Examining the implementation of collaborative competencies in a critical care setting: Key challenges for enacting competency-based education

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Abstract

Interprofessional collaboration is recognized as an important factor in improving patient care in intensive care units. Competency frameworks, and more specifically interprofessional competency frameworks, are a key strategy being used to support the development of attitudes, knowledge, skills and behaviours needed for an interprofessional approach to care. However, evidence for the application of competencies is limited. This study aimed to extend our empirically based understanding of the significance of interprofessional competencies to actual clinical practice in an intensive care unit (ICU). An ethnographic approach was employed to obtain an in-depth insight into healthcare providers' perspectives, behaviours, and interactions of interprofessional collaboration in a medical surgical intensive care unit in a community teaching hospital in Canada. Approximately 160 hours of observations were undertaken and 24 semi-structured interviews with healthcare workers were conducted over a period of six months. Data were analyzed using a directed content approach where two national competency frameworks were used to help generate an understanding of the practice of interprofessional collaboration. Healthcare professionals demonstrated numerous instances of interprofessional communication, role understandings, and teamwork in the ICU setting, which supported a number of key collaborative competencies. However, organizational factors such as pressures for discharge and patient flow, staffing and lack of prioritization for interprofessional learning undermined competencies designed to

improve collaboration and teamwork. The findings demonstrate that interprofessional competencies can play an important role in promoting knowledge, attitudes, skills and behaviors needed. However, competencies that promote interprofessional collaboration are dependent on a range of contextual factors that enable (or impede) individuals to actually enact these competencies.

Key words: Interprofessional collaboration; teamwork; competence; competencies; ethnography; intensive care

Introduction

The role of interprofessional collaboration[1] in improving quality improvement and patient safety activities in healthcare generally, and specifically in intensive care units (ICUs), has been widely endorsed (Dietz et al., 2014; National Advisory Group on the Safety of Patients in England, 2013; Pronovost et al., 2006; Reader, Flin, & Cuthbertson, 2007; Taylor, Clay-Williams, Hogden, Braithwaite, & Groene, 2015). In ICUs this type of collaboration can be affected by a range of factors such as professional role conflicts, friction around hierarchical relationships, poor interprofessional communication, seniority and urgency, and disagreement around end of life decisions (e.g. Alexanian, Kitto, Rak, & Reeves, 2015; Carrothers et al., 2013; Coombs, 2003; Coombs & Ersser, 2004; Kendall-Gallagher, Reeves, Alexanian, & Kitto, 2017; Piers et al., 2014; Reeves et al., 2015; Sorensen & Iedema, 2007; Xyrichis, Lowton, & Rafferty, 2017). Competency frameworks can help develop the attitudes, knowledge, skills and behaviours for interprofessional collaboration, quality improvement and patient safety practices (Moran,

Harris, & Valenta, 2016).

Competency-based education is being used to provide healthcare professionals with the requisite abilities to tackle current and future healthcare needs (Frenk et al., 2010; Palsdottir et al., 2016). Competency frameworks can validate particular practices as important to practitioners. In doing so, they offer an outline of core knowledge, skills and attitudes that healthcare professionals are expected to maintain and identify appropriate indicators of acceptable performance. These frameworks also offer a model for educators, regulatory authorities and licensing bodies to guide education and assessment (Frank et al., 2010; Reeves, 2012; Reeves, Fox, & Hodges, 2009). Yet concerns also exist. Competency frameworks can embrace a reductionist approach to understanding complex human behaviour. Assumptions that competence can be simply 'checked off' obscures the importance of the ongoing development of knowledge and skills and that contextual factors play an important role in individuals' abilities to perform a task. In addition, competency frameworks focus on the individual learner and can therefore overlook an organizational perspective of interprofessional collaboration (e.g. Grant, 1999; Reeves et al., 2009; Touchie & ten Cate, 2016; Wagner & Reeves, 2015). There are also critiques that competency frameworks developed by a consensus-based process are based on opinion, rather than a more rigorous empirical approach to understanding professional practice (e.g. Lurie, 2012). Challenges in the application and assessment of competency frameworks have also hindered their effective and comprehensive use (e.g. Reeves 2012).

Despite these limitations, the Canadian Interprofessional Health Collaborative (CIHC)

and US-based Interprofessional Education Collaborative (IPEC) have both developed national interprofessional competency frameworks (CIHC, 2010; IPEC, 2011; 2016). Both frameworks were created by small working groups who created them based on reviews of the literature. The IPEC framework consists of four domains and the CIHC framework is based on six competency domains, with both containing more specific lists within each domain detailing key abilities for collaboration. When compared, these frameworks have multiple overlapping domains (Table 1).

TABLE 1 ABOUT HERE

This paper reports on a study of interprofessional collaboration in an ICU, which analyzed data by using these interprofessional competency frameworks to explore their application to actual practice in order to understand implications for the use of a competency-based approach in healthcare practice.

Methods

This study used an ethnographic approach to investigate interprofessional interactions in the ICU setting. Ethnography is concerned with the everyday experiences of individuals, organizations and society, with a commitment to understanding the cultural context in which these experiences and social interactions take place (Emerson, Fretz, & Shaw, 2011).

Setting

The study was undertaken in the ICU of a community teaching hospital in a city in Canada. The closed medical surgical ICU had a maximum capacity of 19 beds. The

physicians attended on a three to four day rotating basis and nurses worked 12-hour shifts. The respiratory therapists rotated throughout the hospital, with two assigned to the ICU for 12-hour shifts. The two pharmacists alternated being in the ICU and in other hospital pharmacist responsibilities. The speech language pathologist, dietitian, social worker and spiritual care worker divided their time between the ICU and other hospital units. One or two medical residents or fellows were frequently on rotation in the ICU. The small number of medical trainees compared to academic hospitals that have larger numbers of trainees, had implications for the nature of physician work. Other workers were the ICU manager and nurse supervisor. The nurse patient care coordinator role had been, but was no longer, in existence in the ICU. The nurse patient care coordinator did not have a patient assignment and oversaw the day-to-day operations of the unit, including teaching new nurses and rounding with physicians.

A short interprofessional meeting occurred in the ICU at 8am, which usually involved the physician, medical resident, two team lead nurses, two respiratory therapists, dietitian, manager and supervisor. Bedside rounds involved the physician, medical residents and bedside nurse, often the pharmacist and sometimes the respiratory therapist. This site was purposefully chosen because we were interested in studying interprofessional collaboration in a community teaching hospital where there was more consistent medical staff in contrast to a large presence of trainees.

Data Collection

The first author (JG) undertook observations and conducted interviews from April to

October 2014 in an observer role (Green & Thorogood, 2004). The observations were undertaken to generate a representative insight of ICU daily practices. In doing so, data collection covered both formal and informal activities, including interprofessional meetings and rounds, nursing huddles, hallway interactions, and shadowing of clinicians. Observations focused on verbal and non-verbal interprofessional interactions. During this period, data were collected on weekdays and weekends throughout the day and night time, although the majority of observations were conducted between 7:30 and 5pm when the range of healthcare professionals was most likely in the ICU. Approximately 160 hours of fieldwork data were gathered. JG did not participate in any clinical activities but partook in informal discussion to discuss observations when feasible. Handwritten notes were made during the observations; as soon as possible afterwards the notes were typed up with greater detail including descriptive details of observations and analytical interpretations.

One-to-one semi-structured interviews were conducted with clinicians and management. The interviews involved questions about individuals' perceptions of their roles and activities, their interactions with other healthcare professionals, interprofessional routines and practices, factors that affect interprofessional collaboration and positive and negative experiences of interprofessional collaboration. A maximum variation sampling approach (Patton, 2002) was used with the aim to interview individuals representing each professional group working in the ICU. The ethnographer informed healthcare workers about the study during observations and meetings, and distributed an information sheet about the study, inviting individuals to participate in an interview. There were people that

did not volunteer to participate. In total, 24 interviews, ranging from 31 to 97 minutes, with an average of 53 minutes, were conducted. Participants consisted of five physicians (including one resident), seven nurses (clinical and managerial), four respiratory therapists, and eight other healthcare providers (representing rehabilitation, pharmacy, social work, spiritual care, nutrition, patient care assistant). Interviews were audio recorded and transcribed verbatim.

Data analysis

Data collection and analysis occurred iteratively. The research team met regularly during the data collection process to reflect on emerging themes and plan for future observations and interviews accordingly. The interview and observation data were then coded using a directed content approach (Hsieh & Shannon, 2005). In this approach, analysis begins with theory or relevant research findings as guidance for initial codes, and in turn aims to further refine, extend and enrich the theory. As data collection proceeded, the research team was particularly interested by individuals' perceptions and activities related to interprofessional collaboration and the organizational factors that shaped them, and how competency frameworks provide for such an understanding of interprofessional education, practice and assessment. Given their overlap, we used both the CIHC and IPEC Competency Frameworks (Table 1) as a means to explore how such frameworks may help generate an understanding of the practice of interprofessional collaboration. Specifically, three competency domains constituted the directed coding approach: 'interprofessional communication', 'roles and responsibilities', and 'teamwork' (see Table 2) Importantly, these three competencies employed as codes for analysis allows for

increased conceptual generalizability and transferability of the study findings, as they are central to both the American and Canadian competency frameworks (Kitto, Chesters, Grbich, 2008). The collection of interview data from varied health care professionals and observation data from a range of areas and events in the unit allowed the study investigators to gain insight to interprofessional interactions and practices from different professional perspectives and in different places, and to compare how people talked about interprofessional interactions and practice to their actual behaviours. JG coded the transcripts and developed the coding scheme. SR and SK reviewed and provided ongoing input on the analytical interpretations.

Ethical considerations

The research was approved by the Research Ethics Board at the hospital where the research occurred.

TABLE 2 ABOUT HERE

Results

This section presents findings in the following three sections: interprofessional communication, roles and responsibilities and teamwork.

Interprofessional communication

The observational data indicated that interprofessional communication occurred informally in the hallways and formally during routines such as the early morning interprofessional meeting at the nursing station and the room-side rounds. Interview participants in general spoke about the importance of interprofessional communication,

particularly given that many had been working for a number of years with each other. Physicians described their efforts to be accessible to other healthcare professionals, as indicated in the following interview extract:

> ...you want to make sure that you're approachable so that people will come up to you when they really need you. To shut people down is, I think, probably worse in the long term. (Physician, Interview #15)

Observations supported these data, showing numerous instances of nurses and respiratory therapists, in particular, approaching physicians in the hallway or knocking on their office door to engage with negotiations around patient care decision-making:

> Respiratory therapist walks over to physician and says: I heard a word I don't like (referring to 'extubate').
> Physician: 'Ok, tell me […]'
> Respiratory therapist: Every time she coughs I hear a sound and she goes purple.
> Physician: This is the way I look at it. What is the risk of keeping her intubated? [...] quite anxious […] tubes contributing to her anxiety. I think it's worth trying […] as long as has a […] If we need to reintubate and I was wrong then will do that. Is that reasonable or am I crazy?
> Respiratory therapist: She's not one of those that's 'extubate me, extubate me'. I'm really worried her chest is so tight.
> Physician: […] had her doing some deep breathing. I don't think she'll ever be one of those. You ok doing it?
> Respiratory therapist: It's up to you.
> Physician: Ok, let's do it. (Fieldnote July)

The findings also provided insight into one-to-one communication and information sharing amongst the range of healthcare professionals to support common understandings of care delivery. For example, observations showed nurses approaching the pharmacist in the hallway to ask questions about patients' medications, the dietitian asking nurses about a patient's feeding status, and nurses asking the physiotherapist to become involved in a patient's care. In the following excerpt, the social worker commented on seeking out nurses to enquire about family concerns:

> I'll say, give me your perspective on what's happening, how the patient is doing, what do you think…there's nothing like having firsthand information from someone observing and hearing. (Social worker, Interview #6)

The healthcare professionals who participated in the morning short interprofessional meeting made some positive comments about this initiative, commenting that it was an opportunity to plan for the day, catch miscommunication and decrease more numerous one-to-one exchanges. They identified this meeting as an opportunity for them to have a high level understanding of the patients on the unit and identify patients for admission and discharge. The observations demonstrated this type of sharing of information such as a patient's status over night, procedures planned for that day and patients expected to be discharged that day. As one respiratory therapist commented:

> ... I would be able to share anything, clarify things that were going on with the patients that we are responsible for and talk about plans for the day. That was actually something that's fairly…newly implemented. I like it. I think it's helpful to get that plan and that perspective. Everyone is on the same page in the morning. (Respiratory therapist, Interview #7)

Although the above findings indicate a valuing of interprofessional communication and individual and organizational efforts to support these interactions in the hallway or in formal meetings, the healthcare professionals described limitations in communication patterns, both due to individual and organizational factors. The data indicated variability particularly amongst the physicians and nurses. For example, nurses commented that not all of their nursing colleagues were comfortable approaching physicians:

> For example this morning, okay so, the patient is drowsy, not well, she was sedated [...] I said to the nurse maybe we should do some gases, some arterial gases, just to see. So she asked the respiratory therapist and he says 'yeah, if you get an order from the physician'. And she's reluctant to ask. (Nurse, Interview #9)

This nurse went on to note that her nurse colleague eventually asked but was discouraged by the abrupt response from the physician and lack of explanation about the decision. Interview participants explained that physician communication with respiratory therapists and nurses was dependent on the particular individuals involved, their personalities and their confidence based on number of years working in the ICU. Physicians explained during interviews that their responses in hallway interactions are affected by the demands in the ICU at that particular moment, as well as by organizational priorities.

While certain individuals valued the morning meeting for its focus on efficiency, bed flow and discharge, others felt that these organization priorities, and the message to limit the nature of information shared during this time to a discharge focus, limited information sharing and exchange. For example, the dietitian noted that physicians determined the information exchanged about patients, which was in turn influenced by whether the physician was closer to the beginning or end of rotation. The dietitian noted that she would be able to more meaningfully engage in discussions about patient care with further patient information that was more relevant to her work:

> I have no idea who these six new people [patients] are, just the basic […] their medication, they have to go up on this or they're not peeing very well [….]. So I have to ask […] afterwards who do you want me to see […] a very vague question as opposed to if I knew a little bit more about the situation then I can stop when they're right on that patient, do they have a feeding tube, can I start feeds, and ask more appropriate questions. (Dietitian, Interview #23)

Organizational funding was another issue that was perceived to affect communication. For example, physicians and nurses reported on the impact of the loss of the nurse patient care coordinator role on communication. The patient care coordinator was seen to facilitate communication between the bedside nurses and physicians by providing

continuity of care, participating in rounds and supporting bedside nurses. Participants described difficulties adapting to this new organizational context, as one physician commented:

> Now rounds are where you get pulled apart and there's interruptions whereas before […] a junior nurse looking after another patient could approach her (patient care coordinator) and say listen I'm having a problem. Do you think this is something the doc needs to know about? (Physician, Interview #24)

Roles and responsibilities

The physicians talked about their understanding and appreciation of other healthcare professionals' input and their reliance on them, particularly the nurses, pharmacists and respiratory therapists, referring to experiences where their contributions had been crucial to patients' care:

> The pharmacist role is quite expansive in our unit, not just for drugs, drug interactions, all those sorts of important things but also when we start making more complex decisions about adding and subtracting medications […] the pharmacy becomes an integral safety check for patients […] (Physician, Interview #24)

The other healthcare professionals, particularly nurses, pharmacists and respiratory therapists, similarly expressed this opportunity to provide input based on their roles in patient care:

> With Room [#] today, the nurse there felt that that patient wasn't ready to go yet […] she advocated for the patient. He's not ready to go. He's having some breathing issues on top of his other things [….] So, he's staying. (Nurse, Interview #3)

The senior nurses in particular described the physicians' recognition of their roles in patient care given their many years of working in the ICU. For example, one nurse explained that the physicians would respond to her request for sedation for a struggling

patient given her experience in the ICU. One respiratory therapist summarized the overall perceptions of respect for each other's roles:

> …and all of the disciplines respect. Pharmacy will say something. Dietitians will say something, same as physio. So everything works well because we all, I think we all listen to one another and work as a team […] nobody thinks they're more important than the next person." (Respiratory therapist, Interview #8)

Yet not all healthcare professionals had the opportunity to optimize their potential role contributions; two factors affecting this were organizational issues and availability of space to engage in such negotiations. Since the social worker, speech language pathologist and dietitian did not work in the ICU full time, they were only available in the ICU at particular times. This limited physical presence affected their opportunities to promote their contributions to patient care and decision-making. They discussed strategies they used to engage in teamwork in the ICU, such as communicating with nurses for updates on patients. The physicians, in turn, described not being able to rely on these staff because of their limited availability, and therefore adapted their practice accordingly:

> I think our social worker has multiple hats or multiple units that she works on. So she's pulled in multiple directions and the same thing with the dietitian […]. (Physician, Interview #24)

Observations demonstrated limited opportunities for different healthcare professionals to meet and engage in workplace learning. While there was a sense that healthcare professionals in the ICU respected other professionals' contributions to patient care, there was also reflection on the lack of organizational structures to enable interprofessional input and negotiations around professional contributions to care; as one of the respiratory therapists explained, there is a respect for other professionals' roles, yet a lack of opportunity to maximize how professionals could contribute to care:

> What I'm talking about is…using a less common mode of ventilation or a newer mode of ventilation […] the understanding between the respiratory therapists and the doctors, it's not always there and there is not a huge opportunity usually to discuss it. (Respiratory therapist, Interview #7)

Teamwork

The participants recognized the importance of teamwork, particularly given the limited staff turnover in this community hospital:

> Well, there's no room to be rude or dismissive […] Sometimes it's difficult not to get frustrated if things aren't happening the way you want…You have to bite your tongue for the sake of the relationship and you kind of work your way through. (Physician, Interview #4)

The data indicated that the ICU staff spoke positively about coordination of care amongst the different healthcare professionals. For example, a nurse commented that the nurses and respiratory therapists will pull blood gases for each other, and respiratory therapists, nurses and the physiotherapist described coordinating the suctioning of patient secretions. Interview and observation data demonstrated these types of interactions, showing elements of both proclivity and proactivity to coordinating care. These interactions were observed particularly amongst the health care professionals other than physicians:

> The nurse says that there is good teamwork in the ICU, that she has worked there for 8 years. When I ask her what she means by teamwork she says that whenever you need help, they're there, even without asking. I ask who she is referring to, and she says patient care assistants, respiratory therapists if patient is intubated or ventilated, nurses and physiotherapist. (Fieldnote April 21, 2014)

> Patient care assistant: Do you need a hand with anything?
> Nurse: Actually, yea, let's turn her.
> They close the curtain in the room. I can hear nurse telling patient that they are going to be turning her. (Fieldnote - September)

Bedside rounds could be seen as one of the main strategies used in this ICU to support team functioning. The physicians, bedside nurses and pharmacist were the core

participants, and the respiratory therapist tried to attend when they perceived a need for their involvement. The physicians were explicit about the importance of nurse contribution to the process of a team approach:

> Their voice is important in a team management and patient management point of view. (Physician, Interview #24)

Yet the structure and participation in team-based rounds varied by the attending physician, as this observation indicated:

> I ask pharmacist about rounds that morning. She says that this physician doesn't always do rounds with all of them, tends to do more on own. Also not very busy and he was doing a bunch of discharges so combination of issues. (Fieldnote - June)

The organizational funding limitations also affected an interprofessional approach during bedside rounds. There was an acceptance amongst the participants and the other healthcare professionals, such as the physiotherapist, dietitian and social worker that it was not feasible for these other healthcare professionals to participate in rounds because they did not have the time to do so. This had implications for a team approach to care:

> Generally we don't have a physiotherapist on rounds with us or a dietitian on rounds with us. Either we make more of the decisions ourselves or those decisions are made discontinuously, so they're made episodically. The dietitian will come to me later in the day or we'll talk to them earlier in the day. (Physician, Interview #4)

Organizational factors also impacted a teamwork approach. The hospital's discharge policy impacted on the start time and order of bedside rounds. Given the pressures for timely discharges and the need for physicians to undertake the discharge routine, they prioritized seeing patients who were ready for discharge. As a consequence, other ICU staff were forced to work around these timeline and routine priorities set by the hospital.

The pressure for timely discharge also was perceived to influence a team approach to decision making about patient extubation and sedation. While there were numerous instances of physicians, respiratory therapists and nurses creating a team approach to decision making, there were also disagreements, in decision making about these issues, which affected their experience of teamwork. During interviews, ICU staff frequently drew upon the organizational priorities concerning discharge in their interpretations of factors affecting decision-making, yet they demonstrated varied types of responses:

> "best practice says minimal sedation or no sedation…they supposedly, improve and leave the ICU days faster than if you use sedation […] Often the physician will say, oh, that nurse over-sedates too much […] but it's patient specific and it's also nurse specific […] It's so emotionally draining to look after somebody that's confused and yelling, you know, that threw the urinal at the nurse. It's a safety issue…Like I said, I know their slant, I know what they're going for […] They have to sacrifice the number of days that the patient stays in the unit for the safety of the patient, the calmness, and, I shouldn't say it, but for the nurses' sanity." (Nurse, Interview #21)

While the healthcare professionals presented different interpretations during interviews for their actions, there were limited formal opportunities to reflect upon and discuss patient care decision-making. Findings indicated that collaborative learning opportunities that could support the performance of teamwork competencies were largely initiated through informal one-to-one interactions. For example the physiotherapist initiated questions with medical residents about developments in the literature and nurses asked the physician or pharmacist questions during rounds to enhance their knowledge of differing clinical issues. The challenge was that the ability for ICU staff to engage in these informal learning activities, particularly with physicians, was contingent on the clinical demands in the ICU at any particular point in time:

> I think (bedside) rounds now, I wish they were teaching rounds. Rounds are, you don't have a lot of input and that's what's changed too. Before as a nurse you could ask questions, and some of the doctors are okay. I mean, I'm older so I ask. I don't really care, I just ask. (Nurse, Interview #9)

The physicians viewed their role in educating other healthcare professionals to different degrees. In addition, physicians described the patient demands on their time and their responsibility to medical education, which affected their opportunities to engage in learning oriented discussions with other healthcare professionals.

Observations indicated that efforts to educate were largely focused on the nurses during their daily huddle. At times others, such as the pharmacist, presented on a practice change or patient care approach during huddle, yet the participants were usually nurses and patient care assistants, which limited a teamwork approach to learning. Many of the participants supported the need for interprofessional learning opportunities.

Discussion

The findings from this study support the use of interprofessional competency frameworks in health professions education while drawing attention to factors related to their implementation in a Canadian ICU setting. Activities linked to interprofessional communication, professional roles/responsibilities and teamwork, as outlined in interprofessional competency frameworks were evident in healthcare professionals' attitudes and behaviours in this study. Our findings demonstrated that healthcare professionals recognized these interprofessional competencies as important. However, our data revealed that there continues to be variability in implementing these competencies in their clinical practice. The use of interprofessional competency-based

frameworks can be useful for explicitly outlining the expectations of education programs to promote competencies that support a more consistent approach to interprofessional collaboration (Hawkins et al., 2015). However, the variability in individuals' practices were also influenced by contextual (i.e. organizational) factors such as timely discharges and limited resources for interprofessional learning. The variability in our findings reflects research demonstrating both collaboration and conflict in ICU settings (Xyrichis et al., 2017), and that interprofessional interactions are not solely about individuals' competencies; rather, the clinical contexts in which they work shape the nature of these interactions (Liberati, 2017).

Competency frameworks will have minimal practical value for education if they are not connected with the real world of practice (ten Cate, 2010; Reeves 2012). Our findings therefore have important implications for how we implement interprofessional competency frameworks to ensure their relevance to, and impact on, interprofessional practice. The orientation of competency frameworks towards the achievement of defined outcomes has raised concerns that insufficient attention is granted to the process of education (Morcke, Dornan, & Eika, 2013). Interprofessional education that focuses on competences related to communication, professional roles and teamwork abilities, which are removed from the realities of clinical contexts, is arguably ineffective, as it most likely overlooks the complexities of working in an interprofessional environment. Furthermore, interprofessional education that occurs in a classroom based setting may have less relevance when healthcare professionals move into the clinical setting (Frenk et al., 2010; Joynes, 2017). Bringing interprofessional workplace patterns and conflicts to

the forefront, in classroom and workplace based learning, should be a focus of educators (Boet, Bould, Burn & Reeves, 2014; Ward et al., 2017). Given the findings of this study, interprofessional education in the ICU could, for example, include attention to interprofessional tensions about decision making about extubation; reflections on the nature of information sharing in time pressured interprofessional rounds; and different interprofessional dynamics that might exist amongst more experienced healthcare professionals.

The competency-based education movement involves the development of methods to assess whether healthcare professionals demonstrate the required competencies. This movement is being marked by new methods such as entrustable professional activities and milestones (ten Cate 2005; Wagner & Reeves, 2015) as well as workplace based assessment approaches (Sonnenberg, Pritchard-Wiart, Hodgson, Yu, & King, 2017; Olupeliyawa, Balasooriya, Hughes, & O'Sullivan, 2014). In the context of the ICU studied, these kinds of assessment approaches may be useful, for example, to determine whether a medical resident (trainee) is capable of listening to a respiratory therapist's interpretation of a patient's needs and engaging in an interaction that attends to both professional perspectives. However, such an assessment may not reflect the challenges experienced by that clinician when having to attend to interprofessional interactions in addition to hospital pressures for discharge. In addition, the observation opportunities may be limited by the structural conditions that exist in the unit such as the organization of the early morning interprofessional rounds. Given the importance of better understanding the relationship between assessment and learning, attention is needed to

ensure that interprofessional education and assessment recognizes the complexity of interprofessional interactions and how healthcare professionals can help to create conditions that optimize interprofessional interactions. In addition, the findings from this study demonstrate the impact that factors such as workplace experience and organizational changes have on interprofessional interactions, and therefore the importance to viewing such competencies as requiring ongoing attention and learning.

Our findings further support the need to ensure that competency frameworks do not deflect attention from healthcare organization's responsibility to create the conditions for interprofessional collaboration. Our study found that interprofessional competencies are difficult for professionals to enact within an organizational context where priorities linked to resources allocation for patient flow and discharge provide limited opportunities for collaborative learning and practice. Expecting healthcare professionals to have a core set of interprofessional competencies is a laudable goal, yet the organizations in which these individuals work have a critical role to play in creating the structures to enable the practice (Aveling, Parker, & Dixon-Woods, 2016). In relation to the wider literature, in a survey of over 600 clinical teams (Dixon-Woods et al., 2014) it was found that in addition to effort and skills of team members and good processes, organizational resources made available to teams including adequate staffing levels, were critical to their success. Top-down targets such as those related to admission and discharge, can result in healthcare providers focusing on throughput rather than interprofessional collaboration and quality of care (Allard & Bleakley, 2016; Goldman et al., 2016). Given the resource pressures in healthcare systems, it is important to be conscious of both the messages of

interprofessional collaboration targeted at the individual level and the organizational resources being invested to enables these ideals.

This study is limited in a number of ways. Data were gathered from a single community-based ICU in Canada limiting empirical generalisability; interprofessional interactions and the organization of care in this ICU may differ in other settings. Also, the sampling strategy aimed to capture a range of professional perspectives yet not all healthcare professionals working in the ICU could be interviewed and therefore it is possible that further interviews would have contributed additional insights into the themes presented. We chose to focus on three shared competencies contained in the Canadian and American interprofessional frameworks (i.e. interprofessional communication, roles and responsibilities, and teamwork). As a result, the other competencies in these frameworks (i.e. collaborative leadership, interprofessional conflict resolution, values and ethics for interprofessional practice, patient/client/family/community-centred care) were not a focus of this study. Nevertheless, as noted above, the use of three key competencies contained in the North American frameworks as analytical codes helps increase the study's conceptual generalizability and transferability of its findings (Kitto et al., 2008). Furthermore, the challenges identified in this setting, including human resources, patient flow and limited opportunities for formal workplace learning, are likely to be common across ICU settings, and so implications presented in this paper would be relevant in broader discussions of competency-based education.

This paper adds to the accumulating evidence of interprofessional interactions in the ICU setting. Its unique contribution is that it has employed ICU data to illuminate issues related to the implementation of interprofessional competency frameworks. As the competency-based education system continues to take hold, further research is needed to better understand how to draw upon the rich sociologically informed literature on interprofessional interactions in health care to ensure that curricular and assessment approaches reflect the complexity of real life practice. This could include the development and evaluation of workplace based education that addresses the interprofessional issues characteristic of the ICU as well as assessment practices that enable opportunities to reflect upon individuals' behaviors within the contexts in which they are embedded. In addition, this study adds to our understanding of the use of the interprofessional competency frameworks as a tool for conducting directed data collection and analysis in ethnographic research. However, it should be noted that while we chose to focus on three key competencies (interprofessional communication, roles and responsibilities, and teamwork), we did experience difficulties in using these competencies in relation to the other competencies contained in the North American frameworks due to difficulties in disentangling their interconnected and overlapping nature. This issue suggests limitations with operationalizing these competencies for research purposes. Nevertheless, this presents opportunities for future exploratory research to improve the conceptualization and situated meanings of these competencies in the ICU and other settings. These findings would then inform the development of a tool that could be used for research purposes, and perhaps also contribute to further clarifying

the definitions of interprofessional competencies for teaching, learning and assessment purposes.

Concluding comments

This paper employed interprofessional competency frameworks as a lens to analyze interprofessional interactions in an ICU. Observations and interviews demonstrated that competencies related to interprofessional communication, professional roles/responsibilities and teamwork had a clear relevance in this context. However, as the study showed, the enactment of interprofessional collaboration is dependent on a range of contextual factors that can enable (or impede) clinicians to practice the key competencies as outlined in the interprofessional competency frameworks. There are therefore risks of emphasizing individual competencies at the expense of broader contextual factors. Future research should attend to how the competency-based education movement incorporates the sociologically informed literature on interprofessional interactions into its education and assessment approaches.

End Note

1. In this paper we define interprofessional collaboration as a "process of developing and maintaining effective interprofessional working relationships with learners, practitioners, patients/clients/families and communities to enable optimal health outcomes" (CIHC, 2010, p. 8).

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Table 1: Interprofessional competency domains

CIHC Competency Domains	IPEC Competency Domains
1. Interprofessional communication* 2. Patient/client/family/community-centred care 3. Role clarification* 4. Team functioning* 5. Collaborative leadership 6. Interprofessional conflict resolution	1. Values and ethics for interprofessional practice 2. Roles/responsibilities* 3. Interprofessional communication* 4. Teams and teamwork*

*Overlapping competency domains

Table 2: Select details of interprofessional competency domains used in data analysis

CIHC/IPEC Competency Domains	Select details
Interprofessional communication	Practitioners from varying professions are expected to communicate with each other in a collaborative, responsive and responsible manner. This includes more specific competencies such as the use of effective communication tools and techniques, listening actively, and using respectful and appropriate language.
Roles and responsibilities	Practitioners are expected to understand their own role and the roles of those in other professions, and use this knowledge appropriately to establish and meet patient/client/family and community goals. This includes specific competencies of recognizing one's limitations in skills, knowledge and abilities and engaging diverse healthcare professionals who complement one's own professional expertise.
Teamwork	Practitioners are expected to understand the principles of team dynamics and group processes to enable effective interprofessional team collaboration. Specific teamwork competencies include applying leadership practices that support collaborative practice and team effectiveness and sharing accountability with other professions for outcomes relevant to health care.