

**Clinical Handovers by Paramedics in the Emergency Department:  
A Focused Ethnographic Study in an Urban Hospital in Northeastern Ontario**

by

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A thesis submitted in partial fulfillment  
of the requirements for the degree of Master of Science in Nursing (MScN)

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### **Abstract**

Clinical handover is a high-risk communicative process that involves the exchange of clear and concise patient-focused information between healthcare providers during the transfer of professional responsibility and accountability for patient care. When a patient is transported to hospital by Emergency Medical Services the trajectory of their care in the emergency department is influenced by the clinical handover given by a paramedic to a registered nurse. A focused ethnographic study was conducted to explore the process of Emergency Medical Service clinical handover within the emergency department of a small urban hospital in Northeastern Ontario from the perspective of the paramedic. The findings revealed paramedic handover was influenced by the communication context including attitude of attention and assurance, both reflected in the professional dynamic between the paramedic and ED staff; the ambience of the ED reflected in the physical layout and activity level of the ED; and the patient acuity reflected in the assigned Canadian Triage Acuity Scale level and frequency of individual visits to the ED.

The study provides evidence that paramedics strive to deliver concise, accurate communication of a clinical handover so that ED patients receive safe, competent care and that there is opportunity to improve on the organizational and cultural practices of clinical handover in the ED.

Keywords: paramedic OR emergency medical services OR EMS, registered nurse OR RN, handovers OR handoffs, also emergency department, OR A&E.

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## **Chapter 1**

### **1.1 Study Introduction**

Clinical handover is an essential communicative process and high-risk activity that occurs during the transfer of professional responsibility and accountability for patient care (Eggins & Slade, 2015; Evans et al., 2010b; Dawson et al., 2013; Owen et al., 2009; Reay et al., 2017; Scovell, 2010). In the emergency department (ED) handover is recognized as a vulnerable point of care (Dawson et al., 2013) that has an immense influence on the trajectory of patient care (Panchal et al., 2014) and safety (Fahim Yegane et al., 2017). Handovers in the ED frequently occur between a paramedic and a registered nurse when patients are transported to hospital by Emergency Medical Services (EMS). In the handover the paramedic conveys essential information about the patient to support continuity of care and decision-making (Chung et al., 2011). The content of the handover may include patient-related details such as medical condition, history, hemodynamic stability, presenting concerns; family dynamics; paramedic intervention and designation of the patient care urgency (Aase et al., 2011; Bruce & Suserud, 2005; Maxson et al., 2012; Tucker et al., 2009). The ED nurse uses the handover content to independently establish the urgency of patient need for primary care which influences resource allocation and plan of patient care (Reay et al., 2017). Optimal exchange of information in a clinical handover is essential for timely, efficient, and effective ED care (Reay et al., 2017). Suboptimal clinical handover is a leading cause of medical error and patient harm (Dingley et al., 2008).

### **1.2 Statement of the Problem**

The World Health Organization (WHO) has recognized communication when performing clinical handovers as one of the top five priorities for improving patient safety (Fitzpatrick et al.,

2018; Jensen et al., 2011; Scovell, 2010). In 2009, the WHO Joint Commission published a recommendation that organizations implement a standardized collaborative clinical handover reporting system (cited in Chung et al., 2011). Acceptance of best practices for clinical handovers has yet to occur on a large scale (Aase et al., 2011).

As the researcher of this study, I have years of experience as an ED nurse and have witnessed how a well-organized, comprehensive clinical handover can improve patient care and safety and how a vague, inadequate clinical handover can contribute to adverse outcomes. During a clinical handover, miscommunication can be a significant origin of preventable medical errors (Peer et al., 2020). Inadequate clinical handover between a paramedic and ED nurse places the patient at increased risk for harm due to incorrect triage decisions (Reay et al., 2017).

Numerous factors contribute to the potential for inadequate clinical handovers. These include lack of formal training on how to perform a handover; environmental distractions; healthcare provider inexperience in the handover process; lack of common clinical handover structure between health care professionals; difficulties in creating a shared cognitive picture of the patient's condition; and tension in the working relationship between paramedics and ED staff (Aase et al., 2011; Altuwaijri et al., 2019; Bost et al., 2012; Najafi Kalyani et al., 2017; Owen et al., 2009; Sujan et al., 2015). These factors have the potential to compromise the accuracy of information exchange and may cause misunderstanding that jeopardizes patient safety (Bost et al., 2012; Chung et al., 2011; Dawson et al., 2013; Eggins & Slade, 2015; Jensen et al., 2009; Klim et al., 2013).

Communication failures contribute to adverse outcomes in the clinical setting and are the root cause of adversity in more than 80% of reported sentinel events (Bost et al., 2012; Chung et al., 2011; Sujan et al., 2015). Inadequate clinical handovers are associated with adverse patient

harm events such as treatment delay, redundancies in treatment, medication error, wrong-site surgery, and patient death (Dawson et al., 2013; Eggins & Slade, 2015; Jenkin et al., 2007; Klim et al., 2013). These adverse events underscore clinical handover as a high-risk communication process (Bost et al., 2012; Dojmi Di. Delupis et al., 2016; Patterson & Wears, 2010).

Within the ED, clinical handovers can be high risk and complicated as patients presenting by EMS represent all sectors of society, can be of any age, and arrive with any type of clinical condition (Carter et al., 2009; Jenkin et al., 2007). The clinical handover between paramedic and ED nurse is a patient-focused process that requires concise communication of salient information (Bruce & Suserud, 2005). Clear, concise communication is of utmost importance for lifesaving emergent intervention for the care of critically ill patients (Carter et al., 2009). Failure to communicate, listen and understand the clinical handover accounts for a large number of patient adverse events (Bigham et al., n.d.).

There is a knowledge gap in our understanding of EMS clinical handovers to the ED. At present no dataset exists for determining adverse event rates in the EMS system at the local or national level but it is recognized that multiple handovers to multiple healthcare providers contributes to adverse patient events (Bigham et al., nd). What is known is that despite being an essential patient-focused process, there is a limited formal curriculum to prepare healthcare professionals for giving clinical handovers (Owen et al., 2009; Scovell, 2010). Instead, the clinical handover is learned through clinical practice prior to graduation and then further developed in professional practice. Each paramedic relies on their clinical judgment and training when assessing and executing their clinical handover. Clinical judgment and training were profoundly identified as the most significant risk to patient safety (Bigham et al., n.d.).

Lack of accepted standard clinical handover content means that paramedics must recognize and communicate salient information and use clinical judgement to communicate the exchange of information (Jensen et al. 2011; Reay et al., 2017; Tanner, 2006). The multidisciplinary context of the ED adds to the complexity of clinical handover if a common language for and understanding of how to conduct the information exchange is not shared by the healthcare providers. A concise clinical handover from paramedic to ED nurse that conveys the patient's condition, treatment received, vital signs, and medical history supports continuity of care and decision making that enables timely patient care (Chung et al., 2011).

### **1.3 Organizational Culture**

Organizational culture is a system of shared assumptions, rituals, stories, routines, behaviours, symbols, values, and beliefs that shape behaviours, and is often formalized in organizational policy (Charmain, 2015; Thallner, 2016). Organizational culture dictates how individuals act, perform their jobs, and dress (Thallner, 2016). New members learn from others within the organization through socialization (Charmain, 2015) and the shared values often have a deep-seated influence on the members (Thallner, 2016). Different organizations have different cultural goals and exhibit different local cultures and behaviours (Owen et al., 2009; Meisel et al., 2015; Najafi Kalyani et al., 2017).

Paramedic practice involves the pre-hospital emergency assessment, management, treatment, and transport of persons with injuries or potentially life-threatening disorders (Williams, 2012). As first responders to a call for urgent medical care, paramedics focus on initiating life-saving treatment and rapid transport of the patient to the ED and must rely on memory for handover as they may have little time to record extensive clinical information while caring for the patient on route to the hospital (Evans et al., 2010a). In Ontario, all paramedics

earn a diploma from a recognized two-year college program (Ontario Paramedic Association [OPA], 2019a). The primary care paramedic program curriculum emphasizes anatomical and physiological mechanisms involved in acute injuries and illness and pharmacology (OPA, 2019a). The Ontario College of Paramedics is the governing body for paramedics in Ontario and responsible for forming entry to practice requirements, creating, endorsing, and enforcing practice standards for all paramedics, and developing competency requirements and professional conduct standards (OPA, 2019b). The College is also responsible for governing quality assurance and continuing education programs to develop and enhance relations between the College, its members, other healthcare professional colleagues, key stakeholders, and the public (OPA, 2019b). In the line of duty, the actions of paramedics are governed by their organizational culture which is guided by evidence-based decision-making and pursues best practices to provide optimal patient care (Ontario Paramedic Chiefs, nd). The paramedic culture is distinct from other aspects of healthcare. As allied healthcare professionals, paramedics work independently and dependently with base hospital physicians to provide the highest level of medical care outside of the hospital for the sick and injured in an unpredictable environment (Health Professions Regulatory Advisory Council, 2013).

EDs create their own culture beyond the organizational values of the hospital in which the ED is situated (Person et al., 2013). During a clinical handover, the paramedic and ED cultures meet. As distinct entities, the paramedic and ED cultures may not share the same language, hierarchies, or values (Jensen et al., 2013). Merging these cultures is needed to enhance clinical handovers quality (Jensen et al., 2013). The existing research has primarily focused on patient handovers involving doctors and nurses during shift change within an

organization (Owen et al., 2009; Wood et al., 2015). This has left a knowledge gap in our understanding of clinical handovers from EMS to hospital ED staff.

#### **1.4 Significance of the Study**

This study intends to provide a basis for understanding the paramedic perspective of what factors influence their clinical handover to ED staff. To date, there is relatively little research on clinical handovers between different professions, with few studies focused on the experience of clinical handovers from paramedics to ED nurses (Aase et al., 2011; Owen et al., 2009). There are no research studies on clinical handover from EMS to ED in Northeastern Ontario. The study of clinical handover between paramedics and ED staff may reveal challenges that are unique to a small urban hospital in a northern community. The opportunity to gain insight into the clinical handover may allow for a deeper understanding of the individual, practical, cultural, and organizational factors that influence optimal clinical handovers from paramedics to ED staff.

#### **1.5 Document Review**

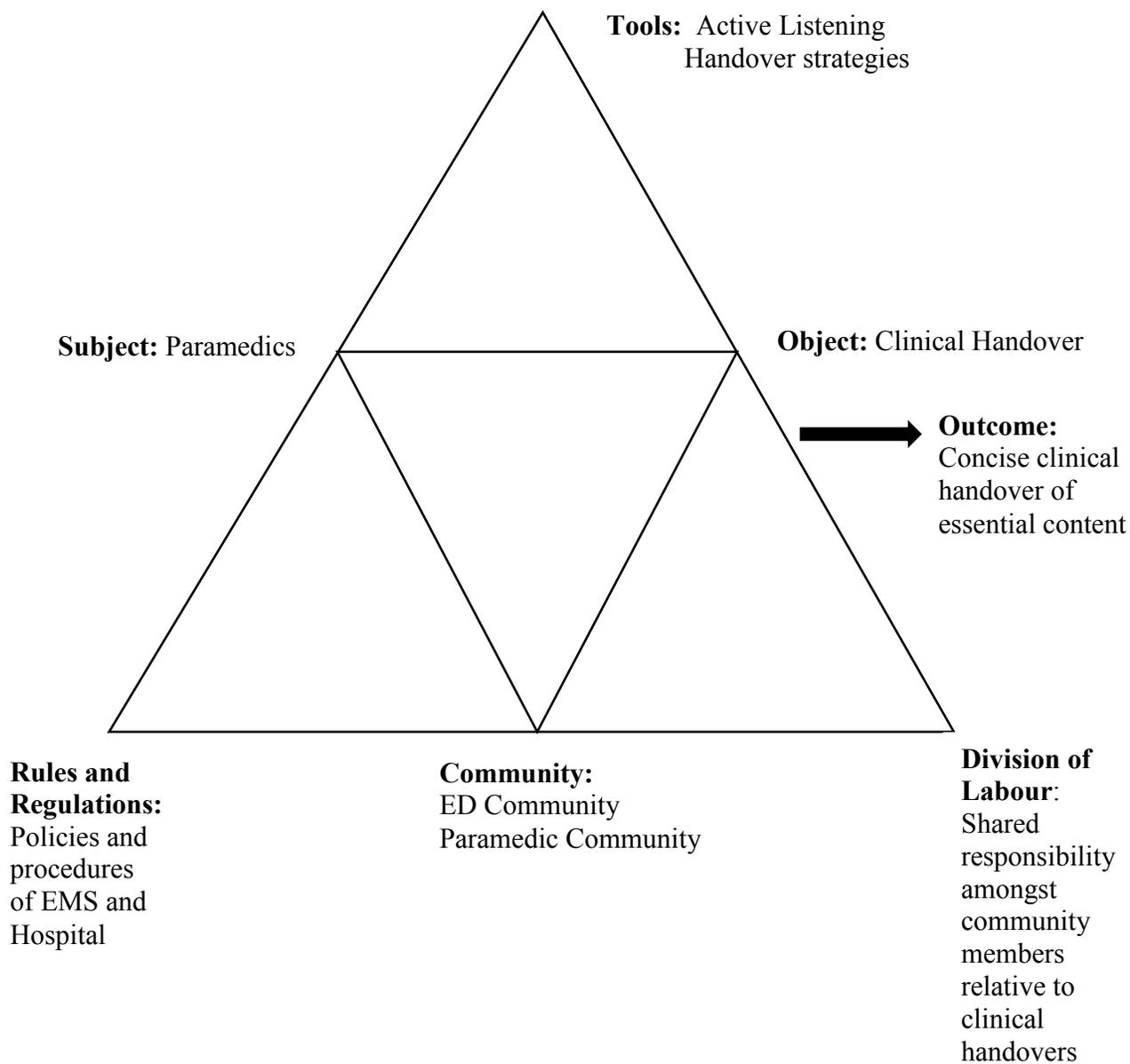
To enable greater understanding of how paramedics function, pre-existing documents pertaining to the EMS and hospital policies and procedures specific to clinical handover communication in the ED will be examined.

#### **1.6 Cultural-Historical Activity Theory**

The Cultural-Historical Activity Theory (CHAT) is a framework that has been used by researchers to analyze complex and evolving professional practices (Foote, 2014) and to facilitate an understanding of human activity in real-world situations (Yamagata-Lynch, 2007). The hypothesis underlying the CHAT framework is that people are enculturated which means their actions are influenced and are derived from their cultural values and resources (Foot, 2014).

The CHAT is based on the ideas of an activity system developed by the psychologist Alexei Leont'ev (as cited in Wilson, 2014). Leont'ev postulates that collective activity systems have a particular motive or object that participants achieve through various interventions (Wilson, 2014). Leont'ev established activity as the CHAT component that combines human behaviour and mental processes (Yamagata-Lynch, 2007). Activity is regulated by the interaction between subject, object, motivation, action, goals, sociohistorical context, and the activity's consequences (Yamagata-Lynch, 2007) (Figure 1). Within the CHAT framework the object motivates the activity system as a whole (Wilson, 2014). The subject is the person or group whose perspective is the emphasis of the analysis (Wilson, 2014). The community, tools, rules, and division of labour identify how the subject is expected to behave and how the subject is expected to do the activity to achieve the objective (Wilson, 2014). The CHAT provides a framework and language for understanding of what is revealed about a situation through observation, interviews, and other methods (Hasan & Kazlauskas, 2014).

**Figure 1**  
*Cultural-Historical Activity Model*



Note: Figure adapted from Engerstrom (2001, as cited in Verenikina, 2010)

### **1.7 Purpose of the Study**

The purpose of this study was to explore the paramedics' emic perspective of the process of clinical handover to ED staff in the ED in a small urban hospital. The opportunity to gain insight into the clinical handover experience of paramedics in the ED will support a deeper understanding of the individual, practical, and organizational factors that influence the efficient transfer of patient care from EMS to the ED.

### **1.8 Organization of the Thesis**

This chapter presented an overview of clinical handover to establish the significance of this communicative process that occurs during the transfer of responsibility and accountability for patient care from EMS to the ED. Chapter 2 provides an appraisal and review of empirical research of clinical handovers in the ED and establishes the research question for this thesis. Chapter 3 presents the study methodology, research design and methods. Chapter 4 provides a rich description of the paramedics' perspective of clinical handovers in the ED. Chapter 5 presents a discussion of the study results and includes consideration of the study's limitations.

## Chapter 2

### 2.1 Literature Review Introduction

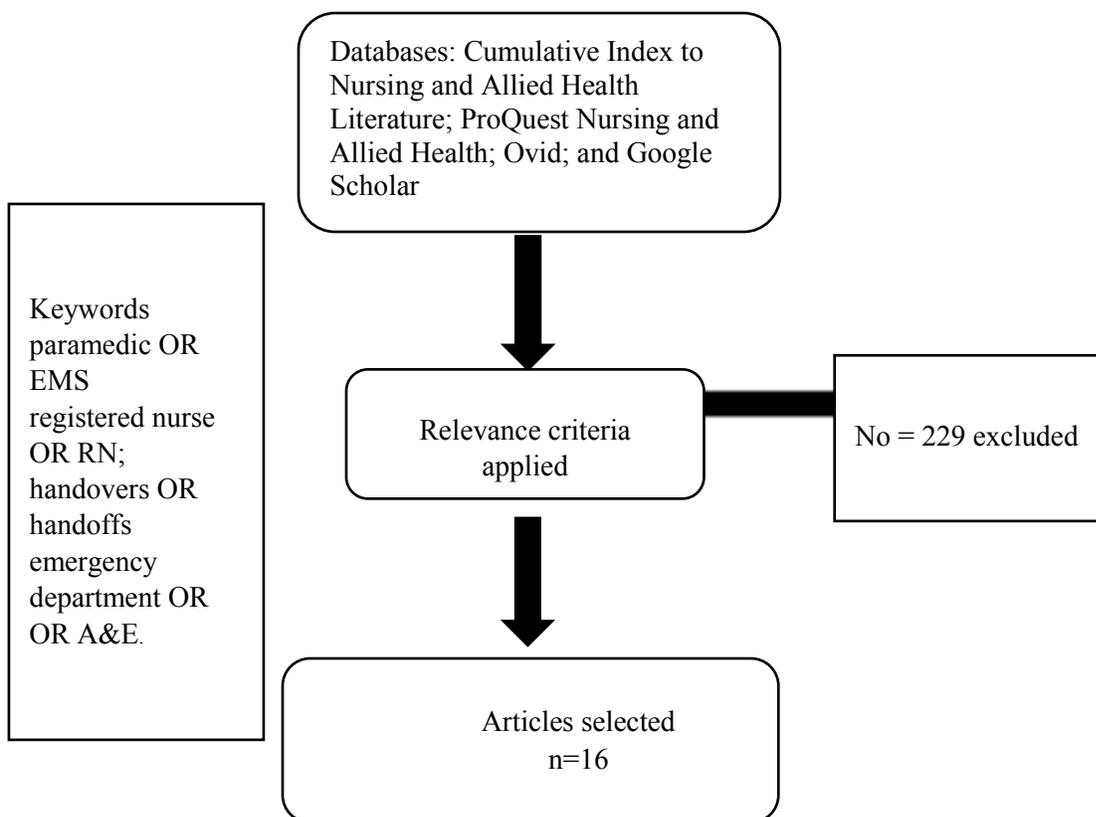
Clinical handover is a complex process that requires the use of communication, collaboration and information gathering skills (Peer et al., 2020) during the transfer of patient care. Effective clinical handover has been associated with increased patient safety, enhanced record keeping, heightened decision-making, and patient care continuity (Wood et al., 2015). Research on clinical handover includes studies that focus on intraprofessional handovers (Lyons et al., 2010; Manser & Foster, 2011; Mayor et al., 2012) and interdepartmental handovers (Vinu & Kane, 2016; Uhm, et al., 2018). These studies were not included in this review as the intention was to focus on paramedic to ED staff handover to identify factors that impact the communicative process between EMS and the hospital and determine best practices.

It is important to consider the paramedic perspective of the clinical handover in the ED given this critical patient-centered communication process requires the exchange of information between different healthcare professions at the interface of EMS and hospital care. As the first responder the paramedic is witness to the condition and circumstance of the patient in the community and responsible for safe, rapid transport of the individual to hospital. As a healthcare professional external to the ED, the paramedic may have unique insight into issues that influence the handover in the ED. Given the paucity of published research on clinical handover from paramedic to ED nurse, the search was expanded to include handovers to ED staff, including physicians and trauma team, to ensure a comprehensive overview of paramedic handover in the ED.

## 2.2 Literature Search Method

A comprehensive electronic search was carried out using Cumulative Index to Nursing and Allied Health Literature, ProQuest Nursing and Allied Health, Ovid, and Google Scholar to identify research studies that explored EMS handover in the ED (Figure 2). In consultation with an academic librarian, the search terms were refined to include paramedic OR emergency medical services OR EMS, registered nurse OR RN, handovers OR handoffs, also emergency department, OR A&E. The search was limited to English-language literature published between 2008 and 2021, and articles available in full-text. The search yielded 350 articles of which 105 were duplicates. Abstracts of 245 articles were screened for relevance. Studies were removed if the sample did not include paramedics, ED nurses or other ED personnel (n=125) or if the articles did not have a primary focus on clinical handovers (n= 104). The remaining 16 studies were retrieved for a full review. The primary search strategy was supplemented by a hand search of the reference lists of the 16 articles and a request for colleagues to search their personal libraries. No more studies were added.

**Figure 2**  
*Published Literature Search Strategy*



Selected articles (first author) by **primary focus**

**Essential Content and Information Transfer:** Goldberg (2017); Meisel (2015); Iedema (2012); Evans (2010a); Evans (2010b); Carter (2009); Panchal (2015); Yong (2008)

**Handover Strategies:** Altuwaijri (2019); Fahim Yegane (2017); Sujana (2015); Aase (2011)

**Handover Interactions:** Najafi Kalyani (2015); Veldstra (2015) Bost (2012); Owen (2009)

### 2.3 Appraisal of Selected Literature

The studies included in this review were authored by researchers from Australia (Bost et al., 2012; Evans et al., 2010a; Evans et al., 2010b; Iedema et al., 2016; Owen et al., 2009; Yong, et al., 2008), Iran (Fahim Yegane et al., 2017; Najafi Kalyani et al., 2017), Norway (Aase et al., 2011), United Kingdom (Altuwajiri et al., 2019; Sujan et al., 2015), and the United States (Carter et al., 2009; Goldberg, et al., 2017; Panchal, et al., 2015; Veldstra et al., 2015). Initial filtering of the literature based on research methods revealed nine studies were qualitative (Aase et al., 2011; Altuwajiri et al., 2019; Bost et al., 2012; Evans et al., 2010b; Meisel et al., 2015; Najafi Kalyani et al., 2017; Owen et al., 2009; Sujan et al., 2015; Fahim Yegane et al., 2017). Five studies used quantitative methods (Carter et al., 2009; Evans et al., 2010a; Goldberg et al., 2017; Panchal et al., 2015; Yong et al., 2008) and the remaining two studies used mixed methods (Iedema et al., 2012; Veldstra et al., 2015). All the research studies used purposeful sampling. All except one (Meisel et al., 2015) included paramedics and ED staff as study participants. Meisel et al. (2015) focused exclusively on paramedics (n=48).

Two studies (Fahim Yegane et al., 2017; Iedema et al., 2012) ranked as Level III evidence, and the remaining studies ranked as Level IV using a level of evidence schema (Appendix A) adapted by Levin and Jacobs (2012) from the work of Stetler et al. (1998) and Melnyk & Fineout-Overholt (2005). Levels of evidence are appointed to studies founded on the methodological quality of their design, validity, applicability to patient care (Penn State University Libraries, 2020). If a study is low on the Hierarchy of Evidence but found to be consistent with other studies on the subject, then a solid recommendation can be made from the results (Penn State University Libraries, 2020). Table 1 presents a descriptive overview of the selected studies.

**Table 1**  
*Descriptive Overview of Literature*

<i>Primary Author Location</i>	<i>Study Objective</i>	<i>Design/Features</i>	<i>Descriptive Label</i>
Aase (2011) Norway	Identify PM and ED nurse perceptions of HOs and the functioning of a standardized HO protocol 2 years post implementation.	Exploratory; multistage focus groups	Handover Strategies Essential Content and Information Transfer Handover Interactions
Altuwaijri (2019) United Kingdom	a) Identify factors that constrain the effective use of the electronic Patient Report form for PM HO to ED staff b) Identify how these might be resolved.	Interview and observation	Handover Strategies Essential Content and Information Transfer Handover Interactions
Bost (2012) Australia	a) Explore HO process between PM and ED staff. b) Identify factors that impact the information transfer. c) Identify strategies for improvement.	Focused ethnography/ Grounded theory constant comparative	Handover Interactions Essential Content and Information Transfer Handover Strategies
Carter (2009) United States	Identify checklist content provided in PM HO and documented by trauma team.	Pilot observational performance improvement process	Essential Content and Information Transfer
Evans (2010a) Australia	a) Identify whether pre-hospital PM HO content accurately documented by trauma team. b) Identify whether HO content documented by PM delivered to trauma team.	Exploratory observational	Essential Content and Information
Evans (2010b) Australia	a) Identify required content for PM HO to trauma team. b) Identify attributes of effective and ineffective HO. c) Determine feasibility of advanced HO transmission. d) Identify how to best display HO data in trauma bays.	Grounded theory/ Thematic analysis	Essential Content and Information Transfer Handover Strategies Handover Interactions

<i>Primary Author Location</i>	<i>Study Objective</i>	<i>Design/Features</i>	<i>Descriptive Label</i>
Fahim Yegane (2017) Iran	a) audit ED charts for the current clinical handover use of the ISBAR tool b) Educate the PMs and ED staff to HO strategy c) audit ED charts post education for the effectiveness of the HO strategy tool	Non-experimental - pilot improvement process	Handover Strategies Essential Content and Information Transfer
Goldberg (2017) USA	Determine the content provided by PM to ED physicians during HO of critically ill/injured patients.	Blinded study-audio recorded HO coded on standardized form	Essential Content and Information Transfer
Iedema (2012) Australia	a) Explore ED staff and PM reflections of HO practices b) Assess implementation of a HO protocol.	Video-reflexive ethnography; Survey	Handover Strategies Essential Content and Information Transfer
Meisel (2015) United States	a) Identify PM and ED staff perspective on the HO process and how it can be improved.	Focused ethnography	Essential Content and Information Transfer Handover Strategies Handover Interactions
Najafi Kalyani (2017) Iran	Explore PM and ED staff perceptions of HO.	Exploratory	Handover Interactions Essential Content and Information Transfer Handover Strategies
Owen (2009) Australia	a) Identify PM and ED staff perceptions of HO b) Develop recommendations to improve HOs	Interviews	Handover Interactions Essential Content and Information Transfer Handover Strategies

<i>Primary Author Location</i>	<i>Study Objective</i>	<i>Design/Features</i>	<i>Descriptive Label</i>
Panchal (2015) United States	a) Evaluate the perception of professionalism during HO by PM to ED staff b) Compare results to external observers' objective perception of professionalism during the HO	Exploratory observational	Essential Content and Information Transfer Handover Interactions
Sujan (2015) United Kingdom	Describe how individual, organizational priorities and professional culture affect the HO from PM to ED staff	Interviews Observation	Essential Content and Information Transfer Handover Interactions
Veldstra (2005) United States	Obtain the perspectives of PM and ED flight nurses about HO in the ED trauma room to ED staff	Quantitative and Qualitative Survey	Handover Interactions Essential Content and Information Transfer
Yong (2008) Australia	a) Describe the types of HO information provide in a HO from PM to ED staff b) Determine ED staff perceptions of PM HO	Exploratory Survey Observation	Essential Content and Information Transfer

Aase et al. (2011) trained paramedics and ED nurses (n=180) in the use of a standardized handover tool to study the perceptions and functioning of a clinical handover protocol. Two years after implementing the standardized clinical handover tool, the researchers conducted interviews of paramedics (n=10) and ED nurses (n=9) to determine the participants' perceptions of the handover process and functioning of the handover protocol. Qualitative content analysis guided by Graneheim & Lundermann (2004) was used to identify themes in the interviews and the themes were then validated in a second focus group interview.

Evans et al. (2010b) interviewed paramedics (n= 10) and ED staff (n=17) to determine a minimum data set of handover content and then conducted interviews with paramedics (n=10) and the trauma team (doctors [n=12], consultants [n=7], registrars [n=5], clinical nurse specialists [n=3] and RNs [n=2]) to determine the attributes of clinical handovers and what constitutes an ineffective clinical handover. The researchers used grounded theory methodology to create emergent theory.

Meisel et al. (2015) used focus groups including six to ten paramedic participants (n=48) in each group (n=7) to explore the paramedics' emic perspective of clinical handovers. QSR NVivo version 9.0 was used for analysis of the transcripts and the coding was structured and analyzed independently by three of the researchers using constant comparison methods to reach a consensus on the data findings.

Owen et al. (2009) conducted semi-structured interviews (n=50) with paramedics (n=19), ED nurses (n=15) and ED doctors (n=16) to understand the emic perspective of clinical handovers and to develop recommendations on how to improve the clinical handovers in the ED. The researchers used a grounded theory approach and constant comparison method of analysis to achieve consensus about the themes. Rigour in the study was established by the credibility,

dependability, confirmability, and transferability techniques established by Guba (1981) as cited in Owen et al. (2009).

Comparably, Najafi Kalyani et al. (2017) conducted semi-structured interviews with paramedics (n=14) and ED nurses (n=11) to establish their emic perceptions of clinical handovers. Content analysis was used, and the final central themes were arrived at by consensus.

Veldstra et al. (2015) conducted a quantitative survey of paramedics (n=109) and ED flight nurses (n=26) and used two qualitative questions to establish the barriers and facilitators of an effective clinical handover in the ED trauma room. Two researchers independently reviewed the qualitative responses and identified themes that were then compared to achieve consensus.

Fahim Yegane, et al. (2017) conducted a quantitative study of clinical handover information transfer between paramedics and ED staff introduced to a corrective Identify, Situation, Background, Assessment, and Recommendation (ISBAR) standard protocol. They audited the content of the clinical handover pre- and post- ISBAR standardized form education.

Goldberg et al. (2017) conducted observation and audio recordings of paramedic to ED staff handover (n=97) of critically ill and injured patients to determine the content of the clinical handover. Two research assistants used a data collection tool to determine whether predetermined handover content elements were transferred or not transferred during the exchange. Interrater agreement was determined for a subset of the recordings (n=20%).

Altuwaijri et al. (2019) used semi-structured interviews with paramedics (n=7) and ED staff (n=3) and observation of paramedic clinical handovers (n=74) to ED staff (n=37) to explore what factors constrain the effective use of an electronic Patient Report Form (ePFR) for handover and to determine how to resolve the identified issues. The data was analyzed for themes. The researchers then reviewed the ePRF applying the model, interaction design, human-

computer interaction and concepts of computer-supported cooperative working to identify constraints of the efficacy of the ePRF during a clinical handover.

Bost et al. (2012) interviewed paramedics (n=31) and observed their clinical handovers (n= 74) in the ED over seven months to identify factors that impact the exchange of information and identify strategies for improvement of clinical handover. Notes from the observation and interviews, including elements of who participated in the handover, the length of time the handover took, the tone, phrasing and behaviours observed were analyzed using grounded theory with constant comparison process to extract the themes. Study participants validated the data, and the researchers established an audit trail and reflexivity.

Sujan et al. (2015) observed and audiotaped clinical handovers (n=270) from paramedics to ED staff over nine months to determine how individual, organizational priorities and professional culture affect the clinical handovers. Transcripts of the clinical handover conversations were segmented into statements and evaluated using Discourse Analysis. The researchers then conducted interviews (n=15) with paramedics and ED staff (n=38) to establish their participation in clinical handover and explore their perception of current clinical handover practices. Participants had the opportunity to recommend improvements to the clinical handover. Additional interviews with paramedics (n=24) and ED staff (n=15) were conducted to understand and describe how individual, organizational priorities and professional culture affect the clinical handover from paramedics to ED staff. Thematic analysis with constant comparison was used to determine categories and the main categories were then ascertained during research team meetings.

Yong et al. (2008) utilized a questionnaire to survey ED staff (ED doctors n=16, ED nurses n=24, persons with unspecified role n=11) to determine the opinion of clinical handovers

from paramedics. A handover-rating sheet was developed after piloting to codify observations (n=621) during clinical handovers over five weeks. A post-handover quantitative Likert Scale survey of paramedic handovers were completed by ED doctors (n=21) and ED nurses (n=171) to identify the clinical handover content and delivery method.

Carter et al. (2009) used surveys, observation, and document review to identify content provided by paramedics during clinical handover and documented by the trauma team. The researchers created an observational checklist of 16 key elements of the trauma handover based on a literature search and consultation with the trauma team. Clinical handovers (n=96) were audiotaped over six months and two ED doctors used the checklist to determine which elements the paramedics verbalized during their clinical handover. Two ED doctors blinded to the observational checklist findings reviewed the ED chart and checked off whether the trauma team had documented the same elements on the ED chart. A random sample of 15% of the ED charts for duplicate review was chosen.

Evans et al. (2010a) used audio and video recordings of pre-ED clinical handovers (n=25) from paramedics to ED staff to identify whether pre-hospital handover content was accurately documented by the trauma team. Additionally, the researchers aimed to identify whether handover content documented by the paramedic was delivered to the trauma team. The researchers compared the Trauma Notification Chart, observation chart and the paramedics Patient Care Record for each of the 25 cases to identify the accuracy of the handover elements documented, and what elements were least likely to be documented by the ED staff. Discordance was determined using Pearson's Chi-squared analysis.

Iedema et al. (2012) used focus groups with ED staff (n =6) and paramedics (n=10) to identify pre-existing clinical handover procedures and then educated ED staff (n=368) on the use

of a clinical handover tool. Clinical handovers pre-education intervention (n=73) and post-intervention (n=63) were video and audiotaped. The recorded handovers involved paramedics and ED staff (n=291) and were analyzed for the content and structure of the handovers. Likert-based questionnaires (n=416) were completed by ED triage nurses to assess the implementation of the clinical handover protocol. The researchers did not indicate how the data was analyzed.

Panchal et al. (2015) used an exploratory observational study to evaluate paramedics' clinical handover information transfer. Additionally, they explored the paramedic and ED staff perception of professionalism in the information transfer of clinical handovers and compared this to the assessment of an external observer. With assistance of a trained observer, recordings of 1091 clinical handovers from paramedics to ED staff were reviewed to obtain the handover content and to rate the professionalism between the paramedics and ED staff during the interaction. The rating of professionalism was based upon the trained observer's extensive experience in the ED. The researchers additionally conducted specific teaching in regard to the characteristics of a professional interaction.

Overall, there were limitations in the evidence that was reviewed. The clinical handover intervention-based studies (Aase et al., 2011; Altuwaijri et al., 2019; Iedema et al., 2012) have small sample sizes. In addition, Altuwaijri et al. (2019) interviewed three nurses and one had more experience than the others and acted as the primary source of information for many of the interview topics. It is possible that this may have introduced some bias and that some clinical handover issues may have been missed or not addressed. The sample of Iedema et al. (2012) is limited by the small portion of paramedics (only 10% of the state-wide paramedic workforce) being educated on using the new clinical handover protocol tool. In the same study, the ED nurses were not informed which paramedics were educated in the clinical handover tool;

therefore, the ED nurses could not return surveys for paramedics that were only educated with the clinical handover tool. The survey conducted by Veldstra et al. (2015) had a low response rate (6.6%). Rigorous study design, adequate sample size, different study sites, and patient outcome assessments are needed to evaluate approaches to improving clinical handover (Segal, 2020 as cited in Desmedt et al., 2020).

The Hawthorne effect was a limitation in some of the studies (Bost et al., 2012; Evans et al., 2010a; Panchal et al., 2015; Yong et al., 2008) as participants were aware their clinical handovers were being recorded and as such some may have modified or enhanced their work habits while being observed by the researchers (Cherry, 2020). Additionally, in some of the studies (Najafi Kalyani et al., 2017; Owen et al., 2009; Panchal et al., 2015; Veldstra et al., 2015) participants were asked questions about their peers that may have resulted in response bias.

The key findings from the studies in this literature review are organized under three descriptive labels: essential content and information transfer; interactions; and strategy.

#### **2.4 Essential Content and Information Transfer**

Eight studies (Carter et al., 2009; Evans et al., 2010a; Evans et al., 2010b; Goldberg et al., 2017; Meisel et al., 2015; Panchal et al., 2015; Sujana, et al., 2015; Yong et al., 2008) focused on the essential content and information transfer in a clinical handover from paramedic to ED staff (Appendix B). The remaining studies also had some aspects of clinical handover content (Altuwajri et al., 2019; Boast et al., 2012; Fahim Yegane et al., 2017; Iedema et al., 2012; Najafi Kalyani et al., 2017; Owen et al., 2009; Panchal et al., 2015; Veldstra et al., 2015).

Acronym-based protocols have been developed as a guide for the essential content of a clinical handover. These include the Mechanism of injury/illness, Injuries sustained or suspected, Signs, including observations and monitoring, Treatment given (MIST) (Evans et al., 2010b); the

Demographic information, Mechanism of injury, Injuries sustained, Signs and symptoms and Treatment provided (DeMIST) (Evans et al., 2010a); Identify, Situation, Background, Assessment, and Recommendation (ISBAR) (Fahim Yegane et al., 2017) and the Allergies, Medications, Background history and Other (AMBO), including the patients' social information, known as IMIST-AMBO (Iedema et al., 2012). The IMIST-AMBO mnemonic in particular was designed by an intensive care paramedic to help paramedics convey patient-related information during a clinical handover in a precise manner and a specific order (Shah, et al., 2016). In the other studies (Carter et al., 2009; Goldberg et al., 2017; Panchal et al., 2015; Yong et al., 2008) the essential content of a clinical handover information was determined by the researchers in consultation with the ED staff.

The research evidence indicates that the essential content of a clinical handover is patient information that has prognostic value and is therefore of clinical importance to receiving ED staff including: demographics (Carter et al., 2009; Evans et al., 2010a; Goldberg et al., 2017; Panchal, et al., 2015); presenting problem (Goldberg et al., 2017; Panchal et al., 2015; Yong et al., 2008); initial presentation (Goldberg et al., 2017); vital signs (Carter et al., 2009; Goldberg, 2017; Iedema et al., 2014; Panchal et al., 2015; Yong et al., 2008); medications (Goldberg et al., 2017; Iedema et al., 2014; Panchal et al., 2015; Yong et al., 2008); allergies (Goldberg et al., 2017; Iedema et al., 2014; Panchal et al., 2015); medical and social history (Goldberg et al., 2017; Iedema et al., 2014; Panchal, et al., 2015; Yong et al., 2008); mechanism of injury (Carter et al., 2009; Evans et al., 2010a; Evans et al., 2010b; Iedema et al., 2014); injuries sustained (Carter et al., 2009; Evans et al., 2010a; Evans et al., 2009b; Iedema et al., 2014; Panchal et al. 2015; Yong et al., 2008); signs and symptoms (Carter et al., 2009; Evans et al., 2010a; Evans et al., 2010b; Panchal et al., 2015); and treatment provided (Evans et al., 2010a; Evans et al., 2010b; Iedema et

al., 2014; Panchal et al. 2015; Yong et al., 2008). All of this information is recognized to be associated with clinical outcome such that if not provided it can alter the course of the treatment the patient receives (Clark, 2008).

Certain elements in a clinical handover are deemed critical indicators of the patient condition and significant in predicting the patient need for expedient care and the type of care required (Carter et al., 2009; Goldberg et al., 2017). These elements include level of consciousness as assessed by the Glasgow Coma Scale and vital signs (Carter et al., 2009; Goldberg et al., 2017; Panchal et al., 2015). Carter et al. (2009) found on average only 4.9 of 16 elements identified as essential content were given in the clinical handover. Goldberg et al. (2017) observed that less than half of essential clinical handover content was transmitted from paramedics to ED staff. Evans et al. (2010) found the face-to-face handover by paramedics included much more information in comparison to their phone reports prior to ED arrival however only 75% of this information was documented on the trauma notification sheet. Of note, Panchal et al. (2015) found the perception of a high-quality clinical handover for ED staff and the paramedics is not dependent on whether critical clinical handover elements are provided or omitted.

Several studies identified attributes that can improve information transfer during clinical handover and barriers that impede the clinical handover transfer quality. Attributes that improve the information transfer are; succinct information (Evans et al., 2010b; Meisel et al., 2015; Owen et al., 2009; Veldstra et al., 2015; Yong et al., 2008); confidence in the delivery of the clinical handover information transfer (Evans et al., 2010b; Owen et al., 2009; Veldstra et al., 2015); ED staff are actively listening at the time of the clinical handover (Evans et al., 2010b; Meisel et al., 2015; Panchal et al., 2015); paramedic and ED staff familiarity with clinical handover

information (Evans et al., 2010b); and trustworthy working relationships between disciplines (Boast, et al., 2012; Panchal et al., 2015; Veldstra et al.,2015).

Barriers to adequate clinical handover are inclusion of extraneous information (Evans et al., 2010b), interruptions (Bost, et al., 2012; Evans et al., 2010b; Veldstra et al., 2015), noisy environment (Evans et al., 2010b; Najafi Kalyani et al., 2017; Owen et al., 2009; Veldstra et al., 2015); omission of important clinical handover information (Altuwajri et al., 2019; Evans et al., 2010a; Goldberg et al., 2017; Panchal et al., 2015) limited time for handover (Carter et al., 2009; Goldberg et al., 2017; Meisel et al., 2015 ; Veldstra et al., 2015); poor interprofessional relationships between the handover provider and recipient (Bost, et al., 2012; Evans et al., 2010b; Meisel et al., 2015; Najafi Kalyani et al., 2017; Panchal et al., 2015; Owen et al., 2009; Sujan, et al., 2015; Veldstra et al., 2015), repetitiveness of the clinical handover information (Evans et al., 2010b; Owen et al., 2009; Veldstra et al., 2015; Yong et al., 2008); inconsistent, ineffective or delayed use of technology (Altuwajri et al., 2019; Meisel et al., 2015, Sujan et al., 2015); delay in taking a clinical handover (Meisel et al., 2015; Panchal et al., 2015); lack of privacy during the handover (Meisel et al., 2015), and lack of acceptance of clinical handover strategies (Aase et al., 2012; Fahim Yegane et al., 2017).

As clinical handover is not a standardized process there are different views of how the handover content should be transferred (Aase et al., 2011; Bost et al., 2012; Sujan et al., 2015). In the ED clinical handover is often rushed and as a result there is deferral of portions of the information exchange in interest of expedited patient care (Goldberg et al., 2017; Panchal et al., 2015). If the paramedics feel ignored or rushed, a shorter and less complete clinical handover is given (Carter et al., 2009; Goldberg et al., 2017; Meisel et al., 2015). Paramedics disclosed that they felt pressured to quickly deliver the information transfer as they would lose ED staff

attention if the staff were busy (Meisel et al., 2015). Goldberg et al. (2017) suggest that a solution may be to delay the clinical handover until the patient is physically shifted off the paramedic stretcher as this may foster active listening of the ED staff and thereby decrease handover information loss.

Future research is needed to understand how interprofessional collaboration training may improve the awareness of the culture surrounding the providers involved in clinical handover and foster an understanding of the different approaches each discipline has for giving/receiving clinical handovers. This may cultivate interprofessional respect to achieve more positive outcomes together (Green & Johnson, 2015).

## **2.5 Handover Strategies**

Four studies (Aase et al., 2011; Altuwaijri et al., 2019; Fahim Yegane et al., 2017; Iedema et al., 2012) focused on the use of standardized documentation or clinical handover protocol tools (Appendix C), and several studies included recommendations for handover strategies (Bost et al., 2012; Evans et al., 2010b; Meisel et al., 2015; Najafi Kalyani et al., 2017; Owen et al., 2009). Fragmented communication is noted as a communication failure during a clinical handover as there is absence of a structured process for presenting the clinical handover (Owen et al., 2009). Clinical handover protocol tools such as checklists or acronym-based prompts may reduce unnecessary dependence on memory by cueing what to report next, thus producing common ground by aligning the expectations of clinical handover information for providers and receivers (Iedema et al., 2012). Three of the studies (Aase et al., 2011; Fahim Yegane et al., 2017; Iedema et al., 2012) educated paramedics and ED staff on using a standardized clinical handover protocol tool during their studies. The paramedics and ED staff reported that with the use of the protocol tools, the clinical handovers were more structured and

consistent in sequence (Aase et al., 2011; Fahim Yegane et al., 2017; Iedema et al., 2012); succinct (Fahim Yegane et al., 2017); and had a greater volume of information and information that was appropriate (Fahim Yegane et al., 2017; Iedema et al., 2012). They also reported improvement in the time it took to give a clinical handover (Fahim Yegane et al., 2017; Iedema et al., 2012) and a decrease in the number and types of questions asked about patient information and condition (Fahim Yegane et al., 2017; Iedema et al., 2012).

Challenges inherent in the use of a standardized clinical handover protocol include the different perspectives held by paramedics and ED nurses as to the importance and function of the protocol (Aase et al., 2011; Sujan et al., 2015; Najafi Kalyani et al., 2017). The professional, cultural, and organizational background of each profession influences how the handover protocol is implemented (Aase et al., 2011; Bost et al., 2012; Fahim Yegane et al., 2017; Sujan et al., 2015). Aase et al. (2011) noted ED nurses upheld clinical handover as necessarily diverse given patients differ and no two situations are the same. Altuwaijri et al. (2019) identified factors that constrain the effectiveness of an electronic Patient Report Form (ePFR) used by paramedics to record their clinical handover to ED staff. The ePRF presents structured and legible documentation of the paramedic information, including incidents, observations, treatment details, medication administered, and health condition information. Factors that constrain the effectiveness of the ePFR from the perspective of paramedics include that the ePFR was time-consuming; had a multitude of standardized clinical handover information fields to fill out, some of which are optional; navigation between subdivided pages occasionally causes essential information loss; and lack of training on how to utilize the protocol. ED staff participants felt that verbal clinical handovers were still necessary as there were delays in uploading the ePRF to the data server; therefore, the ED staff could not access the patients' information. Owen et al.

(2009) qualitative study examining the emic perspective of paramedics and ED staff of what enables and constrains handovers in the ED results were similar. Owen et al. (2009) found the lack of formal training in giving a standardized clinical handover resulted in difficulties in achieving a comprehensive clinical presentation of handover information.

## **2.6 Handover Interactions**

Verbal handover was the primary method of exchanging information between paramedics and ED nurses (Bost et al., 2012). Four studies (Bost et al., 2012; Najafi Kalyani et al., 2017; Owen et al., 2009; Veldstra et al., 2015) focused on paramedic and ED staff interaction during clinical handover (Appendix D). A few other studies (Aase et al., 2011; Altuwajri et al., 2019; Evans et al., 2010b; Meisel et al., 2015; Panchal et al., 2015; Sujan et al., 2015) reported secondary results relating to clinical handover interactions.

Factors identified as contributing to difficulty in the interactions between paramedics and ED staff during clinical include each discipline having its own professional language (Owen et al., 2009); lack of adequate environment for the handover interaction (Bost et al., 2012; Owen et al., 2009; Najafi Kalyani et al., 2017; Veldstra et al., 2015); perceived lack of professionalism (Pancheal et al., 2014); lack of interprofessional understanding of the other's culture (Najafi Kalyani et al., 2017); complexity of interprofessional relationships (Bost et al., 2012; Najafi Kalyani et al., 2017; Owen et al., 2009); a limited amount of time to communicate the clinical handover (Veldstra et al., 2015); lack of handover structure (Najafi Kalyani et al., 2017; Owen et al., 2009); and a lack of clear leadership (Veldstra et al., 2015).

The studies in the review noted that clinical handover information, timing and perceived trust of reliable information sharing were dependent on the working relationships formed between the individual paramedic and the ED staff over time (Aase et al., 2011; Bost et al.,

2012). Collaboration between the paramedics and the ED nurses affects how a clinical handover is communicated (Aase et al., 2011). Paramedics felt that the ED nurse approach to receiving the clinical handover differs depending on the paramedic experience and familiarity with the nurse (Aase et al., 2011; Altuwajri et al., 2019; Bost et al., 2012). Bost et al. (2012) assert that when there is familiarity in the relationship between the paramedic and the ED nurse the clinical handover was more detailed. Panchal et al. (2015) noted that a crucial indicator of quality clinical handovers to ED staff from paramedics is the perception of professionalism. When perceived professionalism between ED staff and paramedics was high, clinical handovers were perceived as high quality, even when critical elements of the clinical handover were omitted (Panchal et al., 2015).

Handover information appeared to depend on the level of trust between the communication sender and receiver (Aase et al., 2011; Bost et al., 2012). Barriers for both the sender and receiver can include individuals' expectations of the clinical handover, education, and prior experiences (Altuwajri et al., 2019; Bost et al., 2011; Najafi Kalyani et al., 2017; Sujan et al., 2015). Furthermore, each discipline has different motivations that can create tension in the clinical handover process and foster a lack of trust between the disciplines (Aase et al., 2011; Bost et al., 2012; Sujan et al., 2015).

Najafi Kalyani et al. (2017) emphasize that each discipline has different expectations during the clinical handover, therefore impeding clinical handovers. Paramedics and the ED staff have different educational preparation which contributes to difficulty communicating accurate clinical handover information (Aase et al., 2011; Altuwajri et al., 2019; Bost et al., 2012; Najafi Kalyani et al., 2017; Sujan et al., 2015). Owen et al. (2009) noted paramedics struggled to convey information related to the prehospital context to receiving ED staff and as a result

receiving ED staff struggled to understand the information they received during the clinical handover (Owen et al., 2009). In addition, Meisel et al. (2015) noted paramedics perceived ED staff did not understand their professional practice scope and indicated they resented when the ED nurses expressed little interest in hearing what they had to say about the patients.

Evans et al. (2010b) found paramedics and the ED staff agreed that the person giving the clinical handover should be succinct and confident when delivering the handover content. Difficulty between ‘doing’ and ‘listening’ was a frequent source of tension for paramedics when receiving ED staff focused on tending to the patient rather than listening to the clinical handover (Owen et al., 2009). In addition, paramedics expressed frustration when they were required to repeat their clinical handover multiple times in the ED (Owen et al., 2009; Veldstra et al., 2015). Evans et al. (2010b) state that appropriate ED staff should receive the clinical handover and have active listening skills when the handover is given.

## **2.7 Literature Review Summary**

This chapter presented a review of research that explored clinical handovers from paramedics to ED staff. All of the studies in the literature review described the nature of clinical handover and acknowledged the potential of inadequate handover to have negative impact on patient safety. While most of the studies were set at one ED site, many of the findings are consistent across the studies in the review. The research findings identified various forms of miscommunication and related factors as barriers to safe, effective clinical handovers. These included missing or omitted clinical handover information (Altuwaijri et al., 2019; Carter et al., 2009; Evans et al., 2010b; Fahim Yegane et al, 2017; Goldberg et al., 2017; Panchal et al., 2015; Yong et al., 2008), lack of consistency and organization of handover content (Evans et al., 2010a; Fahim Yegane et al, 2017; Meisel, 2015; Owen et al., 2009), distractions and inadequate

environment for handover (Bost et al., 2012; Evans et al., 2010b; Meisel et al., 2015; Najafi Kalyani et al., 2017; Owen et al., 2009), lack of standardization (Aase et al., 2011; Fahim Yegane et al., 2017; Iedema et al., 2012), and difficult interprofessional relationships (Aase et al., 2011; Bost et al., 2012; Evans et al., 2010b; Meisel et al., 2015; Najafi Kalyani et al., 2017; Sujan et al., 2015; Yong et al., 2008). The studies included in the review did not establish a cause-and-effect relationship between inadequate clinical handovers and patient safety reduction however the implied an association warrants a more in-depth examination of the outcomes of clinical handovers.

A lack of a standardized protocol for clinical handover and limited policy/procedures to guide the communication process contributes to the potential of inadequate exchange of information from paramedics to ED staff (Aase et al., 2011; Altuwaijri et al., 2019; Sujan et al., 2015). Collaboration between paramedics and ED staff is needed to enhance the clinical handover process and to ensure safe patient transfer in the ED (Altuwaijri et al., 2019; Bost et al., 2012; Najafi Kalyani et al., 2017; Owen et al., 2009; Sujan et al., 2015). The studies in the review established that there are positive benefits to standardized clinical handover education and training (Altuwaijri et al., 2019; Goldberg et al., 2017; Meisel et al., 2015; Najafi Kalyani et al., 2017; Fahim Yegane et al., 2017; Owen et al., 2009). Clinical handover tools and standardized protocols have the potential to improve handover quality however to date there has been no randomized control trial to test their effectiveness. Currently there is no consensus to support the use of one particular clinical handover tool or another in the ED. This presents an opportunity for future research to determine the efficacy of clinical handover tools. Comparison studies across ED sites are also warranted since much of the research included in this review were single site studies (Aase et al., 2011; Altuwaijri et al., 2019; Bost et al., 2012; Fahim

Yegane et al., 2017; Iedema et al., 2012; Sujan et al., 2015) which limits the generalization of the findings.

Recommendations most cited in the literature identifies the need for further study to identify potential solutions for improving clinical handover in addition to a need for interprofessional training of clinical handover processes (Aase et al., 2011; Bost et al., 2012; Goldberg et al., 2017; Iedema et al., 2012; Meisel et al., 2015; Najafi Kalyani et al., 2017; Owen et al., 2009; Sujan et al., 2015; Yong et al., 2008). Each discipline has is unique in its professional language, training, and functions (Stow, et al., 2017). Paramedics and other ED staff routinely collaborate in the ED and are required to function efficiently as a team when treating patients (Wilbur et al., 2014) however they are trained and educated separately (Eisenmann et al., 2018). A greater understanding of how to effectively communicate with each discipline is achieved through interprofessional education which supports the development of collaborative practice-ready healthcare professionals who can deliver competent, safe care to patients (Wilbur et al., 2014).

The literature review provides an understanding of the complexities of clinical handovers from paramedics to ED staff. Paramedics and ED staff have different perspectives regarding what information is necessary, how much information is needed and how to deliver the clinical handover (Velstra et al., 2015). Only one study by Meisel et al. (2015) exclusively focused on the paramedics' emic perspective of clinical handovers. No studies were found specific to clinical handovers by paramedics in Northeastern Ontario. The paramedics in the study that is detailed in the remaining Chapters service a distinct area of a small urban community and remote Northern communities. Exploration of the perspective of this group of paramedics may reveal challenges and issues for clinical handover in the ED that are unique in these communities.

## Chapter 3

### 3.1 Methodology and Methods Introduction

This chapter presents the research process and philosophical foundations that guided the research. The chapter begins with a statement of the research question. The research design; study setting and participants; ethical considerations for protecting human participants; data collection; data analysis; and validity of the study are addressed.

### 3.2 Research Question and Study Methodology

The question guiding this research is: What is the paramedic emic perspective of clinical handover to emergency staff in the setting of a small urban hospital in Northeastern Ontario. A qualitative study using a limited, focused ethnography was conducted.

### 3.3 Design of the Study

#### 3.3.1 *Ethnography*

Ethnography is a qualitative research design that enables the researcher to describe a culture and to gain a deep understanding of the practices and beliefs of a group (Roper & Shapira, 2000). Ethnographic research is inspired by the interpretative paradigm and aims to learn about groups by learning from them (Roper & Shapira, 2000). Multiple data collection strategies are typical in ethnographic research including fieldwork which allows the researcher to view participants in the specific setting of interest; key informant interview, which allows the researcher to obtain participant description of their experience with the issue of interest; and review of documentation that helps the researcher to understand the context in which the participants operate (Roper & Shapira, 2000).

### ***3.3.2 Focused Ethnography***

This study is a limited focused ethnography. A focused ethnography maintains the traits of traditional ethnography but it focuses on a distinct problem within a specific context among a small group of individuals and as such can be conducted in a pragmatic way in a shorter time frame (Roper & Shapira, 2000). Focused ethnography is a logical design for this study as the researcher is an ED nurse with background knowledge of and experience with clinical handover from paramedics. Given that the researcher has prior knowledge and experience with handover, the scope of this focused ethnography is narrow as it does not include fieldwork and is limited to an exploration of the paramedic perspective. The primary focus of the researcher was to discover the insider view (i.e., emic perspective of the paramedic) as to what factors influence the process of clinical handover in the ED and to make sense of what is said about their experience (i.e., etic perspective of the researcher).

The goal of the researcher was to gain insight into the common cultural context in which paramedics operate and to develop a rich description of the paramedic experience in the ED to enable a comprehensive understanding of the beliefs, ideas, and knowledge that influence their clinical handover.

## **3.4 Study Setting and Key Informants**

### ***3.4.1 Setting***

The study was situated in the ED of a small urban, fully accredited teaching and learning hospital governed by the North East Local Health Integration Network. The hospital serves a city with a population of 42,516 (Timmins Economic Development Corporation, 2020) as well as the adjoining district (Ontario Ministry of Health and Long-Term Care, 1998). As a level C hospital, it has a full-service ED with 24-hour coverage by a doctor, either on-site or on-call. The ED

received 40,296 visits in 2019-2020 (Canadian Institute for Health Information, 2019). Of those visits, 4,002 of the ED patients arrived by land ambulance (Timmins and District Hospital, 2021).

The ED is designed for the care of patients with acute medical needs. For patients with the most urgent care needs (i.e., Canadian Triage Assessment Scale [CTAS] I and II), paramedics will use a radio phone patch to report the patient's condition while on route to the hospital. An ED nurse receives the patch, writes down the information on the Ambulance Radio Report sheet (Appendix E) and then notifies the trauma nurse and other appropriate healthcare professionals. When the land ambulance arrives at the hospital it enters a designated bay, and the patient is offloaded to one of three trauma stretchers in the ED. The transfer of care from EMS to ED occurs when the paramedic gives the clinical handover report to the trauma nurse or the trauma team.

Patients with less urgent need of care (e.g., CTAS III, IV and V) are offloaded to one of the 19 patient stretchers or two chairs in the ED. Clinical handover from paramedic to ED nurse in these cases frequently occur in the open hallway just past the ED entrance from the ambulance bay. Once the ED nurse receives clinical handover from the paramedic a CTAS V (non-urgent) patient may be redirected to the general ED waiting room.

The ED is staffed with ED nurses and a few registered practical nurses. As it is outside the registered practical nurse scope of practice to take clinical handover from paramedics, the ED nurse is responsible for this process. To reduce the amount of time paramedics spend in the ED, the Ministry of Health and Long-Term Care (MHLTC) has allocated funding for dedicated offload nurses in the ED in several Ontario municipalities (MHLTC, 2010). ED offload nurses are funded in urban centers for 16 hours a day, seven days a week. At the subject hospital the ED

offload nurse funding is limited to two 12-hour shifts (0700-1900) per week. These shifts occur on Mondays and Thursdays. Any one of the ED nurses may be designated the offload nurse for the shift. All paramedics in the study have experience working with an offload nurse.

### ***3.4.2 Key Informants***

Purposeful sampling was used to obtain the study sample from the local EMS that employs 47 paramedics. The study was open to full-time and part-time paramedics with active experience in giving clinical handover after land ambulance transport of a patient to the ED. Upon ethics approval of the study, a face-to-face meeting was held with the EMS Commander of Quality Assurance Officer to request assistance with the distribution of the study recruitment posters (Appendix F). The paramedics received information about the study in an email from the Commander and posters on the bulletin board at the two local EMS bases, approximately four weeks prior to the start of the study. Paramedics with interest in learning more about the study were invited to email the principal investigator and those who subsequently expressed interest in being a key informant were sent the participant package and study consent form (Appendix G). Interviews were scheduled and conducted in a place of convenience and comfort. Prior to commencing the semi-structured interviews, the researcher reviewed the consent process and obtained written consent from each of the key informants.

### **3.5 Ethical Considerations**

Ethics approval for this study was obtained from three ethics review boards (Appendix H). Each ethics review board was informed of my employment as an ED nurse in the research setting. To address the potential of undue influence, recruitment strategies for the study included clarification of the researcher intent to explore the paramedic experience of clinical handover in the ED to gain a better understanding of the process from the paramedic perspective.

### ***3.5.1 Emic and Etic Perspectives***

Subjectivity is an inescapable reality that every researcher brings to a study as a result of lived experiences (Olive, 2014). In ethnographic research, the emic perspective typically represents the meanings of events as conveyed by the members of the defined culture that is being studied (Roper & Shapira, 2000). In contrast, the etic perspective comes from an external view outside the culture that is shaped by pre-existing theories, and perspectives (Roper & Shapira, 2000). From an etic perspective the researcher attempts to make meaning of what is seen by identifying patterns of behaviors (Roper & Shapira, 2000).

The researcher has worked in the ED where the study was conducted for the past 15 years. As such, a degree of insider perspective existed that enabled the researcher to draw on lived experience to ask probing questions and follow-up on key informant responses to obtain a clear description of their experience of handover in the ED. The insider perspective, however, can be problematic if a familiarity with the issue under study causes the researcher to overlook aspects or make assumptions about what is being described in the key informant interview. While having a degree of insider perspective on clinical handover in the ED, the researcher was an outsider with only general knowledge of the work of paramedics. As such the researcher was not fully aware of the paramedic culture and the perceptions and processes that influence their handovers and focused on data collection to close this gap in knowledge.

While conducting the interviews, the researcher was cognisant of the professional code of conduct and ethical code as set by the Canadian Nurses Association (CNA) and the College of Nurses of Ontario (CNO) respectively. The CNA (2017) code of conduct indicates that nurses recognize and address conflicts of interest. Nurses must disclose actual or potential conflicts of interest that may arise in their professional relationships and roles and then work to resolve these

issues. In addition, the researcher adhered to the code set forth by the CNO (2002) by ensuring that the key informants had all the information needed to make an informed decision as to whether or not to participate in the study. Furthermore, the study was approved by three ethics review boards and conducted in accordance with the ethical guidelines to protect the key informants.

### **3.6 Data Collection**

Face-to-face interviews were conducted with ten key informants between October 2017 and January 2018 and followed a semi-structured interview guide (Appendix I). To protect anonymity sociodemographic information was not collected. Each interview began with broad questions about the experience of being a paramedic in general. This was intended to establish a comfortable milieu for conversation with the key informant before proceeding to explore more specifically the paramedic experience with clinical handover in the ED. To elicit a rich description of the handover experience, the interview questions focused on exploring the process of what happens when paramedics present in the ED with a patient. The key informants were asked to describe the factors that influence their clinical handover in general as well as the factors that influence the urgency of giving a handover. Additional questions and probes stemmed from the responses as each interview progressed. The interviews lasted between 40 to 60 minutes. Each interview was audio recorded on a handheld device.

In addition to the key informant interviews, a search for and examination of pre-existing documents guiding paramedic practice of clinical handover was conducted. Roper and Shapira (2020) suggest that exploration of relevant information such as policies and procedures that influence the practices of the key informants can assist the researcher in developing a deeper understanding of the professional culture. The Quality Assurance Commander for EMS was

approached for assistance in retrieving documents relevant to the conduct of clinical handover in the ED and the ED Resource/Education nurse and Quality Assurance nurse at the hospital supported a search for documents relevant to clinical handover in the ED. The researcher also contacted a professor in the paramedic program in an Ontario college to inquire about the formal education paramedics receive for clinical handover.

### **3.7 Data Analysis**

#### ***3.7.1 Key Informant Data***

All of the interviews were transcribed verbatim to an electronic file on a password-protected laptop computer. Qualitative data analysis techniques rely on verbatim transcriptions for conversation, discourse, and narrative analysis (Halcomb & Davidson, 2006). The benefits of researchers transcribing their own interview data are that they have personal knowledge of the interview process, have insight into the interview subject, and witness the verbal and nonverbal exchanges at the time of the interviews with the participants (Halcomb & Davidson, 2006). Memoing was conducted about nonverbal cues such as the speed of the conversation and paramedic body language when speaking about a particular subject during the interview. Roper and Shapira (2000) note that these observations can indicate an issue of particular significance for the key informant that justifies exploring the issue at deeper length.

The audio recordings were listened to four times to verify content and avoid omissions. Square brackets were used to indicate notes and words not presented on the recordings and added to the transcription (McLellan et al., 2003). Use of square brackets can help clarify the meaning of the quote (McLellan et al., 2003). Secure deletion of the audio record occurred once the interview was transcribed. A unique alphanumeric code identified each electronic interview file. Hard copies of the transcriptions were stored in a secure file cabinet in the researcher's home.

The transcribed data was put into chart form (Appendix J). The first column presented the questions that were asked in the interview and the key informant response. The researcher systematically reviewed the data in this column several times, to gain an overall understanding of the content. The analysis focused on gaining insight into the individual, practical, and organizational factors that influence the efficient transfer of patient care from EMS to ED. Keywords or segments of words that seemed to represent the emic perspective of the key informants were underlined. To enhance dependability, memoing was done simultaneously so that the researcher could recognize that there were reflections that needed further investigation.

Meaningful words or segments of key informant responses were removed and placed in a second column labelled "descriptions". While frequently reflecting on the interviews as a whole, descriptions were examined and the content was summarized to provide an overview of the meaningful segments. From reading and re-reading these descriptions, preliminary codes emerged and were placed in the third column. The preliminary codes were descriptive labels that were designated to sections of the transcript and analyzed individually at first, and then merged to produce more abstract categories (Roper & Shapira, 2000). These codes encapsulated information related to a specific topic (Roper & Shapira, 2000) and explained consistencies in paramedic behaviours when giving a clinical handover (Roper & Shapira, 2000). First-level coding grouped words, for example seeking out; active listening; negative attitude; and build a rapport that focused on emerging similarities or differences and identified patterns that represented the paramedics' perceptions.

Reconsideration of first level codes revealed patterns. Each pattern incorporated several codes that suggested a possible connection between the information. For example, the first level codes nurses that will help, seeking out, and know which ones are going to help were

reconsidered as a pattern that was labelled interprofessional relationships. Coding and patterns were not concrete as ideas changed with subsequent re-examination the data. These changes were documented through memoing. For example, a pattern initially identified as acknowledgment was subsequently changed to interprofessional relationships as re-examination revealed the key informants were relating to times when they were not being acknowledged in the ED due to the interprofessional dynamic of the department.

In the next step of the analysis, the patterns were sorted into groupings based on shared characteristics and from these, themes were developed (Roper & Shapira, 2000). For example, common to the patterns interprofessional relationships and interprofessional collaboration were the key informant expressions of frustration with having to wait for a triage response and the identification of ED nurse control in the department which affected both the interprofessional relationship and collaboration. The theme attitude of attention was derived from these perceptions. This theme is derived from an understanding of attitude being an interpretation of and experience that influence behaviour (Price, 2015) and attention being the capacity to actively synthesise specific information in the environment while disregarding other aspects of the environment (Cherry, 2021). The theme of attitude of attention is thereby the researcher's etic understanding of the key informants' emic perception of what influences the process of clinical handover in the ED.

### ***3.7.2 Document Review***

The documented material that was obtained as a complementary method of data collection was read thoroughly for the purpose of discovering insight into the context in which paramedics operate and gaining greater understanding of what guidance paramedics have for clinical handover. An evaluation of the documented material was not undertaken as the intention

of the use of the documents was for the purpose of attaining background knowledge of the factors that influence paramedic practice.

### **3.8 Study Rigour**

To maintain rigour throughout this qualitative research study, the researcher used the guiding principles of Lincoln and Guba (1985). The model addresses four components of trustworthiness which include credibility; transferability; dependability; and confirmability (Ryan et al., 2007; Thomas & Magilvy, 2011).

#### ***3.8.1 Credibility***

To confirm credibility, the thoughts and words of the key informants were used and the researcher asked for clarification during the interview to verify the interpretation of a given response was accurate and representative of the key informant's experience with clinical handover in the ED (Ryan et al., 2007; Thomas & Magilvy, 2011).

#### ***3.8.2 Transferability***

Transferability is the ability to transfer research findings from one group to another (Thomas & Magilvy, 2011). Transferability describes the behaviour, experiences, and the context so that these then become meaningful to an outsider (Korstjens & Moser, 2018). The researcher achieved this by using purposeful sampling. In doing this, the sample was selected to be representative of the population being studied (Polit & Beck, 2010). The key informants were all experienced in the field of paramedicine and employed under the same EMS Association Board. Nine different communities fall under the EMS Association Board in Northeastern Ontario that provides emergency medical services (Cochrane District Social Service Administration Board, 2005). All of the key informants share the culture of paramedicine and adhere to the same policies and procedures. The key informants were asked specific questions

regarding their clinical handover experience thus far in their career and were encouraged to support their statements with examples from their practice.

### ***3.8.3 Dependability***

Dependability ensures that others can follow the researcher's decision trajectory and potentially arrive at the same or comparable conclusions (Ryan et al., 2007; Thomas & Magilvy, 2011). Each transcribed interview was assigned an identifying code and saved to an encrypted file. The data was then read and reread, looking for codes. Keywords that seemed to represent the emic perspective of the key informants were highlighted. Simultaneous data analysis and memoing was performed. Roper and Shapira (2000) describe memos as ideas or insights that the researcher has about the data. Memos were written so the researcher could recognize that there were reflections needing further investigation. Examples included privacy issues with handovers, non-urgent patients presenting via ambulance (Appendix K).

### ***3.8.4 Confirmability***

Confirmability establishes that the findings of the study are clearly derived from the data collected (Ryan et al., 2007). An audit trail (Appendix L) was established to ensure a transparent description of how the data was analyzed. Gasson (2004) asserts that the results of the study should embody the situation being researched as much as humanly possible rather than the biases or beliefs of the researcher. As research is never objective the researcher must focus on reflexive self-awareness to acknowledge influences, biases, and prejudices (Gasson, 2004). The researcher utilized the principles of reflexivity to limit the influence of bias.

### ***3.8.5 Reflexivity***

Reflexivity enhances the rigour of ethnographic research (Roper & Shapira, 2000). Reflexivity involves thorough consideration of the reciprocal exchange between the researcher

and the key informants and involves the researcher's deliberate self-awareness and conscious attention to the key informants (Roper & Shapira, 2000). The researcher is an ED nurse who has a close working relationship with the key informants. This prior experience has the potential to distort the data (Roper & Shapira, 2000). To reduce the potential bias the researcher role was clarified at the start of the interview (Roper & Shapira, 2000) and the key informants were asked to imagine they were talking to the researcher for the first time about clinical handovers. Doing this helped the key informants be aware of the parameters of the research and helped the researcher acquire key informant assistance (Roper & Shapira, 2000).

The need to recognize personal bias is paramount in research. The researcher identified personal, cultural, and professional perspectives of clinical handover in the ED before conducting the interviews. The researcher also maintained a record of emotional responses to the key informant responses to identify potential sources of biases that could influence the research process. One bias the researcher recognized was rooted in a personal preference for the order of the content given in a clinical handover. It was particularly important that the researcher did not interject with preconceived notions of clinical handover structure or content when conducting the interviews.

Another bias the researcher needed to address was rooted in an assumption of a medical professional hierarchy. As a nurse, the researcher adheres to the Canadian Nursing Association [CNA] (2011) position statement on interprofessional collaboration with the view that all healthcare professionals work together using best practice guidelines, protocols, and resources to maximize the health benefits for patients. Through interprofessional collaboration there is respect for the knowledge and skills of all healthcare providers (CNA, 2011).

The researcher recognized the interest in understanding clinical handover from the emic perspective of paramedics stemmed from firsthand experience of how an inadequate clinical handover can affect patient treatment and care. The researcher needed to relinquish preconceived notions and opinions of how clinical handover is conducted by paramedics. The researcher consciously remained open to all ideas, assumptions, and explanations that the key informants had about clinical handover.

Nurse researchers have the additional task of exploring values and beliefs derived from their socialization and experiences as nurses, which is most significant when working within one's peer group or culture (Roper & Shapira, 2000). During the interviews, the researcher was conscious of own responses, facial expressions, and emotions while listening to the key informants perceptions of clinical handover in the ED. By carefully documenting the interactions between self and the key informants, emotional responses to persons and events during data collection helped the researcher manage potential sources of bias. During data analysis, the researcher realized a diversity of interpretations of clinical handover in the ED. Some of the perspectives that were shared by the key informants identified factors that the researcher would not have thought of or addressed.

### **3.9 Conclusion**

This chapter provided a synopsis of the methodology used to guide this study and outlined the methods of data collection and analysis. Focused ethnography enabled the researcher to gain knowledge about the policies and procedures that guide paramedic handover and to develop a rich description the paramedic experience of giving clinical handover in the ED.

## Chapter 4

### 4.1 Results Introduction

This chapter presents the results of the data analysis beginning with an overview of the documents that guide paramedic practice of clinical handover. This is followed by a description of the study key informants specific to their professional experience as paramedics, and then a description of the emic perspective of their experience of clinical handover in the ED organized around the key themes.

### 4.2 Document Review

Paramedics adhere to organizational policies and procedures and professional standards as part of their practice. The EMS has a policy for paramedics when reporting to the base hospital/receiving facility (Appendix M). This policy indicates that EMS crews must communicate a minimum of two clinical handovers on every CTAS I, II and III patient. The first is a radio phone patch report, and the second is a verbal clinical handover to the ED nurse when the paramedic presents with the patient in the department (Cochrane District Emergency Medical Services, 2010). The EMS crews also operate in accordance with the Transfer of Care Standard (Appendix N) which is located within the paramedic Basic Life Support Patient Care Standards (Emergency Health Regulatory and Accountability Branch Ministry of Long-Term Care [MHLTC], 2018). The Transfer of Care Standard specifies what information should be communicated when transferring a patient and giving a clinical handover to the receiving facility. The standard indicates paramedics must identify the patient by name, age, sex and the assigned CTAS level and they must also convey the patient's chief complaint; a concise history of the current problem; relevant past medical history; pertinent assessment findings, management performed by the paramedic and the patient response; vital signs; and the reason for inter-facility

transfer (Emergency Health Regulatory and Accountability Branch MHLTC, 2018). The standard does not indicate the order of presentation of the clinical handover content. When the paramedic is caring for a critically ill or injured patient, the clinical handover content is largely based on recall memory as the paramedic is focused on life-saving measures rather than contemporaneous documentation of information.

The hospital had no policy or procedure on how the clinical handover should transpire in the ED when receiving community patients via land ambulance but has a policy Transfer of Patients Internal and External policy (Timmins and District Hospital, 2010). This policy identifies the documentation and transfer arrangements required to facilitate the safe transfer of patients to other departments in the hospital or other medical facilities. The policy does not indicate the patient-specific information that nurses need to communicate to paramedics at the time of care transfer. The hospital also has an Ambulance Code policy (Appendix O) (Timmins and District Hospital, 2005) that outlines the EMS priority codes and CTAS levels that paramedics communicate via a radio phone patch report to the ED. This policy standardizes the ambulance codes to facilitate clarity in communication between the paramedics and the ED staff.

### **4.3 Study Participants**

All of the study participants (n=10) completed their paramedic education program in an Ontario college with the majority having completed their education after the program was standardized from one-year to two-years duration. In addition, some of the paramedics had advanced education as flight medics for the provincial Orange service. All the paramedics had worked in rural and remote settings of Northeastern Ontario and their professional experience was limited to paramedicine. Most of the paramedics had worked in the role for more than ten years. The collective consensus of the participants was that paramedics respond to all

emergencies within the community with patients of all ages with acute or chronic illness and trauma, whether life threatening or not and transport these patients to the ED.

Paramedic B: "We [are] first respondent[s] to 911 emergency medical calls, generally. Show up on the scene and assess the patient. Decide what they might need and - as far as intervention assessments and treat accordingly. Usually medication, IVs, fluids, TLC [tender loving care], bandage, blanket or a hug sometimes."

All participants revealed minimal clinical handover education in the classroom setting during their formal educational training. The paramedic program includes lecture-based classroom time, laboratory class, and field practice setting (Fleming College, 2021). The program's combination of theory and practical skills has been developed by paramedic professionals and their associations (Fleming College, 2021). Paramedic students have an ambulance field consolidation in the fourth semester of the paramedic program (Northern College, 2021). The paramedic students are paired up with two experienced paramedics who preceptor the students through 16-weeks of hands-on field training (Northern College, 2021). The primary method of learning about clinical handover was through observation during the preceptorship experience. The first experience of delivering a clinical handover was at the preceptor's discretion, who guided the student through the process of reporting to the ED nurse, and provided critique afterwards. As the paramedic gained experience, they formulated their own pattern for clinical handover.

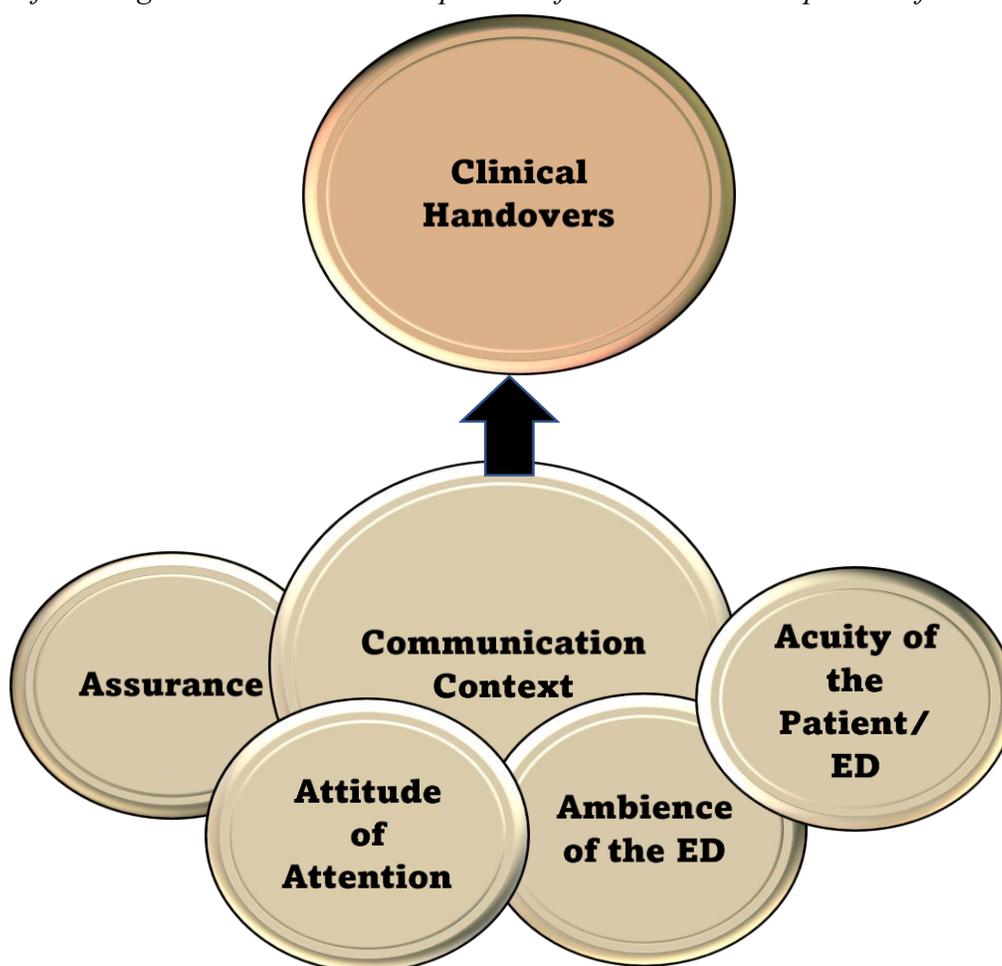
Paramedic B: "Other than just kind of - you touch on it a little bit in school. But until you're out in the wild and actually doing, it's a little different, and then just coaching through preceptorship, and then being comfortable with my assessments, and you know. But no real, no formal education saying, yeah. You mimic your preceptors until you come up with your own little method, and you start tweaking it the way you feel. It is baptism by fire."

#### 4.4 Key Themes from the Key Informant Interviews

Description of the emic perspective of the paramedic experience of clinical handovers in the ED is organized around five, interrelated key themes: communication context; assurance; attitude of attention; ambience in the ED; and acuity of the ED/patient (Figure 3).

**Figure 3**

*Factors Influencing Clinical Handover Experience from the Emic Perspective of Paramedics*



##### 4.4.1 Communication Context

The clinical handover between the paramedic and the ED nurse is a pivotal moment in the transfer of patient care from community to acute care. The communication context has direct implications for the outcomes of care and reflects professional competence. Clear

communication of a clinical handover is dependent on both the paramedic and ED nurse.

Communication starts when the paramedic brings the patient into the ED and is completed when the ED nurse takes the clinical handover and assumes full responsibility for the patient. The paramedics acknowledged that if they do not communicate crucial essential content in a clinical handover, there may be an impact on the patient's treatment course in the ED and negative implications for their professional credibility.

Paramedic B: "Your words are the ones that are going to decide the right care, right? And if I miss something and that - that changes stuff or something if it's critical. I mean that's a knock on me versus somebody else."

The paramedics stated that they found a difference in how a clinical handover was communicated in more rural area EDs versus bigger center EDs. They indicated at the time of communicating the clinical handover, the clinical handover was not as detailed in smaller rural EDs. The ED nurses usually know their patients due to the small community population therefore, the clinical handovers tend to be brief and less detailed. One paramedic reflected on the clinical handover in more remote EDs as an enhanced communication dynamic "cutting out the middleman" (Paramedic C) given the same nurse triaged the patient, received the clinical handover, and assumed the primary care of the patient.

Paramedic J: "They're [handovers] quite different, actually. I find in the smaller communities; people tend to know each other more. The nurse, patients, and us, they tend to know each other more. So actually, I find they don't really take a report, even. They take a very brief description of what the chief complaint is and they, kind of, already know the patient's history."

Clarity in communication between individuals requires shared understanding of the words exchanged in the clinical handover. Relating to work experience in other parts of the EMS catchment area in Northeastern Ontario, the paramedics commented on their experience of

communication challenges during clinical handover in more remote EDs, given the cultural diversity of the staff.

Paramedic C: “A lot of the nurses there, there’s just kind of a language barrier, as well. There were a lot of Filipino nurses. So, I found it was even difficult to get some of your point across to them because there was a language barrier between us and them, and us and the patients a bit.”

#### **4.4.2 Assurance**

Assurance is a certainty that reflects trust and confidence. Trust influences clinical handover and is evident in the professional confidence between the paramedics and the ED staff. The clinical handover is an interpersonal process between two professionals that is influenced by individual perceptions of the other’s abilities. For the paramedic it was necessary to prove the ability to give the ED nurse an appropriate handover. Until this occurred the ED nurse remained doubtful as to the validity of the content of the paramedic’s clinical handover. The paramedics felt that if the ED nurse had trust in them the ED nurse would agree with the paramedics’ assessment and CTAS level.

Paramedic H: “I find too, like when you start working as a medic, I find it takes a while before the nurses, like, trust that you’re giving accurate reports, or that if they respect you and they’ve seen that you usually are legit with the CTAS or with the reports you give then I find like they take you more seriously. And from what I can see, like, the medics that aren’t as good they don’t get the same treatment or people are like, yeah, well, we’ll see about that.”

Paramedic C: “I think if a stronger paramedic came in and says they think something’s wrong with a patient, they’re going to be more, they’re going to be more apt to agree with the paramedic. So, I find that’s a big factor is nursing skills and the paramedic skills on how they perceive their crew. Do you know what I mean? If someone, like I said, with a stronger paramedic skill came in and said something’s wrong, I find more nurses would be, like, okay, something’s wrong.”

The paramedics indicated that the issue of trust goes both ways. From the paramedic perspective, the clinical handover needs to be given to an ED nurse who will respond with the skills that are required for the patient’s condition. At times, the paramedics found it difficult to

trust in the ED nurse's capability to care for a critical ED patient in particular when the nurse is not familiar to them.

Paramedic I: “We see it a lot with the newer ones [ED nurses], and I guess fair to a certain degree, because you know, goes both ways, if we haven’t seen a nurse and she looks like she’s just out of high school, your kind of like, this is a very critical patient, but we have to trust them that their qualifications are, right.”

Some of the paramedics indicated that they would seek out the senior ED nurses. They have a greater sense of trust and confidence that the senior ED nurse will know the clinical handover process and make the appropriate location decisions to ensure the patients have optimal care in the ED.

Paramedic E: “I look for senior nurses, just because I don’t know them [junior ED nurses], I’m not familiar with them and I think it’s a bit of a confidence thing in the sense of, they [junior ED nurses] probably aren’t really going to know what to do, are they even trained in triage yet? So, the newer ones, I’m a little more hesitant.”

#### ***4.4.3 Attitude of Attention***

When paramedics bring patients to the ED, they enter a hospital setting that has an established culture defined by a hierarchical power structure, division of labor and protocols for interfacing with others. As nurses are the “gatekeepers” of the ED the interprofessional relationship between paramedic and nurse exerts considerable influence on the handover.

For clinical handover to occur the ED nurse, must first acknowledge the presence of the paramedic and patient in the ED and then be receptive to taking over responsibility for the patient. The paramedics described times when they did not receive the triage response they expected upon arrival at the ED or felt deliberately overlooked by the nurses. One participant (Paramedic A) specifically queried, “... well how do you know - if you haven't come and talked to me to find out what's going on?” They also reflected on the frustration this caused especially when the paramedic perceived the patient warranted more urgent attention.

Paramedic A: “Depends whose working. Some nurses will come and sort of see what's going on, and some other nurses will just turn their backs and ignore us, if there's no beds or whatever. And I think - I think that's a big part of the problem.”

Paramedic C: “I find if I have a CTAS II that I'm worried about and we're just getting looked over, I think you get a little frustrated and you want to advocate for your patients and say listen. When you have a sick patient that you're sitting with, that's where the frustration is.”

This required the paramedic to seek the attention of another ED nurse, more in particular, a nurse perceived by the paramedic to be approachable. The paramedic thus deliberately looked to identify the triage nurse or an ED nurse who the paramedic felt comfortable to interact with.

Paramedic E: “You kind of it's bad to say, but you've got to know which ones are going to help, which one will turn a blind eye.”

Paramedic F: “I usually try to look at the board, see who the triage nurse is. They're usually upfront, and yeah, pretty much senior nurses, like whoever I see that I'm like, ah, she'll listen to me. I'll stay away from certain ones, they'll listen, but they'll give attitude. I tend to go to people I like, or that like me.”

The paramedics perceived their handover to ED nurse to be better when the working relationship with nurse was better. A few of the paramedics sensed a clashing of personalities hampered the interprofessional relationship. Most paramedics felt that at times the ED nurse could come off as rude and that this then affected the paramedics' attitude towards the ED nurse, which influenced the clinical handover as it did not make for a good rapport between the ED nurses and the paramedics.

Paramedic B: “Some nurses give you a hard time on a call [clinical handover] about a patient, but it is interpersonal.”

Several paramedics felt the ED nurses did not treat them as equals. They felt belittled at times or “scolded” for not knowing the answer to the ED nurses' question(s). Paramedic H for instance stated, “I don't know if they're [ED nurses] trying to show us that they're smarter than us”. The ED nurses would enquire about certain aspects about the patient that had no bearing on why the patient was presenting to the ED.

Paramedic H: “Like I've been asked, does the patient have a tetanus? And like being, kind of, scolded for not having it and then I'm like, how am I supposed to know? Why would I need to know that?..... And it's stuff like that or like questions that somebody in nursing would be like [want to know]”

The paramedics felt it was more important to ask the patient, and report more essential content as they felt it was relevant to the clinical handover.

Paramedic H: “Me, I'll ask, like are you diabetic, have you taken your meds, do you take insulin, how many units, what time of day?”

Most of the paramedics experienced occasions when they felt dismissed by the ED nurses or felt that the ED nurses were inattentive to what they had to say during a clinical handover. In those cases, the paramedics stated that their handovers would be short and to the point, and they would not offer any additional information if the ED nurses did not ask for it. Paramedics disclosed that they had feelings of frustration due to the ED nurses' inattentiveness while giving a clinical handover.

Paramedic I: “Nurses really not listening to what we have to say and questioning us two or three times on the same thing. It's not really paying attention. Like I watch a lot, like just write, they don't look at you, they don't, they just write and write and write and write, and then they'll pop up and so, anyways, the temperature is, I said, well, the temperature was 37.3, oh yeah, that's right, right. So, maybe focus.”

The majority of the paramedics expressed frustration about the lack of understanding of each other's policies or procedures. The paramedics have professional protocols that they must adhere to in practice. They state that they are often questioned by the ED nurses as to why they did not initiate a medical protocol, and the paramedics have to explain to the ED nurses that the patient's condition did not meet their protocol standards. Some of the paramedics thought that ED nurses should have to shift with the paramedics in the community to understand exactly what their job entails. Paramedic H stated, “a lot of us wish that you guys would have a day in a rig with us to see what it's like.”

Paramedic H: “But, again, we have different protocols. You know, like I've had that with some of the nurses too. Like, why didn't you start an IV? But we have different protocols where they've got to, like, present a certain way for me to do it.”

#### ***4.4.4 Ambience of the ED***

Ambience relates to the character and atmosphere of the ED. Included in the ambience is the activity level of the ED and the physical layout in the ED. Within the ED, the paramedics can sense the ambience of the environment of the ED. They instinctually know how the clinical handover will proceed. The ED nurses will either be non-receptive, or the clinical handover will be rushed due to the level of activity within the ED. Due to the ED layout, the paramedics must seek-out a nurse or position themselves in an area that is obvious so that the ED nurses can see that they have presented with a patient.

The paramedics identified the physical layout and triage procedure of the ED as barriers for clinical handover. Upon arrival at the ED the paramedics and their patients must wait outside the trauma room in a narrow hallway that is out of the view of the rest of the department. The triage area is on the side opposite to where the paramedics enter. The door to triage is typically closed to provide privacy and maintain patient confidentiality so the triage nurse cannot see into the ED, and the rest of the ED cannot see into the triage room. To gain the attention of the triage nurse the paramedics must either open the door to let the nurse know that they are there with a patient or physically position themselves outside the trauma room so that they can be seen when the triage door is opened.

Paramedic H: “I think the fact that the triage nurse is triaging, is not a good thing for us because, like, they're busy taking care of the people that are in the waiting room and often we're not seen. So, either we try and go in and then we pop our heads, somebody's there, try and go find the charge nurse or stay and say, like, I'm assuming we're on offload or whatever. Like, I think if there was a way that we would be seen by the triage nurse would be probably better.”

Paramedic E: “Usually try to get up beside that spare bed, because that’s the easiest point of view for you guys to see us through the glass”

The majority of the clinical handovers occur in an open area of the ED in the presence of multiple patients, family members, ED healthcare professionals and other allied healthcare professionals. The paramedics identified lack of privacy during a handover as a cause for concern and reason for providing fewer details in the handover in the interest of not compromising patient confidentiality. One paramedic likened it to being “stuck in the hall” consequently breaching confidentiality and indicated that there is no alternative location to go to provide sensitive essential content (Paramedic J).

Paramedic C: “I find, just where we triage, as well. I find it’s very not the most appropriate area that we - We’re doing it right in front of everyone. And right in front of trauma where if you have three patients in there plus the family and you’re standing in the hall and you’re giving a report, or there’s somebody in the SARS room and that’s coming out or standing there. And then you don’t know who’s behind the desk either, right, because there are so many people that come in and out that, you know, and so, confidentiality is out the window.”

A few of the paramedics mentioned that, at times, they felt that they could not provide all the content of the clinical handover as they did not want to give the information to the ED nurses in front of their patients. The paramedics spoke of times when they questioned a patient about sensitive matters, and the patient denied the cause of the symptoms they were experiencing.

Paramedic H: “Privacy is an issue, and like sometimes, like, you want to say - Like yesterday we brought in a guy that looked like he might have OD'd [overdosed] and he's saying he didn't, but we found the needles and everything and it's easier if you're able to say like, listen, we found this. He's denying it. We've asked him repeatedly but sometimes it's discussions that's hard to have with the patient there where they hear everything you are saying.”

By comparison, the paramedics found nurses in rural EDs to be more focused during clinical handover and the handovers to be more patient-focused. In addition, there was fewer staff to give clinical handover to in these EDs and fewer distractions. The paramedics usually

actively participated in the patient's care as they understood why the patient was presenting to the ED. In the more rural areas, the paramedics indicated that the ED is less busy, so there are no clinical handovers delays. There are often off-load delays in the bigger center as the hospital is overcapacity, and there are un-bedded admitted patients in the ED therefore, there are fewer stretchers to off-load the new ED patients.

Paramedic J: "It's a little bit different because it's not usually as busy, right? There's not usually delays. Usually, we just come in and they already have the bed ready and everything, right? If they know we're coming in they'll have the bed ready. We just hand over within two or three minutes."

The paramedics indicated that if the atmosphere of the ED was amiable, then the quality of the clinical handover was better however, if the department atmosphere was unpleasant, the clinical handovers were less detailed, less information was asked for by the ED nurses, and the paramedics gave less information. Paramedic A noted that there has been a change in the "mood" of the department lately and indicated that they can sense that the ED nurses are "kind of cranky" and they know the sort of shift they will have based on the kind of mood everyone is in.

Paramedic D: "One bad call for us can set our day off, you know what I mean, where we're like the [ED] nurse taking their report could be nice and then she may ask me the same question three times and then I'm getting mad because I'm like well I told you that three times, like you know what I mean. So, it's like a lot of times it is how your day is going or what you've been dealing with that day."

The activity level in the ED influenced the length of time the paramedics took to give a clinical handover. This in turn influenced the amount of clinical handover content that was provided by paramedics. When the activity level in the ED is high the paramedics tended to rush to get the handover done quickly to enable the ED nurse to resume patient care.

Paramedic H: "They're [ED nurses] like running their asses off and they're just, oh, you haven't been offloaded yet or whatever. And when you get a chance to give a report, they're trying to find which room the patient could be so, like, I think it [the clinical handover] is more hectic. So, there's sometimes just more of a quick report, this is what's going on."

In situations where the paramedics assessed the patient who they deem suitable to wait in the waiting room they will ask an ED nurse to assess or quickly triage the patient. The paramedics stated that they do not let patients go to the waiting room unless they have the go ahead from an ED nurse. The paramedics affirmed that this decreases the off-load delay, and they are free to attend to another more urgent call.

Paramedic D: “sometimes you have patients where they can go into the waiting room... I'll be like this is what's up with this guy, he can probably go in the waiting room. Then so they'll come regardless of how busy they are, take the report, just so they get that person off our stretcher which is nice because we then we can go and respond to others calls.”

At times, the paramedics stated the ED nurses are too busy to receive clinical handover, and so they continued with their treatment protocols until they exhausted the treatment or their patient's condition changed. At this time, they sought an ED nurse who will listen or even an ED doctor and give the clinical handover directly to the ED doctor if the patient's condition warranted it. A paramedic described how they presented a patient who was CTAS II. The patient's condition was precarious but the activity level in the ED was exceedingly high, and an ED nurses did not come to speak with the paramedics, so they sought out an ED doctor to communicate the condition of the patient.

With the trend of increased off load delays in the subject ED, the paramedics in the study were pleased with the addition of a off-load ED nurse position. They felt that this additional resource would help with improving their clinical handover as the off-load ED nurse dedicated job was to acknowledge the paramedics and then take their clinical handover in a timely manner. The paramedics felt that the off-load ED nurse was actively listening to the clinical handover, they are “not distracted or has to run off to do something else” (Paramedic G). Even with off-load delays of anywhere from minutes to hours the paramedics felt that they had been

acknowledged, they had communicated the patients' condition and were content to wait with their patient in the queue with their patient on their stretcher.

#### ***4.4.5 Acuity of the Patient and ED***

The acuity of an ED patient significantly influences the clinical handover. Higher acuity can lead to increased miscommunication, repetition, inattentiveness, omission, or clinical handover content confusion. The paramedics observed that when they present with a "regular" patient, then the clinical handover is just the merely the basic facts.

The paramedics aimed to provide a concise, accurate clinical handover. The paramedics identified that their assessment skills influenced the content they included in the clinical handover to the ED nurse. To formulate a clinical handover, the paramedics stated that they do a primary assessment at the scene and once the patient is in the ambulance, they do a secondary assessment. The paramedics then prioritized the content components to formulate the clinical handover in a way that conveys the whole picture of the patients' condition. The majority of the paramedics indicated that the components that they included in the clinical handover are patient demographics; CTAS level; patient history; chief complaint; vital signs; allergies; medications; pain; timing of the incident; treatments they have done; and results of that treatment. The chief complaint about why the patient presented to the ED helps the ED nurses differentiate between a chronic or acute condition (Paramedic E).

Paramedic G: "So, basically, we call it like incident history as in like what happened. Example, I don't know if you know what that is, but like allergies, medications, all that type of stuff, right? And then, basically, what treatment you've done and any result, if it's gotten better or worse. Basically, the main idea of what happened that day, right? You don't have to go into, like, the details of what they ate three days ago, that type of stuff. Like, just the pertinent information of what's happening right now."

The paramedics indicated that the content of their clinical handover depended on the nature of the situation. Many began a clinical handover with the patient's demographics, CTAS

level, and chief complaint and maintained a format for the delivery of the other components to ease recall. Additionally, one paramedic stated that they showed student paramedics the formatted Ambulance Radio Report patch form to help them form their clinical handover. Others indicated that they used acronyms to assist with the flow of the handover content. Various components of mnemonics such as the Pain, Quality, Radiation/Region, Severity, Timing (PQRSTS) assist with a concise, accurate clinical handover (Paramedic E). Paramedic I indicated that they used the Situation, Background, Assessment, Recommendation (SBAR) mnemonic as it gives a more structured clinical handover. The paramedic stated the SBAR mnemonic gives the chief complaint first and subsequently the ED staff had an indication why the patient is presenting. The paramedics indicated that once they start presenting a face-to-face clinical handover, they are often interrupted by the ED nurse who has a set structure for receiving the information which may lead to components of the clinical handover being missed.

Paramedic I: "I have what I do, and I find it works, but some nurses, you'll start by giving them the name and then you start going on. They want to know his birthday before you even continue with that, right? So, I find there's no - little structure of how everyone wants it. Some stuff [components of clinical handovers] may get lost.....But I find some nurses want it different ways. They want to know, what are his allergies first, before going on to his, like, you know what I mean? So, there's no set structure for anyone, any paramedic, any nurse"

The paramedics discussed how they would try to grab the ED nurses' attention right away and indicated this was an important component of the clinical handover. Paramedic I explained that they keep the face-to-face clinical handover under 30 seconds and the radio reports under 60 seconds so that ED nurse will not lose interest in the clinical handover. The paramedics indicated that they strive to be concise, attempt to be as quick as possible and not to include extraneous information to muddle the essential clinical handover content.

Paramedic I: “try to be concise and try to be as quick as possible, because sometimes like I sit in emerge and I can hear services coming in and it’s like, oh my god, I don’t want to be that guy ever.”

All paramedics are responsible for designating the patient CTAS levels but as Paramedic A noted, their education for this was brief. The paramedics recognized that the subjective nature of CTAS designation and the implication for clinical handover priority.

Paramedic A: “Some people might, like overdoses for example. No matter what the signs and symptoms are, it’s a CTAS II. But a lot of people [ED staff] say, oh, you’re fine, your vitals are good, you’re not - no altered LOC [level of consciousness], I’ll give you a CTAS III. No. You’ve got to come in CTAS II with that.”

The paramedics found that the lower the CTAS level, the longer the off-load delay there is. Conversely, for the higher CTAS levels, the paramedics indicated that there was little off-load delay or no delay at all. The paramedics acknowledged that at times the CTAS level they assigned a patient pre-hospital is not the same as the one assigned by the ED nurse after the clinical handover. For some paramedics, the difference is a matter of a difference in understanding between professions.

Paramedic H: “The thing I find is, like, I think, like, your CTAS, the way you interpret them might be different than ours.”

Some paramedics suggested the CTAS at the hospital goes down as the pre-hospital treatment by the paramedics improved the condition of the patient and subsequently their CTAS level.

A few of the paramedics spoke about the difficulty of giving a patched radio communication to the ED when transporting a high acuity patient. In such cases, the paramedics are alone in the back of the ambulance, assessing, treating, and trying to give effective communication through a patch to the ED all at the same time. The paramedics acknowledged that the patch radio communication in these conditions is short and brief.

Paramedic C: “You’re in the back with a patient who’s short of breath and you’ve got the phone. You’re trying to treat the patient. You’re trying to give a report, but also trying to do patient care. So, like, sometimes it’s not as easy.”

Paramedic A: “So, if somebody's having, like, a full-blown chest pain or something, yeah, I'm going to radio in. But even then, it's - it's a brief of just what's going on. Right? Because I am treating the chest pain, so here's the vitals, I gave him nitro - say I've got an IV [intravenous] going.”

A few of the paramedics indicated that they felt frustrated in situations where they gave a radio patch clinical handover to an ED nurses for a patient that they felt was in urgent need of medical attention, yet upon arrival at ED, no one was waiting to receive them to give directions as to where to offload or assess the patient. Then the paramedic had to repeat all the clinical handover content that they had reported in the patch.

Paramedic C: “I find another thing is when we patch [via patch phone] in with a CTAS II and we’re not met by a nurse. We have to start all over again. And so, when we get there and we have no direction where to go and we gave the patch and it’s a serious patch, I find that would be nice thing is sometimes you come in and everyone’s waiting right there for you, you know?”

At times when ED staff are in the trauma room awaiting paramedic arrival with CTAS I patient some paramedics were unsure whom they should give the clinical handover to as there is no clear leader in the room. Consequently, the paramedics had to give multiple clinical handovers to different ED staff. Some paramedics gave the clinical handover to the ED nurses then trusted that nurse would communicate the important clinical handover components to the ED doctor.

Paramedic D: “CTAS I, I find there's almost everybody there when we get there, like as soon as we get there and triage, like the only thing I find with that, and like other people have probably said is that when we bring them into the trauma, we never know who to talk to - I always talk to the person who's offloading the patient with me for some reason - like I'm giving them the report. But it is the person at desk and I've had a lot of times where people are like over here, over here, over here, and I'm like I've got to get them offloaded, I don't - but it is just habit I tell that person and then I go and tell the story again to someone else.”

The paramedics explained how they frequently repeated the clinical handover of CTAS I. Several of the paramedics explained that the radio patch had been given and then when they showed up with the patient the same component of the clinical handover had to be repeated instead of giving new information. The clinical handover is repeated multiple times due to inattentiveness and the chaotic environment of the trauma room.

Paramedic G: “I find, like, the higher the CTAS is, like, say, CTAS ones, like first we'll give a [radio patch clinical handover] report, right? So, we've already said what we know. When we show up we give that same report again and then sometimes there'll be doctors there who are asking these questions, other nurses and it's more chaotic, right? The higher the CTAS is the more serious the condition. And lots of times it's so chaotic that even though I'm talking, no one's listening, right? So, then they ask the same thing again. And we're doing the same thing. We're trying to get all our equipment off the patient, right, so it's chaotic, for sure.”

The paramedics also indicated that for higher priority CTAS patients, they strived to speak with a clear, firm voice so that all in the room could hear. They indicated that they gave priority to the most essential, pertinent components of the clinical handover. Most paramedics described the clinical handovers of higher CTAS patients as rushed and prone to having components of the clinical handover missed, which contributed to miscommunication. After the clinical handover is completed, and the transfer of care has happened, most of the paramedics stated that they would stay in the room to clarify any miscommunication that occurred during the handover. One paramedic indicated that that they would interject in the conversation to clarify the component of the clinical handover.

Paramedic E: “Some things that may get skewed would be some of the fine points, but the main, important things, time, what they were doing, no. I think some things do get lost in translation, that's just a matter of a story being told multiple times, the fish is this big, it becomes that big. I find that when there are traumas, as you go into Trauma, I usually tell you guys [ED nurses] right away, and then the doc comes in, and that's who it gets repeated to. I don't have to repeat it to the nurses. You guys already have the story, like, I forgot something to tell you, I may look for the doc and I get it back to you guys again.”

Paramedic C: “You’re in a hurry kind of doing it, too. Like, you’re trying to give as much information as possible. You end up repeating and repeating. Especially if the doctor is going to come in and ask questions. I gave a report and I full out said an important thing in the report and then it was lost later on. They asked something. I’m like, oh no, I told her we did that. And they’re like, oh, okay. So, like, important information was lost there. So, you’re reporting to eight different people who are all hearing the same story, but all have their own job, so they know they are half listening to what I say.”

The paramedics indicated that at times the doctors inquire about different clinical handover information then the ED nurses do. The paramedics state that at times, the ED doctors have side conversations with them as the ED doctors require different clinical handover components to make informed decisions about the patient treatment.

Paramedic C: “With a CTAS ones, a lot of doctors have been coming in and, like, listening to the report. I find they can ask the questions that they want to know compared to what the nurses want to know. Everyone has different ways they learn and different questioning. And something a nurse might not ask the doctor will ask.”

The paramedics acknowledged that clinical handover of patients who frequent the ED on a regular basis are not taken sincerely and only a limited content is communicated in the handover as the patients has been seen many times for the same symptoms and complaints.

Paramedic D: “You know okay, today this is what happened to him or her, so today he's complaining of belly pains, so yeah, he was just in here three days ago for the same thing and I find there's not even a report.”

The paramedics indicated that at times when the ED nurse comes to take the clinical handover the “regular” patient is simply sent to the waiting room without further ED nursing assessment. The paramedics acknowledged that this procedure is not up to standards of practice, however, as Paramedic D indicated “it sounds awful, but you do –like you pretty much know what they're there for”. Paramedic J emphasized this issue with their statement.

Paramedic J: “You know, it’s the people you see every day, you know them by their first name. You know, we might see the everyday but maybe they might be in the hospital with you guys every day so, yeah, absolutely, I find the information lacks, for sure for the regulars”.

The paramedics indicated that there is a loss of empathy for the “regular” patient as they are perceived as abusing the medical system. They also indicated that there is no sense of urgency in the ED nurses coming to take the clinical handover when they present with a “regular” as this type of patient is “the boy who cried wolf” (Paramedic E). The paramedics also recognized that the ED nurses are feeling overwhelmed and that this “regular” has now presented to the ED when they are already feeling overloaded with other ED patients that needed their attention.

Paramedic E: “There’s less caring, I guess you could say, and we’re not supposed to. And we do the same thing, where it’s oh, I’ve So-and-So again – fourth time in three days. And you get in there and your questions are shorter, and you have less caring, less empathy. And you get to that point because the system is abused.”

The ED acuity is a reflection of the urgency of patient care needs within the ED. For example, if the ED is responding to emergent patients who require intensified attention from a number of department resources and cannot safely wait until a space is available for them in a clinical unit, the acuity of the department increases even if there is not an overcrowding of patients in the ED. The ED acuity level influenced the length of time and the amount of handover content that was provided by paramedics. Paramedics expressed concern that the ED acuity may influence the safety of the department and the patient. Paramedic A indicated that the trauma room was full with high acuity patients and if a major car accident happened that it would be come a dangerous situation. Another spoke to the fact that a lot of medical professional resources can be appointed to one high acuity patient.

Paramedic B: “A guy's really banged up, hit by a car, and there's, you know, how many docs, radiologists and nurses and stuff. There's a team of 20 people waiting for you So you - you – go. It was loud, concise [clinical handover]”.

In response to an awareness of the ED acuity, paramedics indicated their use of professional judgement in relation to immediacy of handover. For example, a radio phone patch report is not always conducted on CTAS III patients if the paramedic perceives the ED to be busy so that interruption in ED patient care can be avoided. This occurs when paramedics deem synchronous clinical handover in the ED is considered to be appropriate.

Paramedic A: “I won't radio report CTAS III because you know you guys are busy and I don't want to waste your time with, I'm coming in with somebody who's, you know, been sick for a week and vital are normal”

#### **4.5 Conclusion**

This chapter provided an overview of documents that guide paramedic practice of clinical handover and a rich description of the paramedic experience of handover in the ED. Clinical handover between paramedics and ED nurses is an intricate and essential professional interaction that contributes to decision-making for patient care in the hospital. Emerging from the key informant data were the themes of communication context, assurance, attitude of attention, ambience of the ED and acuity of the patient and ED.

## Chapter 5

### 5.1 Discussion Introduction

This chapter revisits the CHAT as a framework for exploring paramedic handover in the ED and presents a discussion of each theme derived from the key informant interviews. The chapter concludes with a summary that includes recommendations and a consideration of the limitations of the study.

### 5.2 CHAT Framework

The CHAT was used as a theoretical framework to enable systematic exploration of a professional practice (clinical handover) to gain understanding of the actions of people (paramedics) who share a common organizational culture (EMS) (Foote, 2014). CHAT is rooted in the socio-historical branch of psychology and developed over three generations to provide a holistic lens for understanding human activity (Roth & Lee, 2007). In accordance with CHAT, the clinical handover from paramedic to ED nurse is an activity that requires interaction between staff from different organizational cultures (EMS and ED). The activity stems from the object which is safe transfer of patient responsibility from EMS to ED and is shaped by several interconnected factors. In this study the paramedics are the subject and the paramedic perspective of clinical handover in the ED, the primary focus of the analysis (Wilson, 2014).

The CHAT was a useful framework for organizing this research as it guided the exploration of factors (rules and regulations; community; division of labour, and tools) that influence and motivate the subject (paramedics) to reach the object (concise, accurate clinical handover). Each factor has a direct influence over the objective. For example, as paramedics (subject) strive to communicate effective clinical handover (object) in the ED (community) they might use handover strategies such as an SBAR (tool) but ED staff reception (a factor within

division of labour) may constrain this practice because use of the tool is a deviation from normal practice (rules). The value of the CHAT is in its application as a systematic process to develop an understanding of the factors that influence professional culture and with this understanding it is possible to make modifications (Wilson, 2014). If knowledge is recognized to be socially constructed, it is possible to develop an understanding of the activity by examining and analyzing the interactions and relationships within a particular activity system and this understanding can lead to decisions about where, and in what way change may be necessary (Wilson, 2014).

### **5.3 Communication Context**

Communication is the process of transmitting information and maintaining a shared understanding from one person to another (Luneburg, 2010). Elements common to every communication exchange are the sender, the message, and the receiver (Luneburg, 2010). As the sender in a clinical handover, the paramedic initiates the exchange of vital information about the status of the patient being transported to the hospital via land ambulance. The clinical handover content is the message that the paramedic conveys through a selection of words, symbols, or gestures (Luneburg, 2010). The form of the message can be verbal, nonverbal, or written and sent through face-to-face, telephone, or written report (Luneburg, 2010). In the ED, clinical handover from paramedics most often occurs as a face-to-face interaction with a triage nurse. As the receiver, the ED nurse interprets the message into meaningful information (Luneburg, 2010). A clear, concise, exchange of accurate and relevant information about the patient from the paramedic to the ED nurse enables informed treatment decisions in the ED (Benham-Hutchins & Effken, 2010). The ability to achieve an accurate clinical handover that is conveyed in a clear and concise manner requires adept communication skills. This makes clinical handover a

communication-dependent process that is vulnerable to errors and omissions (Benham-Hutchins & Effken, 2010). Communication is dependent on the ability to send the message efficiently and the receiver taking responsibility for accepting the message (Lunenburg, 2010). The receiver does this by using active listening, taking interest in the communication, removing distractions, being sincere, and allowing the sender to finish conveying the message without interruption (Lunenburg, 2010).

Use of effective communication skills in a clinical handover is essential for patient safety (Bost et al., 2012; Chung et al., 2011; Dawson et al., 2013; de Lange et al., 2017; Jensen et al., 2011; Klim et al., 2013; Sujana et al., 2015). The most crucial function of a clinical handover is the concise communication of handover content resulting in the transfer of responsibility and accountability from one healthcare professional to another (de Lange et al., 2017). The paramedics in this study recognized the importance of delivering an accurate, concise handover in a timely manner and aimed to convey relevant content about the patient to ED staff to enable optimal care of the patient. Accurate transfer of information assures the safe transfer of responsibility for patient care (de Lange et al., 2017).

Policies and procedures govern the practice of the paramedics and the ED staff and influence clinical handovers. Paramedics provide patient care guided by pre-written protocols or standing orders governed by the Ontario Association of Paramedic Chiefs, which follows the Regulated Health Professions Act, 1991 (Health Professions Regulatory Advisory Council, 2013). When the options in standing orders are exhausted paramedics can seek advice from physicians at the base hospital (Health Professions Regulatory Advisory Council, 2013). Paramedics must recertify with the base hospital every year by taking continuing medical education courses to ensure ongoing competency in patient care (Health Professions Regulatory

Advisory Council, 2012). The paramedics in the study perceived the ED staff to not completely understand the paramedic scope of practice as evident when the paramedics were questioned as to why they did not perform more aggressive patient treatment. In response the paramedics needed to explain that the patient did not fit the criteria for treatment, or the treatment was beyond their scope of practice. At times, the paramedics would advocate for their patient and seek ED staff out to indicate that they had exhausted their protocols and the patient now needed treatment beyond their paramedic scope of practice.

In accordance with the Reporting to Base Hospital policy, paramedics use a radio phone patch to communicate directly with the ED while on route to the hospital with patients in urgent need of care (for example, CTAS I and II). In response to the patch, an ED nurse documents the clinical handover content on a pre-printed Ambulance Radio Report summary form. Some paramedics in the study expressed frustration with the need to repeat radio patch content during face-to-face handover in the ED. This frustration results from lack of alignment between asynchronous (written patch form) and synchronous (verbal, face-to-face) communication (Benham-Hutchins & Effken, 2009). The existence of multiple and possibly redundant or conflicting synchronous and asynchronous reports adds to the complexity of clinical handover from EMS to ED and has been shown to increase the amount of memory and time needed for the healthcare providers to complete the process (Benham-Hutchins & Effken, 2009). Research supports synchronous communication as the preferred method of clinical handover as it enables opportunity to ask follow-up questions and seek clarification in the moment as needed (Benham-Hutchins & Effken, 2009; Veldstral et al., 2015).

The paramedics in the study identified the content they perceived to be pertinent to a clinical handover and indicated their adherence to professional and best practice standards when

conducting clinical handover. They identified patient demographics, vital signs, history, presenting chief complaint, treatment given, allergies, current medications and response to the treatment as the key content to support continuity of care. As evident in the literature, there is an absence of agreement on the standard content to be included in a clinical handover from EMS to ED. For example, Carter et al. (2009) identified age; prehospital Glasgow Coma Score; location, and mechanism of injury while Evans et al. (2010a) identified patient demographics; mechanism of injury; injuries sustained; signs and symptoms, and treatment provided. To be effective the handover must convey relevant patient information in a structured format and be received by ED staff through active listening (de Lange et al., 2017). In this study the Reporting to Base Hospital policy directs the paramedics to formulate their clinical handover to follow the structure and order as laid out by the Base Hospital Directive. Absence of such a directive from the base hospital is a barrier to creating shared understanding of the clinical handover content and a source of tension between the paramedics and ED staff.

When clinical handover is missing content that is needed for treatment planning, the ED staff must ask the paramedic for the information and this may delay delivery of appropriate clinical care (Carter et al., 2009). Paramedics in this study commented on the lack of a shared structure for delivery of the clinical handover content and spoke of their use of SBAR and the Pain, Quality, Radiation/Region, Severity, Timing (PQRST) to formulate a comprehensive handover. Evidence indicates that use of acronym-based protocols improves the clinical handover process by preventing communication-related delays, errors, and patient care omissions (Iedema et al., 2012; Meisel et al., 2015). Some paramedics in this study indicated that they would start to give their formulated handover following an acronym-based structure only to be interrupted by the ED nurse who preferred receive the content in a different order. While there is

a lack of consensus on the content of an effective clinical handover (Fahim Yegane et al., 2017), evidence supports use of a standardized clinical handover tool combined with provider education as a way to achieve consistent handover content with less need to ask questions to clarify content, or repeat content, and a reduction in the time to deliver the clinical handover (Iedema et al., (2012).

Clinical handover between paramedics and ED nurses poses unique challenges as the sender and receiver are based in different professional cultures which can contribute to communication errors that may be detrimental to the patient (Meisel et al., 2015; Najafi Kalyani et al., 2017; Sujan et al., 2015). According to Owen et al. (2009), discipline-specific skills and communication styles hinder clinical handover as they make it difficult to create a shared cognitive picture of the patient condition. This difficulty could be associated with lack of shared professional policies and procedures and lack of awareness of the other profession. To improve patient outcomes, paramedics and ED nurses must respect and recognize the diversity of each other's roles, competencies, and responsibilities (Canadian Interprofessional Health Collaborative, 2010). Interprofessional education enables healthcare professionals to learn with and from each other and encourages effective collaboration for providing high-quality patient care (Kim et al., 2020). A systematic review and meta-analysis of interprofessional education in the ED identified positive outcomes including increased acquisition of knowledge, skills, and change of attitudes of the ED staff and a dispelling of inaccurate perceptions of other healthcare professionals (Guraya & Barr, 2018).

The ability of healthcare professionals to work cohesively and collaboratively is a significant factor that influences the ability to achieve positive patient outcomes (Williams & Tease, 2016). A deficit in knowledge of other disciplines may influence clinical handover in the

ED as paramedics may need to give handover to other members of the health care team who come from various disciplines (e.g., ED doctors, respiratory therapists, or allied healthcare specialists). This is especially the case when the handover is for a patient requiring critical care. When the communication exchange includes language that is not common to all disciplines, the clinical handover is affected. For example, paramedics may need to repeat information with different words or there may be a loss of valuable information in the translation between professions. When this occurs there is a potential loss of valuable life-saving time and increased risk of adverse outcomes for the patient. As noted previously, when ED staff are unsure of the paramedic scope of practice they may question treatment decisions and reflect mistrust in the competence of the paramedic which can have a negative impact on collaborative practice.

#### **5.4 Assurance**

Luhmann (1979, as cited in Gonzalez, (2017) considers trust as a concept that is intertwined with attitude and indicated trust is reliant on a person's attitude toward a specific situation. Trust, therefore, is contextual and fluctuates based on circumstances. Trust is a human characteristic that develops through interactions and when it exists it is possible to have effective relationships with positive outcomes (Gonzalez, 2017). Perceived competence is an element of trust. Benner (1984, as cited in Smith 2012) defined competence as the capability to accomplish responsibilities with the incorporation of knowledge to achieve desirable outcomes. Furthermore, Tavares et al. (2016) define competence as the extent to which individuals can use their skill, judgment, knowledge, and attitudes to perform efficiently within their scope of professional practice. Those who are perceived as competent are trusted and regarded with confidence.

In this study, the paramedics recognized the impact of trust on clinical handover and perceived trust-related issues in their interaction with ED nurses. One example is rooted in the

questioning of paramedic assessment of the patient condition by ED nurses. When ED nurses looked to the patient or the family to confirm what the paramedic reported, the paramedics perceived this as a lack of trust in their handover assessment. The paramedics identified times when they sought senior ED nurses for clinical handover of a critical patient as they did not trust junior nurses to have the skill set to manage the patient. The paramedics remembered how, when new to the profession, ED nurses did not trust them or were skeptical of their assessment skills and clinical handover content. This reflects how trust develops in stages (Gonzalez, 2017). The perception that clinical competence of novice paramedics is limited is common (Tavares et al., 2016). With experience competence in clinical handover develops and the paramedics recognized this was evident when the ED nurses responded with greater trust in their interaction with them over time.

Gonzalez, (2017) suggests that a key to establishing trust is the building of rapport between the individuals. The paramedics in this study recognized rapport improved the interprofessional relationship with ED nurses and led to enhanced clinical handover. Charman (2015) identified attributes of positive interprofessional relationship to include mutual trust, good rapport, professional respect, and a mutual understanding of the role each performs. Paramedics in this study indicated that on arrival in the ED they would seek to handover to a nurse who would listen to them or one with whom they had a good rapport. When they perceived a collegial professional relationship with the ED nurses, the quality of the clinical handover was higher. Alternatively, when the interprofessional relationship was perceived to be poor, the clinical handover was short and less detailed. This finding aligns with Evans et al. (2010a) who indicated that a strong interprofessional relationship between paramedics and ED staff improves clinical handovers.

## 5.5 Attitude of Attention

Effective clinical handover by EMS in ED requires the nurse to attentively listen to paramedic. The paramedics in the study felt frustrated when they had to seek out an ED nurse for the handover and explained that they wanted their arrival in the ED to be acknowledged. The lack of acknowledgement on arrival was perceived to be the result of a dismissive attitude by the ED nurses. The paramedics indicated that they did not want the acknowledgement for the purpose of patient off-load but rather, as a professional courtesy they wanted the ED nurse to ask about the patient. The paramedics indicated willingness to keep the patient on their stretcher and continue with their protocols while on off-load delay. These findings align with Evans et al. (2010b), who identified the dismissive attitude of ED staff as a barrier to effective clinical handover; and Meisel et al. (2015), who reported that many paramedics in their study recognized clinical handover as a brief window of opportunity for their influence on the patient trajectory in the ED and as such they advocated for acknowledgement of their patients upon ED arrival.

Interprofessional collaborative practice requires healthcare professionals to recognize and respect the diversity of the roles, responsibilities, and competencies of each other and to enact collaboration through mutual respect, availability, trust, attentive listening, and open communication (Canadian Interprofessional Health Collaborative, 2010). Key to interprofessional collaboration is an awareness of and commitment to interprofessional ethics, which leads to the common goal of delivering the best patient care possible and implies that all healthcare professionals deal with conflicting viewpoints and reach reasonable compromise (Canadian Interprofessional Health Collaborative, 2010). An integrative review of 47 studies of clinical handover between paramedics and ED staff identified the absence of collegial interprofessional relationship as a barrier to effective clinical handover (Dawson et al., 2013).

Collegial interprofessional relationship was considered absent when the ED staff were distracted, disinterested, did not listen actively, and lacked of trust in the handover content. Becoming more trusting and receptive to each other's knowledge and skillset can reduce the risk of missing clinical handover content, avoid delays in treatment, and reduce adverse patient events (Dawson et al., 2013). Panchal et al., (2015) identified professionalism as a central factor affecting patient safety during clinical handover and indicated that when perceived professionalism among paramedics and ED staff is high the perceived quality of the clinical handover is high even when critical clinical handover data is missing. In this study, the paramedics indicated that when they perceived a lack of professionalism from the ED nurse in the form of a dismissive or discourteous attitude, their clinical handover to the nurse was brief and substandard. Panchal et al. (2015) identified ownership, consideration, and punctuality as three general aspects of professionalism that play a significant role in the quality of the clinical handover. Ownership involves the handover of responsibility from paramedic to ED staff. Consideration is the reluctance to accept clinical handover or impoliteness, aloofness, and condescension. Punctuality is the acceptance of a clinical handover in a timely manner. The paramedics in this study related to many occasions when they needed to seek out an ED nurse after waiting for 10-20 minutes to give the clinical handover even after a radio patch was given for a patient requiring urgent care. In addition, the paramedics stated that the ED nurses at times were impolite, aloof and condescending when dealing with the paramedic, all of which influenced the process of their clinical handover.

## **5.6 Ambience in the ED**

The physical environment as defined by the layout of the ED and level of distraction has an influence on clinical handover (Welch et al., 2013). In this study, the paramedics were not

visible when they arrived in the ED and remained hidden by the physical structure of the department unless they purposefully positioned themselves outside of the designated off-load area so that they would be seen. At times, the paramedics would open the triage door to inform the triage nurse that they were in the department with a patient. An environment that is conducive to clinical handover is one that has a physical layout with clear lines of sight and shared workspaces (Welch et al., 2013).

Activity level in an environment can undermine the effectiveness of communication (Manser & Foster, 2011) and make clinical handover in a busy ED susceptible to miscommunication and information loss. The ED is a complex environment that can be chaotic given high patient acuity and overcrowding which may cause interruptions and distractions that result in inaccurate clinical handover (Bost et al., 2012). This was reflected by the paramedics who felt that their clinical handover was delayed or rushed. The paramedics also noted that the content given in the handover or requested by the nurse was less when the ED was busy. The paramedics also commented on how there were not enough ED nurses on the floor to cover all of the work within the department. Appropriate staffing of the ED has been identified as necessary for effective clinical handover (Najafi Kalyani et al., 2017).

Protection of patient privacy and confidentiality are paramount in healthcare delivery but easily compromised in the ED when clinical handover occurs in a small area that is overcrowded and without adequate barriers to prevent others from witnessing the exchange of information during clinical handover (Calleja & Forrest, 2011). Lack of a private area in the ED creates a problem for paramedic handover (Najafi Kalyani et al., 2017). Paramedics in this study also indicated the need to conduct the clinical handover of a trauma patient loud enough so that all ED staff can hear them over the noise of the monitors and other activities in the room. They

expressed concern that this could result in a breach of patient confidentiality. In addition, some handover content can be difficult to convey when it is sensitive in nature or would be awkward for the patient (Tobiano et al., 2017).

### **5.7 Acuity of the Patient/ED**

The acuity of the ED is a reflection of the urgency and intensity of the clinical response required of ED staff for the patients that are admitted (Yiadom et al., 2018). When the ED has patients requiring urgent and intense care from multiple and diverse care providers, additional tensions influence clinical handover and safety risks are increased (Sujan et al., 2014). It is especially important in these circumstances that paramedics give a concise clinical handover and are prepared to repeat the handover several times as there may be a difficulty in relaying all the important information due to distractions and competing demands for the ED staff and the lack of common clinical handover language (Owen, et al., 2009). Additionally, challenge relates to the diversity of healthcare disciplines attending to the high acuity ED patient as more providers need the handover information as they contribute to treatment decision-making and have preferences for clinical handover that are based in their own professional culture (Sujan et al., 2015).

Within the ED trauma patients command the most immediate and intense interest (Meisel et al., 2014). ED staff is highly engaged in the clinical handover of the trauma patient and request detailed clinical handover content about the pre-hospital condition and interventions (Meisel et al., 2014). Patients who present repeatedly to the ED however, are labelled as ‘regulars’ and given less regard even if they are quite sick (Meisel et al., 2014). The paramedics in this study indicated that the content of a clinical handover for the patient considered to be a ‘regular’ is limited and the ED nurses tend to not ask for more information about these patients.

Furthermore, even if this patient presents with symptoms that are not the same as usual, they are not taken seriously. Low acuity patients are perceived to be resented by ED nurses and paramedics or viewed as an unwelcome addition to their workload (Meisel et al., 2014). This was evident in this study when paramedics noted that the ED nurses felt overwhelmed when a patient labelled as a regular presented via a land ambulance and taking the handover meant adding a new responsibility to their assignment workload.

Paramedics assign patients with a CTAS level based on their pre-hospital assessment and at the time of clinical handover the ED nurse also assigns a CTAS level which may be different. Even though CTAS designation is considered accurate 85% of the time and the level assigned pre-hospital is not expected to match the one assigned on ED arrival (Ontario Emergency Health Services Branch MHLTC, 2018), the paramedics in this study expressed concern about the lack of congruence. Some paramedics indicated that when their CTAS level did not correspond with the one assigned by the ED nurse they felt the need to advocate for their patient and would seek other ED staff to assess the patient. In addition the paramedics were particularly concerned when their radio phone patch report of a high CTAS level patient did not ensure expedient care when they arrived in the ED.

Clinical handover of high acuity patients is prone to errors as the ED staff need to attend physically to the patient during the clinical handover and may have difficulty listening to the handover content (Owen et al., 2009). Lack of active listening by ED staff makes the repetition of the handover necessary (Boast et al., 2012). Patient acuity and ED staff attendance at the time of clinical handover has been linked to the number of times the paramedics had to repeat the clinical handover (Jenkins et al., 2007; Yong et al., 2008). Repetition of handover is required when clarity is lacking in the content, when paramedics recall content that they omitted initially

or when additional ED staff enter into the care of the patient. The paramedics in this study also noted that they provided clarification when miscommunication was occurring between the ED nurses and ED doctors. Using a loud, clear voice is one way the paramedics in this study identified they would get the attention of ED staff attention to facilitate the exchange of information as the ED staff concentrated on the physical tasks.

When presenting high level CTAS patients, lack of structure had contributed to a loss of clinical handover content when presenting a clinical handover (Owen et al., 2009). Standardized tools could assist paramedics in delivering accurate and effective clinical handovers to ED staff (Fahim Yegane et al., 2017). Applying mnemonic-based protocols can improve the handover process by preventing communication-related delays, errors, and omissions in patient care (Iedema et al., 2012; Meisel et al., 2015). In addition, fewer questions from ED staff about clinical handover content, reduction in the duration of clinical handovers, and fewer repetitions by both paramedics and ED staff that suggest improved recipient comprehension and retention (Iedema et al., 2012). The paramedics in this study asserted that clinical handovers for high CTAS level patients were chaotic given there was no structure and they were unsure of whom to give the clinical handover to as there was no one clear leader in the trauma room, which lead to important information being missed.

## **5.8 Summary**

Communication context; assurance; attitude of attention; ambience; and acuity of patient and ED were the themes identified to encapsulate the factors that influence paramedics in clinical handover to ED nurses. Clinical handover is for the purpose of safe transfer of responsibility for patient care and is a common practice that occurs multiple times in the hospital setting during a shift between professionals from the same discipline (nurse to nurse) or different disciplines

(doctor to nurse, paramedic to nurse and doctor). This essential activity is based on communication and collaboration skills that support positive interaction among the health care providers. There is however, a limited curriculum to prepare the professionals for clinical handovers so competence in performing this activity is built through experience in the workforce. Paramedics and nurses are based in different organizations and have a limited awareness the others' profession and could benefit from opportunity to engage in interprofessional training that could facilitate development of shared practices for clinical handover. Interprofessional education is recognized as a crucial strategy for preparing healthcare professionals to communicate and collaborate effectively in the work environment (Stow et al., 2016). Funding from nursing and paramedicine associations could be secured to support educator development of simulations to support interprofessional training (Stow et al., 2016)

Clinical handovers are influenced by the work environment. Within a highly active ED, interruptions, distractions, and ambient noise are common and increase the risk of information loss or miscommunication during clinical handover. While the aim is the safe transfer of responsibility for patient care from EMS to ED, the ability to do so is compromised when the physical layout of the ED and staffing is not optimal. There is need to establish a flow from the ambulance bay that ensures prompt acknowledgement of EMS arrival with the patient and timely clinical handover in a space where concern about the potential for compromising patient confidentiality is minimized. Organizational culture should support practices that strengthen the teamwork and fosters interprofessional collaborative practices that ensure professional courtesy is inherent in clinical handover.

Organizational policies and procedures guide practice for optimal patient care (Dol et al., 2017). The study revealed an absence of hospital policies or procedures for receiving or

conducting clinical handovers in the ED and only limited organizational guidance for paramedics to follow when giving a clinical handover in the ED. There is an opportunity for nurse leaders to influence change by developing policies to address professional challenges that arise in the absence of organizational guidance for the practice of clinical handover (Ariabi et al., 2014).

This study raised awareness of the influence of interprofessional relationship on clinical handover in the ED and identified some of the difficulties paramedics experienced when presenting with a patient in the ED. Clinical handover is recognized as a routine practice. As such consideration of the inherent complexities is given limited consideration and practices that can be detrimental to safety continue. Eggins and Slade (2015) suggest that tolerance for clinical handover risk factors have been naturalized as part of the ED culture. This points to the need for concentrated initiatives from all levels, including education, research and policy to ensure the quality of the interactions that occur for the purpose of transfer of professional responsibility from EMS to ED.

### **5.9 Study Limitations**

This study contributes to the understanding of factors that influence clinical handovers from paramedics to ED nurses in a small urban hospital in northeastern Ontario. The findings may be unique to the study setting (Anderson, 2010). As a focused ethnography, the study concentrated on small number of paramedics who were able to provide a rich account of their clinical handover within the ED.

The audio recordings of the interviews were transcribed verbatim. To maintain the representation of the key informant responses, a naturalized approach was used that included transcription of every instance of utterances, idiosyncratic elements of speech (e.g., stutter),

verbal fillers and repeated words or sentences (Widodo, 2014). No other conventions of transcription were used.

To reduce personal bias in the study, the researcher used reflexivity. Reflexivity is essential but no researcher can have a completely objective stance in recognizing and depicting another or one's own culture (Rashid et al., 2019). Memoing was used by the researcher to track personal assumptions, and opinions during the study. Maintaining distinct records of emotional reaction to the key informant responses to the interview questions helped the researcher identify potential sources of biases and enabled the researcher to limit the influence of personal thoughts, feeling and perceptions in the analysis and reporting of the study findings.

The document review was limited and completed as a method to enhance the researcher's awareness of organization level influences on paramedic handovers in the ED. The researcher did not explore paramedic documentation of off-load delays or reports of these delays to EMS management.

## **5.10 Conclusion**

This research set in a small, urban community in Northeastern Ontario reaffirms the many factors that influence the routine practice of clinical handover from paramedic to ED nurse. Of these factors, interprofessional collaboration characterized by mutual trust and respect for each other's contributions to the safe transfer of professional responsibility for patient care is of great importance. Interprofessional collaboration is rooted in organizational culture which needs to facilitate positive interactions in an environment that is suitable for the transfer of responsibility for patient care between EMS and ED. When health care providers interact with each other knowing little about the others' profession and culture; and the interaction is a practice that is developed primarily through experience with an absence of mutually accepted

guidelines for the conduct of the practice, the potential for mistrust and inefficiency in practice arise and may contribute to compromise of patient safety.

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## Appendix A

### Hierarchy of Evidence for Research Studies

## Hierarchy of Evidence for Research Studies

Level I: Evidence from a systematic review of all relevant randomized controlled trials (RCT's), or evidence-based clinical practice guidelines based on systematic reviews of RCT's

Level II: Evidence obtained from at least one well-designed Randomized Controlled Trial (RCT)

Level III: Evidence obtained from well-designed controlled trials without randomization, quasi-experimental

Level IV: Evidence from well-designed case-control and cohort studies

Level V: Evidence from systematic reviews of descriptive and qualitative studies

Level VI: Evidence from a single descriptive or qualitative study

Level VII: Evidence from the opinion of authorities and/or reports of expert committees

## Appendix B

### Data Extraction Table for Essential Content and Information Transfer

Essential Content and Information Transfer Table

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Carter (2009)	Quantitative  Non-experimental - pilot observational performance improvement process  I: HO survey  II: HO observation  III: Trauma Check list  IV: Review of the Charts	Purposeful  I. 16 “Key Data Elements in a Trauma HO” survey established and finalized in collaboration with the ED staff  II. 96 observational videotaped documentation over 6 months of all trauma bay events of all patients aged 16 years & over meeting institution’s trauma triage criteria as requiring a “full trauma”  III. Lead ED doctor of the trauma checked off which of the 16 elements were verbally given by the PM during the HO  IV. 2 EMS doctors, blinded to the checklist findings, reviewed the ED chart notes and checked off whether the same elements had been documented by the ED staff on the ED chart.	16 Key Components HO: <ul style="list-style-type: none"> <li>• Mechanism (94 times), anatomic location of injury (81), and age (67)</li> <li>• Only 72.9% of the 16 key prehospital data was documented by ED staff</li> <li>• 4.9% of the 16 possible data elements were transmitted at each HO</li> <li>• If the PMs feel ignored or rushed, a shorter and less complete HO is given</li> </ul> Recommendations <ul style="list-style-type: none"> <li>• Knowledge of what happened to the patient prior to their arrival in the ED can help ensure expedient and appropriate care.</li> <li>• It is unclear whether the lack of data transmission represents a failure to obtain the data in the field therefore there is opportunity for PM education and training</li> <li>• Methods of “transmitting” and “receiving” data in trauma as well as all other patients need further scrutiny.</li> </ul>	Small sample size (30% videotape capture)  Possible that the ED staff either obtained information from a source other than the HO or knew information they did not record in the chart resulting in an inaccurate estimate of the degree of information loss.  It is impossible in this study to differentiate problems with documentation from problems with information loss during transmission - real-time interview of trauma team would be necessary to evaluate this

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Evans (2010a)	Quantitative Non-experimental exploratory observational design  I: Audio recordings  II: Video recordings  III: Patient Care Records (PRC) reviewed	Block randomization  I: 25 audio recordings of pre-ED HO of critically ill patients from PM to ED staff of critically ill patients  II: 25 video recordings of in-ED HO of the same critically ill patients from PM to ED staff  III: 25 the same critically ill patient's PRC were reviewed	Accuracy of the HO components documented: <ul style="list-style-type: none"> <li>• Pre-ED: 75%</li> <li>• In-ED: 67%</li> <li>• Only 79% was documented in the Patient Care Record</li> </ul> Components of HO least likely to be documented by ED staff: <ul style="list-style-type: none"> <li>• 86% pre-ED treatment provided</li> <li>• 44% in-ED signs and symptoms.</li> </ul> Most comprehensive HO were when PMs provided face-to-face report to team in the ED.  Discordance of the HO was most likely to occur with the verbal HO and then documented by PM suggesting there was difficulty recalling HO information  Recommendations: PM use electronic speech capturing devices with standardized templates for HO on route that is received by the ED team prior to the patients arrival	The ED staff routinely treat trauma patients it is likely that problems identified in the study are further exacerbated in smaller hospital unfamiliar with treating trauma patients.  Did not record implication of not documenting or incorrect documentation of the components of the HO therefore could not comment on the clinical significance of the outcome variance.  The Hawthorne affect may affect the behavior by PM or the ED staff

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Evans (2010b)	Qualitative study  Grounded theory/ A thematic analysis  I: Interviews to identify the minimum dataset  II: Interviews	Purposive convenience  I: 10 PM 17 ED staff  II: 27 Interviews 10 PM Trauma team: 12 Medical doctors 7 Consultant 5 Registrars Nursing 3 Clinical nurse specialists 2 RN	Minimum data set form developed: <ul style="list-style-type: none"> <li>• Trauma/Time Critical Notification Mechanism, Injuries, Signs, Treatment template developed with PM and ED staff.</li> </ul> HO attributes: <ul style="list-style-type: none"> <li>• HO are succinct and PMs are confident</li> <li>• ED staff are present at the time of HO</li> <li>• ED staff are actively listening</li> <li>• Experience of PM and ED staff</li> </ul> Ineffective HO: <ul style="list-style-type: none"> <li>• Extraneous information</li> <li>• Interruptions</li> <li>• Noisy environment</li> <li>• Dismissive attitudes of the ED staff</li> <li>• Repetitiveness</li> </ul> Feasibility of advanced data transmission required: <ul style="list-style-type: none"> <li>• Effective use of portable handheld devices</li> <li>• Intuitive computer interface design</li> <li>• Investment in developing the ability of monitors to automatically capture and transmit data</li> </ul> Display data in trauma bays: <ul style="list-style-type: none"> <li>• Use of a graphic format for developing data</li> </ul> Recommendations: <ul style="list-style-type: none"> <li>• PM be provided with tools and techniques to enhance their ability to collect information with minimal burden and deliver it with seamless integration between services</li> </ul>	Using less experienced PM may elicit different information of collected and barriers to HO  Participants were only asked to comment on barriers of effective HO based on the predefined tool

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Goldberg, (2016)	Quantitative  Blinded study  I: Audio Recording	Purposeful  I: 97 critically ill and injured patient HO from PM to ED staff were audio recording and coded on a standardized form over a 4-month period  <ul style="list-style-type: none"> <li>• 32 of the patients arrived by 911 service transported</li> <li>• 65 of the patients arrived by private ambulance service.</li> <li>• 62% of patient HO were performed by PM</li> <li>• 38% of patient HO were performed by providers at the EMT level.</li> </ul>	Information transferred from the PM during the HO: <ul style="list-style-type: none"> <li>• Most common component - presenting problem and initial patient condition</li> <li>• Least reported - allergies and blood glucose</li> <li>• Greatest predictor for immediate interventions is vital signs and only given 50% of the time</li> <li>• Pre-ED Patient's condition was only given 31% of the time</li> <li>• HO is often rushed, and portions of the HO are deferred in the interest of expedited patient care</li> </ul> Recommendations: <ul style="list-style-type: none"> <li>• Delaying HO until the patient is physical transfer of the PM stretcher, this may foster active listening of the ED staff and decreased HO information loss.</li> <li>• Practice changes including increased multidisciplinary training and a standardized approach to HO are needed</li> </ul>	HO was only recorded during weekday daytime hours. Overnight, EMS call volumes are down, acuity is often increased, and PMs are more fatigued. It is possible that the quality of HO overnight is different than during daytime hours  To maintain using blinding, stealth audio recording some information transmitted visually, such as written vital signs, may have been neglected resulting in an underestimation of data transferred.  The use of stealth recorder occasionally comprised sound quality

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample/Setting</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Meisel, (2015)	Qualitative Focused ethnography  I: Focus groups with semi-structured questions	Purposive sampling  48 PM  I: 7 Focus groups with approximately 6-10 participants in each group  Participants in focus groups Comprised of: 24 EMT-basic 24 EMT-PM  Additional professional roles 11 Physician (EMT-basic) 2 Nurse (EMT-PM)	PM perspective about HO: <ul style="list-style-type: none"> <li>• Limited amount of time</li> <li>• HO to ED physicians is more effective</li> <li>• Staff hierarchy: PMs low status of power</li> <li>• ED staff do not understand the PMs scope of practice</li> <li>• Patient hierarchy: better quality HO with trauma patients versus “frequent flyer”</li> <li>• PM want interdisciplinary feedback on HO</li> </ul> <p>Issues and factors of HO process:</p> <ul style="list-style-type: none"> <li>• PM records are inconsistent</li> <li>• Technology was used inconsistently and often ineffectively</li> <li>• Delays in HO</li> <li>• Lack of privacy to give HO</li> </ul> <p>Recommendations to improve HO:</p> <ul style="list-style-type: none"> <li>• Increased PMs interaction with ED physician</li> <li>• Standardizing of HO process</li> <li>• Fostering interprofessional learning of each disciplines culture</li> <li>• Technology needs to be reliable and efficient in translating HO</li> </ul>	Some of the participants were physicians, RNs, and PM medical directors in addition to being PMs therefore these participants spoke from a multiple professional perspective which may have been bias in the focus group discussion about professional hierarchy.  Researchers state they were unable to track reasons for non-participation therefore may not reflect the thoughts of all PMs

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Panchal, (2015)	Quantitative Exploratory I: Observation II: Checklist II: Interview	I: Observation of patient HO Trauma patients (n=413) (medical patients (n=678)  II: Key HO elements (n=12) comminuted during HO and the RA rated the professionalism of the HO  II: Post HO ED and PM perception of professionalism	<ul style="list-style-type: none"> <li>• Different HO elements were presented for trauma patients verses medical patients</li> <li>• Basic critical HO elements were omitted during patient HO</li> <li>• Perception of HO quality of the HO is not dependent on whether the critical information is present or omitted</li> <li>• Professionalism is the most significant indicator of the quality of the HO</li> <li>• Perception of professionalism was high even when critical elements of the HO was omitted.</li> </ul>	Data collection was dependent on the RA's attentiveness, listening skills, and attention to accurate documentation.  Some information that was communicated might have been missed by the RAs during the transfer.  Furthermore, an objective assessment of inter-rater reliability among the trained observers was not done.

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Sujan, et al., (2015)	Qualitative Semi-structured interviews I: Observations of HO II: staff interviews III: Additional interviews	Purposeful convenience  I: 270 over 8 months with: PM to senior ED clinicians PM to ED coordinator Senior ED clinicians to Acute Medical clinicians  II: 39 PM and ED staff  III: 24 further interviews with 15 PM and ED staff.	The process of clinical HO is vulnerable due to: <ul style="list-style-type: none"> <li>• Different professional, cultural, and organizational backgrounds</li> <li>• Different disciplines have different motivations, and these can create tensions in the HO process.</li> <li>• PM documentation of HO can be temporarily unavailable, inaccurate, or incomplete.</li> <li>• Written documentation does allow for ED staff to discuss the HO with the PMs</li> <li>• Lack of trust between the disciplines</li> </ul> Recommendations: <ul style="list-style-type: none"> <li>• Identify the tensions in HO process between the PM and ED staff</li> <li>• Further research needs to be done to identify what recommendations can be made for improvement in patient safety</li> </ul>	The sampling may not be representative of the entire population of PM or ED staff

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Yong (2008)	Quantitative	Purposeful	ED staffs' attitudes towards HO from PM:	Observer bias
Australia	I. ED staff background questionnaire II. HO observation III. post-HO survey	I: 51/79 ED staff (16 doctors, 24 RNs) II: 311/1068 ambulance arrivals over 5 weeks III: 192 post HO surveys of a total of 324 ambulance arrivals (171 from nurses, 21 from doctors)	<ul style="list-style-type: none"> <li>• PM HO of ED patients is relevant except for behavioral emergencies</li> <li>• The amount HO information varied based on patient condition</li> <li>• Prehospital communication by PM was not frequent</li> <li>• 67% of ED staff felt that important information was missing from verbal HO</li> </ul> <p>PM content and delivery methods of HO to ED staff:</p> <ul style="list-style-type: none"> <li>• PM verbal HO was following up by a written report</li> <li>• PM usually provided HO twice (91%)</li> <li>• ED physicians more likely to be present at time of HO with more critically acute patients.</li> <li>• Five most common pieces HO information given by PM were: presenting problem; vital signs; past medical history; patient's current medications; and prehospital treatment</li> </ul> <p>Recommendations</p> <ul style="list-style-type: none"> <li>• Further evidence regarding whether paramedic-to-treating ED physicians HO improves patient outcomes is needed</li> <li>• The possibility of prehospital PM triage, with a single direct HO to attending nurse or doctor might require both cultural and organizational change.</li> </ul>	<p>Hawthorne effect</p> <p>Recall bias</p> <p>Observation sampling bias</p> <p>Single site study without pediatric or trauma services</p> <p>Restricted access to PM</p>

## Appendix C

### Data Extraction Table for Handover Strategies

*Interaction Table*

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample/Setting</i>	<i>Study Limitations</i>	
Aase (2011)	<p>Qualitative</p> <p>Exploratory research design with multistage focus group interviews</p> <p>I: Training of HO tool</p> <p>II: Focus group interviews</p> <p>III: Additional focus group interviews</p>	<p>Purposeful</p> <p>I: 180 PM and ED nurses trained to use the HO tool</p> <p>II: 2 years later multistage focus group interviews with 10 PM and 9 ED nurses were interviewed</p> <p>III: 2 weeks later the same focus group with 10 PM and 9 ED nurses interviewed</p>	<p>HO process perceptions:</p> <p>ED Nurses</p> <ul style="list-style-type: none"> <li>• Each HO varies and no situation is standard.</li> <li>• Utilization of nursing skills instead of the standardized HO tool</li> <li>• Inexperience and new ED nurses unfamiliar with the HO process</li> </ul> <p>Pm</p> <ul style="list-style-type: none"> <li>• HO is a detailed and structured</li> <li>• ED nurses have different approaches to HO dependant on familiar/expensing of the PM</li> <li>• HO was guided by their clinical experience</li> </ul> <p>Functioning of the HO process 2 years after implementation of the protocol:</p> <ul style="list-style-type: none"> <li>• ED nurses and PMs continue to have differences with the importance and function of the HO tool.</li> <li>• Cultural/attitude issues towards HO tool</li> <li>• Limited use/ownership of the HO tool</li> <li>• Organizational issues – communication, management, and function of the HO tool</li> <li>• Individual issues – PM and ED nurses experience with HO and competence</li> </ul> <p>Recommendations:</p> <p>There needs to be renewed focus on the HO in the form of:</p> <ul style="list-style-type: none"> <li>• Multidisciplinary training</li> <li>• Management review of the HO process</li> <li>• Revision and/or evaluation of the HO tool</li> </ul>	<p>One site study</p> <p>The data may not reflect the opinions of the HO tool of all ED nurses and PM at the facility</p>

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample/Setting</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Altuwajri (2019)	Qualitative  I: Interviews  II: Observations of HO	Purposeful  I: Interviews: 7 PM 3 ED staff  II: Observations over 4 consecutive days: 74 PM crew giving 37 HOs to ED staff	Factors constrains the effectiveness of the electronic Patient Report Form (ePRF): PM: <ul style="list-style-type: none"> <li>• Time consuming to complete</li> <li>• ePRF has more fields than the paper Patient Report Form (pPRF)</li> <li>• Lack of training for required information input</li> <li>• pPRF format is concise and highlights the most important information categories, whereas the ePRF is subdivided into multiple pages</li> <li>• Navigation between subdivided pages occasionally causes important information loss</li> </ul> ED staff: <ul style="list-style-type: none"> <li>• Verbal HO is relied on heavily as ePRF needs to be finalized and uploaded prior to ED staff having access to the HO information</li> <li>• HO can be overloaded or lacking data depending on the PM experience.</li> <li>• Delays in being able to access the patient's ePRF</li> </ul> Observation: <ul style="list-style-type: none"> <li>• Additional time required for data entry in the ePRF</li> <li>• Difficulty connecting to the server is a system design problem</li> <li>• Data entry can be time consuming depending on the condition of the patient</li> </ul> Recommendations: <ul style="list-style-type: none"> <li>• Shared approach to management of data transfer during HO</li> <li>• Provide PM with more choice and control about how they perform the task of ePRF data entry.</li> <li>• Standardization of HO</li> <li>• ePRF development that focus on interface and the way users will interact with it</li> </ul>	Period since the study was done and the results were published the ePRF has been updated to a newer version therefore results may be distorted.  Only three ED nurses were interview, and one had more experience and acted as the main source of information for many topics. So, it is possible that this may have introduced some bias and that some HO issues may have been missed

Primary Author	Design/Analysis	Sample	Key Findings	Study Limitations
Fahim Yegane et al. (2017)	Quantitative Non-experimental - pilot improvement process  I: Pre education patient chart reviews  II: Education session  II: post education patient chart reviews	I: 178 pre- ISBAR chart data reviewed  II: 150 PM and 150 ED staff educated to use ISBAR HO tool  III: 168 post- ISBAR education chart reviews	Pre-ISBAR HO: <ul style="list-style-type: none"> <li>• ISBAR tool was not used in trauma pt HO</li> <li>• HO had weak content</li> <li>• 0% of the HO content followed the ISBAR order</li> </ul> Post education of ISBAR: <ul style="list-style-type: none"> <li>• 65.3% of the HO followed the ISBAR order</li> <li>• Each of the data points in the ISBAR has significant increase in HO data</li> </ul> Factors compromising the ISBAR <ul style="list-style-type: none"> <li>• Lack of acceptance of the ISBAR format from ED staff</li> </ul> Recommendations: <ul style="list-style-type: none"> <li>• Multi-discipline education promotes leadership, teamwork, communication, and problem-solving skills</li> <li>• Education can assist with adherence of the HO tools</li> <li>• Future studies examine the consequences on of the ISBAR tool on the quality of health care of patients need to be evaluated</li> <li>• Future studies should compare different types of standard handover tools in patient safety in the ED</li> </ul>	Conducted a single site and may not have external validity

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Iedema (2012)	Mixed method  Quantitative Correlational  Qualitative 'video-reflexive ethnography'  I: Focus groups  II: Pre and Post HO video recorded  III: Education of the HO tool  IV: Survey Questionnaires	Purposeful  I: 10 pre-intervention focus groups with 6 ED staff and 10 PM with  II: 368 ED healthcare staff were educated in the use of the new HO tool  III: 73 Pre- HO and 63 post- HOs were filmed involving 291 PMs and ED staff over a 7-month period  IV: 416 Questionnaires completed by ED triage nurses after receiving pre- and post-HO tool HO	Pre-existing HO procedures: <ul style="list-style-type: none"> <li>• PM have structure in organizing their HO</li> <li>• 93% of PMs' HO elicited questions from ED staff</li> <li>• PMs repeated 67% of HO information</li> </ul> Introduce and educate PM and ED staff about the new handover tool: <ul style="list-style-type: none"> <li>• Focus group refined and endorsed the HO tool</li> <li>• PM and ED staff provided with rapid HO tool training</li> </ul> ED nurse perception of HO post tool implementation: <ul style="list-style-type: none"> <li>• Improvements in the communication of a HO</li> <li>• Improvement in the amount of HO information</li> <li>• Decrease in the number and the type of questions for PM</li> <li>• Decrease in the time it took to relay the HO</li> <li>• Increased in the ED staff's perception of PMs HO</li> <li>• Helped structure information delivery in the order of clinical criticality</li> </ul> Recommendations: <ul style="list-style-type: none"> <li>• The HO tool represents the importance and potential for multi-discipline involvement in the co-design of patient safety solution and improvements.</li> </ul>	Results may have been skewed due to the limited number of paramedics (just over 10% of the state-wide paramedic workforce) having been educated in the HO tool.  ED nurses were not informed which PMs were educated in the HO tool therefore the ED nurses were not able to return survey responses only for PMs who were educated

## Appendix D

## Data Extraction Table for Handover Interaction

Interaction Table

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Bost, et al., (2012) Australia	Qualitative  Focused ethnography/ Grounded theory constant comparative	I: 38 distinct observations; 74 participants observed <ul style="list-style-type: none"> <li>• 8 student PMs</li> <li>• 22 advanced PMs</li> <li>• 4 intensive PMs</li> <li>• 30 RNs</li> <li>• 10 medical officers</li> </ul> II: 31 with <ul style="list-style-type: none"> <li>• 2 student PM</li> <li>• 19 advanced PM</li> <li>• 1 intensive PM</li> <li>• 6 RN</li> <li>• 1 enrolled nurse</li> <li>• 2 medical officers</li> </ul>	HO processes types: <ul style="list-style-type: none"> <li>• Critical</li> <li>• Non-critical</li> </ul> HO process quality depends on: <ul style="list-style-type: none"> <li>• Personnel's expectations</li> <li>• Prior experience</li> <li>• Workload</li> <li>• Working relationships</li> <li>• ED activity at time of handover</li> </ul> Factors compromising HO: <ul style="list-style-type: none"> <li>• Constant interruptions</li> <li>• Workload</li> <li>• Working relationships</li> <li>• Transfer of responsibility</li> </ul> Recommendation: <ul style="list-style-type: none"> <li>• There needs to be multi-disciplinary training program to improve HO</li> <li>• Further studies need to be done to be done on HO to evaluate new strategies for HO</li> </ul>	One site study  Participants may have been affected by the Hawthorne effect  There could have been observer bias and recall bias  Video recording may have deterred participation

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Findings</i>	<i>Study Limitations</i>
Najafi Kalyani (2017) Iran	Qualitative design  Descriptive Exploratory  I: Semi-structured interviews	Purposeful  I: 25 with 14 PM 11 ED nurses	PM and ED staff perception of HO: Extrinsic factors: <ul style="list-style-type: none"> <li>• Lack of a good environment</li> <li>• PMs equipment in not compatible with the EDs</li> </ul> Intrinsic factors: <ul style="list-style-type: none"> <li>• Lack of understanding for each other's disciplines.</li> <li>• Each discipline has different expectations during the HO</li> </ul> Recommendations: <ul style="list-style-type: none"> <li>• HO needs to be in an appropriate environment</li> <li>• Need provide compatible equipment between PM and ED</li> <li>• Standardization of HO process</li> <li>• Interprofessional training of HO process</li> <li>• Interprofessional training of each disciplines' culture</li> </ul>	The study took place in one ED department.  Participants asked questions concerning their peers which might have influenced their responses

<i>Primary Author</i>	<i>Design/ Analysis</i>	<i>Sample</i>	<i>Key Finding</i>	<i>Study Limitations</i>
Owen et al., (2009)  Australia	Qualitative  I: Semi-structured interviews	Purposeful  I: 50 interviews 19 PM 15 Nurses 16 ED Doctors	<p>PM and ED staff perceptions of HO:</p> <ul style="list-style-type: none"> <li>• Difficulties in creating a shared cognitive picture of patients' condition</li> <li>• ED staff had difficulty interpreting the HO information from the PM</li> </ul> <p>Facilitates HO:</p> <ul style="list-style-type: none"> <li>• Pm being assertive when giving HO</li> <li>• PM speaking loudly during HO</li> <li>• PM ensuring that there was a clear leader in the process</li> </ul> <p>Constraints of HO:</p> <ul style="list-style-type: none"> <li>• ED staff not actively listening to PM HO</li> <li>• Environmental distractions and competing demands for the ED staff</li> <li>• Repetition of the HO</li> <li>• Lack of a structured for HO process</li> <li>• No common language for HO</li> </ul> <p>Recommendation:</p> <ul style="list-style-type: none"> <li>• PM and ED staff need to be provided interdisciplinary education of each other's culture</li> <li>• PM and ED staff need to have a common language for HO</li> <li>• Standardization of HO</li> </ul>	Participants asked questions concerning their peers which might have influenced their responses

Primary Author	Design/Analysis	Sample	Key Findings	Study Limitations
Veldstra et al (2015)  United States of America	Mixed method  I: Quantitative and Qualitative HO Survey	I: 135 Survey  • 109 paramedics • 26 flight nurses	Barriers to effective HO: <ul style="list-style-type: none"> <li>• Rushed HO</li> <li>• Interruption during HO</li> <li>• No clear leader to give HO to</li> <li>• Repeating HO</li> <li>• Environmental noise</li> <li>• ED staff being inattentive to HO</li> <li>• Inexperience PMs</li> </ul> Facilitates HO: <ul style="list-style-type: none"> <li>• ED staff being attentive</li> <li>• PM being clear and concise</li> <li>• Clear leadership</li> <li>• Respect for the PMs profession and protocols</li> </ul> Recommendation: <ul style="list-style-type: none"> <li>• Larger studies are needed to determine if perspectives from other groups and hospitals are similar.</li> <li>• Need for interdisciplinary education</li> </ul>	One site study  Low response rate to survey- 2060 surveys sent only 135 returned

Appendix E

Ambulance Radio Report Sheet

**EMERGENCY/CRITICAL CARE PROGRAM****AMBULANCE RADIO REPORT**

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ VEHICLE #: \_\_\_\_\_

SARS Screening Completed \_\_\_\_\_

CTAS SCORE (Please circle one):      1            2            3            4            5

AGE: \_\_\_\_\_ SEX:     Male             Female**CHIEF COMPLAINT/CLINICAL FINDINGS:** Chest Pain     SOB             Diabetic Emergency     ↓ LOC Abdominal Pain     Hemorrhage Trauma: Specify:  
\_\_\_\_\_ Other: Specify:  
\_\_\_\_\_**PAST HISTORY:** Cardiac     COPD             CVA/TIA     Seizures     Diabetes Hypertension     Abdominal pain Other:  
\_\_\_\_\_**VITALS:** BP \_\_\_\_\_ P \_\_\_\_\_ R \_\_\_\_\_ T \_\_\_\_\_ O2 SAT \_\_\_\_\_  
Glucometer reading: \_\_\_\_\_**RHYTHM:**     NSR     VF     VT     Asystole     Other: \_\_\_\_\_Defibrillated:  Yes    Number of times: \_\_\_\_\_**MEDICATION:**     Nitro SL 0.4     ASA 160 mg po     Glucagon 1 mg S/C Ventolin Mask:             5 mg     2.5 mg     1.25 mg Epinephrine 1:1000 S/C 0.1 mg/ 10kg Epinephrine     5.0mg     2.5mg     0.5mg

ETA: \_\_\_\_\_ Staff initial: \_\_\_\_\_

PCS Revision Code: 0072-0903

Appendix F

Recruitment Poster for Paramedics



**Paramedics** working for the Cochrane District Emergency Medical Services are invited to participate in a research project exploring the factors that influence patient handovers in the Emergency Department

ANY QUESTIONS CONTACT

Lorri Robichaud  
At  
lrobichaud@laurentian.ca  
Or  
lrobichaud@tadh.com

## **PARAMEDIC HANDOVERS IN THE EMERGENCY DEPARTMENT: A QUALITATIVE FOCUSED ETHNOGRAPHIC STUDY IN A NORTHEASTERN ONTARIO URBAN EMERGENCY DEPARTMENT.**

### Benefits of Participating

This research will explore the clinical handover process between Paramedics and Emergency Nurses for patients arriving by ambulance at TDH Emergency Department. The research aim is to identify factors that influence the information transfer in the clinical handover. Your participation will provide information about the factors that influence what patient information is included in the Paramedic to Registered Nurse handover in the emergency department. This research will assist in identifying strategies for ensuring patient safety during handover in the emergency department.

## Appendix G

### Participation Package and Consent Form for Study Participants

## Study Information Letter



### Study Title

Paramedic Handovers in the Emergency Department: A Qualitative Focused  
Ethnographic Study in a Northeastern Ontario Urban Emergency Department

### Investigator

Lorri Robichaud R.N, BScN,

### Dear Colleague

I am inviting you to participate in a study focused on the factors that affect patient handovers between Paramedics and emergency department Registered Nurses at Timmins and District Hospital. This study is for the thesis portion of my graduate studies at Laurentian University.

The Director of Cochrane District Emergency Medical Services has identified you as a healthcare provider having specialized training and experience in the handover process between Paramedics and the emergency department Registered Nurses at Timmins and District Hospital. Your expertise is being requested to provide your perspective of handovers in the emergency department.

You will be asked to have a one-on-one interview with myself that will last approximately 60 minutes. The questions will be given to you in advance and will address the environment in the emergency department and how the process of patient handovers is done between the Paramedics and Registered Nurses.

Please accept my sincere thank you in advance for taking time to consider participation in my study. I recognize that your time is very valuable to this research process. Refreshments will be provided for you while you are being interviewed in appreciation for any inconvenience. There are no monetary costs to you for your participation in this study.

Should you have any questions or concerns about the study or about being a subject, please contact me at [lrobichaud@laurentian.ca](mailto:lrobichaud@laurentian.ca) or [lrobichaud@tadh.com](mailto:lrobichaud@tadh.com) or research supervisor, Irene Koren R.N, MScN. at the School of Nursing at Laurentian University at 1-800-461-4030 extension 3805 or via email [IKoren@laurentian.ca](mailto:IKoren@laurentian.ca). For any possible ethical issues or concerns about this study you may contact Laurentian University Research Ethics Officer by telephone at 705-675-1151 ext. 2436 or toll free at 1-800-461-4030 or email at [ethics@laurentian.ca](mailto:ethics@laurentian.ca). For any comment or questions about your rights as a participant in a study, you can also contact the Research Ethics Board of Timmins and District Hospital at [ethics@tadh.com](mailto:ethics@tadh.com). Ethics Board is a group of individuals who oversee the ethical conduct of all research studies done at TDH. These individuals are not affiliated with this research study team.

Yours Truly

**Lorri Robichaud**

Lorri Robichaud, RN, BScN, M.Sc.N. student,

School of Nursing,

Laurentian University



Paramedic Handovers in the Emergency Department: A Qualitative Focused Ethnographic  
Study in a Northeastern Ontario Urban/District Emergency Department Study

**Principal Investigator:** Lorri Robichaud, RN, BScN, MScN student

**Supervisor:** Irene Koren, RN, BScN, MSc

**Purpose:**

Paramedic to nurse handover is the process of transfer of professional responsibility and accountability for patient care between practitioners that occurs when a patient is admitted to the hospital emergency department by land ambulance. The main objective of this research is to explore the Paramedics' beliefs and practices that influenced patient handovers in the emergency department between Cochrane District Emergency Medical Services Paramedics and Timmins and District Hospital emergency department Registered Nurse.

**Voluntary Participation**

You are invited to participate in this study because you are a Paramedic working at the Cochrane Emergency Medical Service who is qualified to give handovers of patients to the emergency department Registered Nurses arriving at the Timmins and District Hospital via land ambulance.

- Participation in this study will involve a one-on-one interview with the principal investigator (PI) that will require approximately 60 minutes of your time.
- You can choose to not answer one or more of the questions.
- You will be asked about your experiences with handovers processes and procedures for bringing patients to the Timmins and Distinct Hospital emergency department
- There will be no monetary cost to you in association with your involvement in this study.

- There will be no compensation provided to you for participation in the study, however light refreshments will be available to you when the one-on-one interview is conducted.

### **Participants' Rights**

- Your participation in the study is entirely voluntary.
- You are never under any obligation to answer questions that you are not comfortable with answering.
- You may choose to withdraw from the study at any time with no influence on your employment at Cochrane Emergency Medical Services.
- Your work within your organization will not be altered or affected in any way by your decision to participate or not or withdraw from the study.
- You may indicate verbally, written or any way you see fit to withdraw from the study at any time during the study.

### **Potential Risks**

- There is no known risk associated with participating in this study.
- However, some questions or additional questions may evoke a strong emotional reaction (e.g. recall of a difficult situation). If you do choose to answer the questions and experience a negative emotional response, we encourage you to talk with someone such as a colleague, your manager, your employee's assistance program, or a relevant human resources representative from your organization.
- In the event that you are experiencing any difficulties arising from the study, you may wish to contact the Employee Assistance Program Shepell Employee and Family Assistance Program at 1-800-387-4765 for assistance.

### **Potential Benefits**

- Your experience as a healthcare provider can add valuable insight that will contribute to this study.
- By participating in this study, you will be providing information that will enhance understanding of the factors that influence the patient handover process between Paramedics and emergency department Registered Nurses at the Timmins and District Hospital.

## **Confidentiality**

- All individual information including your demographics and responses to questions will be kept confidential. No data that could identify you will be used in the study.
- The information that you share will be summarized in-group information along with information obtained from other participants.
- If the results of this study are published or presented at a research conference only group information will be presented.
- All individual information will be kept confidential and will not be accessible to persons not directly connected with the research study.
- All study data including computer files, audio recordings, laptops and USB drives will be stored in a secure locked box by Lorri Robichaud in her residential office.
- The laptop that will be used is password protected and the password is only known to her. The study files will be encrypted.
- The data will only be accessible to the Lorri Robichaud and my thesis advisory committee.
- No personal identifying information will be included in the electronic database. Participants will be allotted an exclusive identifier (an alphanumeric code).
- The data will be kept in locked files after which they will be destroyed.

## **Dissemination**

- All information obtained in the study will be used for research purposes only. Once the study is complete, the research findings will be used to produce a summary of the results and a report.
- Knowledge from the findings will be published and form the basis of a thesis for Lorri Robichaud as part of the Masters Program requirement for Laurentian University Nursing Program.
- The results of the study will be shared with all stakeholders including participants, Hospital administration, Cochrane Emergency Medical Services administration, and occupational health and safety committees to provide an understanding of the issues affecting the handover process between Paramedics and ED RNs at Timmins and District Hospital.
- The aim of my study will assist decision and policy makers to promote effective handovers procedures that will improve patient safety when transfer of care occurs between Paramedics and Timmins and District Hospital ED RNs.
- This study has no sponsorship attached to it.

**Approval**

This study has been reviewed and received ethics approval from the Research Ethics Office at Laurentian University. Individual institutional ethical approval has been obtained from the Ethical Committee at TDH and Cochrane EMS. Any concerns about the ethical conduct of this study can be addressed by Laurentian University Research Ethics Officer by telephone at toll free at 1-800-461-4030 ex. 3213 or email at [ethics@laurentian.ca](mailto:ethics@laurentian.ca).

**Questions and contact information**

For any additional questions regarding this research or about participation in the study contact Lorri Robichaud via email at [la\\_robichaud@laurentian.ca](mailto:la_robichaud@laurentian.ca) or [lrobichaud@tadh.com](mailto:lrobichaud@tadh.com). You may also contact my research supervisor, Irene Koren R.N, MScN. at the School of Nursing at Laurentian University at 1-800-461-4030 extension 3805 or via email [IKoren@laurentian.ca](mailto:IKoren@laurentian.ca).



I have read the information about the study being conducted by Lorri Robichaud, a graduate nursing student at Laurentian University, as part of her graduate thesis.

I understand that my participation in this study is voluntary and confidential. If I agree to participate in this study, I may withdraw from the study at any time. I have the right to refuse to answer any question.

I understand that by agreeing to participate or not participate in this study, the working relationship that I have today and in the future at Cochrane Emergency Medical Services will not be affected.

I am aware that if I have any questions regarding my participation in this project I can contact Lorri Robichaud (lrobichaud@laurentian.ca), Irene Koren (ikoren@laurentian.ca; 705-675-1151 extension 3805; 1-800-461-4030), a Laurentian University Research Ethics Officer (705-675-1151 extension 2436; 1-800-461-4030; ethics@laurentian.ca), or the other agencies.

I would like to receive a summary of the study results: (please circle your answer)

Yes

No

If YES, where would you like the results sent:

Email address: \_\_\_\_\_

Mailing address: \_\_\_\_\_  
\_\_\_\_\_

Name of Participant \_\_\_\_\_

Name of person who obtained consent \_\_\_\_\_

Signature  
\_\_\_\_\_

Signature  
\_\_\_\_\_

Date \_\_\_\_\_

Appendix H

Approval for Conducting Research Involving Human Subjects

Obtained from

Laurentian University

Timmins and District Hospital Ethics Board

Cochrane District Emergency Medical Services



**APPROVAL FOR CONDUCTING RESEARCH INVOLVING HUMAN SUBJECTS**  
Research Ethics Board – Laurentian University

This letter confirms that the research project identified below has successfully passed the ethics review by the Laurentian University Research Ethics Board (REB). Your ethics approval date, other milestone dates, and any special conditions for your project are indicated below.

TYPE OF APPROVAL / New X / Modifications to project / Time extension	
<b>Name of Principal Investigator and school/department</b>	Lorri Robichaud, supervisor, Irene Koran, Nursing
<b>Title of Project</b>	Paramedic Handovers in the Emergency Department: A Qualitative Focused Ethnographic Study in a Northeastern Ontario Urban Emergency Department
<b>REB file number</b>	6012140
<b>Date of original approval of project</b> <b>Date of approval of project modifications or extension (if applicable)</b>	Sept. 27, 2017
<b>Final/Interim report due on:</b> <i>(You may request an extension)</i>	Sept. 27, 2018
<b>Conditions placed on project</b>	

During the course of your research, no deviations from, or changes to, the protocol, recruitment or consent forms may be initiated without prior written approval from the REB. If you wish to modify your research project, please refer to the Research Ethics website to complete the appropriate REB form.

All projects must submit a report to REB at least once per year. If involvement with human participants continues for longer than one year (e.g. you have not completed the objectives of the study and have not yet terminated contact with the participants, except for feedback of final results to participants), you must request an extension using the appropriate LU REB form. In all cases, please ensure that your research complies with Tri-Council Policy Statement (TCPS). Also please quote your REB file number on all future correspondence with the REB office.

Congratulations and best wishes in conducting your research.

Rosanna Langer, PHD, Chair, *Laurentian University Research Ethics Board*



## Timmins and District Hospital L'Hôpital de Timmins et du district

Lori Robichaud, RN  
[La\\_robichaud@laurentian.ca](mailto:La_robichaud@laurentian.ca)  
1-705-235-2141  
1-705-262-1041

June 26, 2017

**Re: Paramedic to Nurse Handovers in the Emergency Department: A Qualitative Focused Ethnographic Study in a Northeastern Ontario Urban Emergency Department**

Dear Ms. Robichaud:

The most recent proposal submitted for the above mentioned study and the changes from the previous submission have been received and reviewed. The committee is aware of the changes and would like to grant approval for your study following the most recent changes. Please be advised that the approval is valid for 1 year from the current date and should you make any further changes to your proposal you must notify the ethics committee at TADH and provide your changes for approval. A written request for re-approval will be required by June 26, 2018.

Please notify the Ethics Committee of any adverse or unexpected events during the course of your study and/or any deviation from the approved protocol.

The contact person in our Health Data Department is Diane Meunier who can answer any questions or assist with gathering health data. She can be reached at 1-705-267-2131, extension 4306 extension 6338 should you have any questions or concerns.

Best of luck and we look forward to updates on your progress and the completion of your study.

Sincerely,

Linda Rochon, SLP.D., Reg. CASLPO, CCC-SLP  
Chair of Research & Ethics Committee  
1-705-267-2131, extension 4306

All Caring Together - Vos soins nous tiennent à coeur



**COCHRANE DISTRICT SOCIAL SERVICES ADMINISTRATION BOARD  
CONSEIL D'ADMINISTRATION DES SERVICES SOCIAUX DU DISTRICT DE COCHRANE**

500 Boul. Algonquin Blvd. E.

Timmins, ON P4N 1B7

Tel: (705) 268-7722 – Fax: (705) 268-8290 Toll Free / sans frais 1-877-259-7722

[www.cdssab.on.ca](http://www.cdssab.on.ca)

Lorri Robichaud  
Registered Nurse, Emergency Department  
Timmins and District Hospital

June 13<sup>th</sup>, 2017.

**Re: Paramedic Handovers in the Emergency Department: A Qualitative Focused Ethnographic Study in a Northeastern Ontario Urban Emergency Department**

Dear Ms. Robichaud,

Thank you for sending your research paper and including our Service in your study. In my role as Commander of Quality Assurance and Professional Development, I have reviewed your research paper and can see the benefits of such research for future education and implementation of a streamlined delivery/handover approach with regard to consistent continuity of patient care and overall patient safety.

You have been granted consent from Cochrane District Emergency Medical Service to continue forward with this research study until its completion.

I have discussed your research paper with our Director/Chief Jean Carriere, for the Qualitative Focused Ethnographic Study. It has been explained that there will be no contravention to the Personal Health Information Protection Act (PHIPA). The data that was provided to you remains within the constraints of said Act with no patient information shared. The seven open-ended questions that you will pose to the paramedics do not request any patient information, but simply their personal experiences with transfer of care to the nursing staff at Timmins and District Hospital.

Your invitation, disclaimer, and consent form sent to the Paramedics of Cochrane District Emergency Medical Services is extremely descriptive and proactive (with mention of the EAP) and will be well received by our Staff.

Should the need arise to contact management of Cochrane District Emergency Medical Service, you can contact myself at 705-363-0745. If I am unavailable, please call Timmins Central Ambulance Communications Centre (CACC) at 705-264-1251 and request to speak with the on-call Commander.

Respectfully,

Seamus Murphy,  
Commander of Quality Assurance and Professional Development

## Appendix I

### Semi-structured Interview Questions for Paramedic Participants

### Semi-structured Interviews Questions for Paramedic Participants

1. How long have you worked as a Paramedic?
2. Where have you worked as a Paramedic? – Only in Timmins? Or elsewhere?
3. Can you describe what you do as a Paramedic?
4. Can you walk me through the process of what happens when you present to the ED with a patient via ambulance?
5. Can you tell me about your experiences with handovers?
6. Can you describe what factors influence the handovers?
7. Are there any factors that impact the urgency of the handover process?

Appendix J

Data Analysis Chart

Paramedic E	Description	Preliminary Codes	Patterns	Themes
<p>Researcher: If you can't find the triage nurse, what will you do?</p> <p>IF the triage nurse is busy, I need to <u>seek someone else</u> to give handover to. Sometimes have to <u>wait awhile</u> before any asks what type of patient they have. I usually <u>will check</u>, and if <u>they're busy in triage</u>, I'll let them know this is what I've got, and they usually just say, well, <u>can you ask somebody else</u>. And then normally it's, okay, you, <u>kind of it's bad to say</u>, but you've got to know <u>which ones are going to help, which ones won't</u>.</p> <p>Even <u>nurses from the trauma room</u> will end up doing it [handover], although <u>they're not really supposed to</u>, because they've got their trauma patient. But they come through, okay, <u>what can we help you with?</u> You've been here <u>half an hour, 45 minutes</u>, what have you got? They at <u>least try</u> to get some type of information from us.</p> <p>Researcher: Who or what type of nurse do you seek out then to give the handover to?</p> <p><u>Senior nurses</u>, just because <u>I don't know them</u> [novice ED nurses], I'm <u>not familiar with them</u> and I think it's a bit of a <u>confidence thing</u> in the sense of, they [novice ED nurses] probably <u>aren't really going to know what to do, are they even trained in triage yet?</u> I sort <u>of know who's trained</u> for you guys [senior ED nurses], because <u>I see you all the time</u>.</p>	<p>Triage nurse is <u>busy</u> <u>seek someone else</u> to give handover to</p> <p>usually just say, well, <u>can you ask somebody else</u>.</p> <p>it's bad to say, but you've got to know <u>which ones are going to help, which ones won't</u>.</p> <p>here <u>half an hour, 45 minutes</u>, what have you got</p> <p><u>nurses</u> from the trauma room will end up doing it, although they're <u>not really supposed to</u>, because they've got their trauma patient.</p> <p><u>Senior nurses</u></p> <p>I'm <u>not familiar</u> with them <u>confidence thing</u> in the sense of they probably <u>aren't really going to know what to do, are they even trained in triage yet</u></p> <p><u>know who's trained</u> for you guys [senior ED nurses]</p>	<p>seek someone else to give handover to</p> <p>Seek another nurse</p> <p>Seek out nurses that will help</p> <p>HO delay, ED busy</p> <p>know which ones are going to help</p> <p>Unsure of each nurse's skill set in the ED</p>	<p>Interprofessional relationships</p> <p>Interprofessional relationships</p> <p>Environmental factors</p> <p>Get acknowledged Interprofessional relationships</p> <p>Trust</p>	<p>Attitude of attention</p> <p>Acuity of ED</p> <p>Attitude of Attention</p> <p>Assurance</p>

Appendix K

Audit Trail

What factors influence the process of clinical handovers from paramedics to ED nurses in the ED setting of a small urban hospital in Northeastern Ontario?

patient via an ambulance? So you get out into the bay and you come in.

Paramedic A -	Description	Preliminary Codes	Patterns	Theme
<p>Depends who is working.</p> <p>Researcher: So what does that mean?</p> <p>Depends who's working. Some nurses will come and sort of see what's going on, and some other nurses will just turn their backs and ignore us, if there's no beds or whatever. And I think - I think that's a big part of the problem. I don't know if I'm going to answer one of your questions later on -</p> <p>Researcher: That's okay.</p> <p>I think I might, is the fact that we don't really get triage when we get there. So, I mean, people are coming in from the waiting room sometimes and it's like, well how do you know - if you haven't come and talked to me to find out what's going on, and I think there's a misconception that if you come and triage us that we're no longer in care of that patient, which is not true. We're in care of that patient until he comes off our stretcher.</p>	<p>Some nurses will come and sort of see what's going on, and some other nurses will just turn their backs and ignore us</p> <p>I think that's a big part of the problem.</p> <p>we don't really get triage when we get there.</p> <p>people are coming in from the waiting room sometimes and it's like, well how do you know - if you haven't come and talked to me to find out what's going on,</p> <p>there's a misconception that if you come and triage us that</p>	<p>Some show acknowledgment</p> <p>ignore us</p> <p>Problems with HO</p> <p>Time delay with HO</p> <p>Unknown patient acuity</p> <p>Time delay with HO</p>	<p>Interprofessional relationships</p> <p>Lack of communication</p> <p>Lack of communication</p> <p>Lack of communication</p> <p>Lack of Knowledge of policies and</p>	<p>Interprofessional relationships</p> <p><i>nursing attitudes</i></p> <p>Communication barriers</p> <p><i>level of activity</i></p>

5

Appendix L

Field Memo Sample

I  
 po hosp → ↑ CTAS ← great - less index reg. 10/1/18  
 - non-urg.

- Smith → newer medic  
 (less info ask for less gen.) on both parts?

small hospitals → tell less report  
 diff. know pt tk.

→ diversity in opt ) what does this mean?

- Privacy → issues - less info to affect ) barrier to H.O.

→ mimics -

- Regulation → minimal info given or taken ) - I do this?

→ preceptors given H.O. → then mimic

Appendix M

Reporting to Base Hospital/Receiving Facility Policy

		<u>Year</u>	<u>Month</u>	<u>Day</u>
<b>Section: Operations</b>	<b>Approved by: Steve Trinier</b>	2002	01	01
<b>Subject: Reporting – Base Hospital/Receiving Facility</b>	<b>Revised by:</b>	2010	03	26

**PURPOSE:** To provide staff with guidelines in reporting to the Base Hospital or receiving facility in the event an exchange of information and/or notification is required.

**APPLICATION:** All staff.

**POLICY:** On all Code 3 & 4 Calls there will be a minimum of two (2) reports given to the receiving facility.

*The first report will be as the crew is departing from the scene.*  
This first report will follow the radio directive as defined by the Base Hospital. Any such report will follow the structure and order as laid out by the Base Hospital Directive.

*The second report will be after the crew has arrived in the Emergency Department.*  
This verbal report will be given to the Triage Nurse.

Any problems regarding the transferring of information to the receiving facility will be documented and forwarded to Management as soon as practical.

Any Paramedic arriving with a patient at a medical facility that, despite being provided with an up-to-date report prior to your arrival, is unprepared to care for the patient, shall complete an Incident Report and forward same to Management as soon as practical. In addition, all off load delays shall be documented and the time noted in the TOC section of the ACR.

Appendix N

Transfer of Care Standard

## Transfer of Care (TOC) Standard

Upon arrival at the receiving facility, the paramedic shall:

1. liaise with receiving facility staff to determine the patient's destination within the receiving facility;
2. attend to the patient while awaiting receiving facility staff acceptance of the patient;
3. provide a verbal report to receiving facility staff, to include,
  - a. patient name,
  - b. patient age,
  - c. patient sex,
  - d. CTAS (Arrive Destination) as per the *Prehospital CTAS Paramedic Guide*,
  - e. chief complaint,
  - f. a concise history of the patient's current problem(s) and relevant past medical history,
  - g. pertinent assessment findings,
  - h. pertinent management performed and responses to management,
  - i. vital signs, and
  - j. the reason for transfer, for inter-facility transfers;
4. provide a copy of any clinically relevant associated biometric data collected;
5. if it appears likely there will be a prolonged delay in accepting the patient,
  - a. advise CACC/ACS,
  - b. advise receiving facility if the patient status deteriorates,
  - c. seek further assistance from the ambulance service operator, and/or
  - d. for inter-facility transfers, request receiving staff to attempt to contact the sending physician or the patient's family physician;
6. transfer the patient, from the stretcher where applicable, to the receiving facility;
7. transfer any patient medications, record of medications, other relevant identification and medical records, and any other belongings to the receiving facility, if not already done;
8. consider Transfer of Care complete upon completion of paragraphs 1-7 above and when the patient is no longer dependent on ambulance service resources (excluding equipment that is being left with the patient, e.g. spinal board); and
9. transfer documentation to the receiving facility as per the *Ontario Ambulance Service Documentation Standards*.

## Appendix O

### Timmins and District Hospital Ambulance Codes Policy



## Timmins and District Hospital

Policy Name: Ambulance Codes			
Policy No.	3.5.1.4	Approved Date:	Feb /83, Jun /94
Lead /Approving Director:		Reviewed Date:	06-Sep-2016
Vice President Clinical/Chief Nursing Executive		Revised Date:	Jun /97, Mar /05
Documents Replaced (if any): ER-A-1			

**Preamble:** Policies are related to the Hospital's mission, vision, values, philosophy and objectives. They make broad statements and aid in decision-making. They prescribe limits, pinpoint responsibilities and accountabilities and are interdisciplinary in nature.

**Name of Policy:** Ambulance Codes

**Purpose** – For safe and effective communication between the first response team and the staff in the Emergency Department. Ambulance codes must be standardized for all staff.

**Distribution/Practice Setting** – Emergency Department

**Definitions** – Canadian Triage and Acuity Scale C.T.A.S

**Policy** – Ambulance Code Priority:

Code 1	Deferrable
Code 2	Scheduled
Code 3	Prompt
Code 4	Urgent
Code 5	Obviously Dead
Code 6	Legally Dead
Code 7	No Patient Carried
Code 8	Stand-by on Duty
Code 9	Maintenance Trip
Code 10	Other Trip
Code 10-1	Receiving Poorly
Code 10-2	Receiving Well
Code 10-4	Okay

Ambulance Code Priority Cont'd

Code 10-5	Relay Message
Code 10-6	Busy
Code 10-7	Out of Service at...

Code 10-8 In Service to... (No Patient)  
Code 10-9 In Service to... (Patient on Board)  
Code 10-19 Returning to Base  
Code 10-20 Your Location  
Code 10-21 Contact by Land Line  
Code 10-13 Relative on Board  
Code 10-200 Police Needed... (I.e. Crowd Control)  
Code 10-2000 Police Needed... (I.e. Urgent Crew in Danger)

Canadian Triage and Acuity Scale "New"  
Paramedic Triage and Acuity Scale  
C.T.A.S. Level 1 Resuscitation  
C.T.A.S. Level 2 Emergency  
C.T.A.S. Level 3 Urgent  
C.T.A.S. Level 4 Less Urgent  
C.T.A.S. Level 5 Non-Urgent

For C.T.A.S. Level 1, Level 2 and Level 3, all ambulance patients must have an Ambulance Radio Report (PCS Revision Code: 0072-0601) completed.

**References –**

**Appendices/Links –**