# A Scoping Review of *A National Interprofessional Competency Framework (2010)*

Carmine Lao, M.O.T., Reg. (MB), Research Assistant, Department of Occupational Therapy College of Rehabilitation Sciences, University of Manitoba. Carmine is an occupational therapist working with children under Jordan's Principle in Winnipeg and in northern Manitoba communities.

Pamela Wener, Ph.D., O.T. Reg. (MB), Professor, Department of Occupational Therapy, College of Rehabilitation Sciences, University of Manitoba. Pamela (Pam) is a Professor Emerita in the Department of Occupational Therapy, College of Rehabilitation Sciences, Rady Faculty of Health Sciences, University of Manitoba. Pamela worked with the CIHC on the National Competency Framework (2024) "Refresh."

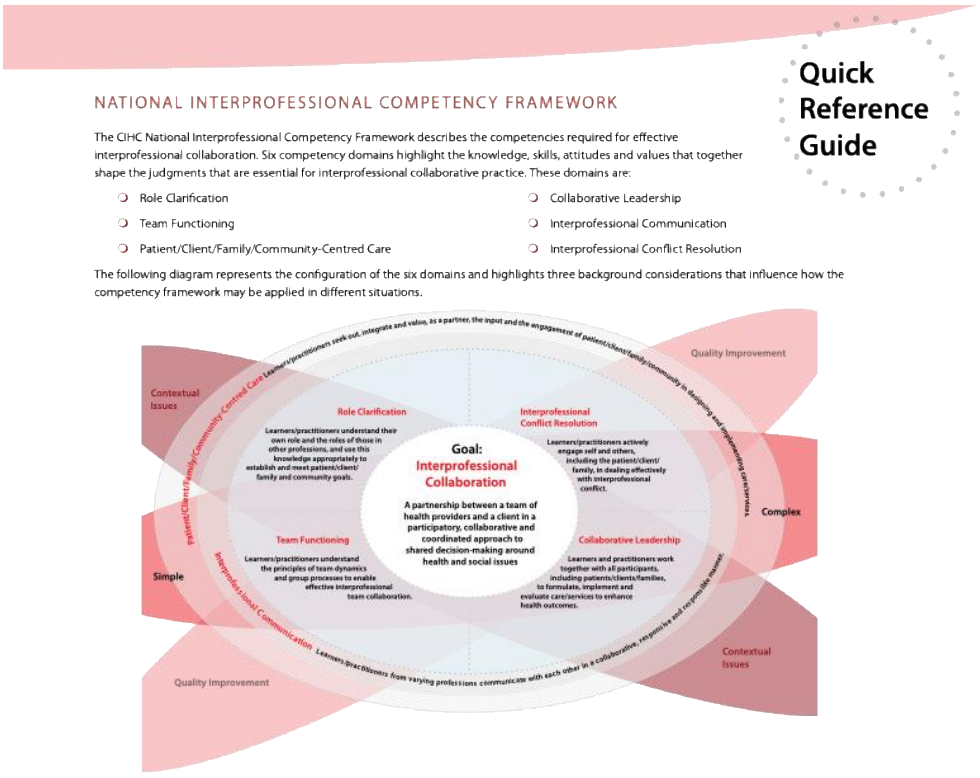
Note:

1. This Scoping Review was supported financially from the CIHC and was part of a larger project that aimed to "refresh" the 2010 Competency Framework see https://cihc-cpis.com/new-competency-framework/ .
2. This Scoping Review was completed in November 2021

## Introduction

Interprofessional education (IPE) and interprofessional collaboration (IPC) are key to building effective health care teams and improving patient safety and outcomes (CIHC, 2010). In 2010, the CIHC released a National Competency Framework that included six competency domains that are required for effective interprofessional collaboration in education and practice. These competency domains include: 1) Patient/client/family/community-centred care 2. Interprofessional communication, 3. Role clarification, 4. Team functioning, 5. Collaborative leadership, and 6. Interprofessional conflict resolution (CIHC, 2010). Each CIHC competency domain described in Figure 1 may be used to reflect learning goals and applied to specific contexts for students and practitioners to help them achieve competency in interprofessional collaboration (CIHC, 2010). The CIHC Framework was guided by Integrative Pedagogy (Tardif, 2006) with an emphasis on learning skills aimed at enhancing collaboration progress developmentally throughout one's professional lifespan (CIHC, 2010).

**Figure 1 CIHC National Competency Framework**




The CIHC National Competency Framework, Figure 1 was published over a decade ago and is presumed to be widely used by educators and health care professionals locally, nationally,

and internationally. In 2020 the CIHC embarked on "refreshing" the competency framework; an opportunity to update language as well as incorporate new ideas such as, psychological safety or relational communication. One important aspect of this refresh process was to understand and document who, where, and in what ways the National Competency Framework has been used across the world. A scoping review that synthesizes and then maps how the framework is being used and by whom, will add much information to this "refresh" endeavour and provide this information for those in the field as well as provide a compendium of articles that either refer to- or apply the National Competency IPC Framework. Therefore, in 2020 a scooping review was undertaken to explore who and how the CIHC framework and competency domains are described and applied within the peer-reviewed literature.

**Method**

This scoping review was guided by Arksey and O'Malley (2005) and Levac, Colquhoun, and O'Brien's (2010). The stages of this framework include 1) identifying the research question, 2) identifying relevant studies, 3) study selection, 4) charting the data, 5) collating, summarizing, and reporting the results, and the optional 6) consultation stage (Colquhoun et al., 2014; Levac et al., 2010). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Scoping Review (PRISMA-ScR) guidelines (Tricco et al., 2018) was also used for reporting.

A scoping review was selected for this study because it allows exploration of a broad research question or topic which in this case considers how and where the CIHC Framework is being used within the peer-reviewed literature (Sucharew & Macaluso, 2019). In addition to providing a broad overview of the research, a scoping review takes relatively less time to complete compared to a systematic review; but, does not take into consideration the quality assessment of each article and may include potential bias (Arksey & O'Malley, 2005; Grant & Booth, 2009). Unlike a systematic review which is limited to using quality-assessed studies to answer a well-defined question, the purpose of a scoping review is to "provide an overview of the available research evidence without producing a summary answer to a discrete research question" and is not limited to any study, design, or quality of literature (Arksey & O'Malley, 2005; Peters et al., 2015; Sucharew & Macaluso, 2019, p. 1). Arksey and O'Malley (2005) was used to guide the following steps:

### 1. Identifying the research question(s).

The following two questions were developed for this study: (1) In what context does the peer-reviewed literature describe or reference the Canadian Interprofessional Health Collaborative Framework? (2) How does the peer-reviewed literature describe how the Canadian Interprofessional Health Collaborative Framework is used?

### 2. Identifying relevant studies.

Our team (PW & CL) consulted with a bibliographer at the University of Manitoba's. Neil John Maclean Health Sciences Library who helped guide the development of our search strategy, search terms, and data extraction tool. SCOPUS, Medline, CINAHL, PubMed, EMBASE, were searched for peer reviewed articles written in English between 2010 and 2021. The following journals were also hand searched: the Journal of Interprofessional Care, Journal of Interprofessional Education and Practice, Journal of Allied Health, Journal of Continuing Education in the Health Professions, Journal of Research in Interprofessional Practice and Education, and the International Journal of Practice-based Learning in Health and Social Care. Textbooks and grey literature were excluded. The search strategy is presented in Table 1.

**Table 1.** Search Strategy

| |
|---|
| **Databases Searched** |
| CINHAL with Full Text |
| EMBASE |
| Medline (Ovid) |
| PubMed |
| SCOPUS |
| **Journals Searched** |
| Journal of Interprofessional Care |
| Journal of Interprofessional Education and Practice |
| Journal of Allied Health |
| Journal of Continuing Education in the Health Professions |
| Journal of Research in Interprofessional Practice and Education |
| International Journal of Practice-based Learning in Health and Social Care |
| **Search Concepts** |
| "Canadian interprofessional health collaborative" OR "CIHC" |
| **Limitations** |
| English |
| 2010 – 2021 |

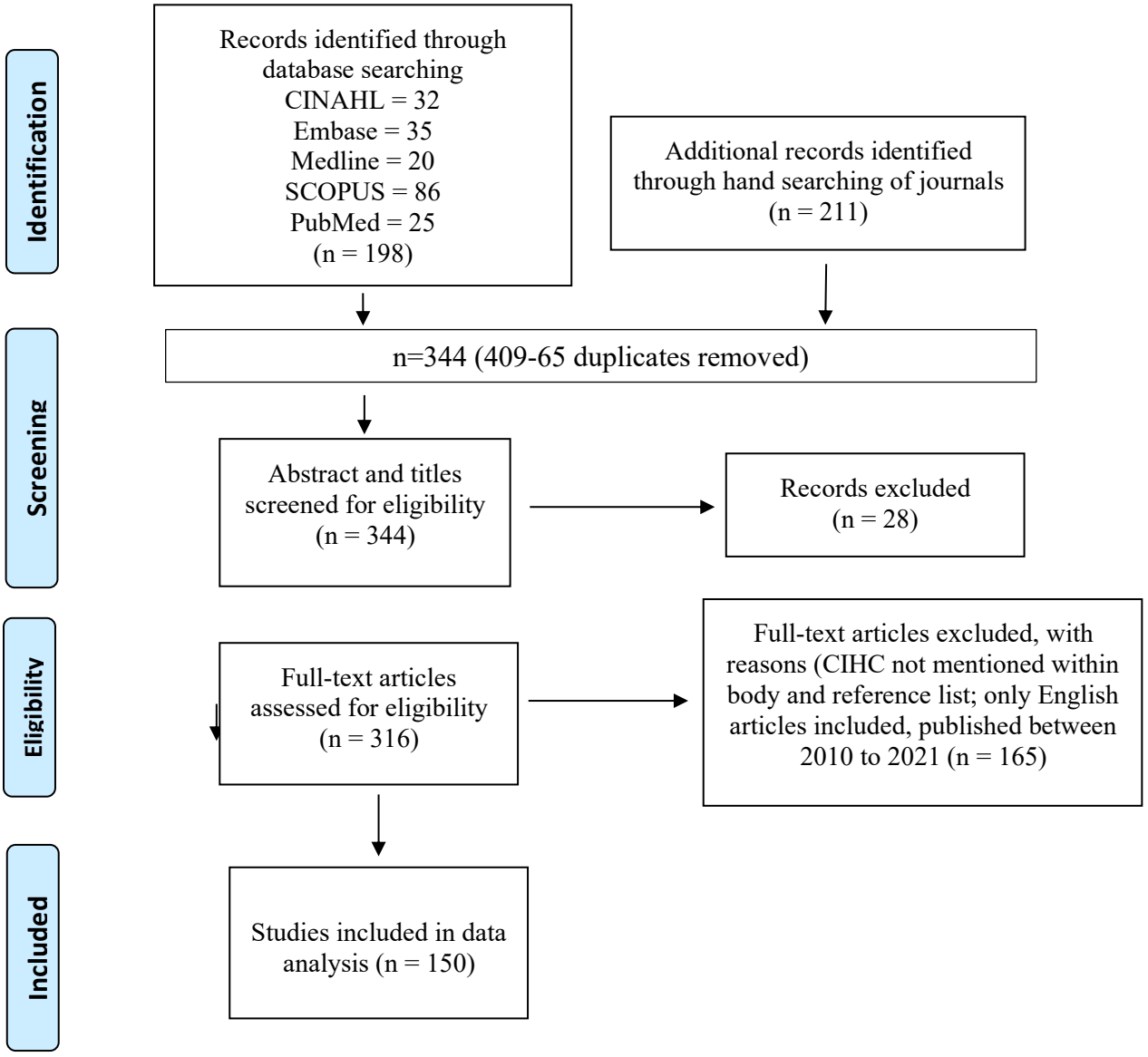
Search phrases were tailored to the specific database being used. Articles were included in the review if they contained information referring to the Canadian Interprofessional Health Collaborative Framework within the body of the article as well as having the CIHC National Competency Framework (2010) document in the reference list. Sources were not limited to any specific country but only articles written in English were included in this study.

**3. Study selection.**

A PRISMA flow diagram detailing this process and reasons for exclusion is provided in Figure 2.

Selected articles were managed using File Folders, Microsoft Teams platform and a Microsoft Excel matrix spreadsheet. Articles were uploaded to a "Master Search" folder. Reviewer (CL) screened each article's title, abstract, body, and reference list were screen for mention of the CIHC National Competency Framework (2010). Articles that were included in the study were placed into a folder and then uploaded to a folder on a Microsoft Teams platform for a second screen by PW and for full text review. The articles were reviewed for how the authors used the CIHC Framework. All relevant findings in relation to the CIHC Framework or core competencies were then inputted into an excel matrix spreadsheet.

Figure 2 PRISMA Flow Diagram (Moher et al., 2009)



**4. Charting the data.**

Data were extracted and entered into an Excel spreadsheet and was organized by title, author, year of publication, study methodology, location, how the CIHC Framework was used, and any relevant findings in relation to CIHC Framework or core competencies.

**5. Summarizing and reporting the results.**

Thematic analysis was completed using the charted data and through discussion by both reviewers (CL and PW) similarities were grouped and summarized, examining how each article discusses the National Competency Framework. This paper reports how the Canadian Interprofessional Health Collaborative Competency Framework is being referenced and used within the peer-reviewed literature.

## Results

A total of 408 articles were identified through our search. After duplicates were removed, abstracts were screened, and full texts were assessed for eligibility, 150 articles were included for this study. A breakdown of the countries included in the final selection is presented in Figure 3. Seventy-seven (51%) articles were Canadian, 27 (18%) articles were US and 16 (11%). were from Australia A total of 30 (20%) articles included in this review were from thirteen other countries.

The methodologies used by authors varied including qualitative (37%), mixed methods (15%) quantitative (7%), and review methodologies (7%). breakdown of the number of types of studies included and their methodologies is presented in Figure 4 and is further explored below.

**Figure 3. Countries of origin of the articles included in the literature review**

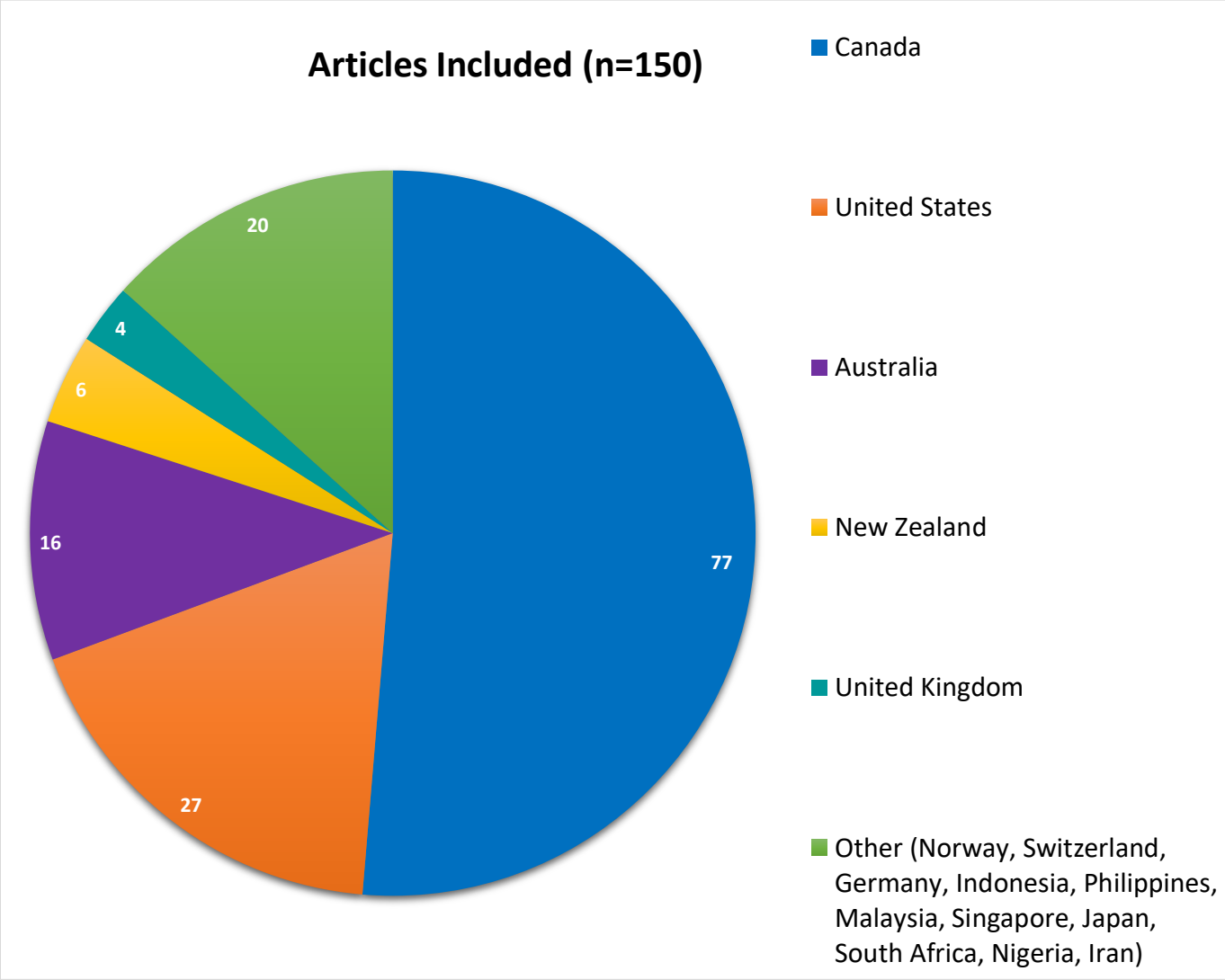
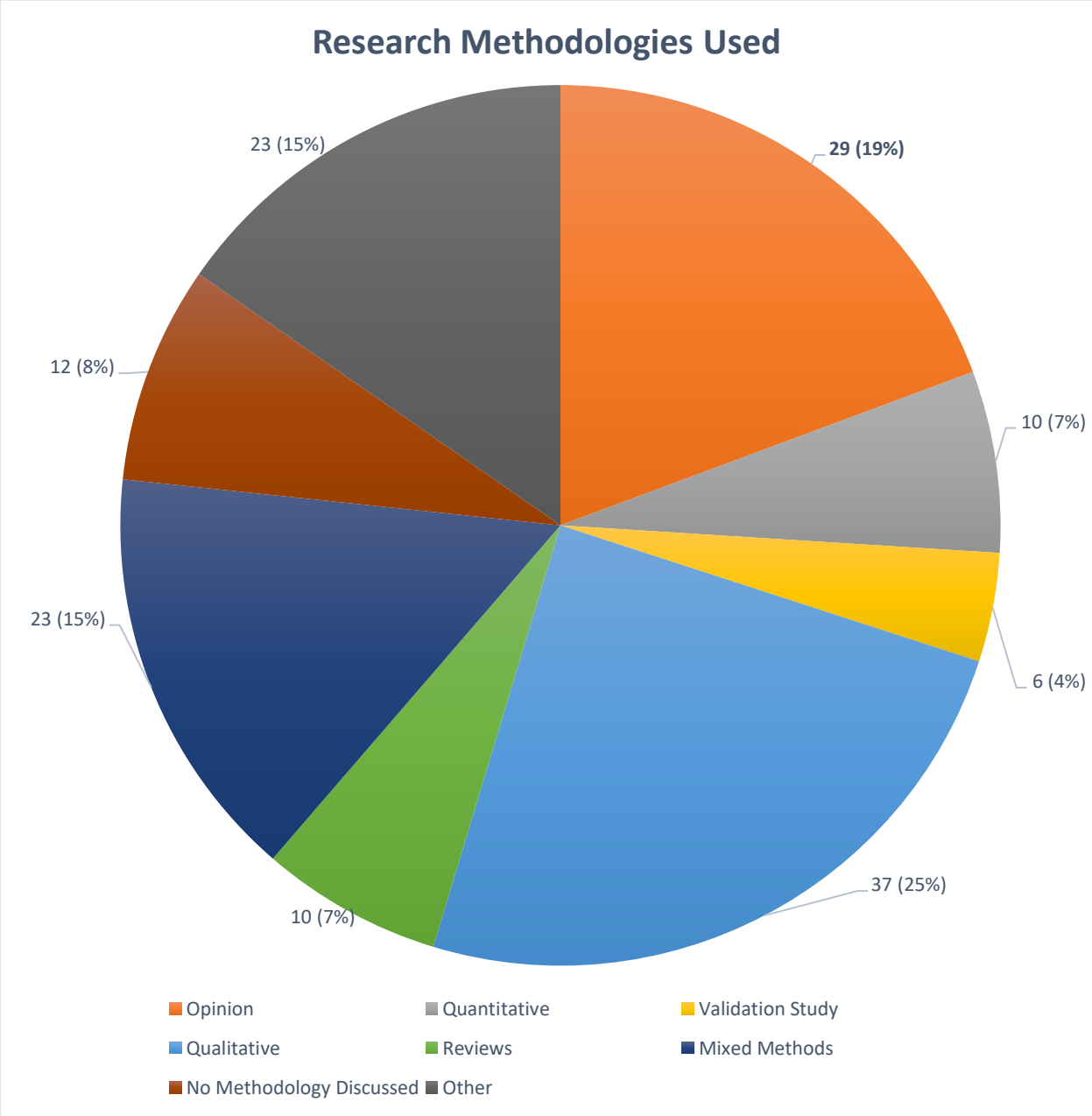


**Figure 4: Total number of types of study methodologies included in the study selection**



***Opinion Papers***

Twenty-nine (19%) of the articles included in this review were opinion based focusing on a topic where the author shared personal thoughts, beliefs, or feelings with the goal of persuading the reader of their position on the topic and that this position or claim is the best (Apus, 2017). Five (3%) of these publications discussed the history and progression of interprofessional education (IPE) and IPE-related concepts. Two of these five articles described the history of IPE in Canada from the 1960s to 2015 and the status of implementing IPE and IPC around the world (Gilbert, 2010; Hammer et al., 2011), one publication (n=1) described the history of using simulation-enhanced IPE for teaching in a healthcare setting (Palaganas, Epps, & Raemer, 2014), one article (n=1) described the history of IPE in various countries (Barr, 2013), and one (n=1) article described the CIHC organization, the national competency framework, and catalog of evaluation instruments used in IPE and practice-related projects across Canada (Lyons & Giordano, 2010).

Two articles (1%) described the benefits of IP collaboration in relation to policy, self-regulation, and health reform (Brownie et al., 2014; Lahey & Fierlbeck, 2016). One article outlined the weakness and theoretical strengths to legislating collaborative self-regulation in Canada and compares two approaches that could be used to encourage IP collaboration and regulation of healthcare providers in different provinces across Canada (Lahey & Fierlbeck, 2016). Another article described Australian IPE projects being informed by national IPE competency frameworks such as the Canadian national competency framework and UK models to help build IP practice into Australia's education and workforce (Brownie et al., 2014).

Three articles (2%) were opinion based and described IPE in the context of developing, facilitating, and supporting IPE and learning for healthcare professionals, educators, and students. One of these articles explored experiences of educators in teaching IPE curriculum to students by offering practical strategies that aimed to help first-time IPE teachers undertake IPE teaching methods (McKinlay et al., 2018). Another article described lessons learned from teaching an IP communication course for nursing students using the CIHC competency domains to develop weekly learning activities (Doucet et al., 2013). In a paper by Wagner & Reeves (2015) benchmarks for IPE learning highlighted the need for Entrustable Professional Activities (EPAs), currently specific for medicine, may help with assessment related to IPE and competency attainment. EPAs are defined as "units of professional practice, defined as tasks or

responsibilities to be entrusted to the unsupervised execution by a trainee once he or she has attained sufficient specific competence" (Wagner & Reeves, 2015, p. 1).

Eleven (7%) publications within these opinion papers, described the importance of implementing elements of IPE, collaboration, and CIHC competencies into course curriculum and IPE learning activities for graduate students (Doucet et al., 2013; King et al., 2017; Vanier et al., 2013; Webster, 2013). For example, an article by Vanier et al. (2013) described a three-year IPE program and curriculum at the University of Montreal designed to promote IP collaboration between healthcare professional students. A second publication described how increasing Interprofessional Socialization (IPS) fostered development of dual identity in students, that is, developing an interprofessional identity in addition to their existing professional identity (Khalili et al., 2013). Another article described implementation of an IPE Passport Program within a Dental Hygiene Degree Program to help students demonstrate learning in CIHC competency domains of role clarity, collaborative leadership, client-centred, interprofessional communication, team functioning, and conflict resolution (Kanji, Krekoski, & Lln, 2017). Dean et al. (2014) described an IPE clinical placement within a diabetes team guided by the six CIHC framework domains. Similarly, MacKenzie et al. (2014) described the IP collaboration that occurred in a large pre-licensure IPE experience known as the DalHousie Health Mentors Program (DHMP). In this program student teams learned about IP collaboration and patient/client-centred care through connections with community volunteer mentors who had chronic conditions. The DHMP was specifically designed to address the CIHC competency domains of interprofessional communication, patient/client/family/ community-centred care, and team functioning for student learning (MacKenzie et al., 2014). Another publication described the application of theories, relationships, and interprofessionalism that authors Hall, Weaver, and Grassau (2013) have used to guide their work in interprofessional education and collaborative interprofessional care. Hall, Weaver, and Grassau (2013) briefly mentioned use of the McMaster-Ottawa Team Observed Structural Clinical Encounter (TOSCE) which is a tool that has observers' rate participants as they work as a team, using a checklist to identify interprofessional competencies related to the CIHC framework. An article by Orchard & Bainbridge (2016) used the CIHC competency framework and graphic to describe what a collaborative practitioner looks like and how practice context can influence IP education. This article described how the CIHC competency framework can be used as a template to map IPE

curriculum to IPE and IPC competencies. They also suggested the framework can assist with providing a continuum of learning opportunities that can be measured accurately with tools such as the Assessment of Interprofessional Team Collaboration Scale (ATICS) (Orchard & Bainbridge, 2016). An additional article by Orchard et al. (2017) discussed the nurse leader's role within interprofessional teams and the potential impact their role may play within health care teams and further within health care systems.

Lastly, two (1%) opinion publications highlighted lack of universal language and the need to standardize terms used to define IPE concepts and competencies (Dean et al., 2014; Thistlethwaite et al., 2014). Thistlethwaite et al. (2014) compared the language between two interprofessional collaborative practice frameworks and found that the Interprofessional Education Collaborative (IPEC) replaced *mastery* with *competence*, which is used within the CIHC framework and is assumed to be achieved at the entry to practice level.

### *Comparative and Evaluative*

Fourteen articles (9%) used the CIHC competency framework to describe, compare, or evaluate other existing interprofessional competency frameworks. One article described use of the CIHC framework in comparing and evaluating interprofessional student outcomes in seven Canadian health professional programs including dietetics, medicine, nursing, occupational therapy, pharmacy, physiotherapy, and respiratory therapy (St. John et al., 2019). The researchers reported that the health professional roles of communicator, collaborator, and professional appeared in almost all profession specific frameworks, reinforcing inclusion of these roles in various interprofessional competency frameworks such as the CIHC (St. John et al., 2019). The authors also found that the principles of shared decision-making and team leadership were outlined within the collaborator role rather than located in their own separate competency (St. John et al., 2019).

Other articles acknowledged and adopted IPE language and definitions used within the CIHC framework. They suggested referencing CIHC material for guidance related to IPE development within their own countries. Zorek & Raehl (2013) conducted a document content analysis of twenty-three accreditation documents comparing IPE and IPCP-related accreditation statements for USA colleges and schools of dentistry, medicine, nursing, occupational therapy, pharmacy, physical therapy, physician assistant, psychology, public health, and social work.

Zorek & Raehl's (2013) study "demonstrates that US accrediting bodies lack a collective mandate for IPE, which is regrettable given that academic institutions must respond to accreditation requirements." (p.127) The authors further suggest that the IPEC and CIHC documents may provide a "solid foundation for competency development" for US health professional accrediting bodies (Zorek & Raehl, 2013, p.128). In addition, Zorek & Raehl (2013) also highlight the use of IPEC and CIHC domains in IPE-related language. Lyons and Giordano (2010) describe the American Interprofessional Health Collaborative (AIHC) "which is loosely modeled after efforts in Canada, particularly the Canadian Interprofessional Health Collaborative" (Lyons & Giordano, 2010, p. 1). Gum et al., (2013) highlighted the CIHC framework, in addition to other national and international institutions, as guiding development of IPE and interprofessional practice in the United States. Gum et al. (2013) described how the CIHC framework falls within the definition of a "genuine" framework as proposed by Bartram (2012, p. 455). A genuine framework consists of the following: "an articulated set of relationships, defines the nature of the components of a model, specifies how those components relate to each other and how they relate to other constructs (performance, personality, etc.) that sit outside the framework and is evidence-based" (Bartram, 2012, p.3). Aase, Aase, and Dieckmann (2013) from Norway, described how the CIHC responded to the world Health Organization's Framework for Action on Interprofessional Education and Collaborative Practice which called for a strengthening of interprofessional teamwork in educational programs, by creating websites that offer competency-based frameworks for IPE and teamwork. Lastly, Grace et al. (2017) noted that the CIHC framework along with other international frameworks have been paramount in assisting with understanding effective interprofessional practice and what it looks like.

Other articles draw on the CIHC competency domains to determine if interprofessional frameworks and their competency domains can be applied to other countries. In Australia, Curtin University adapted the CIHC framework and the Sheffield Hallam University Interprofessional Capability Framework to create the Interprofessional Capability Framework. This resulting framework reflected competency domains from the CIHC framework including client/family/community centred care, team functioning, role clarification, and interprofessional conflict resolution (Brewer, 2013). An article by Haruta et al. (2018) compared the Japanese Interprofessional Competency Framework to the CIHC framework. Results from this study

indicated that competencies for interprofessional collaboration developed in non-Japanese settings were not applicable to Japan due to cultural and language differences. They suggested this was due to the Japanese unique healthcare system with limited resources to coordinate integration of health services, and a lack of post-licensure interprofessional collaboration efforts to achieve competency standards across settings (Haruta et al., 2018). A second article aimed to explore collaboration among physicians, nurses, midwives, and pharmacists in public health centres in Denpasar, Gianyar, and Tabanan Regencies in Bali, Indonesia (Ernawati, 2019). Collaborative competencies generated from their study included culture (competent in own professions), attitude (value and ethics in collaboration, knowledge (understand the role and responsibility of others), and skills (communication, coordination, leadership skills) which were mapped against those found in the literature. Collaborative leadership, interprofessional communication, and patient centred care from the CIHC framework as well as values and ethics in collaboration and roles and responsibilities from the IPEC framework were included (Ernawati, 2019). Results from Ernawati's work indicated that themes and competencies were context and country specific such that instead of "collaboration", "coordination" was identified as a core theme in public health centres in Indonesia (Ernawati, 2019).

### *Terms and Definitions*

Twenty-three articles (15%) use the CIHC framework to define IP terms and concepts within their studies. Many articles referenced the CIHC framework to define goals and terms of "interprofessional collaboration," (Brander, Paterson, & Chan, 2013; Davis, Hercelinskyi, & Jackson, 2016; Keshmiri et al., 2017; Levett-Jones et a., 2012; Murdoch, Epp, & Vinek, 2017; Nguyen et al., 2018; Schroder et al., 2011; Soklaridis et al., 2017) "interprofessional education," (Cloutier et a., 2015; Lapkin, Levett-Jones, & Gilligan, 2012) "interprofessional care," (Sur, 2020) "interprofessional practice," (Steketee et al., 2014) "collaborative practice" (Ambrose-Miller & Ashcroft, 2016; Webster et al., 2012) and "readiness for interprofessional communication" (Murdoch et al., 2018). One article described elements that enable effective IP collaboration (Lapkin, Levett-Jones, & Gilligan, 2011). An additional article, IPE definitions from the CIHC framework were used to define "competency domain" and "competency statement" (Haruta et al., 2018). Sonnenberg et al. (2018) focuses on the ambiguity surrounding the definition of leadership and lack of clarity among clinicians. These authors pose various

definitions and perspectives around the topic of leadership: *collaborative leadership* is "viewed as pulling together to increase engagement" (Sonnenberg et al., 2018, p. 178), *situational leadership* is "task-specific, with no clear 'best' style of leadership emerging (Sonnenberg et al., 2018, p. 178), and The Canadian Society of Physician Leadership study defines *informal/voluntary leadership* as activities "for which you do not receive direct compensation, that focus on the art of inspiring, enabling, and encouraging people to maximize their talents in the interests of improving your health care system" (Snell et al., 2016, p.265).

Four articles defined specific competency domains relating to role clarification, collaborative teamwork, and interprofessional communication within their studies (Dogba et al., 2020; Hudson et al., 2017; Lee, Bristow, & Wong, 2018; Paterson et al., 2013). Lastly, two articles briefly mentioned the CIHC's role in defining competency domains with the CIHC recognizing the importance of IPE initiatives that enable "health professionals to learn about, from, and with one another" (Hall et al., 2014; Price, Doucet, & Hall, 2014, p.104).

### *CIHC Competency Domains Used for Analysis*

Authors of seven articles (5%) used the CIHC national framework competency domains to code their study data. Brown et al., (2020) used the CIHC competency domains to code focus group transcripts from family medicine residents to understand IP collaboration in this setting. The authors reported that data for improving IP collaboration and creating an ideal collaborative practitioner fell within domains of role clarification and team functioning (Brown, et al., 2020). In addition, the CIHC domains of interprofessional communication and client-centred care facilitated residents to learn about collaboration (Brown et al., 2020). MacKenzie et al., (2017) described a program evaluation of an interprofessional collaboration in stroke care simulation activities where teams constructed and submitted collaborative plans for patient care. The findings were guided by the CIHC competencies and generated three main themes which included role clarification, team functioning, and communication and one subtheme of conflict resolution (MacKenzie et al., 2017). A third article highlighted effects of an interprofessional socialization program intervention on pre-licensure healthcare students (Khalili & Orchard, 2019). The authors described the main theme, learning to collaborate, that included sub-themes for all six CIHC competency domains (Khalili & Orchard, 2019). A fourth article examined the implementations of collaborative competencies in a critical care setting (Goldman, Kitto, &

Reeves, 2018). This study by Goldman, Kitto, and Reeves (2018) used participant observation and interviews over six months, with healthcare staff to obtained insight into perspectives, behaviours, and interactions of IP collaboration in a Canadian community hospital's medical surgical ICU. Data were coded using both competency domains from the CIHC and IPEC frameworks and included themes and responses in areas of interprofessional communication, role understanding, and teamwork (Goldman, Kitto, & Reeves, 2018). Another article reviewed information communication technologies or telemedicine literature to determine facilitators and barriers to IP collaboration in their use (Graves & Doucet, 2016). Data extraction involved coding relevant findings to specific facilitating or interfering behaviors for each CIHC competency (Graves & Doucet, 2016). This coding method was abandoned due to its forced deductive nature and inability to capture the range of information that was reflected in the literature. (Graves & Doucet, 2016). An article by Retrouvey et al. (2020) highlighted how interprofessional collaboration affected delivery of breast reconstruction to breast cancer patients. The authors used the CIHC framework to code themes related to four central competencies – role clarification, team functioning, interprofessional conflict resolution, and collaborative leadership (Retrouvey et al, 2020). A final study by Reade et al. (2016) examined interprofessional learning outcomes of a wilderness medicine educational event (WildER Med). Audio diary transcripts from participants were coded into the six CIHC competency domains and themes were generated (Reade et al., 2016). Authors found that student comments were reflective of the CIHC framework position that communication and patient-centred care supported other interprofessional competency domains (Reade et al., 2016).

***Assessment Tools***

Fifteen articles (10%) described assessment tools such as surveys, questionnaires, and checklists designed using the CIHC competency domains, to measure changes in areas of IP collaboration and competency. The authors of four of these articles described use of the Interprofessional Collaborative Competency Attainment Survey (ICCAS) developed to reflect constructs embedded in the CIHC framework (Archibald et al., 2014; King et al., 2016; Lauckner et al., 2018; Lunde et al., 2020;. Schmitz et al., 2017; Singer et al., 2018) The ICCAS tool was designed to assess change in interprofessional collaboration competencies for healthcare students and clinicians before and after IPE training interventions (NCIPE, 2016). One article by Curran et al. (2011) described development and validation of the Interprofessional Collaborator

Assessment Rubric (ICAR) which can be used as a complementary assessment instrument to the CIHC framework. Authors stated that the ICAR addresses a lack of assessment of interprofessional collaborative competencies in situ and over time (Curran et al., 2011). Authors claimed the ICAR provides a means of assessing the overall development of a health care team or team of students' interprofessional collaborative competencies in situ and over time (Curran et al., 2011). An article by Shirazi et al. (2018) described the Interprofessional Collaboration Transtheoretical Model (IPC-TTM) questionnaire instrument developed using the CIHC competency domains and the IPEC framework. The authors concluded that the IPC-TTM was key to determining an individual's readiness to change related to interprofessional collaboration. That is, how an individual progressed from the stage of not thinking about change, towards making a change in behavior and maintaining it (Shirazi et al., 2018). Authors of three articles discussed the Assessment of Interprofessional Team Collaboration Scale (ATICS) which measures interprofessional competencies in teamwork, IP communication, learning, collaboration, and socialization (Mink et al., 2020; Orchard & Bainbridge, 2016; Orchard et al., 2017). The ATICS emphasizes respondents' role as a team member in interprofessional collaboration and was reported to have the highest rated concept coherency for collaboration (Mink et al., 2020; Orchard & Bainbridge, 2016). Davis et al. (2013) introduced the McMaster-Ottawa Team Observed Structured Clinical Encounter (TOSCE) which is a standardized observer score sheet containing a checklist based on interprofessional competencies related to the CIHC competency domains. The TOSCE has been used in palliative care and primary health care teams to assess interprofessional collaboration and performance of students and their clinical teams (Davis et al., 2013). One article mentioned creation of the Chiba Interprofessional Competency Scale used in Japan based on the consensus of value-based competencies in interprofessional collaborative practice developed in the UK, USA, Canada, and Japan (Sakai et al., 2013). An article by King and Violato (2019) discussed use of the Interprofessional Attitude Scale (IPAS) with a Canadian cohort of students. Authors stated that although the IPAS was developed using the IPEC competencies from the United States it was deemed satisfactory to use with a Canadian cohort of students despite having different competency domains than the CIHC framework (King & Volato, 2019). A final article highlighted the diverse collection of tools and evaluation methods for IPE data collection while providing examples of key instruments for assessing learner's interprofessional competencies (Blue et al., 2014). This article by Blue et al.,

(2014) commented on the CIHC repository of assessment tools and the need for more robust evaluation processes that focus on longitudinal forms of assessment (eg., multiple sources of feedback) opportunities to assist with a continuum of IPE knowledge and skill growth (Blue et al., 2014). A conclusion from these authors lends to the greater need for multiple methods of assessing learners using such approaches as IPE portfolios with a greater focus on IP competency assessments grounded in behaviorally based clinical assessments from preceptor observations (Blue et al., 2014).

### *Practice Setting*

Twenty articles (13%) were used to determine the extent of interprofessional collaboration occurring in a practice setting and one article was a program evaluation.

#### Hospital and Clinic Setting.

Authors of eleven articles (7%) aim to quantify or qualify interprofessional practice occurring within a hospital or clinic setting. The authors of five of these articles describe collaborative competencies in critical care settings such as medical or surgical units and intensive care units (Dunn et al., 2018; Goldman, Kitto, & Reeves, 2018; Hepp et al., 2015; Lam et al., 2018; Retrouvey et al., 2020). Many articles describe interprofessional collaboration occurring in clinical settings such as the concept of interprofessional communication through sharing (information, deliberations, decision-making, communicating aspects of patient coordination and continuity of care) (Dunn et al., 2018; Goldman, Kitto, & Reeves, 2018) as well as team functioning and collaborative teamwork (participating in bedside and clinic rounds, working with co-workers and stakeholders) (Casimiro et al., 2015; Goldman, Kitto, & Reeves, 2018). Several articles discuss barriers that contribute to ineffective interprofessional collaboration in the practice setting such as pressure for discharge, patient flow, staffing, lack of prioritizing engagement with other healthcare professionals due to patient time demands and time required for medical education, lack of provider utilization and understanding scope, unresolved conflicts, and physician expectations in leadership role or a lack of defined leadership roles (Goldman, Kitto, & Reeves, 2018; Hepp et al., 2015; Lam et al., 2018; Sonnenberg, Pritchard-Wiart, & Busari, 2018). Two additional articles, Goldman et al. (2018) and Hepp et al. (2015) specifically highlight the need for increased communication related to teamwork on an intensive care unit and medical and surgical unit during team rounds. An additional author

describes the lack of effective IP collaboration related to lacking CIHC competency domains including, leadership, role clarification, teamwork, and conflict resolution between physicians, plastic and general surgeons, radiation, medical oncologists, and administrators in delivery of breast reconstruction (Retrouvey et al., 2020). Dunn et al. (2018) highlight the importance of the concept of "sharing" and using a model of practice where the team comes to the patient rather than a patient coming to see individual health care providers. Lam et al. (2018) suggests that by improving one CIHC competency domain of role clarity, healthcare professionals will be more willing to initiate and engage in collaboration which can lead to enhanced efficiency, better IP communication, and improvements in patient safety. Craig et al. (2020) discusses the benefits that social workers bring to enhancing IPC in their ability to create a foundation for active communication and their role in building and strengthening relationships within the team which are critical for communication and effective team functioning. Another article by Farrell et al. (2018) references the competency domains of role clarification, patient-centred care, team functioning, and communication about the management of polypharmacy in a geriatric care team in a subacute hospital. One article by Hansen et al. (2017) described interprofessional practice being used in program evaluation of a nurse practitioner-led interprofessional geriatric outpatient clinic. In the discussion section, the authors provided examples of clinicians enacting the six CIHC competency domains to measure interprofessional collaboration within this setting (Hansen et al., 2017). Authors noted that a geriatric outpatient program inherently fostered interprofessional collaboration because of the need for interdependence between healthcare professionals when working with adults experiencing multi-morbidities (Hansen et al., 2017).

**Primary Care Setting.**

The authors of six (4%) articles described primary care interprofessional practice (Burns, 2014; Josi, Bianchi, & Brandt, 2020; Pullon et al., 2016; Salm, 2017; Szafran et al., 2018; Wener & Woodgate, 2016; Zheng, Sim, & Koh, 2016). Josi, et al. (2020) described the CIHC competency domains of role clarification, team functioning, collaborative leadership, and conflict resolution enacted by advanced practice nurses (APNs) and general physicians' perspectives of APNs in a Switzerland primary care facility. An article by Zheng, Sim and Koh (2016) compared attitudes of IP collaboration between primary care physicians and nurses in Singapore and noted that nurses had more positive attitudes than physicians. Nurses with advanced education had more positive attitudes than nurses with basic education. In the

discussion, these authors suggested that the CIHC (2010) competencies could guide further IPC development (Zheng, Sim, & Koh, 2016). Szafran et al. (2018) described family physicians' perspectives on facilitators and barriers to IP teamwork. Facilitators included both IP communication and defined roles and responsibilities. Not surprising then, Szafran et al. (2018) found three barriers to developing IP collaboration which included: (1) a lack of role clarity and undifferentiated network boundaries, (2) a lack of trust and respect over a culture of power and control, and (3) a lack of a consistent team required in the primary care context. Authors from New Zealand (Pullon et al., 2016) highlighted aspects of team functioning including shared goals and team climate to facilitate IP collaboration. These authors also highlighted the macro and micro level contextual factors in IP collaboration in primary care. Contextual macro-level factors included the built environment, practice location, demographics, and business model, while the micro-level contextual factors included practice structure (Pullon et al., 2016). Burns (2014) highlighted that the use of the Transtheoretical Model (TTM) when used in during collaborative encounters within interprofessional settings can assist mental health counselors by working through interprofessional issues from one stage of change to another. For example, relating to team functioning, "the mental health counselor in interprofessional practice would productively work with a team or team member in the precontemplation stage by (a) offering factual information, (b) exploring the meanings of events that brought a concern to be raised, (c) exploring the results of previous efforts to resolve the concern, and/or (d) exploring the pros and cons of the team making a change" (Burns, 2014, p. 161). An article by Salm (2017) discussed how the CIHC model complimented other school-based mental health models in guiding relationships and collaboration. The study findings found that four of the six CIHC competencies, role clarification, client/family-centredness, communication, and team functioning are core competencies for health professionals working with youth having dual diagnoses in a school setting (Salm, 2017).

**Rehabilitation.**

Szafran et al. (2018) explored how discrepancies in role clarification (role, skill level, and responsibility) among Australian occupational therapists and physiotherapists can lead to a lack of understanding of each other's professional values and barriers in working as cohesive teams. Seko et al. (2019) described the impact of implementing team-based approaches such a solution-focused coach training sessions involving pediatric specialists, students, non-clinical staff,

practice leadership, and families of young clients. They found increased IP collaboration resulting in improvements in client-centred care and health outcomes (Seko et al., 2019). In a systematic review by Körner et al. (2016) examined teamwork in rehabilitation or chronic care settings. The authors used the CIHC Competency Framework as an indicator of the key factors that enhanced interprofessional teamwork and team interventions in rehabilitation and chronic care.

### *Academic, Learning, and Teaching Context*

Fifty-four articles (36%) in this review explored CIHC competency framework concepts in IPE, pre-licensure and post-licensure.

#### Pre-Licensure.

Most articles about pre-licensure IPE described student participation in IPE experiences through simulations, activities, programs, and practice education. Seven articles described how competency domains were introduced and incorporated into students' simulation enhanced IPE and measured changes in IPE perceptions and attitudes (Dounis et al., 2013; Gordon et al., 2017; Hurst et al., 2017; King et al., 2016; King et al., 2019; Konrad et al., 2017; Kraft et al., 2013; Rowland, 2011). Examples of simulation activities included scenarios where healthcare teams worked with families and clients experiencing declining and multi-morbid health conditions (eg. respiratory illness and Type 2 Diabetes). Other scenarios required patient-care discharge transitions across settings which required application of discipline-specific skills and handoff communication (Dounis et al., 2013; Gordon et al., 2017; Hurst et al., 2017; King et al., 2016; Kraft et al., 2013; Umland, et a., 2016).

Ten articles (7%) described student IPE opportunities or activities such as participation in IP Day, IPE projects, shadowing experiences, and attending IPE community events and workshops. Two articles discussed students' participation in interprofessional education days and initiatives to evaluate introductory knowledge of IP collaboration and interest (Flood et al., 2014; Singer et al., 2018). Two additional articles described students' involvement in IPE projects related to participation in clinical setting focus groups and virtual clinical learning experiences (Davis, Hercelinskyi, & Jackson, 2016; Naumann et al., 2020). Another two articles reviewed student reflections on front-line care worker shadowing experiences of residents in a long-term care placement. These reflections and observations provided opportunities related to their

perceptions on professional identity and collaborative practice (Lauckner et al., 2018; Wright et al., 2012). A single article within a aphasia camp to gain insight into IP experiential learning to gain insight into competencies experienced in real practice (King et al., 2019). An article by Snyman and Geldenhuys (2019) described first year students' exploration of health social determinants of residents in an underserved community when divided into interprofessional groups. In this article, Snyman and Geldenhuys (2019) offered a comparison between domains of "Commitment to The Person" seen in Fehrson's Person-Complexity-Commitment Model to that of "Person-Centredness" seen in the CIHC framework. Two other articles described student-led interprofessional care clinics used to facilitate interprofessional education for students nearing graduation (Kent et al., 2013; O'Brien, Swann, & Heap, 2015). One of these articles described how using Wenger's Communities of Practice model as a framework for organizing student-led interprofessional healthcare clinics can assist with developing similar interprofessional university clinics tp promote using a more macro lens when considering health care services (O'Brien, Swann, & Heap, 2015). Two further articles described CIHC competency domains embedded into workshops for nursing, family medicine residents and industrial engineering students (Lee, Bristow, & Wong, 2018; Flynn et al., 2012). A final article highlighted the creation of an interprofessional clinical teaching workshop at Western University aimed at preparing clinical teachers in guiding students in collaborative teamwork within the practice setting (Orchard et al., 2017). This article by Orchard et al. (2017) explained how using mediators in Pettigrew and Tropp's Intergroup Contact Theory such as reductions of anxiety, increased empathy and respect towards each other, and clarification of roles can lead to assisting students in learning IP competencies. Articles by Arenson et al., (2015) and Doucet et al., (2014) described students' involvement in a mentorship program with community health mentors and using course modules guided by the CIHC framework. Mentors were volunteer adults living with one or more chronic health condition or disabilities. Modules included "(i) obtaining a comprehensive life and health history, (ii) preparing an interprofessional wellness plan, (iii) assessing patient safety in the home and reducing medical errors, and (iv) appropriate use of drugs, herbals, and vitamins" (Arenson et al., 2015, p. 139). An additional article described a five-session Interprofessional Team Immersion (IPTI) program for health profession students where CIHC core competencies were introduced and measured following team-building exercises, case-based learning, and simulation (Konrad et al., 2017). Another article described the CIHC framework's role in guiding a ten-

week IP gross anatomy dissection course at McMaster University. In this course students developed their skills in domains of role clarification, team functioning, communication (Zheng et al., 2019). Feather et al (2017) described a study of senior nurses and 3rd year medical students that focused on determination of repeated exposure to coaching on and its impact on individual and team communication skills with patients experiencing chronic diseases. Lastly, one article discussed practicum experiences where students used the CIHC framework to develop a web-based training video and toolkit to facilitate IP collaboration (Brault et al., 2015). A further article described nursing students engaged in various IP team experiences within weekly meetings, shadowing, observing staff team meetings) focused on developing care plans and recommendations (Lauckner et al., 2018). Objectives of this study were to increase students' IP competencies in six domains identified by the CIHC framework (Lauckner et al., 2018).

Thirteen articles described how the CIHC framework had in some way guided and shaped curriculum development relating to course content, implementation of core IP principles and concepts, and development of learning modules. Ten articles described implementation of the CIHC framework and competency domains being referenced or guiding development of educational curricula, course content, and assessment and evaluation of IP constructs or IP educational outcomes (Abu-Rish et al., 2012; Ateah et al., 2010; Greer & Clay, 2010; Jones et al., 2015; Lapkin, Levett-Jones, & Gilligan, 2012; Maddock, Kumar, & Kent, 2018; McLaney et al., 2019; Murdoch, Epp, & Vinek, 2017; Snyman, Von Pressentin, & Clarke, 2015; Steketee et al., 2014; Tong et al., 2020; Venville & Andrews, 2020; Wong et al., 2016). One of these articles described a web-based cross-sectional survey used to gather information from Australian and New Zealand universities offering IPE experiences where the CIHC framework and definition of was used to determine if criteria for an IPE activity was met (Lapkin, Levett-Jones, & Gilligan, 2012). Another article described creation of virtual patient case-based learning modules on the topic of family planning and assessment of CIHC domains related to these modules (Wong et al., 2016). Two articles described assessment and evaluation of interprofessional health educational programs in public and private health educational institutions (Greer & Clay, 2010; McLaney et al., 2019). One of these articles described creation, development, and peer review of an instrument that assessed CIHC domains within an interprofessional health educational program (Greer & Clay, 2010). Another article described data collections related to a needs assessment using questionnaires, focus groups, and key stakeholder interviews from multiple professionals

and professions to inform ongoing education planning in both profession-specific and interprofessional learning needs (McLaney et al., 2019).

The remaining articles in this section discuss assessment of educators and students' IP domains, attitudes, interests, and readiness to teach or learn. Thirteen of these articles (n=13) measured change in students' pre and post IP values following an IP intervention (Ambrose-Miller & Ashcroft, 2016; Cervantes-Sudio, Ganotice, & Navarro, 2020; Delisle et al., 2016; Domac et al., 2015; Grace, 2020; Hall et al., 2011; Huebner et al., 2020; Jones, Ingram, & Forbes, 2020; Lachini et al., 2019; Lauckner et al., 2018; Ripat et al., 2014; Singer et al., 2018; Wong et al., 2016). In contrast, two more articles described IPE experiences associated with facilitators perceptions related to their own IP learning and collaborative practice, their readiness to teach IPE, and understanding and appreciation of roles of other health professionals (Chelliah, Mohamad, & Efendle, 2015; Evans et al., 2016).

**Post-Licensure.**

Six (4%) articles discussed the creation of educational materials, legislating policy related to healthcare disciplines, and continuing competency (Arain et al., 2017a; Arain et al., 2017b; Card et al., 2014; Dogba et al., 2020; Regan et al., 2015; Richard, Gagnon, & Careau, 2018). Two of these articles discussed IPE related to Internationally Educated Health Professionals (IEHPs) (Arain et al., 2017a; Arain et al., 2017b). The first article identified Canadian Learning Resources for IPE that currently exist in programs across Canada which focus on supporting IEHPs in meeting licensing criteria, gaining skills working in the Canadian health care system, cultural competency, and aspects of interprofessional competence (Arain et al., 2017b). The second article described implementation of an Interprofessional Competency Toolkit comprised of modules based on the six domains of the CIHC to improve IEHPs understanding of IPC in Canada (Arain et al., 2017a). The Regan et al (2015) article discussed content analysis of legislative changes related to IPC through professional college documents and interviews with representatives. Activities, strategies, and collaborations taking place within health professions regulatory colleges were included (Regan et al., 2015). This article also noted that the CIHC has the capacity to help achieve consensus on principles of IPC, but that there is also a lack of the competency frameworks ability to inform future work on how IPC can be enacted at the regulatory level (Regan et al., 2015). A literature review by Richard, Gagnon, and Careau (2018) discussed how participation in team reflective practice can support collaborative attitudes of

openness, trust, respect, and intellectual honesty. Two other articles discussed practitioners continuing competency related to reflective practice including the importance of role clarification (Card et al., 2014; Richard, Gagnon, & Careau, 2018). In the former article postgraduate medical trainees and both their intra and interprofessional health care provider roles within acute care environments. They found a lack of consensus in the discharge role of patients (Card et al., 2014). A final article discussed the impact on shared decision-making among home care teams from their participation in workshops. Workshops comprised role play exercises, videos and observational tools designed to increase team collaboration with seniors and their caregivers (Dogba et al., 2020). The above homecare workshop utilized the CIHC framework and competency domains of role clarification, conflict resolution, team functioning, and collaborative leadership to help guide the creation of workshop of materials and learning strategies for home care staff (Dogba et al., 2020).

**Discussion**

Results of this scoping review revealed many ways that the CIHC Framework and competency domains are being used in literature. Many articles discussed the opinions of authors who shared user experiences or benefits in using the CIHC framework and competency domains to teach IPE, concepts of IPC, and what IP collaboration should look like (Dean et al., 2014; Doucet et al., 2013; MacKenzie et al., 2014; McKinlay et al., 2018; Wagner & Reeves, 2015). Other opinion papers shed light on the differences in undergraduate programs and how different disciplines can offer unique contributions to IPE and IPC within academic and clinical settings (Kanji, Krekoski, & Lln, 2018; Orchard et al., 2017). For example, the impact of the nurse leader's role within health care systems and interprofessional health care teams by offering team-based collaborative leadership. Nurse leader roles were reported to facilitate elements of interprofessional collaboration in role clarification, team functioning, interprofessional communication, and collaborative leadership competencies (Orchard et al., 2017).

It is evident that the CIHC Framework was widely used both nationally and internationally as a reference to help build and guide existing frameworks, policy, and programs (Brashers, Haizlip, & Owen, 2019; Ernawati, 2019; Grace et al., 2017; Gum et al., 2013; Haruta et al., 2018; Vincent-Onabajo, Mustapha, & Gujba, 2019). The CIHC Framework was used as a resource to compare, evaluate, and act as a source of reference for existing interprofessional

framework and IPE competencies seen in the United States, Australia, United Kingdom, Sweden, Norway, Japan, and Indonesia (Ernawati, 2019; Gum et al., 2013; Zorek & Raehl, 2013; Brewer, 2013; Aase, Aase, & Dieckmann, 2013; Haruta et al., 2018). Two articles originated from Japan and Indonesia reported the CIHC Framework and competency domains were used to understand how interprofessional frameworks and collaborative practice differed in their countries. The authors ultimately concluded that collaborative competencies were both context and country specific (Ernawati, 2019; Haruta et al., 2018).

The CIHC was notably used in defining key IP terms related to IPE, IPC, and competency domains. At the same time the literature displayed a wide range of language use highlighting the lack of consensus definitions related to interprofessional learning. This lack of consensus can be seen among many frameworks. For example, the "IPEC uses exposure and immersion language of the CIHC but replaces *mastery* with *competence*, which is assumed to be achieved at the entry to practice level" (Gum et al., 2013). Furthermore, the CIHC framework and framework proposed in an Indonesian healthcare setting described themes and competency domains of coordination instead of collaboration (Ernawati, 2019). It appears that language in countries outside of English may limit use of some terms in the CIHC framework and domains. An additional article debated the terms *capabilities* as opposed to the term *competency* indicating a lack of understanding in these definitions (Gum et al., 2013). Lastly, there was lack of clarity surrounding definitions of "leadership" emphasizing a need to delineate between *collaborative leadership, situational leadership,* and *informal/voluntary* (Snell et al., 2016; Sonnenberg, Pritchard-Wiart, & Busari, 2018).

The CIHC framework has also been widely used as a guide in coding and generating themes and subthemes to better understand concepts of IPE and IPC in various settings. Many articles reported the CIHC Framework helped code data collected from surveys, questionnaires, clinical observations, and focus group and audio diary transcripts leading to better understanding of how IPE and IPC is taking place within reported academic or clinical context. In addition to analyzing data, the CIHC Framework has also been used to develop and create assessment tools for data collection and measuring various outcomes related to interprofessional learning for example the National Center for Interprofessional Practice and Education's survey, ICCAS (Archibald, Trumpower, & MacDonald, 2014; Lunde et al., 2020; NCIPE, 2016; Schmitz et al., 2017; Singer et al., 2018), ISVS (King et al., 2016), ICAR (Curran et al., 2011), IPC-TTM

(Shirazi et al., 2018), ATICS (Mink et al., 2020; Orchard & Bainbridge, 2016; Orchard et al., 2017), TOSCE (Davis et al., 2013), Chiba Interprofessional Competency Scale (Sakai et al., 2013), and IPAS (King & Volato, 2019). Although many articles used the CIHC framework and the competency domains in data analysis, Graves & Doucet (2016) proposed that using the framework for coding data can lead to forced and deductive natures resulting in missed information.

The CIHC Framework has been used in practice settings to capture, quantify, and better understand how IPC was occurring in certain environments. The CIHC framework has also been used to help determine the level of IPC occurring within a wide range of clinical settings such as clinical wards and medical units, primary care, and outreach and rehabilitation settings (Dunn et al., 2018; Goldman, Kitto, & Reeves, 2018; Hepp et al., 2015; Lam et al., 2018; Retrouvey et al., 2020). It has furthermore been used to help understand quantitative information such as the frequency of IPC occurring in a setting and qualitative information such as what IPC might look like in practice (shared decision making, team rounds, problem solving, collaborating with other healthcare professionals and patient/family). A specific example can be seen where the CIHC Framework was used to plot and understand how competency domains where being enacted through clinical encounters. It focused on how the CIHC competency domains affected hospital outcomes in delivery of reconstructive surgery for breast cancer patients (Retrouvey et al., 2020). Many articles described the benefits of IPC in practice when multiple professions are involved in managing patients with chronic care needs in helping enhance patient health outcomes and quality of care (Craig et al., 2020; Farell et al., 2018). Facilitators that contributed to effective IPC in a clinical setting included: a practice concept of "sharing" and using a model where teams comes to patients instead of patients coming to individual healthcare providers (Dunn et al., 2018). The colocation of healthcare providers, following establishing appropriate payment mechanisms, had enhanced communication, trust and respect, defined roles and responsibilities, leading to abilities to perform task shifting to other health professionals (Szafran et al., 2018), and shard decision making (Pullon et al., 2016). Reported barriers that contributed to ineffective IPC in a clinical setting included: pressure for client discharge, high patient flow environments, lack of prioritizing IP learning, lack of provider utilization and understanding scope of practice of others, unresolved conflicts, physician expectations in the leadership role and lack of defined leadership roles (Goldman, Kitto, & Reeves, 2018; Hepp et al., 2015; Lam et al., 2018;

Sonnenberg, Pritchard-Wiart, & Busari, 2018). Undefined roles and responsibilities, lack of space, frequent staff turnover, network boundaries, and a culture of power and control also contributed to IPC barriers in clinical settings (Szafran et al., 2018).

The largest proportion of literature referencing the CIHC framework and competency domains related to IPE. The CIHC Framework was being used in a wide range of contexts to create environments and situations in which IP learning could be explored and measured. Literature cited reported on several mediums in which IP learning opportunities were offered including group projects surrounding IPC, practicum, or clinical placements (Arenson et al., 2015; Brault et al., 2015; Doucet et al., 2014; Feather et al., 2017; Konrad et al., 2017; Lauckner et al., 2018; Zheng et al., 2019), simulation activities (Dounis et al., 2013; Gordon et al., 2017; Hurst et al., 2017; King et al., 2019; King et al., 2016; Konrad et al., 2017; Rowland, 2011), shadowing (Lauckner et al., 2018; Wright et al., 2012), and workshops (Flynn et al., 2012; King et al., 2019; Lee, Bristow, & Wong, 2018; Naumann et al., 2020; Orchard et al., 2017; Singer et al., 2018; Snyman & Geldenhuys, 2019). Many of these articles described perceptions and changes in IP learning from students and facilitators after experiencing an IP intervention (Chelliah, Mohamad, & Efendle, 2015; Dounis et al., 2013; Evans et al., 2016; Gordon et al., 2017; Hurst et al., 2017; King et al., 2016; King et al., 2019; Konrad et al., Lauckner et al., 2018; 2017; Rowland, 2011; Wright et al., 2012;). In addition, the CIHC competency framework was seen as a pillar of learning and foundation for developing course content and learning outcomes for students in undergraduate programs and clinical placements. Many articles described a main goal of using the CIHC Framework and competency domains to assess, measure, and define what skills a collaborative practitioner should have within each competency domain. The CIHC Framework has been useful in understanding and guiding the development of IPE and IPC professional resources for post-licensure health providers through learning modules, toolkits, and workshops for IEHPs entering the Canadian healthcare system and clinicians or staff working in a multidisciplinary environment (Arain et al., 2017a; Arain et al., 2017b; Card et al., 2014; Dogba et al., 2020; Regan et al., 2015; Richard, Gagnon, & Careau, 2018).

Within the literature, there is a lack of understanding and standardizing of how, when, and who determined when an individual achieved competency or mastery (Wagner & Reeves, 2015). There are limited suggestions as to how the competencies may be assessed adequately or how learners or practitioners might provide evidence or benchmarking to confirm they have achieved

competency in any one domain (Gum et al., 2013; Blue et al., 2014; Wagner & Reeves, 2015). In addition, there is a lack of understanding and consensus on what effective IPC looked like both in an academic and practice setting. For example, physicians referring to "working together" with allied health professionals may not directly enable or lead to IPC for a given patient (Brown et al., 2020). On the other hand, an explicit example of IPC taking place may be found in team rounds or client/family meetings on a medical unit (Goldman, Kitto, & Reeves, 2018; Hepp et al., 2015). Lastly, there is a large gap in literature informing how to foster and enact IPE/IPC within a mental health context (Burns, 2014; Salm, 2017).

**Conclusion**

To conclude, the CIHC Framework in this scoping review was reported as being widely used in many different contexts and settings both nationally and internationally. The CIHC Framework was used to compare and evaluate existing frameworks, define IP terms and competency domains, collect and synthesize data, develop assessment tools to measure IP constructs, assist in mapping and understanding how IPC occurs within a practice setting, and was reported to play a large role in guiding interprofessional learning in academia for students and clinicians.

From the findings, it was evident that further research is needed to establish a consensus definition for many IP terms that can also have a universal IP language between existing frameworks. A consensus definition for IP terms and universal IP language is critical for learning and teaching IP concepts, informing policy, programs and regulations surrounding IPE and IPC, and for clarity of communication in reducing system jargon. Additional research on developing standardized methods and benchmarking is needed to understand how to accurately measure changes in competence related to each interprofessional competency domain. For example, when an individual has successfully reached competence in interprofessional conflict resolution and other domains.

Authors of studies emphasized that decreased collaboration is tied to lower patient health outcomes within practice settings and highlighted difficulty in achieving IPC within a healthcare setting. Key factors impeding this uptake was current healthcare system requirements of low lengths of stay with high patient flow and high staff turnover. Transitions from acute health care settings into other levels of care were reported to be impeded when it is difficult to prioritize and

initiate IPC efforts due to demands for quick decision-making and need to ascribe leadership 'in the moment'. Further research is also needed to understand processes in maintaining a collaborative leadership model when leadership is looked at as a 'fluid and dynamic role' to balance power differentials and decision-making. Elements related to power differentials among health providers impact the ability to effectively participate in IPC within practice environments. Subsequently understanding what collaborative leadership truly looks like. Furthermore, there is also evidence that certain disciplines and levels of education affect IPC outcomes and health providers' ability to enact it within a practice setting. For example, within the literature reviewed a difference seemed to exist between IPC being enacted among general physicians, primary care physicians, and advanced practice nurses and other nurses' cadres. One of the study's reviewed indicated that higher education may be correlated to an increase in positive IPC attitudes in practice settings; however, further research is needed to determine the extent of this relationship. There is also a reported lack of research in IPC within mental health settings. Research is needed to determine how the CIHC Framework and competency domains can be used to guide IPE and IPC for mental health clinicians and their clients.

Lastly, the literature reviewed offered techniques and approaches to therapy that are more in-line with an IPC framework. For example, a team-based therapy approach such as solution-focused coaching can help increase IPC and enable health outcomes due to its inherent ability to incorporate the client/family to achieve client/family-centred care. Research aimed at defining what a collaborative practitioner looks like and how IPC can be achieved in multiple settings is pivotal in making IPC an unconscious and instinctive way to practice. Furthermore, to determine IPC's impact in health systems by reducing health care costs by enabling greater patient health outcomes.

**References**


Aase, I., Aase, K., & Dieckmann, P. (2013). Teaching interprofessional teamwork in medical and nursing education in Norway: A content analysis. *Journal of Interprofessional Care, 27*(3), 238-245.

Abu-Rish, E., Kim, S., Choe, L., Varpio, L., Malik, E., White, A.A., Craddick, K., Blondon, K., Robins, L., Nagasawa, P., Thigpen, A., Chen, L., Rich, J., & Zierler, B. (2012). Current trends in interprofessional education of health sciences students: A literature review. *Journal of Interprofessional Care, 26*(6), 444-451.

Ambrose-Miller, W. & Ashcroft, R. (2016). Challenges Faced by Social Workers as Members of Interprofessional Collaborative Health Care Teams. *Health and Social Work, 41*(2), 101-109.

Apus. (2017). *What is the difference between an opinion paper and a research paper?* Retrieved on May 16, 2021 from http://apus.libanswers.com/writing/faq/2193.

Arain, M., Suter, E., Hepp, S., Nanayakkara, S., Harrison, E.L., Mickelson, G., Bainbridge, L., & Grymonpre, R.E. (2017a). Interprofessional Competency Toolkit for Internationally Educated Health Professionals: Evaluation and Pilot Testing. *Journal of Continuing Education in the Health Professions, 37*(3), 173-182.

Arain, M., Suter, E., Mallinson, S., Hepp, S.L., Deutschlander, S., Nanayakkara, S.D., Harrison, L.E., Mickelson, G., Bainbridge, L., & Grymonpre, R.E. (2017b). *Journal of Multidisciplinary Healthcare, 10*, 87-93.

Archibald, D., Trumpower, D., & MacDonald, C.J. (2014). Validation of the interprofessional collaborative competency attainment survey (ICCAS). *Journal of Interprofessional Care, 28*(6), 553-558.

Arenson, C., Umland, E., Collins, L., Kern, S.B., Hewston, L.A., Jerpbak, C., Antony, R., Rose, M., & Lyons, K. (2015). The health mentors program: three years experience with longitudinal, patient-centered interprofessional education. *Journal of Interprofessional Care, 29*(2), 138-143.

Arksey, H. & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32.

Ateah, C.A., Snow, W., Wener, P., MacDonald, L., Metge, C., Davis, P., Fricke, M., Ludwig, S., & Anderson, J. (2010). Stereotyping as a barrier to collaboration: Does interprofessional education make a difference? *Nurse Education Today, 31*, 208-213.

Barr, H. (2013). Enigma variations: Unraveling interprofessional education in time and place. *Journal of Interprofessional Care,* 27(sup2), 9-13.

Bartram, D. (2012). The SHL Universal Competency Framework. URL: https://connectingcredentials.org/wp-content/uploads/2015/02/The-SHL-Universal-Competency-Framework.pdf

Blue, A.V., Chesluk, B.J., Conforti, L.N., & Holmboe, E.S. (2014). Assessment and Evaluation in Interprofessional Education Exploring the Field. *Journal of Allied Health, 44*(2), 73-82.

Brander, R.A., Paterson, M., & Chan, Y.E. (2013). Using a Common Vision of Partners in Care to Enhance Hospital Collaborative Relationships. *Journal of Research in Interprofessional Practice and Education, 3.2*, 1-25.

Brashers, V., Haizlip, J., & Owen, J.A. (2019). The ASPIRE Model: Grounding the IPEC core competencies for interprofessional collaborative practice within a foundational framework. *Journal of Interprofessional Care, 34*(1), 128-132.

Brault, I., Therriault, P., St-Denis, L., & Lebel. P. (2015). Implementation of interprofessional learning activities in a professional practicum: The emerging role of technology. *Journal of Interprofessional Care, 29*(6), 530-535.

Brewer, M. (2013). *Interprofessional Capability Framework.* URL: https://healthsciences.curtin.edu.au/wp-content/uploads/sites/6/2017/11/interprofessional_A5_broch_1-29072015.pdf.

Brown, C.L., Leclair, L.L., Fricke, M., & Wener, P. (2020). Discrepancy between attitudes and behaviors of family medicine residents towards interprofessional collaborative practice: A mixed methods study. *Journal of Interprofessional Education & Practice, 23*, 1-8.

Brownie, S., Thomas, J., McAllister, L., & Groves, M. (2014). Australian health reforms: enhancing interprofessional practice and competency within the health workforce. *Journal of Interprofessional Care, 28*(3), 252-253.

Burns, S.T. (2014). Mental Health Counselors' Use of the Transtheoretical Model in Interprofessional Collaboration. *Journal of Counselor Leadership and Advocacy*, *1*(2), 152-165.

Canadian Interprofessional Health Collaborative (CIHC). (2010). *A national interprofessional competency framework.* URL: www.cihc.ca/files/CIHC_IPCompetencies_Feb1210.pdf.

Card, S.E., Ward, H.A., Chipperfield, D., & Sheppard, M.S. (2014). Postgraduate internal medicine residents' roles at patient discharge – do their perceived roles and perceptions by other health care providers correlate? *Journal of Interprofessional Care, 28*(1), 76-78.

Casimiro, L.M., Hall, P., Kuziemsky, C., O'Connor, M., & Varpio, L. (2015). Enhancing patient-engaged teamwork in healthcare: an observational case study. *Journal of Interprofessional Care, 29*(1), 55-61.

Cervantes-Sudio, M.G., Ganotice, F.A., & Navarro, A.T. (2020). Are Filipino students ready to collaborate? Comparing the readiness of healthcare students for interprofessional education in the Philippines. *Journal of Interprofessional Care,* DOI:10.1080/13561820.2020.1806215.

Chelliah, K.K., Mohamad, N., & Efendle, B. (2015). Readiness of Health Care Lecturers on Interprofessional Education (IPE). *Advanced Science Letters, 21*, 2501-2503.

Cloutier, J., Lafrance, J., Michallet, B., Marcoux, L., & Cloutier, F. (2015). French translation and validation of the Readiness for Interprofessional Learning Scale (RIPLS) in a Canadian undergraduate healthcare student context. *Journal of Interprofessional Care, 29*(2), 150-155.

Colquhoun, H.L., Levac, D., O'Brien, K.K., Straus, S., Tricco, A.C., Perrier, L., Kastner, M., & Moher, D. (2014). Scoping reviews: Time for clarity in definition, methods, and reporting. *Journal of Clinical Epidemiology, 67*(12), 1291-1294.

Craig, S.L., Eaton, A.D., Belitzky, M., Kates, L.E., Dimitropoulos, G., & Tobin, J. (2020). Empowering the team: A social work model of interprofessional collaboration in hospitals. *Journal of Interprofessional Education & Practice, 19,* 1-9.

Curran, V., Hollett, A., Casimiro, L.M., Mccarthy, P., Banfield, V., Hall, P., Lackie, K., Oandasan, I., Simmons, B., & Wagner, S. (2011). Development and validation of the interprofessional collaborator assessment rubric ((ICAR)). *Journal of Interprofessional Care, 25*(5), 339-344.

Davis, B.M., Solomon, P., Marshall, D., Malott, A., Mueller, V., Shaw, E., & Dore, K. (2013). A Team Observed Structured Clinical Encounter (TOSCE) for Pre-Licensure Learners in Maternity Care: A Short Report on the Development of an Assessment Tool for Collaboration. *Journal of Research in Interprofessional Practice and Education, 3.1*, 122-128.

Davis, D.L., Hercelinskyj, G., & Jackson, L.M. (2016). Promoting Interprofessional Collaboration: A Pilot project Using Simulation in the Virtual World of Second Life. *Journal of Research in Interprofessional Practice and Education, 6.2,* 2-15.

Dean, H.J., MacDonald, L., Alessi-Severini, S., Halipchuk, J.A.C., Sellers, E.A.C., & Grymonpre, R.E. (2014). Elements and Enablers for Interprofessional Education Clinical Placements in Diabetes Teams. *Canadian Journal of Diabetes, 38,* 273-278.

Delisle, M., Grymonpre, R., Whitley, R., & Wirtzfeld, D. (2016). Crucial Conversations: An interprofessional learning opportunity for senior healthcare students. *Journal of Interprofessional Care, 30*(6), 777-786.

Dogba, M.J., Menear, M., Briére, N., Freitas, A., Emond, J., Stacey, D., & Légaré, F. (2020). Enhancing interprofessionalism in shared decision-making training within homecare settings: a short report. *Journal of Interprofessional Care, 34(1),* 143-146.

Domac, S., Anderson, L., O'Reilly, M., & Smith, R. (2015). Assessing interprofessional competence using a prospective reflective portfolio. *Journal of Interprofessional Care, 29*(3), 179-187.

Doucet, S., Buchanan, J., Cole, T., & McCoy, C. (2013). A team approach to an undergraduate interprofessional communication course. *Journal of Interprofessional Care, 27*(3), 272-273.

Doucet, S., MacKenzie, D., Loney, E., Godden-Webster, A., Lauckner, H., Brown, P.A., Andrews, C., & Packer, T.L. (2014). Curricular Factors that Unintentionally Affect Learning in a Community-Based Interprofessional Education Program: The Student Perspective: *Journal of Research in Interprofessional Practice and Education, 4.2*, 1-30.

Dounis, G., Ditmyer, M., VanBeuge, S., Schuerman, S., McClain, M., Dounis, K., & Mobley, C. (2013). Interprofessional faculty development: integration of oral health into the geriatric diabetes curriculum, from theory to practice. *Journal of Multidisciplinary Healthcare, 7*, 1-9.

Dunn, S.I., Cragg, B., Graham, I.D., Medves, J., & Gaboury, I. (2018). Roles, processes, and outcomes of interprofessional shared decision-making in a neonatal intensive care unit: A qualitative study. *Journal of Interprofessional Care, 32*(3), 284-294.

Ernawati, D.K. (2019). Collaborative competencies in public health center in Indonesia: An explorative study. *Journal of Interprofessional Education & Practice, 18*, 1-7.

Evans, S., Shaw, N., Ward, C., & Hayley, A. (2016). "Refreshed…reinforced…reflective": A qualitative exploration of interprofessional education facilitators' own interprofessional learning and collaborative practice. *Journal of Interprofessional Care, 30*(6), 702-709.

Far~~r~~ell, B., Thompson, W., Black, C.D., Archibald, D., Raman-Wilms, L., Grassau, P., Patel, T., Weaver, L., Eid, K., & Winslade, N. (2018). Health care providers' roles and responsibilities in management of polypharmacy: Results of a modified Delphi. *Canadian Pharmacists Journal, 151*(6), 395-407.

Feather, R.A., Carr, D.E., Garletts, D.M., & Reising, D.L. (2017). Nursing and medical students teaming up: Results of an interprofessional project. *Journal of Interprofessional Care, 31*(5), 661-663.

Flood, B., McKinstry, W., Friary, P., & Purdy, S.C. (2014). Cultivating Interprofessional Practice in New Zealand: An Inter-Sectorial Approach to Developing Interprofessional Education. *Journal of Allied Health, 39*(3), 224-231.

Flynn, L., Michalska, B., Han, H., & Gupta, S. (2012). Teaching and Learning Interprofessionally: Family Medicine Residents Differ from Other Healthcare Learners. *Journal of Research in Interprofessional Practice and Education, 2.2,* 205-218.

Gilbert, J.H.V. (2010). The Status of Interprofessional Education in Canada. *Journal of Allied Health, 39*(3), 216-223.

Goldman, J., Kitto, S., & Reeves, S. (2018). Examining the implementation of collaborative competencies in a critical care setting: Key challenges for enacting competency-based education. *Journal of Interprofessional Care, 32*(4), 407-415.

Gordon, R., Flecknell, M., Fournier, T., Dupont, D., Gowlett, K., Furlong, K.E. (2017). Partnering for Patti: Shaping future healthcare teams through simulation-enhanced interprofessional education. *Canadian Journal of Respiratory Therapy, 53*(4), 81-87.

Grace, S. (2020). Models of interprofessional education for healthcare students: a scoping review. *Journal of Interprofessional Care,* DOI:10.1080/13561820.2020.1767045.

Grace, S., Innes, E., Joffe, B., East, L., Coutts, R., Nancarrow, S. (2017). Identifying common values among seven health professions: An interprofessional analysis. *Journal of Interprofessional Care, 31*(3), 325-334.

Grant, M. & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal, 26*(2), 91-108.

Graves, M. & Doucet, S. (2016). Factors Affecting Interprofessional Collaboration When Communicating through the Use of Information and Communication Technologies: A Literature Review. *Journal of Research in Interprofessional Practice and Education, 6.2,* 1-32.

Greer, A.G. & Clay, M.C. (2010). Interprofessional Education Assessment and Planning Instrument for Academic Institutions. *Journal of Allied Health, 39*(3), 224-231.

Gum, L.F., Lloyd, A., Lawn, S., Richards, J.N., Lindemann, I., Sweet, L., Ward, H., King, A., & Bramwell, D. (2013). Developing an interprofessional capability framework for teaching healthcare students in a primary healthcare setting. *Journal of Interprofessional Care, 27*(6), 454-460.

Hall, P., Brajtman, S., Weaver, L., Grassau, P.A., & Varpio, L. (2014). Learning collaborative teamwork: an argument for incorporating the humanities. *Journal of Interprofessional Care, 28*(6), 519-525.

Hall, P., Weaver, L., & Grassau, P.A. (2013). Theories, relationships and interprofessionalism: Learning to weave. *Journal of Interprofessional Care, 27(1),* 73-80.

Hall, P.D., Zoller, J.S., West, V.T., Lancaster, C.J., & Blue, A.V. (2011). A Novel Approach to Interprofessional Education: Interprofessional Day, the Four-Year Experience at the Medical University of South Carolina. *Journal of Research in Interprofessional Practice and Education, 2.1,* 49-62.

Hammer, D., Anderson, M.B., Brunson, W.D., Grus, C., Heun, L., Holtman, M., Mashima, T., McGuinn, K., Nunez, L., Register, S., Ross, L., Ruffin, A., Frost, J.G. (2011). Defining and Measuring Construct of Interprofessional Professionalism. *Journal of Allied Health, 41*(2), e49-e53.

Hansen, K.T., McDonald, C., O'Hara, S., Post, L., Silcox, S., & Gutmanis, I.A. (2017). A formative evaluation of a nurse practitioner-led interprofessional geriatric outpatient clinic. *Journal of Interprofessional Care, 31*(4), 546-549.

Haruta, J., Yoshida, K., Goto, M., Yoshimoto, H., Ichikawa, S., Mori, Y., Yoshimi, K., & Otsuka, M. (2018). Development of an interprofessional competency framework for collaborative practice in Japan. *Journal of Interprofessional Care, 32*(4), 436-443.

Hepp, S.L., Suter, E., Jackson, K., Deutschlander, S., Makwarimba, E., Jennings, J., & Birmingham, L. (2015). Using an interprofessional competency framework to examine collaborative practice. *Journal of Interprofessional Care, 29*(2), 131-137.

Hudson, C.C., Gauvin, S., Tabanfar, R., Poffenroth, A.M., Lee, J.S., & O'Riordan, A.L. (2017). Promotion of role clarification in the Health Care Team Challenge. *Journal of Interprofessional Care, 31(3),* 401-403.

Huebner, S., Tang, Q., Moisey, L., Shevchuk, Y., & Mansell, H. (2020). Establishing a baseline of interprofessional education perceptions in first year health science students. *Journal of Interprofessional Care, 35*(3), 400-408.

Hurst, S., Macauley, K.A., Awdishu, L., Sweeney, K.M., Hutchins, S.S., Namba, J.M., Johnson, M.L., Wallace, P.A., Garman, K.A., & Zheng, A.M. (2017). An Autoethnographic Study of Interprofesional Education Partnerships Authors. *Journal of Research in Interprofessional Practice and Education, 7.1,* 1-13.

Jones, A., Ingram, M.E., & Forbes, R. (2020). Physiotherapy new graduate self-efficacy and readiness for interprofessional collaboration: a mixed methods study. *Journal of Interprofessional Care, 35*(1), 64-73.

Jones, J., McQueen, M., Lowe, S., Minnes, P., & Rischke, A. (2015). Interprofessional Education in Canada: Addressing Knowledge, Skills, and Attitudes Concerning Intellectual Disability for Future Healthcare Professionals. *Journal of Policy and Practice in Intellectual Disabilities, 12*(3), 172-180.

Josi, R., Bianchi, M., & Brandt, S.K. (2020). Advanced practice nurses in primary care in Switzerland: an analysis of interprofessional collaboration. *BMC Nursing, 19*(1), 1-12.

Kanji, Z., Krekoski, C., & Lln, D.L. (2017). Interprofessional education and collaborative practice. *Canadian Journal of Dental Hygiene, 51*(1), 42-48.

Kent, F., Drysdale, P., Martin, N., & Keating, J.L. (2013). The Mixed-Discipline Aged-Care Student Clinic: An Authentic Interprofessional Learning Initiative. *Journal of Allied Health, 43*(1), 51-56.

Keshmiri, F., Rezai, M., Mosaddegh, R., Moradi, K., Hafezimoghadam, P., Zare, M.A., Tavakoli, N., Cheraghi, M.A., & Shirazi, M. (2017). Effectiveness of an interprofessional education model based on the transtheoretical model of behaviour change to improve interprofessional collaboration. *Journal of Interprofessional Care, 31*(3), 307-316.

Khalili, H. & Orchard, C. (2019). The effects of an IPS-based IPE program on interprofessional socialization and dual identity development. *Journal of Interprofessional Care,* DOI: 10.1080/13561820.2019.1709427

Khalili, H., Orchard, C., Laschinger, H.K.S., & Farah, R. (2013). An interprofessional socialization framework for developing an interprofessional identity among health professions students. *Journal of Interprofessional Care, 27*(6), 448-453.

King, J., Beanlands, S., Fiset, V., Chartrand, L., Clarke, S., Findlay, T., Morley, M., & Summers, I. (2016). Using interprofessional simulation to improve collaborative competences for nursing, physiotherapy, and respiratory therapy students. *Journal of Interprofessional Care, 30*(5), 599-605.

King, S. & Violato, E. (2019). Longitudinal evaluation of attitudes to interprofessional collaboration: time for a change? *Journal of Interprofessional Care, 35*(1), 124-131.

King, S., Hall, M., McFarlane, L., Paslawski, T., Sommerfeldt, S., Hatch, T., Schmitz, C., Bates, H., Taylor, E., & Norton, B. (2017). Launching first-year health sciences students into collaborative practice: Highlighting institutional enablers and barriers to success. *Journal of Interprofessional Care, 31*(3), 386-393.

King, S., Werther, K., Ruelling, A., & Kim, E. (2019). Taking the classroom to camp: The facilitators' role in creating an impactful interprofessional experiential learning opportunity. *Journal of Interprofessional Care, 34*(6), 791-798.

Konrad, S.C., Cavanaugh, J.T., Rodriguez, K., Hall, K., & Pardue, K. (2017). A five-session interprofessional team immersion program for health professions students. *Journal of Interprofessional Education & Practice, 6,* 49-54.

Körner, M., Bütof, S., Müller, C., Zimmermann, L., Becker, S., & Bengel, J. (2016). Interprofessional teamwork and team interventions in chronic care: A systematic review. *Journal of Interprofessional Care, 30*(1), 15-28.

Kraft, S., Wise, H.H., Jacques, P.F., & Burik, J.K. (2013). Discharge Planning Simulation: Training the Interprofessional Team for the Future Workplace. *Journal of Allied Health, 42*(3), 175-181.

Lachini, A.L., DeHart, D.D., Browne, T., Dunn, B.L., Blake, E.W., & Blake, C. (2019). Examining collaborative leadership through interprofessional education: findings from a mixed methods study. *Journal of Interprofessional Care, 33*(2), 235-242.

Lahey, W. & Fierlbeck, K. (2016). Legislating collaborative self-regulation in Canada: A comparative policy analysis. *Journal of Interprofessional Care, 30*(2), 211-216.

Lam, P., Filici, A.L., Middleton, C., & McGillicuddy, P. (2018). Exploring healthcare professionals' perceptions of the anesthesia assistant role and its impact on patients and interprofessional collaboration. *Journal of Interprofessional Care, 32*(1), 24-32.

Lapkin, S., Levett-Jones, T., & Gilligan, C. (2011). A systematic review of the effectiveness of interprofessional education in health professional programs. *Nurse Education Today, 33*, 90-102.

Lapkin, S., Levett-Jones, T., & Gilligan, C. (2012). A cross-sectional survey examining the extent to which interprofessional education is used to teach nursing, pharmacy and medical students in Australian and New Zealand Universities. *Journal of Interprofessional Care, 26*(5), 390-396.

Lauckner, H.M., Rak, C.N., Hickey, E.M., Isenor, J.E., & Godden-Webster, A.L. (2018). Interprofessional and collaborative care planning activities for students and staff within an academic nursing home. *Journal of Research in Interprofessional Practice and Education, 13*, 1-4.

Lee, C.T., Bristow, M., & Wong, J.C. (2018). Emotional Intelligence and Teamwork Skills Among Undergraduate Engineering and Nursing Students: A Pilot Study. *Journal of Research in Interprofessional Practice and Education, 8.1,* 1-16.

Levac, D., Colquhoun, H., & O'Brien, K. (2010). Scoping studies: Advancing the methodology. *Implementation Science, 5*(1), 69.

Levett-Jones, T., Gilligan, C., Lapkin, S., & Hoffman, K. (2012). Interprofessional education for the quality use of medicines: Designing authentic multimedia learning resources. *Nurse Education Today, 32*, 934-938.

Lunde, L., Baerheim, A., Johannessen, A., Aase, I., Almendingen, K., Andersen, I.A., Bengtsson, R., Brenna, S.J., Hauksdottir, N., Steinsbekk, A., & Rosvold, E.O. (2020). Evidence of validity for the Norwegian version of the interprofessional collaborative competency attainment survey (ICCAS). *Journal of Interprofessional Care, 35*(4), 604-611.

Lyons, K.J. & Giordano, C. (2010). Special Issue on Interprofessional Education and Care. *Journal of Allied Health, 39*(3), 192-193.

MacKenzie, D., Creaser, G., Sponagle, K., Gubitz, G., MacDougall, P., Blacquiere, D., Miller, S., & Sarty, G. (2017). Best practice interprofessional stroke care collaboration and simulation: The student perspective. *Journal of Interprofessional Care, 31*(6), 793-796.

MacKenzie, D.E., Doucet, S., Nasser, S., Godden-Webster, A.L., Andrews, C., & Kephart, G. (2014). Collaboration behind-the-scenes: key to ineffective interprofessional education. *Journal of Interprofessional Care, 28*(4), 381-383.

Maddock, B., Kumar, A., & Kent, F. (2018). Creating a Collaborative Care Curriculum Framework. *The Clinical Teacher, 16*, 120-124.

McKinlay, E., Beckingsale, L., Donovan, S., Darlow, B., Gallagher, P., Gray, B., Neser, H., Perry, M., Pullon, S., & Coleman, K. (2018). Key Strategies for First-Time Interprofessional Teachers and Those Developing New Interprofessional Education Programs. *Journal of Research in Interprofessional Practice and Education, 8.1,* 1-8.

McLaney, E., Cooper, N., Hughes, L., Lowe, M., Peranson, J., & Prospero, L.D. (2019). Widening the Lens on Needs Assessment Identifying Profession-Specific and Interprofessional Learning Needs Across Professions in an Academic Health Sciences Institution. *Journal of Allied Health, 48*(3), e87-e93.

Mink, J., Mitzkat, A., Krug, K., Mihaljevic, A., Trierweiler-Hauke, B., Götsch, B., Wensing, M., & Mahler, C. (2020). Impact of an interprofessional training ward on interprofessional competencies – a quantitative longitudinal study. *Journal of Interprofessional Care,* DOI: 10.1080/13561820.2020.1802240.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Medicine 6(*7), 1-6.

Murdoch, J., Tomblin, Tomblin, G.M., Alder, R., Gilbert, J., Fierlbeck, K., & Steenbeek, A. (2018). Readiness to Collaborate Scale: How ready are obstetrical practitioners to participate in an interprofessional healthcare team? *Journal of Interprofessional Education & Practice, 13*, 73-80.

Murdoch, N.L., Epp, S., & Vinek, J. (2017). Teaching and learning activities to educate nursing students for interprofessional collaboration: A scoping review. *Journal of Interprofessional Care, 31*(6), 744-753.

National Center for Interprofessional Practice and Education (NCIPE). (2016). *Interprofessional Collaborative Competencies Attainment Survey (ICCAS)*. Retrieved on May 22, 2021 from Interprofessional Collaborative Competencies Attainment Survey (ICCAS) | National Center for Interprofessional Practice and Education (nexusipe.org).

Naumann, F.L., Nash, R., Schumacher, U., Taylor, J., & Cottrell, N. (2020). Interprofessional education clinical placement program: a qualitative case study approach. *Journal of Interprofessional Care,* DOI: 10.1080/13561820.2020.1832448.

Nguyen, Q., Tong, M., Congdon, H.B., Goodwin, J., & Gimeno, T. (2018). Implementation of a student-led interprofessional education clinic at a safety net community health center. *Journal of Interprofessional Education & Practice, 11*, 74-79.

O'Brien, D., Swann, J., & Heap, N. (2015). Can the Communities of Practice Model Explain the Complex Organization of an Interprofessional Student-Led Health Clinic? *Journal of Allied Health, 44*(1), e11-e16.

Orchard, C. & Bainbridge, L. (2016). Competent for collaborative practice: What does a collaborative practitioner look like and how does the practice context influence interprofessional education? *Journal of Taibah University Medical Sciences, 11*(6), 526-532.

Orchard, C., Pederson, L.L., Allen, D., & Lam, H. (2017). Can Preparation of Clinical Teachers in IPC Concepts and Competencies Impact Their Approach to Teaching Students in Clinical Practice? A Promising Approach. *International Journal of Practice-based Learning in Health and Social Care, 5*(1), 98-115.

Orchard, C.A., Sonibare, O., Morse, A., Collins, J., & Al-Hamad, A. (2017). Collaborative Leadership, Part 1: The Nurse Leader's Role within Interprofessional Teams. *Nursing Leadership, 30*(2), 14-25.

Palaganas, J.C., Epps, C., & Raemer, D.B. (2014). A history of simulation-enhanced interprofessional education. *Journal of Interprofessional Care, 28*(2), 110-115.
Paterson, M., Medves, J., Dalgarno, N., O'Riordan, A., & Grigg, R. (2013). The Timely Open Communication for Patient Safety Project. *Journal of Research in Interprofessional Practice and Education, 3.1,* 22-42.
Peters, M.D.J., Godfrey, C.M., Khalil, H., McInerney, P., Parker, D., & Soares, C.B. (2015). Guidance for conducting systematic scoping reviews. *International Journal of Evidence-Based Healthcare, 13*(3), 141-146.
Price, S., Doucet, S., & Hall, L.M. (2014). The historical social positioning of nursing and medicine: implications for career choice, early socialization and interprofessional collaboration. *Journal of Interprofessional Care, 28*(2), 103-109.
Pullon, S., Morgan, S., Macdonald, L., McKinlay, E., & Gray, B. (2016). Observation of interprofessional collaboration in primary care practice: A multiple case study. *Journal of Interprofessional Care, 30*(6), 787-794.
Reade, M., Maar, M., Cardinal, N., Boesch, L., Rollins, T., & Jeeves, N. (2016). The Impact of Hidden Curriculum in Wilderness-Based Educational Events on Interprofessional Competencies: A Mixed-Methods Study. *Journal of Research in Interprofessional Practice and Education, 6.2,* 1-16.
Regan, S., Orchard, C., Khalili, H., Brunton, L., & Leslie, K. (2015). Legislating interprofessional collaboration: A policy analysis of health professions regulatory legislation in Ontario, Canada. *Journal of Interprofessional Care, 29*(4), 359-364.
Retrouvey, H., Zhong, T., Gagliardi, A.R., Baxter, N.N., & Webster, F. (2020). How Ineffective Interprofessional Collaboration Affects Delivery of Breast Reconstruction to Breast Cancer Patients: A Qualitative Study. *Annals of Surgical Oncology, 27*, 2299-2310.
Richard, A., Gagnon, M., & Careau, E. (2018). Using reflective practice in interprofessional education and practice: a realist review of its characteristics and effectiveness. *Journal of Interprofessional Care, 33*(5), 424-436.
Ripat, J., Wener, P., Dobinson, K., & Yamamoto, C. (2014). Internalizing Client-Centredness in Occupational Therapy Students. *Journal of Research in Interprofessional Practice and Education, 4.2,* 1-12.
Rowland, P. (2011). Making the Familiar Extraordinary: Using a Communication Perspective to Explore Team-Based Simulation as Part of Interprofessional Education. *Journal of Research in Interprofessional Practice and Education, 2.1,* 121-131.
Sakai, I., Yamamoto, T., Takahashi, Y., Maeda, T., Kunii, Y., & Kurokochi, K. (2013). Development of a new measurement scale for interprofessional collaborative competency: The Chiba Interprofessional Competency Scale (CICS29). *Journal of Interprofessional Care, 31*(1), 59-65.
Salm, T. (2017). A School-Based Case Study: Developing Interprofessional Competencies to Support Students with Dual Diagnosis. *Journal of Policy and Practice in Intellectual Disabilities, 14*(3), 224-232.
Schmitz, C.C., Radosevich, D.M., Jardine, P., MacDonald, C.J., Trumpower, D., & Archibald, D. (2017). The Interprofessional Collaborative Competency Attainment Survey (ICCAS): A replication validation study. *Journal of Interprofessional Care, 31*(1), 28-34.
Schroder, C., Medves, J., Paterson, M., Byrnes, V., Chapman, C., O'Riordan, A., Pichora, D., & Kelly, C. (2011). Development and pilot testing of the collaborative practice assessment tool. *Journal of Interprofessional Care, 25*(3), 189-195.

Seko, Y., King, G., Keenan, S., Maxwell, J., Oh, A., & Curran, C.J. (2019). Impact of Solution-Focused Coaching Training on Pediatric Rehabilitation Specialists: A longitudinal evaluation study. *Journal of Interprofessional Care, 34*(4), 481-492.

Shirazi, M., Moradi, K., Mehrizi, A.A.H., Keshmiri, F., & Montazeri, A. (2018). Readiness to change for interprofessional collaboration in healthcare: Development and validation of a theory-based instrument. *Journal of Interprofessional Care, 32*(5), 539-548.

Singer, Z., Fung, K., Lillie, E., McLeod, J., Scott, G., You, P., & Helleman, K. (2018). Interprofessional education day – an evaluation of an introductory experience for first-year students. *Journal of Interprofessional Care, 32*(3), 399-402.

Snell, J.A., Dickson, G., Wirtzfeld, D., & Van Aerde, J.V. (2016). In their own words: describing Canadian physician leadership. *Leadership in Health Services, 29*(3), 264-281.

Snyman, S. & Geldenhuys, M. (2019). Exposing an interprofessional class of first years to an underserved community contributed to students' contextualization of the determinants of health. *Journal of Interprofessional Care, 33*(3), 280-290.

Snyman, S., Von Pressentin, K.B., & Clarke, M. (2015). International Classification of Functioning, Disability, and Health: Catalyst for interprofessional education and collaborative practice. *Journal of Interprofessional Care, 29*(4), 313-319.

Soklaridis, S., Romano, D., Fung, W.L.A., Martimianakis, M.A., Sargeant, J., Chambers, J., Wiljer, D., & Silver, I. (2017). Where is the client/patient voice in interprofessional healthcare team assessments? Findings from a one-day forum. *Journal of Interprofessional Care, 31*(1), 122-124.

Sonnenberg, L.K., Pritchard-Wiart, L., & Busari, J. (2018). The resident physician as leader within the healthcare team An exploratory inquiry into the perspectives of interprofessional clinicians. *Leadership in Health Services, 31*(2), 167-182.

St.John, M., Tong, B., Li, E., & Wilbur, K. (2019). Competency-Based Education Frameworks Across Canadian Health Professions and Implications for Multisource Feedback. *Journal of Allied Health, 49*(1), e1-e11.

Steketee, C., Forman, D., Dunston, R., Yassine, T., Matthews, L.R., Saunders, R., Nicol, P., & Alliex, S. (2014). Interprofessional health education in Australia: Three research projects informing curriculum renewal and development. *Applied Nursing Research, 27,* 115-120.

Sucharew, H. & Macaluso, M. (2019). Methods for Research Evidence Synthesis: The Scoping Review Approach. *Journal of Hospital Medicine, 14*(7), 416-418.

Sur, D. (2020). Interprofessional Intentional Empathy Centered Care (IP-IECC) in healthcare practice: A grounded theory study. *Journal of Interprofessional Care,* DOI:10.1080/13561820.2020.1752162.

Szafran, O., Torti, J.M.I., Kennet, S.L., & Bell, N.R. (2018). Family physicians' perspectives on interprofessional teamwork: Findings from a qualitative study. *Journal of Interprofessional Care, 32*(2), 169-177.

Thistlethwaite, J.E., Forman, D., Matthews, L.R., Rogers, G.D., Steketee, C., & Yassine, T. (2014). Competencies and Frameworks in Interprofessional Education: A Comparative Analysis. *Academic Medicine, 89*(6), 869-875.

Tong, B., St.John, M., Li, E., & Wilbur, K. (2020). Could interprofessional education assessment in workplace learning be streamlined? *Journal of Interprofessional Education & Practice, 19*, 1-9.

Tricco AC., Lillie E., Zarin W., O'Brien K.K., Colquhoun H., Levac D., Moher D., Peters M.D.J., Horsley T., Weeks L., Hempel S., Akl E.A., Chang C., McGowan J., Stewart L., Hartling L., Aldcroft A., Wilson M.G., Garritty C., Lewin S., Godfrey C.M., Macdonald M.T., Langlois

E.V., Soares-Weiser K., Moriarty J., Clifford T., Tunçalp Ö., Straus S.E. (2018). PRISMA Extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Ann Intern Medicine*, 169(7):467-473. doi: 10.7326/M18-0850. Epub 2018 Sep 4. PMID: 30178033.

Umland, E., Collins, L., Baronner, A., Lim, E., & Giordano, C. (2016). Health Mentor-Reported Outcomes and Perceptions of Student Team Performance in a Longitudinal Interprofessional Education Program. *Journal of Allied Health, 45*(3), 219-224c.

Vanier, M., Therriault, P., Lebel, P., Nolin, F., Lefebvre, H., Brault, I., Drouin, E., & Fernandez, N. (2013). Innovating in Teaching Collaborative Practice with a Large Student Cohort at Université de Montréal. *Journal of Allied Health, 42*(4), 97-106.

Venville, A., & Andrews, P. (2020). Building great health care teams: enhancing interprofessional work readiness skills, knowledge and values for undergraduate health care students. *Journal of Interprofessional Care, 34*(2), 272-275.

Vincent-Onabajo, G., Mustapha, S.A., & Gujba, F.K. (2019). Attitudes toward interprofessional practice among healthcare students in a Nigerian University. *Journal of Interprofessional Care, 33*(3), 336-342.

Wagner, S.J., & Reeves, S. (2015). Milestones and entrustable professional activities: The key to practically translating competencies for interprofessional education? *Journal of Interprofessional Care, 29*(5), 507-508.

Webster, F., Bremner, S., Jackson, M., Bansal, V., & Sale, J. (2012). The impact of a hospitalist on role boundaries in an orthopedic environment. *Journal of Multidisciplinary Healthcare, 5*, 249-256.

Webster, W.G. (2013). Cultivating grassroots IPE: The Dalhousie University experience. (2013). *Journal of Interprofessional Care, 27*(1), 96-97.

Wener P, Woodgate R.L. (2016). Collaborating in the context of co-location: a grounded theory study. *BMC Family Practice*, 17(30). doi: 10.1186/s12875-016-0427-x.

Wong, E., Leslie, J.J., Soon, J.A., & Norman, W.V. (2016). Measuring interprofessional competencies and attitudes among health professional students creating family planning virtual patient cases. *BMC Medical Education, 16*(273), 1-9.

Wright, A., Hawkes, G., Baker, B., & Lindqvist, S.M. (2012). Reflections and unprompted observations by healthcare students of an interprofessional shadowing visit. *Journal of Interprofessional Care, 26*(4), 305-311.

Zheng, R.M., Sim, Y.F., Koh, G.C. (2016). Attitudes towards interprofessional collaboration among primary care physicians and nurses in Singapore. *Journal of Interprofessional Care, 30*(4), 505-511.

Zheng, Y., Palombella, A., Salfi, J., & Wainman, B. (2019). Dissecting through Barriers: A Follow-up Study on the Long-Term Effects of Interprofessional Education in a Dissection Course with Healthcare Professional Students. *Anatomical Sciences Education, 12*, 52-60.

Zorek, J., & Raehl, C. (2013). Interprofessional education accreditation standards in the USA: A comparative analysis. *Journal of Interprofessional Care, 27*(2), 123-130.