Improving Patient Handoff in the Emergency Department Microsystem

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Improving Patient Handoff in the Emergency Department Microsystem

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NURS 958: Clinical Nursing Leadership Capstone

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July 25th, 2024
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Abstract

Background: Gaps in communication in the patient handoff process have been directly linked to patient safety errors and unwanted patient outcomes. The reviewed literature highlights multiple factors impacting the handoff process and unanimously conclude that a standardized handoff process is necessary in maintaining a high standard of patient safety and a minimization of safety errors.

Methods: This intervention took place in an 86-bed, acute care facility, a level III trauma center macrosystem with implementation of this project taking place in the emergency department and medical/surgical microsystems. Utilizing the Plan, Do, Study, Act framework over a total of eight weeks, nurses on emergency department and medical/surgical units were surveyed about the current state of shift handoff communication and related errors, were educated on the new implementation of the I-PASS handoff tool, implemented I-PASS handoff tool for shift report handoff for four weeks, and chart audit data was collected to assess adherence to the I-PASS tool.

Intervention: The I-PASS model was adapted from the widely used SBAR model and was embedded into the existing EHR. Both the transferring and receiving nurses were required to complete their respective portions including adding their name and telephone extensions to provide a layer of accountability. The 5x5x5 framework was specified to escalate the issue in instances of unresponsiveness by the receiving nurse.

Results: The results of the project indicated only a 33 percent adherence rate by emergency department nurses and a 6 percent adherence rate by medical/surgical nurses. Chart audit data was used to further assess barriers to adherence and resistance to change.

Conclusion: The standardized I-PASS model for patient handoff is an effective tool to reduce communication errors in many patient care settings, however, further implementations are needed in this specific microsystem to evaluate sustainability, potential implications for practice, and overall impacts on interprofessional communication.

Keywords: Patient handoff, communication, standardized, I-PASS
Introduction

Problem Description

The process of patient handoff from the emergency department to the inpatient medical/surgical unit leaves gaps in communication of necessary patient information that the emergency department microsystem has noted and was seeking to improve. According to Pound (n.d.), a thorough and concise patient handoff should include patient demographics, brief history of present illness, relevant past medical history, pertinent lab results, imaging and working diagnoses. Anticipated patient disposition should be communicated, and the opportunity should be given for any clarifying questions to be asked and answered. There is debate surrounding whether verbal or written/electronic communication should be used, and in this setting, both are utilized. Also outlined by Pound (n.d.) is the fact that a typical shift is marked by long hours, frequent patient turnover and constant interruptions; all aspects that contribute to a potential discontinuity in patient care.

One aspect of patient handoff that was observed in the emergency department (ED) microsystem is the notable delay in care that occurs during the transition from emergency room care to inpatient medical/surgical care. In discussing with the nurses staffed in the ED, the standard for transitional patient care should be the ED nurse calling to give report to the receiving floor within five minutes of patient has receiving an inpatient bed assignment. As previously mentioned, the nature of the ED and the ever-changing environment does not lend well to always completing tasks in a timely manner. Because of this, a patient who has received a
bed may end up waiting *hours* before being transferred; experiencing an absence of attentive care during that period of time.

Considering the fact that these gaps in communication can lead to patient safety errors, the need for a standardized handoff protocol is evident. As Rosenthal et al., (2017) discuss, following a standardized handoff process has been shown to improve patient safety by bridging gaps in communication during transitions in care. A common reporting tool for patient handoff is the SBAR format. SBAR stands for situation, background, assessment, and recommendation (Starmer et al., 2012). The SBAR should be clear and concise, relaying all pertinent patient information without unnecessary details. If this format is not followed thoroughly (or at all), the room for error remains large at the expense of the patient. The combination of the hectic ED environment and a lack of follow through with thorough completion of an SBAR report contributes to the nearly 80% of serious medical errors that occur because of miscommunication during patient handoff. Up to 24% of ED malpractice cases can be directly attributed to faulty handoffs (Pound, n.d.). In cases where complex patient information needs to be communicated, the SBAR format displays limitations in its simplicity (Starmer et al., 2012).

The introduction of the standardized illness severity, patient summary, action list, situation awareness and contingency planning, synthesis by receiver (I-PASS) tool for patient handoff has been adapted from the previously used SBAR model and utilized in various medical settings. The ‘illness severity’ portion allows for an immediate picture of the patient’s stability so that the receiving nurse can be properly prepared. The ‘patient summary’ overviews the events that led to admission, the course of action since admission, an ongoing assessment and a plan. The presentation of a larger picture assists with exploring all possible factors, comorbidities, and approaches to treatment. The ‘action list’ informs the receiving nurse of what tasks need to be
done next as well as a list of the tasks that have already been done and by whom. This ensures that ownership has been taken for patient care steps and reduces confusion in determining when each action has been done. The ‘situation awareness and contingency planning’ allows the receiving nurse to understand and prepare for potential situations that could arise. The ‘synthesis by receiver’ allows the receiving nurse to read back the information that was presented, ask questions, and ensure understanding of tasks that must be performed (Starmer et al., 2012). This tool allows for gaps in communication to be addressed before the transition in patient care.

**Available Knowledge**

**Search Methods**

The purpose of this literature review was to examine recent research and best practices related to the patient handoff process. Databases utilized were the following: Cumulative Index of Nursing and Allied Health Literature (CINAHL), PUBMED and MEDLINE databases that were accessed through the University of New Hampshire’s library database search site. The included articles reported the results from systematic reviews and meta-analyses. Boolean phrases and keywords included “patient handoff AND emergency department”, “patient handoff tool”, “standardized patient handoff”, “SBAR patient handoff”, “I-PASS standardized patient handoff” and “patient handoff AND systematic review or meta analysis”. Included studies showed variation in methods as they reflected both qualitative and quantitative or mixed methods. Exclusion criteria were articles not in English, not specified publication type, no access to full article, not within the indicated date range, and not in an emergency room environment. An initial search located over 4,000 records. After limits for date, full text availability and appropriate source type, this reduced the pertinent articles to 37. These 37 articles were screened by title and abstract which excluded another 15 articles due to sources that were not peer-
reviewed and not within the US. The final 6 studies included in the qualitative synthesis were systematic reviews that met search criteria.

**Critical Appraisal of Evidence**

**Factors Impacting Patient Handoff.** In any healthcare setting, there are several factors that impact the efficiency and safety of the patient handoff process. As Raeisi et al. (2019) discuss in their Joanna Briggs Institute (JBI) level 1 systematic review, the challenges of patient handoff can be noted in differences in communication, poor quality communication, lack of coordination between oncoming and outgoing shifts, poor management and time management issues. When referring to communication, Raeisi et al. (2019) not only emphasize the importance of technical communication but the interpersonal behaviors that are observed between coworkers to ensure that the interaction is efficient and thorough. It was found that during the patient handoff process, there is often information that is written down but failed to be communicated to the oncoming nurse. Similarly, information that is transmitted without also being documented or recorded poses an issue. Separate from the issues of interpersonal communication lies the fact that electronic communication tools exist with barriers that do not necessarily allow for comprehensiveness of information or the standardization of data. Limitations of this study are that the synthesized evidence is provided from lower levels of evidence therefore it may be difficult to hold these results as true without further research. Implications for interpreting and applying these results to future studies suggest improvements in the standardization process and the professional-patient interactions require adjustments to yield safer and more efficient patient handoff.

Similarly, Rosenthal et al., (2017) share many concerns as outlined in their JBI level 1 systematic review. This review explored the issues that present during transitions of care in acute
care medical settings. Notably, a lack of standardized handoff protocol allows for missed information which directly affects the frequency of delays in treatment, inappropriate treatment, and increased length of stay. Failures to communicate necessary patient health information during the transition process results in about 80% of serious medical errors; many of which could be prevented by implementing a standardized approach.

Ehlers et al. (2021) present a prospective observational multi-site study scoring a level 3 on the JBI levels of evidence. This study highlights the fact that since patient handoff always involves at least two distinct groups of professionals, there will always be differences that exist between patient care approaches, communication styles, and professional expectations. Especially in the emergency setting, there appears to be an inverse relationship between the rate of adverse events and the quality of patient handoff. As the quality of handoff declines, the rate of adverse events increases and as adverse events increase, the quality of patient handoff declines. These declines in handoff can be attributed to lack of structure and communication and inadequate or incorrect information being relayed. Between the years of 1995-2006, inadequate communication was responsible for many malpractice claims reported to the Joint Commission (Ehlers et al., 2021). In 2016, communication errors were responsible for 1,744 deaths in the US (Ehlers et al., 2021). To avoid such staggering numbers, treatment errors and avoidable adverse events must be explored and intervened upon. Existing limitations of this study are low design quality and a lack of a fully developed intervention. Implications for practice suggest that a continuation of improvement regarding the patient handoff process could result in improved patient safety.

Different professional perspectives and approaches in patient care can be especially noted in the handoff that occurs between emergency medical services (EMS) and the receiving staff in
the emergency department (ED). Within this initial transition in care, the patient information is relayed from EMS staff to triage nurse to bedside nurse. All professionals involved operate with the understanding that timely transfers can translate to expedient admissions. This emphasis on timeliness may translate to a potential loss of information which ultimately impact patient safety, patient flow, and efficient use of ED resources. Reay et al. (2017) conduct a JBI level 1 systematic review which notes that the safe transfer of care requires the accurate communication of pertinent patient information between these team members. Factors inhibiting sufficient communication are multiple interruptions, multitasking, increased workload and suboptimal interpersonal relationships (Reay et al., 2017). Also noted in patient handoff interactions is a general mistrust of professional expertise and clinical skill between various professionals. This undoubtedly causes gaps in treatment and an inefficient use of time and resources (Reay et al., 2017). Limitations of this study can be noted in heterogeneity in the literature which may affect reliability. Implications for nursing practice can be noted by the suggestion that standardization of the patient handoff approach would result in a higher responsiveness to patient needs and a clearer expectation of interprofessional communication.

Discussing shared points highlighted in the previously discussed article, Tortosa-Alted et al. (2021) present a JBI level 1 systematic review that identifies several aspects of patient handoff that leave room for error. One key point was the professional behavior noted between staff members and in general toward patient care. Many professionals exhibit task-oriented behavior which takes away from the attention paid to patient needs. Such behavior takes away from patient greeting, active listening, inclusion of team members and collaborative efforts; all aspects that impact patient outcomes. Tortosa-Alted et al. (2021) also highlight the reality that the standard of bedside report is not typically followed which has been proven to have impacts
on patient safety, care quality and nurse care continuity. The limitations of this study include that there is not much literature that addresses the handoff that occurs between EMS and hospital organizations.

**Proposed Intervention Strategies.** In a JBI level 3 mixed-methods needs assessment, Heilman et al. (2016) discuss the benefits of the introduction of the “I-PASS” electronic handoff tool. The mnemonic I-PASS signifies illness severity, patient summary, action list, synthesis by receiver, summary by receiver (after all patients are presented). This review was the first to examine whether the I-PASS could be modified to fit the needs of an ED setting. With the I-PASS system in place, the focus group participants noted that the patient summary should include anticipated patient disposition so that the receiving staff are well-prepared to provide necessary care (Heilman et al., 2016). The existing limitations of this study are that this study was carried out at only one healthcare center which limits generalizability. More studies evaluating the modification and use of the I-PASS in the emergency setting are needed in order to adopt this patient handoff tool in more widespread settings. Implications for nursing practice will be applicable to informing future emergency medical settings about the feasibility of a standardized electronic tool such as I-PASS.

As Shahian (2021) discusses in his JBI level 1 stepped-wedge cluster randomized trial (SW-CRT), the implementation of I-PASS introduces two new elements to the handoff process. The modification of previous handoff tools to include situational awareness/contingency planning and receiver synthesis was necessary to ensure that the receiving nurse is adequately prepared for anticipated complications and that closed-loop communication is being utilized. With these improvements, the hope was to achieve accurate comprehension while allowing an opportunity for questions and discussion between transferring and receiving nurses (Shahian,
2021). Upon implementation of I-PASS in a reviewed study, it was found that this tool resulted in a 23% decrease in medical errors between pre and post intervention, and a 30% decrease in preventable adverse events (Shahian, 2021). While I-PASS was a relatively new tool in the medical setting, the evidence of its necessity was heavily emphasized throughout this article. The existing limitation of this study is that it evaluated I-PASS in only one setting, limiting its generalizability. Implications for future nursing practice exist in the positive improvements in patient safety that have been noted with this tool; hopefully influencing I-PASS to become commonplace in a variety of medical settings.

In a JBI level 2 quasi-experimental study, Gonzalez et al. (2018) propose a modified I-PASS handoff tool that is more well-adapted for the emergency setting. This modification was referred to as “DE-PASS”: Decisive problem requiring admission, Evaluation time during which the ED physician determines urgent or emergent status, Patient summary, Acute issues/action list, Situation unfinished or awareness, Signed out to (Gonzalez et al., 2018). This tool was then added to the electronic medical record to keep track of compliance and create standardization. The DE-PASS format was designed to specifically address new admissions and assists with patients who should be directly admitted to the ICU instead of waiting to be fully evaluated before inpatient transfer (Gonzalez et al., 2018). Limitations of this study are that it was only carried out at one facility where specific patient and provider needs and requirements may be unique, therefore impacting the generalizability of the findings. The survey data analyzed was inadequate when compared to the number of staff members reportedly on the shifts that were surveyed. The relationship between providers in terms of reporting was not determined so uncertainty exists surrounding the quality of information relayed. Implications for future studies and nursing practice will allow for a more focused review of the patient handoff process that
exists in an emergency setting and how to personalize the process for both patients and professionals.

Smith et al. (2018) present a JBI level 2 mixed-methods pre-post study to address the fact that standardized handoff tools have not been widely used and assessed for the admission process that would occur in an emergency setting. The situation, background, assessment, and recommendation (SBAR) mnemonic has been the most widely utilized handoff tool in healthcare settings (Smith, 2018). It was proposed that the current SBAR format be modified to situation, background, assessment, responsibilities and risks, discussion and disposition, read-back and record (SBAR-DR) in order to improve patient handoff in the emergency setting (Smith et al., 2018). The limitations of this study exist in the fact that this implementation was carried out in only one setting so the results may not be generalizable to other settings. The scoring system that was used for results was strict in the definitions used for communication which may have led to biased or inconclusive results. Implications for future studies and nursing practice suggest that a standardized handoff tool can yield improvements in the quality of interprofessional communication resulting in a more thorough patient handoff process.

**Evidence Synthesis**

The reviewed articles provide insight into the issues surrounding patient handoff in the emergency department setting. The conclusion drawn from the reviewed literature supports the necessity of improved standardization tools for patient handoff to improve efficiency and patient safety. Several common themes can be noted such as lack of communication, differing communication styles, chaotic and distracting environments, strained interprofessional relationships, task-oriented behaviors, failure to report or document certain aspects of the patient summary, and barriers within electronic communication systems (Raeisi et al., 2019). Much of
the reviewed literature were studies conducted in the emergency medicine setting, so it was clear that improvements are necessary especially in this setting.

The evidence presented supports the stated thesis as all conclusions show validity regarding the need for improved standardized patient handoff tools in the emergency setting. All literature states the various (many overlapping) issues existing in the setting that have the potential to impact patient safety outcomes. Although most reviewed articles displayed limitations regarding studies being carried out at one single facility, the amount of evidence provided conveys a need for improvements since patient safety can be compromised by any of the outlined factors. All reviews focus on implementing or improving a standardized electronic communication tool that would allow for more seamless transitions while also maintaining an adequate amount of thoroughness.

Rationale

The plan, do, study, act (PDSA) model was utilized for this QI project. The ‘plan’ phase of the QI project took place during spring semester by conducting a 5 P assessment and identifying a problem and developing a problem statement. During this ‘plan’ phase, nurses, unit coordinators, and transport teams were consulted to assess the current handoff process. After this proposal was reviewed by the UNH Department of Nursing Quality Review Committee for IRB exempt status, the ‘do’ phase was executed June of 2024. This phase included a pre-intervention Likert scale survey before implementing the planned intervention to reduce the time from admission orders to transfer to the inpatient unit. The ‘study’ phase of the cycle was then conducted by utilizing a post-intervention survey regarding elapsed time for patient handoff to note where there may have been improvements or setbacks. In the ‘act’ phase of this cycle, the
findings of utilizing an improved standardized patient handoff tool were disseminated to key stakeholders.

**Global Aim**

The global aim of this QI project was to improve the patient handoff process that exists between the ED and inpatient medical/surgical floors. The process began with the patient being admitted to an inpatient unit and the process ended with the patient being physically transferred to the inpatient unit to which they have been admitted.

**Specific Aim**

The specific aim for this quality improvement project was to implement a standardized patient handoff tool (I-PASS) with the purpose of improving patient safety outcomes. The expected outcome was nurse adherence to the I-PASS tool and was measurable through post-intervention surveys. The pre-intervention survey was conducted before the implementation date of May 15, 2024. The aim was to have 100% nurse utilization of the I-PASS tool as assessed through the post-intervention survey that was conducted by July 15th, 2024.

**Methods**

**Context**

This quality improvement (QI) project was conducted at an 86-bed acute care facility; one of three macrosystems within a metasystem in New Hampshire. This facility is a level III trauma center and provides comprehensive and personalized emergency and inpatient medical care. This macrosystem is partnered with two other macrosystems which allows for more specialized medical treatment by skilled physicians, PAs and NPs utilizing innovative approaches and advanced technology.
Patients from surrounding areas typically seek emergency care at this facility due to the well-advertised low wait times compared to other hospitals in the area. Patients expect to receive prompt care clarity on the symptoms that they present with. The emergency department in this facility is a 19-bed main department with a 6-bed fast track area. If patients require a higher level of care and monitoring, they are transferred to the inpatient medical/surgical unit. About a third of patients admitted to the ED require this care and patient handoff is an important process, however these units continue to experience inefficiency and safety risks associated with a lack of standardized process regarding patient handoff (Hartley, 2024).

Cost Benefit Analysis

Since this quality improvement (QI) project is a modification to the current process, no cost-benefit analysis was identified by the QI team. Direct costs were time spent by the project lead, the nurse leaders, and the members of the QI team at this facility. The time allotted to this project is used for project planning, modifications to the proposal based on unit feedback, allocation of resources, staff education, and project implementation. Potential indirect costs for this quality improvement implementation would be printed education materials for staff and any necessary staff training. Potential operational costs of failing to implement this intervention would include delays in patient care, poor patient satisfaction reports, decreased interprofessional communication, all resulting in avoidable patient safety errors. Between the years of 1995-2006, inadequate communication was responsible for many malpractice claims reported to the Joint Commission and in 2016, communication errors were responsible for 1,744 deaths and 1.7 billion dollars in costs in the US (Ehlers et al., 2021). Whereas the potential operational costs could be staggering, implementing this patient handoff tool would likely prove to be beneficial for this facility.
Intervention

The proposed intervention for this QI project involved the implementation of the I-PASS handoff tool to decrease medical errors and preventable patient harm (Appendix A). This mnemonic stands for illness severity, patient information, action list, situational awareness and contingency plans, and synthesis by the receiver (I-PASS) (Blazin et al., 2020). This method stems from the traditionally adopted situation, background, assessment, and recommendation (SBAR) framework. This tool was embedded into the existing Expanse documentation system or electronic health record (EHR). The transferring ED nurse entered their name and telephone number with extension into the notes section of the patient record. This nurse then assigned the handoff tool to the receiving nurse on the medical/surgical unit. The transferring nurse called the receiving nurse and patient details were reviewed. The receiving nurse then added their name and telephone number with extension into the tool to verify that the information had been received.

The timeframe of the handoff process was specified by using a 5x5x5 framework. This approach assumes that the ED nurse should be calling the medical/surgical nurse within 5 minutes of the patient being assigned to the room. If there is no response by 10 minutes, this process is escalated to the charge nurse. If no response is received by 15 minutes, the ED nurse is then instructed to notify the supervisor. The education surrounding I-PASS implementation was provided to the nurses in the emergency department and the medical/surgical unit since patient handoff most frequently occurs between these units. Nurses that are temporarily reassigned to various units required education as well. The ICU follows a separate process for patient handoff so that unit was excluded from this education.

Study of the Intervention
To evaluate the effectiveness of the I-PASS implementation, weekly audits were conducted by the QI team lead; a Certified Professional in Health Care Risk Management (CPHRM) and Certified Professional in Patient Safety (CPPS). These audits assessed adherence to the I-PASS tool requirements during the patient handoff process. More specifically, these audits sought to ensure that the transferring and receiving nurses were confirming that the necessary patient information had been exchanged. A pre-post Likert Scale survey was conducted to gauge nurses’ readiness and necessity for change prior to the implementation of I-PASS. A post-intervention survey was conducted to assess adherence to and proper utilization of the newly implemented I-PASS tool.

**Measures**

The independent variable in this QI project was the implementation of the I-PASS handoff tool which was nominally defined as an intervention implemented by nursing staff for the purpose of decreasing patient safety errors. The dependent variable in this QI project was perceived patient safety and will be nominally defined as the prevention of harm to the patient. Operationally, this was defined by survey using Likert-style items regarding perceived patient safety. The survey was composed of 10 questions and presented as follows: “I feel that the current SBAR tool adequately addresses pertinent patient information for patient handoff, I feel that information is misses when using the SBAR for patient handoff, I feel that the current patient handoff process is efficient, I feel that staff communication between units is clear and concise, I feel that patients wait too long to be transferred once they receive a bed assignment, I feel that patient safety errors occur during the handoff process, I feel that the SBAR model allows for differences in communication style, I feel that staff would benefit from an electronic component of the handoff process, I feel that patient safety errors could improve by
incorporating an electronic handoff tool, I am willing to try an updated standardized handoff tool in order to improve staff and patient perceptions of patient safety. The Likert Scale will range from 1-5 with 1 corresponding to ‘strongly disagree’, 2 corresponding to ‘disagree’, 3 corresponding to ‘neutral’, 4 corresponding to ‘agree’ and 5 corresponding to ‘strongly agree’ (Losby & Wetmore, 2012). Reliability was dependent on adherence to the implementation of the I-PASS tool and was measured by Cronbach’s Alpha while validity was addressed through the completion of Likert Scale reports by nurses.

Analysis

A quantitative analysis of the pre and post-intervention Likert Scale responses was conducted using by reporting the mean, standard deviation, and range of all Likert-style items and comparing aggregate means of the pre-intervention survey with the post-intervention survey. Cronbach’s Alpha was utilized to determine internal reliability. This analysis occurred from June 2024-July 31, 2024 to determine if weekly reports showed effective implementation of the I-PASS handoff tool and a subsequent decrease in patient safety errors.

Ethical Considerations

This quality improvement proposal was submitted to the University of New Hampshire Department of Nursing Quality Committee to ensure eligibility criteria was met and it was exempt from full institutional review board (IRB) review before implementation. All information collected remained anonymous and confidential to protect patient rights. Since no patient identifiers were needed for data collection, no consent forms were required to be distributed to the patient population.
Results

Initial Steps of Intervention and Evolution

The initial intention of this intervention was to gauge nurse’s perception of patient safety and assess the elements that leave room for error during patient handoff. This was intended to be completed before the implementation of the standardized I-PASS handoff tool. The design included a pre-post survey where readiness for change would be assessed before I-PASS implementation, and factors surrounding adherence to the program would be explored in the post-survey. The I-PASS tool was scheduled to go live on May 15th, 2024, so a pre-survey was distributed to staff nurses in the emergency department and medical/surgical unit prior to that date. The post-survey was intended to be developed and dispersed by June 15th, 2024; one month after the new program had been implemented. The initial PDSA cycle can be visualized in Figure 1 while the revised PDSA cycle can be found in Figure 2.

Figure 1

PDSA Cycle #1 for I-PASS Implementation
The pre-intervention Likert scale survey sustained edits and was approved to be re-distributed on June 11th, 2024. The pre-survey consisted of 10 questions that aimed to assess current feelings and perceptions related to the existing patient handoff process (Appendix B). A lack of nurse engagement in the pre-intervention survey required a shift in project measures, as the handoff tool had already been live, and a post-intervention survey would be necessary to assess feedback. It was determined that the project lead would utilize data gathered from the weekly chart audits to determine how many handoffs were occurring and how many of those handoffs were using the I-PASS tool.

After completing weekly chart audits, it was determined that within the timeframe of May 15th, 2024 and July 2nd, 2024 the percent of I-PASS completion by ED nurses had only increased to 33 percent. The QI team had developed three measures of completion for this tool:
opening the tool in the EHR, the transferring ED nurse signing off with their name and phone number and the receiving medical/surgical nurse signing off with their name and phone number. The percentage measured reflects how much of the handoff tool was completed by the nurse at time of handoff. The number of admits and subsequent I-PASS handoff completions can be visualized in Table 1.

**Table 1**

*Number of Admissions and Completed ED-Med/Surg I-PASS Handoffs*

<table>
<thead>
<tr>
<th>Week</th>
<th>Admits</th>
<th>ED Handoff</th>
<th>Percentage Done</th>
<th>Med-Surg Handoff</th>
<th>Percentage Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/15-5/18</td>
<td>21</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>5/19-5/26</td>
<td>23</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>5/27-6/1</td>
<td>29</td>
<td>1</td>
<td>3%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>6/2-6/8</td>
<td>24</td>
<td>2</td>
<td>8%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>6/9-6/15</td>
<td>16</td>
<td>1</td>
<td>6%</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>6/16-6/22</td>
<td>32</td>
<td>3</td>
<td>9%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>6/23-6/29</td>
<td>32</td>
<td>9</td>
<td>28%</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>6/30-7/6</td>
<td>6</td>
<td>2</td>
<td>33%</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Process Measures and Contextual Elements**

There were only five respondents for the pre-intervention survey, leaving a large amount of nurse input to be desired. The lack of participation in the pre-survey required the measures to be adjusted to include a more accurate depiction of I-PASS adherence. Through a more complete audit of the I-PASS tool, higher accuracy was established and more easily translated into usable data. The weekly audits that were conducted by the patient safety and quality management leader
were accessible on-site by the project lead. This data depicted a much clearer representation of the amount of patient handoffs that took place from the ED to the medical/surgical unit. The number of handoffs was then compared to the number of times the I-PASS tool was completed.

Contextual elements that impacted completion of pre-intervention surveys are an understanding of I-PASS, time management, email accessibility (only on-site), and misrepresentation of the importance of nurse input. Per nurse reports, contextual barriers to adherence of the I-PASS tool were lack of knowledge that I-PASS was being implemented, lack of willingness to change, failure of one party to complete their required portion, patient care ratios not allowing for time to be put into completing the tool, and uncertainty surrounding which staff member would be the receiving nurse due to lack of completion of nurse assignments. Both the ED and medical/surgical units reported that fluctuations in saturation levels, and patient load and acuity all impact the ability to adhere to the I-PASS tool during handoff.

**Associations and Unintended Consequences**

Feedback from nurse directors on both the ED and medical/surgical units concluded that further education was necessary to ensure that all nurses were first, aware of the implementation of I-PASS, and second, understood how to access and complete the tool. Nurse assumption of whether the tool would be completed by the transferring or receiving party proved to impact the motivation behind utilization. Consequences were notable in the data audits and subsequent report that is required to be presented to the Clinical Safety Improvement Program (CSIP) and lack of ability to assess if the intended outcomes of improved patient safety outcomes were able to be achieved.

**Missing Data**
As the implementation of this program was just over a month active at the time of the first data collection, there were some barriers that have prevented 100% adherence to the utilization of I-PASS. The completion of patient handoff is still possible by using the previous SBAR method, therefore it was noted that nurses were opting to use the familiar method rather than the newly implemented I-PASS tool. This resulted in a misrepresentation of the number of handoffs that can be audited with the I-PASS tracking system that was developed.

**Discussion**

**Summary**

**Key Findings**

This project’s implementation shed light on various issues that exist in the handoff process from the ED to the medical/surgical units. Nurses did not exhibit enthusiasm about utilizing the I-PASS tool during handoff, so it was difficult to gauge how their perceptions of patient safety have been impacted by the I-PASS implementation. Since adherence to I-PASS became a primary concern when evaluating the effectiveness of this intervention, it is worth noting the existing barriers to success. The feedback provided via nurse report reflected the need for more education surrounding the importance of accurately utilizing the I-PASS handoff tool.

**Relevance to Rationale**

The initial PDSA cycle of this intervention was useful in determining the ways in which the nurses best communicate and share ideas. The planning phase of this intervention involved gaining a better understanding of the elements that impact patient handoff, nurse perception of current patient handoff and safety issues and assessing readiness for change prior to implementing a new handoff tool. The next phase of this cycle involved collecting surveys from nursing staff that aimed to measure satisfaction with the post-intervention handoff tool. The
study phase of this cycle involved conducting post-intervention surveys to assess the transition to I-PASS and note room for improvements. This phase of the cycle failed to be executed due to lack of completion of pre-intervention surveys and the need to revise measures.

The second PDSA cycle focused on utilizing data from weekly audits to first determine the frequency of I-PASS access and completion level from ED and med/surg nurses. The next phase focused on determining barriers to using the I-PASS tool to then be able to revise the current tool to increase adherence.

Relevance to Specific Aim

The results of this project did not support the global or specific aims, as nonadherence to I-PASS became the primary concern. The global aim of improving the patient handoff process between the ED and medical/surgical units could not be addressed due to lack of adherence to the I-PASS tool. The specific aim of 100% nurse utilization of I-PASS was not met also due to lack of adherence. By the end of PDSA cycle #2, there was a 33% completion rate from ED nurses while med/surg nurses achieved a 6% completion rate earlier in the month (Table 1). Due to a lower performance rate than expected improvements in patient safety were difficult to assess. Although the process measures were revised to better measure the implementation goal, the results did not yield success of this intervention.

Project Strengths

This project shed light on several issues that existed surrounding the current patient handoff process in the emergency room microsystem. The structure of the I-PASS tool allows for improved communication, more opportunity for questions to be answered, a more accurate understanding of patient needs, and accountability for completing necessary patient tasks in a timely manner. While this implementation did not yield the expected results, there is much room
for revisions and improvements. The I-PASS model has been shown throughout literature to positively impact patient safety outcomes. Some facilities that utilize I-PASS use a paper form which then must be received by the unit director. This process has proven to be beneficial in sister facilities.

**Interpretation of Findings**

*Associations Between Intervention and Outcomes*

The data collected from this intervention did not yield the results that were intended. Upon working with the QI team to assess potential barriers to success of the intervention, it was concluded that more thorough education needed to be provided to nursing staff surrounding the purpose and importance of the I-PASS tool. Once the measures were revised to include weekly audit data rather than survey data, it became apparent that the focus of the intervention needed to be on barriers to utilization of the tool rather than the larger goal of specific patient safety concerns.

*Comparison of Results*

Compared with the reviewed literature, this intervention did not prove to have as much nurse participation in pre-intervention surveys, so assessing readiness for change was nearly impossible, and the priority measure became simply adhering to the new protocol. With the low amount of engagement with the I-PASS tool, it was difficult to determine potential barriers to success of the I-PASS implementation. It is worth noting that the emergency department was yielding higher rates of completion of the handoff tool, while the medical/surgical unit was experiencing more barriers to success.

*Impact of the Project on People and Systems*
The impact of this project has the potential to benefit nurses, managers, administration, patients and families. If the I-PASS tool continues to be implemented in hospitals and other healthcare agencies, it is likely that there would be notable improvements with regards to patient safety concerns and errors in the patient handoff process. The anticipated outcomes included greater adherence to the I-PASS tool, improved communication, a more thorough clinical picture of the patient, and ultimately improved patient safety.

**Reasons for Differences Between Observed and Anticipated Outcomes**

Overall, the observed outcomes of this intervention did not reflect anticipated outcomes of a 100% adherence rate to the new I-PASS handoff tool. Per staff reports, differences in outcomes were able to be attributed to lack of education surrounding how to access and utilize the tool, lack of willingness to change, assumption that the new tool would take up too much time, unclear expectations, and lack of incentive.

**Costs and Strategic Trade-offs**

The costs of this project included time from the project lead, the QI team, nurses, nurse managers and other administrative staff, utilization of resources to add the handoff tool to the existing EHR, to create a presentation on I-PASS, and to educate the staff appropriately. Since this implementation required revisions, it will take more time to implement a second time, resulting in more of these costs.

**Limitations**

**Limitations to the Generalizability**

The existing limitations to the generalizability of this project were time, staff participation in the pre-intervention surveys, and the need for altering the measures which delayed the PDSA cycle and required a new PDSA cycle. Had more time been allotted for this project, more pre-intervention surveys may have been completed which would have allowed for
a more thorough assessment of nurse readiness to change. Due to the very limited sample size and lack of intended results, this implementation is not able to be applied to other settings.

Factors Impacting Validity

The factors impacting the validity of this project were the lack of appropriate measures and the need for revisions to original measures, the accuracy of the data collected, and lack of control for variables that affected data collection. Controlling for bias was difficult, as the staff verbalized strong opinions regarding utilizing a new handoff tool, so willingness to participate and yield accurate outcomes may have been impacted. Confounding variables such as work environment, patient load, and patient acuity may have also impacted the collected data.

Attempts to Minimize Limitations

Attempts to minimize limitations can be noted in efforts to collect data by conducting nurse interviews prior to the implementation of I-PASS. Due to timing issues and constraints, these efforts were minimized and lacked follow through. This author attempted to seek feedback from various sources but was met with a lack of engagement which affected data collection.

Conclusion

Usefulness of the Work

The completion of this project helped to bring awareness to the issues that exist with the patient handoff process; namely from the emergency department microsystem to inpatient medical/surgical units. The widely utilized SBAR process that has been used prior to I-PASS implementation left room for error due to a lack of concise communication, confirmation of received information, and a more comprehensive overview of patient acuity and needs. The I-PASS tool intended to allow for more accountability on the nurses end to ensure that all aspects of patient care were being addressed in a timely manner. The requirement of nurses to sign off on
the transferring and receiving end was designed to ensure that information was comprehended using the read-back method, leaving less room for missing pertinent patient information.

Sustainability

Though the results of this implementation did not align with the project aims, the I-PASS process will continue to be revised and implemented in more accessible ways for nursing staff. The existing quality improvement team is becoming more consistent with performing weekly audits to determine which aspects of the tool are being met with barriers or resistance. The implementation of I-PASS was overseen by the Clinical Safety Improvement Program (CSIP), so the encouragement of revisions and further implementation will be present to achieve intended outcomes.

Potential for Spread to Other Contexts

The implementation of the I-PASS handoff tool in this microsystem was not unique to this setting. The microsystem’s sister facility was also implementing this tool at the same time. The I-PASS model was introduced in 2010 and has been utilized in healthcare facilities since. This tool can be applicable to any setting in which patient care occurs. The developed PDSA cycles can be edited as needed to accommodate future versions of this implementation.

Implications for Practice and Further Study

The process of patient handoff is one that exists in virtually all patient care settings. Though numerous sources of literature have highlighted substantial improvements from utilizing the I-PASS handoff tool, this microsystem would benefit from revising the education provided surrounding the importance of improved handoff communication. A more comprehensive analysis should be conducted to assess nurse readiness for change, sources of resistance and
barriers to successful implementation, and increased follow through from management to encourage adherence to the I-PASS tool.

**Suggested Next Steps**

It is recommended that the application of the I-PASS handoff tool be tailored more specifically to the needs of the emergency department and medical/surgical microsystems. The accessibility of the tool should be more prominent in the EHR, and the tool should be required to be completed before the patient’s chart can reflect a successful transfer of care. It may be beneficial for nurses to be included in the quality improvement meetings to discuss the barriers to adherence as inclusion in the process may increase willingness to participate.
Reference


https://doi.org/10.1097/pq9.0000000000000323


https://www.southampton.ac.uk/passs/full_time_education/bivariate_analysis/chi_square.page#:~:text=A%20chi%2Dsquare%20test%20is,the%20variables%20you%20are%20studying.


https://doi.org/10.5811/westjem.2020.9.47836


https://doi.org/10.1177/1062860618776096


Appendix

Appendix A: ED to Med-Surg Handoff - IPASS

I-PASS: ED to Inpatient

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<th>Hand-off Domain</th>
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Appendix B: Pre-Intervention Survey

ED Handoff Patient Safety

Start of Block: Default Question Block

Q1 I feel that the current patient handoff process is efficient

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

Q2 I feel that the current SBAR tool adequately addresses pertinent patient information for patient handoff

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

Q3 I feel that information is missed when using the SBAR for patient handoff

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)
Q4 I feel that the SBAR model allows for differences in communication styles

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

Q5 I feel that staff communication between units is clear and concise

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

Q6 I feel that patients wait too long to be transferred once they receive a bed assignment

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)
Q7 I feel that patient safety errors occur during the handoff process

  o Strongly disagree (1)
  o Somewhat disagree (2)
  o Neither agree nor disagree (3)
  o Somewhat agree (4)
  o Strongly agree (5)

Q8 I feel that staff would benefit from an electronic component of the handoff process

  o Strongly disagree (1)
  o Somewhat disagree (2)
  o Neither agree nor disagree (3)
  o Somewhat agree (4)
  o Strongly agree (5)

Q9 I feel that patient safety errors could improve by incorporating an electronic handoff tool

  o Strongly disagree (1)
  o Somewhat disagree (2)
  o Neither agree nor disagree (3)
  o Somewhat agree (4)
  o Strongly agree (5)
Q10 I am willing to try an updated standardized handoff tool in order to improve staff and patient perceptions of patient safety

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

End of Block: Default Question Block