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# Handoff Communication in the Emergency Department

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## **Abstract**

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The sample used was from a convenience sampling of patients arriving in the Emergency Department via ambulance over all days, shifts, and from all ambulance services that deliver patients who chose to participate in the study. The sample size was to observe hand offs occurring over a one month period of time equally distributed over all shifts and days of the week.

The data was analyzed using a percentage distribution to classify the data related to hand off report content. This data was then divided and compared according to the categories of information transferred through utilization of the protocol and analyzed for frequency of occurrence.

There are indications for nursing educational needs in relation to the importance of handoff documentation and how that documentation of the handoff report contents impacts nursing practice. There may also be implications for the standard format for handoff reporting and technology solutions to improve handoff content.

## **Keywords**

handoff, handover, pre-hospital, emergency department, communication

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## **Cover Page Footnote**

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## Chapter 1

### **Introduction**

#### **Background Knowledge**

The communication of patient information ensures continuity of care and patient safety through the use of handoff report. This process can involve both a written and verbal information exchange between nurses, physicians and other allied health personnel demonstrating a form of professional communication. According to the Joint Commission (2013), adverse patient events as a result of inadequate communication have been identified as a leading cause of death and injury in hospitals in the United States despite evidence-based efforts to reduce their occurrence. Nurses play a vital role in the process of communication and information exchange through the use of handoff despite minimal guidelines for that exchange in current nursing practice.

Currently, there does not exist any recommended format or setting for the patient handoff to take place as well as no form of standardized documentation of this handoff. There has been some more recent recommendations that bedside handoff occur to allow patients to participate in their plan of care and also allow the nurse to ask questions while assessing the patient during a time when the transferring provider remains available (Maxson, Derby, Wroblewski, & Foss, 2012). The pre-hospital handoff informational exchange impacts patient safety for all patients arriving via ambulance as well as the planning and implementation of nursing care based upon that information in the Emergency Department (E.D.). “The use of emergency teams (doctors and nurses) to receive paramedic handover might improve safety and efficiency by reducing risks of miscommunication and/or unanswered questions between them and those making downstream referral and admission decisions” (Yong, Dent & Weiland, 2008, p. 149).

## **Local Problem**

The facility where the project took place is a 249-bed urban academic facility located near Pittsburgh, PA. At this facility, more than 800 primary care and specialty physicians, and 1,500 clinical and support staff members work together to provide patients with quality care and the latest technical and medical advances. The emergency department consists of eight critical care treatment areas, sixteen exam rooms, and an eight-bed clinical decision unit for patients awaiting test results or hospital admission. This facility has approximately 41,000 visits to the Emergency Department each year with approximately 15% of those patients being transported by pre-hospital personnel. A study of handoff reports between pre-hospital personnel and staff in the emergency department at the project facility revealed a lack of complete or formal information dialogue resulting in patient safety issues and that impacted the efficiency of the department (Reiger, 2012). Matic, et. Al, states “errors in health care resulting in adverse events are the leading cause of death and injury in hospitals. Ensuring continuity and consistency of information flow between health providers is one strategy of preventing adverse events and ensuring patient safety.”

## **Intended Improvement**

This project’s purpose is to analyze the current handoff process and methods of communication to explore potential enhancements to communication as well as patient safety and department efficiency through utilization of a standard form of communication or electronic documentation solution. “Technological solutions such as electronic health records have been

suggested as a useful strategy to improve communication and these advances may extend to facilitate clinical handover” (Matic et al., 2010, p. 185).

Having a standardized, patient-centered, evidence based process for handoff communication from pre-hospital personnel to emergency department staff is vital to ensuring positive patient outcomes through adequate communication of out-of-hospital treatments and information. This project will provide an in-depth analysis of the handoff communication process and information transferred in the emergency department at the project facility. The analysis of the process and content will provide insight into the effectiveness of the communication methods currently in place and identify areas for potential improvement. The goal of this investigation will be to ensure there is a patient-centered, evidence-based handoff communication process in place in the emergency department to provide positive patient outcomes. The objectives of this project are to identify the existing structure and process of the handoff report from the pre-hospital personnel to the nurse, to analyze gaps in the transfer of information utilizing the 'IMIST-AMBO' Protocol and to define the role of the Emergency Department nurse regarding documentation of the handoff communication. The IMIST-AMBO protocol stands for: **I**dentification of the patient, **M**echanism/medical complaint, **I**njuries, information relative to the complaint, **S**igns/vitals/GCS, **T**reatment and trends/response to treatment, **A**llergies, **M**edications, **B**ackground history, and **O**ther (social) information (Iedema, et. Al, 2012).

## **Project Question**

In the E.D. for patients arriving via ambulance, can the analysis of existing handoff reporting methods and documentation from pre-hospital personnel to E.D. staff identify issues with the current process that could impact patient safety?

## Chapter 2

### **Review of Literature**

#### **Introduction**

“The Joint Commission (TJC) lists communication as the leading root cause of sentinel events” (Matic, et al., 2010, p. 185). This project aimed to identify the nursing role during the emergency department handoff communication process, to identify improvements to this process whether format or technology-related, and to identify/define what obstacles may exist for handoff reporting. This chapter presents a review of the literature related to patient handoffs and communication and the influence this has on patient safety.

#### **Critique and Synthesis of Previous Research**

##### **Key Terms**

Key terms for this project include: handoff, handover, pre-hospital, emergency department, and communication. The handoff, or handover, is defined by Iedema, et. Al, (2012) as the process of reporting key patient information to the nurse from another care provider. The definition of pre-hospital according to Merriam-Webster’s Online Dictionary (2013) would be “any treatment given before or during transportation to a hospital”. The emergency department is defined as the existing emergency department at the project facility, which provides emergency medical care and treatment to patients in the local area. Communication, as defined by Merriam-Webster’s Online Dictionary (2013), is “the process by which information is exchanged between individuals”.

## **Methods for Literature Search**

The articles for this literature search were identified using the online tools Medline and PubMed searching for the terms *handoff*, *handover*, *emergency*, *nursing*, *pre-hospital* and *communication*. Articles were searched to include publication dates from 2005-2013 to ensure the most recent research and literature was included.

## **Nature and Extent of the Literature**

The literature review outlines the existing methods of patient handoff report from pre-hospital personnel to emergency department staff while demonstrating a lack of formal structure or standardization affecting patient safety and outcomes (Matic, et al., 2010; Chaboyer, McMurray, & Wallace, 2010; Bruce & Suserud, 2005). The majority of the articles identified focused on communication and patient handoff and were located in nursing or emergency medicine journals.

## **Handoff/Handover**

“Effective communication among health professionals is key to ensuring quality care in clinical practice. Clinical handover has been defined as the transfer of responsibility and/or accountability for patient care from one provider or team of providers to another. Nursing handover at the bedside has been identified as an important strategy to improve patient-centered care” (Chaboyer, et al., 2010). Handoff reporting is central to ensuring patient safety through the exchange details of patient management that are transferred between care providers (Liu, Mania, & Gerdtz, 2011). The Joint Commission (TJC) has identified handoff communication as a key cause of serious medication errors that originates during the process of patient information

transfer. TJC began a project in August of 2009 “The Hand Off Communications Project” which was designed to “examine hand off communication problems, identify the causes for failures and barriers to improvement, and then identify, implement and validate solutions that improved their performance” (TJC, 2013).

One study used a simulated patient scenario to demonstrate handoff in a controlled setting through the use of a standardized tool after completing a communication workshop but only involved resident physicians (Farnan, et al., 2009). This study found that their current handoff practices were incomplete and that these poor handoffs could contribute to adverse events (Farnan, et al., 2009). Other studies had an observed rating of the handoff report in the emergency department using a tool that was created to score based on the personnel receiving report, the completeness of the handoff, the receipt of the communication, interruptions to the handoff and staff attitudes that might affect the communication process (Yong, et al., 2008; Owen, et al., 2009).

A study conducted by Iedema, et. Al, analyzed 74 pre- and 63-post handovers from pre-hospital to Emergency Department personnel according to the IMIST-AMBO protocol. This same study by Iedema, et. Al, noted improvement in consistency of handoff reports, greater frequency of necessary information, “reduction in information repetition and asking of questions, reduction in handover duration” which led to improved efficiency of information exchange. Standardization of communication between practitioners has been demonstrated to improve the method of information exchange as well as the content and quality of that information.

## **Communication**

Numerous studies found communication barriers that were present during most patient handoff reports which included: lack of complete information exchange, lack of standardized reporting tool, cooperation of pre-hospital staff, cooperation of receiving staff, active listening to the patient handoff report, fragmented communication, tension between staff, distractions within the emergency department, and lack of experience of the healthcare provider giving or receiving report (Chaboyer, et al., 2005; Ye, et al., 2007; Owen, et al., 2009; Yong, et al., 2008; Farnan, et al., 2009).

Multiple research studies indicate a need for: development of a common language, need to develop shared experiences and the development of a common reporting tool as well as increased education of the handoff process expectations (Chaboyer, et al., 2010; Bruce & Suserud, 2005; Ye, et al., 2007; Owen, et al., 2009; Yong, et al., 2008; Farnan, et al., 2009). “The aim of any handover is to achieve the efficient communication of high quality clinical information at any time when the responsibility for patient care is transferred. Findings indicate that although paramedics and receiving staff in the E.D. recognize the importance of effective handover, there are a number of factors that result in a variable quality of handover including experience of the personnel giving handover, severity of the patient complaint, various distractions, and receptiveness of the nurse receiving report. The recommendation is that paramedics and emergency receiving staff should consider the adoption of a standardized approach to handover” (Owen, et al., 2009, p. 107).

## **Gaps in Knowledge**

“The rising complexity of healthcare services places increasing emphasis on effective communication among clinicians. One weak point is proving to be the handover communication relaying clinical tasks and responsibilities between clinicians, teams, departments and institutions” (Iedema, et. Al, 2012, p. 1). Previous research has demonstrated the development of standardized communication in various formats including protocols that aim to reduce human error through prompting (Iedema, et. Al, 2012). The literature reviewed supports the workflow analysis of the emergency department process of patient handoff report from pre-hospital personnel to identify causes of inadequate reporting and documentation of out-of-hospital treatments. This will be achieved by an in-depth evaluation of the workflow process in the emergency department, analysis of the handoff reporting, and documentation in the patient’s electronic health record to verify handoff report was accurately recorded.

## **Rationale for the Study/Project**

Ineffective communication is a leading cause of patient harm in the acute care setting, which begins at the patient’s arrival in the Emergency Department. By examining the pre-hospital to Emergency Department handoff processes and systems of communication, there can potentially be standardization of communication practices, which may reduce the risk to patients at the point of entry into the hospital. “Experts in health care communications research have speculated that many omissions of relevant patient care and missing or incorrect communication of patient information problems are related to a lack of research-based standards in administrative protocols and policies” (Dufault, et. Al, 2010, p. 60). There is now an increased national focus by multiple quality and regulatory agencies, including the Joint Commission, on

the development of protocols to standardize the method and content of healthcare information transmission between providers and care environments. Omitted or inaccurate patient information can result in negative effects on patient care, and also healthcare personnel, patient and family discontent. For a significant portion of acutely ill patients, the first episode of healthcare information exchange between providers takes place in the Emergency Department. The rationale for this project is to target the point of entry and initial communication of pertinent patient information. There is currently no standardized protocol for the information exchange that takes place between the pre-hospital personnel and the receiving nurse in the Emergency Department at the project facility.

## Chapter 3

### **Methods**

#### **Ethical Issues**

It is the ethical responsibility of healthcare providers to provide an accurate and complete patient handoff report in all patient care areas to ensure the highest quality patient experience while ensuring patient safety. There were no ethical issues identified locally for this project. The pre-hospital personnel and Emergency Department staff gave their verbal permission to be observed and evaluated during the handoff process upon patient arrival. The participants were informed that their participation was voluntary and their identity would remain anonymous to ensure confidentiality. The pre-hospital personnel and Emergency Department staff were informed that their participation would not affect their employment and they had the right to withdraw from the project or decline participation at any time. The handoff evaluations were shared with the hospital facility through a summary report discussing the results and indications only. The participating personnel were not subjected to any form of coercion or deception in an attempt to obtain their involvement in the project.

The project was submitted to the University of Pittsburgh Medical Center (UPMC) Nursing Research Advisory Council, the UPMC Quality Improvement (QI) Review Committee (Appendix B), and the Carlow University IRB. The required documentation for each review body was submitted according to the policies set forth by the institutions. The project was declared a quality improvement project by the UPMC Nursing Research Advisory Council and

granted approval by the UPMC QI Review committee. The project was approved by Carlow University's IRB as defined in the IRB's guidelines (see Appendix C).

## **Setting**

The project was conducted in the setting of the E.D. of an urban teaching facility near Pittsburgh, PA. There are approximately 41,000 visits to the E.D. each year with approximately 15% of those patients being transported by pre-hospital personnel. The emergency department consists of eight critical care treatment areas, sixteen exam rooms, and an eight-bed clinical decision unit for patients awaiting test results or hospital admission. Pre-hospital personnel from services who deliver patients to the E.D. and nurses who staff the facility's E.D. were recruited to participate in the project. The project took place in an uncontrolled setting examining the workflow of the handoff process from pre-hospital staff to the E.D. personnel. The project took place across all shifts and all days for patients arriving via ambulance and was randomized to gain enough sampling to allow for analysis. The intervention took place over a period of 1 month (October 2013). The participants were informed that the survey would be completely untraceable and confidential. The patient charts were reviewed post-transfer to the Emergency Department to evaluate that the handoff report was accurately documented in the electronic record.

## **Intervention**

The Joint Commission identified handoff reporting to be of significant importance in patient care through the Handoff Communications Project, which helped to develop the Targeted Solutions Tool (TJC, 2013). "Using the tool and the solutions from the Center's Handoff Communications project, health care organizations reported an increase in patient and family satisfaction; staff satisfaction; and successful transfers of patients. One health care organization

reduced readmissions by 50 percent; another health care organization reduced the time it takes to move a patient from the emergency department to an inpatient unit by 33 percent” (TJC, 2013).

The ambulance services were informed that the handoff communication would be evaluated according to the IMIST-AMBO protocol (see Appendix A). The IMIST-AMBO protocol structure includes identification of the patient, mechanism/medical complaint, injuries/information relative to the complaint, signs, vitals, and GCS, treatment and trends/response to treatment, allergies, medications, background history, and other (social) information for both trauma and non-trauma handoff reports (Iedema, et. Al, 2012). The EMS services were educated on the contents of the IMIST-AMBO protocol to be able to describe the content of the handoff report that would be evaluated. The emergency department nurses were invited to participate during their monthly department meeting by the Principal Investigator, educated on the IMIST-AMBO protocol, and informed of the specific documentation that would be evaluated in the electronic record. The intervention took place over a period of 1 month (October 2013). The participants were informed that the survey would be completely untraceable and confidential. The patient charts were reviewed post-transfer to the Emergency Department to evaluate that the handoff report was accurately documented in the electronic record.

### **Study of the Intervention/Data Analysis**

This project used descriptive correlational design to examine information that is transferred during the handoff report from the pre hospital personnel to the Emergency Department nurse. Data was obtained from a single group and correlational statistical analysis was used to examine relationships from the data identified by the IMIST-AMBO protocol. The sample was from a convenience sampling of patients arriving in the Emergency Department via ambulance over all days, shifts, and from all ambulance services that deliver patients to the E.D.

who chose to participate in the project. The sample was to observe handoffs occurring over a one-month period of time equally distributed over all shifts and days of the week.

### **Method of Evaluation**

The Pre-Hospital Coordinator observed the participants during the handoff process which included all ambulance services that deliver patients to UPMC St. Margaret E.D. and were evaluated according to the IMIST-AMBO protocol. Data was obtained from a single group and correlational statistical analysis was used to examine relationships from the data identified by the IMIST-AMBO protocol and documented/recorded in the tools developed for the project (Appendix D).

### **Analysis**

The handoff report observations were analyzed using a percentage distribution to classify the data related to content according to the IMIST-AMBO protocol. This data was then divided and compared according to the categories of information transferred through utilization of the protocol and analyzed for frequency of occurrence. The post-handoff chart review was also recorded and analyzed for percentage distributions according to the format used for handoff reporting to validate if this data was documented in the patient's electronic health record.

## Chapter 4

### Results

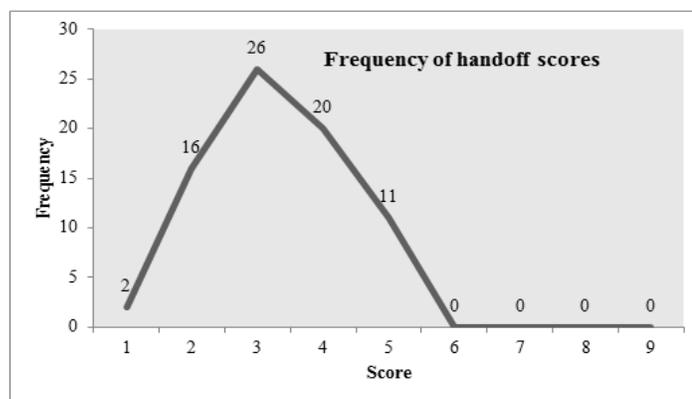
#### Analysis of Data

The Pre-Hospital Coordinator observed 75 handoffs from pre-hospital to E.D. personnel during the designated time period. Of the 75 handoffs observed, nurses recorded the handoff data for 13% of the occurrences into the patients’ electronic health records. This was noted through a post-handoff chart review/audit that was performed. Each handoff was assigned a score from 0-9 based upon the presence of the categories of the handoff report as identified by the IMIST-AMBO tool. The average score of the handoffs based upon this scale was 3.29. Table 1 and Graph 1 display the frequencies of scores for the handoff reports observed. Scores of the handoffs ranged from 1 to 5 with 5 being the highest. The most common score was 3 with 26 of 75 (35%) of the handoffs being scored at this number.

**Table 1. Score Frequency for Handoff Reports**

Score	Frequency	Percentage
0	0	0
1	2	2.7
2	16	21.3
3	26	34.7
4	20	26.7
5	11	14.6
6	0	0
7	0	0
8	0	0
9	0	0
N=75		100.0

**Graph 1. Handoff Score Frequency**



The handoffs were observed over all days and shifts from among all ambulance services that brought patients to the E.D. during the time of the project. There was even distribution noted

for the project, according to the data collection tool, over all days of the week and all shifts. The handoff observations took place from October 1<sup>st</sup> through the 31<sup>st</sup>, 2013. Identification of the patient (I) was present in the handoff reports in 100% of those observed. The mechanism/medical complaint (M) was observed at a rate of 85%. Injuries/information relative to the complaint (I) was noted to be present at a rate of 74% for the handoffs observed.

Background history (B) was the next lowest in frequency at a rate of 24%. All other categories in

**Table 2. Handoff Data Analysis**

N=75

<b>Data Point</b>	<b>No</b>	<b>Yes</b>
<b>Identification of the Patient</b>	0%	100%
<b>Mechanism/Medical Complaint</b>	15%	85%
<b>Injuries/Information Relative</b>	24%	76%
<b>Signs, Vitals, &amp; GCS</b>	96%	4%
<b>Treatment/Trends &amp; Response</b>	97%	3%
<b>Allergies</b>	100%	0%
<b>Medications</b>	97%	3%
<b>Background Information</b>	76%	24%
<b>Other (Social) Information</b>	95%	5%

the IMIST-AMBO tool were present in less than 5% of the handoffs observed. Table 2 is a display of the rates of observed categories from the 75 handoffs.

Of the 75 handoffs, 48 (64%) of them had the first 3 categories (identification of the patient, mechanism/medical complaint, and injuries/information relative) of the IMIST-AMBO tools present indicating a possible correlation between these categories. Due to the lack of presence of the other categories of the handoff, it was not possible to provide or analyze correlational statistics.

## **Summary of Findings**

Of the handoffs observed, the information relayed according to the IMIST-AMBO tool was relatively minimal. The average score assigned to the handoff reports is evidence of a lack of information being transferred during the exchange. The pre-hospital personnel were introduced to the IMIST-AMBO tool and what would be evaluated during the project. Despite their knowledge of the categories of evaluation, there was low compliance with the utilization of all categories in the tool. There were potentially limits in the education of pre-hospital personnel due to the relay of information from supervisor to staff. The supervisors were educated via the Pre-Hospital Coordinator but there was no method to be able to reach all ambulance personnel directly to educate them on the use of the IMIST-AMBO tool.

Most of the information that was transferred during the handoff communication was related to patient identification and identification of the problem/reason for the visit to the E.D. There was little information transfer regarding the patient history, medical problems, medications, allergies, and social history. Some of the ambulance services provide a paper document of the handoff report but it is not a required workflow. There was inability to identify the patient status, which could have impacted the amount of information transferred during handoff reporting. For example, if the patient was alert and oriented, able to give their own information to the nurse, the pre-hospital personnel may not have included all of this information in the report.

According to the electronic chart audits, the compliance with nursing documentation of the handoff report within the electronic health record was only 13%. This could be attributed to the low level of information transferred to the nurse during the handoff reports or the electronic documentation system. There was no study of whether or not the nurses that documented the

report received a paper form with the handoff information present from the pre-hospital personnel so the project is unable to determine the cause of low compliance with electronic documentation.

## Chapter 5

### **Discussion**

#### **Summary**

There are two themes from the literature review that are supported by this project: standardization of the contents of the handoff to ensure accurate and complete reporting and the potential for adverse outcomes as a result of inadequate handoff reporting and documentation. The results of this project indicate a lack of information being transferred during handoff reporting from pre-hospital personnel to the E.D. staff. This reflects the previous identified results in the literature which have indicated that handoffs can be inadequate and lead to potential adverse events. According to Iedema, et al. (2012), handoff should be accurate and effective to allow care to be continuous and prevent the miscommunication of critical information. Iedema, et al. (2012) also discussed the strategy of utilizing a protocol for handoffs using acronym-based prompts.

The project also indicates poor compliance with electronic documentation by the nurses after receiving handoff report in the patients' records. There is need for further education of both pre-hospital staff and nursing staff on the information that should be present in the handoff report and that the information should be documented in the patient record. There may be some use for the development of a standardized handoff reporting tool for both pre-hospital and E.D. staff clarity of the handoff contents. There is potential for future electronic solutions to both of these problems through the use of a tool to gather, record, and send information to the receiving E.D. The pre-hospital staff currently uses a documentation system that does not interface with

the hospital's EHR. Another potential investigation into technologic improvements to the way that the EMR documentation interfaces could be explored.

### **Relation to Other Evidence**

Iedema, et. Al., (2012), identified a need for improvement in the handoff report contents and communication between pre-hospital and E.D. staff. There is also correlation to the evidence that there is need for a standardization of a handoff reporting tool that could be utilized by the pre-hospital care providers which could potentially improve the information transfer and impact patient safety. There is a need for input into this design by providers and nursing staff who use the tool to give handoff report. There should also be input from staff into future changes to the electronic documentation system, which could impact overall compliance with documentation requirements.

### **Limitations**

There were a few limitations to this project that should be noted. The sample size of handoffs observed is relatively small in relation to the total number of patients who arrive via ambulance to the E.D. Observations were done by the Pre-Hospital Coordinator over one month which limited the number of handoffs that could be observed and analyzed. Limitations of this project would also be the inability to correlate the categories of information relayed in the handoff report to the reports that were recorded into the patients' electronic health records due to documentation compliance of 13% by nursing staff. The current EHR offers only limited area to document the handoff report with specific fields that restrict the documentation (Figure 1). There is also no method to be able to discern whether or not a paper record of the handoff report was given to the E.D. staff by the pre-hospital personnel.

**Figure 1. Example of current EHR documentation fields**

Correct Date/Time?	<b>CHIEF COMPLAINT</b>					
Chief Complaint*		Information given by	<input type="checkbox"/> Self <input type="checkbox"/> Spouse <input type="checkbox"/> Child <input type="checkbox"/> Parent <input type="checkbox"/> Sibling <input type="checkbox"/> Grandparent <input type="checkbox"/> Significant Other <input type="checkbox"/> Friend <input type="checkbox"/> Previous medical records <input type="checkbox"/> Facility <input type="checkbox"/> Chart <input type="checkbox"/> Unable to obtain <input type="checkbox"/> Caregiver <input type="checkbox"/> CYF caseworker <input type="checkbox"/> Foster parent <input type="checkbox"/> Legal guardian <input type="checkbox"/> Paramedics <input type="checkbox"/> Police <input type="checkbox"/> Relative <input type="checkbox"/> Translator <input type="checkbox"/> Other:			
Focused Assessment of Complaint						
	<b>Community Acquired Pneumonia Screening</b> <input type="checkbox"/> Cough with greenish or yellowish mucus <input type="checkbox"/> Fever > or = to 38 C (100.4 F) <input type="checkbox"/> Stabbing or sharp chest pains that worsen during deep respiration <input type="checkbox"/> Rapid shallow breathing >20 <input type="checkbox"/> Shortness of breath <input type="checkbox"/> SaO2 < or = to 92%					
Is the patient reporting or do you observe the following	<table border="1" style="width: 100%;"> <tr> <td style="background-color: yellow;"> <input type="checkbox"/> Air transport  <input type="checkbox"/> Ambulance  <input type="checkbox"/> In Arms                             </td> <td style="background-color: yellow;"> <input type="checkbox"/> Wheelchair  <input type="checkbox"/> Other:                             </td> </tr> </table>			<input type="checkbox"/> Air transport <input type="checkbox"/> Ambulance <input type="checkbox"/> In Arms	<input type="checkbox"/> Wheelchair <input type="checkbox"/> Other:	
<input type="checkbox"/> Air transport <input type="checkbox"/> Ambulance <input type="checkbox"/> In Arms	<input type="checkbox"/> Wheelchair <input type="checkbox"/> Other:					
	<table border="1" style="width: 100%;"> <tr> <td style="background-color: yellow;"> <input type="checkbox"/> None  <input type="checkbox"/> N/A  <input type="checkbox"/> Backboard  <input type="checkbox"/> Cervical Collar                             </td> <td style="background-color: yellow;"> <input type="checkbox"/> CID  <input type="checkbox"/> CPR  <input type="checkbox"/> Intubation  <input type="checkbox"/> IV                             </td> <td style="background-color: yellow;"> <input type="checkbox"/> Medication  <input type="checkbox"/> O2  <input type="checkbox"/> Splint  <input type="checkbox"/> Other:                             </td> </tr> </table>			<input type="checkbox"/> None <input type="checkbox"/> N/A <input type="checkbox"/> Backboard <input type="checkbox"/> Cervical Collar	<input type="checkbox"/> CID <input type="checkbox"/> CPR <input type="checkbox"/> Intubation <input type="checkbox"/> IV	<input type="checkbox"/> Medication <input type="checkbox"/> O2 <input type="checkbox"/> Splint <input type="checkbox"/> Other:
<input type="checkbox"/> None <input type="checkbox"/> N/A <input type="checkbox"/> Backboard <input type="checkbox"/> Cervical Collar	<input type="checkbox"/> CID <input type="checkbox"/> CPR <input type="checkbox"/> Intubation <input type="checkbox"/> IV	<input type="checkbox"/> Medication <input type="checkbox"/> O2 <input type="checkbox"/> Splint <input type="checkbox"/> Other:				
	Ambulance Company <input style="width: 150px;" type="text"/>					
	CXR Order <input type="radio"/> Chest PA & lateral <input type="radio"/> Chest single view portable					

Another limitation of the project is that there was no patient information observed after the handoff to see the potential impact of the information transfer. There have been indications that poor handoff report can lead to adverse events but this project did not follow the patient stay to note whether this occurred. There was no recording of patient acuity related to the handoff report and documentation. There was no method to determine whether the compliance with handoff and documentation of the handoff was impacted by the severity of the patient's condition at the time of transfer.

This project took place at an urban teaching facility with approximately 250 patient beds without the ability to care for Trauma patients in the Emergency Department. There is potential to gain insight into the handoff report in other hospital E.D. settings including larger, urban sites that accept Trauma patients due to the nature of that specific handoff report for the trauma patient. By utilizing other sites for study of the handoff report, there is exposure to other

ambulance services and pre-hospital personnel which could affect the results and outcomes of the study of handoff.

## **Interpretation/Conclusions**

Handoff reporting from pre-hospital to E.D. staff has the potential to impact patient safety due to the information that is transferred and its relation to the care that is provided. Effective and adequate communication of patient information has a known impact on patient safety, which can be improved through potential changes to the handoff reporting workflow and implementation of a standardized reporting tool. There should be future projects and studies directed at development of a standardized handoff reporting tool and electronic health record documentation that correlates/coincides with that tool. This project has demonstrated a lack of compliance with electronic documentation of the handoff report and limited information transfer during the report. The current handoff process and electronic documentation system should be analyzed for efficiency and effectiveness, which ultimately impacts patient care in the E.D. In regards to nursing practice, there are opportunities for improvements in education of nurses to the importance of handoff documentation and how it impacts patient care and safety. Further study is needed of the impacts of handoff on patient outcomes and any negative occurrences as a result of incomplete information transfer. There is also a need to study the impact of handoff reporting and its value and correlation to nursing practice.

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## Appendix A – Permission



Schmidt, Kristen A. [schmka2@UPMC.EDU]

Saturday, November 30, 2013 8:40 PM

To: [Kristen Schmidt](#)

**From:** Rick Iedema [mailto:ram.iedema@gmail.com]  
**Sent:** Friday, May 17, 2013 12:52 PM  
**To:** Schmidt, Kristen A.  
**Subject:** Re: Request

Dear Kristen,

I'm pleased you're interested in using the IMIST-AMBO protocol. There are no costs associated with using it, but I would like to hear how your study goes, if possible. Let me know if I can assist with anything you're wanting to do.

Regards!

Rick

On Fri, May 17, 2013 at 4:31 PM, Schmidt, Kristen A. <[schmka2@upmc.edu](mailto:schmka2@upmc.edu)> wrote:  
Dr. Iedema-

I am currently a Doctor of Nursing Practice student at Carlow University in Pittsburgh, PA in the United States. I will be conducting a study of the handoff/handover reporting in the Emergency Department at the University of Pittsburgh Medical Center St. Margaret Hospital in the coming months and wanted to request permission to utilize your evaluation tool/protocol "IMIST-AMBO" that was documented in the article "Design and trial of a new ambulance-to-emergence department handover protocol: 'IMIST-AMBO'". Please also let me know if there will be a fee attached to use your protocol as part of my study. Feel free to contact me, ask any questions regarding my study, or offer any insight into your findings/protocol as I feel that your study has much significance and relevance to me and my work. I appreciate your time and consideration.

Kristen

**Appendix B – UPMC Approval**

08/09

**UPMC Health System  
Quality Improvement Projects vs. Research Studies  
Quality Improvement Review Screening Tool**

**Date of Submission:** 08/21/13

**Title of Project:** Emergency Department Communication: Analysis of Prehospital  
251688960251689984Personnel-to-Nurse Handoff - Addendum

**Sponsor:** Kristen A. Schmidt, MSN, RN

**Department:** Nursing Education

**Co-Sponsors:** N/A

**Facility (UPMC entity):** UPMC St. Margaret

**Anticipated Start Date:** October 1, 2013

**Anticipated End Date:** November 1, 2013

**Estimated Duration of Entire Project:** 3 months

**Referred for QI review by IRB staff** YES X NO

**1. Goal(s) of project:**

The goal of this study is identify gaps that occur in the quality/type of information that is transferred during handoff report from pre-hospital personnel to the Emergency Department staff and to verify documentation of the handoff in the electronic medical record.

**2. Is there a commitment to implementing a corrective plan based on the outcomes of the project (check one)?**

25167564825   
1676672251677696N  
o Yes

**3. Is the project being funded by an external agency (check one)?**

251679744251680768251681792No Yes if yes, specify agency:

2516858882516869122516879364. **What is the primary intent of the project (answer one):** Publication or Quality   
**Improvement**

**What improvements do you hope to implement in the local environment?**

Standardization of both the handoff reporting format from pre-hospital personnel and the documentation by the Emergency Department staff

**5. If patient data is being collected, please indicate how data is going to be collected (check all that apply and Circle the Database being used):**

**Chart review through medical records (i.e., Horizon Patient Folder (HPF) and hardcopy records)**

Chart review through electronic medical records (*i.e.*, Powerchart™, MARS, Stentor™ OR Other – please specify database):

Data collection from the UPMC Network Cancer registry database. (If using other registry database - Please specify database):

251693056251694080251695104Patient  interviews/observations:

Please attach a sample data collection form.

All patient identifiable data collected and stored for this study needs to comply with UPMC Policy HS MR1000 regarding the privacy and security of clinical data.

6. Provide a brief summary (one page) or abstract of your proposed project and attach it to this page.

7. If the project involves a therapeutic intervention, is the intervention to be delivered in a blinded fashion? N/A No  Yes

8. Does the project involve “withdrawing” or holding back any needed and generally accepted treatments for the patients’ condition?

00224251701248No 2516992002517  Yes

9. Does the project involve prospective assignment of patients to different procedures or therapies based on predetermined plans such as randomization?

705344251706368No 251704320251  Yes

10. Is the project evaluating a drug, biologic or device which is not currently FDA approved (*i.e.*, off-label use)? 251709440251710464251711488  No Yes

11. Are patients involved in the project exposed to additional risks or burdens (ie. other than the completion of patient satisfaction surveys) beyond standard clinical practice?

251714560251715584251716608No  Yes

12. What outcomes are being evaluated?

This project is evaluating the effectiveness of the handoff reporting format currently in use by prehospital personnel.

13. Describe briefly why you think this is a QI project and not a research study:

*This study examines the type and quality of patient information provided to the Emergency Department staff without any type of intervention being implemented.*

-----

Handoff Communication in the Emergency Department

**For completion by QI Review Committee designee: This section is for committee use only.**

Date of Review: 9/30/13

Date Approved: 10/2/13

Approved as Quality Improvement Project - YES

Agree: X

Disagree:

Date to be presented to Total Quality Council: Copy to QI leadership

Prospective date for feedback to TQC on outcomes:

**Comments:** This is an addendum to a previously approved project(#0001454) on communications during patient hand off's in the ER from prehospital personnel. This includes an additional review of nursing documentation during hand off. This addendum to the project is approved with the assignment of a new Quality improvement number as indicated below.

QI Review Number:0001479  
Completed by:Dr.J.Jegasothy

***Projects reviewed and approved by the UPMC Quality Improvement subcommittee do not meet the federal definition of research according to 45 CFR 46.102(d) and do not require additional IRB oversight.***

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**Appendix C – Carlow IRB Approval**

**CARLOW UNIVERSITY**

**INSTITUTIONAL REVIEW BOARD**

To: Kristen A. Schmidt

Dr. Kathleen Brown

From: Robert A. Reed, Psy.D.

Co-chair, Institutional Review Board

Date: September 13, 2013

Re: Emergency Department Communication: Analysis of Pre-hospital Personnel-to-Nurse Handoff

The above project was reviewed and approved by the Co-chair of Carlow's Institutional Review Board. The project is approved for a period of up to one year.

APPROVAL WILL END BY: September 12, 2014

**If any untoward incidents or unanticipated adverse reactions should develop in the course of your research with human subjects, you must notify the Institutional Review Board Office at 578-6349 immediately.**

**Appendix D – Data Collection Tool**

IMIST-AMBO Protocol (indicate if present in handoff report)																							
Ambulance	Date	Day of the Week	SHIFT			I - Identification of the patient		M - Mechanism/medical complaint		L - Injuries/information relative to complaint		S - Signs, vitals, and GCS		T - Treatment and trends/response to treatment		A - Allergies		M - Medications		B - Background history		D - Other (social) information	
						Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
	MM/DD/YY	M-T-W-Th-F-Sa-Su	7a-3p	3p-11p	11p-7a																		
1																							
2																							
3																							