevalence. The Joint Commission reported common causes of sentinel events between 2013 and 2015 were human factors, communication, and leadership, which includes organizational culture. Interprofessional education (IPE) was recommended by the IOM (2013) to develop interprofessional collaborative practice (IPCP). Studies of the culture of IPCP in U.S. adult acute-care medical-surgical units were not found in the literature. In 2015, IOM reviews of IPE and IPCP research revealed mixed outcomes with ungeneralizable results. The Interprofessional Learning Continuum Model (IPLCM), the conceptual model for this study, was created to provide a common research framework for future studies. The IPLC model components are: health and system outcomes, learning outcomes, learning continuum, and enabling or interfering factors to outcome attainment.

Purpose: The purpose of this study was to explore and describe the cultural factors that influence IPCP in two adult acute-care medical-surgical patient care units. The research questions were:

1. What is the culture (values, beliefs, and practices) of IPCP in acute care medical/surgical units?
2. What are the cultural factors that influence IPCP in two acute care medical surgical units?
3. How do healthcare providers share information for planning and providing patient care?
4. What are healthcare professionals’ perceptions about IPCP?
5. How do the behaviors of individuals and organizational cultural factors hinder or support daily collaboration and care planning among practitioners of different professions?
Methods: Ethnography is the study of culture. A focused ethnographic method is used when the researcher is studying a subset of a larger culture and is familiar with the setting. Focused ethnography was the method used for this study to explore and describe the IPCP culture on a medical unit and an oncology unit. Participants were selected from a wide spectrum of experience and roles including hospital executives, physicians, allied health professionals, nurse managers, nurse educators, care managers, and nursing staff. Twenty-three interviews, two focus groups, 52 hours of observation, and pertinent documents were the data sources. Data were coded and analyzed using constant comparison methods. Consensus on thematic analysis was reached by the research team.

Results: Values and beliefs of the participants were that IPCP is best practice for patients and for professional satisfaction. Data revealed the practice of IPCP was not consistent. Influential internal and external contextual factors inhibited consistent IPCP. Federal financial and graduate medical education policies were external influences on IPCP. Competing demands, professional rotation schedules, communication barriers, inconsistent interprofessional work, and non-geographic wards were internal factors that impacted IPCP. In addition, more than six change projects were implemented at this hospital in the year this study was conducted.

Conclusion: While IPCP was believed to be best practice, the complexity of context influenced actual practice. Hospital change projects had mixed results at the time of data collection, but were in stages too early to determine consistent outcomes. Management of internal contextual influences using an implementation model that includes context is an opportunity to establish consistent IPCP.
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# Table of Contents

Abstract.................................................................................................................................................. II

Acknowledgements ................................................................................................................................. V

Chapter 1: Background And Significance.............................................................................................. 1

Chapter 2: Review Of The Literature.................................................................................................... 14

Chapter 3: Methodology......................................................................................................................... 41

ETHNOGRAPHY ...................................................................................................................................... 41

FOCUSED ETHNOGRAPHY .................................................................................................................. 43

SETTING AND SAMPLE ....................................................................................................................... 44

DATA ANALYSIS AND MANAGEMENT ............................................................................................... 49

CONCLUSION ........................................................................................................................................ 52

REFERENCES ......................................................................................................................................... 53

Chapter 4: Manuscript 1 ......................................................................................................................... 74

ANALYSIS OF THE INTERPROFESSIONAL LEARNING CONTINUUM MODEL USING WALKER AND AVANT’S SIX STEPS OF THEORY ANALYSIS ..................................................................................... 74

ABSTRACT ........................................................................................................................................... 74

BACKGROUND ...................................................................................................................................... 76

SIGNIFICANCE ..................................................................................................................................... 77

THEORY ANALYSIS ............................................................................................................................... 78

DISCUSSION .......................................................................................................................................... 87

CONCLUSION ....................................................................................................................................... 89

REFERENCES ......................................................................................................................................... 90
<table>
<thead>
<tr>
<th>Chapter 5: Manuscript 2</th>
<th>..........................................................</th>
<th>95</th>
</tr>
</thead>
<tbody>
<tr>
<td>A FOCUSED ETHNOGRAPHY OF INTERPROFESSIONAL COLLABORATIVE PRACTICE IN MEDICAL-</td>
<td>..........................................................</td>
<td>95</td>
</tr>
<tr>
<td>SURGICAL UNITS</td>
<td>ABSTRACT</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>METHODS</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>DISCUSSION</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>CONCLUSION</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>REFERENCES</td>
<td>125</td>
</tr>
<tr>
<td>Chapter 6: Manuscript 3</td>
<td>..........................................................</td>
<td>132</td>
</tr>
<tr>
<td>DESIGNING INTERVENTIONS TO PROMOTE INTERPROFESSIONAL COLLABORATIVE PRACTICE ON</td>
<td>..........................................................</td>
<td>132</td>
</tr>
<tr>
<td>MEDICAL-SURGICAL UNITS</td>
<td>ABSTRACT</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>CONCLUSION</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>REFERENCES</td>
<td>152</td>
</tr>
<tr>
<td>Appendix A: UC IRB Approval</td>
<td>..........................................................</td>
<td>157</td>
</tr>
<tr>
<td>Appendix B: UC Health Approval</td>
<td>..........................................................</td>
<td>160</td>
</tr>
<tr>
<td>Appendix C: Study Flyers</td>
<td>..........................................................</td>
<td>161</td>
</tr>
<tr>
<td>Appendix D: Consent Documents</td>
<td>..........................................................</td>
<td>164</td>
</tr>
<tr>
<td>Appendix E: Interview Guides</td>
<td>..........................................................</td>
<td>176</td>
</tr>
</tbody>
</table>
List of Tables
Chapters 1-3

Table 1. Comparison of competency models.................................................................40
Table 2. Hospital administrator titles and responsibilities........................................71
Table 3. Data Collection Matrix..................................................................................72
Table 4. Sampling Plan.................................................................................................73

Chapter 4

Table 1. IPLCM labels, diagrams and relational statements....................................94

Chapter 6

Table 1. i-PARIHS Equation and Concepts...............................................................156

List of Figures
Chapters 1-3

Figure 1. Interprofessional Learning Continuum Model..........................................13, 39, 70

Chapter 4

Figure 1. Interprofessional Learning Continuum Model........................................92
Figure 2. Interprofessional Learning Continuum Model relationship matrix..........93

Chapter 5

Figure 1. Interprofessional Learning Continuum Model..........................................130
Figure 2. Adapted Interprofessional Learning Continuum Model.........................131
CHAPTER 1: BACKGROUND AND SIGNIFICANCE

Healthcare is both miraculous in saving lives and shocking in the harm it creates for patients due to error-prone systems of care delivery. Public awareness of healthcare error prevalence and causes has created an urgent need for change (IOM, 1999). Federal and private organizations have recommended interprofessional education (IPE) to promote interprofessional collaborative practice (IPCP) as a solution to improve the quality of healthcare and decrease errors. However, researchers conducting studies of IPE and IPCP to date have shown mixed, ungeneralizable outcomes focused primarily on healthcare professionals’ perceptions (IOM, 2015).

The current state of empirical knowledge spurred the Institute of Medicine (IOM) to develop the Interprofessional Learning Continuum Model (IPLC) as a framework to guide future research toward more robust outcomes measurement (IOM, 2015). Even though culture and healthcare systems influence collaborative behavior, few studies of IPE and IPCP examine healthcare culture.

The purpose of this research was to explore and describe the cultural factors that influence interprofessional collaborative practice in two adult acute-care medical-surgical patient care units. This chapter provides a general overview of the current state of healthcare quality in the United States; quality improvement recommendations; the conceptual framework for this study, the Interprofessional Learning Continuum Model; interprofessional contexts; IPCP interventions; and culture. Finally, the methodology, research questions, assumptions, and conceptual definitions for this study are described.
Healthcare Quality

Reports of Poor Quality

Many reports concerning the quality of healthcare systems, both in the United States and globally, have described fragmented, poor quality, and unsafe patient care (IOM, 1999, 2001; WHO, 2010). The seminal report, *To Err is Human*, extrapolated data from two studies of adverse events to estimate the prevalence of preventable death (IOM, 1999). Preventable deaths are a benchmark metric of healthcare quality. This report estimated annual preventable hospital deaths in the United States based on 1997 hospitalizations to be between 44,000 and 98,000 (IOM, 1999). In the report, the IOM recommended specific changes to reduce harm and death and appealed to the healthcare industry to decrease errors by 50% within five years. However, the goal was not reached.

Preventable Death Statistics

More recently, James (2013) estimated the prevalence of hospital death stemming from adverse events in the United States to be 210,000 preventable deaths per year. This estimate is more than twice as high as the IOM’s 1999 estimate despite efforts to improve healthcare in the 13 years since that report. Notwithstanding this alarming increased estimate, some data indicate that ongoing measures to curb unnecessary deaths have been partially successful. According to the U.S. Department of Health & Human Services (2014), in the years 2011 and 2012, 15,000 deaths were prevented, while both Medicare patient readmissions and hospital patient harm decreased by 8% and 9% respectively. These prevented deaths are laudable, although their very limited effect in reducing the overall death rate due to adverse events attests that there is much more to be done to improve healthcare. These estimates only highlight death as an outcome of error, yet other patient harm also occurs.
Sentinel Event Statistics

The Joint Commission (TJC, 2015) defined a “sentinel event” as an unexpected patient safety event that causes death, permanent injury, or patient outcomes requiring emergent care. Root cause analysis is a term used by TJC to describe the process of the examination of structures and procedures that contribute to occurrence of sentinel events. Between 2004 and the second quarter of 2015, a total of 9,119 known sentinel events occurred in hospitals within the United States with 474 of those occurring in 2015 alone (TJC, 2015). TJC conducted a root cause review of these sentinel events. Over 66% of all events reported since 2004 occurred in the hospital setting with over 57% culminating in a patient’s death (TJC, 2015). Sentinel events are voluntarily reported to TJC, thus are believed not to represent all occurrences. These recent data continue to exemplify the magnitude of the problem of patient safety within healthcare systems.

Sentinel Event Causes

The causes and outcomes of sentinel events are increasingly transparent. The three most common root causes for sentinel events between 2013 and the second quarter of 2015 are human factors (e.g., staffing, education, supervision, and “rushing, fatigue, distraction, complacency and bias”), communication, and leadership (TJC, 2015). The root-cause category of communication consists of all modes of communication with all people associated with patient care. The leadership category comprises a myriad of activities, such as planning and culture of organizations, collaboration, policies and procedures, organizational structure, and management of resources. While federal agencies such as Agency for Healthcare Research and Quality (2013, 2014) are developing systems to reduce error, much of the focus on improving healthcare quality has been on improving the knowledge of healthcare providers.
Quality Improvement Recommendations

National Organization Recommendations

Leaders in healthcare reform have deemed IPE and IPCP interventions to promote IPCP as necessary to mitigate low quality healthcare (Fulmer & Gaines, 2014; IOM, 2000, 2001, 2003, 2010, 2011, 2013, 2014, 2015; RWJF, 2011, 2015; WHO, 1978, 2010). However, the World Health Organization (WHO) opined that interprofessional collaboration process implementation is difficult in the complicated contexts of world health crises such as rising healthcare costs, population aging, HIV/AIDS, and tuberculosis (WHO, 2010). Yet, the WHO recommended developing “a strong, flexible and collaborative health workforce as one of the best ways to confront these highly complex health challenges” (WHO, 2010, p. 14).

The Robert Wood Johnson Foundation. Recently, in an effort to understand best practices in IPCP, leaders of sixteen healthcare organizations in the United States were interviewed (RWJF, 2015). The interviews were followed by site visits to seven of those organizations. Six types of organizational behavior beneficial for IPCP were identified: patient-centered care, leadership action toward IPCP, reduced hierarchy to promote team work, focused communication development, structures that required interprofessional interaction and continuing education that included multiple professions. During the same study, obstacles to IPCP were revealed including the amount of work to change current practice, hierarchy, uniprofessional identities, role confusion and role entitlement. RWJF determined there is a need for more research regarding patient outcomes and the positive aspects of IPCP. Similarly, since its inception in 1970, the Institute of Medicine (IOM) proposed development of collaboration skills among healthcare providers as a solution to issues of care quality (IOM, 1972, 1999, 2001, 2003, 2010, 2011, 2013, 2014, 2015).
**Institute of Medicine.** Historically, the purpose of the IOM has been to gather experts for in-depth reflection and discussion to devise potential solutions to complex healthcare issues. The *Educating for the Health Team* report called for “the synergistic interrelationship of all who can contribute to the patient’s well-being” (IOM, 1972, p 4) that could be promoted through interprofessional student experiences in academic and practice settings. While teamwork education was recommended in that 1972 report, more recent reports have continued to emphasize a need for healthcare organizations, academia, and the United States government to seek evidence of collaboration (IOM, 2001, 2003, 2011, 2014), education (IOM, 2004, 2010, 2014), and intervention outcomes indicative of increased safety for consumers of healthcare services (IOM, 2015).

**Interprofessional Education**

In a review of IPE outcomes, the IOM (2015) determined that despite a large number of studies, the impact of IPE on healthcare outcomes is not understood. The lack of causal relationships from IPE is partly explained as a combination of complex interprofessional practice environments, and the variability of study designs that hamper drawing broad inferences (IOM, 2015). Consequently, to date there is no conclusive evidence that IPE alone results in collaborative or team-based care.

**Team Training**

Despite the success of team training in aviation and the military, these successes did not result in quick adoption of team and collaborative learning in healthcare (IOM, 2015). Success in aviation safety improvements is reportedly due to the cooperation of education, regulation, and practice sectors toward a singular safety focus. These same sectors in healthcare have not been in a concerted safety alliance (IOM, 2015). Team training improves safety in aviation where many
workers themselves are at risk for harm. Although healthcare is a different work environment, team training is assumed to also improve safety even though workers may not be at personal risk of harm.

**IPCP Organizations**

IPE and IPCP are still not common practice and remain important concepts to study. Two organizations were established in 2012 to work toward IPCP. The National Center for Interprofessional Practice and Education ([https://nexusipe.org/informing/about-nexus](https://nexusipe.org/informing/about-nexus)) was established in the United States with the goal of joining government, academic and healthcare organizations in a partnership. The goal of the partnership is to improve patient experience, the health of populations, and decrease the per person cost of healthcare also known as the Institute of Healthcare Improvement’s Triple Aim (Berwick, Nolan, & Whittington, 2008). Three recommendations were proposed to develop IPCP and IPE research 1.) IPCP and IPE concept clarification and standardization, 2.) methodical adoption of IPEC competencies, and 3.) concept measurement agreement (Brandt, Lutfiyya, King & Chioreso, 2014). In addition, this organization endorses not only high quality quantitative and mixed methods research, but also rigorous qualitative research that provides detailed account of context showing potential implications for other settings.

The Global Research Interprofessional Network (GRIN) was initially funded by the Canadian Institutes for Health Research to advance research in IPCP with a secondary goal to develop new researchers (Thistlethwaite, et al., 2013). The vision for this organization is “research and values informed/based on interprofessional collaboration for global health”. GRIN proposes global research partners to engage in research using both quantitative and qualitative methods, while also connecting theory to research. In addition to these organizations devoted to
research and interventions for IPE and IPCP, a conceptual framework was created to provide a unified direction for research.

**Interprofessional Learning Continuum Model**

Due to the lack of a common IPE research agenda, the Interprofessional Learning Continuum Model (IPLC) was recently developed as a conceptual framework to guide the development of educational programs, and of high priority, the evaluation of IPE and healthcare outcomes (IOM, 2015; Figure 1). This model was developed to be adaptable to different environments with the understanding that cultures and policies are unique to each setting and country. Research is needed to test the adaptation of the model to varied settings. The IOM committee (2015) identified three distinct elements that are key to the evaluation of health and systems outcomes: a.) learning continuum (throughout career), b.) enabling or interfering factors (i.e. personal and organizational culture and policy), and c.) learning outcomes.

**Learning Continuum**

The first IPLC element, education, is viewed as a continuum beginning with foundational education and extending through a healthcare provider’s graduate education and professional development (IOM, 2015). IPE includes both tacit and explicit continuous learning across academic and practice environments toward ongoing professional and interprofessional development. The IPLC learning continuum concept is a planned trajectory of progressive individual achievement of competencies that impact learning, practice, and ultimately healthcare outcomes.

**Learning Outcomes**

The second IPLC element is IPE learning outcomes. Learning outcomes are the progressive professional and interprofessional attainment of knowledge, skills, attitudes,
behaviors and individual practice performance (IOM, 2015). The model displays a reciprocal interaction between learning outcomes and health and systems outcomes, the third element of the IPLC Model.

**Health and Systems Outcomes**

Health and systems outcomes include health, finance, organization and system effectiveness. These aspects of complex environments have not been traditionally included as part of a model of IPE, but are part of patient safety and performance improvement models for healthcare improvement (IOM, 2015).

**Enabling or Interfering Factors**

The fourth element of the IPLC Model, enabling or interfering factors, encompasses the cultures of professions, healthcare and academic institutions together with policies that impact IPE outcomes. IPE contexts cross a continuum from national, community, and institution to “clinical microsystems” within one organization (IOM, 2015, p 13). Culture is a confounding variable for education intervention design and health and system outcomes (IOM, 2015; Thistlethwaite, 2012).

**Interprofessional Contexts**

The broad range of IPE contexts is problematic for achieving a generalized understanding of IPE and IPCP outcomes (IOM, 2015). Ever-changing healthcare system contexts also make it difficult to generalize IPE outcomes. Few qualitative studies have explored context as a confounding variable for IPE interventions. The IOM (2015) recommended mixed-methods studies to assess outcomes and context. However, the report offered no recommendation to assess baseline context prior to intervention. In addition, extant literature did not indicate measures of collaborative behavior were in general use (IOM, 2015).
Interprofessional Interventions

One IPE intervention expected to improve IPCP is Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) developed by the United States Department of Defense and adopted by AHRQ (n.d.). In addition, varied configurations of hospital interprofessional rounding (Bharwani, Harris, & Southwick, 2012; Cornell, Townsend-Gervis, Vardaman & Yates, 2014; Gonzalo, Wolpaw, Lehman & Chuang, 2014; Henneman, Kleppel, & Hinchey, 2013; Licata et al, 2013; Lyons et al, 2013; O’Leary et al, 2010; Sharma & Klocke, 2014; Stickrath et al, 2013; Townsend-Gervis, Cornell & Vardaman, 2014), the development of core competencies to guide student IPE (IPEC, 2011), and a vast array of other studies of IPE are recommended to improve IPCP (IOM, 2015). Adult acute-care medical-surgical unit culture has been examined in the United Kingdom (Lewin & Reeves, 2011), Canada (Reeves, et al., 2009), and Australia (Liu, et al., 2013). In the United States, healthcare culture has been studied in specific clinical practice areas of intensive care, transplant, emergency and primary care (IOM, 2015). No studies of adult acute medical surgical unit culture in the United States were found to date.

Micro versus Macro Culture

Differences between clinical micro-cultures, national healthcare structures and international cultures warrant the study of healthcare IPCP micro-cultures. Although elements of culture and context can strongly influence provider behavior and quality in healthcare systems, few studies have addressed these topics. Further, studies of non-healthcare workplaces indicate resistance by workers to adopt superimposed culture change (Smith, 2001). Consequently, knowledge of the foundational values, beliefs, and practices that would influence behavior and
practice in adult acute-care medical-surgical units is essential to understand prior to culture change intervention.

**Methodology**

Focused ethnography is a qualitative research methodology that provides a view of the shared beliefs, values and practices of a subculture of a specific group of people in their environment (Cruz & Higginbottom, 2013; Higginbottom et al, 2013; Knoblauch, 2005; Wall, 2015). In this study, the subculture was medical-surgical hospital units and the healthcare providers who provide patient care. This clinical micro-culture view provided insight into enabling or interfering factors that may impact IPCP and IPE interventions outcomes.

**Conclusion**

Error-prone systems of healthcare delivery contribute to patient harm and error. The causes and estimates of the prevalence of healthcare error have been known for decades, yet significant reduction in patient harm has been elusive. Two primary TJC causes for patient harm include communication and leadership. Leadership problems include values, beliefs and practices of an organization. Although IPE and IPCP have been suggested as methods to improve culture and communication, intervention outcomes are un-generalizable thus far. Few studies examine acute-care interprofessional collaborative culture, and none were found for medical-surgical units in the U.S. Studies of workplace culture indicate issues with the success of superimposing a new culture without consideration of the current culture (Smith, 2001).

The newly developed IPLC Model includes culture and behaviors as elements that impact health and systems outcomes (IOM, 2015). The IPLC Model was the framework for this focused ethnography. The purpose of this research was to explore and describe the cultural factors that
influence interprofessional collaborative practice in two adult acute-care medical-surgical patient care units.

**Research Questions**

This study of the culture of IPCP in two adult acute-care medical-surgical units examined the following research questions:

1. What is the culture (values, beliefs, and practices) of interprofessional collaborative practice in two adult acute-care medical-surgical units?
2. What are the cultural factors that influence interprofessional collaborative practice in two acute care medical surgical units?
3. How do healthcare providers share information for planning and providing patient care?
4. What are healthcare professionals’ perceptions about interprofessional collaborative practice?
5. How do individual behaviors and organizational cultural factors hinder or support daily collaboration and care planning among professions?

**Assumptions and Definitions**

**Assumptions:** This research was conducted with the following assumptions:

1. Healthcare providers intend to provide high quality care to their patients.
2. Healthcare providers involved in the study will provide honest answers to questions of their values, beliefs and practices of IPCP.
3. Ethnographic methods including interviews, focus groups, observation, and artifacts will provide data to describe the culture of IPCP on two adult acute care medical surgical units.

**Definitions:** The following definitions were used throughout this research.
1. **Interprofessional collaborative practice**: All healthcare providers, understanding the value of each profession’s contribution, work actively together and with patients and families to adapt care to patient needs and goals using ongoing communication and participation in shared decision-making (adapted from RWJF, 2015, p 1 and WHO, 2010, p 13).

2. **Interprofessional education**: “When two or more professionals learn about, from and with each other to enable effective collaboration and improve health outcomes” (WHO, 2010, p 13).

3. **Context**: Influential elements that are not part of an intervention (Ovretveit, et al., 2011).

4. **Culture**: the shared and learned values beliefs and practice of people who “share a social space” (Dharamsi & Charles, 2011).
CHAPTER 2: REVIEW OF THE LITERATURE

The purpose of this study was to explore and describe the cultural factors that influence interprofessional collaborative practice in two adult acute-care medical-surgical patient care units. The study examined the following research questions:

1. What is the culture (values, beliefs, and practices) of interprofessional collaborative practice in acute care medical-surgical units?

2. What are the cultural factors that influence interprofessional collaborative practice in two acute care medical surgical units?

3. How do healthcare providers share information for planning and providing patient care?

4. What are healthcare professionals’ perceptions about interprofessional collaborative practice?

5. How do the behaviors of individuals and organizational cultural factors hinder or support daily collaboration and care planning among practitioners of different professions?

Overview

This literature review provides a synopsis of the current state of the science and identified the gap in knowledge as validation for this study. Relevant literature pertaining to interprofessional collaborative practice (IPCP) in healthcare was obtained via EBSCOhost Academic Search Complete of multiple databases accessed through the University of Cincinnati Health Sciences Library. A manual review of reference lists and search of governmental publications and organizational grey literature regarding IPCP were also completed.

This literature review includes:

- The Interprofessional Learning Continuum (IPLC) Model as a conceptual framework for the analysis of the literature on interprofessional education (IPE) and IPCP
• A discussion of pre-licensure (also known as foundational) IPE research from the perspective of the IPLC Model, including learning continuum, learning outcomes, and enabling or interfering factors.

• An examination of graduate and continuing professional development IPE research from the perspective of the IPLC Model, including learning continuum, learning outcomes, and enabling or interfering factors.

• A synthesis of studies of IPCP clinical microsystems which use the IPLC Model, including learning outcomes and enabling or interfering factors.

• A concluding summary and description of the knowledge gap that was addressed by this study.

**Interprofessional Conceptual Framework**

Because the terms used to describe interprofessional education (IPE) and interprofessional collaboration or interprofessional collaborative practice (IPCP) vary widely there is a lack of clarity about these concepts within the literature. Reeves et al. (2011) developed a clarifying conceptual framework as a result of a scoping review of 500 IPE and IPCP abstracts with the inclusion of 104 studies. These authors did not assess the rigor of the studies but rather focused on concepts and interventions. Their framework identified four sections: objectives, participants, outcomes, and interventions. Subcategories of interventions were IPE, IPCP, and interprofessional organization. The latter subcategory, having the fewest identified studies, addressed issues such as culture, space, staffing and policies. The framework established by Reeves et al. (2011) was presented as a guide for future research that could enhance understanding of the effects of interventions. More recently, the Institute of Medicine (IOM,
2015) proposed the Interprofessional Learning Continuum (IPLC) Model to unify and guide future research on IPE and IPCP.

**Interprofessional Learning Continuum Model**

The IPLC model includes four overarching components (Figure 1). The health and system outcomes component is comprised of individual and public health, as well as organizational, systems, and financial effectiveness. The IPE learning continuum encompasses both tacit and explicit learning from foundational student education through graduate education and the entirety of professional career development. Learning outcomes include healthcare provider knowledge, skills, behavior, and beliefs. Finally, enabling or interfering factors are culture and policy that impact health and systems outcomes.

**IPE Learning Continuum**

**Foundational Education**

The WHO advocated student IPE as the impetus to establish a “collaborative practice ready workforce” (WHO, 2010, p. 10) as the solution to healthcare quality issues. This section of the literature review describes academic pre-licensure IPE, also known as foundational education. Foundational education is part of the learning continuum concept of the IPLC Model.

**Interprofessional core competencies.** Since 2004 the United Kingdom, Canada, United States, and Australia have developed interprofessional competency/capability frameworks to guide the education and development of healthcare students toward IPCP. A brief comparison of these competency sets is provided here and in Table 1 to compare and contrast foundational education concepts from different countries.

**United Kingdom.** The Interprofessional Capability Framework (ICF) was developed by the Combined Universities Interprofessional Unit (CUILU) in a United Kingdom Department of
Health project that included two universities. The term “capability” is used in this framework and has a broader connotation than “competence.” Capability has been defined as “the extent to which an individual can apply, adapt and synthesize new knowledge from experience and so continue to improve their performance” (Fraser & Greenhalgh, 2001, p.801). The ICF was developed for use with students of the healthcare professions in the practice setting (Walsh et al., 2005).

Canada. Both uni-professional and interprofessional competency frameworks exist in Canada. Collaboration is included in both frameworks. The Can Med framework was developed in the 1990’s as a foundation of medical competency education and recently was revised (Frank, Snell & Sherbino, 2015). The Can Med framework was also adapted as a uni-professional model for pharmacy and occupational therapy professions (Canadian Association of Occupational Therapists, 2007; Canadian Council for Accreditation of Pharmacy Programs, 2006).

In contrast to the uni-professional model, the Canadian Interprofessional Health Collaborative (CIHC, 2010) created the National Interprofessional Competency Framework (NICF). This competency model is suggested to be universally applicable to all professions regardless of setting, provider skill, or context. The six competency domains are: communication, patient-centered care, role, team, collaborative leadership, and conflict resolution (CIHC, 2010). The NICF framework is based on communication and patient-centered care as the primary competencies that always influence the remaining four competencies (CIHC, 2010). NICF is based on Roegier’s (2007) goal for competency outcomes to empower learner proficiency in professional and personal environments. The CIHC NICF (2010) also suggests that quality improvement activities performed interprofessionally can be effective in overcoming complex problems in various healthcare contexts.
United States. In the United States, a competency set was developed by the Interprofessional Education Collaborative (IPEC, 2011) to foster deliberate professional collaboration as a route to safe, patient- and community-centered healthcare. The IPEC model incorporates three different interprofessional models that feature the interdependent connections between professional education, clinical practice, and outcomes that could be leveraged positively through IPE (D’Amour & Oandasan, 2005; Frenk et al., 2010; IPEC, 2011; WHO, 2010). This framework proposes moving from uni-professional to interprofessional foundational education that involves students from different professions learning together. The IPEC core competencies for IPCP are organized into four domains: values and ethics, roles and responsibilities, interprofessional communication, and teams and teamwork.

Australia. The Griffith Health Institute for the Development of Education and Scholarship (2011) defined a ten-point framework for graduate outcomes including main concepts of patient-centeredness, teamwork, strategies to manage barriers, roles and responsibilities, communication, and reflection. This framework is based on the WHO (2010) framework. Both frameworks aim to address Article 3 of the Sydney Interprofessional Declaration, which states that IPE with practice experiences and assessment must be included in the education and training of healthcare professions’ students (WHO, 1978).

The Australian Curtin University Interprofessional Capability Framework is an adaptation of the UK’s Sheffield Hallam University Interprofessional Capability Framework (CUILU) and the Canadian CIHC National Competency Framework (Brewer & Jones, 2013). The five capabilities—communication, team function, role clarification, conflict resolution and reflection—incorporate a collaborative worker definition along with assessment levels for first year (novice), second or third year (intermediate), and final year (entry to practice) students.
The models described above have both similarities and differences in their view of foundational professional education essential for interprofessional collaborative practice. The focus of all except the CIHC framework is development of future healthcare providers as opposed to professional development of current healthcare providers. The most common competencies/capabilities within these frameworks were communication, teamwork and role clarity. Among the frameworks, patient-centered care was overtly incorporated in the CIHC and Griffith frameworks. Collaboration was explicitly included in the two Canadian models.

**Learning Outcomes.** Commonly measured outcomes of foundational IPE literature were limited to pre- and post-IPE knowledge, skills, and attitudes (Blue et al., 2015; Cooper et al., 2001; Darlow et al., 2015; Olson and Bialocerkowski, 2014; Reeves et al., 2011; Thistlethwaite, 2012). For example, a New Zealand prospective, controlled trial of an eleven-hour foundational IPE program on management of chronic conditions measured subjective educational outcomes (Darlow, et al., 2015). The intervention sample size was 41 in comparison to the control group sample size of 42. The intervention group received the IPE and chronic condition management education, while the control group did not. The study measured pre- and post-education attitudes with resultant positive attitude change about interprofessional teams, interprofessional learning and subjective assessment of interprofessional ability. Blue et al. (2015) developed an Interprofessional Fellowship that included learning and practice experience opportunities above curriculum requirements. Results were positive, but only measured student perceptions of IPEC competencies.

Cooper et al. (2001) concluded from a literature review of foundational IPE that the most commonly used measurements of knowledge, skill, and attitude outcomes were a result of the ease of data collection. The transitory nature of a student’s status and access required short term
outcome measurement. Cooper et al. (2001) also found that most foundational IPE interventions only involved two professions, mainly nursing and medical students, in academic and primary clinical settings. A limitation of foundational IPE is that little is known about the retention of IPE content over time (Lapkin et al., 2013).

**Interfering Factors.** Although the foundational efforts to establish common competencies for IPE are a commendable starting point, no competency models have clearly delineated methods for competency/capability assessment (Reeves, 2012; Thistlethwaite et al., 2014). The various models of foundational education IPE competency have general similarities, yet there is no consensus among the interprofessional experts on essential competencies for health professionals and students to achieve interprofessional collaborative practice skill, change current practice, or account for the impact of context in practice.

The focus on competencies for traditional team is an emphasized, albeit limited, view given the diverse patient care models spanning the continuum of healthcare. Academic acute-care hospitals, community hospitals, rehabilitation centers and primary care practice settings may have stable teams that work together regularly, whereas others have dispersed practice models. The team focus may derive from the fact that most competency models were developed for foundational IPE education and are intended to be general standards.

The literature concerning IPE illustrates many efforts to implement IPE with vast differences among the methods and results of foundational IPE studies (IOM, 2015). These differences make generalization of the results difficult. The research on IPE has numerous limitations including broad variation in size of the study populations. For example, Cooper et al. (2001) reported studies in an IPE literature review that used samples that varied from nine to greater than 5,000, with three studies not disclosing the sample size at all. Further, these authors
deemed the rigor of some research lacking regardless of methodology due to short-term knowledge, skills, and attitudes outcomes with few practice outcomes (Cooper, et al., 2001). In a more recent review, Olson and Bialocerkowski (2014) reported finding dissimilar IPE interventions and contexts, which confounded comparisons among studies. A lack of consistency in the definition, development, and assessment of IPE competencies remains problematic (Thistlethwaite & Moran, 2010). Inconsistency in competency assessment is especially difficult given that new graduates are expected to be competent in interprofessional collaboration with little evaluation of behavior or skill (Thistlethwaite & Dallest, 2014).

Reeves et al. (2011) stated that the most common mode of foundational IPE was classroom based and that one-third of studies used practice or field placement as IPE, with the fewest number of studies employing both classroom and practice experience in their IPE. Some IPE programs teach content to students “alongside each other” (Darlow et al., 2015) as opposed to,”two or more professions learning about, from and with each other (WHO, 2010, p. 13). Interpretation of foundational IPE outcomes is confounded by student perceptions of prior healthcare and life experience that are not accounted for prior to intervention (Hammick, Freeth, Koppel, Reeves & Barr, 2007).

Olson and Bialocerkowski (2014) suggested that IPE must transform from content delivery to professional socialization. An IPE socialization framework requires realistic evaluative approaches of how IPE change mechanisms and intervention contexts result in behavioral outcomes both intended and unintended. Olson and Bialocerkowski (2014) called for inductive research focused on the process and mechanisms of professional socialization. This new focus would require abandoning expectations that IPE interventions are transferable across settings and professions.
Enabling Factors. A review of the literature concerning the barriers and enablers to foundational IPE revealed five key elements to sustainable IPE programs (Lawlis, Anson, & Greenfield, 2014). Sustainable foundational IPE is supported by interprofessional obligation and ownership by IPE staff, IPE support structures within foundational educational institutions, faculty development, and funding by both educational and government institutions. At least one of these elements was present in all successful IPE programs (Lawlis et al., 2014). These findings illustrate the complexity of IPE and the capricious nature of the current structural and educational foundations that impact interventions.

Innovation in IPE, such as experiential fellowships, is emerging (Blue, et al., 2015). However, most often only subjective perceptions are measured in IPE (Thistlethwaite, 2012). Although these perceptions are often positive, IPCP-ready workers are not an assured outcome of IPE (Cooper et al., 2001; Olson & Bialocerkowski, 2014; Thistlethwaite & Dallest, 2014).

Graduate Education and Continuing Professional Development

This section of the literature review includes concepts of IPCP, the nature of work in healthcare, and research regarding IPE for practicing professionals and graduate students. IPE studies will be categorized by learning outcomes and enabling and interfering factors.

IPCP and Work Typology

Cooper et al. (2001) recommended rethinking the concept of IPCP as a teaching method rather than a topic. Expectations of a singular solution to the complex and multi-faceted problem of IPCP could be reduced with tailored active-learning trials of IPE solutions in specific healthcare settings (Olson & Bialocerkowski, 2014). The continuum of patient care requires different configurations of work and providers that create complexity when considering IPCP in healthcare as a whole.
The typology of interprofessional work emphasizes the process of work as being context-dependent and exhibiting one of four work processes: teamwork, networking, coordination, or collaboration (Reeves, Lewin, Espin & Zwarenstein, 2010, as cited in Reeves, 2012). The typology of teamwork is comprised of shared identity and responsibility, role clarity and interprofessional interdependence. In contrast, networking is when care providers may work together, but not as a synchronous team or in person (Reeves, 2012). Coordination, as defined by Reeves (2012), is when healthcare providers only share a common identity. Collaboration differs from the other work processes in that accountability is shared and professions are dependent on one another to provide care. Consideration of this typology is important when interpreting the literature and determining whether the work process is clearly assessed and addressed during intervention design. For example, interventions for teamwork may not be effective for networking, coordination or collaborative work processes due to differences in group identity and behavior in each of these work processes. The next section of the literature review provides an examination of graduate education and continuing professional development IPE research.

**Learning Outcomes.** A recent IOM (2015) committee reported on the effectiveness of interprofessional education on IPCP and patient outcomes. The report included a commissioned research paper and several literature reviews.

An extension of the Reeves et al. (2013) Cochrane Review of research that measured the impact of IPE was recently commissioned by the IOM (2015). The 2013 Cochrane review update of IPE interventions designed to impact practice or patient outcomes included a collection of randomized, controlled trials, controlled before-and-after studies, and interrupted time-series studies (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). None of the 15 studies under review were conducted in acute adult hospital medical surgical units. In the Brasher et al.,
review, inclusion criteria included IPE intervention, professional education, and patient or provider outcomes (IOM, 2015). Student-only studies were excluded, as were those that measured only learning outcomes or subjective outcome measures. Twenty-four studies were added to the 15 studies from the original review. Collectively, these studies represented a vast array of settings from all levels of care in the United States and abroad, and represented many types of interventions.

A number of methodological issues explicated in the review included the deficient control of confounding variables and a scarcity of evidence related to sustained behavior change due to IPE. Also lacking was measurement of patient-centered care prior to intervention outcome measurement (IOM, 2015). Given the disparate studies and outcomes, the committee concluded generalizable IPE standards are not currently available.

In its 2015 report the IOM provided research recommendations based on the most promising aspects of the reviewed studies. Recommendations included controlled studies that minimize confounding variables, use of prospective, objective patient and provider outcomes, isolation of IPE from other interventions, longitudinal pre-and-post data collection, quality IPE delivery, and observation of behavior in the practice setting prior to collecting outcome data. These recommendations echoed the results of the second literature meta-synthesis of the IOM (2015) report.

The synthesis of eight IPE reviews published between 2009 and 2014 (Reeves, Palaganas, & Zierler in IOM, 2015) was as an extension of a 2010 review of IPE literature published from 1999 through 2006 (Reeves et al., 2010). An overview of the Reeves et al (2010) review is required to understand the second meta-synthesis presented in the 2015 IOM report. Reeves et al. (2010) original purpose was to understand the effectiveness of multiple professions
learning IPE together versus single profession education and studies comparing IPE with no IPE control groups.

Reeves et al. (2010) included six studies meeting the following inclusion criteria: an interprofessional education intervention, measured outcomes, and a research design that was either a randomized control trial, controlled before and after study, or an interrupted time series. The six studies were of primary care, emergency, and mental health settings and reported mixed results with positive outcomes in two, two with mixed positive and negative outcomes and two with no measured impact on outcomes or processes (Reeves, et al, 2010). Few studies met the inclusion criteria because there was diversity of IPE interventions and there were issues with study design. Reeves et al (2010) concluded that more research was needed to understand how IPE changes behavior by utilizing not only quantitative methods but also qualitative methods.

The eight IPE reviews included in the commissioned meta-synthesis by Reeves et al. were partitioned into two groups: two systematic reviews with quality ratings and six descriptive scoping reviews without quality assessment (IOM, 2015). Most reviews reported finding positive changes in practitioner’s perception, attitude, knowledge or skill, but no behavioral outcomes; few reviews reported changes occurring at organizational or care-delivery levels. The majority of research was conducted at a single site and involved a short-term evaluation of outcomes (IOM, 2015).

Of the eight reviews, four were specific to mental health, dementia, addiction, or delirium, while the others were not site-specific and included IPE outcomes or interventions in general (IOM, 2015). The reviews evaluated 581 studies that involved licensed practitioners, graduate students, and foundational education students. The Reeves et al. (2015) review concluded there is little evidence of the effect of IPE on IPCP and patient outcomes, but that IPE
can improve knowledge, skills, and attitudes of practitioners (IOM, 2015). Similar to the Brashers et al. (2015) review (IOM, 2015), this review found issues with methods including a paucity of reported change in collaborative behavior, with most behavior change as self-report (IOM, 2015). Furthermore, a lack of longitudinal study methods was reported; however, quasi-experimental designs were used in some cases and most studies reported multiple data types. While the reviews included in the IOM report were focused on study design and outcomes, another recent, independent review concentrated on studies of power and conflict in relationship to IPCP and IPE.

Paradis and Whitehead (2015) analyzed six of 2,191 IPE articles published between 1954 and 2013 specifically related to the known issues within IPCP of power and conflict. One of the six was a literature review that described the contrast between the IPE goal of flat hierarchy and the socialization and authority of physicians, yet lacked clear descriptions of power and conflict. Two articles examined interprofessional issues of power and conflict, and posited that improved communication and conflict resolution skills along with other education would solve those problems. Another two articles examined the problematic argument that IPE would in and of itself produce practice change and eliminate issues of power, conflict and hierarchy. The review included one direct study of IPE on power relationships that revealed ways in which healthcare providers used power in interprofessional situations and should be used as an exemplar for future research (Paradis & Whitehead, 2015). Studies of graduate student and professional IPE reveal enabling factors and interfering factors related to power and conflict such as teams, hierarchy, leadership, time, role clarity, and a communication method called rounding.

Enabling or Interfering Factors
**Definition of Team.** Barrow, McKimm, Gasquoine and Rowe (2015) found that when physicians and nurses were asked to describe their teams, both professions reported an intra-professional list of members. In contrast, descriptions of collaboration included members of different professions. Resident interactions with other professions were observed by Milne, Greenfield and Braithwaite (2015) in three Australian teaching hospitals. Milne et al. (2015) described increased IPCP between nurses and residents in the hospital where offices were in close proximity and less collaboration when proximity to other professions was lacking. The less proximal teams had problems with poor attitudes, communication, and work practices that interfered with IPCP.

**TeamSTEPPS.** Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) is a patient safety education curriculum originally developed and implemented in military treatment facilities by the United States Department of Defense between 2005 and 2007. In 2006 TeamSTEPPS was promoted by the Agency for Healthcare Research and Quality (AHRQ) to develop healthcare team safety and communication culture (Ferguson, 2008; teamstepps.ahrq.gov). Online and live master trainer courses develop trainers to teach the four competencies of TeamSTEPPS: leadership, situation monitoring, mutual support and communication (teamstepps.ahrq.gov; Clapper, 2014).

TeamSTEPPS outcomes show teamwork improvement immediately following training in baccalaureate nursing students (Goliat, Sharpnack, Madigan, & Baker, 2013), and in a single medical surgical unit with a small sample (Harvey, Echols, Clark, & Lee, 2014). However, pre/post intervention measures of perception of teamwork in the operating room environment were not significant (Tibbs & Moss, 2014). One study showed team attitude improvement...
without team perception of unit culture change (Vertino, 2014), which makes understanding the behavioral effect of TeamSTEPPS on teamwork difficult.

Clapper (2013) describes barriers to full implementation of TeamSTEPPS as insufficient organizational support, incivility, and hierarchy issues. Sustainment of knowledge and skill improvements requires a culture of support and collaboration for improved patient safety.

**Clinical Learning Units.** A Canadian hospital originally established three Clinical Learning Units (CLU) for student learning in an acute-care inpatient oncology unit, a geriatric day hospital, and a mood disorders unit (Paterson, Medves, Dalgarno, O’Riordan, & Grigg, 2013). Subsequently all staff, patients, and families were included in the CLU concept for the purpose of improving the learning environment and the quality of patient care.

This project, titled the “Timely Open Communication for patient safety project”, was an IPE using online and instructor-led education formats for staff, and orientation materials for patients and families (Paterson, et al., 2013). The education for staff was aimed at changing the culture of communication to create a model environment for students, staff and patients. Pre-and-post intervention survey and focus groups showed participant perception of the need to improve communication and collaboration.

**Hierarchy.** Many interprofessional studies in the hospital setting focus on the relationship between nurses and physicians alone (Barrow, McKimm, Gasquoine & Rowe, 2015; Brennan, Olds, Dolansky, Estrada & Patrician, 2014; Gillespie, Gwinner, Chaboyer & Fairweather, 2013; Johnson & Kring, 2012; Licata, et al., 2013; Matziou, et al., 2014; Miller, et al., 2008; Muller-Juge, et al., 2014; Muller-Juge, et al., 2013; Nair, Fitzpatrick, McNulty, Click & Glembocki, 2012; Sollami, Caricati & Sarli, 2015; Tschannen, et al., 2011; Weaver, Callaghan, Cooper, Brandman & O’Leary, 2015; Weller, Barrow & Gasquoine, 2011). For example, a classic paper
written by a physician described the relationship between physicians and nurses as that of a nursing game of disguised recommendations to preserve medical hierarchy (Stein, 1967). The game was reinforced through rigid organizational leadership, reward and punishment, and historical habit described as difficult to break. Similar conclusions about behavior but in a different profession were found in a three-year longitudinal qualitative study of occupational therapy students, where students “learn to play the game” by adapting to professional group expectations to be accepted as a member (Clouder, 2003).

A study was conducted of the impact of professional culture on interprofessional collaboration in Canadian Family Health Teams, a model for coordinated patient-centered primary healthcare. Findings indicated that professional responsibility may be deferred by other professions or automatically default to physicians due to a lack of clarity about roles rather than an imposed hierarchy by physicians (Beales, Walji, Papoushek & Austin, 2011). Yet regardless of the cause of hierarchy, it results in a barrier to collaboration. In contrast, researchers found that comparatively prolonged medical education, financial investment in education, and legal patient responsibility contribute to some physicians’ expectations for medical hierarchy (Baker, Egan-Lee, Martimianakis & Reeves, 2011).

**Leadership.** The need for leadership as an enabler or facilitator to promote interprofessional collaborative practice was a key finding in several interprofessional practice studies. Specifically identified was the need for leadership to overcome issues of hierarchy in an ambulatory team with two years of practice together (Chatalalsingh & Reeves, 2014), or as a faculty mentor (Brennan, Olds, Dolansky, Estrada & Patrician, 2014), and team developer (Bajnok, Pussester, MacDonald, Archibald, & Kuhl, 2012). Further, Rice, et al. (2010) ascribe
the failure to fully implement a unit-based intervention on a lack of communication by the unit implementation leaders.

**Time.** Multiple studies reported time, or a lack of it, as an interfering factor for interprofessional collaboration (Baker, et al., 2011; Beales, et al., 2011; Bilodeau, Dubois & Pepin, 2015; Rice, et al., 2010; Seneviratne, Mather & Then, 2009; Smith, Lovoie-Tremplay, Richer & Lanctot, 2010). For example, time constraints were seen as a barrier to participation in rounds (meetings to discuss patient care) in nine studies (Cornell, et al, 2014; Gonzalo, et al, 2014; Henneman, et al, 2013; Licata, et al, 2013; Liu, Manias, & Gerdzt, 2013; Lyons et al, 2013; O’Leary et al, 2010; Stickrath et al, 2013; Townsend-Gervis, et al, 2014). Eight nurses from a single Canadian medical surgical unit were interviewed and identified perceptions of time and workload as barriers to IPCP if time was short and workload high, or facilitators to IPCP if the reverse was true (Smith, et al., 2010).

**Role Clarity.** Differences in professional paradigms of patient care may cause interprofessional confusion in communication or conflict in decisions if not clear. For example, while not always clear that practice should differ participants in one study indicated that physicians are seen as cognitive experts, and nurses as the affective or holistic experts (Barrow, et al., 2015). Lack of professional role clarity among professions was found to create opportunity for interprofessional conflict (Apker, Propp & Zabava Ford, 2005; Beales, et al., 2011; Castro-Sanchez, et al., 2014; Hepp, et al., 2015; Weller, et al., 2011). However, where role blurring occurs among healthcare providers that do not work in defined teams, role intersections can be negotiated if healthcare providers understand role distribution (Lingard, et al., 2012).

Suter, et al. (2009) reported that healthcare professionals identified the importance of every professional role to patient care. Nevertheless, learning to practice interprofessionally and
manage role blurring were seen as tense issues. Nursing competence can build physician trust in nurses, creating a more collaborative and less hierarchical relationship (Barrow, et al., 2015).

**Rounds.** Studies indicate that patient rounds vary greatly in their structure, outcomes focus, and membership. Studies of rounds also varied significantly from investigation of healthcare provider information exchange using checklists or structured communication tools, assessing team perception of rounds, and the current information types communicated in rounds.


The composition of rounding teams is not consistent within the eleven studies. Seven included registered nurses and physicians (Cornell, et al., 2014; Gonzalo, et al., 2014; Henneman, et al., 2013; Licata et al, 2013; Liu, et al., 2013; Lyons et al, 2013; O’Leary et al, 2010). One was physician only (Stickrath, et al, 2013), and one did not include physicians (Townsend-Gervis, et al, 2014).

None of the eleven rounding studies reported pre-intervention evaluation of culture or provision of interprofessional core competency education to establish or improve interprofessional collaborative practice. Inclusion of patients in discussion of their care was

Sharma and Klocke (2014) used an un-validated tool to conduct a survey of 90 nurses’ pre-and-post establishment of interprofessional rounding on three medical units with hospitalists in the United States. Perceptions of communication, workflow, value as team member, and job satisfaction were more positive after implementation of rounds (Sharma & Klocke, 2014). However, the validity of these results is questionable considering the tool was not psychometrically tested.

In Gonzalo, et al (2014) the frequency of bedside physician and nurse rounds along with time per patient was evaluated, but not the quality of rounds. Liu, et al (2013) studied cultural behaviors of medical hierarchy in an Australian critical ethnography of two medical units in an urban academic hospital after rounding was already established. Findings from 290 observation hours, 72 interviews, and 34 videos of 135 participants revealed primarily uni-professional medical education rounds without significant involvement of nurses or pharmacists.

In another rounding study, four sets of three Harvard business students observed three intensive care unit and one medical-surgical unit rounding teams at a Boston hospital for up to four hours each (Bharwani, et al., 2012). The observations were followed by participant interviews. Findings revealed no consistency in rounding team composition beyond physicians. Authoritarian attending doctor behaviors in rounds were also described.

Typical planned and unplanned, synchronous and asynchronous communication behaviors of 200 professionals and students from nine professions were identified in a Canadian ethnographic study conducted as a precursor to intervention development in two academic hospital, general internal medicine units (Conn, Lingard, Reeves & Miller, 2009). The most
common synchronous activity noted was interprofessional rounds described also as bullet rounds due to the fast pace of patient information sharing (Conn, et al., 2009). Charge nurses attended, however an interfering factor to rounds was that the patients’ nurse did not participate due to time constraints. In addition, physicians were critical of nurses sharing what was perceived as unnecessary information.

The heterogeneity of study methods and outcomes show that a method for interprofessional bedside rounding has not yet been established or definitively shown to improve IPCP or patient outcomes. These studies did not include a study of patient care unit culture to understand the impact of culture on the intervention either.

**Health and Systems Outcomes**

This section of the literature review contains a synthesis of ethnographic studies of IPCP clinical micro-cultural and organizational or macro-cultural studies. The studies in this section include behavior and performance that would fall in the IPLC Model concept of learning outcomes; however, these were not education intervention studies, but culture studies. Also, this section addresses professional and institutional culture that would fall in the IPLC Model concept of enabling or interfering factors. These studies are of culture per se as opposed to factors related to an intervention. Further, these studies are a reflection of system efficiencies, organizational change and cost effectiveness which are aspects of the IPLC health and systems outcomes.

Lewin and Reeves (2011) conducted interviews and observation every three months over two years in two British medical open wards to understand professionals’ presentation of self and use of space (defined as front stage, backstage) during interactions. Meetings and formal opportunities to interact inter-professionally were not effective. However impromptu brief, task
focused communication was common and explained as necessary given the number of providers involved in the care of patients (Lewin & Reeves, 2011). Cohesive teams were not evident, rather many individuals worked together intermittently to provide necessary patient care. This finding is important as team training may not be effective in transient groups.

Observation, interviews and video recording of nurses, physicians and pharmacists were used in an Australian critical ethnography of interprofessional communication (Liu, et al., 2013). Communication regarding medications was studied during ward rounds on two medical units in a single academic hospital. Thirty-one doctors, 76 nurses, one pharmacist and 27 patients participated in the study. Findings revealed hierarchical relationships. Further, ward rounds were not at a scheduled time, so nurses and pharmacists rarely participated.

Reeves, et al. (2009) conducted an ethnographic study of professional interactions within two Canadian urban academic medicine units. One hundred fifty-five hours of observation revealed generally brusque relationships between physicians and other professions, while relationships among non-medicine professions involved negotiation and more in-depth discussions about care (Reeves, et al., 2009).

In another study, the culture of communication on two Canadian general internal medicine wards did not differ from Reeves’s et al. (2009) findings. An additional finding was that physicians did not indicate a need for input from others if giving an order (Rice, et al., 2010). Further, in a study of interprofessional interactions in a Canadian general internal medicine ward, physicians were observed to ignore questions and delay interprofessional rounds for intra-professional activities. Other professionals were frequently observed not to contribute to care planning in rounds (Zwarenstein, Rice, Conn, Kenaschuk & Reeves, 2013).
Some researchers study a single profession in relationship to interprofessional collaboration. Miller, et al. (2008) examined nurse interprofessional relationships through observation, interview and shadowing in three medical divisions of three Canadian academic hospitals. Nurse belonging and community were reported to result in a protective atmosphere that inhibited interprofessional collaboration. Hallway communication revealed the importance of nurses as consultants for other team members (Miller et al., 2008). When psychosocial aspects of patient care were shared at interprofessional rounds, physicians were observed to disengage. In interviews, both allied health professionals and physicians expressed preference to restrict psychosocial information to exception only and commented that this information made rounds inefficient (Miller, et al, 2008). In two of the three hospitals, nurses infrequently participated in rounds. When nurses did participate, the experience was described as uncomfortable, intimidating and professionally exclusionary.

Hepp, et al. (2015) performed a secondary analysis of 113 interviews of unlicensed assistive personnel, licensed professionals, and managers in six acute medical surgical units in three Canadian hospitals to assess collaborative practice in relationship to the CIHC competency framework. Four types of rounds and documentation were the prominent identified communication tools. Physicians attended interprofessional rounds on one study unit, but not on the other five. The five units had to develop alternate methods of communication with physicians. Further, Hepp, et al. (2015) reported that staff identified multiple issues with rounds including team members arriving late, a lack of patient assessment, missing care plans, inconvenient rounding time, hierarchy, and problems with follow through on plans created during rounds. Interestingly, staff considered rounds a valuable tool irrespective of the issues and reported good quality and safety in patient care. Various written documentation tools created
redundancy of information, but healthcare providers were reported not to read notes instead preferring verbal communication (Hepp, et al., 2015). Work volume was seen as a barrier to improving unclear roles and limited nursing scope of practice, while time deficits were seen as an obstruction to patient-centered care.

An Australian rapid ethnography studied six medical residents’ interprofessional relationships during 51.5 hours of observation. The authors reported that, other than daily rounds, interprofessional interaction was mainly uncoordinated, intermittent abrupt communication with an undercurrent of disrespect explained to be a result of barriers to IPCP (Milne, Greenfield & Braithwaite, 2015). Noted IPCP barriers were uni-professional practice, siloed professional education, and inefficient organizational structures that created work unrelated to IPCP.

**Conclusion**

The IPLC Model was developed to provide focus to IPE and IPCP research because of a large volume of problematic research (IOM, 2015). Core competencies have been developed by several countries around the world to guide foundational education regarding IPCP. Interprofessional foundational, graduate, and continuing professional education and practice interventions are emerging as best practices to improve healthcare. Yet in spite of some positive short term outcomes focused on attitudes, skills, and knowledge about IPCP, study design issues quash any significant generalizable evidence of effectiveness (Reeves, Perrier, Goldman, Freeth & Zwarenstein, 2013). Recently the research community has called for more qualitative and mixed methods research using the IPLC model (IOM, 2015).

Despite great effort to improve healthcare through IPE and IPCP, progress has been slow. A potential explanation for sluggish transformation to IPCP is that the impact of context and
culture on change is not adequately understood (Ovretveit, 2009). Studies of clinical micro-
cultures are needed to understand the complexity of enabling or interfering factors that impact
health and system outcomes in the United States. In-depth knowledge of clinical micro-cultural
enabling and interfering factors would provide a basis to address barriers prior to intervention
development and execution.

In the United States, healthcare culture has been studied in the specific clinical practice
areas of intensive care, transplant, emergency and primary care. No studies of the culture of
IPCP in acute care medical surgical units within the United States were found. Outside of the
United States, researchers have described characteristics of adult acute-care medical-surgical unit
culture that indicate issues of space, workload, time and hierarchy that contribute to the lack of
IPCP.

Context in healthcare organizations has been defined as “the identity of local care
settings-their processes, habits and traditions” (Batalden & Davidoff, 2007), as well as,
everything outside of the intervention that could impact the intervention (Ovreveit, et al., 2011).
Similarly, culture is considered the shared and learned values, beliefs, and practice of people
who “share a social space” (Dharamsi & Charles, 2011).

The importance of understanding the culture of IPCP in clinical micro-cultures as an
influence on workplace-ready healthcare providers cannot be overstated. Behavior is suggested
to be influenced more by the workplace than by academic education (Friedson 1970, as cited by
Thistlethwaite & Dalless, 2014). Prior workplace ethnographies have shown failed cultural
change initiatives that included resistance from workers (Smith, 2001). Current literature shows
much variability in IPE and IPCP intervention outcomes and continued issues with quality in
healthcare despite efforts toward change. Thus, extending the knowledge of the culture of IPCP
in micro-clinical contexts may provide a foundation for the development of more effective interventions.

Neither teams nor contexts are a one size fits all for IPCP (Olson & Bialocerkowski, 2014), thus more research is still needed to understand clinical micro-cultures to make micro level changes in healthcare that will impact the care of patients. Specifically, this study of the IPCP culture of adult acute-care medical-surgical units of acute care hospitals was designed to understand the mechanisms needed to develop or sustain a positive IPCP culture over the long term. A focused ethnography was needed to understand the clinical micro-culture of adult acute-care medical-surgical units in order to understand IPCP in that healthcare specialty.
Figure 1. Interprofessional Learning Continuum Model

<table>
<thead>
<tr>
<th>Specific competency</th>
<th>Can Med (CAN)</th>
<th>CIHC NICF (CAN)</th>
<th>IPEC (US)</th>
<th>ICF (CUILU) (UK)</th>
<th>Curtin University (AUS)</th>
<th>Griffith Health (AUS)</th>
<th>Univ. of British Columbia (CAN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical expert</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Communication</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Collaboration</td>
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<td></td>
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<tr>
<td>Manager</td>
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<td></td>
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<tr>
<td>Health Advocate</td>
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<td></td>
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<tr>
<td>Scholar &amp; Professional</td>
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<td>X</td>
<td></td>
<td></td>
<td>X</td>
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<td></td>
</tr>
<tr>
<td>Patient/client centered care</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Roles &amp; Responsibilities</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teamwork</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>Conflict Resolution</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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<td></td>
<td>X</td>
</tr>
<tr>
<td>Values &amp; Ethics</td>
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<td></td>
<td>X</td>
<td></td>
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<td>X</td>
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<tr>
<td>Reflection</td>
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<td></td>
<td>X</td>
<td></td>
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<td>X</td>
</tr>
</tbody>
</table>

Note: Shaded rows indicate most frequent competencies shared among models
CHAPTER 3: METHODOLOGY

The purpose of this study was to explore and describe the cultural factors that influence interprofessional collaborative practice in two adult acute-care medical-surgical patient care units. The research design and methods for this study are described in this chapter including:

- The definition, history, and philosophical underpinnings of ethnography
- An explanation of focused ethnography
- Description of the setting and sample
- Data sources, management and analysis
- Strategies for study rigor
- Conclusion

Ethnography

Definition

Roper and Shapira (2000) describe ethnography as a process of learning about a culture by immersion in the setting to learn from the people within that culture. Culture is defined as the shared and learned values beliefs and practice of people who “share a social space” (Dharamsi & Charles, 2011). Moreover, culture is group identity and group preservation through these shared values, beliefs, traditions and behaviors (Barton, 2008; Reeves, Kuper, & Hodges, 2008, p 1). The general purpose of ethnography is to describe the patterns of shared explicit and tacit everyday beliefs, and actions (Higginbottom, Pillay & Boadu, 2013; Spradley, 1979).

History

Ethnography has a rich history in anthropology and sociology. Historically, studies entailed cultural immersion with geographically remote populations that were unfamiliar to the researcher. For example, in the 1920’s Malinowski (as cited in O’Reilly, 2008) studied the
culture of Australian aboriginal social groups. Mead (as cited in Griffin & Bengry-Howell, 2008) studied sexual culture among Samoan adolescents.

Sociologists expanded the method of ethnography to include the study of local cultures (Speziale & Carpenter, 2007). For instance, Becker, Geer, Hughes and Strauss (1961) used ethnographic methods to study medical students’ entrée into the culture of the medical profession.

**Philosophical underpinnings**

The study of people from within their shared social space is an aspect of ethnography called naturalism (Emerson, 2001; Hammersley & Atkinson, 1983; Reeves, Peller, Goldman, & Kitto, 2013). A central tenet of ethnography is that behavior and meaning are constructed locally by the people engaged in their shared world (LeCompte & Schensul, 2010). Researchers engaged in ethnography learn about the culture from within the culture without trying to control the culture experimentally (LeCompte & Schensul, 2010).

Ethnographic research is amenable to different paradigms. The epistemology of the participatory paradigm is that knowledge is subjective and co-created among all involved including participants and researcher (Creswell, 2014; Lincoln, Lynham & Guba, 2011). Action and transformative community problem solving are integral to this paradigm. Researchers from the constructivist paradigm also have the understanding that there are multiple ways of knowing and that the people with many perspectives within a culture create the culture (Creswell, 2014). Research conducted from this paradigm seeks patterns of meaning through induction. Further, constructivists search for the complexity in the culture and strive to represent the worldview of the participants’ culture. Measures of constructivist research quality are its authenticity and trustworthiness (Lincoln, et al., 2011), in other words “situational representativeness”
(Horsburgh, 2003). For the purposes of this study, this researcher approached the project from a constructivist paradigm. The studied culture was interprofessional collaborative practice on medical-surgical units, a sub-culture of the patient healthcare continuum. This sub-culture is complex as it is also a mélange of personal and professional cultures brought to this sub-culture by each healthcare provider.

**Focused Ethnography**

**Definition**

Focused ethnography is a form of ethnography that concentrates on the exploration of a particular aspect of a culture (Cruz & Higginbottom, 2013; Higginbottom et al., 2013; Knoblauch, 2005; Wall, 2015). Focused ethnographic methods provide opportunities to incorporate data from many different sources to provide a view of a complex culture from a narrower scope than traditional ethnography (de Chesnay, 2015). Research participants are selected for their knowledge about the specific subculture and topic of interest (Higginbottom et al., 2013).

Focused ethnography is different from traditional ethnography in that focused ethnography is conducted over a shorter timeframe in a subculture already familiar to the researcher (Cruz & Higginbottom, 2013; Knoblauch, 2005). For this study, the researcher had familiarity with hospital environments, and is a licensed registered nurse. Thus, a hospital patient care unit is not foreign. The focused subculture was interprofessional collaborative practice of healthcare workers in a specific area of the hospital, specifically medical-surgical units.

This focused ethnography employed sampling methods to provide data about collaborative social interactions, perceptions about interprofessional collaboration, and behaviors that either enable or interfere with collaboration among professions on the two medical-surgical
units. Further, focused ethnographic methods were beneficial in collecting data to identify the enabling and interfering factors and learning outcomes illustrated in the Interprofessional Learning Continuum Model (IPLC, IOM, 2015, Figure 1) that influence health and system outcomes. A situational representation of the culture of practice areas is essential to evaluate its impact on IPE and IPCP interventions.

**Setting and Sample**

**Hospital units**

The study settings were two patient care units in a 100-year-old academic medical center in a large city in the Midwest. The oncology unit has private rooms for patients. The medical unit has some private and some semi-private rooms. The units have space to accommodate up to 35 patients each.

**Patient populations**

The patient population this hospital serves is diverse in terms of the age range, socio-economic, racial and ethnic demographics. Trauma, neurology and other specialty services draw patient referrals from around the United States. The hospital receives funding from a county tax levy to subsidize the care of impoverished patients.

**Social Groups**

The studied social groups were adult hospital employees ages 18 and above who were involved in the care of patients on either an oncology or internal medicine unit at the academic medical center. Informants included hospital unit associates and non-unit hospital associates that were involved in unit activities to support and care for a specific group of patients and family.

Non-unit associates provide their services to patients based on need, in contrast to unit associates, who provide care based on patient location. Non-unit associates included but were not
limited to physicians, social workers, physical and occupational therapists, social workers, case managers, and patients. In addition, non-unit associates included the hospital administrators as described in Table 2. Unit associates included, but were not limited to health unit coordinators (secretaries), patient care assistants (non-professional, unlicensed care givers), and registered nurses.

The inclusion of participants with different roles and professions provided multiple perspectives of interprofessional collaborative practice on these two units. Inclusion of all levels of administrators provided information about organizational culture and policies that may have impact on interprofessional collaborative practice.

Access

The researcher is an employee of the hospital, however had never worked on the patient care units involved in this study. Permission to access the study population was obtained through institutional gatekeepers namely the Chief Nursing Officer who is responsible for patient care services and the research administrator of the hospital who is responsible for vetting appropriate research projects for the institution. Further permission to access unit staff was obtained from the unit nurse managers.

Prior to any participant recruitment or data collection, study approval was obtained through the University of Cincinnati Institutional Review Board (Appendix A). When the study was approved, the general aim of the study and recruitment information was introduced to the unit staff and non-unit staff that care for patients on both units. A study email account and study specific cell phone account was established and accessible to informants to ask questions about the study or to volunteer to participate.

Key informants and general informants
Key informants are experts from the studied culture (LeCompte & Schensul, 2010) and are essential information suppliers (Wolcott, 2008). In this study, key informants were nurse managers, medical directors, and educators because these individuals are unit experts who are regular members of the unit culture as they work a minimum of five days per week. The nurse managers and medical directors work together as a responsible dyad to accomplish unit specific quality goals. General informants are individuals within the culture who can provide information that adds to the development of conceptual theory begun with key informant data (Morse & Field, 1995). General informant data also may validate or contradict key informant views. For this study, general informants’ time on the units was intermittent. These healthcare providers either came to see individual patients, or worked fewer days per week on the unit. Patients were general informants as they had short term, but personal experience with healthcare providers.

**Data Sources**

Data sources for this study included field notes; informal and semi-structured interviews; focus groups; collection of artifacts; and participant observation. Different data types and data formats were collected from multiple data sources to enable rigorous triangulation to gain a more nuanced understanding of the unit cultures of IPCP. A data collection matrix (LeCompte & Schensul, 2010, Table 3) was developed to determine data needs to address the study questions and IPLC Model.

**Participant observation**

Participant observation can take several forms such as complete participation, participant-as-observer, observer-as-participant, and complete observer (Morse & Field, 1995). The researcher took the role of observer-as-participant for this study. In this role, the researcher was
made known to the participants, and informal interaction was possible, but the researcher did not participate in unit work. The primary activities observed included daily morning patient rounds, medical resident meetings, medical-surgical unit hallway interactions among staff, daily medical-surgical morning lightning rounds, and patient progression meetings. Morning patient rounds primarily involved medical assessment of patient needs and resident education.

“Lightning rounds” were observed once prior to being discontinued. These rounds were a rapid information exchange among residents, care managers and unit personnel to determine discharge needs of patients. These rounds were replaced by an EMR report that was updated daily and available to all associates by means of an electronic monitor in a protected space within the unit. Patient progression meetings were more detailed encounters to identify and resolve patient issues that prevent discharge.

Artifacts

Unit and hospital artifacts that provided cultural insight about real or expected collaboration among professions provided another source of data. Artifact data in the form of organizational core values statement, policies, hospital policies (chain of command, disruptive physician behavior, etc.), and survey data were collected.

Sampling plan

The sampling plan for this study was purposive (O’Reilly, 2009). People involved in patient care on the two study units were recruited into the study. Unit associate inclusion criterion was a minimum of twenty hours per week employment to ensure the associate was working in the hospital enough to be fully engaged in the culture. Non-associate inclusion criterion was affiliation with the hospital that included involvement in the care of patients on the study units. Ethnography is inductive and the sampling plan evolved during the data collection
period due to changes in personnel, changes in meetings, and identification of participants relevant to the study. The sampling plan is in Table 4.

Focus Groups

Recruitment of study participants for focus groups occurred through several methods including verbal communication, flyers posted on the unit, referral by other study participants, and emails to potential participants. Focus group participants were recruited from the oncology patient care unit for the nurse focus group. The hospital Patient and Family Advisory Council was recruited for a consumer perspective of the culture of IPCP. Attempts were made to recruit for other focus groups however, the patient census at the time of data collection was routinely high which prevented participation during work hours. Potential participants reportedly did not want to be involved in a focus group when not working.

Interviews

Emails were sent to key informants to invite interview participation. Only those hospital employees and healthcare providers who provided or influenced service to patients on the study units were recruited. Interviews began with introductions, a thank you for participating, and information to enable informants to give a written informed consent. Informed consent included a description of the study, participant risks and benefits, a statement about how confidentiality would be maintained, and an explanation of informed consent including the option to withdraw at any time (See Appendix B). After obtaining informed consent from participants, interviews were audio-recorded using two separate recording devices. The interview guides are found in Appendix C. Recordings were saved to a password protected University of Cincinnati research drive. Interviews and focus group recordings were transcribed by hired transcriptionists, and the researcher. Transcribed data were verified by the researcher by listening to recordings while
reviewing transcription. Field notes provided data from meetings and observations and were written and saved electronically soon after study activities took place to capture observations, thoughts, and reflexive responses. Transcribed interview, focus group, and field note data were uploaded to NVivo 11 Pro software (QSR International, 2015) for organization and management of data.

**Data Analysis and Management**

While grounded theory is a methodology to describe processes, the methods for data analysis can be used as a structural guide for ethnographic studies (Charmaz, 2006; Charmaz & Mitchell, 2001). For example, constant comparison of data from the beginning of and throughout data collection was done to identify themes and processes. Categorization of abstract data by induction and synthesis was followed by development of a theoretical framework. For this study, the theoretical framework was compared to the IPLC Model.

All data were stored in a secured password protected University of Cincinnati research drive, or in a locked cabinet within a locked office. Data analysis and interpretation were done by this researcher as well as the three researchers of the doctoral committee. Analysis of and comparison of data from observation, interview, focus groups, artifact data, and field notes occurred throughout the data collection process. Concurrent and continuous analysis with data collection informed further needs for specific types of data related to the studied culture (Fetterman, 2010; Hammersley & Atkinson, 1983). Analysis included reflexive notes, the use of NVivo software for managing data during coding and categorization activities, and triangulation of all sources of data to search for patterns, categories, and typologies (Fetterman, 2010; Silverman, 2013).
Field notes written at the time of audio-recorded data collection and observation were written by the researcher. These notes were an expanding record of short note taking at the time of recording or observation with detailed expansion of those notes within 24 hours of event, and reflexive notes about personal reactions, biases, problems, and initial interpretations (Silverman, 2013). Contact summary sheets were used to organize analysis of each event or observation (Silverman, 2013). Document data were reviewed and interpreted for relevance to phenomenon and compared to other forms of data.

Data were loaded into NVivo 11 Pro software (QSR International, 2015) to manage data for interpretive coding, and categorization. Data were reviewed iteratively to sort for patterns that were coded into categories. Initial interpretations of links between categories or concepts (Creswell, 2014; Silverman, 2013) provided direction for further data collection and analysis. Unanswered questions and revealed gaps in the data also informed further data collection. Categories were evaluated and synthesized based on the research questions and the IPLC Model concepts. Data were collected and analyzed until the saturation of cultural concepts of interprofessional collaborative practice was reached. Triangulation was used in this study to achieve a deeper understanding of the culture through the use of multiple types of data that were collected, compared, and contrasted.

At the point that no new patterns or themes were identified the final analysis of the data was conducted to assess connections between patterns and to produce a description and explanation of interprofessional collaborative practice in the study units. An end goal of the study was “situational representativeness” of IPCP in medical-surgical units within a theoretical model compared to the IPLC model. This comparison may offer understanding of similar healthcare contexts.
Rigor

Methodological and interpretive rigor is important in the evaluation of the quality of qualitative research (Fossey, Harvey, McDermott & Davidson, 2002). The rigor of methodology can be determined through examination of five criteria: 1.) congruence, 2.) responsiveness to social context, 3.) appropriateness, 4.) adequacy, and 5.) transparency. Interpretive rigor can also be evaluated through five criteria namely 1.) authenticity, 2.) coherence, 3.) reciprocity, 4.) typicality, and 5.) researcher transparency also called “permeability of intentions, engagements, interpretations” (Fossey et al., 2002, p. 725). The rigor of this study is addressed in this section and Appendix B.

Methodological rigor

The purpose of this study was to explore and describe a particular aspect of hospital culture, interprofessional collaborative practice. Culture is studied through ethnography. Ethnography was the methodology for this study because of the congruence with the research questions. The researcher was involved with informants on the study units by engaging in the typical methods of ethnography described earlier. This exemplified responsiveness to social contexts. The sampling plan for this study and the data proposed for collection were designed to answer the research questions and demonstrate appropriateness in methodological rigor. Field notes, samples of artifact data, verbatim transcriptions of recordings, and documentation of the analysis process provided rigor in adequacy and transparency of study process and interpretation.

Interpretive rigor

Authenticity of interpretation included representation of informant perspective through appropriate use of verbatim quotes, and a depiction of the full range of informant views. Validation of representativeness was done through group data analysis with experienced
researchers for authenticity and reciprocity rigor (Fossey, et al., 2002). Coherence was demonstrated through discussion of the data and its connection to the interpretation of the data. The permeability of intentions, engagement, and interpretations of this researcher were made explicit in the writing of the final research report.

Conclusion

Ethnography has evolved from extended anthropological immersions with foreign peoples to sociological foundations for the study of shared values, beliefs and lifeways of any population. Focused ethnographies are shorter studies of specific aspects of cultures. This study was of the specific phenomenon of interprofessional collaborative practice among healthcare providers in a particular type of hospital culture, medical-surgical patient care units. Multiple types of data from the hospital, units, and informants were analyzed using qualitative interpretive techniques and software to manage access and manipulation of data. Methodological and interpretive criteria for rigor were used to ensure transparency of the quality of data and interpretation. This ethnography of interprofessional collaborative practice of healthcare providers on adult acute-care medical-surgical units adds to the body of knowledge that may inform future healthcare interventions.
References


http://www.capt.ca/pdfs/otprofile.pdf


doi:10.1371/journal.pone.0086167


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The Joint Commission. Sentinel event statistics data: root causes by event type.


Figure 1. Interprofessional Learning Continuum Model

<table>
<thead>
<tr>
<th>Title</th>
<th>General Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Director</td>
<td>Physician with medical and operational responsibilities for the medical surgical patient care units.</td>
</tr>
<tr>
<td>Nursing Director</td>
<td>Registered nurse with nursing and operational responsibilities for the medical surgical patient care units.</td>
</tr>
<tr>
<td>Chief Nursing Officer</td>
<td>Registered nurse with responsibility for all nursing activities in the hospital.</td>
</tr>
<tr>
<td>Chief Administrative Officer</td>
<td>Healthcare executive with responsibility for all operational activities of the hospital.</td>
</tr>
<tr>
<td>Chief Medical Officer</td>
<td>Medical executive with responsibility for all medical activities in the hospital.</td>
</tr>
<tr>
<td>Graduate Medical Director</td>
<td>Director with responsibility for medical residents and fellows.</td>
</tr>
</tbody>
</table>
Table 3. Data Collection Matrix

<table>
<thead>
<tr>
<th>Research Questions (What do I need to know?)</th>
<th>Conceptual Rationale (IPLC Model) (Why do I need to know this?)</th>
<th>Data Type (What kind of data will answer my research question)</th>
<th>Data Source (Where or from whom, can I obtain these data?)</th>
<th>Gatekeepers (Whom do I contact for access to these data?)</th>
<th>Data Format (What form will the data be in, once collected?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the culture (values, beliefs, and practices) of interprofessional collaborative practice in two adult acute care medical/surgical units?</td>
<td>Institutional, professional culture Learning continuum</td>
<td>Beliefs, values, practices of IPCP</td>
<td>Healthcare providers on the two units, hospital administrators, observation, meeting minutes, hospital policies, patient safety and associate satisfaction survey data</td>
<td>Unit managers, direct request to informants</td>
<td>Interviews, focus groups, observation written in field notes, artifact documents</td>
</tr>
<tr>
<td>What are the cultural factors that influence interprofessional collaborative practice in two acute care medical surgical units?</td>
<td>Institutional, professional culture</td>
<td>Behaviors/practice on the units</td>
<td>Observation, interviews, focus groups</td>
<td>Unit managers, direct request to informants</td>
<td>Transcripts and field notes</td>
</tr>
<tr>
<td>How do healthcare providers share information for planning and providing patient care?</td>
<td>Learning outcomes: collaborative behavior, performance in practice</td>
<td>Documentation of observation of interaction, informant self-report</td>
<td>Unit observation, informants from units</td>
<td>Unit managers, doctors, other healthcare providers</td>
<td>Interview transcripts, observation field notes, focus group transcripts</td>
</tr>
<tr>
<td>What are healthcare professionals’ perceptions about interprofessional collaborative practice?</td>
<td>Learning outcomes: attitudes, perceptions, knowledge and skills</td>
<td>Self-report of attitudes, perceptions, knowledge</td>
<td>Unit staff, other healthcare providers</td>
<td>Unit managers, doctors, other healthcare providers</td>
<td>Interview and focus group transcripts</td>
</tr>
<tr>
<td>How do individual behaviors and organizational cultural factors enable or interfere with daily collaboration and care planning among professions?</td>
<td>Learning outcomes: collaborative behavior, performance in practice</td>
<td>Observation, self-report, interview, patient safety and associate satisfaction survey data, policies</td>
<td>Hospital administration, unit staff, other healthcare providers, access to policies from hospital intranet</td>
<td>Hospital administration, unit managers, other healthcare providers</td>
<td>Documents, field notes, transcripts from interviews and focus groups</td>
</tr>
</tbody>
</table>
Table 4. Sampling Plan

<table>
<thead>
<tr>
<th>Method</th>
<th>Sample Size</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus groups</td>
<td>2 groups</td>
<td>1 Oncology nurses, 1 Patient &amp; Family Advisory Council</td>
</tr>
<tr>
<td>Daily morning patient rounds</td>
<td>20 hours (represents both units)</td>
<td>Observe and informal interviews for understanding of process and perception</td>
</tr>
<tr>
<td>Daily lightning rounds</td>
<td>1 meeting (discontinued after first week)</td>
<td>Observe and informal interviews for understanding of process and perception</td>
</tr>
<tr>
<td>Resident meetings</td>
<td>3 meetings</td>
<td>Observe and informal interviews for understanding of process and perception</td>
</tr>
<tr>
<td>Patient progression meetings</td>
<td>3 meetings (represents both units)</td>
<td>Observe and informal interviews for understanding of process and perception</td>
</tr>
<tr>
<td>Semi-structured interviews (30-60 min each)</td>
<td>23 interviews (one of each profession representing each of the two units)</td>
<td>2 Unit Managers, 1 Unit Educator, 2 Medical Directors, 2 Hospitalists, 1 Chief Resident, 2 Registered Nurses, 1 Chief Administrative Officer, 1 Chief Medical Officer, 1 Graduate Medical Director, 2 Care managers (1 SW, 1RN), 2 Pharmacists, 2 Physical Therapists, 2 Occupational Therapists, 2 Patients</td>
</tr>
<tr>
<td>Hallway/staff break room observations</td>
<td>12 hours (6 on each unit)</td>
<td>Informal interviews, participant observation</td>
</tr>
<tr>
<td>Artifact data</td>
<td></td>
<td>Policies including chain of command, disruptive behavior, standards of performance, corporate core values, Hospital survey data.</td>
</tr>
<tr>
<td>Interprofessional rounding meetings</td>
<td>5 meetings</td>
<td>Interprofessional, related to medicine unit rounding</td>
</tr>
<tr>
<td>Interdisciplinary team huddle</td>
<td>5 meetings</td>
<td>Interprofessional related to identified issues on medicine unit</td>
</tr>
<tr>
<td>Medicine morbidity and mortality meeting</td>
<td>1 meeting</td>
<td>Physicians, pharmacists review of cases</td>
</tr>
</tbody>
</table>
CHAPTER 4: MANUSCRIPT 1

Analysis of the Interprofessional Learning Continuum Model Using Walker and Avant’s Six Steps of Theory Analysis

Costanzo, A.J., Shambley-Ebron, D., & Martsolf, D.M.

Abstract

**Background:** Interprofessional education (IPE) and interprofessional collaborative practice (IPCP) are seen as ways to mitigate patient harm, yet research outcomes are not generalizable. A new theory, the Interprofessional Learning Continuum Model (IPLCM), was developed by an Institute of Medicine commissioned committee to guide future research.

**Objectives:** The purpose of this paper is to analyze the IPLCM using Walker and Avant’s six steps of theory analysis and argue for nursing engagement in interprofessional research to test the IPLCM.

**Method:** Walker and Avant’s six steps of theory analysis were used to analyze the IPLCM. The analysis steps are origins, meaning, logical adequacy, usefulness, transferability, parsimony, and testability. Relationship diagrams, relational statements, and a relationship matrix were used to analyze the logical adequacy of the theory’s visual model and stated conceptual relationships.

**Results:** Analysis of the IPLCM concepts and theoretical relationships exposed opportunities for refinement of this new model. The logical adequacy step of this theory analysis revealed six inferred conceptual relationships as well as six overtly stated relationships.

**Discussion:** Theory is an essential underpinning to guide nursing and interprofessional research. The IPLCM is a new theory developed to provide the foundation for IPE and IPCP outcomes research. Research is needed to further refine the concepts and relationships of this new theory in
specific healthcare settings. Nurses were involved in the development of this theory and nurses should lead and participate in testing the theory.

**Key Words:** Interprofessional Learning Continuum Model, interprofessional education, interprofessional collaborative practice
Theory has been described as a means to move nursing from an occupation to a profession, and as a guiding path to nursing practice (Reed & Shearer, 2012; Walker & Avant, 2011). Healthcare and the nursing profession have changed significantly since early nursing theories were developed by nurse researchers in the 1960’s. Issues with patient safety and quality have generated new ways of thinking about the ways healthcare is provided (IOM, 1999; WHO, 2010). Interprofessional collaborative practice (IPCP), where two or more professions work together with patients, is suggested as one method to improve healthcare quality (WHO, 2010). Interprofessional education (IPE) is emerging as a means to develop IPCP among healthcare professionals (IOM, 2015; IPEC, 2011). It is essential for nursing scholars to understand and participate in the development and analysis of theory to support research in healthcare IPE and IPCP.

A recent extensive review of interprofessional education (IPE) and interprofessional collaborative practice (IPCP) research indicate outcomes are not generalizable (IOM, 2015). As a result of the review, a commissioned interprofessional committee recently developed the Interprofessional Learning Continuum Model (IPLCM). The model is a theoretical tool to guide further research on the outcomes of interprofessional education and collaborative practice (IOM, 2015). The use of a common theoretical foundation for research is anticipated to result in more generalizable knowledge (IOM, 2015). Since this model is new, a theoretical analysis is indicated. The purpose of this paper is to analyze the IPLCM using Walker and Avant’s (2011) six steps of theory analysis.

**Background**

Healthcare has changed dramatically since the first nursing theories were developed to drive nursing practice and professionalism. A few notable changes are the identification of the
human genome leading to genetics research in healthcare (IHGSC, 2001), access to information on the world-wide web leading to self-advocacy in healthcare, and documentation of care in electronic health records (Hsieh, 2010). With the dawn of the internet giving rise to readily available information, people are seeking health information from the world-wide web (Bundorf, Wagner, Singer, & Baker, 2006; Fox & Duggan, 2013). Newer, patient-centered care concepts include patient access to information and patients’ desire to choose care. These expectations impact how healthcare providers work with patients (Cunningham et al., 2008). While knowledge and information have become more accessible, healthcare too frequently leads to error and patient harm. Leaders in healthcare have called for interprofessional education and IPCP to improve impaired communication that leads to errors and harm (IOM, 2015, IPEC, 2010, WHO, 2010).

**Significance**

Healthcare quality in the United States has been examined for several decades since fragmented care, and patient harm were identified as significant issues in the report, *To Err is Human* (IOM, 1999). Further, the Joint Commission, a healthcare regulatory agency, reported data from 2013-2015 that revealed communication problems are one of the most frequent causes of patient harm in hospital care (TJC, 2015). IPCP was deemed essential for today’s patient-centered healthcare environment to increase communication among healthcare providers in order to decrease errors and patient harm (WHO, 2010). This shift in healthcare delivery concepts to emphasize IPCP creates a need to shift our thinking about nursing professional theory. Nursing work includes nursing within an interprofessional collaborative environment. Nursing input regarding interprofessional theory is an important aspect of interprofessional collaborative practice.
Interprofessional education (IPE) provides nursing and other healthcare professions with opportunities to learn about roles beyond a learner’s own profession (IPEC, 2010). Role clarity may enhance communication and IPCP in the healthcare work environment (IPEC, 2010). IPE and IPCP have long been supported as interventions to improve healthcare, however these practices are not widespread and research has not produced generalizable outcomes (IOM, 2015). In 2015, the Institute of Medicine’s (IOM) Committee on Measuring the Impact of Interprofessional Education on Collaborative Practice and Patient Outcomes (hereafter referred to as “the committee”) developed the Interprofessional Learning Continuum Model (IPLCM) as a common conceptual framework for IPE and IPCP research (IOM, 2015). Theory is an important foundation for research (Walker & Avant, 2011), thus an analysis of the IPLCM is important for nurse researchers who are interested in studying IPE and IPCP.

**Theory Analysis**

Meleis (2012, p. 29) defined theory as set of concepts linked by relationships to provide a “symbolic depiction” of specific realities. Conceptual models represent theory and are tools to direct research (Meleis, 2012). Reed (1995) declared that different theory levels are important in the process of generating new knowledge for nursing practice. Analysis of interprofessional theory may bring clarity regarding the role of nursing within interprofessional collaborative practice. The value of theory analysis is to develop a deep knowledge of the concepts and relationships described by the theorists and to add to the body of knowledge regarding that theory.

Analysis of newly developed theory is an important process in understanding the theory’s strengths and weaknesses that could lead to further improvement of the theory (Walker & Avant, 2011). The process of theory analysis is used to assess the validity of the theory for the purpose
that it was developed (Dickoff & James, 1968). Valid theory is “situation-producing” and developed as an influential, interpretable roadmap with a specific rationale (Dickoff & James, 1968, p. 198). Theory based on reason or action is theory that is “shaping reality” (Dickoff & James, 1968, p. 199). Ellis (1968), a nurse theorist, stated that theory is to be tested and questioned. Theory testing can be accomplished by evaluating the fit of new knowledge into an established framework (Ellis, 1968).

Healthcare that necessitates IPCP requires theory that is broad enough to be inclusive of all professions who interact and work with patients in planning their care. IPCP theory does not diminish the need for nursing-specific theories that relate to the special knowledge of the nursing profession. IPLCM is a complex system of factors that represent a synergy that optimizes or hinders safe patient care. The model includes the healthcare students and professionals involved in that care. Profession-specific theories address the questions of a particular practice, whereas the IPLCM concentrates on the combination of all professions for the purpose of collectively caring with and for patients. The assumption is that shared team planning is of higher quality than a plan developed without the input of all necessary professions (IPEC, 2010).

Nurses have profession-specific roles, however nurses work in conjunction with other healthcare professionals. Nursing participation in research about IPE and IPCP is essential to ensure nursing knowledge is represented. The IPLC Model is not a nursing theory, rather the model is inclusive of all healthcare students and professionals and their contributions to healthcare outcomes. The IPLCM can be considered a situation producing theory (Dickoff & James, 1968, p. 199) as it is intended to guide research to change education, practice, and outcomes. The purpose of this article is to analyze the IPLCM via Walker and Avant’s (2011) six
steps of theory analysis. The six steps are origins, meaning, logical adequacy, usefulness, transferability, parsimony, and testability (Walker & Avant, 2011).

**Origins**

The analysis of a theory’s origin provides information about the impetus for its development, the method of derivation, and the existing evidence for or against the theory (Walker & Avant, 2011). In addition, analysis of theory origin includes identification of assumptions related to the theory. The IPLCM was developed recently to guide researchers in understanding the impact of IPE across the professional continuum from a professionals’ initial training and throughout the professional career (IOM, 2015).

**Impetus for IPLCM**

The committee was convened by the IOM as a result of questions that arose during IPE workshops at the IOM Global Forum on Innovation in Health Professional Education in 2013 (IOM, 2015). The six doctorally-prepared members of the interprofessional committee included two physicians, two nurses, a social scientist, and a scholar of adult education. The committee’s task was to scrutinize current knowledge regarding the measurement of IPE and IPCP outcomes related to healthcare systems and delivery (IOM, 2015). Information reviewed by the committee included evidence from commissioned papers, literature reviews, expert testimony, and discussion. The committee determined there was no current IPE model to guide research that incorporated interprofessional learning across the professional and educational continuum that also included practice environment outcomes and influential factors. As a result of this gap, the committee developed the IPLCM as depicted in Figure 1.

**Method of Derivation**
Theories that are developed from extant theory and concepts are considered deductive, whereas theories that are developed directly from data are considered inductive (Walker & Avant, 2011). The committee determined that IPE models were limited in focus to planned formal education, specifically educational interventions and learning outcomes (IOM, 2015). In particular, the committee found models were lacking in health or system outcomes focus or specific aspects that impact learning such as physical environment and timing of education. The education component of the IPLCM was based on concepts from Owen and Schmitt’s professional education model that consisted of an education continuum (IOM, 2015; Owen & Schmitt, 2013). The Owen and Schmitt (2013) IPE model mapped the learning continuum of IPE from pre-licensure education to graduate education and finally through formal interprofessional continuing education. Those concepts were extended in the IPLCM to include informal learning and evaluation (IOM, 2015). Furthermore, learning, health, and systems outcomes were included in the IPLCM to address healthcare provider practice and organizational outcomes. Finally, professional and workplace culture, and workforce and finance policy were determined by deduction to be important concepts not included in other models.

Meaning

Analysis of theory-meaning involves identification of the theory’s concepts and their definitions along with the relationships between the concepts (Walker & Avant, 2011). The meaning of the words and concepts in the context of the model are essential to theory analysis. The IPLCM consists of three broad and complex concepts and their relationships (IOM 2015).

Concept identification and definition

Descriptive concept definitions may only list aspects of the concept as opposed to defining the concept due to the nascence of the theory (Walker & Avant, 2011). Further,
descriptive concept definitions do not provide direction for measurement of the concept (Walker & Avant, 2011). The IPLCM consists of three “overarching” concepts: 1.) a learning continuum; 2.) outcomes including learning, health, and system; and 3.) enabling or interfering factors (IOM, 2015, p. 25). The concepts of the IPLCM are descriptive as they are broad and without direction for measurement. The IPLCM authors notably state that the model will need to be tested and modified in different healthcare contexts (IOM, 2015). The sub-concepts of each IPLCM overarching concept are reviewed in this section.

**Learning continuum.** The overarching concept of learning continuum consists of sub-concepts of formal and informal learning, and learning that occurs across the professional continuum from pre-licensure, graduate, and through continuing professional education (IOM, 2015). Pre-licensure education provides the learner with the basic knowledge of a profession. Some professions require graduate education that provides supervised learning and practice for “complex situations” (IOM, 2015). Continuing education for practicing professionals is geared toward performance improvement and competency. These concepts are abstract in that they are not limited by time or space and are amenable to primitive or concrete definition (Walker & Avant, 2011). The concepts were intentionally left broad enough to be defined in different ways to be adaptable to different cultures and practice settings (IOM, 2015). The next overarching concept is learning, health, and systems outcomes.

**Learning, health, and systems outcomes.** The sub-concepts of the learning, health, and systems outcomes were derived from Kirkpatrick’s Expanded Outcomes Typology (Reeves, Boet, Zierler, & Kitto, 2015). This six-level typology includes learner’s reaction, attitude/perception, knowledge/skill, behavior, change in organizational practice to benefits to people and communities. The IPLCM learning outcomes concept is subdivided into cognitive
concepts of reaction, attitudes/perceptions, knowledge/skills, along with skilled collaborative behavior, and performance in practice (IOM, 2015). Performance in practice is described as “an outcome beyond collaborative behavior, focused on working in complex systems using a complex set of skills to potentially impact changes in healthcare delivery” (IOM, 2015, p. 29). As with the learning continuum concepts, these concepts are abstract in nature and open to concrete definition (Walker & Avant, 2011). Sub-concepts of the overarching IPLCM health and systems outcomes are individual, population, and public health; organizational change; system efficiencies; and cost effectiveness (IOM, 2015). These concepts are abstract in nature because they are not specific enough to be concrete, however they were intended by the committee to be adapted to different settings.

**Enabling or interfering factors.** Enabling or interfering factors are concepts that are defined by the committee as those influences that affect outcomes whether in an overt or covert manner (IOM, 2015). Enabling or interfering factors of the IPLCM are sub-categorized as abstract concepts of professional culture, institutional culture, workforce policy and financing policy. As stated earlier, the model concepts were meant to be broad and modified for specific research settings. Refinement of these concepts to be operational and measureable would be necessary.

**Conceptual relationships**

Relationships between concepts in a theory are expressed as relational statements (Walker & Avant, 2011). Figures depicting conceptual relationships should coincide with written descriptions of relationships. Incongruent portrayals of relationships may indicate the need for further modification of the theory (Walker & Avant, 2011).
IPLCM learning continuum; learning, health, and system outcomes; and enabling or interfering factors are analyzed here.

**IPLCM conceptual relationships.** The written and visual depiction of the concepts and relationships within the learning continuum portion of the IPLCM (IOM, 2015) are mainly consistent. An exception in the written depiction is the importance of complex relationships in continuing professional education that are not depicted in the model. The committee explicitly stated that these complex relationships are not depicted in the model (IOM, 2015). Additionally, the committee stated that the model is dependent on an affiliation between educational and healthcare institutions in relationship to IPE; however, this important alignment is not evident in the graphic model.

In the IPLCM graphic, there is not a suggested relationship between the learning continuum and enabling or interfering factors, however the written model description emphasized the influence of enabling or interfering factors on educational activities and the interrelationship between all major concepts of the model. Further, the IPCLM figure shows the learning continuum impact on outcomes through a one-direction arrow, yet the need for reformed healthcare education to improve outcomes was cited in the committee’s report preface (IOM, 2015). This suggests that learning and healthcare outcomes also influence IPE. The relationships depicted in the IPLCM figure do not fully match the written descriptions of the model, which could be explained by the novelty of the model and the lack of research to test the model.

**Logical Adequacy**

The concept of logical adequacy is to analyze the stated relationships of a theory to determine if the relationships are reasonable, and if any are unreasonable or not stated (Walker & Avant, 2011). As a practical activity, the concepts of the theory are given a meaningless label,
diagrammed, and written in relational statements (Walker & Avant, 2011). The logical adequacy of the IPLCM is diagrammed in Table 1. This is a useful exercise to analyze the theoretical relationships of concepts as modelled by the authors.

**IPLCM logical adequacy**

The IPLCM relationship diagrams and statements do not show reciprocal relationships between enabling or interfering factors and the theory’s learning, health and systems outcomes concepts. What is implied, but not stated in the IPLCM, is that there is no relationship between enabling or interfering factors and the learning continuum. Similarly, it is implied that outcomes do not influence the learning continuum or enabling or interfering factors. These relationships are implied because they are not accounted for in the IPLCM. For additional interpretation, a matrix can also be used to visually show relationships (Walker & Avant, 2011). The IPLCM matrix is displayed in Figure 2. The matrix includes positive signs that indicate a relationship, negative signs that indicate no relationship, and parentheses around a sign that indicate an implied relationship. Of the twelve IPLCM relationships in the matrix, it is interesting to note that six potential relationships are implied as negative since there is no indicator of them in the graphical model.

**Usefulness**

Walker and Avant (2011) offer three determinants of theory usefulness for analysts to consider: 1.) the volume of research generated by the theory; 2.) application to pertinent clinical issues; and 3.) the likelihood of change from the theory. The IPLCM meets two of three criteria for usefulness at this time. As a new theory, the volume of research is unknown, but probably
small since it was published recently. However, there is potential for change in healthcare related to this model due to the committee’s international call for research on IPCP to improve healthcare. The intentionally broad nature of the concepts makes this model adaptable to many contexts, which could lead to research on practice-level IPE and IPCP change. The broad nature of the model could also result in multiple variations of the model for use in different contexts. The applicability of this model to real issues of collaboration and communication in healthcare make this theory useful for research to explore interventions to improve IPE and IPCP. The potential to measure the impact on the model outcomes is also potentially valuable. The IPLCM is new and promising theory that has potential for usefulness to healthcare improvement research related to IPE and IPCP.

**Generalizability**

Theory is more generalizable when it is broadly applicable for use with a solid empirical foundation of evidence (Walker & Avant, 2011). The IPLCM was developed in 2015 as a common model to drive research (IOM, 2015), and as such is not yet generalizable due to its nascence. The IPLCM is adaptable to many healthcare settings and is applicable to all professions. While a single profession could utilize the IPLCM, its strength will be in measuring the impact of collective professional practice toward improving IPE and IPCP outcomes in clinical settings that impact healthcare outcomes. Research and intervention will test the generalizability of this model.

**Parsimony**

Parsimony is the expression of a complex theory in a manner that is simple and brief without losing meaning (Walker & Avant, 2011). The figure of the IPLCM provides clarity to the written description in some concepts, but lacks complete congruence between the graphic and
more complex written depictions. Specifically, the relationships between the overarching concepts could be clarified with further modification to reflect the complexity of the relationships. For example, a change from uni-directional arrows to dual-directional arrows between learning continuum and learning outcome would more accurately indicate the knowledge learners bring to educational activities that can influence their learning. Further, a dual directional arrow between enabling or interfering factors and health and system outcomes would indicate the reciprocal relationship between systems, culture, and policy. In addition, the model does not show a relationship between the learning continuum and enabling or interfering factors. A dual directional arrow would show that culture and policy effect learning and learning also impacts the culture and policy. Research to test this theory may add to the parsimony of the IPLCM.

**Testability**

A theory should be testable to establish or add to the theory’s validity (Walker & Avant, 2011). The IPLCM was developed to provide a common model for research and is broad enough to generate research questions within and among the major concepts. Since this model was just published in 2015, the testability is conceptual and without evidence. Research is yet to be done to establish validity. The broad nature of the model provides many opportunities to interpret it in different ways. The abstract nature of the IPLCM may result in contextual spinoff theories that will need to be tested for validity. Research and time are needed to establish the validity of this model.

**Discussion**

The IPLCM is a very new conceptual model devised to provide direction for future research in IPE and IPCP outcomes (IOM, 2015). As the logical adequacy exercises of the theory
analysis indicate, the visual and written depictions of the model are not fully congruent. The IPLCM was intentionally left broad with the expectation that it would be modified to specific situations and tested through research. However, further refinement of the model is needed to reflect the complexity of relationships between the model’s overarching concepts of the learning continuum; enabling or interfering factors; and learning, health, and system outcomes. The results of this theory analysis confirm what is known, that the IPLCM is a new theoretical model.

Clarification of the IPLCM conceptual relationships between the learning continuum and all outcomes (learning and health and systems outcomes) is recommended for future research and theory testing. The question of relationships between enabling and interfering factors and the learning continuum should be addressed in future research as well. Further, the influence of all outcomes on the learning continuum and enabling and interfering factors will need to be investigated. Refinement and validation of the sub-concepts within the overarching concepts is also warranted to understand the complexity of each overarching concept and its sub-concepts. Clear operational definitions of all concepts for research using this model will be imperative for transferability and generalizability of research outcomes.

The IPLC model is an array of complex abstract concepts whose relationships need clarification through research. The effort to align researchers with similar goals toward research on IPE and IPCP outcomes is a laudable, if daunting, task that the consumers of healthcare deserve. The nursing profession, as a member of an interprofessional healthcare practice, has a unique opportunity to lead interprofessional teams in research to improve the quality of healthcare through IPE and IPCP using the IPLCM.
Conclusion

A nurse theorist stated, “theory, whether begged, borrowed, derived, or originated by nurses, is significant for nursing if it can enlighten nursing practice” (Ellis, 1968, p. 222). Nursing theory is an important foundation to guide nursing research for the continued development of the nursing profession, however, healthcare does not belong to one healthcare profession. Similarly, in the words of another nurse theorist, “knowledge does not innately “belong” to any field of science” (Johnson, 1968, p. 206). Nursing engagement with other health professions in IPE, IPCP and interprofessional research is essential to improve healthcare.

To look beyond nursing to join with other professions in using IPCP theory and by participating in interprofessional research is to engage in systems thinking to uncover knowledge for the purpose of improved healthcare outcomes. Nurses can lead interprofessional teams in research toward discovery of effective IPE and IPCP interventions designed to improve the quality of healthcare. It is time for research to test the IPLCM theory toward improved nursing and healthcare outcomes.
References


Figure 2. IPLCM Relationship Matrix

**Concept Labels**

- **A** = learning continuum
- **Ba** = learning outcomes
- **Bb** = health and system outcomes
- **C** = enabling or interfering factors

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>Ba</th>
<th>Bb</th>
<th>C</th>
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<tbody>
<tr>
<td>A</td>
<td></td>
<td>+</td>
<td>+</td>
<td>(-)</td>
</tr>
<tr>
<td>Ba</td>
<td>(-)</td>
<td></td>
<td>+</td>
<td>(-)</td>
</tr>
<tr>
<td>Bb</td>
<td>(-)</td>
<td>+</td>
<td></td>
<td>(-)</td>
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<tr>
<td>C</td>
<td>(-)</td>
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Table 1. IPLCM concept labels, diagrams, and relational statements

<table>
<thead>
<tr>
<th>Concept Labels</th>
<th>Relationship Diagrams</th>
<th>Relational Statements</th>
</tr>
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<tbody>
<tr>
<td><strong>A</strong> = learning continuum; <strong>Ba</strong> = learning outcomes; <strong>Bb</strong> = health and system outcomes; <strong>C</strong> = enabling or interfering factors</td>
<td><strong>A</strong> → <strong>Ba</strong></td>
<td>The learning continuum from pre-licensure throughout professional career (A) influences learning outcomes (Ba)</td>
</tr>
<tr>
<td></td>
<td><strong>A</strong> → <strong>Bb</strong></td>
<td>The learning continuum from pre-licensure throughout professional career (A) influences health and system outcomes (Bb)</td>
</tr>
<tr>
<td></td>
<td><strong>C</strong> → <strong>Ba</strong></td>
<td>Enabling or interfering factors (C) influence learning outcomes (Ba)</td>
</tr>
<tr>
<td></td>
<td><strong>C</strong> → <strong>Bb</strong></td>
<td>Enabling or interfering factors (C) influence health and system outcomes (Bb)</td>
</tr>
<tr>
<td></td>
<td><strong>Ba</strong> ↔ <strong>Bb</strong></td>
<td>Learning outcomes (Ba) and health and system outcomes (Bb) influence each other</td>
</tr>
<tr>
<td></td>
<td><strong>C</strong> no relationship to or reverse to <strong>A</strong></td>
<td>There is no relationship between enabling or interfering factors (C) and the learning continuum (A)</td>
</tr>
<tr>
<td></td>
<td><strong>Ba</strong> and <strong>Bb</strong> no influence to <strong>A</strong> or <strong>C</strong></td>
<td>Learning outcomes (Ba) and Health and system outcomes (Bb) do not influence the learning continuum (A) or enabling or interfering factors (C)</td>
</tr>
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CHAPTER 5: MANUSCRIPT 2

A Focused Ethnography of Interprofessional Collaborative Practice in Medical-Surgical Units

Costanzo, A.J., Shambley-Ebron, D., Martsolf, D.M., & Eckman, M.H.

Abstract

This ethnographic research examined the culture of interprofessional collaborative practice (IPCP) of two medical-surgical units in an academic medical center in the U.S. The theoretical foundation for this study was the recently developed Interprofessional Learning Continuum Model (IPLCM). Artifact data, 52 hours of observation, 23 semi-structured individual interviews and two focus groups revealed that IPCP was seen as best practice for patient care and for professional satisfaction. Several contextual factors, both internal and external to the hospital, were found to have an impact on current interprofessional practice, while also influencing the success of interventions to promote IPCP. These findings are congruent with several IPLCM contextual factors (financial and workforce policy; and professional and institutional culture) theorized to enable or interfere with health outcomes, organizational change, cost effectiveness, and system efficiencies. Results of this study may inform the development of novel IPCP interventions for healthcare professionals in similar academic medical-surgical units.

Keywords: medical-surgical; interprofessional; collaboration; communication; ethnography; United States
Despite our modern technologically-advanced healthcare systems, poor quality and safety in hospital care leads to patient suffering, harm, and death (IOM, 1999, 2001; TJC, 2015; WHO, 2010). Although not all errors lead to death, preventable death statistics are voluntarily reported and an indicator of healthcare quality. In 1999, annual preventable hospital deaths in the U.S. were estimated to be between 44,000 and 98,000 (IOM, 1999). Regardless of calls for a decrease in errors by 50% in five years (IOM, 1999), preventable deaths in hospitals were estimated at 210,000 over a decade later (James, 2013). The causes of avoidable harm are becoming more transparent through the voluntary sentinel event reporting to the Joint Commission (TJC), a U.S. regulatory agency (TJC, 2015).

Sentinel events are defined as patient safety events that require a higher level of care, or lead to permanent injury or death (TJC, 2015). Between 2013 and the second quarter of 2015, the most common causes of sentinel events were human factors, communication and leadership (TJC, 2015). Communication, culture, and collaboration are subcategories of these causes that are relevant to the work of healthcare providers. Efforts to reduce these causes of human error have frequently focused on education of healthcare providers (IOM, 2003, 2015; IPEC, 2011).

Interprofessional education (IPE) and interprofessional collaborative practice (IPCP) have been promoted as potential interventions to improve healthcare by decreasing errors through provider collaboration and communication (Fulmer & Gaines, 2014; IOM, 2003, 2010a, 2011, 2013, 2014; RWJF, 2011, 2015; WHO, 1978, 2010). In 2015, after an extensive review of IPE and IPCP interventions and outcomes, the Institute of Medicine (IOM) reported a lack of generalizable or measurable outcomes that could drive improvements in healthcare. Little
research has examined the shared values, beliefs, and practices of healthcare providers about IPCP prior to implementation of IPE or IPCP interventions in medical-surgical hospital units in the U.S. Studies of the culture of adult acute-care medical-surgical units have been conducted in the United Kingdom (Lewin & Reeves, 2011), Canada (Reeves, et al., 2009). and Australia (Liu, Manias, & Gerdtz, 2013). The departmental culture of emergency services and medical intensive care in the U.S. was recently studied (Michalec, et al., 2015). However, no published studies were identified in which researchers examined the current culture of IPCP in medical-surgical patient care units in the U.S.

Culture has been defined as the commonly held shared values, beliefs, and practices of people who share space socially (Dharamsi & Charles, 2011). Habit is “a custom, or practice” (dictionary.com) and is part of culture. Employee education and organizational goals do not change a culture, habit does (Moriates, 2016; Vogus & Hilligoss, 2016). Understanding the culture and habits of interprofessional work groups could result in more efficacious design of IPE and IPCP interventions with potential to mitigate causes of avoidable harm related to communication, culture, and collaboration.

Focused ethnography is a methodology employed to study a specific aspect of a complex culture (Cruz & Higginbottom, 2013; Higginbottom, Pillay, & Boadu, 2013; Knoblauch, 2005; Wall, 2015). The principal investigator (PI) of this study is a registered nurse with work experience in hospital environments, however, the PI never worked as a staff nurse in the study hospital. This article addresses the study research questions: 1.) what is the culture (values, beliefs, and practices) of interprofessional collaborative practice in two adult acute-care medical-surgical units? and, 2.) what are the cultural factors that influence IPCP in two acute-care medical-surgical units?
The purpose of this article is to present the findings from this focused ethnography conducted to explore and describe the cultural factors that influence IPCP in two adult acute-care medical-surgical patient care units within an urban academic medical center in the Midwestern U.S. The results of this study were that IPCP is best practice for patients and for professional satisfaction. This study also revealed a number of influential barriers to IPCP. The significant barriers to IPCP were:

- Competing work demands
- Professional rotation and staff changes
- Communication barriers
- Non-standard work
- Non-geographic units

Multifaceted elements that influence IPCP were recently incorporated into a theoretical model, the Interprofessional Learning Continuum Model (IPLCM) which purposed to drive future IPE and IPCP research (IOM, 2015). The IPLCM was the theoretical framework for this study (Figure 1).

**Interprofessional Learning Continuum Model**

The Interprofessional Learning Continuum Model (IPLCM) was developed by a commissioned committee of the IOM in response to the findings of a comprehensive review of IPE and IPCP research. The committee concluded that this model was needed to drive research in order to understand the impacts of IPE on IPCP and health and system outcomes. The IOM committee (2015) incorporated three distinct elements in their model as key influences on health and systems outcomes: a.) learning continuum; b.) enabling or interfering factors; and c.) learning outcomes. Model elements germane to this study are the enabling or interfering factors.
of policy, and professional and workplace culture; and learning outcomes because these encompass the culture of IPCP in a hospital environment. The IPLCM is depicted in Figure 1 (IOM, 2015). The IPLCM elements related to culture were essential guiding factors to this research in the development of the research questions, which then informed the development of interview and focus group questions. Observed practices were also guided by the cultural elements of the IPLCM. Data analysis included comparative analysis of the findings to the IPLCM.

Methods

Setting and participants

The study was conducted in two hospital inpatient units of equal size at an urban academic medical center in Midwestern U.S. The first unit primarily serves patients with general medical conditions, and the second unit primarily serves patients with oncological conditions. However, due to high volumes, patients are sometimes placed in units with available patient rooms. Study participants were hospital employees or credentialed physicians over the age of 18 with responsibilities that impacted operations of the study units. A wide diversity of hospital associates, including persons with varied levels of leadership and direct patient care providers, participated in the research. Two patients and an advisory group of former patients and family members also participated.

Data collection

After obtaining Institutional Review Board and hospital research administration approval for this study, the PI collected data between May and November of 2016. Observations and interviews occurred Monday through Friday between 7:30 a.m. and 5:00 p.m. Artifact data in the form of the organizational core values statement, policies, and survey data were examined.
Twenty-three, semi-structured, individual interviews and two focus groups were conducted. Each lasted between thirty and sixty minutes and were audio-recorded with the written permission of the participants obtained during the informed consent process. One patient from each unit was recruited for an interview through the charge nurse on the day of the patient’s discharge. Patient and Family Advisory Council members and registered nurses from the oncology unit participated in separate focus groups.

The PI conducted informal interviews and collected data during observations that included twelve hours of unit hallways and break rooms, and twenty hours of daily morning patient rounds. Additionally, seventeen meetings were observed. These meetings included three resident education meetings, and five medical-surgical “interdisciplinary team huddle” meetings in which many different professionals sought to identify and deal with issues that impact patient care. The PI also observed three, one-hour interprofessional patient progression meetings purposed to refine processes that facilitate the movement of patients to appropriate levels of care. Observation also included five interprofessional rounding process meetings on the medical-surgical unit. One morbidity and mortality meeting of the medicine division was also observed. Hand written field notes included description of observed behavior, informal interview data, setting notes, tentative analytic ideas, and reflexive notes (Silverman, 2013) which were transcribed after observation.

**Data analysis**

The PI verified the verbatim transcription of audio-recorded interviews and focus groups. The PI analyzed the data individually and with a team of three experienced researchers. The team included two PhD-prepared nurses with extensive experience in research using qualitative methods, one of which is an expert in ethnography. The physician team member is a researcher,
experienced in IPCP, and a leader in clinical and academic internal medicine. The PI and the two nurse researchers met weekly for six months to discuss data coding and analysis. The PI and the three experienced researchers met for two, day-long retreats to reach consensus on the data analysis. NVivo 11 Pro software (QSR International, 2015) was used to manage and query the data. Constant comparison of data was done iteratively, as data were collected and coded, to identify themes. Theme identification was followed by inductive synthesis of theoretical relationships (Charmaz, 2006). These relationships were compared to the IPLCM, the theoretical framework for this study.

**Rigor**

Methodological rigor for this study included five criteria: 1) congruence, 2) responsiveness to social context, 3) appropriateness, 4) adequacy, and 5) transparency (Fossey, Harvey, McDermott & Davidson, 2002). Interpretive rigor was also evaluated through five criteria: 1) authenticity, 2) coherence, 3) reciprocity, 4) typicality, and 5) researcher transparency (Fossey, Harvey, McDermott & Davidson, 2002).

**Methodological rigor.** Ethnography is the methodology used to study culture, which is congruent with the research questions to examine the culture of IPCP. Responsiveness to social contexts was achieved by interaction with the units and hospital personnel during the study through the data collection methods described earlier. Changes in responsibilities of participants and hospital personnel, and changes in meeting format during the study required continued assessment of the social context during data collection. Appropriateness was achieved through the specificity of data collected about the values, beliefs, and practices of IPCP to address the research questions. The depth and breadth of data sampling, the triangulation of differing types
of data, in concert with independent and group data analysis addressed adequacy and transparency of study process and interpretation.

**Interpretive rigor.** Data were compared to address confirming and disconfirming cases for valid and typical representation of themes. Verbatim quotes were used to exemplify authentic views of participants. Coherence was accomplished through constant comparison of data, data interpretation and through group data analysis. The PI established researcher transparency through description of employment at the hospital and experience as a nurse along with potential for bias due to those factors.

**Findings**

At this academic health center, many interventions to change organizational culture, and establish IPCP were implemented in 2016 with varying levels of success as observed and also as described by participants. Leader participants identified patience and time as key requirements for successful culture change. While progress was made in these efforts, persistent internal and external contextual factors impacted change in IPCP culture. Nonetheless, the predominant theme identified from the data was that IPCP is best practice. Related themes were that IPCP is best for patients and professional satisfaction. However, these predominant themes were strongly influenced by a number of organizational change and contextual factors. A description of the themes and influencing factors follows.

**IPCP is Best Practice**

The main theme from this study was that IPCP is the best way to work whether in dyads or in larger groups as in interprofessional morning rounds. A physician stated succinctly, “I know that my work is better if I talk and collaborate with more people and physically see them”. Hospital executives exemplified IPCP as best practice by establishing dyadic nurse/physician
leader relationships to role-model behavior, promote team efforts to problem-solve, and create
dual accountability for quality metrics. Similarly, IPCP occurred in groups of healthcare
providers, but most often between two professions at the point of patient care.

So, with pharmacy, they [pharmacists] kind of seem more tied to the physician team and
so they’re sometimes rounding with the team which makes it, I think, easier on the MD
and probably improves the patient care because you can go over those pharmacy issues
right at the time. (Pharmacist)

Overall, participants provided a consistent evaluation of IPCP as the best practice, which
they had developed through work experiences more often than through IPE. Yet, many
participants stated they knew little about the work of other professions beyond what they
experienced in their own practice. These are important findings as healthcare providers were
learning the values, beliefs, and practices that were present in the workplace. While participants
viewed IPCP as best practice, they indicated that IPCP was best practice for two specific reasons.
First, IPCP was seen as best for patient care. Furthermore, IPCP was seen as best for professional
satisfaction.

**IPCP is best for patient care**

Professionals at all levels of the organization, from executives to staff, expressed that
IPCP was best for patients. One executive stated, “So, the patient in the bed is what we’re all
here to do, but if you don’t collaborate on the care, then it’s just segmented pieces”. Participants
identified care for patients as better when opportunities to communicate care plans with each
other exist, and when different professions work as a team with patients to achieve care goals.

**Communicate care plans.** The ideal way to communicate care plans was described as all
professions together in interprofessional bedside rounds planning care with patients and their
families. On the whole, IPCP was seen as best for patients because communication among providers increased patient safety and accurate, efficient communication helped to move the patient’s care progress toward the best outcome and timely discharge. In some cases, attending physicians were observed to introduce team members to the patient at the start of bedside rounds. During those rounds, all professions and the patient were asked by the attending for input in the care planning discussion. Participants also described the value of face-to-face bedside rounds because there were nuances and pieces of information that are not documented that would be gleaned if present for rounds. For example, pertinent patient and family preferences or social situations that could bear on the success of the care plan were common aspects of bedside round information that would not necessarily be communicated in other ways. … – and then the whole picture comes together because you have all this information that you otherwise wouldn’t have. And if you didn’t have those people there, you’d say, oh, well, they’re [the patient] better and you’d leave. And that would be done. And the patient wouldn’t get the kind of care that they need at that time. Just because you didn’t have everyone there able to contribute to the discussion. I think that’s when you get those revelations that you just otherwise wouldn’t get. (Physician)

Achieve care goals. The importance of the contribution of each profession toward the achievement of patient goals was a significant and common belief among participants. Several methods were reported to achieve patient goals. For example, listening to different professional perspectives to understand the full picture of an individual patient situation, communicating with the team and patients about health goals, and working on interprofessional projects to achieve patient population goals.
I think it’s everybody there at one time, but I think it looks like nursing, pharmacy, case managers, PT/OT, and the physicians and family and patients all together to talk about the plan, and then – because everybody has a different perspective, and then everybody can contribute something, and one person’s issue probably affects everybody else’s. And so I think it all needs to be done together, from a bunch of different parties with different perspectives. (Therapist 1)

Other times, collaborative efforts between professions were intended to show patients they were cared about and to provide patients with a view of the path to their desired health goals.

We understand that them going to the facility is not what they wanna do; however, it’s gonna be the thing that’s gonna get them back home as quickly as possible and as independent as possible. And so, I think it really took a lot of people to be on board, but had that not happened, I don’t feel as though that patient would’ve been successful. And I think that that – everybody coming together helped show the patient that we care, and we’re here for them, and it’s not all about we’re just trying to get a job done. (Therapist 2)

The descriptions of situations where IPCP was best for patient care were mostly about individual patients, however, a particular project that achieved a patient population goal was discussed by several members of that interprofessional intervention team. The project leader, a physician, facilitated an interprofessional effort to implement a chronic obstructive pulmonary disease treatment bundle that resulted in a significant reduction in readmission rates for that patient population. Participants reported that the achievement of what was best for the patient was also a source of interprofessional pride and professional satisfaction.

**IPCP is best for professional satisfaction**
The concept of human relationship among healthcare professionals was a dominant aspect of professional satisfaction as described by the study participants. Participants expressed a desire to have collegial relationships with other professions, to know each other, to have comfort and trust in each other, and to support each other in providing best outcomes for patients. The work of each profession was dependent on the others, so having trusting relationships made the work safer, easier, and more satisfying.

**Relationship and trust.** In the high stakes environment of healthcare, professionals wanted to build relationship to trust each other’s decision-making.

I think a relationship builds trust. It’s like something that I realized just over three years and it’s tough because it feels like we have such a big turnover with nurses. You know, it’s always new faces. And I’m sure to nurses, it feels like it’s always new faces because it always is. … And it’s harder to let go of that rope and trust somebody when you don’t know them from Adam. And so you have to prove yourself to them. And once you prove yourself then they trust you and they give you leeway but until you do, they don’t. (Physician)

Individual professional and patient protection were drivers of the need to know one was trusted and also that one could trust another professional. Even if another profession couldn’t articulate exactly what was happening with a patient, if they were trusted, the concern was taken seriously.

You know, if I trust someone and they say, hey, this patient doesn’t look right, I can’t tell you what about it. You know, their vitals are fine, they have no complaints but they don’t look right, they’re not passing the smell test. And if it’s a nurse I trust, I’m – like I am
like, okay, let’s figure it out because you have that relationship. And it’s just hard to build that on the wards when you always have new people all the time. (Physician)

Regardless of the profession, healthcare providers wanted to have relationships with other professionals and to be able to rely on each other in their practice.

And we're all great resources for each other, too. Yesterday we were on rounds, and the resident on the team said to me, we're at the patient bedside and she said do you know what the limit is for a nasal cannula the patient can be on to go to the floor? And I was like I don’t, but I bet the nurse knows. So, I went and asked the nurse in the step-down and she told me the answer. And so, it was like she came to me inter-professionally and then I went to somebody else because neither of us knew the answer. (Pharmacist)

Mutually beneficial relationship was forged by therapists and medical residents reviewing the status of each patient to determine what therapy was needed for the day.

I love the rounding that we’ve started to do. I just feel, like, it’s really – it’s beneficial for both. Maybe a little bit more for us but also for the teams. Like, if they have a patient that’s leaving today and needs to be seen, rather than calling down at 4:30 saying oh, this patient needs to be seen right now, we can get heads up earlier in the day. … I’m sure it makes it easier for them to discharge earlier in the day and for us just to organize and plan out our days. (Therapist 3)

While development of interprofessional relationships and trust were seen as paramount for IPCP, processes that inhibit or disrupt IPCP were also shared.

Seeing the people and knowing them helps, you know. … and when people are available and around, make it more convenient. … If you can make it convenient to do. If people have phones or if they are always in the same place. If you know where to find them or
you know how to get ahold of them, it makes it easier to make that effort because you
know it won't be in vain. (Therapist 3)

Organizational change

At least six new culture change and process improvement projects were implemented at
the corporate, hospital, and unit levels in 2016 to respond to contextual factors, both internal and
external to the institution that impact organizational outcomes. These projects were focused on
a.) increasing ease of and frequency of communication across professions; b.) increasing patient-
centeredness across the institution; and c.) increasing effectiveness of the patient discharge
process.

Interprofessional communication. A new hospital paging system, AMiON (Spiral
Software, 2016), replaced a complicated maze of call schedules for more than ten medicine
teams, and was employed to make it easier to identify and call the on-service physicians. Other
efforts to increase communication included two teams that implemented different types of
interprofessional bedside rounds on two different units in 2016. A grant-funded bedside nurse-
led interprofessional rounds project on a surgical unit began in January. A few months later a
pilot of interprofessional bedside rounds was attempted on the medical-surgical study unit.

Patient-centeredness. An initiative to increase patient-centeredness began 2016 when
the hospital patient care services division implemented a new communication method named
IMPACT (Introduce, Make a connection, Positive intent, Anticipate, Communicate and Thank)
intended to assist staff in connecting more genuinely with patients. IMPACT was adopted by the
rest of the corporation in the new cultural transformation model also implemented in 2016. The
corporate cultural transformation model included a new vision, purpose and core values that
support patient-centeredness across all of the corporate facilities.
**Discharge processes.** Also in 2016, new processes to improve patient discharge times and experiences were instituted. For example, a nurse-run discharge hospitality center (DHC) was developed as a comfortable place for discharged patients to wait for transportation. Staff nurses were provided appropriateness criteria and the authority to offer the patient the opportunity to move to the DHC when discharged. Additionally, a pharmacy concierge service was developed to deliver prescriptions to patients before they left the hospital. An interprofessional team involved in the medical-surgical unit operations started a weekly huddle to identify and problem-solve any unit issues. The primary focus was the process to act on anticipated patient discharges early in the day for earlier patient departure. As a subset of that meeting a daily physician-focused 15-minute discharge huddle was also started to pinpoint issues that prevented early orders and discharge.

Although healthcare providers believed that IPCP was the best overall practice and best for patients and professional satisfaction, some of these projects had mixed results at the time of data collection. For instance, the AMiON system (Spiral Software, 2016) listed only the surname of the physicians on duty. An unintended difficulty with the system was revealed by nurses who stated that residents frequently used only their first name when in person on the unit, which confounded efforts to identify physicians in AMiON (Spiral Software, 2016). Furthermore, the unit pilot of interprofessional bedside rounding struggled to gain traction, despite a passionate project team. One barrier was mixed attending physician and nurse engagement that affected the project’s success. The mixed success of these projects may be related to the influence of contextual factors.
**Contextual Factors**

Context is defined as influential elements that are not part of an intervention (Ovretveit, et al., 2011) and “the set of circumstances or facts that surround a particular event, situation, etc.” (Dictionary.com, n.d.). Contextual factors internal and external to the hospital were found to influence the practice of IPCP. External factors were federal healthcare policy and graduate medical education regulations. Internal factors were autonomy, professional rotations, communication barriers, and inconsistent interprofessional work.

**External factors.** Federal healthcare policy and medical resident regulations were the most influential external factors in the findings of this study.

**Federal healthcare policy.** In recent years, healthcare policy propelled organizations, including this hospital, to take a fresh look at ways to improve the quality and experience of patient-care. The impact of contemporary healthcare reimbursement and subsequent perspectives was clearly articulated by a hospital leader.

Hospitals aren’t getting reimbursed in the way they once were, so I think by sort of virtue of the evolution of healthcare, you have to change the way you do care rounds and processes. So, hospitals are judged by quality of care, quality metrics, patient experience metrics, and we know that value-based purchasing is putting more, sort of, dollars backing that.

**Resident education regulations.** Professional isolation is one barrier to IPCP and is in part enforced by graduate medical education regulations that insulate physician education.

In ACGME, the different programs are regulated by their own Residency Regulatory Committee (RRC), and that dictates the structure in the United States more than anything else. So, what that means is there is—a RRC for otolaryngology for OBGYN, for emergency
medicine. And each of those are RRCs inside of ACGME, govern what it looks like, and it has to look the same here as Med Star, as Virginia Carillion, as Cornell, Columbia. We all have to follow the common program requirements, and then the specialty requirements of that disciplines RRC. They’ll meet it in slightly different ways, but we’re all structured very similarly in that regard. ACGME does not allow including any other disciplines as key clinical faculty. (Executive)

Patient caseloads and duty hours for residents are regulated for good reason, however, an added internal contextual factor was that hospital patient census was consistently high, which created a complex medical team rotation based on hours and patient case load independent of other professions.

From the resident perspective, I can only have a senior resident carry twelve patients. Can’t have more than that. So, the teams are maxed at twelve. So, because we service hundreds of patients, I have many, many, many teams. Ten general medicine teams. That’s a lot. (Physician)

Participants spoke of the work pressures created by both healthcare reimbursement regulation and graduate medical education policy.

We don’t stagger our rounds. There’s no AM PM. There’s just because the hospital’s desire is to get everybody out by 10:00. So, we’ve got to get there early and do our thing, and it’s all en masse at the same time. It’s just, serving the master of flow and duty hours produces this environment. (Physician)

In addition to external factors that are not controlled by the hospital, factors internal to the hospital environment also impact IPCP.
Internal factors. Competing work demands, professional rotation, communication barriers, non-standard interprofessional work, and non-geographic wards were found to be major internal factors that influenced IPCP.

Competing work demands. A physician provided a clear statement about competing work demands, “The main barrier is that at 8:00 a.m. in the morning, everyone is doing something. And, we are all over the place, and it’s impossible to coordinate all that”. Several different professions described competing work demands that interfered with rounding with teams. For example, therapists had daily productivity goals for fifteen-minute treatments and responsibility for time-sensitive patient assessments for discharge needs. Nurses had morning medication administration tasks that also were time-sensitive and occurring at the same time as many rounds. Nurses also described the difficulty in rounding with medicine teams when multiple teams were rounding on more than one of the nurses’ patients making it impossible to round on every patient. Morning patient rounds reportedly lasted one to four hours, which was also a competing work demand for care coordinators who were affiliated with a specific medical team. They were advised to round for a maximum of two hours because they had to complete their discharge coordination responsibilities. Three pharmacists supported ten or more physician teams and prioritized their support.

Professional rotation. Professional insulation was exemplified in the wide variety of profession-specific scheduling processes. These scheduling processes along with other rotations and changes in personnel were reported as a strong influence on the interprofessional relationships that were identified as important to professional satisfaction.

We have this workforce that constantly rotates. Now, I realize that the nurses don’t rotate in the same way that the residents do, but the nurses turn over. There are new faces every
couple of months, and there are people that leave units, and go to another unit. And so, the staff fluctuates their residents, and all departments fluctuate to a great degree. They may be extracted from this hospital, and live with the VA for two months, and then come back here. (Executive)

Residents changed team assignments on a monthly basis, while attending physicians rotated on patient-care service for two week periods. A nurse stated the medicine resident teams changed every month but didn’t know how or when they changed stating, “we know them all, we just have to know what team they are on”. More than one participant stated you may know the resident, but not know what team they are on and have to either ask them or look at the team color label on their computer cart to know if that team is caring for the patient.

Respiratory therapists were reportedly given unit assignments when they arrived to work each day. Nurses generally worked three twelve-hour shifts per week in a six-week schedule, but could also be assigned to work another unit to ensure safe nurse-to-patient ratios. Physical therapists rotated unit assignments every two months, with occupational therapists rotating monthly. Therapists rotated units to maintain their skills and reported a benefit to be able to move away from less-preferable staff or diagnoses. The three pharmacists who worked with all of the medicine resident and hospitalist teams developed their own rounding process.

Hospitalist teams all get covered peripherally because they don’t have a formalized rounding. So, the way I do it, and all of us do it differently, is, I like to round every single day, I try to give equal attention rounding-wise to all my teams, minus the hospitalists just because they don’t round. Because I think there’s stuff you get from rounding that you don’t get from chart review. (Pharmacist)
In contrast, oncology pharmacists rotated among inpatient and outpatient oncology settings every two weeks and reported professional satisfaction with maintaining knowledge of different levels of care. The differences in the schedule rotations of each profession complicate efforts to increase IPCP due to the ever-changing team members.

**Communication barriers.** Multiple barriers to communicate across professions created frustration from the effort and time required to have purposeful communication. Barriers were clearly indicated by a physician in this statement, “We work well linearly, but in parallel, but not really crossing paths. Not mutually sharing. Not mutually collaborating”. In contrast, pharmacists and physicians, from both study units, remarked about their unique collaborative relationships and the ease in finding each other. The internal medicine pharmacists’ office was across the hall from the resident office/lounge and the oncology unit professionals were geographically placed near each other. Contrary to pharmacist/physician relations, medicine unit nurses consulted with pharmacists in the pharmacy office, but only in urgent situations did nurses seek out residents in the office/lounge. Nurses and physicians both reported instances of contentious professional relations. For example, residents had “protected time” at noon each day for required education, yet would be repeatedly paged by nurses during that time to address a patient need. The pages during protected time were reportedly frustrating to physicians, however not all nurses were aware that residents had protected time.

The medicine unit was seen as less collaborative than the oncology unit, which could be explained by professional geographic placement on oncology making relationship building and access to each other easier. Compounding the issue of constantly rotating professionals was the diversity of communication methods. Physicians, therapists, social workers and care coordinators carried pagers. Nurses and respiratory therapists both carried phones but had different processes
for communicating their phone numbers to others. Knowing who and how to contact other professionals appeared to be a challenge because each profession had a different contact information process. A common thread among all professions was how busy they all were, yet they were using valuable time trying to find each other to collaborate on patient care.

What gets in the way is that we are poorly organized to do it. We are not optimized to communicate. That’s the main barrier. It isn’t because we think it’s a bad idea. It's just a series of one-way streets, and we can never seem to meet up in the hospital. (Physician)

**Non-standard interprofessional work.** A significant internal factor was the enduring sense of non-standard work at unit, profession, and individual levels even with the belief that IPCP is best practice. Some of this non-standard work was internally driven, and some was externally driven through insulated professional education and practice. A hospital executive talked about the downside of professional autonomy.

There’s also the movement towards everyone being an independent practitioner. And so, the focus is working to the limits of your individual professional licensure rather than working as a team. I don’t want to work with anybody else. I know everything. And I don’t believe that that is the best care. I think it is a group with different people looking at things in different ways and helping to come up with an overall treatment plan for the patient.

For over one hundred years, this academic hospital has been dedicated to physician education. This legacy was still seen in some medical teaching rounds; however, efforts toward a more interprofessional approach were observed. At the time of the study, it was observed and reported that no standard procedure existed for attending physician facilitation of rounds with residents. In contrast to this finding was the attempted internal medicine project launched in 2010 called
Project Renew that included YouTube videos to show the intended practice of coordinated, scripted interprofessional bedside rounds (Hospital X Internal Medicine, 2010).

When physicians were advocates for interprofessional rounds, nurses were called by phone to participate, and a script was provided to them, yet there was no standard process for including nurses in the rounds when they arrived. Nurse participation rates in medicine unit rounds hovered at 50-60%, which was congruent with unit staff reports and observation during bedside rounds. Nurses reported that relationships with attending physicians influenced whether they participated in rounds. Novice nurses were less likely to participate because of a lack of confidence in their own judgement and were reluctant to speak up in rounds. Novices were also pre-occupied with nursing tasks seen as a higher priority than IPCP.

A task is, “Get report. Pass medicine. Chart. Round.” I don’t think some of the newer ones see “Talk to doctor” as – that should be in that flow, for sure. So, they don’t see it as a box that they should check for sure. (Nurse)

On the oncology unit, some professionals reported ease in finding teams on the unit, and thus, saw less need to participate in rounds. This was supported by observations of spotty nurse participation in rounds. Key professions had office space adjacent to the unit and were available during regular business hours. The teams on the unit had predictable interprofessional rounding processes, such as conference room followed by patient room rounds. However, the time the attending started was observed to vary, which could have impacted others’ participation. A nurse explained, “Within each profession, people have created their own workflows, but it doesn't mesh well. It doesn't blend the lines”,

Non-standard IPCP among Individuals and professions conflicts with the significance of the theme of IPCP contributing to professional satisfaction through mutual support, relationship,
and trust. In addition to individual and profession autonomy, unit autonomy to solve problems was a concern for professionals not tied to one unit as expressed by a physician.

Every unit director solved it his or her own way. They are local solutions to a global problem, and we don’t have infrastructure that I know of that’s effective from administration through management to worker.

Several participants described interprofessional work as being dependent on the person. Personal choice, rather than expected practice, was the impetus for interprofessional work. Attending physicians reported and were observed to round based on individual preference rather than a unified standard. A champion of IPCP recognized non-standard work and a way to conquer the barriers.

Everyone knows what the goal is because sometimes if you don’t even know what the goal is then you’re never even going to work together. And I even see that in meetings. So, when you get different disciplines in the room, if you don’t define what the purpose of the meeting is and what the goal that we’re working to strive for, then you have all these different tangents and people don’t focus together to work together towards that.

(Nurse)

In spite of the impact of contextual factors on IPCP, participants recognized the value of standard work.

I think that the patient and family centered care model is something that they hit the nail on the head if I’m saying that right in teaching that. Because that’s collaborative where you include the patient’s family and everybody there. So just beginning that and putting that model out there that this is the model that we’re gonna follow, I think that that was a great start. Now we just gotta standardize it and get people to know that it’s here and this
is what we are gonna do. Not might do, but this is the standard, this is what we have to do for our patients and families. We have this model of care and this is what we’re gonna follow. (Nurse)

**Non-geographic wards.** The concept of geographic wards applies to both placement of healthcare professionals and/or patients on a unit to optimize patient care. In this study, the non-geographic barrier was an issue for the medicine unit. The oncology unit had office space to geographically place pharmacy, nurse practitioners, care coordinator and discharge planner. Some nurses had certification in chemotherapy. Although some medicine patients were placed on this unit, the primary focus was care of the oncology patient. A nurse expressed the benefit of geographic placement of healthcare providers in terms of availability:

So, we’re together. The way it’s set up here, I’m not sure how it is on the other units, but here, it’s wonderful. Everybody is here and available if you need them.

Another healthcare provider noted the relational benefit of geographic placement of healthcare providers:

I know all the nurses for the most part. They know what I do. They know my role. You know, so the barriers that I think or the relationships that some of my colleagues struggle with I don't think are that present for me because of how my team is set up.

At one time, medicine teams attempted geographic placement of patients, but space was an issue and the process was problematic for patients.

So, the golden goose is unit-based teams, right? And you know, we tried it, and it kind of fell apart. It lasted about four or five months when we truly had unit based teams. But then, what happened was there were competing forces you know, our capacity issues at the time were such that you’re talking about holding an open room because it happens to be on the
X team’s unit. But the XX team’s patient is in the ED, and needs a bed, and the XX team’s unit is full. I think for a lot of good reasons, we would say, “Okay, well, we’ll sacrifice the geography in that situation. Let’s get that patient a room upstairs”. Again, for a lot of good reasons because, we all know that ultimately, that patient’s care is barely going to start while they’re down in the ER. (Physician)

During this study, general medicine patients were admitted to multiple units. A physician described the patient caseload for that day:

Let’s see. I’ve got one on five, I’ve got two on six, two different units. A couple on eight. I’ve got nobody on general medicine. How about that? I’m general medicine, and I’ve got zero patients on general medicine. It’s terrible. That’s my floor. I just realized that. I can’t believe it.

When general medicine patients were placed on different units, the relationships among healthcare professionals were diluted as this pharmacist reported:

I mean geography definitely helps, I think that when we have the same nurses that have the same patients, it’s a lot easier because we can talk to them about this patient and they follow us to the next patient. But the way that the census has been lately, three of our eleven are on general medicine right now. We have one on five, one on four, two in the ED, like, you know what I mean? So, we’re not getting any of the same nurses. We have 11 different nurses for 11 different patients.

Although rounds for all medicine teams began between 8:00 and 8:30 a.m. daily, coordination with other professions was difficult due to the number of teams rounding at the same time. During one observation, four different medical teams on rounds crowded the end of one
general medical unit hallway. In another observation, two teams conducted rounds in one general medical unit semi-private room.

**Discussion**

The findings of this study of the culture of interprofessional collaborative practice in two adult acute-care medical-surgical units revealed a cultural contradiction between valuing and believing IPCP was best for patient care and professional satisfaction, and non-standard IPCP behaviors. These aspects of organizational context inhibited widespread IPCP:

- Competing work demands
- Professional rotation
- Communication barriers
- Non-standard interprofessional work
- Non-geographic wards

Finding each other to communicate important information was hard work even with new software and the electronic medical record. The constant movement of professionals within the organization prevented the development of the depth of relationship among professions that was expressly desired and needed to build trust. The non-geographic placement of patients was a complex problem for teams and interfered with meaningful IPCP. Some small groups created opportunities for IPCP as in the medicine unit interprofessional weekly meeting and rounding project, yet with others, involvement in IPCP was seemingly optional and dependent on individuals deciding to participate. The oncology unit staff appreciated the geographic placement of healthcare professionals and patients, which made IPCP easier to accomplish.
Individual and professional non-standard interprofessional work was supported by unique profession-specific approaches to patient care and the demands of the work of each profession. Intra-professional foci such as therapy and productivity, medicine and medical education, and nursing and medication administration impeded IPCP. This was illustrated in the resident protected education at noon each day that wasn’t widely known by nursing and interfered with communication. In spite of this, some interprofessional relationships thrived as in physicians and pharmacists, and nursing and therapy.

To our knowledge this is the first research to use the IPLCM as a theoretical framework to study the culture of IPCP on medical-surgical units in an adult acute-care hospital. The model represents some of the findings of this study, however in the context of the study units some modifications to the model are needed. Suggested adaptations to the model are described here and depicted in Figure 2.

One of the four major elements of the IPLCM is enabling or interfering factors that are posited to have a uni-directional impact on health and system outcomes (IOM, 2015). The findings of the current study support the IPLCM and indicate factors of professional and institutional culture and workforce and finance policy have hindered health and system outcomes at this hospital. Nevertheless, many new organizational processes were instituted in 2016 in an effort to improve outcomes by changing institutional culture. These organizational changes were still in the process of enculturation at the time of this study, but an effort to improve outcomes was driving efforts to change culture. If applied to the IPLCM, outcomes driving culture change would indicate a bi-directional relationship between enabling or interfering factors, and health and system outcomes in the IPLCM.
Exchanging old habits for new ones are essential to cultural evolution. Aside from competing demands, individual autonomy affected adherence to desired standard work habits such as participation in rounding. This finding would suggest that individual behavior can impact institutional culture, and that the learning outcome of the IPLCM could have consequences on both outcomes and enabling or interfering factors. Culture change, and consistent practice are common challenges even to the most successful U.S. hospitals (Aboumatar, et al., 2015). In spite of this, organizations can overcome challenges to achieve higher quality healthcare (Aboumatar, et al., 2015). Still, it is important to understand both systems and culture, so that systems can be changed to avoid interference with culture change (Moriates, 2016). Even small system changes, like the AMiON software implementation, may facilitate changing the IPCP culture. The idea that system change could support culture change would indicate that a bi-directional relationship would exist between the IPLCM health and systems outcomes and enabling or interfering factors.

The IPLCM asserts there exists a uni-directional relationship between the interprofessional education learning continuum and learning outcomes. Yet, findings of the present study suggest that foundational and continuing professional education of current practitioners was not widely interprofessional and that participants largely learned how to practice with other professions through on-the-job experience. This implies that what professions learned was influenced by the current practice culture, which is a mix of IPCP champions and autonomous practitioners. The relationship between learning outcomes and enabling or interfering factors may not be significant in a future where IPE is prevalent, but in the current landscape the relationship between culture and learning outcomes appears to be significant. This
significance is not clearly depicted in the current IPLCM. Like the IPLCM, the culture of IPCP in the medical-surgical units of this study is complex.

**Limitations**

The study of two units in one institution may not be representative of medical-surgical units in other institutions. Yet there is potential for a transfer of knowledge to other like institutions. The PI acknowledges a potential for bias due to employment at the study organization, but attempted to mitigate bias through attention to rigor, group data analysis, and triangulation of multiple sources of data. The study units and hospital were engaging in many change projects that were not evident at the time of study design. Thus, these findings may not be stable due to efforts to change the culture at the time of data collection.

**Future research opportunities**

A follow-up focused ethnography of the same units several years henceforth might contribute to understanding the outcome of culture change efforts. Additionally, a multisite focused ethnography may provide for a more generalizable view of IPCP culture in academic medical center medical-surgical units. Multiple opportunities exist to study methods of communication and the impact of standard work adherence on change. Further studies to refine the IPLCM are recommended.

**Conclusion**

Since the revelation of quality issues in healthcare several decades ago (IOM, 1999), healthcare organizations have been attempting to improve the quality of patient care through IPE and IPCP. The participants in this study valued IPCP as best practice for patients and professional satisfaction, yet the practice of IPCP was not standardized. In this study, five noteworthy internal contextual barriers to standard IPCP work were found:
• Competing work demands
• Professional rotation
• Communication barriers
• Non-standard interprofessional work
• Non-geographic wards

This research reported many changes that were implemented in the study organization in 2016 that could have a positive effect on IPCP over time. However, the complexity of the internal and external contextual factors of the organization had an impact on standard IPCP behavior.

The challenges of standard work and change management are similar in hospitals that have achieved some success in aspects of patient-centered care (Aboumatar, et al., 2015). In addition to the patience and time that leaders of the study hospital recommended for IPCP to take hold, attention to forming habits (Vogus & Hilligoss, 2016), and managing contextual factors (Marshall, et al., 2016) may help healthcare providers to act on their value of IPCP.
References


Fulmer, T & Gaines, M. *Partnering with Patients, Families, and Communities to Link Interprofessional Practice and Education. Proceedings of a conference sponsored by the Josiah Macy Jr. Foundation in April 2014*; New York: Josiah Macy Jr. Foundation; 2014


Figure 1. Interprofessional Learning Continuum Model

Figure 2. Adapted Interprofessional Learning Continuum Model
CHAPTER 6: MANUSCRIPT 3

Designing Interventions to Promote Interprofessional Collaborative Practice on Medical-Surgical Units


Abstract

Purpose: The purpose of this article is to use findings from a focused ethnography of the culture of interprofessional collaborative practice (IPCP) in two adult acute-care medical-surgical units to offer recommendations for interventions to promote IPCP. Organizational culture and context may either enable or interfere with efforts to improve patient care through IPCP. Yet, healthcare organizational culture and context are not widely addressed in the design of such interventions. Recommended IPCP interventions are based on study findings and an implementation framework that includes context and structured facilitation. Recommendations drawn from findings may increase IPCP as standard work in medical-surgical units.

Method: The integrated Promoting Action on Research Implementation in Health Services (iPARIHS) framework was used to provide hospital administrators with a conceptual model that may be used as foundation for strategic planning and facilitation of interprofessional collaborative practice interventions.

Implications for Healthcare Administrators: Integration of context, and facilitation support are often missing in IPCP intervention plans. The iPARIHS framework is a useful foundation for designing context-specific interventions to address barriers to IPCP from the study findings which were competing work demands, professional rotations, communication barriers, non-standard interprofessional work and non-geographic wards.

Keywords: interprofessional, iPARIHS, context, culture, interventions
Opportunities to improve the quality of healthcare still exist in spite of efforts to decrease errors since publication of the seminal report, *To Err is Human* (IOM, 1999). The most common causes of harm to patients between the years 2013 and 2015 were human factors, communication and leadership (TJC, 2015). Interprofessional education (IPE) to promote interprofessional collaborative practice (IPCP) has been endorsed to reduce these error causes (IOM, 2003, 2015; IPEC, 2011), but outcomes of IPE have primarily focused on student perception of IPCP (IOM, 2015).

Interprofessional core competencies have been developed to teach IPCP for the purpose of addressing complex quality issues in healthcare (CIHC, 2010; IPEC, 2011). However, IPCP has been difficult to adopt universally or quickly. The effect of culture and context on IPCP efforts is not well understood (Ovretveit, 2009). Outside the U.S., the culture of IPCP in medical-surgical units has been studied related to medication communication (Liu, et al., 2013), interprofessional behaviors (Lewin & Reeves, 2011), and interprofessional interaction (Reeves, et al., 2009).

Recently, it was proposed that health and systems outcomes are impacted by the complexity of healthcare culture (IOM, 2015). Further, several researchers have suggested that to achieve intervention goals, the significance of context should be an element in the design and implementation of interventions (Marshall, et al., 2016; Wu, 2017). Consequently, there is a need to understand the context and culture of IPCP in order to translate research findings into IPCP interventions with direct health and system outcome measurement possibilities (IOM, 2015). The purpose of this article is to summarize findings from a focused ethnography in which researchers identified complex contextual influences on IPCP in two medical-surgical units in the U.S.
(Costanzo, Shambley-Ebron, Martsolf, & Eckman, 2017). Based on these findings, recommendations for strategic IPCP intervention planning are made using the integrated Promoting Action on Research Implementation in Health Science (iPARIHS) framework (Harvey & Kitson, 2016).

**Study Findings**

Focused ethnography was the methodology used in a recent study of the culture of IPCP on two adult acute-care medical-surgical units in an academic medical center in Midwestern U.S. (Costanzo, et al., 2017). Data were collected from twenty-three individual interviews, 52 hours of observation, two focus groups, and artifact data. Participants included hospital administrators, nurses, physicians, pharmacists, physical and occupational therapists, social workers, members of a patient and family advisory council, and two patients.

Healthcare participants expressed that IPCP is the preferred method for clinical practice (Costanzo, et al., 2017). Patient participants primarily saw their physicians as the drivers of their care plan, while healthcare providers saw IPCP as essential for optimal patient care. Further, healthcare professional participants reported their professional lives as more satisfactory when they engaged in IPCP through helping each other, and sharing important information that made work easier.

While the values and beliefs of participants supported IPCP, the practice of IPCP was variable and frequently person-dependent. More than six change projects were initiated in the hospital and on the study units during the year the study was conducted, which could explain some of the variability in IPCP. Projects included interprofessional bedside rounds, new corporate core values, and new processes to enhance patient-centered care and patient discharge
progression. Several participant leaders stated achievement of change outcomes requires time and patience.

While it is too early to determine final outcomes of these projects, some exhibited varied commitment (Costanzo, et al., 2017). For example, efforts to implement interprofessional bedside rounds (IPBR) on the general medicine unit were viewed positively, yet participation was not part of standard work. The complexity of the hospital context substantially influenced IPCP on the study units. Internal factors that significantly contributed to context complexity were:

- Competing work demands
- Professional rotations and staffing changes
- Communication barriers
- Non-standard interprofessional work
- Non-geographic wards

**Competing work demands**

Participants from different professions described competing profession-specific work demands that interfered with IPCP (Costanzo, et al., 2017). For example, an interprofessional team from the general medicine unit implemented a trial of IPBR that adapted traditional medical teaching rounds to include other professions. However, nurses did not routinely participate citing other patient care needs as priorities. Physicians on both study units frequently conducted bedside rounds during the beginning of nurse shifts, which conflicted with time-sensitive nurse patient assessments and medication administration. It was not unusual for ten or more physician teams to begin patient rounds between 8:00 am and 8:30 am in the morning on a single unit and a nurse could have a patient assignment that had a different team for every patient. If more than
one team was rounding at the same time, the nurse had to prioritize rounding to a single patient or team. Physicians reported the pressure to appropriately discharge patients as early as possible due to routinely high patient census, which distracted them from waiting for other professions as a routine before rounding in a room.

Care managers attended IPBR for up to two hours per day, but attendance was not consistent, and rounds could last one to four hours depending on the attending physician and patient needs. Medical residents reported a conflict between participation in required noontime resident educational conferences and frequent pages regarding patient care. Therapists had allotted 15-minute treatment productivity measures that influenced their availability to participate in IPCP. Therapists reported having to move on to the next patient if a colleague was not easily found for consultation. Three pharmacists supported over ten medical teams and were responsible for a mix of other responsibilities which diluted their ability for consistent IPCP. Daily oncology patient rounds were interprofessional, with the exception of care managers and bedside nurses who participated when necessary and when time permitted.

**Professional Rotations and Staffing Changes**

In the academic medical center where the study took place, an interfering factor for IPCP was the continuous change of staff and varying rotational schedules within and among professions (Costanzo, et al., 2017). For example, medical residents and occupational therapists changed teams or units monthly, while physical therapists rotated units every two months. Attending physicians rotated every two weeks. Respiratory therapists could change units daily, and nurses worked three twelve-hour shifts and could be moved to another unit based on staffing needs.
The movement and inconsistency of professionals on the general medicine unit created an environment where participants reported difficulty in building trusting relationships across professions, and even knowing with whom they needed to communicate. Conversely, participants reported satisfaction with rotation schedules for individual skill maintenance and professional variety. The oncology unit differed slightly because of geographic placement of nurses, pharmacist, nurse practitioners, and care managers, which offered opportunity to know each other and be available to assist each other. In addition, patients with oncologic conditions were primarily placed on the oncology unit.

**Communication barriers**

Several different processes and methods of communication among professions were revealed in the study of medical-surgical unit IPCP culture (Costanzo, et al., 2017). For example, AMiON software (Spiral software, 2016) was implemented for the purpose of simplifying a previously complicated process to communicate with physicians-on-call. Prior to the AMiON implementation, when a physician-on-call was identified, contact information for that physician was still difficult to access. AMiON was implemented to resolve that issue, however the context of the unit created an unintended consequence when the software was implemented. Nurse participants reported only the surname of the physician was listed in the software. But many medical residents referred to themselves by their first name. This created additional work to identify the last name of the resident. Only physician contact information was included in the AMiON software.

Finding each other was complicated further by the different means other professions used to distribute their contact information, including systems that were only tacitly known (Costanzo, et al., 2017). For example, for each shift, respiratory therapists were assigned a unit to work and
would communicate with the unit by telling the unit secretary who they were and their phone number. Nurses had a different process to convey contact information. Nurses entered their phone number in the electronic medical record each shift. Both of these processes were person-dependent and created work to find them if the therapist or nurse did not share contact information.

Physical and occupational therapists and medical residents communicated by pagers instead of phones. Resident participants reported distraction with the high frequency of pages (Costanzo, et al., 2017). Other professions expressed frustration with the delay in return calls related to the paging system, or the person receiving the page. These different ways of finding each other along with different modes of communication added to the complexity of the constantly changing personnel and interfered with consistent IPCP.

**Non-standard interprofessional work**

While some hospitalists and attending physicians championed and facilitated the IPBR, other attending physicians conducted rounds using a more traditional medical education model without consistent participation from other professions (Costanzo, et al., 2017). When nurses participated in IPBR, they frequently did not use the IPBR script provided. Novice nurses focused on skill mastery and reportedly were not comfortable participating in IPBR, and their participation was not part of their standard work expectations. More experienced nurses described frustration with the IPBR process of being called to come to a room for rounds yet not being acknowledged when they arrived. Other nurses stated decisions to participate in IPBR were based on their relationship with the physician.

**Non-geographic wards**
The oncology unit primarily admitted oncology patients, however at times medicine patients were admitted to this unit. As stated earlier, key professions were geographically placed on the oncology units because of their specific knowledge and experience with this patient population. In addition to professional rotations which prevented geographic professional placement on the general medical unit, the high census and maximum patient caseloads for residents resulted in the variability of where general medical patients were admitted. Observation of rounds supported professional reports of seeing patients on multiple units. An internal medicine attending reported seeing a full case load of general medicine patients on rounds one day, but none of them were admitted to the general medicine unit. A pharmacist described seeing eleven medicine patients in rounds with only three of those admitted to the general medicine unit.

The units’ contextual factors of competing demands, rotating schedules, communication barriers, non-standard interprofessional work, and non-geographic wards seemed to impede efforts to establish consistent IPCP irrespective of participants expressed belief in IPCP. A strategic organizational approach to address context, and culture related to IPCP interventions is recommended through the use of an implementation framework.

**Implementation Framework**

A systematic review of facilitation of evidence-based practice guidelines in primary care revealed that care processes and organization are more significant to implementation than knowledge itself (Baskerville, Liddy, & Hogg, 2012). Further, primary care practices were 2.76 times more likely to assimilate evidence into practice with facilitation (Baskerville, et al., 2012). While primary care is different from acute-care, these concepts may be transferable to adult acute-care medical-surgical units. The iPARIHS framework (Harvey & Kitson, 2016) offers the
opportunity to build an organizational IPCP blueprint designed to mitigate implementation barriers related to culture and context of medical-surgical units.

The original Promoting Action on Research Implementation in Health Science (PARIHS) framework was published in 1998 to explore outcomes of projects developed to transfer evidence into clinical practice (Harvey & Kitson, 2016). The framework was subsequently tested and revised several times until the most recent iteration, the iPARIHS framework was developed (Harvey & Kitson, 2016). The new framework includes four main constructs: 1) facilitation (Fac\(^\text{a}\)), 2) innovation (I), 3) recipients (R), and 4) context (C). These four constructs are conceptualized as interacting to achieve successful implementation (SI). The constructs of iPARIHS are expressed as a visual equation to emphasize their relationships: \( SI = \text{Fac}^a (I+R+C) \) (Harvey & Kitson, 2016; see Table 1). In the iPARIHS model, successful implementation (SI), involves attaining planned goals, stakeholder ownership of the new practice, and minimization of context-related variance in practice (Harvey & Kitson, 2016). Key to SI is facilitation which begins with understanding current evidence about the topic and the local context for the intervention.

**Facilitation**

Facilitation (Fac\(^a\)) is described as both a role and a process to propel SI (Harvey & Kitson, 2016). The facilitator role is to provide support, tools, and skills to activate the use of evidence by a practice team (Kitson, Harvey, & McCormack, 1998). The process involves adaptation of an evidence-based intervention to local context, achievement of stakeholder commitment, and ultimately, reaching the goals of the project. Facilitation has been shown to improve implementation of practice changes in primary care (Baskerville, et al., 2012) and
interprofessional collaborative practice in primary care (Bareil, et al., 2015). The primary care facilitation processes may be transferable to acute-care settings as well.

The iPARIHS framework proposes the need to match facilitators to the change project needs (Harvey & Kitson, 2016). Project facilitators may be engaged from inside or outside of the organization depending on the complexity of the project and the corresponding skill sets. In addition, the experience level of facilitators is important to the SI. For example, a cadre of facilitators with varying levels of experience (expert, experienced, novice) may be needed to customize facilitation to the complexity of the project. The expert facilitator acts as an educator, researcher, systems thinker, and mentor. The experienced facilitator is supervised by the expert and has the skill to manage and influence context, understand team dynamics, productivity, organizations, and negotiation. The novice is supervised by an experienced facilitator and focuses on local level change through “planning, implementing, measuring and embedding change” (Harvey & Kitson, 2016, p 8).

**Innovation, recipients, and context**

In the iPARIHS framework, the concept of innovation (I) is defined as a synthesis of evidence, both explicit and tacit, along with interventions that are modified to be compatible with the practice setting (Harvey & Kitson, 2016). People who are impacted by, or who impact, an intervention are considered to be “recipients” (R) in this model. However, this term represents impacted or impactful people as being exclusively passive when in fact recipients actively accept or resist any innovation (Harvey & Kitson, 2016). Further, Harvey and Kitson (2016) include aspects of culture—the values, beliefs, and practices of people—within the concept of recipients. In this framework, inner context includes internal organizational context, whereas outer context, such as social and governmental influences, is external to the organization. The inclusion of
context and culture was important in the selection of this framework as a foundation for IPCP intervention recommendations. Relevant translation recommendations were developed from a comparison of the findings of the IPCP study to the iPARIHS framework.

**Recommended Interventions**

From the perspective of the iPARIHS framework, successful implementation (SI) includes facilitators (Fⁿ) who foster ownership of the innovation (I) by the recipients (R) and mitigation of the impact of context (C) on variations in practice (Harvey & Kitson, 2016). Recommendations for IPCP interventions related to findings of competing work demands, professional rotations, communication barriers, non-standard IPCP work, and non-geographic wards are offered using the iPARIHS framework [SI=Facⁿ (I+R+C)].

**Competing work demands**

In the medical-surgical units of the study, competing work demands were a contextual factor that influenced participation in IPCP (Costanzo, et al., 2017). These demands were exemplified in the pilot of interprofessional bedside rounds (IPBR) and generally the availability of healthcare professionals to participate in IPCP.

**Facilitation.** A team that includes novice, experienced, and expert facilitators (Fⁿ) is recommended to work with hospital administration and patient-care providers to develop goals to address the impact of competing demands on IPCP. The expert facilitator would support the SI of IPBR by acting as a liaison between the hospital and academic recipients, while also functioning as leader of the facilitation team. The experienced facilitator would need to have knowledge of the unit processes and organizational relationships in addition to skill in uniting healthcare professionals with differing practice ideals for this interprofessional endeavor. The
novice facilitator would be the change agent for the intervention and would be supervised by the other more experienced members of the team.

**Innovation.** An IPBR pilot was conducted on one of the study setting units. The pilot was an attempt to modify the current medical education rounds to an interprofessional model. A new innovation should include evidence-based practices that are compatible with and adapted to the context of the medicine unit. The facilitators would work with the IPBR project recipients to re-evaluate the current evidence and best practices related to IPBR. Then the selection of best IPBR practices relevant to the unit would be adapted to empower the unit recipients toward ownership of practice changes. The IPBR innovation would include goals, benefits of IPBR and the ability to employ and evaluate IPBR. The facilitator team would have dedicated time to deploy and manage the project to SI.

**Recipients and context.** Harvey and Kitson (2016) included a host of variables in the recipient construct including skill, knowledge, time, resources, support, and informal leadership. Facilitators would evaluate these variables and the culture of the recipients as part of the innovation development to determine how competing demands interfere with IPBR. Recipients in the IPBR project include hospital administration, attending physicians, medical residents, nurses, care managers, pharmacists, and their leaders. Facilitators would assess the unit processes for change, feedback and evaluation specifically related to autonomy and IPBR.

**Successful implementation.** Successful implementation of IPBR on the medicine unit would include a facilitation team of varied experience that works with healthcare professional and leader recipients to determine IPBR goals and assist recipients to reach those goals and mitigate competing demands. Since unit input and ownership of the IPBR process is essential, facilitation is the most important driver to IPBR.
Professional rotations

Constantly rotating healthcare providers interferes with interprofessional relationships and building trust (Costanzo, et al., 2017). An additional organizational review of professional rotation schedules is recommended to assess opportunities to align schedules of healthcare professionals in order to promote opportunities to build interprofessional relationships and communication. This review would be appropriate work for facilitators.

Facilitation. Since any revision of rotation schedules would impact all professions an expert facilitator team is recommended to navigate professional boundaries. Hospital administrators, profession-specific leaders and professionals, and academic partners would work with the expert facilitators to develop an intervention to assess and refine the rotation process. The facilitation team could include a systems engineer with an understanding of electronic scheduling models (Mutlu, Benneyan, Terrell, Jordan, & Turkcan, 2015; Smalley & Keskinocak, 2016, Smet, Bilgin, De Causmaecker, & Vanden Berghe, 2014) that could be adapted to interprofessional scheduling as one type of innovation.

Innovation. The innovation would include assessment of professional regulations, literature, and similar organizations to understand the context of rotating schedules and the impact of professional rotation on IPCP relationships and communication. Options to align schedules to provide opportunities to build relationships across professions would be assessed for benefits, ability to test, and compatibility with the organizations’ goals.

Recipients. Healthcare professionals, hospital leaders, academic medicine leaders and the culture of professional rotation related to IPCP would be included as recipients to engage in the innovation. The culture of the current rotation system would be assessed by facilitators prior to intervention development.
**Context.** The context of professional rotation would be assessed at local, organizational and academic levels. Professional rotation in academic medical centers is not unique. A study of the impact of aligning rotations on all levels would be necessary to understand the possible interventions to reduce the impact of constant rotation on IPCP.

**Successful Implementation.** The context of rotation schedules is complex and may require smaller changes leading to a more aligned IPCP environment. The recommendation is to reduce or align rotation to allow for IPCP relationships to develop. Study participants stated relationships lead to trust, trust enables IPCP (Costanzo, et al., 2017). Achievement of the goals of the innovation planned by recipients and facilitators is the hallmark of successful implementation.

**Communication barriers**

As stated earlier, study findings revealed a variety of methods of communication among healthcare providers including pagers or phones, and different means of providing contact information (Costanzo, et al., 2017). Communication barriers, as a contextual factor that interferes with IPCP, may be the least complex factor to mitigate among those in the study findings. However, the culture of communication is complex and would require facilitation.

**Facilitation.** A novice facilitator should work with recipients to develop innovations to simplify communication processes. Innovation development would occur after an in-depth assessment of the processes and means of communication among professions that care for patients on medical-surgical units. An experienced facilitator could work with the novice facilitator to negotiate with hospital administrative recipients to recommend innovations to improve communication and manage communication culture.
**Innovation.** Assessment of current evidence on this contextual factor would be the starting point. Recipients and facilitators would work together to determine benefits, compatibility and ability to test communication interventions. Goals would be to simplify how to contact others and the means to contact others to promote IPCP. Recommendations include one contact software that would list all caregiver contact information and corresponding patient assignments, and replace pagers with secure phones that also enable texting. However, studies of communication interventions involving technology have shown increased communication, but a decrease in verbal communication even though healthcare professionals’ preferred verbal communication (Wu, et al., 2013). The culture of communication would be an essential element of any innovation to control for unintended consequences.

**Recipients.** Finance, communications and other hospital administrators would need to be involved regarding changes to communication processes. Information technology would be involved in proposals for new communication technology to ensure infrastructure supports any changes. Healthcare providers would be engaged to select and test any communication tools to simplify IPCP.

**Context.** The study findings regarding communication processes on medical-surgical units revealed opportunity to streamline contact information beyond the AMiON software. Additionally, lost time was reported in attempts to communicate with other professionals. Further, a communication gap was identified between nurses and residents regarding patient care communication and required resident education at noon each day.

**Successful Implementation.** Successful implementation of an improved communication process could address a number of goals. Elimination of pagers would decrease frustration with paging and being paged. A single contact information source could potentially reduce time and
effort to communicate. Increased IPCP due to improved communication processes could potentially reduce communication errors.

**Non-standard interprofessional work**

Results of this study indicated that IPCP was not standard work (Costanzo, et al., 2017). For example, attending physicians, nurses, care coordinators and pharmacists could decide to opt out of IPBR if needed. Nurses stated relationships with physicians could influence participation in IPBR. The use of an implementation framework such as iPARIHS (Harvey & Kitson, 2016) with a facilitation team and support of hospital administrators could reveal opportunities to align all professions toward common goals and expectations for IPCP.

**Facilitation.** A team of an expert, experienced and novice facilitator is recommended to address the context of non-standard interprofessional work. Harvey and Kitson (2016) advocate for facilitators and recipients to work together to determine goals. An interprofessional team of healthcare providers from the medical–surgical units should work with the facilitator team to explore options to improve standardization of IPCP.

**Innovation.** IPE may be useful for developing an understanding of other professions and how they can work together in ways that are beneficial to each profession and ultimately the patients (IPEC, 2011). In addition, facilitated assessment of the psychological safety of the communication environment (Brown & McCormack, 2016) may be warranted due to findings of novice nurse discomfort in communicating in IPBR. Role play and a designated IPBR facilitator to develop interprofessional communication skills in novices is recommended. Consistency and culture have been barriers to patient-centered care even in high performing hospitals (Aboumatar, et al., 2015). So, facilitation until an IPCP habit is sustained is a key recommendation.
**Recipients.** The recommended facilitation team would work with patient care providers on the medical-surgical units. Healthcare administrators and those involved in patient progression would also be involved in planning for standard IPCP. Academic partners should be involved in incorporating IPE in healthcare curriculum to prepare novices to practice IPCP.

**Context.** Study participants described value in IPCP, however practice demands encouraged a focus to meet profession-specific expectations like medication administration, early discharge orders, and treatment productivity (Costanzo, et al., 2017). Profession-specific expectations distracted healthcare providers away from IPCP. Further, novice nurses lacked confidence in communicating in rounds and were focused on nursing skills.

**Successful Implementation.** The outcomes of the above recommendations should result in goals of the units to improve IPCP. SI would be steadily improving consistency in IPCP activity on these units.

**Non-geographic wards**

Participants in the study stated general medicine patients were admitted to units with available beds and internal medicine teams that were on call for admissions (Costanzo, et al., 2017). As a result, the patients that were on the caseload for a resident team were located on many different units. As a result, the medicine teams round on multiple units and neither the teams or the unit staff have opportunity to build professional relationships that lead to improved communication. Further, it is difficult for the unit staff to know when a medicine team will be on their unit. Residents reported being very busy, and moving to multiple units to see patients took additional time. Finally, a prior attempt to implement geographic wards was not successful. These findings are consistent with another study of a hospital of the same size before implementation of geographic based units (Tess, Yang, Smith, Fawcett, Bates & Reynolds,
In geographic based units, residents care for patients on a unit and the resident is unit-based. Toomath, et al. (2014, p.786) reported that residents conducted “long safari ward rounds” because their caseload was distributed across the hospital. Resident teams were reconfigured to be ward-based where the resident cared for patients on a unit. If a patient was not admitted to the resident on call unit, the care for that patient was transferred to the unit team where the patient was located (Toomath, et al., 2014).

**Facilitation.** Since the primary impact would be for resident work at the study hospital, facilitation of an innovation to resolve the issue of non-geographic wards would require significant investment from the graduate medical education office and patient progression teams. In addition, hospital personnel responsible for the room assignment for patients would need to be significantly involved. A facilitator that could bridge the requirements for resident education and hospital patient capacity issues would be integral to a successful innovation toward geographic wards.

**Innovation.** A change to geographic wards where residents are assigned a home ward would be the recommended intervention. A recommendation for facilitators would be to consult with hospitals that have already embarked on medical service design changes to understand the similarities and differences to the study hospital. The recommended innovation would involve devising a process for assigning residents to wards and a communication process for transfer of responsibility of patients not admitted to the resident’s assigned ward.

**Recipients.** The recipients for this proposed innovation would include medical residents and residency leadership, and hospital leadership that deals with patient admissions. Emergency department and unit level staff would be engaged for their input in process changes. The current
hospital culture for patient admissions would be assessed for any barriers or facilitators to geographic wards.

**Context.** The context of the medical-surgical units was that healthcare professionals wanted to have professional relationships and to collaborate with each other (Costanzo, et al., 2017). This context should be helpful to the recommended change to geographic wards if interfering factors are mitigated prior to intervention.

**Successful implementation.** Successful implementation involves achievement of goals. The recommended goal would be medical service design changes to geographic wards. Residents would be part of an interprofessional unit team that cares for patients on that unit. Patient safety would be paramount and processes to ensure safe handoff when patients are transferred to another medical team would be recommended and necessary.

**Conclusion**

Recommendations for potential solutions to internal factors that interfere with IPCP were based on findings from the study of IPCP culture on two medical-surgical units. These findings and recommendations could be transferable to other adult acute-care medical-surgical units. However, we acknowledge there may be additional aspects about the context and culture of these units not found in the study. Further research on the culture of IPCP on medical-surgical units may provide more insight into internal factors that interfere or enable IPCP.

The iPARIHS implementation framework (Harvey & Kitson, 2016) is a recommended tool to plan for mitigation of interfering contextual factors that could affect successful implementation of strategic IPCP projects. Recommendations for successful implementation of innovations to address competing work demands, professional rotations, communication barriers, non-standard interprofessional work, and non-geographic wards were offered here. While each
of these interfering contextual factors were addressed separately, they were all part of the context of the study units and are intertwined. For example, competing work demands lead to non-standard interprofessional work. Communication barriers may also directly impact non-standard interprofessional work. Rotating schedules also complicate communication, and interprofessional work. The possibility exists that improvement of any of the interfering factors will impact the others.

Efforts to advance the successful implementation of change require active management and perseverance (Aboumatar, et al., 2015) through facilitation processes enacted by appropriate facilitators and unit personnel. Attention to the culture and context of the setting (Harvey & Kitson, 2016) is frequently missed in intervention development, but a major factor in the complexity of work environments. Joint efforts between qualified facilitators and recipients may actively engage those who care for the patients. Recipient involvement is important in development of innovations toward IPCP and quality patient care.
References


Doi:10.11.36/amiajnl-2012-001160
Table 1. i-PARIHS Equation and Concepts

<table>
<thead>
<tr>
<th>SI = Fac^n (I+R+C)</th>
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<tbody>
<tr>
<td>SI - successful implementation</td>
</tr>
<tr>
<td>Fac^n - facilitation</td>
</tr>
<tr>
<td>I – innovation</td>
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<tr>
<td>R – recipients (individual and collective)</td>
</tr>
<tr>
<td>C – context (inner and outer)</td>
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Appendix A: UC IRB Approval

Institutional Review Board - Federalwide Assurance #00003152

University of Cincinnati

Date: 5/3/2016

From: UC IRB

To: Principal Investigator: Amy Costanzo
    CON Professional Studies Team

Study ID: 2016-1284

Re: Study Title: The Culture of Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units.

The above referenced protocol and all applicable additional documentation provided to the IRB were reviewed and APPROVED using an EXPEDITED review procedure in accordance with 5 CFR 46.110(b)(1)(see below) on 5/3/2016.

This study will be due for continuing review at least 30 days before: 5/2/2017.

The following was reviewed:

Study Documents

Adult_Consent_Costanzo_hospitalassociateinterviewfinal.doc
Adult_Consent_Costanzo_hospitalfocusgroupfinal.doc
Adult_Consent_Costanzo_hospitalpatientinterviewfinal.doc
Adult_Consent_Costanzo_PFACfocusgroup.doc
contact summary sheet
costanzocv02.2016.docx
CostanzoIRBprotocol3316.doc
Donna's vitae.docx
Flyer-UCMC associates.doc
Flyer-UCMC focus group patients22816.doc
Flyer-UCMC inpatients22816.doc
The IRB reviewer has determined that this research presents no greater than minimal risk.

Please note the following requirements:

Consent Requirements

Per 45 CFR 46.116 (21 CFR 50.20) the IRB has determined that informed consent must be obtained from all adult participants and that this consent must be documented by signature on the IRB approval consent form.

Parental Permission Requirements

There are no items to display

Assent Requirements

There are no items to display

HIPAA Requirements

There are no items to display

AMENDMENTS: The principal investigator is responsible for notifying the IRB of any changes in the protocol, participating investigators, procedures, recruitment, consent forms, FDA status, or conflicts of interest. Approval is based on the information as submitted. New procedures cannot be initiated until IRB approval has been given. If you wish to change any aspect of this study, please submit an Amendment via ePAS to the IRB, providing a justification for each requested change.

CONTINUING REVIEW: The investigator is responsible for submitting a Continuing Review via ePAS to the IRB at least 30 days prior to the
expiration date listed above. Please note that study procedures may only continue into the next cycle if the IRB has reviewed and granted re-approval prior to the expiration date.

**UNANTICIPATED PROBLEMS:** The investigator is responsible for reporting unanticipated problems promptly to the IRB via ePAS according to current reporting policies.

**STUDY COMPLETION:** The investigator is responsible for notifying the IRB by submitting a Request to Close via ePAS when the research, including data analysis, has completed.

**Please note:** This approval is through the IRB only. You may be responsible for reporting to other regulatory officials (e.g. VA Research and Development Office, UC Health University Hospital). Please check with your institution and department to ensure you have met all reporting requirements.

**Statement regarding The International Conference on Harmonization and Good clinical Practices:** The Institutional Review Board is duly constituted (fulfilling FDA requirements for diversity), has written procedures for initial and continuing review of clinical trials: prepares written minutes of convened meetings and retains records pertaining to the review and approval process; all in compliance with requirements defined in 21 CFR Parts 50, 56 and 312 Code of Federal Regulations. This institution is in compliance with the ICH GCP as adopted by FDA/DHHS.

*Thank you for your cooperation during the review process.*

---

**Research Categories**

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)
Appendix B: UC Health Approval

Proposal Title: The Culture of Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units
Principal Investigator: Amy Costanzo

Title/Position: PhD student UC, Director, Nursing Administration UCMC

Check all that apply:
- UC Health Associate: yes
- UC Employee: yes
- UC Student: yes
- Other: Please describe:

Work Address: 234 Goodman Street Cincinnati OH 45219
Preferred Phone Number: 584-7256
Preferred e-mail: amycostanzo@uchc.com

Co-investigators
- Dr. Martin, Dr. Shambly-Ebron, Dr. Eckman
Email: martinsa@uclalumni.org; eckmanmh@uclalumni.org; shambly@uclalumni.org

Abstract Attached: yes
Full Protocol Submitted to Office of Clinical Inquiry or UC Health Research Administration Office: yes
Full protocol submission waived:

Is this project part of an academic course? Yes no
If yes, please provide Advisor's information below:
Name: see co-investigator list above
Institution: UC
Email:
Phone Number:

Required Signatures:
1. Director Patient Care Services Institute for Clinical Inquiry: Date: __________
2. Clinical Manager/Department Head: Date: 5/16/16
3. Vice President for Patient Care Services: Date: 5/16/16

Human Subjects Review:
Not Human Subjects Research Determination
IRB Approved: Date 5/3/16
IRB Review Pending/Date Submitted: __________

Human Subjects Research:
IRB Protocol Number:
Date Approved: __________ (please attach verification of approval)
Review Pending/Date Submitted: __________

Pre-Review Completed: __________ Date: __________
Reviewer Name: __________
Comments: __________

UC Health Research Notification/ Approval: Yes no Date: __________

UC Health
Office of Research
Volunteers Needed for a Research Study
“Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units”

- The study is open to adults’ age 18 years or older who have been a patient at UCMC on either 8NW or 7NW, or a family member.

- The purpose of the research study is to learn about how healthcare teams work together with patients to plan and communicate care. It is also about what helps or gets in the way of teamwork and team communication with you about your care.

- The study activity will be a focus group to answer questions about your experience with your healthcare team in planning and talking about your care.

- Time commitment: 30-60 minutes

- The research will be conducted at UCMC in a conference room.

- For additional information, please contact Amy Costanzo at (513) 288-6701 or email at IPCPresearch@gmail.com

Principal Investigator: Amy Costanzo, PhD Candidate
University of Cincinnati, College of Nursing
Volunteers Needed for a Research Study
“Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units”

- The study is open to adults’ age 18 years or older who are receiving or have received care at UCMC on either 8NW or 7NW.

- The purpose of the research study is to learn about how healthcare teams work together with patients to plan and communicate care. It is also about what helps or gets in the way of teamwork and team communication with you about your care.

- The study activity will be an interview to answer questions about your experience with your healthcare team in planning and talking about your care.

- Time commitment: 30-60 minutes

- The research will be conducted at UCMC in your room, or the discharge hospitality lounge.

- For additional information, please contact Amy Costanzo at (513) 288-6701 or email at IPCPresearch@gmail.com

  - Principal Investigator: Amy Costanzo, PhD Candidate
    University of Cincinnati, College of Nursing
Volunteers Needed for a Research Study
“Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units”

- The study is open to UCMC associates who care for patients on 8NW or 7NW and are adults’ age 18 years or older who work at least 20 hours per week at UCMC.

- The purpose of the research study is to learn about the barriers and facilitators to collaboration and communication and the collaboration and communication beliefs and practices between healthcare professions and patients.

- Participants will engage in an interview or focus group to answer questions about collaboration and communication among healthcare professions and patients at UCMC on 8NW or 7NW.

- Time commitment: 30-60 minutes

- The research will be conducted at UCMC.

- For additional information, please contact Amy Costanzo at (513) 288-6701 or email at IPCPresearch@gmail.com

Principal Investigator: Amy Costanzo, PhD Candidate
University of Cincinnati, College of Nursing
Appendix D: Consent Documents

Adult Consent Form for Research
University of Cincinnati
Department: College of Nursing
Principal Investigator: Amy Costanzo
Faculty Advisor: Dr. Donna Shambley-Ebron, Dr. Donna Martsolf

Title of Study: The Culture of Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units.

Introduction:
- You are being asked to take part in a research study. Please read this paper carefully and ask questions about anything that you do not understand.

Who is doing this research study?
- The person in charge of this research study is Amy Costanzo of the University of Cincinnati (UC) College of Nursing.
- She is being guided in this research by Dr. Donna Shambley-Ebron and Dr. Donna Martsolf. There may be other people on the research team helping at different times during the study.

What is the purpose of this research study?
- The purpose of this research study is to explore and describe the culture of interprofessional collaborative practice in two adult acute-care medical/surgical units.

Who will be in this research study?
- About 48 people will take part in this study. You may be in this study if you:
  - are at least 18 years old
  - at least a half-time employee of UCMC
  - a credentialed associate of UCMC
  - work on 7NW
  - work on 8NW
  - are involved in decision-making for patients on 7NW or 8NW

What if you are an employee where the research study is done?
- Taking part in this research study is not part of your job. Refusing to be in the study will not affect your job. You will not be offered any special work-related benefits if you take part in this study.

What will you be asked to do in this research study, and how long will it take?
- You will be asked to participate in an interview. It will take about 30-90 minutes
depending on your availability. The interview will take place in a room of your choosing on the hospital premises. You will be asked about where you work, your role, years of experience in your profession and whether you have had any interprofessional education. You will also be asked about how professions work and communicate together in the planning and care of patients.

**Are there any risks to being in this research study?**
- The risk is not expected to be more than you would have in daily life.
- If you want to talk to someone because this research made you feel upset, the researchers can give you information about people who may be able to help you.

**Are there any benefits from being in this research study?**
- You will probably not get any benefit because of being in this study. But, being in this study may help to better understand interprofessional collaborative practice in medical/surgical hospital units.

**What will you get because of being in this research study?**
- You will not be given anything to take part in this study.

**Do you have choices about taking part in this research study?**
- If you do not want to take part in this research study you can choose not to participate.
- You have a choice whether or not to take part in the audio-recording of your interview. There is a place at the end of this paper to mark your choice.

**How will your research information be kept confidential?**
- Information about you will be kept private by:
  - using a study ID number instead of your name on the research forms
  - keeping the master list of names and study ID numbers in a separate location from the research forms
  - limiting access to research data to the research team
  - not including your name on the typed transcript
  - erasing audiotapes as soon as the transcribed interviews are verified by the PI
  - keeping research data on a UC password-protected research drive
- Research data will be stored electronically on the password protected UC research drive for three years after the study is completed. Paper documents will be stored in a locked cabinet in the PI’s hospital office until scanned and saved electronically to the electronic research drive. Paper documents will be scanned and saved electronically every week. Once stored electronically, the paper documents will then be placed in a locked shred bin to be destroyed. The master list of participant names and ID numbers will be stored in a separate UC password protected research drive folder.
- Signed consent documents will be kept for three years after the study is closed.
- Data will be kept for three years after the study is closed.
• The data from this research study may be published; but you will not be identified by name.
• Agents of the University of Cincinnati may inspect study records for audit or quality assurance purposes.
• The researcher cannot promise that information sent by the internet or email will be private.

What are your legal rights in this research study?
• Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

What if you have questions about this research study?
• If you have any questions or concerns about this research study, you should contact Amy Costanzo at (513) 288-6701 or by email at IPCPresearch@gmail.com
• Or, you may contact Donna Martsolf at (513) 558-5196 or Donna Shambley-Ebron at (513) 558-5248.
• The UC Institutional Review Board reviews all research projects that involve human participants to be sure the rights and welfare of participants are protected.
• If you have questions about your rights as a participant, complaints and/or suggestions about the study, you may contact the UC IRB at (513) 558-5259. Or, you may call the UC Research Compliance Hotline at (800) 889-1547, or write to the IRB, 300 University Hall, ML 0567, 51 Goodman Drive, Cincinnati, OH 45221-0567, or email the IRB office at irb@ucmail.uc.edu.

Do you HAVE to take part in this research study?
• No one has to be in this research study. Refusing to take part will NOT cause any penalty or loss of benefits that you would otherwise have.
• You may skip any questions that you don’t want to answer.
• You may start and then change your mind and stop at any time. To stop being in the study, you should tell Amy Costanzo.

Agreement:
I have read this information and have received answers to any questions I asked. I give my consent to participate in this research study. I will receive a copy of this signed and dated consent form to keep.
___YES, you may audiotape my interview
___NO, I do NOT want you to audiotape my interview

Participant Name (please print) ________________________________________________

Participant Signature ______________________________________________________  Date ______

Signature of Person Obtaining Consent ________________________________  Date ______
Title of Study: The Culture of Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units.

Introduction:
You are being asked to take part in a research study. Please read this paper carefully and ask questions about anything that you do not understand.

Who is doing this research study?
The person in charge of this research study is Amy Costanzo of the University of Cincinnati (UC) College of Nursing. She is being guided in this research by Dr. Donna Shambley-Ebron and Dr. Donna Martsolf. There may be other people on the research team helping at different times during the study.

What is the purpose of this research study?
The purpose of this research study is to explore and describe the culture of interprofessional collaborative practice in two adult acute-care medical/surgical units.

Who will be in this research study?
About 48 people will take part in this study. You may be in this study if you:

- are at least 18 years old
- at least a half-time employee of UCMC
- a credentialed associate of UCMC
- work on 7NW
- work on 8NW
- are involved in decision-making for patients on 7NW or 8NW

What if you are an employee where the research study is done?
Taking part in this research study is not part of your job. Refusing to be in the study will not affect your job. You will not be offered any special work-related benefits if you take part in this study.

What will you be asked to do in this research study, and how long will it take?
You will be asked to participate in a focus group. It will take about 30-90 minutes depending on your availability. The focus group will take place in a conference room on the hospital premises. You will be asked about where you work, your role, years of experience in your profession and whether you have had any interprofessional education. You will also be asked
about how professions work and communicate together in the planning and care of patients. You will be assigned a number to identify yourself during the focus group.

**Are there any risks to being in this research study?**
The risk is not expected to be more than you would have in daily life. If you want to talk to someone because this research made you feel upset, the researchers can give you information about people who may be able to help you.

**Are there any benefits from being in this research study?**
You will probably not get any benefit because of being in this study. But, being in this study may help to better understand interprofessional collaborative practice in medical/surgical hospital units.

**What will you get because of being in this research study?**
You will not be given anything to take part in this study.

**Do you have choices about taking part in this research study?**
If you do not want to take part in this research study you can choose not to participate. The focus group will be audio-taped. If you prefer to not be recorded, you can choose not to participate.

**How will your research information be kept confidential?**
Information about you will be kept private by:
- using a study ID number instead of your name on the research forms
- keeping the master list of names and study ID numbers in a separate location from the research forms
- limiting access to research data to the research team
- not including your name on the typed transcript
- erasing audiotapes as soon as the transcribed interviews are verified by the PI
- keeping research data on a UC password-protected research drive
- Research data will be stored electronically on the UC password protected research drive for three years after the study is completed. Paper documents will be stored in a locked cabinet in the PI’s hospital office until scanned and saved electronically to the electronic research drive. Paper documents will be scanned and saved electronically every week. Once stored electronically, the paper documents will then be placed in a locked shred bin to be destroyed. The master list of participant names and ID numbers will be stored in a separate UC password protected research drive folder.
- Signed consent documents will be kept for three years after the study is closed.
- Data will be kept for three years after the study is closed.
- The data from this research study may be published; but you will not be identified by name.
- Agents of the University of Cincinnati may inspect study records for audit or quality
assurance purposes.

- The researcher cannot promise that information sent by the internet or email will be private.
- The researcher will ask people in the focus group to keep the discussion confidential, but they might talk about it anyway.

**What are your legal rights in this research study?**
Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

**What if you have questions about this research study?**
- If you have any questions or concerns about this research study, you should contact Amy Costanzo at (513) 288-6701 or by email at IPCPresearch@gmail.com
- Or, you may contact Donna Martsolf at (513) 558-5196 or Donna Shambley-Ebron at (513) 558-5248.

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**Do you HAVE to take part in this research study?**
No one has to be in this research study. Refusing to take part will NOT cause any penalty or loss of benefits that you would otherwise have. The focus group will be audio-recorded. You may choose NOT to participate by not signing this form and not speaking during the focus group, or by leaving the room during the focus group. You may skip any questions that you don't want to answer. You may start and then change your mind and stop at any time. To stop being in the study, you should tell Amy Costanzo.

**Agreement:**
I have read this information and have received answers to any questions I asked. I give my consent to participate in this research study. I will receive a copy of this signed and dated consent form to keep.

Participant Name (please print) ____________________________________________

Participant Signature ____________________________ Date ________

Signature of Person Obtaining Consent ____________________________ Date ________
Adult Consent Form for Research
University of Cincinnati
Department: College of Nursing
Principal Investigator: Amy Costanzo
Faculty Advisor: Dr. Donna Shambley-Ebron, Dr. Donna Martsolf

Title of Study: The Culture of Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units.

Participant’s name (printed) Date of Birth

Introduction:
You are being asked to take part in a research study. Please read this paper carefully and ask questions about anything that you do not understand.

Who is doing this research study?
The person in charge of this research study is Amy Costanzo of the University of Cincinnati (UC) College of Nursing.
She is being guided in the research by Dr. Shambley-Ebron and Dr. Martsolf.
There may be other people on the research team helping at different times during the study.

What is the purpose of this research study?
The purpose of this research study is to understand how healthcare teams talk and work together and with patients in two adult acute-care medical/surgical units.

Who will be in this research study?
About 48 people will take part in this study. You may be in this study if you:
• are at least 18 years old
• speak English
• are a patient on 8NW or 7NW at UCMC

What will you be asked to do in this research study, and how long will it take?
You will be asked to participate in an interview. It will take about 30-90 minutes depending on your availability. The interview will take place in your hospital room or the discharge hospitality center. You will be asked for your name and date of birth. You will be asked questions about the way the people who care for you share information with you and about you in the planning of your care. I will also ask your thoughts about how well you understand your care from the way the team has communicated with you.

Are there any risks to being in this research study?
The risk to you is not more than in daily life.
If you want to talk to someone because this study made you feel upset, the researcher can give
you the number to call for people who may be able to help you.

**Are there any benefits from being in this research study?**
The there is no benefit to you for being in this study. But, this study may help to understand how people communicate and work in teams in hospitals.

**What will you get because of being in this research study?**
You will not be given anything to take part in this study.

**Do you have choices about taking part in this research study?**
If you do not want to take part in this research study you can choose not to participate. You have a choice whether or not to take part in the audio-recording of your interview. There is a place at the end of this paper to mark your choice.

**How will your research information be kept confidential?**
Information about you will be kept private by the following ways:

- using a study ID number instead of your name on the research forms
- keeping the master list of names and study ID numbers in a separate location from the research forms
- limiting access to research data to the research team
- not including your name on the typed transcript
- erasing audiotapes as soon as they are transcribed
- keeping research data on a password-protected computer

Recordings will be deleted when they have been written out and matched to the recording. Your written interview will be kept in a password protected UC research drive. Signed consent documents and master lists of names and ID numbers will be scanned and stored in a separate folder with another password. Paper copies will be placed in locked shred bins. All the items on the research drive in the secured folders will be stored for three years after the close of the study. After that the data will be destroyed by deleting the files. Your consent form will be scanned and linked to the study in your electronic patient account in EPIC. The data from this research study may be published; but you will not be identified by name.

Agents of the University of Cincinnati may inspect study records for audit or quality assurance purposes.

**What are your legal rights in this research study?**
Nothing in this consent form waives any legal rights you may have. This consent form also does not release the investigator, the institution, or its agents from liability for negligence.

**What if you have questions about this research study?**
- If you have any questions or concerns about this research study, you should contact
  Amy Costanzo at (513) 288-6701 or by email at IPCPresearch@gmail.com
• Or, you may contact Donna Martzolf at (513) 558-5196 or Donna Shambley-Ebron at (513) 558-5248.

The UC Institutional Review Board reviews all research projects that involve human participants to be sure the rights and welfare of participants is protected.

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You may skip any questions that you don't want to answer.

You may start and then change your mind and stop at any time. To stop being in the study, you should tell Amy Costanzo.

**Agreement:**
I have read this information and have received answers to any questions I asked. I give my consent to participate in this research study. I will receive a copy of this signed and dated consent form to keep.

___YES, you may audiotape my interview

___NO, I do NOT want you to audiotape my interview

Participant Name (please print) __________________________________________________________

Participant Signature ___________________________________________ Date ______

Signature of Person Obtaining Consent _____________________________ Date ______
Title of Study: The Culture of Interprofessional Collaborative Practice in Adult Acute-Care Medical/Surgical Units.

Introduction:
You are being asked to take part in a research study. Please read this paper carefully and ask questions about anything that you do not understand.

Who is doing this research study?
The person in charge of this research study is Amy Costanzo of the University of Cincinnati (UC) College of Nursing. She is being guided in this research by Dr. Donna Shambley-Ebron and Dr. Donna Martsolf. There may be other people on the research team helping at different times during the study.

What is the purpose of this research study?
The purpose of this research study is to understand how healthcare teams talk and work together to plan care with patients at UCMC.

Who will be in this research study?
About 48 people will take part in this study. You may be in this study if you:
- are at least 18 years old
- speak English
- have been a patient at UCMC
- are a family member of a former patient of UCMC

What will you be asked to do in this research study, and how long will it take?
You will be asked to participate in a focus group. It will take about 30-90 minutes depending on your availability. The focus group will take place in a conference room on the hospital premises. You will be asked for your name. You will be asked questions about the way the people who cared for you or your family member worked together and shared information with you and about you in the planning of your care. You will be assigned a number to identify yourself during the focus group.

Are there any risks to being in this research study?
The risk is not expected to be more than you would have in daily life.
If you want to talk to someone because this research made you feel upset, the researcher can give you information about people who may be able to help you.
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Data will be kept for three years after the study is closed.
The data from this research study may be published; but you will not be identified by name.
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**Agreement:**
I have read this information and have received answers to any questions I asked. I give my consent to participate in this research study. I will receive a copy of this signed and dated consent form to keep.

The focus group will be audio-recorded. You may choose NOT to participate by not signing this form and not speaking during the focus group, or by leaving the room during the focus group.

Participant Name (please print) ________________________________
Participant Signature ________________________________ Date _______
Signature of Person Obtaining Consent __________________________ Date _______
## Appendix E: Interview Guides

<table>
<thead>
<tr>
<th>Research Question</th>
<th>IPLC Model Concept</th>
<th>Type of Data</th>
<th>Patient Interview Questions</th>
</tr>
</thead>
</table>
| What are the daily interactions in which people on the patient care unit collaborate about patient status and care planning? | learning outcomes: collaborative behavior, performance in practice | Communication activities          | Since you’ve been here, how do the doctors, nurses and other health care team member communicate with you/family about your care each day?  
Tell me about what good collaboration on your care looked like on this visit?  
Tell me about a time when collaboration was not what you expected? |
| How do individual behaviors and organizational cultural factors hinder or support daily collaboration and care planning among professions? | learning outcomes: collaborative behavior, performance in practice enabling or interfering factors learning continuum | Enabling or interfering factors | Have you noticed anything that helps your healthcare team to collaborate with each other and with you?  
Could you describe what that was like?  
Was there anything that you would say interfered or got in the way of your healthcare team working together and with you? What did that look like? |
<table>
<thead>
<tr>
<th>Research Question</th>
<th>IPLC Model Concept</th>
<th>Type of Data</th>
<th>Examples of Interview Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the culture (values, beliefs, and practices) of interprofessional collaborative practice in two adult acute care medical/surgical units?</td>
<td>institutional, professional culture learning continuum</td>
<td>Values Beliefs Behaviors/practices</td>
<td>Tell me about the ways that different professions work together on 8NW or 7NW? What does a healthcare provider on this unit need to know about communication and collaboration among professions on these units? If you had to define interprofessional collaborative practice, what would your definition or characteristics be? Tell me about a good example of IPCP in the hospital? Tell me about the best way to communicate and collaborate about patient’s care at UCMC? What about the hospital supports IPCP? How does staff learn how to practice interprofessionally?</td>
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<tr>
<td>What are the cultural factors that influence interprofessional collaborative practice in two acute care medical surgical units?</td>
<td>institutional, professional culture</td>
<td>Enabling or interfering factors</td>
<td>What are the expectations of associates to work with other professions? Is there anything that gets in the way of caregivers working together? What helps caregivers to share information and planning?</td>
</tr>
<tr>
<td>What are the daily interactions in which people on the patient care unit collaborate about patient status and care planning?</td>
<td>learning outcomes: collaborative behavior, performance in practice</td>
<td>Communication activities</td>
<td>On an average day: When do caregivers plan patient care together? Typically, who do they communicate with to plan patient care for the day? Tell me how patient care planning occurs on these units? How do caregivers plan patient care?</td>
</tr>
<tr>
<td>What are healthcare professionals’ perceptions about interprofessional collaborative practice?</td>
<td>learning outcomes: attitudes, perceptions, knowledge and skills</td>
<td>Perceptions Knowledge about IPCP</td>
<td>Tell me about a great day of collaboration with others about patients? Tell me about a bad day of collaboration with others about patients? How would you define interprofessional collaborative practice? How do professionals learn about what other professions do?</td>
</tr>
<tr>
<td>How do individual behaviors and organizational cultural factors hinder or support daily collaboration and care planning among professions?</td>
<td>learning outcomes: collaborative behavior, performance in practice enabling or interfering factors learning continuum</td>
<td>Enabling or interfering factors</td>
<td>In what ways does the hospital help to promote collaboration and care planning? What do you do or other individual professionals do that helps to promote collaboration and care planning? What are the barriers to interprofessional collaborative practice in this hospital, if any? What would you change about how collaboration and care planning happen now? What would you keep the same?</td>
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177
<table>
<thead>
<tr>
<th>Research Question</th>
<th>IPLC Model Concept</th>
<th>Type of Data</th>
<th>Examples of Interview Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the culture (values, beliefs, and practices) of interprofessional</td>
<td>institutional, professional</td>
<td>Values Beliefs Behaviors/practices</td>
<td>Tell me about the ways that different professions work together on this unit to plan patient care? What does a healthcare provider on this unit need to know about communication and collaboration among professions on this unit? What does interprofessional collaboration mean to you? Tell me about an example of interprofessional collaborative practice on your unit Tell me about the best way to communicate and collaborate with other professions about a patient’s care?</td>
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<tr>
<td>collaborative practice in two adult acute care medical/surgical units?</td>
<td>culture learning continuum</td>
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<td>Enabling or interfering factors</td>
<td>Is there anything that gets in the way of different professions collaborating in planning patient care? What helps different professions to share patient information and planning?</td>
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<td>practice in two acute care medical surgical units?</td>
<td>culture</td>
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<tr>
<td>What are the daily interactions in which people on the patient care unit</td>
<td>learning outcomes: collaborative</td>
<td>Communication activities</td>
<td>During an average day, when do different professions plan patient care together? Who do you communicate with to plan patient care for the day? How do you communicate with others about patient care needs?</td>
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<td>collaborate about patient status and care planning?</td>
<td>behavior, performance in practice</td>
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<td>What are healthcare professionals’ perceptions about interprofessional</td>
<td>learning outcomes: attitudes,</td>
<td>Perceptions Knowledge about IPCP</td>
<td>Tell me about a great day of collaboration with others about patients? Tell me about a bad day of collaboration with others about patients? What does collaboration mean to you? How did you learn about what other professions do? Do other professions know what you do?</td>
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<td>collaborative practice?</td>
<td>perceptions, knowledge and skills</td>
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<tr>
<td>How do individual behaviors and organizational cultural factors hinder or support</td>
<td>learning outcomes: collaborative</td>
<td>Enabling or interfering factors</td>
<td>How does the hospital help to promote collaboration and care planning among different professions? What helps to promote collaboration and care planning? Does anything about the hospital environment get in the way of collaboration and care planning? What gets in the way of collaboration and care planning? What would you change about how collaboration and care planning happen now? What would you keep the same?</td>
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<td>daily collaboration and care planning among professions?</td>
<td>behavior, performance in practice</td>
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