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- Led initiation of recommendations that result from the above-mentioned reviews.
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- Participate in LHIN led activities and projects.
- Current lead for Hospital in LHIN led Health Equity Initiative

1996 – 2001

Centenary Health Centre (RVHS)

Program business manager member of program leadership triumvirate that included the program general manager, program medical director and the program business manager.

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- Supported clinical programs in budget development and monitoring.
- Provided statistical analysis for program directors regarding quality and utilization.
- Rotating 'On call' duties as administrative representative.
- Member of the Board Ethics Committee, Risk, and Quality and Research Committee.
- Participated in evaluating program requirements to meet community needs.

Volunteer  
experience

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AN ANALYSIS OF NURSES' AND PARAMEDICS' EXPERIENCES WITH  
PATIENT TRANSFERS: ANTECEDENTS, PROCESSES AND OUTCOMES

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This is dedicated to my mum and dad who have always been a source of inspiration and pride for me. I am so grateful to my husband Jim without whose tireless support, wonderful sense of humour and unending patience, this endeavor would simply have not been possible. Also, with much love to my children Harry and Katie who make me want to be a better person.

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## ABSTRACT

### AN ANALYSIS OF NURSES' AND PARAMEDICS' EXPERIENCES WITH PATIENT TRANSFERS: ANTECEDENTS, PROCESSES AND OUTCOMES

by Jennifer Tredinnick-Moir

Patient transfer between paramedics and the emergency department is both a high frequency and high-risk activity that can affect quality of care, with the potential to impact patient mortality and morbidity. This transition between the pre-hospital environment and the emergency department occurs when the patients are most vulnerable due to their injury or illness and can be further hampered by the conditions in which the transfer takes place. This study examined successful and unsuccessful transfer of care experiences described by paramedics and triage nurses. In this mixed-method study semi structured interviews were used to gather critical incidents by asking participants to recall successful and unsuccessful patient transfers. A total of 45 incidents were recorded, 8 positive and 37 negative. Eleven paramedics provided 21 incidents and nine RN shared 24 incidents. Interviews were transcribed verbatim and then divided into 590 comments. Initial coding was based on a 3 x 3 conceptual model derived from the open systems theory. It reflects the process of transfer (antecedents, process, and outcomes) and interviewee's standpoint (a focus on patient, provider or the organization). Two trained independent coders assigned each comment to a cell in a 3 x 3 grid and achieved a 79% agreement. The process/provider cell contained the largest number of comments (45%), indicating that the most salient aspects of transfer related to provider interactions and not to other issues such as the condition of the patient, the time of shift, or the state of the system as a whole. There were no statistically significant differences between the two provider groups in their description of antecedents, process, and outcomes. Outcomes of

patient transfers were rarely mentioned in interviewees' stories, which may indicate that neither paramedics nor nurses view patient transfer as a team activity that results in specific outcomes other than the patient handover and the timely departure of the paramedic. Negative interactions were described using attributions (18% of comments from negative incidents), workplace incivility behaviors (16%), comments that describe provider experiences of role ambiguity (13%) and generalizations about another provider or provider group (11%). The findings of this study highlight the importance of inter-professional education and re-conceptualization of transfer of patient care. When they engage in transfer of patient care, paramedics and emergency department triage nurses perform interdependent tasks and act as an emergent team where each member has shared responsibility for patient well-being. Performance of this emergent team is likely linked to its' members ability to negotiate their roles and organizational support directed at reducing role ambiguity and improving inter-group communication.

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## Key to acronyms

ACP	Advanced care paramedic
CAS	Complex adaptive systems
CIHI	Canadian institute for health information
CIT	Critical incident technique
CPSO	College of physicians and surgeons
CTAS	Canadian triage and acuity scale
ECG	Electrocardiograph
ED	Emergency department
EHR	Electronic health record
EMS	Emergency medical services
GIS	Geographic Information System
LHIN	Local health integration network
MOH	Ministry of health
OHA	Ontario Health Association
PCP	Primary care paramedics
RN	Registered nurse

# **Manuscript**

## **Introduction and objectives**

Professional interactions among emergency department (ED) nurses and paramedics are mainly the result of the need to transfer a sick or injured from a pre-hospital setting to an ED for ongoing care or stabilization. This process is known as patient transfer of care (Dunn and Murphy, 2008). This interaction represents the main purpose for Emergency Medical Services (EMS) professionals and ED nurses to interact making it essentially the defining characteristic of their relationship. Because of the sheer volume of these types of interactions as well as the critical nature of each one, this relationship is not only critical to the well being of patients and their families but also to the health care system.

In health care, the handover of a patient from one clinician to another is a high-risk activity that can affect quality of care, patient satisfaction and most critically, has the potential to affect patient morbidity and mortality (Ye et al., 2007). Ineffective patient transfers in general contribute to adverse events that can include gaps in care, medication errors, wrong site surgery, and patient death (Friesen et al., 2008). Despite the high-risk nature of this process, there is often a lack of standardization in approach to the process and it is ironically a rarely taught skill (Friesen et al., 2008). Literature on patient transfer of care identifies a number of conditions thought to affect this process, not the least of which is the environment in which the transfer of care takes place (Smits et al., 2009).

Substantial literature on the subject of transfer of care exists in the context of the transfer of patient care between physicians (Lawrence et al., 2008), between shifts (O'Connell and Penney, 2001) and between units within a hospital (Huber and Wears,

2010), however, few researchers investigated the transfer of care between organizations (Owen et al., 2009) and even fewer addressed the critical juncture between pre-hospital environment and the ED (Owen et al., 2009). Though many of the same principles likely still apply -- the critical nature of the information regarding the patient's condition and history, the risk of disruption or error, and the potential harm to the patient resulting from a flawed process (Friesen et al., 2008) -- there are aspects of this particular type of transfer and the relationship between these two groups of professionals that render this topic worthy of study with respect to this critical process.

The transition between the pre-hospital environment and the ED occurs when the patients are vulnerable due to injury or illness (Talbot and Bleetman, 2007). This process can be further hampered by the fact that the transfer takes place between two separate and autonomous entities, such as the hospital ED and Emergency Medical Services that are governed by different rules, practice, and policy. In addition, the transfer takes place over a brief and often chaotic period thereby providing little or no opportunity for follow up, clarification, or further collaboration, which makes this an especially challenging and potentially high-risk event (Talbot and Bleetman, 2007). Studying this event will help develop an understanding of what contributes to both successful and unsuccessful patient transfer experiences and will facilitate the identification and development of strategies that would help to increase the number of positive or successful encounters. This may lead to opportunities to improve the process of transfer, patient care and safety, as well as provider job satisfaction.

This interview-based qualitative research study employs the critical incident method. Interviewees were Advanced Care Paramedics (ACP) and Primary Care

Paramedics (PCP), and ED nurses, from both EMS and Hospitals in the Greater Toronto Area, Durham, and surrounding regions. Participants were asked to relate one or more stories about a transfer or care experience that was either positive or negative. Criteria for inclusion were:

- The transfer of care identified occurred in the ED,
- The incident involved direct interaction between an ED registered nurse and an on duty paramedic, and
- The incident related directly to patient transfer of care rather than to a personal relationship or a non work-related event.

John Flanagan (1954) describes the critical incident technique as a way to collect observations about human behavior. The incidents do not need to be spectacular in any way (Serrat, 2010) but an event must be recalled by the teller in sufficient detail to be able to “permit inferences and predictions” (Flanagan, 1954:1).

A conceptual framework serves to provide the basis and direction for the collection and analysis of data (Maxwell, 2010). According to Maxwell (2010:33), a conceptual framework, “explains, either graphically or in narrative form, the main things to be studied- the key factors, concepts or variables – and the presumed relationships between them” (Maxwell, 2010:33). An input-process-outcome framework was adopted because it reflected three essential characteristics of open organizational systems (Katz and Khan, 1966). The work of the EMS paramedics and ED nurses is viewed as an independent process that occurs in an open organizational system. The providers represent two complex systems, EMS and ED, which are part of a larger health care system. The first goal of this study is to understand events, conditions or other realities

that may lead to unsuccessful patient transfers. The second goal is to examine the outcomes of unsuccessful transfers. The third goal is to understand the transfer process itself and its characteristics. The fourth goal is to analyze how providers (EMS vs. ED workers) differ in their description of antecedents, process, and outcomes of patient transfers.

An open systems theory (Katz and Khan, 1966) and, specifically, systems characteristics of importation, transformation, and exportation of resources informed our conceptualization of patient transfer as input-process-output triad (Tan, 2005). According to the open systems theory, external inputs are transformed to create outcomes. The inputs into the transfer of care process can be patient characteristics, providers' clinical knowledge and organizational factors, such as a busy ED. The process is conceptualized as interaction between paramedics and nurses during transfer of patient care. Examples of outputs are patient recovery or death, provider attitudes and overuse of hospital resources.

Organizations, like living systems, operate in constant interchange with their environment (Ansari, 2004). According to this theory, a system is a "set of interacting, interrelated, or interdependent elements that work together in a particular environment to perform the functions that are required to achieve that system's aim (Committee on Quality of Health Care in America, 2001:3)." For example, the health care system consists of individual elements such as hospitals, physician's offices, clinics, and other providers, and all of these components have the aim or function of providing health care to a population (Canadian Institute for Health Information, 2005). Moreover, a system can be part of a larger system while at the same time can consist of smaller subsystems or

micro systems. An example of a sub system in health care may be a nursing unit or clinic. Open systems theory and particularly the study of complex adaptive systems provide an effective conceptual model with which to study organizations and more specifically, the behavior of people within organizations (Begun et al., 2003). The open systems concepts are better suited to explain the process of transfer than those associated with the mechanical systems approach. Mechanical systems have high levels of certainty about outcomes and high levels of professional agreement (Plsek, 2001). For example, a routine surgery typically leads to more predictable outcomes and provider behaviors than patient transfer because the latter has greater complexity. In complex adaptive systems, according to Plsek (2001), the actions of system's agents or parts may change the context for other agents, just as an emerging patient-paramedic relationship may change paramedic-RN interactions, when the paramedic insists on following the patient beyond the point of handover, this acting as a patient's advocate.

To learn about the process of transfer of patient care we employed the model in which patient transfer inputs, process and outcomes are analyzed at three levels: patients, providers and organization (or healthcare system). For purposes of this study, the interaction or process in question can be described as taking place between the ED and the pre-hospital environment of Emergency Medical Services (EMS), two micro systems within the larger health care system. This is important as both of these systems can be said to be characterized by different environmental conditions, different component parts that have different attributes, all of which justify the need to study both paramedics and nurses. Both systems likewise come with a set of purposes that may well be similar, e.g. both are involved in providing patient care, but nevertheless there are important

differences. Specifically, EMS provides care in a field or pre-hospital setting while the ED provides in hospital care. In addition, scope of practice, skill sets, and professional culture are differences which may come into play during these interactions. These differences are studied by collecting critical incident accounts from both provider groups and examining their perspectives: How central are patient, provider and/or organizational issues to each provider's account of negative transfers?

## **Methods**

### *Overview*

Semi-structured interviews of the direct line personnel (paramedics and RNs who have worked on the triage desk) were built around the conceptual framework that reflects antecedents, patient transfer process and outcomes from three different standpoints. The interviewees provided critical incidents that were transcribed, broken into segments, coded and analyzed, using a content analysis approach and two independent coders. Each comment was represented by one to two sentences that contained at least one complete thought or idea.

### *Coding procedures*

On the first pass, codes were assigned based on whether a segment of the interview relates to one or more major components of the conceptual model: antecedent, process, and/or outcome. Process was defined as interactions that took place between the point in time when the paramedic arrived in the ED and began the triage process and the point in time when the paramedic left the ED. Second level codes, nested within the first level, indicated if the antecedent, process, or outcome was related to a transferred patient, health care providers, or their organization or healthcare system. In sum, the comments were placed within a 3 x 3 matrix, represented by three categories (antecedent, process, outcome) and three standpoints (patient, provider, organization). Therefore, within each category, antecedent, for example, are the three standpoints, patient, provider, and system, giving a total of 9 cells.

Third level codes emerged directly from the data. Within each cell of the grid, additional themes were identified. A code of “other” was reserved for any comments not

covered by the preexisting themes. Such comments were set aside for later categorization and labeling.

At each level, the coders categorized about 60 comments, then discussed any inconsistent codes and refined the codebook. Then the coding of all remaining comments was carried out. In order to minimize the potential for variable interpretation by multiple coders and further ensure validity of the codes, only manifest rather than latent content was coded. Manifest content refers to those elements that are physically present and countable within the text (Babbie, 1998).

In any qualitative research study, the concept of saturation is an important but often vaguely defined one (Bowen, 2008). According to Bowen (2008:15), explicit guidelines for determining saturation are “almost nonexistent” but the attempt is to create a complete data set that, once coded, will not need any additional codes even after a researcher collects more data (Morse et al., 2002). Strauss and Corbin (1990:27) describe saturation as “the point at which no new insights are identified, and no issues arise regarding a category of data.” In this study, we followed Bowen’s advice on insuring sampling adequacy as a way to reach saturation. Specifically, 20 participants were chosen based on their knowledge of the research topic and representation of two provider groups that interact during patient transfer.

## Results

### *Study participants and data conditioning*

The researcher contacted 20 individuals (11 paramedics and 9 RNs) to take part in this research, all agreed to participate (100% participation rate). Most respondents were between 32 and 50 years old. Gender distribution varied by provider group and reflected, although not precisely, national gender differences by profession. In this study, 45% of paramedics and 77% of RNs were female, as compared to 23% of female paramedics and 91% of female RNs in a 2011 national report (Service Canada, 2001). Interviewees were asked to provide an account of at least one memorable interaction, either positive or negative, at patient handover at the emergency triage between the paramedics and the ED triage RN. Although the aim was to understand unsuccessful transfers, it was deemed important not to cue in interviewees on negative experiences. They were asked to recall different types of transfers and to share at least one memorable transfer story. A total of 45 incidents were recorded, 8 positive and 37 negative. Eleven paramedics provided 21 incidents and nine RN shared 24 incidents. Interviews were transcribed verbatim and then divided into 590 comments (93 from positive incidents and 497 from negative incidents). Each comment was then coded in accordance with the conceptual model: by process category (antecedent, process, or outcome) and by standpoint (patient, provider, organization).

The first coder designed the initial codebook with definitions and trained the second coder. They both proceeded to code the first six interviews (61 comments) to reach 84% of agreement measured as percent of identically coded comments. Then the coders calibrated their approaches by discussing the differences and refining the

codebook and proceeded to code the rest of the comments independently. Once all 590 statements were coded, the two independent coders assigned the same codes to 79% of comments.

### *Statistical analyses*

In order to ensure the qualitative analysis of the comments was evidence based, statistical analyses were conducted to determine whether the proportion of process category comments (antecedent, process, and outcome) differed between provider groups. To do this, comments were aggregated by standpoint and separated by provider (see Table 1). Similarly, we examined if the proportion of standpoint related comments (patient, provider and system) differed between provider groups. Next, a two-sample test of proportions was conducted for each pair of codes listed in Table 1, a total of 6 tests. In order to avoid family wise error associated with repeated testing a Bonferroni correction was applied to the initial type 1 error probability (alpha). This correction divides the a priori alpha (set to .05) by the total number of tests to obtain the appropriate value ( $\alpha=.008$ ). Analysis for each of the 6 tests showed the proportion of comments did not differ significantly by provider; therefore, all providers' comments were further examined in aggregate.

Table 1. Provider differences: Distribution of comment codes

	Number and percent of comments		Two-sample test of proportions
	RNs	Paramedics	
	Process category codes		
Antecedent	98 (37%)	125 (38%)	$z = -0.44, p = .66$
Process	148 (55%)	172 (53%)	$z = 0.30, p = .77$
Outcome	22 (8%)	25 (8%)	$z = 0.191, p = .85$
	Standpoint codes		
Patient	49 (18%)	75 (23%)	$z = -1.32, p = .19$
Provider	190 (71%)	228 (71%)	$z = .01, p = .90$
Organization	29 (11%)	19 (6%)	$z = 2.09, p = .04$
Total	268 (100%)	322 (100%)	

Next, we constructed a 3 x 3 grid that reflected the conceptual model.

Representative comments can be seen in Table 2. Next, each cell was examined for any underlying themes that could describe how the process of provider interaction contributed to unsuccessful transfer of care. A single coder classified 590 comments into 22 themes, seven of which, including “other” appeared in multiple cells of the conceptual model (see Table 3). The largest themes with at least 50 comments each are described below.

Table 2. Representative comments by provider and distribution of comments across the cells of the 3 x 3 conceptual model

	Antecedent	Process	Outcome
Patient	<p>77 comments (13% of total)</p> <p>PARAMEDIC: “A patient who we thought was CTAS2 was short of breath and still conscious but couldn’t talk on scene and was in a lot of distress”</p> <p>NURSE: “I don’t think [it] is really a suicide attempt, but [the patient] does come in regularly with an overdose. Everyone knows him. It’s like, oh, here's [name] again.”</p>	<p>37 comments (6% of total)</p> <p>PARAMEDIC: “By the time the patient was recognized as being in distress, he was too far gone and the intubation as a result was difficult”</p> <p>NURSE: “The patient sees a negative interaction [between providers]”</p>	<p>10 comments (2% of total)</p> <p>PARAMEDIC: “The call went very badly for the patient, which was something in my opinion that could have been avoided”</p> <p>NURSE: “So not only did the patient receive great care but also we got the GEM nurse involved so that we could make sure they were both(the patient and her spouse) ok”</p>

Table 2. Representative comments by provider and distribution of comments across the cells of the 3 x 3 conceptual model  
(continued)

	Antecedent	Process	Outcome
Provider	<p>115 comments (19% of total)</p> <p>PARAMEDIC: “We actually have nicknames for certain nurses, like "offload sue" because that’s how predictable it is.”</p> <p>NURSE: “With inexperienced or less skilled paramedics, sometimes it can really result in a delay of treatment”</p>	<p>266 comments (45% of total)</p> <p>PARAMEDIC: “So my partner advised again that the patient’s status had changed and we took the patient into acute which was empty... we asked the RNs if that was ok and no one answered”</p> <p>NURSE: “They did not seem to be interested in the call”</p>	<p>37 comments (6% of total)</p> <p>PARAMEDIC: “We were largely ignored, and so was anything we had to say about the patient”</p> <p>NURSE: “The interaction with the paramedics was frustrating”</p>

Table 2. Representative comments by provider and distribution of comments across the cells of the 3 x 3 conceptual model

(continued)

	Antecedent	Process	Outcome
Organi-zation	<p>31 comments (5% of total)</p> <p>PARAMEDIC: “I know that one trauma bay was occupied, but there was no off load delay or anything”</p> <p>NURSE: “The patient arrived with EMS and it was a very busy time for us in triage. At the time, we had two nurses doing triage it was just one of those things where people arrive in groups for some reason.”</p>	<p>17 comments (3% of total)</p> <p>PARAMEDIC: “The whole time there had been empty beds”</p> <p>NURSE: “But we were busy – we had a lot of walk ins and we had been busy with some pretty acute patients throughout the night”</p>	<p>0 comments (0% of total)</p>

Table 3. Themes by category, standpoint and incident type (positive vs. negative)

	Antecedent	Process	Outcome
Patient	Patient condition (Np=5, Nn=34) Generalization (Np=12, Nn=16) Setting the scene (Np=1, Nn=4) Patient accompanied by others (Np=2, Nn=3)	Patient condition (Np=1, Nn=20) Setting the scene (Np=1, Nn=15)	Other (Np=2, Nn=8)
Provider	Generalization (Np=6, Nn=37) Setting the scene (Np=4, Nn=19) Attribution (Np=0, Nn=16) Role ambiguity (Np=0, Nn=10) Skill level of the other provider (Np=0, Nn=11) ED notification prior to arrival (Np=3, Nn=9)	Working together (Np=33, Nn=81) Attribution (Np=4, Nn=62) Role ambiguity (Np=0, Nn=54) Setting the scene (Np=1, Nn=15) Provider impressions of process (Np=0, Nn=16)	Provider attitudes (Np=9, Nn=28)
Organization	Workload (Np=4, Nn=15) Attribution (Np=0, Nn=12)	Workload (Np=5, Nn=12)	No comments

Notes: Themes that appear in more than one cell are shown in bold. Np = Number of comments from positive incidents; Nn = Number of comments from negative incidents.

### *Thematic analysis*

*Working together.* Working together was the largest theme (114 comments) that described providers' behaviours during the patient transfer. This theme accounted for 35% of comments from the eight positive incidents (9 comments from RNs and 24 comments from paramedics). A review of verbatim comments for these positive incidents demonstrates that successful transfers of care are often characterized by professional, respectful, and helpful behaviours and these descriptions are common in interviews with both the paramedics and the RNs. For example, paramedics stated, "[the RNs] were quick, efficient and extremely professional" and "no one questioned our call or asked why we did or didn't provide a certain treatment." Nurses said, "the paramedics were calm and professional and allowed us to do our work" and "[the paramedic] was not only very thorough but they were happy to repeat portions of it as many times as was required."

The working together theme accounted for 16% (81) of comments from the negative incidents (36 comments from RNs and 45 comments from paramedics). Interviewees described behaviours of another provider group members as uncooperative, unhelpful, uninterested or dismissive. A paramedic described the behaviour of the triage RN by saying "I started to tell the triage nurse what we had and right away she just rolled her eyes and acted all pissed off," then proceeded to conclude that "so now instead of dealing with the patient we are arguing about why we came here." Similarly, some RNs felt being dismissed by the paramedics. They expressed this by saying "[paramedics] just didn't seem to be interested in the call (the patient care transfer)" or "when I told them, they just treated the whole thing like a joke."

*Attribution.* The second largest theme (92 comments) contained attribution statements in which a provider affixes motivation to another provider's behaviour (MacLeod, 2010). There were only four attribution statements in positive incidents. In contrast, attributions accounted for 18% of comments from the negative incidents (43 comments from paramedics and 45 comments from RNs) and spanned three cells of the conceptual model. In the antecedent/provider cell, providers made comments about another providers' behaviour without actually knowing the reason or circumstances which led to it. A sample attribution comment by a paramedic in which he talks about his crew being put on offload delay is, "it is probably BECAUSE our patient is stable that we are not offloaded right away." A disruptive and common occurrence in the workplace, a fundamental attribution error is the tendency for an individual to attribute someone else's negative actions as a direct result of a flaw in their personality or character, rather than situational factors (Tetlock, 1985). Likewise, there is the opposite tendency to explain one's own poor behaviour as an outcome of a circumstance rather than as a flaw within one's own personality (Tetlock, 1985). An example of an attribution statement by a nurse is, "sometimes paramedics don't want to go back out on the road again; even though you have space [for the patient] they still want to stick around." Another nurse states, "a lot of [paramedics] (not all of them but quite a few) [...] think they are better than us."

*Generalization.* Unexpectedly, generalizing statements that refer to a provider group as a whole and not specifically to the person with whom an interviewee interacted with during a transfer were common (71 comments) in both positive and negative incidents. Even though the interviewer asked for descriptions of specific interactions, generalizations accounted for 19% of comments from the positive incidents (all comments came from paramedics) and

spanned two cells of the conceptual model. In addition, generalizations accounted for 11% of comments from the negative incidents (23 comments from paramedics and 30 comments from RNs) and also spanned two cells of the conceptual model.

Some (N=28) generalization statements came from the antecedent/provider cell, indicating that they were not borne out of the interaction being related, but were presumably formed during past interactions with same or another person. The generalization theme was divided into three subthemes: 1) interviewee's expectations about a repeated encounter with the same provider which produced comments such as "a lot of times you can tell how the day is going to go by who is on the triage desk"; 2) a generalization based upon past experiences with other providers of the same type, such as "nurses who are negative tend to be that way all the time" and 3) a generalization about the process as in "it used to be that they would try and free us up [but] now [...], even if they don't have to, they will keep us around as it is easier on them."

*Role ambiguity.* Role ambiguity is identified in the literature as a role or roles that may not be clearly articulated in terms of behaviors or performance levels (Kahn et al., 1964). This theme was unique because all of its 64 comments came from negative transfer of care incidents that were related by 38 for paramedics and 26 RNs. In fact, 13% of comments from negative incidents were related to role ambiguity. For example, a paramedic exclaims, "But I think that [the RN] should be taking [vitals] and not me! She is looking to chart vitals that she herself has not even taken, which seems wrong to me." Paramedics and nurses are equally uncomfortable when the process of transfer blurs professional boundaries. A paramedic expressed this idea as follows, "it's really

becoming a problem the way the lines between the two jobs are becoming blurred”. RNs’ comments are similarly revealing, for example, “they say it’s not their role to babysit the patients once they get into hospital”.

Comments regarding what one provider expected from the other provider but did not get were found in interviews with both provider groups. Comments suggest that there is a gap in understanding professional responsibilities and obligations, such as whether and at what stage the RN performs patient assessment and what role the paramedic should play with respect to ongoing care of the patient. Each group was frustrated that their colleagues did not meet their expectations of following informal professional courtesy rules. As one RN stated,

I think they should continue to treat the patient since if they are on offload, the patient is still theirs...but they have a policy which says that once they enter the hospital the patient is the responsibility of the hospital, so there is a real discrepancy there. But I don’t know if I haven’t received the patient, how the patient could be my responsibility.

A medic’s comments emphasize the complexity:

If the hospital has begun treatment then they really should be responsible. The problem is, that when we say no to this (allowing the hospital to treat while the patient is on EMS stretcher), as we have been directed to do, we not only look like we are being difficult but we are actually preventing care from taking place.

As evidenced by the comments, this type of discrepancy has a tendency to be personalized, particularly if the behavior amongst providers is not consistent.

A byproduct of role ambiguity is the presence of clinical disagreements. From the RN perspective, trust issues regarding accuracy of the report or patient CTAS level were the most prevalent comments, such as “there are crews who come in and everybody is acute – a CTAS 1 or 2... that’s why I always do my own assessments”. The paramedics felt as though their assessment or clinical opinion had been ignored or dismissed: “We were largely ignored and so was anything we had to say about the patient.”

*Patient condition.* A total of 60 comments were found under this theme spanning antecedent/patient and process/patient cells. Some of these comments (23%) relate to the condition of the patient worsening before or during the transfer. In most cases these help provide context to the event. Only six comments were from positive incidents. In each case, the comments about patient condition from the positive incidents describe patients who are in significant distress or are described by the narrator as being in a critical state. These particular incidents describe the other care provider involved in the call as being professional, efficient, and compassionate and ultimately providing quality patient care and that these are features which characterize positive transfers of care for both paramedics and nurses.

The majority of comments in this theme (N = 54) came from negative incidents. In this case, paramedics and nurses tended to focus on how a patient’s condition was deteriorating during the transfer of care, thus highlighting the dynamic nature of the transfer of care process. In many cases the interviewees proceeded to describe a clinical disagreement between the paramedic and the nurse. They also expressed concerns about the skill level of another provider involved in the transfer.

*Setting the scene.* “Setting the scene” comments (N = 60) were neutral statements that provided context to the incident described. For example, an RN said, “Last week they got called to a house for a lady who was short of breath” or a paramedic stated, “I was working up north this one time and we got a call for an uncontrolled bleed.” Because the material analyzed in this study comes directly from the transcribed interviews, there are many sentences which are neutral statements and not necessarily able to be categorized as part of a meaningful theme. Like connective tissue, these comments help pull the narrative together into a cohesive whole.

## **Conclusions**

The first goal of this study was to understand events, conditions or other realities that may lead to unsuccessful patient transfers. Our data show that antecedents, outcomes, patients and organizations were less central to stories of negative incidents than interactions between paramedics and nurses during the actual transfer. The second goal was to examine the outcomes of unsuccessful transfers. Few outcomes emerged because outcomes were not salient to interviewees' stories, which may indicate that neither paramedics nor nurses view patient transfer as a team activity that results in specific outcomes other than the patient handover and the timely departure of the paramedic. The third goal was to understand the transfer process itself and its characteristics. The negative interactions were described using attributions (18% of comments from negative incidents), workplace incivility behaviors (16%), comments that pointed to role ambiguity (13%) and generalizations about another provider or provider group (11%). The fourth goal was to analyze how providers (EMS vs. ED workers) differ in their description of antecedents, process, and outcomes of patient transfers. We found no statistically significant differences between the two provider groups.

## Discussion

Not all themes within the cells of the 3 x 3 grid were equally salient. Most comments fell into the process/provider cell. This may mean that the nature of interaction with a provider who represents a different profession at the time of the transfer of care is an important determining factor of whether a transfer is successful or unsuccessful. The study participants described their negative interactions with another provider by citing counterproductive work behaviors, by complaining about blurred professional boundaries and by making attributions and generalizations.

Workplace incivility is defined as behaviours that display a lack of respect, disinterest, discourtesy, and rudeness towards other employees (Pearson and Porath, 2005). Research on workplace incivility describes these types of behaviours as one cause for poor interactions between individuals who work together (Pearson and Porath, 2005). These behaviors lead to lower productivity, depleted organizational resources, and conflict (Pearson and Porath, 2005). These behaviours were salient aspects of negative transfers of care for both provider groups. In a related literature strand, Spector and Fox describe the emergence of counterproductive work behaviours as the result of a “complex interplay between individuals and their environments which unfold over time” (Spector and Fox, 2005, page 23). According Spector and Fox (2005), organizational constraint can be a trigger for counterproductive work behaviours. Individuals facing organizational constraints can either to pull together in order to overcome them, a phenomenon known as organizational citizenship behaviors, or, conversely, they may become frustrated and angry therefore , reducing work efforts (Spector and Fox, 2005). Efforts on behalf of paramedics and RNs to help the other are noted in the interviews and

feature in the positive incidents. In many negative interviews, the perception from the interviewees is often that the other provider is being unhelpful, dismissive, or even rude. Examples are paramedics who do not oblige the RN with additional support during offload and RNs who do not appear to be making concerted efforts to offload the patients or are dismissive of the acuity level designations assigned to patients by paramedics. The presence of these descriptions in the antecedent category suggests that this behaviour is anticipated or expected, which indicates that there may be a “spiraling effect” as described by Anderson and Pearson (1999). Negative relationships and interactions often lead to personalization of conflict and ultimately even attempts to get even or harm the offending party in some way (Venkataramian and Dalal, 2007), thereby perpetuating the negative aspects of the relationship. In the literature, counterproductive work behaviours and workplace incivility are phenomena which are typically explored within the context of a workplace or organization and are specifically defined as intentional behaviours in opposition to the goals of an organization (Gruys and Sackette, 2003). Similarly, literature on workplace incivility deals with behaviors of employees, or of managers and employees who typically work for the same organization (Gruys and Sackette, 2003). In this case, however, the paramedics and the RNs are not from the same organization, although work within the same sector. These implications are further explored under practical applications.

The transfer process brings together paramedics and nurses into an emergent team that can be described as a multidisciplinary or an interdisciplinary team, however, the workers rarely think of themselves as team members because their roles as such are

poorly defined. Within their professions the roles are well defined, however, these definitions do not always account for interdependent tasks performed during patient transfer.

The paramedic-RN relationship is a complex one for a number of reasons, not the least of which is the fact that their roles and job performance are intimately linked and reliant upon one another. The members of most multidisciplinary or interprofessional teams work for the same organization and in this way at least share similar goals.

Siemsen et al. (2007) describe strategies for creating incentive systems to encourage cooperation between and amongst employees. This involves understanding what they refer to as employee linkages. They discuss that employees can be incentivized to work together when their outcome goals are shared specifically when another employee (Siemsen et al., 2007) influences the task of one employee. However, it is more difficult to address this when both employees are working for two distinct organizations with arguably competing priorities and do not see themselves as two members of the same team.

In the case of the RN-paramedic relationship during transfer, both the organizational goals of each provider group and their respective professional identities can and often do come into conflict with one another. The paramedics in this case have a clear mandate once they arrive at the hospital which is to safely transfer the care of the patient to the hospital and prepare as quickly as possible to get back on the road in order to provide appropriate coverage to the community they serve. EMS services have performance measures, which are monitored on an ongoing basis and emphasize efficiency. For example, GIS systems are used for vehicle locating so that dispatch can

assign the closest available ambulance to the next call in priority sequence. This is often in conflict with the emergency department's goal to provide safe and appropriate care to all patients in a chaotic, overcrowded, and often under resourced department where overly expeditious offloading of ambulance patients is not always possible or safe to accomplish.

Role ambiguity can be the result of team members not understanding their own or other team member's roles or it may arise from role boundary issues and accountability issues (Brown et al., 2011). Relationships can be harmed and conflict can arise when professional boundaries are poorly defined (Rushmer, 2005). Role boundary and identity conflict are also found in literature on interprofessional conflict and collaboration (Axelsson and Axelsson, 2009). Barriers to interprofessional collaboration and communication are identified as territorialism, organizational rules, legislation, and cultural differences between professional groups (Axelsson and Axelsson, 2009). Our data show that this applies to paramedics and RNs.

In our interviews, clinical disagreement manifested itself as a product of role ambiguity. The statements made by paramedics and nurses suggest that one clinician does not agree with or understand the role, scope of practice, or professional focus of the other. In one case, for example, a nurse describes a patient arriving from a nursing home via ambulance. Upset with the lack of intervention on the patient the nurse recalls, "When I came out later to give them a piece of my mind, come to find out that she [the patient] is just from across the street and they [paramedics] basically loaded her up and came across, didn't really bother to provide any treatment or anything!" However, additional comments from the same interview suggest that the paramedics approached

this situation as a transfer rather than a medical call. But from the nurse interviewee's perspective no medical intervention was poor care. Similarly, a paramedic expresses frustration with the fact that a nurse uses an automatic blood pressure machine instead of taking a manual reading: "I tried to convince her to take the blood pressure manually but she insisted that the [automatic] machine was right... did [it] again on the machine and got a similar reading... how can you say [the patient has] got a blood pressure of 108 when you can't feel a radial pulse on the guy?" This story highlights misunderstanding or lack of knowledge about another clinical provider's practice, leading to conclusions of poor clinical care. Most importantly, both stories also describe inability to work as a team.

To better understand clinical disagreements, we must also consider the circumstances within which patient transfer takes place. In all cases of transfer, the paramedics involved with the patient at an earlier point in the continuum of the transfer than the triage RN. Add to this the fact that often the paramedics have often already started treatment on a patient before that patient is seen by the triage, that they often do not share the same clinical view of the patient is not unexpected. Yet differences in clinical opinion in most settings provide the opportunity for the clinicians to discuss and develop a most complete understanding of the patients' status (Van Norman, 1998). Disagreement between and among health care professionals are common and should be expected (Van Norman, 1998). These disagreements allow for the continued refinement of the understanding of the clinical view of the patient ultimately resulting in higher quality care of the patient. These types of conversations, however, are more likely to

happen in a team environment. The challenge in the ED at patient handover is not only the amount of time afforded for this handover and therefore the short window of opportunity for both clinicians to arrive at an agreement regarding patient acuity and status, but also the fact that they do not view themselves as being a team.

Finally, generalizations and attributional statements were largely negative in nature and either affixed an unfavorable motivation to another's behaviour (attribution) or applied a negative characteristic to an entire group (generalization). Not accounting for situational factors in the behaviour of others, as it is done when attributions are formed, can result in a very different, often negative explanation for behavior, which may in turn lead to conflict personalization (Gilbert and Malone, 1995). Attributions may be viewed as cognitive responses to a lack of adequate information about the particular situation (Gilbert and Malone, 1995). They may also be manifestations of workers' attempts to simplify and more easily process information about events in their complex environments (Forgas, 1998). Most attributions were in the process/provider cell, suggesting that paramedic-nurse interactions were the most confusing aspect of patient transfer.

As for the generalizing statements, they may reflect stereotypes or personal biases rooted in one's own assumptions rather than facts (Froemling et al., 2011). When generalizations occurred within the antecedent category, this would suggest the anticipation of negative behaviours or attitudes on behalf of the other provider that was not the direct result of the interaction, but rather a preexisting state. Examples are comments by an RN "they feel they are better than us" and a paramedic "I find it's the younger nurses who are generally not as patient or compassionate." Therefore, past experiences may prejudice further experiences and result in misinterpretation or

misattribution on behalf of one provider for the poor behaviour of the other. In the process/provider cell, generalizations were often embedded into the following discourse sequence: An interviewee described provider interactions, made a generalizing statement and concluded that this generalization was a fact he or she knew all along. Regardless of when the impression was formed, however, generalizations can make one act based on incorrect assumptions and such behavior is likely to negatively impact communication and negative feelings towards another provider. In sum, both attributions and generalizations have the potential to be unfair and a potential source of conflict.

## **Implications for practice**

### *Interprofessional education within curriculum*

The findings of this study suggest that the starting point for improving transfer of patient care may be formalization of the paramedic-nurse relationship. To that end, the paramedic-nurse dyad or, in some instances, a group of paramedics and triage nurses who participate in transfer of a patient needs to be defined as an emergent multidisciplinary team that brings together workers from two different organizations. Once the interdependent nature of paramedic-nurse work is recognized, it would be possible to re-examine these professionals' training in light of current research on multidisciplinary, interdisciplinary, interprofessional, and emergent teamwork. These growing literatures are likely to offer strategies for improving collaboration and clinical decision making during patient transfer. For example, one of the primary requirements for working effectively in a multidisciplinary environment is a clear understanding of one's own role within the team, as well as the roles of other professionals (Atwal and Caldwell, 2006),

Primary health care teams and other collaborative efforts in multidisciplinary environments are on the rise, yet the literature suggests that such teams face multiple challenges, such as territorialization, role boundaries issues, threats to professional identities, organizational rules, and cultural differences across professions (Axelsson and Axelsson, 2009; Glendinning, 2003; Hall, 2005; Johnson et al., 2003). In response to the challenges, organizational leaders tend to encourage multidisciplinary team members to be flexible and non-protectorist, however, this approach is likely to hinder team performance because it prohibits team members from negotiating their roles and defining

role boundaries (Rushmer, 2005). Kvarnstrom (2008) calls for finding a balance between inter-professionalism and obligations to one's own profession, including maintenance of one's professional identity.

Integrated learning programs at various stages of training (Ross et al., 2005) and before licensure, may help address challenges in multidisciplinary work and develop core competencies required for inter-professional collaboration. Although most *Practicum in Paramedic* programs take place within a hospital setting, they are best suited for developing clinical skill sets and not for interprofessional collaboration. Collaborative skills can be trained in classroom and further enhanced during clinical rotations or practicum portions of the qualifications. Historically, clinical placements focused upon the professionals' own discipline but that is changing. But there are recent reports of clinical placements that are designed to be multidisciplinary (Smith and Seeley, 2010). These placements are reported to be beneficial but also complicated to arrange (Gilbert, 2005; Ross et al., 2005). Patients tend to receive safer, higher quality care when health professionals work effectively as a team, communicate productively, and understand each other's roles (Jackson, Ziglar, and Alston, 2011).

In sum, paramedics and triage nurses involved in-patient transfers need to be trained to function as a team and given an opportunity to jointly negotiate their roles. Multidisciplinary placements help develop skills, behaviours and attitudes that are critical for functioning in interprofessional teams (Lumague et al., 2006) and may be used to train paramedics and triage nurses who perform interdependent tasks while transferring patient care from EMS to ED.

Much interprofessional education is done in the workplace (Lumague et al., 2006), typically within a single organizational entity. For example, an education department within a hospital may offer seminars that emphasize the importance of interprofessional collaboration and teamwork. This form of interprofessional education may not be optimal for training emergent teams of paramedics and triage nurses because they do not work for the same organization. Joint ventures between organizations (EMS and hospitals) or professional bodies that represent both professions should be considered in this case. There are precedents for these types of ventures, for example, the Canadian Interprofessional Health Collaborative but, to our best knowledge, they have never been dedicated to improving the functioning of the patient transfer teams in this context.

A stronger teamwork focus in paramedic-RN dyads would lead to patient care improvements due to improved understanding of team member's roles, development of shared processes, and setting shared goals for patient-related outcomes.

#### *Levering technology to improve knowledge transfer*

Patient transfer of care is a high-risk activity, in part due to the increased likelihood of losing critical patient information when it is exchanged verbally and under time pressure (Adamski, 2007; Friesen et al., 2007). Use of technology can help streamline and improve communication among healthcare providers. All paramedics to the ED nurses who participated in this study exchanged information verbally but it is possible to create interoperable systems for exchanging electronic data (Hertzum and Simonsen, 2008). McGinnis (2011) describes a pilot project in which paramedics used throat microphones to dictate information about a patient's condition, which was subsequently transferred to text and passed on to the hospital, dispatch and other

responders. Telemedicine could also support ambulance transport by allowing the designated ED to prepare appropriate personnel and equipment to serve patient on arrival (Parker, 2005). Access to patient information prior to arrival is likely to improve patient outcomes (Parker, 2005). Already tested in practice, cyber ambulance allow for the audio, video and numeric information to be transferred to the hospital while en route (Parker, 2005). Medical device manufacturers have developed devices such as ECG machines that automatically download patient's test results directly to electronic health records. If used by EMS workers, such devices can be programmed to send data directly to the patient's triage record used by ED nurses. This would mean that the triage RN would receive both a verbal report and an electronic report. In addition to reducing the risk for errors or omissions created by a verbal exchange, technology enables continuous flow of data. Ongoing exchanges of information may mitigate risks inherent in developing a shared clinical picture over a short window of time given to paramedics and nurses who participate in patient transfer.

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## **Appendices**

## Appendix A

### *The problem*

Anecdotal evidence and observational experience suggests that the relationship between ED nurses and paramedics is complex and can often be problematic and at times, even adversarial. Because the defining activity of the interaction between paramedics and ED nurses is the transfer of patient care from the pre-hospital setting to the emergency department, it is a relationship upon which a successful clinical encounter is dependent. The proposal of this dissertation would be to explore the nature of this relationship and its impact on transfer of patient care.

#### *1. Research question*

The research question for this study is:

*Are there common antecedent conditions which exist in positive and negative transfer of patient care between Emergency Medical Services and the Emergency Departments?*

Additional questions guiding this study include:

- What characterizes a positive/negative transfer experience from the perspective of the health care professionals involved?
- Do perceptions of transfer of care differ between health professionals (e.g. from RN to EMS)?
- In what way do successful and unsuccessful transfers differ in terms of antecedents and processes?
- Is conflict a common marker of unsuccessful transfers, and if so, what types of conflict are most common.

- According to the health professionals interviewed, is there a particular type of conflict which more damaging to the patient?
- Are there common antecedents of successful and unsuccessful transfer, and if so what are they?
- According to RNs' and EMS, what are the most serious outcomes of unsuccessful transfers and which antecedents and processes are associated specifically those outcomes?

## 2. *Assumptions*

The study was based on the following assumptions,

- There are commonalities identifiable within both positive and negative transfer of care experiences
- These interactions can be deconstructed and components parts of each can be deconstructed and categorized within a framework which identifies antecedents, process, and outcomes for each.
- Because of the foregoing, antecedent conditions may be further categorized, studied and therefore addressed.

## 3. *Delimitations*

Due to the fact that the PI and author of this unfunded study was the sole researcher it has a limited scope in that it only analyzes the experiences of EMS and ED in the GTA and Durham region, which represents approximately 25% percent of

Ontario's population and is mostly urban. It is acknowledged that beyond these regions, challenges faced by both distinct groups may differ as may their operations, protocols, scope of practice, patient demographics and other antecedent and systemic conditions.

#### *4. Limitations*

Participation in the study was entirely voluntary and therefore the characteristics of those who chose to participate, and their reasons for participating may have had an impact upon the data. Due to the nature of the study, none of the information provided can be validated. However, the anonymous nature of the reporting of the study results was to provide some assurance to the participants that confidentiality would be maintained and therefore would mitigate this effect. As well, there was the potential for participants to relate events in a way biased towards being more favourable or seem more socially acceptable. Finally, using the critical incident technique means that the participants recollection during the interview is subject memory, and is based only upon the perception of the interviewee.

Another limitation is the possible over-interpretation of evidence from negative incidents. Out of a total of 45 incidents shared in this study, only 8 (17%) were considered to be positive from the perspective of the narrator. This made a comprehensive comparison of positive to negative incidents challenging. While a review of the positive incidents and their characteristics did provide some sense of what the differences may be, because the numbers were small, focus of the analysis shifted to identifying the commonalities of the negative incidents.

The reason for the higher number of negative incidents easily explained and may be of benefit to the study. Negative experiences tend to stand out in people's memories

more so than positive ones (Chrapko, 2004), and this is explained in literature. It is human nature to dwell on negative events which therefore become entrenched through repetition and recollection (Chrapko, 2004). Moreover, it is thought that negative memories may provide more detail with higher accuracy. Studies indicate that when a memory is attached to an emotion, there is better recall as the result of increased activity in a specific part of the brain (Kensinger, 2007).

##### *5. Significance of study*

This study aims to identify antecedents to both successful and unsuccessful experiences with transfer of patient care from the pre-hospital environment to the ED so that it is possible to identify opportunities for improvement.

## **Appendix B**

### *Literature review*

#### *1. Conceptual model, systems theory and complex adaptive systems*

The development of a sound conceptual model is critical element to the success of any research study. John Maxwell describes a conceptual framework as a tool which attempts to answer in broad terms “what is going on.” In his chapter on the subject, Maxwell quotes Miles and Huberman (1994), in defining a conceptual framework as that which “explains, either graphically or in narrative form, the main things to be studied- the key factors, concepts or variables – and the presumed relationships between them (Miles & Huberman, 1994)”.

The wrong conceptual framework can lead researcher on the down the wrong path of exploration. It is, according to Maxwell, “a key part of your design” (p33), as it is the framework the study which consists of “concepts, assumptions, expectations, beliefs, and theories that supports and informs your research (Maxwell, Pg 33)”. The development of the conceptual framework provides the basis, not only for the tentative theory about the phenomena to be studied, but provides direction with respect to how data will be collected and analyzed (p33).

Part of the development of a conceptual model is the identification of the research problem. As Maxwell puts it, “every worthwhile research design contains an implicit or explicit identification of some issue or problem, intellectual or practical, about which more information is needed (p34)”, and this serves as the justification for the study itself (Maxwell, p 34.). Often, and in the case of this particular study, the aim of the research is to develop a deeper understanding of problem or issue with the eventual goal of

contributing something to its resolution. In the case of this study, the problem, as framed above, leads questions about what events, conditions or other realities may lead to unsuccessful patient hand overs. Are there preexisting conditions, attitudes, or constraints, on a personal, organizational, or systemic level which may be associated with problematic transfers of care? These lines of questioning eventually lead to the development an input- process- outcome model or framework which would help to define the study as further detailed below.

Qualitative research is beneficial when researchers want to gain understanding about human behavior and the reasons that govern them (Green & Thorogood, 2005). Throughout the history of their respective disciplines, scientists and, philosophers have developed a number of different ways to help humankind analyze and understand the world (Ansari, 2004). As such, attempts to develop methods to categorize analyze and explain the world and human behavior have taken various forms. In the simplest terms, most topics can either begin with an investigation of the individual components of a topic – an approach called reductionism (Ansari, 2004), or a focus upon the relationships between those components in attempt to learn about the “whole.” This second approach, known as systems theory focuses on the relationships between a system’s parts and the ways in which they interact (Ansari, 2004). Further, open systems theory considers the impact that the surrounding environment has upon the system (Ansari, 2004). According to Ansari (2004), organizations, like living systems operate in constant interchange with their environment. One of the tenets of systems theory is that a system is itself, a set of interrelated sub systems. This makes it critical to develop an appreciation for the potential number and complexity of linkages and therefore impacts one system may have

upon the other. Along with this complexity goes the potential for unintended consequences that may result from these interactions (Ansari, 2004).

According to this theory, a 'system' is a "set of interacting, interrelated, or interdependent elements that work together in a particular environment to perform the functions that are required to achieve that system's aim (Committee on Quality of Health Care in America, 2001)." For example, the health care 'system' consists of individual elements such as hospitals, physician's offices, clinics, and other providers, and all of these components have the aim or function of providing health care to a population (Canadian Institute for Health Information, 2005). Moreover, a system can be part of a larger system while at the same time can consist of smaller subsystems or micro systems. An example of a sub system in health care may be a nursing unit or clinic. These are examples of Complex Adaptive Systems (CAS) and its characteristics are those which distinguish between mechanical systems and adaptive systems. Unlike mechanical systems, the parts of the CAS are free to respond to stimuli and hence can create unpredictable results (Committee on Quality of Health Care in America, 2001). Plsek notes that this unpredictable behavior can result in either innovation or error (2001). Although the difference between mechanical and complex adaptive system would seem to be an obvious one, a pitfall many systems designers or managers fall into is to assume that human behavior will be predictable in a given set of circumstances and when that proves not to be the case, the tendency is to blame the 'part' for behaving unreasonably (Plsek, 2001).

Open systems theory and particularly the study of complex adaptive systems provides an effective conceptual model with which to study organizations and more specifically, the behavior of people within organizations the study of which, according to Katz & Kahn, suffers from a lack of adequate conceptual tools (1966). As a conceptual tool, Plsek (2001) identifies that the mechanical approach works in systems that defined by high levels of certainty about outcomes and high levels of professional agreement. He provides the example of a routine surgery. In this case, typically the outcome is predictable as is the behavior of the OR staff. However, Plsek identifies that some systems are characterized as possessing a zone of complexity where in only “modest levels of certainty and agreement exist (2001)”. Complex adaptive systems, according to Plsek mean that a system’s agents or parts actions may change the context for other agents (2001).

Begun and Zimmerman (2003) similarly maintain that understanding and respecting the complexity of organizational systems is critical to being able understand them. The machine metaphor for systems is far too simple a concept to apply to something as complex and dynamic as health care organizations (Begun & Zimmerman, 2003). Rather, they suggest that the science of complex adaptive systems metaphor for social organizations as a ‘living’ or biological system provides a more sophisticated approach to analyzing such a system (Begun & Zimmerman, 2003)

This model provides a useful framework with which it becomes possible to develop a deeper understanding of the process of transfer of patient care. As indicated by the model depicted in Figure 1 and described previously, there are inputs to this process, which can be further categorized as being system- related or environmental, patient -

related or caregiver related. According to the systems theory, these inputs are transformed or processed and create outcomes, or the results characterize the transfer of care.

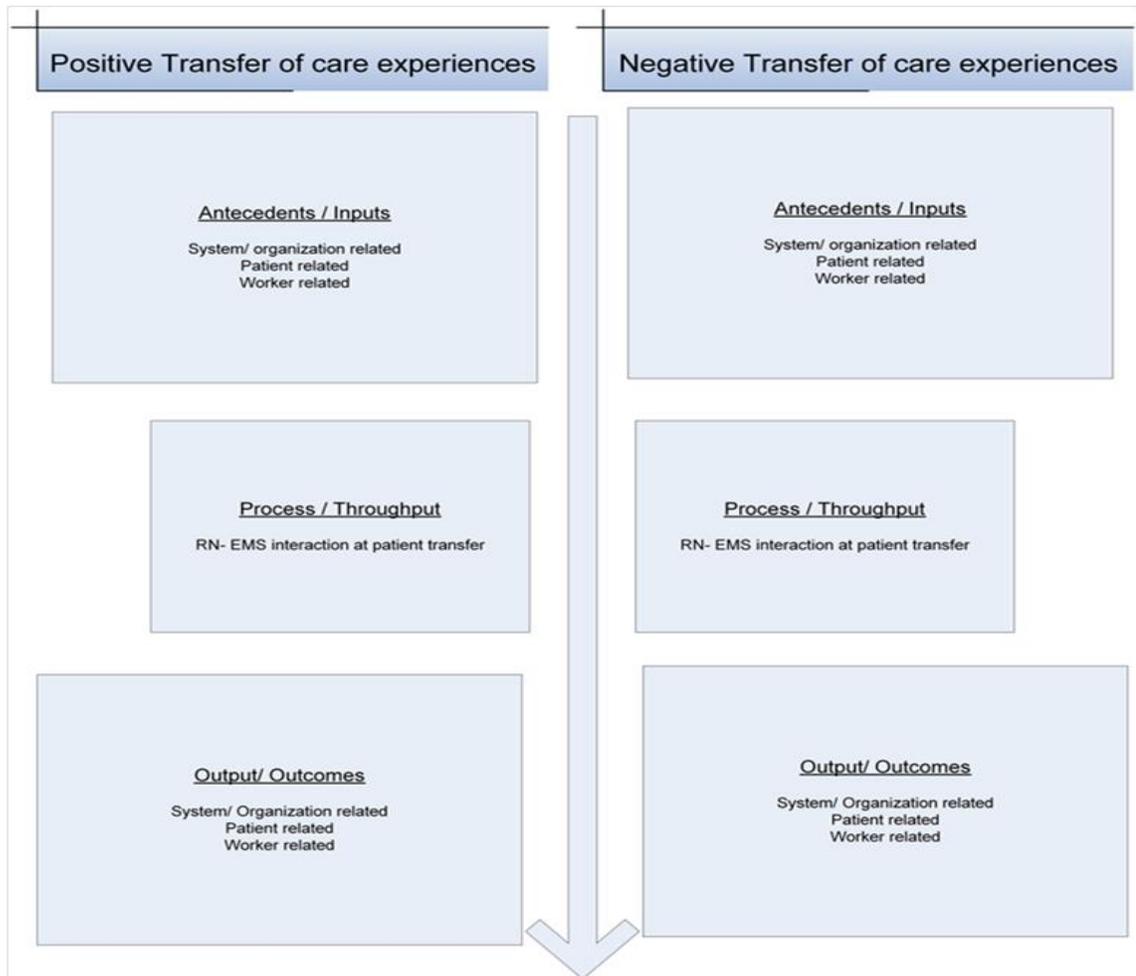


Figure 1. Conceptual framework

Because this study aims to identify whether there are common and identifiable inputs to both positive and negative transfer of care encounters, and further, whether the types or categories of input (e.g. environmental, worker-related or patient-related) relate to the types or categories of output. Therefore, this sequence duplicates the input/process /output triad.

For purposes of this study, it is important to note that the description of the interaction or process in takes place between two sub or micro systems (within the larger health care system), those being the ED and the pre-hospital environment of Emergency Medical Services (EMS). This is important as both of these subsystems can be said to be characterized by a different environmental conditions, different component parts that have different attributes. Both systems likewise come with a set of purposes that may well be similar, e.g. the provision of patient care, but slightly different to one another. This may in part account for conflict between the two.

## *2. EMS and ED – cooperative or conflicting sub systems*

A tenet of open systems theory is that a system and its environment interact. In fact, according to open systems theory, a system can only survive as long as it can draw upon its' environment to transform and therefore provide an output. This phenomenon, known as negative entropy, is a tenet of systems theory. Therefore, for purposes of this study, understanding the environment of health care in Ontario (the larger system) as well as the respective environments of the EMS and acute hospitals is important to developing an understanding what challenges face the process of patient transfer of care in this context.

Healthcare in Ontario has, for at least the past 15 years, been experiencing significant challenges. According to the Ministry of Finance, there has been an increase in funding to the Ontario health system of 57% between 2003/04 and 2010/11 (2010 Ontario budget). This equates to about 46 cents of each dollar going exclusively to health care and if unchecked could jump to 70 cents within the next 12 years (2010 Ontario budget). Lack of investment in Hospital infrastructure has also creating pressure points

of the system. According to the Ontario Hospital Association, the average age of hospitals in Ontario is 40 years, which means many are reaching the end of their useful lives (Ontario Hospital Association et al., 2006). The result is overly small, inefficient buildings, increased infection control risk, the inability to adopt new technologies, and Emergency Departments and other critical clinical areas that see significantly larger volumes than their infrastructure can now accommodate. An aging and growing population continues to exert pressure on those resources and that infrastructure. In Ontario, between 2006/07 and 2009/10 ED visits have increased by 3.38% or a total of 182,109 visits. 45% of that increase occurs within the three Local Health Integration Networks in question, the Toronto Central, the Central Local Health Integration Network, and the Central East Local Health Integration Networks (Canadian Institute for Health Information, 2011). The result is a system in crisis with inadequate resources and long wait times. In the emergency departments in particular, long wait times to see physicians are a source of concern and are closely monitored by the Province and tied to accountability agreements impact hospital funding.

As for the Emergency Medical Services, a major and ongoing challenge is that of ambulance off load delay. This occurs when ambulance personnel are cannot transfer care of their patients to the ED upon arrival and must wait until the ED staff can take responsibility for the patient. According to the Ministry- of-Health-and –Long-Term-Care-Working- Group, ambulance wait time in the ED (off load delay) is caused by lack of hospital inpatient capacity leading to the care of inpatients in the ED and therefore less capacity for emergency patients (Ministry Of Health and Long Term Care, 2005,

Summer). This results in wait times for patients, often in overtime for EMS personnel and a collapse of response time performance in the pre-hospital field (Swartz, 2006).

This reality has created a conflict, and an unsafe bottleneck, between these two systems. On the one hand, the hospitals are often overloaded and have no inpatient bed capacity which means that many patients who should have been or have been admitted remain in ED treatment bays. This in turn reduces the ED capacity to deal with patients coming through their doors. Because of the lack of patient treatment spaces, EMS are often made to wait with their patients on stretchers within the ED for long periods of time before being offloaded so that they may go back to providing support to the community. EMS, therefore effectively supplement the ED staffing and resource levels by staying with the patient until suitable accommodation is found. Hospitals that put mechanisms in place in order to mitigate this situation, such as offload nurses, are met with even higher levels of ambulance patients compounding the problem. The ultimate question of who is responsible for the patient during this period time is, if not a legally a contentious issue, is certainly one which raises questions about what is best for the patient.

In addition to the larger systems issues, the professional, environmental and practice differences between those working in and ED and those working in the pre-hospital care environment are also worthy of exploration and though an in depth study of the differences would not be feasible within the scope of this study, it is possible and potentially useful to consider some of the high level difference and similarities in the context of the transfer.

Working conditions for EMS and ED nurses have both similarities and differences. EMS performs the larger part of their professional obligation 'in the field'.

Although there are jurisdictions, in which EMS may work collaboratively alongside Nurse and Physicians in Emergency departments, paramedics tend to most of their patients outside the hospital environment. This means they may have to tend to patients indoors or outside regardless of the weather and may need to provide care in less than ideal conditions including highways, roadways, confined spaces requirements for extrication, multiple patients on a scene or mass casualty incident and tenuous domestic situations. Once the paramedics have attended to all of the above and has arrived at the ED to transfer care, that patient is more or less the sole focus and priority for the medic.

The ED RN at triage also works in a challenging environment. As the first clinical point of contact for those accessing emergency services, the triage nurse must assess the patient, document, assign an appropriate triage classification according to jurisdictional guidelines, given report to the RN or MD who accepts the patient and reassess, when necessary, patient awaiting placement (Canadian Journal of Emergency Medicine, 1999). Triage is a challenging and dynamic process during which volumes of patients arriving, anxious family members, patients' changing conditions, and amount of available resources all factor into its complexity. In short, the triage nurse has multiple foci. In addition to the practice differences, organizational goals from which these two providers are typically employed by are also different and in some regards, conflicting. From the ED perspective, the goal is to safely and efficiently manage the volume of patients within its walls and endeavor to ensure that every patient is appropriately managed in a timely way to ensure that flow and capacity within the ED and the rest of the organization are not compromised. In a busy emergency department, where resources are stretched thin, a significant challenge is to ensure that all patients whether in a trauma

bay or still in the waiting room, are watched for worsening conditions. ED overcrowding can lead to unsafe conditions including delay in patient care, errors in patient care, staff burnout (Freeman, 2007), and gridlock. Therefore one of the goals of a busy ED is to ensure that the patients received the appropriate resources at the right time, and that this safety is not compromised.

The goals for emergency medical services are also to ensure that the population has care provided where and when it is requires, however, their domain is in the field. One of the aims, therefore, is that once a patient has been brought to the ED and the requisition information and documentation has been completed, the crew is back out into the field, ensuring appropriate coverage as soon as is viable. During very busy times, this is where the two organizational goals can conflict somewhat.

Adding to this complexity, it may also be valid to consider that in addition to belonging to separate professions and organizations, these two providers also have very different professional cultures. In her article entitled: Inter-professional Teamwork: professional cultures as barriers, Pippa Hall posits that each professional has its own culture includes attitudes, values, beliefs, customs, and behaviors (2005). Hall describes the evolution of a health professional as a process which while defining its own identity, values, and sphere of practice and role in patient care, simultaneously develops silos, socializations processes, and behavioral norms which by their nature serve to exclude others (2005). She goes on the say the cognitive learning theory would suggest that individuals with a particular set of cognitive learning skills and styles may be attracted to certain professions which serves to strengthen it culture and further reinforces the walls of its silo (2005).

### *3. Transfer of care*

A patient handover or transfer of care occurs anytime the care of a patient transfers from one health care professional to another (Runy, 2008). This process, also known as patient handoff, patient handover, or sign-out, is as complex as it can be critical to patient well being and occurs frequently throughout the course of patient's episode of care. Patients may experience transfer of care by being physically transferred from location to location, or one clinician may transfer the responsibility of care to another for example, at change of shift. As such, according to CPSO (College of Physicians and Surgeons of Ontario), during a period of care for an episode or disease or illness a patient can be treated by a number of health care practitioners in a number of different settings (CPSO, 2010). An inpatient may experience transfer of care episodes between shifts, between departments and also between disciplines (Dunn & Murphy, 2008). In some cases nursing units may transfer or discharge 40% to 70% of their patients every day (Friesen, White & Byers, 2007). Transfer of care also occurs between organizations. Nursing home patients who experience an acute episode experience transfer of care when they are admitted to the hospital and finally, ambulance-borne patients experience a transfer once from the pre-hospital environment upon reaching the emergency department.

This study intends to investigate through both the literature and the CIT approach what factors influence patient transfer of care. The literature reveals common challenges

and barriers affecting this process. These challenges and barriers can be categorized into being system-related issues or conditions, related directly to the individual health care professionals involved in the transfers, or related directly to the status of or conditions surrounding the patient being transferred.

The process of patient transfer of care has been long identified as a high risk and complex activity and regardless of where it occurs (Lawrence, Tomolo, Garlisi & Aron, 2008). These transition points represent significant risk for the patients particularly vulnerable during these phases of treatment. According to Paine and Millman, “Great harm can occur if clinically relevant information is not shared accurately or in a timely manner (2009)”. Unsuccessful transfers of care can have a significantly negative impact on not only the patient, but also the system and health care providers. It has been well established that deficiencies in the patient handover process can affect the doctors, the hospital system including the ED and the patient adversely (Ye, Taylor, Knott, Dent & MacBean (2007). Patient handovers have become the foci in discussion about patient safety, patient flow and quality of care (Lawrence, Tomolo, Garlisi & Aron, 2008). General consequences to poor transfer of care includes delays on medical diagnosis, increase in adverse events, increase cost to the system, and increase satisfaction amongst both patients and providers (Lawrence et al., 2008). Specifically, according to Friesen, White & Byers, ineffective patient transfer of care can contribute to gaps in care, medication errors, wrong site surgery, and patient deaths (Chapter 34).

Patient transfer of care, or handoffs, takes a variety of different shapes. This process can be verbal, take place via handwritten notes, occur at the bedside or in the nursing station, by telephone, electronic communication, or audiotape (Friesen et. al.,

2007). Significant research exists that attempts to clarify what method or combination of methods are the most efficient, and effective.

Nurses in all clinical settings are required to both give and receive verbal reports on patients to facilitate transfer of care to the next shift, another unit, or another facility. These reports are a substantial part of the shift work in terms of both importance and time and may be retrospective, prospective or both (Thurgood, 1995). Issues with verbal reports in particular have been identified in the literature and contain common themes. This type of handoff is particularly at risk for loss of information, misinterpretation, and misunderstanding. If the verbal report is given at the nursing station, additional issues include the potential for the patient status to have altered without being detected whereas confidentiality, nursing jargon, interruptions and, patient anxiety are cited as issues when the verbal report occurs at the bedside (Friesen, White & Byers, 2007). Benefits of this approach are also found in the literature. Verbal reports provide for the ability for caregivers to dialogue, solve problems, clarify and, educate (Friesen et al., 2007). At the bedside, the verbal handover provides the opportunity for the clarification of facts and patient involvement (Friesen et al., 2007).

Recommendations for the improvement of the verbal handover are numerous. Continuity in staffing assignment and development of pro forma or standardized verbal reports are and methods such as SBAR (situation, background, assessment and, response) or I Pass the Baton (introduce, patient name, assessment, situation, safety concerns, background, actions, timing, ownership and. next steps) as methods for standardizing this type of communications.

According to Friesen et al., “a handoff is largely dependent on the interpersonal communication skills of the caregiver.” Because this is, a skill rarely taught (Friesen et al., 2007) and continues to have a high degree of variability (Friesen et al., 2007), communication differences amongst various professional groups will continue to present a problem. For example, according to Freisen et al., nurses, and physician’s communication differently in this regard (2007). While nurses tend to focus on the big picture, physicians tend to use ‘bullets of critical information (Friesen et al., 2007).” Given the increasing numbers of caregivers with different clinical backgrounds, this type of communication is more challenging than ever before.

#### *4. Critical incident technique*

Critical Incident technique involves the collection and analysis of stories (critical incidents), and a subsequent classification of behaviours (Gremler, 2004). Developed during World War II by John Flanagan, CIT was used to identify and analyze incidents of failure and success in the training of pilots in efforts to identify specific behaviors leading to success or failure. An "incident" is described by Bitner, Booms and, Tetrault (1990) as being "An observable human activity that is complete enough to allow inferences and predictions (about) the person performing the act...: and further, a critical incident is described as" one that make a significant contribution, either positively or negatively to an activity or phenomenon (Bitner et. al., 1990).

This technique, which employs collection methodologies such as semi structured interviews or focus groups, has been used in many areas of health sciences and provides a flexible set of principles that not only allows the collection of data, but also, provides the ability to explore issues specific to the study (Fitzgerald et al., 2009). One of the

strengths of this methodology is that it provides a source of information as the result of its open-ended questions and ability for the interviewer to explore concepts and ideas that arise during the interview (Fitzgerald, et. al., 2009). These ideas expressed are from the respondents or interviewees perspective and therefore the respondents relay the information most important to them in regard to the issue being studied unlike that of a questionnaire or structured interview that makes assumptions about the subject matter (Gremler, 2004). It is a particularly useful methodology to use on subject matter that has not been extensively explored or is about a little-known or studied phenomenon (Gremler, 2004).

Limitation of this methodology as described by authors on the topic are substantial and need to be provided with due consideration. Because it is retrospective, there can be concerns about reliability and validity of data (Gremler, 2004). Participants without any verification or correction can relate misunderstandings and misinterpretations of events, and recall bias is an issue (Gremler, 2004). Finally, analyzing the resultant data requires that the interviewer has a certain level of expertise with the subject matter so that the interpretation is provided in the right context (Hettlage & Steinlin, 2006).

##### *5. Content analysis*

Analyzing the data is a key step in the CIT process (Fitzgerald et. al., 2009). As per Fitzgerald et al., the aim of describing and analyzing the data is to make it more useful without sacrificing the comprehensiveness, specificity, or detail (Fitzgerald et. al., 2009). Content analysis, which is a way of analyzing and coding the data retrieved through the CIT technique, will enable the development of the themes or trends present

themselves in the incidents or stories told by the interviewees. Coding the data is a serves as a type of analysis in itself, or according to Miles & Huberman, coding *is* analysis (Saldana, 2009). Saldana describes a code as a word or short phrase that “symbolically assigns a summative, salient, essence-capturing, and or evocative attribute for a portion of language based or visual data (2009).” These themes will be based upon the research questions and therefore formulated in advance (a priori) and will also emerge from the review of the transcripts and the process of categorizing the data (Gibbs & Taylor, 2005). During the first cycle of data analysis, datum would be assigned unique codes. It is expected that due to the size of the data set, codes will recur throughout the datum (Saldana, 2009). Coding, according to Saldana (2009) is just an initial step that precedes a cyclical and increasingly rigorous analysis and interpretation of the patterns in the data. From these codes, categories can be identified which may encompass two or more like codes. As the coding and recoding continues, the data is refined, a theoretical or conceptual schema can be identified, and the research questions answered.

Constant comparative analysis in qualitative research describes the process of comparing one piece of data to another (such as one interview or statement) to others to develop an understanding of the relationships among the different pieces of data (Thorne, 2000). Through this review, “the researcher develops understanding of a human phenomenon within a particular context (Shi, 2008)”. In this case, the process of developing categories and finding themes within the texts of the interviews provided some insight into issues and elements which are most salient to RNs’ and paramedics’ when retrospectively considering their interactions. This approach is not to focus upon the quantification of facts but rather to “identify meanings and values attributed by

individual in real life situations ... (Hewlitt- Taylor, 2001). As such, this approach to the review of this data allowed for the development of themes and categories which then could be used to explore patterns and comparisons which emerge during analysis and interpretation. While it is tempting to apply qualitative measures in order to draw concrete conclusions, the strength of the qualitative study is that it provides details about human behaviour and characteristics that cannot be well expressed in quantitative research. To attempt to impose too much of a quantitative structure or measure would be to risk losing the richness, subtle nuances and complexities of human nature.

Content analysis is, according to Lorraine Ellis, a term loosely applied to a variety of approaches (2004), and has been described as ‘a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (2004)’. Content analysis uses non-quantitative information, such as archival records, transcripts, and interviews, and turns it into quantitative data which, according to Shi (2008), makes it an appropriate tool for studying human communication and social behavior. In order to provide meaning to manageable segments of the content, coding of the data is required.

#### *6. Development and use of a codebook*

Foss and Waters describe a process for the coding of qualitative data in their article Coding Qualitative Data, (2003). This work details a step-by-step approach to breaking down a transcribed interview or record into meaningful and thematic segments for analysis. The article also provides a useful guide for the development of appropriate labels which relate to the content of the data rather than relying solely upon theories from

the discipline (Foss and Water, 2003). In other words, the ability to develop emergent codes critical for developing a true understanding of the content of the interviews rather than imposing a meaning based in theory.

Codes themselves are “tags and labels for assigning units of meaning to the descriptive or inferential information compiled during a study (Miles and Huberman via Decuir). There are three sources for code development. Codes can be theory driven, meaning that themes can be constructed by the literature or established theory related to the main topic. Some codes relate directly to the research questions or research goals meaning they are structural in nature. And finally, codes developed can emerge from the raw data as the transcript is reviewed (Decuir). Codes then are refined through the process of repeated reviewing of the raw data. It is, as many who write on the topic note, a highly iterative process.

Foss and Waters (2003) emphasize the importance of assuring that the codes make sense and that it is possible to have others validate them. A codebook, used in this project, is a tool which allows multiple participants independently to code the data. This provides the ability to ensure the coded data has reliability and validity. Fereday et al. (2006) described the codebook is a tool developed by the researcher which contains the codes, their definition and instructions to others for the analysis of the data. The development of a codebook is a key part of the process and grows out of the combined consideration of the conceptual model, the research question, and the emerging content.

Quality, reliability, and validity in qualitative studies must involve more than just the development of a codebook and the involvement of independent coders. It is also a more challenging concept in qualitative research as it “ is based on assumptions about the

researcher as an detached, objective observer (University of Huddersfield, 2007), rather than acknowledging, as is critical for qualitative data, that the themes are borne out of an interaction between a particular researcher and the text (Huddersfield, 2007). This is not to say that qualitative research cannot or should not benefit from what (Huddersfield,2007) calls independent scrutiny in order to help validate the work. The website lists these:

- Members of a research team coding a sample of data separately, and then discussing similarities and differences in order to agree revisions to themes. This was a strategy used for this study.
- Defending your analytical decisions to a constructively critical “expert panel.”

#### *7. Saturation*

In any qualitative research study, the concept of saturation is an important but often vaguely defined one (Bowen, 2008). According to Bowen, explicit guidelines for determining saturation are “almost nonexistent (2008)”. The attempt to gain saturation in qualitative research is the attempt to create a complete data set (Bowen,2008). Morse et al. describe this purpose of this process is to collect, review and code the data such that replication occurs in all categories. This replication “verifies and ensures comprehension and completeness (Morse et al., 2002)”. This means that new information added to the study does not result in the development of new categories or codes. Strauss and Corbin describe saturation as, “the point at which no new insights are identified, and no issues arise regarding a category of data (1990).” The process for reaching saturation can be a laborious one; however, Bowen contends that the ability to reach saturation has less to do with sample size and more about sampling adequacy (2008). In other words, choosing

the correct participants is for the sample is more effective than ensuring one has a large number of participants. He clarifies by stating that, “an ‘appropriate’ sample is composed of participants who best represent or have knowledge of the research topic (2008)”. For purposes of this study, because the topic deals with a very specific interaction between two particular groups, strong themes emerged early on in the data collection phase and were identified and repeated in most of the logged interviews.

The concept of saturation in qualitative studies is less dependent upon sample size than in quantitative research and depends largely upon the aim of the research (Green & Thorogood, 2009). Saturation essentially means that the sampling continues until no new data is being generated (Green and Thorogood, 2009). According to Glenn Bowen, explicit guidelines for determining saturation are almost non-existent in the literature on qualitative methodologies (2008). This process to gain saturation involves bringing new participants to the study and constantly comparing the information or data gathered from these new sources back to the original sources until no new information is being added to the data set (Bowen, 2008). Because different participants in a study can and often do have diverse opinions, the sample size must be large enough to ensure all perceptions are captured, however, a sampling that is too large can result in a cumbersome data base with much repetition and superfluous information (Mason, 2010). The aim of the study can also influence the sample size. A smaller more modest study with a more homogenous population may not require as large a sample size (Mason, 2010).

For purposes of this study, a same sample of interviews was conducted up front in order to set the baseline. These interviews were coded (by the researcher and an independent coder) and new interviews were conducted and subsequently coded. At the

point at which no new themes were emerging from the data, no new interviews were conducted and further analysis began. In this case, respondents are specific, that is triage nurses or paramedics from GTA or Durham region.

#### *8. Counterproductive work behaviours*

Transfer of care is a process which takes place between two healthcare providers. However, literature shows that personal interactions amongst employees can be hampered by poor communication, incivility, and inattentiveness (Spector & Fox, 2007). According to Spector and Fox (2005) there has been recent interest among organizational researchers about counterproductive work behaviours with the increasing interest in candidate screening. One of the streams of study for this phenomenon suggests that counterproductive work behaviours are an emotion based response to stressful organizational conditions (Fox, Spector and Miles, 2001). Other researchers define this behaviour as cognition based response to perceived organizational injustice (Skarlicki, Folger and Tesluk, 1999). Either way, the perception of less than optimal working conditions can induce less than ideal behaviours which is problematic and risky when dealing with patients.

Fox and Spector describe it in the following way: an individual monitors and appraises their environments and may perceive certain events as threats to their well being. This in turn induces negative emotional reactions like anxiety and anger. These threats, also known as job stressors, often include things like role conflict and ambiguity, interpersonal conflict, and situational constraints. The reaction to, or outcome of, these job stressors can be psychological, physical or behavioural (2001). These contribute to

counterproductive work behaviours such as antisocial behaviour, deviance, retaliation, and general incivility, thereby contributing to a problematic workplace environments.

### *9. Role ambiguity*

Role ambiguity occurs when an individual is presented with one or more roles for which responsibilities, tasks, activities and performance expectations are not clearly articulated (Kahn et al., 1964). Role ambiguity has been associated with decreased job satisfaction and job involvement (Bauer, J., Simmon, P., 2010). This lack of clarity and understanding can be particularly problematic when an individual is part of a team. Therefore role ambiguity is identified as one of the triggers leading to counterproductive work behaviours and occurs when there is conflicting, incompatible, vague, unclear or incongruent expectations related to an individual's own role or a difference in expectation of the roles of those they work with (Keller, 1975). When different professionals work together, congruence of role expectation and role clarity is critical to its success (Casanova, Day, Dorpat, Hendricks, Theis, Weisman, 2007). Developing role clarity and understanding professional boundaries while maintaining and having each team member contribute to good patient care has been one of the challenges for multidisciplinary care teams (Martin et al., 2005). It is important to understand this difference in expectations between professionals and their respective roles in the context of the interaction at patient transfer. These issues and their resultant behaviours do not take place within one department or organization, but rather between two separate and distinct professional groups and organizations whose goals may ultimately conflict which serves to further complicate strategies for improvement. Behaviour that would be perceived as appropriate and supportive of one organization may be contrary to the goals of the second

organization. In other words it is possible for one provider to exhibit behaviour that is favourable to one group and disruptive to another. When these two sometimes opposing sides come together, within a frenetic and chaotic environment, there is a heightened chance for personalization of the issues and therefore increased conflict.

#### *10. Interpersonal conflict, incivility and attribution error*

According to Fiske & Taylor, attribution theory deals “with how the social perceiver uses information to arrive at casual explanations for events. It examines what information is gathered and how it is combined to make a casual judgement (1991). An individual who is trying to interpret the behaviour of another may ascribe a motive or reason for the behaviour based upon what they know or what they think they know. This means that people may see cause and effects even where none exist (Fiske & Taylor, 1991). Fundamental attribution error refers to the fact that when an individual perceives negative behaviour on behalf of another, they are more likely to believe they are due to disposition (flawed personality or mal- intent) rather than to situational factors (Fiske & Taylor, 1991). The theory extends to an inherent bias in which in judging others individuals will blame perceived poor behaviour on character or personality, where as describe their own poor performance as the result of a less than optimal situation or environment (Fiske & Taylor, 1991). Therefore, a triage nurse within a busy department is more likely to be seen as ignoring patients or paramedics than perhaps being recognized as prioritizing her workload and dealing with more pressing items. Ascribing poor character to perceived negative behaviour is also more likely to result in personalization of conflict.

Workplace incivility is also both a cause and a result of conflict and therefore also of counterproductive workplace behaviours. Workplace incivility is defined as “low intensity deviant behaviour that violates workplace norms for mutual respect and may or may not be intended to harm the target (Pearson & Porath, 2005). This is behaviour which is perceived to be rude, disrespectful or disregarding of others. Studies also show that low intensity aggression can lead to an upward spiral resulting in increased aggression and more purposeful efforts to harm one another (Pearson & Porath, 2005). According to Pearson and Porath, efforts of incivility may most often go unreported, it is rarely unrequited (2005). Despite the low level intensity, these behaviours can erode relationships and detract from organizational outcomes (Pearson and Porath, 2005). In a healthcare setting, quality and safety of patient care is at risk.

#### *11. Interprofessional collaboration*

Research suggests that the primary requirement for working effectively in a multidisciplinary environment is an understanding of one’s own role within the team as well as the roles of other professionals (Atwal & Caldwell, 2006). In order to improve this type of understanding and collaboration, integrated learning programs at various stages of training have been introduced in some jurisdictions (Ross et al., 2005) before licensure, which help to develop the core competencies required for inter-professional collaboration. Practicum programs in many health disciplines may often take place within a clinical, even multidisciplinary setting, however, these are strictly for the learning and practice of clinical skill sets and do not focus on operational or inter-professional learning. Modern health care, regardless of where it is practiced, now requires the development of these competencies and therefore curricula should not only

address these skill sets within the classroom, but also should consider adding this component to the clinical rotation or practicum portions of the qualifications. While clinical placement opportunities, have historically focused upon the professionals own discipline, there has been some effort on behalf of certain jurisdictions to attempt to provide clinical placements that are multidisciplinary in nature (Smith and Seeley, 2010). Though it is acknowledged that these types of placements are complicated to arrange (Gilbert, 2005; Ross et al., 2005). Studies emphasize the importance and benefit of this type of collaboration at an early stage allowed for the development of skills, behaviours and attitudes which are needed in order to do this successfully (Lumague et al., 2006). This type of interprofessional collaborative practice should be considered for this particular team and would be value added. Experts have determined that patients receive safer, higher quality care when health professional work effectively as a team, communicate productively, and understand each other's roles (Lumague et al., 2006).

Within the workplace, many acute care and primary care organizations have become familiar and adept at working in multidisciplinary environments through the rise of primary health care teams and other collaborative efforts, yet the literature shows even for the forerunners barriers such as territorialization, role boundaries and threats to professional identity, organizational rules, and cultural differences between professionals exists creating barriers to success (Glendinning, 2003; Hall, 2005; Axelsson & Axelsson, 2009). Organizations may encourage and expect staff to be flexible and non-protectionist when it comes to working in interdisciplinary teams, however, this is, according to the Rushmer (2005), an ill explored concept and may in fact be counter to its original intent of collaboration and partnership. Ill-defined boundaries and lack of negotiated roles are

more likely to cause issues and create tension than reduce it (Rushmer, 2005). Suzanne Kvarnstrom (2008) likewise identifies the challenge of finding a balance between inter-professionalism and the obligations to one's profession and maintenance of their professional identities. Therefore, development of core competencies, and the joint negotiation of roles within this team environment are key to its success.

#### *12. Interprofessional collaboration opportunities in the workplace*

Currently due to the above, much inter-professional education is done in the workplace (Lumague, Morgan, Mak, Hanna, Kwong, Cameron, Zener and Sinclair, 2006). This is often accomplished within the context of ongoing organizational education, in the form of seminars set up by education departments within organizations emphasizing the importance of and competencies for inter-professional collaboration and teamwork. However, in spite of its inherent challenges, joint ventures between organizations or professional bodies would offer a richer experience and should be considered in this case. Both EMS organizations and hospitals may want to consider developing opportunities for joint collaborations which may be provide a robust mechanism for addressing particular issues as they arise, or participating in collaborative planning, projects or studies, such as developing a standard approach to transfer of patient care. There are precedents for these types of ventures and there may even be external support for special projects or initiatives which are inter-professional in nature. There may also be the opportunity to propose a study on an EMS/ ED specific approach to standardization of patient transfer for example

### *13. Levering technology to improve knowledge transfer*

Patient transfer of care is a high risk activity in part due to the potential for loss or error of critical information which can occur during a verbal transfer. Patient transfer of care in other areas of health care are exploring the use of technology to help streamline and improve this process. Currently within the studied jurisdictions, the transfer of care from the paramedic to the ED is almost entirely verbal. This creates risk for poor or ineffective communication, patient information that is incomplete or missing (Friesen et al., 2007). In other clinical transfers, use technology and electronic handover documentation are strategies used in some studies for multidisciplinary handovers within inpatient units (Winti et al., 2010). This requires a push for interoperability so that systems and devices can speak with one another and information can flow seamlessly without being compromised, corrupted or otherwise jeopardized. In an article for Urgent Communications, Kevin McGinnis (2011) describes a pilot project in which a parallel process aided by technology in order to create a common picture amongst the various parties, including the emergency department. Using a throat mike, the paramedics can begin to dictate on a voice to text basis information about the patient's condition from approach to treatment and this information can be pushed to a server to be made available to the hospital, dispatch or other responders. Telemedicine could potentially support ambulance transport allowing the designated ED to be prepared with appropriate personnel and equipment to serve patient on arrival (Parker, 2005). Access to patient information prior to arrival could likely improve patient outcomes (Parker, 2005). Pamela Parker (2005) takes this idea further in her description of the ED of the future. A 'cyber ambulance' already tested in practice allow for the audio, video and numeric information

to be transferred to the hospital while en route (2005). Medical device manufacturers have developed devices such as ECG machines that will automatically download information on the test performed on the patient directly to the patients EHR. Such devices could be used by EMS personnel and be programmed to download to the patients triage record upon arrival at the ED. This would mean that the RN would receive both a verbal report as well as an electronic report confirming the same. In addition to reducing the risk for errors or omissions verbal transfer creates, the timely transfer of critical clinical patient information also helps to mitigate the relatively short window of time provided in this particular type of transfer for providers to reach a shared clinical picture of the patient.

## Appendix C

### *Adult consent form*



Study Title: Situational and behavioral antecedents to positive and negative transfer of care experiences in the emergency department

Research Investigators' Names and Departments (include Advisor, if researcher is a student): Jennifer Tredinnick-Moir

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Introductory Statement

Professional interactions among emergency department nurses and paramedics are mainly the result of the need to transfer a sick or injured from a pre-hospital setting to an emergency department for ongoing care or stabilization. This process, known as patient transfer of care is a high-risk activity that can affect quality of care, patient satisfaction and most critically, has the potential to affect patient morbidity and mortality (Ye, Taylor, Knott, Dent, & MacBean, 2007). The transfer of care between the pre hospital environment and the emergency department occurs when the patients are vulnerable due to injury or illness (Talbot & Bleetman, 2007). That the transfer takes place between two

separate and autonomous entities – Emergency department staff and Emergency Medical Services staff, governed by different rules, practice, and policy, and that takes place over a brief period unlike other in hospital transfers of care, and therefore provides little or no opportunity for follow up, clarification, or further collaboration, makes this an especially challenging event (Talbot & Bleetman, 2007).

What is the purpose of this study?

Studying this event will help develop an understanding of what contributes to both positive and negative patient transfer experiences and will facilitate the identification and development of strategies that would help to increase the number of positive or successful encounters. This will provide opportunity to improve this interaction that will contribute to improved patient care and safety.

What will I do in this study?

This would be a qualitative research study and would be largely interview- based. Interviewees would be asked to related ‘stories’, or critical incidents, about both positive and negative transfer of care experiences that occurred between the emergency department triage and emergency medical services (paramedics) they were personally involved with. Along with a detailed retelling of the incident from the interviewee’s perspective, aspects such as time of shift, the state of the emergency department at the time of the transfer and the status of the patient will be of interest to the principle investigator.

An inventory of both the antecedent conditions and the identified behaviors will be created, categorized or coded and analyzed. The goal of this endeavor would be to see if there is any predictability, or commonality amongst the antecedents, the identified

behaviors, and the perceived outcomes. The goal of this study is to add to the information about what causes successful and unsuccessful transfers of care.

How long will it take me to do this?

This will be dependent upon how many events each interviewee will be willing to discuss. Each 'event' i.e. the recounting is anticipated to take between 20 to 40 minutes based upon pilot interviews.

Are there any risks of participating in the study?

There will be not risk to the participants as they are free to relate any information they feel comfortable with and will not be identifiable in the study.

What are the benefits of participating in the study?

Being asked to recount certain events in this context may provide useful insight to the participants and may allow them to become more aware of their own behaviors thereby potentially improving their ability to enhance the patient transfer events

Will anyone know what I do or say in this study (Confidentiality)?

Only the principle investigator will have access to the raw data. All identifying information will be removed from the study, only codes will identify whether the participant was a nurse or a paramedic. Once the study is complete, defended successfully, all audio, and transcribed, data will be destroyed.

Will I receive any compensation for participation?

No, unfortunately this is an unfunded study

Is there a different way for me to receive this compensation or the benefits of this study?

No.

Who can I contact for information about this study?

Principle investigator:

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You are free to refuse to participate in this research project or to withdraw your consent and discontinue participation in the project at any time without penalty or loss of benefits to which you are otherwise entitled. Your participation will not affect your relationship with the institution(s) involved in this research project.

If you are not satisfied with the manner in which this study is being conducted, you may report (anonymously if you so choose) any complaints to the Institutional Review Board by calling 989-774-6777, or addressing a letter to the Institutional Review Board, 251 Foust Hall Central Michigan University, Mt. Pleasant, MI 48859.

My signature below indicates that all my questions have been answered. I agree to participate in the project as described above.

Signature of Subject    Date Signed

A copy of this form has been given to me.

Subject's Initials

Signature

## Appendix D

### *Tables*

Table 4. Codebook

ID	CODE	DESCRIPTION
	Antecedents	Pre-existing condition or characteristics prior to paramedic/ nurse contact
1	Patient Antecedents	A preexisting condition or event related directly to the patient prior to EMS contact.
11	Generalization about a patient	A statement made by a provider which is patient related and applied to all types of patients– a stereo type.
12	Patient condition	Description of patient condition
13	Setting the scene	A neutral statement providing context to the narrative
2	Provider antecedents	Pre-existing condition or characteristic related directly to the provider prior to paramedic/ nurse contact
21	Generalization about a provider	A statement made which is provider related and applied to all providers or a provider group– a stereo type.

Table 4. Codebook (continued)

ID	CODE	DESCRIPTION
22	Attribution	A statement made in which the interviewee expresses a belief about why the other party behaves or feels the way they do – affixing a reason without knowing what the reason is – an assumption.
23	Skill level	A statement made by the interviewee about the skill level of the other provider or provider group.
24	ED notification	A statement about whether the paramedics notified the ED before arrival or not.
25	Role ambiguity	A statement which identifies a lack of clarity, misunderstanding, or disagreement regarding the individual roles or responsibilities of the different providers within the context of patient transfer of care.
26	Setting the scene	A neutral statement providing context to the narrative
3	Organizational Antecedents	Pre-existing condition or characteristic related directly to the organization prior to paramedic/ nurse contact
31	Workload	A statement about workload such as patient numbers, acuity, lack of beds, ambulance call volume etc.

Table 4. Codebook (continued)

ID	CODE	DESCRIPTION
32	Attribution	A statement made in which the interviewee expresses a belief about why the organization operates way it does – affixing a reason without knowing what the reason is – an assumption
	PROCESS	Statement made regarding the interaction between paramedics and nurses between first contact (by phone or face to face) and when paramedics exit the department after care has been transferred
4	Patient Process	Description of an event, change, approach etc. which occurs during the interaction phase which is patient related.
41	Patient condition	Patient condition, status, disposition changes or ends up being more or less serious than originally thought during the process
42	Setting the scene	A neutral statement providing context to the narrative
5	Provider Process	A comment or description of behaviour which occurs during the interaction phase and is provider related

Table 4. Codebook (continued)

ID	CODE	DESCRIPTION
51	Working together – description of provider behaviour	A statement which describes purposeful behaviour of the provider related to the provider they are interacting with. Negative examples may include being rude, ignore, not paying attention, arguing; Positive examples may include a willingness to help, com
52	Attribution	Attribution is a process by which individuals explain the causes of behavior and events. WHY the provider acts in a certain way - affixing a reason without necessarily knowing what a reason is.
53	Role ambiguity	A statement which identifies a lack of clarity, misunderstanding, or disagreement regarding the individual roles or responsibilities of the different providers within the context of patient transfer of care
54	Outcome of interaction	Actions or consequences of the series of events as they unfold during the interaction process - provider feeling about what happened (not clinical or patient outcomes)
55	Setting the scene	A neutral statement providing context to the narrative

Table 4. Codebook (continued)

ID	CODE	DESCRIPTION
6	Organizational Process	An event, change, or characteristic, related to a participant organization which is the case during the interaction phase
61	Workload	Patient is not taken directly into a treatment space and EMS stay with patient on the stretcher after the patient has been triaged by ED
	OUTCOMES	Products of the interaction
7	Patient outcomes	Description of what provider believes happened to the patient as a result of the interaction
8	Provider outcomes	Description of how the provider felt as a result of the interaction
9	Organizational outcomes	(none mentioned)

Table 5. Percent of RNs' and paramedics' comments (N = 590) by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	13%	6%	2%	21%
Provider	19%	45%	6%	71%
System/ organization	5%	3%	0%	8%
Total	38%	54%	8%	100%

Table 6. Percent of RNs' comments (N = 268) by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	10%	6%	2%	18%
Provider	19%	46%	6%	71%
System/ organization	8%	3%	0%	11%
Total	37%	55%	8%	100%

Table 7. Percent of paramedics' comments (N = 323) by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	16%	6%	1%	23%
Provider	20%	44%	7%	71%
System/ organization	3%	3%	0%	6%
Total	39%	53%	7%	100%

Table 8. Percent of paramedics' comments (N = 257) from negative interviews by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	13%	7%	2%	22%
Provider	21%	46%	6%	72%
System/ organization	3%	3%	0%	6%
Total	37%	56%	7%	100%

Table 9. Percent of RNs' comments (N = 241) from negative interviews by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	10%	7%	2%	18%
Provider	20%	47%	5%	73%
System/ organization	7%	2%	0%	9%
Total	37%	56%	7%	100%

Table 10. Percent of paramedics' comments (N = 66) from positive interviews by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	26%	2%	0%	27%
Provider	17%	39%	11%	67%
System/ organization	3%	3%	0%	6%
Total	45%	44%	11%	100%

Table 11. Percent of RNs' comments (N = 27) from positive interviews by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	11%	4%	7%	22%
Provider	7%	37%	7%	52%
System/ organization	15%	11%	0%	26%
Total	33%	52%	14%	100%

Table 12. Number of RNs' and paramedics' comments (N = 590) by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	77	37	10	124
Provider	115	266	37	418
System/ organization	31	17	0	48
Total	223	320	47	590

Table 13. Number of RNs' comments (N = 268) by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	26	17	6	49
Provider	51	123	16	190
System/ organization	21	8	0	29
Total	98	148	22	268

Table 14. Number of paramedics' comments (N = 323) by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	51	20	4	75
Provider	64	143	21	228
System/ organization	10	9	0	19
Total	125	172	25	322

Table 15. Number of paramedics' comments from negative interviews (N = 257) by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	34	19	4	57
Provider	53	117	15	185
System/ organization	8	7	0	15
Total	95	143	19	257

Table 16. Number of RNs' comments (N = 240) from negative interviews by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	23	16	4	43
Provider	48	113	14	175
System/ organization	17	5	0	22
Total	88	134	18	240

Table 17. Number of paramedics' comments (N = 66) from positive interviews by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	17	1	0	18
Provider	11	26	7	44
System/ organization	2	2	0	4
Total	30	29	7	66

Table 18. Number of RNs' comments (N = 27) from positive interviews by category and standpoint

	Antecedent	Process	Outcome	Total
Patient	3	1	2	6
Provider	2	10	2	14
System/ organization	4	3	0	7
Total	9	14	4	27

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