IMPLEMENTING A STANDARDIZED NURSING HANDOFF BETWEEN THE
EMERGENCY DEPARTMENT AND INPATIENT DEPARTMENTS

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Abstract

Background

It is estimated that 80% of serious medical errors have a component of miscommunication between caregivers when a patient is being transferred. Ineffective handoffs can lead to delays in, or inappropriate treatments, and increased length of stay. Approximately half of hospital staff indicate information related to the patient is lost during handoffs. For a handoff to be successful, the following is needed: (1) standardized content, forms, tools, and methods; (2) the opportunity to ask questions; (3) staff accountability and monitoring; and (4) education and coaching. Additionally, the electronic health record should be used to enhance handoffs between senders and receivers.

Local Problem

The purpose of this quality improvement project was to implement and evaluate evidence-based patient-centered handoff from the emergency department to inpatient medicine departments within an urban, academic medical facility based in Maryland. Prior to this project, there was not a handoff report which contained all of the critical elements, an easy way for the inpatient nurse to contact the emergency department nurse with questions, and/or the ability to document that handoff was complete.

Interventions

Lewin's change theory was used as the framework. The interventions were: (1) create a new report in the electronic health record, which contained all elements noted to be critical content by The Joint Commission, and (2) add a field to the electronic health record which the inpatient nurse completed after the report has been reviewed. The inpatient nurse was able to document 'Chart reviewed, no questions', 'Chart reviewed, questions answered', or 'Other' with the ability to add a comment.

Results

There was a reduction of handoff related patient safety events from four pre-implementation to two post-implementation. Though the theme of all of the events was communication, there was a difference in miscommunication versus lack of communication. The percentage of compliance with the new process was 48.6%. Not all of the responses to the pre-implementation and post-implementation survey questions are statistically significant; however, there was a statistically significant difference in 'I am satisfied with the process for emergency department to inpatient handoff' on both the inpatient (pre-data (M=2.3, SD=1.1) and post-data (M=3.3, SD=1.3); t=-2.8, p=0.006) and emergency department (pre-data (M=3.3; SD=1) and post-data (M=4.4, SD=0.7); t=-3.9; p=0.0003) surveys. Nurse satisfaction with the handoff process has increased.

Conclusions

The project decreased patient safety events, and increased overall nurse satisfaction related to handoff from the emergency department to inpatient medicine units. As all transfers from the emergency department to non-intensive care inpatient areas followed the same process pre-implementation, expanding the use of the new process into those areas is recommended. The emergency department to intensive care unit process is currently a verbal handoff with no specific format. In the future, it will be guided by the new electronic health record report. There are opportunities to implement an improved handoff process in other areas of the medical center. Patients are transferred between units, procedural areas, and from one clinician to another

frequently. The model used in this project could be the foundation for improvements in those handoffs.

Implementing a Standardized Nursing Handoff Between the

Emergency Department and Inpatient Departments

According to the Joint Commission on Accreditation of Healthcare Organizations (2012), it is estimated that 80% of serious medical errors have a component of miscommunication between caregivers when a patient is being transferred. Ineffective handoffs can also lead to delays in, or inappropriate treatments, and increased length of stay (Joint Commission on Accreditation of Healthcare Organizations, 2012). According to Gephart (2012), The Agency for Healthcare Research and Quality (AHRQ) noted approximately half of hospital staff indicate information related to the patient is lost during handoffs.

For a handoff to be successful, the following is needed: (1) standardized content, forms, tools, and methods; (2) the opportunity to ask questions; (3) staff accountability and monitoring; and (4) education and coaching (Joint Commission on Accreditation of Healthcare Organizations, 2012). AHRQ has also put forth the recommendations: (1) handoffs should be structured; (2) have an opportunity for questions and answers; and (3) be supplemented by medical records which are preferably electronic and easily accessible (Gephart, 2012).

There are many factors which should be considered as having an impact on the quality of handoff. Reliance on memory, interruptions, excess noise, non-standard processes and not providing an opportunity for verification of information can all have negative impacts (Gephart, 2012). As a new process is being developed, all of these factors are being considered.

Several tools have been used over the past decade in an attempt to improve handoff communication. Notable ones include the SBAR (Situation-Background-Assessment-Recommendation) and ANTICipate (Administrative data, New clinical information, Tasks, Illness severity, Contingency plans). Some of the tools were anecdotally determined to be useful,

but none were researched sufficiently in regards to clinical outcomes and unanticipated

consequences (Sehgal, 2015). However, in 2014 a study was conducted and published in the

New England Journal of Medicine on the I-PASS (Illness severity, Patient summary, Action list,

Situational awareness and contingency planning, and Synthesis or read-back) tool. In this study,

the researchers were able to link the use of this tool to a reduction in errors (Sehgal, 2015).

According to The Joint Commission (2017), the Electronic Health Record (EHR) should

be used to enhance handoffs between senders and receivers. This can be accomplished by

imbedding a tool within the EHR. In one study, intra-operative handoffs were observed pre-and-

post implementation of an electronic checklist. Significant improvements in the transfer of

critical patient information were noted post implementation. Communication about medication

administration, fluid balance, and potential areas of concern were all identified as areas of major

improvement (Agarwala, Firth, Albrecht, Warren & Musch, 2015).

Purpose Statement

The purpose of this project was to implement and evaluate evidence-based patient-

centered handoff from the emergency department (ED) to inpatient (IP) medicine departments

within an urban, academic medical facility based in Baltimore, MD. The long-term goals, to be

accomplished by December 15, 2019, are: (1) to improve the quality of communication, by

including all of the required data elements in the new I-PASS handoff tool, from the ED nurses

to the IP nurses; and (2) reduce reports of patient safety and potential patient safety issues

submitted via the Hopkins Event Reporting Online (HERO) system related to transfer/handoff

from ED to IP units. The mid-term goals, to be accomplished by May 15, 2019, are: (1) to

evaluate the impact of the standardized tool and procedure; (2) to assess the barriers to 100%

compliance; and (3) make recommendations for adjustments based on the evaluation of the

impact and barrier assessment. The short-term goals, which were accomplished by December 15,

2018, were: (1) to train 100% of ED nurses on the standardized nursing handoff tool, procedure,

and intended impact; (2) to train 100% of IP medicine nurses on the standardized nursing handoff

tool, procedure, and intended impact; (3) 100% of handoffs between ED nurses and IP medicine

nurses will be given using the standardized tool and procedure; and (4) initial assessment of

barriers to implementation will be completed and recommendations for adjustments provided.

To understand current practice, the workflow within the ED and on IP units was

examined. The process was (1) an inpatient bed is assigned; (2) the IP nurse is made aware of

the assignment; (3) the IP nurse has 30 minutes to review the chart; (4) after 30 minutes the

patient is transported to the assigned bed. There was not a handoff report which contained all of

the critical elements, an easy way for the IP nurse to contact the ED nurse with questions, or the

ability to document handoff was complete. The revisions proposed for the EHR were a new ED

to IP handoff report in I-PASS format, which contained all elements noted to be critical content

by The Joint Commission. The content deemed critical to communicate to the receiver are:

sender contact information, illness assessment, patient summary, to-do action list, contingency

plans, allergy list, code status, medication list, dated laboratory tests, and dated vital signs (The

Joint Commission, 2017). The I-PASS format was chosen, as researchers have been able to link

the use of this tool to a reduction in errors (Sehgal, 2015). The revision to the documentation

was a new field which the IP nurse completed after the report had been reviewed. The IP nurse

was able to document 'Chart reviewed, no questions', 'Chart reviewed, questions answered', or

'Other' with the ability to add a comment.

The first outcome proposed for this project was a reduction in reports of patient safety

and potential patient safety issues submitted via the Hopkins Event Reporting Online (HERO)

system related to transfer/handoff from ED to IP units. This information was obtained from the

HERO system. This was measured during a two month pre-intervention timeframe and two

month post-implementation timeframe. The second measure, which is a process outcome

measure, was compliance with the handoff process. This was measured by the IP nurse handoff

complete documentation. The third outcome was to improve nurse satisfaction with the quality of

handoff communication. This was measured using a pre- and post-implementation survey.

Literature Review

The need for standardized handoffs to improve quality of communication between nurses

during patient transfer will be the focus of the evidence in this literature review. The review will

begin with evidence supporting the use of a standardized tool, such as I-PASS, to ensure transfer

of key data elements during handoff. It will then focus on evidence supporting improved handoff

increasing nurse satisfaction with handoff. The review will conclude with a summary of the

current evidence.

There has been research done on the use of a checklist or tool to improve the inclusion of

key data elements during a handoff. The goal of the mixed method study by Bakon and

Millichamp (2017) was to develop, implement, and evaluate the implementation and staff

perceptions of a handoff form from the ED to IP units. The form was used in 97% of handoffs.

Critical handoff data elements included in greater than 80% of handoffs using the form were

diagnosis, allergies, precautions, and ID band checked. In a prospective observational study to

improve intraoperative handoff between anesthesiologists, Agarwala, Firth, Albrecht, Warren,

and Musch (2015) found an electronic checklist improved relay and retention of specific

information, such as medication administration, fluid balance, and communication about

potential areas of concern. Gephart (2012) provided a systematic review in which strategies

noted to improve handoffs were strengthen communication skills, standardize the process, use technology, train for success, involve staff in the process, and lead the process well. Shahian, Mceachern, Rossi, Chisari, and Mort (2017) conducted a quasi-experimental design to implement I-PASS for doctors, nurses, and therapists at a large academic medical center. Results for physicians and nurses showed improvement in the inclusion of illness severity, situational awareness, contingency planning, synthesis, and correct sequence. In a study to evaluate the impact of the I-PASS nursing handoff bundle, Starmer et al. (2017) noted significant increases were seen in the inclusion of data identified as key post-implementation. Most notable increases were seen in the inclusion of contact information, opportunity to ask questions, to do list, recent abnormal exam findings, laboratory results, medication list, and vital signs.

These studies were conducted in a variety of settings and with many different types of care providers. Additionally, several types of tools were used. There was a paper based form, an electronic checklist, and the I-PASS tool. All of the tools, however, were a type of checklist. Though the studies varied in many ways, the results were overwhelmingly clear. The use of a standardized tool in the handoff process improves the transfer of critical data elements during handoff.

An additional area that was studied as part of improvements to the handoff process was staff perception and satisfaction. Bakon and Millichamp (2017) found overall staff perception of a structured and standardized handoff process was positive. When surveyed, the staff noted: the form will improve handoff process, assist in patient safety, and provide a more accurate depiction of patients' condition. Agarwala et al. (2015) noted providers and CRNAs reported increased satisfaction with intraoperative transfer of care and less rushing of handoff. Sarmer et al. (2017) conducted a survey pre-intervention period to determine what nurses perceived as barriers to

effective handoffs. The three items noted were training, a standardized mnemonic, and time to conduct handoffs free of interruptions.

As noted above, these studies were conducted in a variety of settings, with many different types of care providers, and different tools. In both the Bakon and Millichamp study and the Agarwala study, the care providers noted positive perceptions of the structured handoff process which had been implemented. Though the Starmer study did not conduct a post-implementation survey, lack of standardization was noted as one of the barriers to effective handoff.

Overall, study findings indicate when standardized, structured handoffs are implemented there is an increase in the consistency of critical data elements being communicated to the handoff receiver and increased staff satisfaction. While there are a limited number of research studies available, the outcomes noted when I-PASS is implemented are positive. Implementation of a handoff tool needs to be paired with training, evidence to support the practice change, policy revisions, and materials for reinforcement and sustainability. Conducting handoffs free of interruptions is another desirable item; however, that will not be addressed as part of this project.

Theoretical Framework

The theoretical framework used to guide this project was Lewin's change theory, which is comprised of the three stages of unfreeze, change, and refreeze (Petiprin, 2016). Using a theory with an entire phase devoted to unfreeze allows for proper preparation of those who are going to be impacted. Kurt Lewin, known as the father of social psychology, authored this theory (Petiprin, 2016). His change theory model has been used extensively in publications. When using Lewin's change theory, the driving and restraining forces that promote or impede change

from occurring are identified. Once these are understood, work to strengthen the driving forces

can happen, making the change successful (Sutherland, 2013).

During the unfreeze stage, it is critical to prepare the organization and break down the

existing status quo. This involves finding a method to ensure people are able to let go of the

identified counterproductive behavior or process. There are three ways to accomplish this. As

noted previously, driving and restraining forces promote or impede changes. Driving forces can

be increased to direct behaviors away from the status quo, restraining forces can be decreased, or

a combination of the two. The next step in the theory is implementing the change. This involves

not only implementing a new process, but also changing thoughts, feelings, and behaviors. Once

the intervention has been completed and the changes have been incorporated into everyday

processes, the organization is ready for the refreeze step. If this step is not completed, then it will

be easy to go back to the old habit or process (Petiprin, 2016).

In the unfreeze stage, leadership and staff nurses were engaged to accept that change was

necessary and begin breaking down the existing status quo. This was done by appealing to what

matters to each group individually. The staff nurses had already expressed that they did not have

sufficient time or staff, indicating they were aware change was needed. Breaking down the

existing status quo was done by introducing the idea of an improved process which will save

them time and increase the comprehensiveness of their handoff to the IP departments. The

conversations with leadership focused on the existing issues related to safety and throughput.

For leadership, breaking down the status quo was done by presenting them with the intended

outcome of the new process, the potential to reduce ED LOS for admitted patients (Joint

Commission on Accreditation of Healthcare Organizations, 2012). Additionally, increased nurse

satisfaction with the quality of handoff communication was appealing (Agarwala, Firth, Albrecht, Warren, & Musch, 2015).

During the change stage, the ED and IP staff nurses underwent training to learn how to use the new process. The training, which was initially conducted by the Education, Quality, and Clinical Informatics departments, included how to use the standardized tool, how to use the EHR to enhance the new process, and the finalized handoff policy. After the initial go-live period, training on this process has been incorporated into the unit-based nursing orientation. Continual communication of the benefits of the change during this time period was key. Communication was done through several methods. The Core Team members, unit-based educators, and EHR super-users messaged this both during training and while providing support during go-live. Printed educational materials which highlighted the benefits of the change were distributed during training. Weekly emails and flyers on the units both updated staff on the project and reiterated the benefits of the change.

During the refreeze stage consistent use of the standardized tool and process was incorporated into the existing ED and IP structure. Success was measured several ways. One was to accomplish all of the short-term goals by the date noted above. Another was to compare data related to HERO events for a period of time prior to the standardized tool being impmenteded to a period of time post-implementation. A reduction in these events, which was obtained from reports generated from the HERO system indicated the success of this project. Improved nurse satsifaction with the quality of handoff communication was also an indicator of success. The data was obtained via the IP Nursing Handoff Satisfaction Survey (see Appendix C) and the ED Nurisng Handoff Satisfaction Survey (Appendix D) pre- and post-implementation.

Implementation Plan

Project Description

A quality improvement (QI) project focused on ED to IP nursing handoff was implemented with a sample of patient transfers and nurses. Inclusion criteria were all handoffs that occurred with patient transfers between the ED and IP medicine units during a two month post-implementation timeframe. The estimated sample size (n=1400) was based on the average daily ED to IP transfer rate of 25 per day over 8 weeks. The nursing sample included the Registered Nurses (RNs) who work in the ED and on the three IP medical units. The estimated sample size (n=167) was based on the number of RNs who currently work on these units. The project was carried out in the ED and adult IP medical units within an urban, academic medical facility based in Baltimore, MD.

Procedures and Timeline

The quality improvement project took place over a 14-week period. The first week the DNP project leader worked with the quality department leader to train unit-based educators and unit-based EHR super users. The training was conducted via a 2-hour training session led by the project leader focusing on the new ED to IP nursing handoff process. Topics covered were policy revisions (see Appendix E), overview of I-PASS, and the new workflow for the ED and IP medicine nurses. The project leader also attended staff meetings and unit-based huddles to announce the project to staff. Staff were asked to complete the survey tool on nursing satisfaction with the handoff process in place at the time, developed by the project stakeholders.

During weeks two through four, the project leader, quality department lead, unit educators, and informatics staff educated staff on the new ED to IP handoff process. Education included how to use the standardized tool, how to use the EHR to enhance the new process, and

the finalized handoff policy (see Appendix E). This was done during staff meetings, unit-based

huddles, and 1:1 as needed. Day, night, and weekend staff were accommodated to ensure all

staff understood the new process.

During weeks five through twelve, ED and IP medicine nurses utilized the I-PASS tool

within the EHR to conduct handoffs on patients transferred from the ED to IP medicine units.

The project leader conducted chart audits (see Appendix B) on each transfer to ensure

compliance with the new documentation requirements for the practice change. HERO events

were also monitored during this time (see Appendix A) to ensure there were no safety issues

related to the new process. The project leader, quality department lead, unit-based EHR super

users, and clinical informatics staff rounded on the units daily to check-in with staff and answer

questions. During weeks thirteen through fourteen, staff were be asked to complete the survey

tool on nursing satisfaction with the new process, developed by the project stakeholders (see

Appendix C and D).

Data Collection

The Handoff HERO Events Audit tool was used by the project leader to collect data on

the number of patient safety or potential patient safety events reported related to handoff (see

Appendix A). The tool collected data on the HERO number, units involved, and the details of

the event. Data was collected for two months pre-implementation and two months post-

implementation to determine if the new process decreased the number of patient safety and/or

potential patient safety events experienced during ED to IP handoff. These events were extracted

via a report from the HERO system for review.

The Documentation Compliance Audit tool was used by the project leader to collect data

on compliance with the handoff process (see Appendix B). This tool captured the date and time

of transfer, the medicine unit the patient was transferred to, and if IP RN handoff complete was documented in the EHR. Data was collected daily for two months post-implementation via manual chart audits. Timely collection of this data allowed for follow up with staff who were not following the new process.

Prior to implementation and two months post-implementation the nurses were asked to complete the IP Nursing Handoff Satisfaction Survey (see Appendix C) and the ED Nursing Handoff Satisfaction Survey (see Appendix D) to evaluate nurse satisfaction with the current handoff process and the new handoff process. The surveys were developed by the project team and have not been tested for validity or reliability. Each survey contained six statements which the nurses rated using a Likert-type scale. The choices are: strongly agree (5), agree (4), neither or n/a (3), disagree (2), and strongly disagree (1). Questions for the IP survey were: (1) Report is easily accessible; (2) Report is clear, logical, and concise; (3) Report contains sufficient information to provide patient care; (4) Report matches patient condition; (5) Nurse is available for questions; and (6) I am satisfied with the process for ED to IP handoff. Questions for the ED survey were: (1) Report process is effective for efficient throughput; (2) Report process is effective for continuity of care; (3) Report process is effective for patient safety; (4) Report process contributes to collegiality between departments; (5) Report process aids in providing additional time to care for patients; and (6) I am satisfied with the process for ED to IP handoff.

Data Analysis

For the patient safety events, a report was generated by the project leader from the HERO system for entry onto the Handoff HERO Events Audit tool (see Appendix A). The events were then analyzed for common themes and patterns.

Data analysis of documentation compliance was done using the data manually collected

from the EHR on the Documentation Compliance Audit tool (see Appendix B). The project

leader entered coded data into MS Excel, then used a run chart for further data analysis.   The

percentage of compliance with documentation for IP medicine documentation during the post-

implementation period was calculated using the number of patients who had IP RN Handoff

complete documented/number of patient transfers from the ED to the respective medicine unit.

Data analysis of improved nurse satisfaction was done by manually entering the coded

survey results into MS Excel. As we could not ensure the same staff members were surveyed

pre- and post-implementation an independent samples t-test was used to compare the means of

the pre-data to the post-data, which determined if there was a statistically significant change in

nursing satisfaction after implementation of the new handoff process.

Human Subjects and IRB

Data was stored securely in a password protected folder on a password protected

computer. No patient-identifiable data was collected during this project. Approval to implement

the DNP project was sought from the organization for a non-human subjects determination.

Sustainability

Leadership in the Quality department, ED, and Medicine division were engaged and eager

to see this project succeed. They recognized there were issues with the pre-implementation

process and wanted to see improvement. The policy was revised to include the practice change,

which has been incorporated into the EHR (see Appendix E). After the initial implementation

period, the standardized tool and process were incorporated into the existing ED to IP structure

as the status quo. Training on this process for new staff has been incorporated into the unit-based

nursing orientation. Ongoing monitoring of the reports is being conducted by the Qualtity

department. Additionally, the Quality department is providing data to ED and IP leadership for

follow up with staff who are not adhering to the process. The next step is to expand the new

practice to other units within the hospital. The project focused on medicine units, as they have

the highest volume of admissions from the ED. However, there are many other IP units who will

benefit from the improved process. The Quality department and ED leadership will present the

data to the Nursing Directors for the remaining divisions within the hospital to show success and

engage them for the next step in the process. The training plan and evaluation tools developed in

this project can be used for ongoing implementation of the process.

Results

In the training phase of the project, ED and IP RNs were trained on the new EHR screens

and workflow. Pre-implementation nursing satisfaction surveys were completed by 29 ED RNs

and 28 IP RNs. Four HERO reports related to handoff were analyzed. During the

implementation phase, there were 1121 transfers from the ED to IP medicine units, which were

evaluated for compliance with the new handoff process. Post-implementation nursing

satisfaction surveys were completed by 18 ED RNs and 24 IP RNs. Two HERO reports related

to handoff were analyzed.

There were a total of four HERO reports for the two month pre-implementation

timeframe and two for the two month post-implementation period. The HEROs were reviewed

for common themes and patterns (see Table 3). The theme for all of the HEROs entered related

to handoff both prior to and after the implementation of the new process was communication.

The four events pre-implementation were all related to miscommunication from one staff

member to another. The two post-implementation were related to a lack of communication.

A total of 1121 transfers from ED to IP medicine units were evaluated for compliance with the new handoff process (see Figure 1). Though there was no baseline data, the goal set by the stakeholders was 60% compliance. There were not any shifts noted. There is an overall positive trend. There was one run in the second week of the project where compliance for five days was below the median. Overall, for the project the percentage of compliance with the new process was 48.6% (see Figure 2).

Each question on the IP and ED RN satisfaction surveys was evaluated using an independent samples t-test to compare the means of the pre-data to the post-data. The results for the IP RN survey were: No significant difference in 'Report is easily accessible' pre-data (M=3.8, SD=0.9) and post-data (M=4, SD=0.9); t=-0.5, p=0.6 (see Table 4), 'Report is clear, logical, and concise' pre-data (M=3.5, SD=1) and post-data (M=3.8, SD=0.9); t=-1.1, p=0.3 (see Table 5), and 'Report matches and patient's condition' pre-data (M=3.2, SD=1) and post-data (M=3.6, SD=1); t=-1.5, p=0.2 (see Table 7); Significant difference in 'Report contains sufficient information to provide patient care' pre-data (M=3, SD=1.1) and post-data (M=3.6, SD=1.1); t=-2.6, p=0.01 (see Table 6), 'Nurse is available for questions' pre-data (M=3.1, SD=1.1) and post-data (M=3.8, SD=1.1); t=-2.1, p=0.04 (see Table 8), and 'I am satisfied with the process for ED to IP handoff' pre-data (M=2.3, SD=1.1) and post-data (M=3.3, SD=1.3); t=-2.8, p=0.006 (see Table 9).

The results for the ED RN survey were: No significant difference in 'Report process is effective for continuity of care' pre-data (M=3.3, SD=1.1) and post-data (3.9, SD=1.1); t=-1.8, p=0.07 (see Table 11), 'Report process is effective for patient safety' pre-data (M=3.3, SD=1.1) and post-data (M=3.7, SD=1.1); t=-1.3; p=0.2 (see Table 12), 'Report process contributes to collegiality between departments' pre-data (M=3, SD=1.2) and post-data (M=3.1, SD=1.4); t=-

0.4; p=0.7 (see Table 13), 'Report process aids in providing additional time to care for patients'

pre-data (M=3.4, SD=1.2) and post-data (M=3.8, SD=1.3); t=-1.1; p=0.3 (see Table 14);

Significant difference in 'Report process is effective for efficient throughput' pre-data (M=3.2,

SD1.3) and post-data (M=4.4, SD=0.6); t=-3.9, p=0.0004 (see Table 10) and 'I am satisfied with

the process for ED to IP handoff' pre-data (M=3.3; SD=1) and post-data (M=4.4, SD=0.7); t=-

3.9; p=0.0003 (see Table 15).

Though not all of the responses to the pre-implementation and post-implementation

survey questions were statistically significant, it should be noted there was a statistically

significant difference in 'I am satisfied with the process for ED to IP handoff' on both the IP and

ED surveys. The intervention appears to have a positive association with increased satisfaction

with the handoff process.

There were several unintended consequences of the new process. The implementation of

a new process allowed for the opportunity to discuss issues that the various areas were having

with handoff that were not directly impacted by the project, but were problems which needed to

be addressed. One example is the Patient Care Coordinator (PCC) routinely assigns patients who

are being admitted from the ED to a dirty room on the IP medicine unit. The ED does not have a

mechanism to see that the bed is dirty, which leads to the patient arriving on the IP medicine unit

to a dirty room. Leadership and bedside staff were able to discuss this issue as part of the new

process and develop a workflow to accommodate this practice. Another unintended consequence

was the future expansion of the handoff tool to guide verbal handoff between the ED and

intensive care units (ICU). The value of the data contained within the EHR tool has been

recognized by leadership and the risk management department. The intent is to use this in the

near future to guide verbal handoff between the ED and ICUs to ensure all key patient data is provided to the receiving nurse.

Discussion

For this project, there were two main changes related to practice. The change in structure was within the EHR, where (1) a new handoff report and (2) a new field for the IP RN to document that the report had been reviewed were added. Additionally, during the initial training the ED RNs were instructed to enter their contact information into the EHR for the IP RN to contact them with questions. However, new clinical communication devices were deployed prior to implementation making this unnecessary. The new devices allow the end-user to see who is assigned to a patient and contact them via a phone call or text without knowing the phone number. This was communicated to the ED RNs. The change in process was the new handoff workflow implemented, which eliminated the existing phone call from the ED RN to the IP RN when the patient was ready to be transported from the ED to the IP medicine unit.

One of the anticipated outcomes was 100% of handoffs between ED nurses and IP medicine nurses will be given using the standardized tool and procedure. During the post-implementation data collection timeframe, compliance with the process was 48.6%. There were a few factors which are believed to have impacted the outcome. The removal of the phone call from the ED to the IP unit when the patient was ready to be transferred, relying solely on the charge nurse to notify the IP RN that they were going to receive a patient, and several other new initiatives, such as new clinical communication devices and a patient mobility program, being implemented during this timeframe. The staff need time to incorporate each new change in process into their workflow. With continued education, monitoring, and following up with staff for one on one education the compliance rate is expected to increase.

The results do appear to indicate that the new handoff process implemented has a positive association on decreasing safety events and increasing overall nurse satisfaction with handoff. Though the theme of all of the patient safety events is communication, there is a difference in miscommunication versus lack of communication. As noted previously, the new process eliminated the phone call from the ED to the IP RN at the time of patient transport, which may have contributed to the patient safety events noting lack of communication. Patient safety events will need to be monitored long term to further evaluate the trend noted.

The data from this project is comparable to the results in the most current literature. Compliance rates in the literature vary from 28% to 97% (Bakon & Millichamp, 2017). Patient safety events were not included in the literature reviewed; however, several studies noted the increased inclusion of critical data elements during handoff, potentially decreasing patient safety events. Clinician satisfaction was reported to have improved in several of the publications as well (Agarwala et al., 2015).

Strengths of this project include leadership buy-in and support, continuous involvement of key stakeholders, and engagement of staff. The leadership of both the ED and IP departments have been aware of issues with handoff for quite some time; therefore, were very supportive of the improvements in the process introduced by this project. Stakeholders from the ED and IP areas, included the educators, informatics team, and Quality staff were engaged in the planning, implementation, support, and continue to follow up on gaps in the process. The staff understand the importance of handoff and were not satisfied with the state it was in prior to this project. They welcomed the improvements.

Limitations of the project are: (1) the project was only conducted on transfers from the ED to IP medicine units, potentially limiting the generalizability to transfers to other types of

units; (2) not having the same group of staff members fill out the nurse satisfaction surveys, thus

needing to use an independent samples t-test to compare the means of the pre-data to the post-

data instead of a paired sample t-test; (3) a convenience sample for both patient transfers and

satisfaction surveys was used; and (4) the survey tools used were not valid or reliable, and they

were developed by the project team. The process for transfers from the ED to all IP units

(excluding the Intensive Care Units) was the same prior to the implementation of this project,

therefore all of these units should benefit from the new process. Staff who float to the different

IP areas will have been exposed to the new process and will help to ease the transition for future

units. Though we were unable to ensure the same nurses filled out the pre and post nurse

satisfaction surveys, we did make an effort to have them filled out by a variety of staff members

(dayshift, nightshift, weekend, new, and experienced nurses).

Conclusion

The project conducted is useful, as it decreased patient safety events and increased overall

nurse satisfaction related to handoff from the ED to IP medicine units. There were a total of four

patient safety reports pre-implementation and two post-implementation. Overall nurse

satisfaction for the ED RNs increased from 3.3 pre-implementation to 4.4 post-implementation

(Likert-type 5-point scale) and for the IP RNs increased from 2.3 to 3.3. The plan for

sustainability includes: (1) Training on this process for new staff being incorporated into the

unit-based nursing orientation; (2) Ongoing monitoring of the reports being conducted by the

Qualtity department; (3) The Quality department providing data to ED and IP leadership for

follow up with staff who are not adhering to the process; and (4) Reporting at high-level

meetings related to capacity and patient safety. As all transfers from the ED to IP areas followed

the same process pre-implementation, it makes sense to expand the use of the new EHR report

and workflow into other areas of the medical center. The current plan is to use the same process

for all other non-ICU transfers from the ED. The ED to ICU process will remain a verbal

handoff, but guided by the new EHR report. Their current verbal process does not follow a

specific format, and use of the EHR report will ensure all reports follow the same format and

include all essential data elements. There are also opportunities to implement an improved

handoff process in other areas of the medical center. Patients are transferred between units,

procedural areas, and from one clinician to another frequently. The model used in this project

could certainly be the foundation for improvements in those handoffs.

The results of this project support that inclusion of critical data elements and use of the

EHR during handoff improve patient safety and nurse satisfaction. This workflow should be

standard practice during all handoffs. For future quality improvement projects, it would be ideal

to look at transfers from the ED to the ICU, IP to IP, and IP to procedural areas. An implication

for education would be to include the importance of handoff as a part of patient care. Errors in or

missed information during handoff has many implications related to patient safety.

The next step is to continue to work with the IP nurses to ensure they understand the

process and the importance of reviewing the handoff report and documenting reviewed in the

EHR in a timely manner. The other initiatives which were competing with the project have now

been in place for several months and staff have integrated them into their workflow. After

leadership is satisfied with compliance, the next step is to expand to other units within the

hospital. As mentioned previously, the project focused on only medicine units. There are many

other IP units who will benefit from the improved process. The Quality department and ED

leadership will present the data to the Nursing Directors for the remaining divisions within the

hospital to show success, and engage them for the next step in the process. The training plan and

evaluation tools developed in this project can be used for ongoing implementation of the process.

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Table 1

Evidence Review Table

Author, year	Study objective/intervention or exposures compared	Design	Sample (N)	Outcomes studied (how measured)	Results	*Level and Quality Rating
Agarwala, A. V., Firth, P. G., Albrecht, M. A., Warren, L., & Musch, G., 2015	To improve the quality of intraoperative handoff between anesthesiologists through the implementation of an electronic checklist.	Prospective Observational Study (Cohort)	Handoffs performed with the checklist (n=39) vs. Control/handoffs without the checklist (n=30)	Transfer and retention of clinical patient information (Observational Assessment Tool). Secondary measurements are checklist use and clinician satisfaction (survey).	Checklist use showed improvement of relay and retention of specific information. Medication administration, fluid balance, and communication about potential areas of concern were where major improvement was seen. Checklist use was at 74% eight months after implementation. Providers and CRNAs reported increased satisfaction with intraoperative transfer of care and less rushing of handoff.	4 C
Bakon, S., & Millichamp,	To improve handoff consistency from the ED	Mixed method	Nurses surveyed	Nursing staff evaluation	Nursing reported the form saved time, was	4 C

T., 2017	to inpatient unit through the implementation of a structured handoff form.	(Cohort)	(n=28) Forms audited (n=626)	(anonymous surveys). Compliance with form use (form audits).	clear and concise, and provided a prompt for information to include in handoff. During the data collection timeframe, the form was used in 97% of handoffs. Additional form elements were completed as follows: Patient label attached - 97% ID band checked 80% Identification of the patient's diagnosis 96% Allergies 97% Diagnosis related precautions 84% Alerts for prior care 77% Patient observation score 67% Current observations 53% Treatment plan 51% Social history 28%	
Eggins, S., & Slade, D., 2015	To summarize the impact of ineffective communication during handoff and make recommendations to	Editorial/ Opinion of Authority	N/A	N/A	Strategies suggested to improve handoffs are standardized protocols, training in handoff communication	7 C

	improve handoff for improved patient safety and satisfaction.				strategies, and management of impact of hospital context (participants, scheduling, resources, and environment).	
Gephart, S. M., 2012	To summarize the existing evidence related to handoffs and make recommendations related to improving handoffs.	Systematic Review	N/A	N/A	Strategies noted to improve handoffs are strengthen communication skills, standardize the process, use technology, train for success, involve staff in the process, and lead the process well.	5 B
Malekzadeh, J., Mazluom, S. R., Etezadi, T., & Tasseri, A., 2013	Determine the impact of a standard handoff procedure for improved communication on nurses' safe practice.	Quasi-experimental pre-test/post-test study	ICU nurses in a large-scale teaching hospital who have a Master or Baccalaureate degree in nursing, at least 6 months' work experience in ICUs, and participate in 90% of theoretical education classes and 100% of the practical education classes	Adherence to 20 nursing standards/ protocols deemed harmful to the patient if deviated from (Nurses' Safe Practice Evaluation Checklist/NSPEC).	Mean scores on the NSPEC significantly increased from 11.6 (2.7) to 17.0 (1.8), $p<0.001$. Overall, the mean score increased by 46.5%. Also, there was a significant increase in the number of nurses who performed 18 of the 20 care items on the NSPEC ($p<0.05$).	3 C

			to educate participants on the handoff protocol (n=56).			
Shahian, D. M., Mceachern, K., Rossi, L., Chisari, R. G., & Mort, E., 2017	To improve handoff communication and reduce medical errors and adverse events through implementation of I-PASS.	Quasi-experimental design	Doctors, nurses, and therapists (n > 6000) at a large academic medical center	Kirkpatrick model Level 1 – reaction/do trainees feel it was a valuable experience (survey). Level 2 – learning evaluations/was the desired knowledge imparted and the educational objective achieved (survey). Level 3 – behavior/are trainees applying new knowledge changing behavior? (observations focused on inclusion on each of the five I-PASS elements). Level 4 – results/patient quality and safety impact (data not collected).	80%-100% of trainee responses were positive for the experience being valuable. 80%-100% of trainee responses were positive for the content, pace, length, and educational tools used. During the pilot period, observations showed wide variability in the inclusion of all elements of the I-PASS. Observations Once formal observations were implemented, physician results showed great improvement in the inclusion of illness severity, situational awareness and contingency planning, synthesis and correct sequence). Patient summary, action list,	6 C

| | | | | | and giver and receiver performance were high during the pilot period and remained so.

Results were similar for nursing observations. | |
|---|---|---|---|---|---|---|
| **Starmer, A. J., Schnock, K. O., Lyons, A., Hehn, R. S., Graham, D. A., Keohane, C., & Landrigan, C. P., 2017** | To evaluate the impact of the I-PASS Nursing Handoff Bundle. | Prospective pre-post intervention study | Nursing handoff observations in a pediatric intensive care unit (n=81 pre-intervention, n=45 post-intervention)

Nurses surveyed (n=90) | Assessment of verbal handoffs (nursing handoff assessment tool - direct observation).

Assessment of nursing workflow patterns (time motion and handoff observation tool).

Nursing experience with the handoff process/needs assessment (pre-intervention survey). | Significant increases were seen in the inclusion of data identified as key post-implementation.

Identification of primary physician (6% vs 26%, p=0.004); parent contact information (12% vs 75%, p<0.001); patient on isolation or medical precautions (19% vs. 49%, p<0.001); opportunity to ask questions (34% vs. 73%, p=0.001); to do list (35% vs. 100%, p<0.001); illness severity assessment (37% vs. 67%, p=0.001); recent abnormal exam findings (49% vs. 91%, p<0.001); patient weight | 3 B |

| | | | | | (54% vs. 76%, p<0.001); laboratory results (60% vs. 100%, p<0.001); patient identifiers (64% vs. 88%, p=0.005); medication list (70% vs. 100%, p<0.001); vital signs (84% vs. 100%, p=0.004).

Using a 5-point Likert scale, quality of handoff elements rated as 4 or 5 were: overall health status (68% vs. 96%, p<0.001); general hospital course (43% vs. 78%, p<0.001); upcoming possibilities (55% vs. 82%, p=0.003); tasks to be completed on the next shift (44% vs. 84%, p<0.001).

Interruptions during handoff decreased: medically related to the patient (102 vs 60 per 100 handoffs, p=0.02); medically unrelated to the patient (36 vs 4 per | |

					100 handoffs, p=0.004); initiated by a nurse (63 vs 24 per 100 handoffs, p=0.004). Interruptions by non-nurses did not change significantly.	
Starmer, A. J., Spector, N. D., West, D. C., Srivastava, R., Sectish, T. C., & Landrigan, C. P., 2017	To disseminate, adapt, and implement I-PASS across disciplines and specialties to improve handoff processes and reduce medical errors.	Report of Expert Committee	N/A	N/A	I-PASS is proven in large multicenter studies to reduce preventable injuries due to medical care.	2 A

Table 2

Summary of Literature Review

Studies Using a Checklist	Studies Demonstrating Improved Transfer of Key Patient Data	Studies Demonstrating Improved Satisfaction with Handoff
1. Agarwala et al., 2015 2. Bakon et a., 2017 3. Gephart et al., 2012 4. Shahian et al., 2017 5. Starmer et al., 2017	1. Agarwala et al., 2015 2. Bakon et al., 2017 3. Gephart et al., 2012 4. Shahian et al., 2017 5. Starmer et al., 2017	1. Agarwala et al., 2015 2. Bakon et al., 2017 3. Starmer et al., 2017

Table 3

Hopkins Event Reporting Online Patient Safety Issues

Themes	Issue/Comments
Pre-Implementation	
Communication	- Report from ED RN incorrect; patient did not have IV access
	- Instruction from Patient Care Coordinator incorrect; patient admitted to the wrong floor
	- Report from ED RN incorrect; patient assessment not consistent with report
	- Patient brought to floor while bed was still dirty, after this was communicated
Post-Implementation	
Communication	- Patient brought to floor while bed was dirty, marked incorrectly in the EHR
	- Not aware of patient being admitted, had not reviewed the chart

Table 4

IP RN Survey Question #1: Report is easily accessible

	Pre-Implementation	Post-Implementation
	3.82	3.96
Mean	(SD 0.94)	(SD 0.91)
Variance	0.89	0.82
Observations	28	24
Pooled Variance	0.86	
Hypothesized Mean Difference	0	
df	50	
t Stat	-0.53	
P(T<=t) one-tail	0.3	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.6	
t Critical two-tail	2.01	

Table 5

IP RN Survey Question #2: Report is clear, logical, and concise

	Pre-Implementation	Post-Implementation
	3.46	3.75
Mean	(SD=1)	(SD=0.94)
Variance	1	0.9
Observations	28	24
Pooled Variance	0.95	
Hypothesized Mean Difference	0	
df	50	
t Stat	-1.05	
P(T<=t) one-tail	0.15	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.3	
t Critical two-tail	2.01	

Table 6

IP RN Survey Question #3: Report contains sufficient information to provide patient care

	Pre-Implementation	Post-Implementation
	2.96	3.75
Mean	(SD=1.07)	(SD=1.07)
Variance	1.14	1.15
Observations	28	24
Pooled Variance	1.15	
Hypothesized Mean Difference	0	
df	50	
t Stat	-2.63	
P(T<=t) one-tail	0.01	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.02	
t Critical two-tail	2.01	

Table 7

IP RN Survey Question #4: Report matches patient's condition

	Pre-Implementation	Post-Implementation
	3.18	3.58
Mean	(SD=1.02)	(SD=0.97)
Variance	1.04	0.95
Observations	28	24
Pooled Variance	1	
Hypothesized Mean Difference	0	
df	50	
t Stat	-1.46	
P(T<=t) one-tail	0.08	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.15	
t Critical two-tail	2.01	

Table 8

IP RN Survey Question #5: Nurse is available for questions

	Pre-Implementation	Post-Implementation
	3.11	3.75
Mean	(SD=1.1)	(SD=1.07)
Variance	1.21	1.15
Observations	28	24
Pooled Variance	1.18	
Hypothesized Mean Difference	0	
df	50	
t Stat	-2.12	
P(T<=t) one-tail	0.02	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.04	
t Critical two-tail	2.01	

Table 9

IP RN Survey Question #6: I am satisfied with the process for ED to IP handoff

	Pre-Implementation	Post-Implementation
	2.32	3.29
Mean	(SD=1.12)	(SD=1.33)
Variance	1.26	1.78
Observations	28	24
Pooled Variance	1.50	
Hypothesized Mean Difference	0	
df	50	
t Stat	-2.85	
P(T<=t) one-tail	0.003	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.01	
t Critical two-tail	2.01	

Table 10

ED RN Survey Question #1: Report process is effective for efficient throughput

	Pre-Implementation	Post-Implementation
	3.21	4.44
Mean	(SD=1.26)	(SD=0.62)
Variance	1.6	0.38
Observations	29	18
Pooled Variance	1.14	
Hypothesized Mean Difference	0	
df	45	
t Stat	-3.87	
P(T<=t) one-tail	0.0001	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.0004	
t Critical two-tail	2.01	

Table 11

ED RN Survey Question #2: Report process is effective for continuity of care

	Pre-Implementation	Post-Implementation
	3.28	3.89
Mean	(SD=1.13)	(SD=1.08)
Variance	1.28	1.16
Observations	29	18
Pooled Variance	1.23	
Hypothesized Mean Difference	0	
df	45	
t Stat	-1.84	
P(T<=t) one-tail	0.04	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.07	
t Critical two-tail	2.01	

Table 12

ED RN Survey Question #3: Report process is effective for patient safety

	Pre-Implementation	Post-Implementation
	3.28	3.72
Mean	(SD=1.13)	(SD=1.07)
Variance	1.28	1.15
Observations	29	18
Pooled Variance	1.23	
Hypothesized Mean Difference	0	
df	45	
t Stat	-1.34	
P(T<=t) one-tail	0.09	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.19	
t Critical two-tail	2.01	

Table 13

ED RN Survey Question #4: Report process contributes to collegiality between

departments

	Pre-Implementation	Post-Implementation
	2.97	3.11
Mean	(SD=1.24)	(SD=1.41)
Variance	1.53	2
Observations	29	18
Pooled Variance	1.71	
Hypothesized Mean Difference	0	
df	45	
t Stat	-0.37	
P(T<=t) one-tail	0.36	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.71	
t Critical two-tail	2.01	

Table 14

ED RN Survey Question #5: Report process aids in providing additional time to care for

patient

	Pre-Implementation	Post-Implementation
	3.41	3.83
Mean	(SD=1.24)	(SD=1.29)
Variance	1.54	1.68
Observations	29	18
Pooled Variance	1.59	
Hypothesized Mean Difference	0	
df	45	
t Stat	-1.11	
P(T<=t) one-tail	0.14	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.27	
t Critical two-tail	2.01	

Table 15

ED RN Survey Question #6: I am satisfied with the process for ED to IP handoff

	Pre-Implementation	*Post-Implementation*
	3.34	4.44
Mean	(SD=1.04)	(SD=0.7)
Variance	1.09	0.5
Observations	29	18
Pooled Variance	0.87	
Hypothesized Mean Difference	0	
df	45	
t Stat	-3.94	
P(T<=t) one-tail	0.0001	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.0002	
t Critical two-tail	2.014	
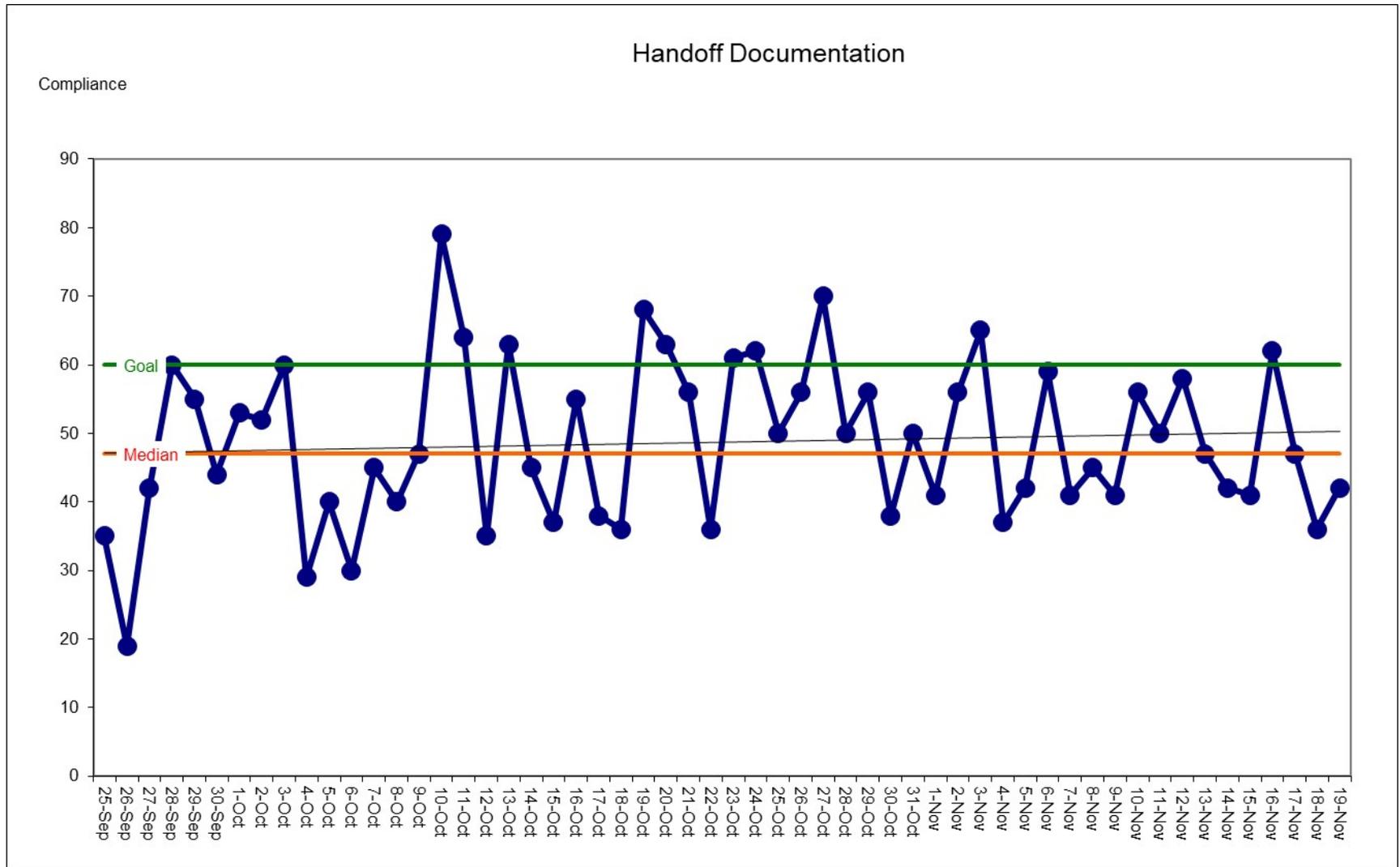
Figure 1. Daily Compliance with ED to IP Handoff Process

Compliance

48.6%

51.4%

■ Chart Reviewed Documented   ■ Chart Reviewed Not Documented
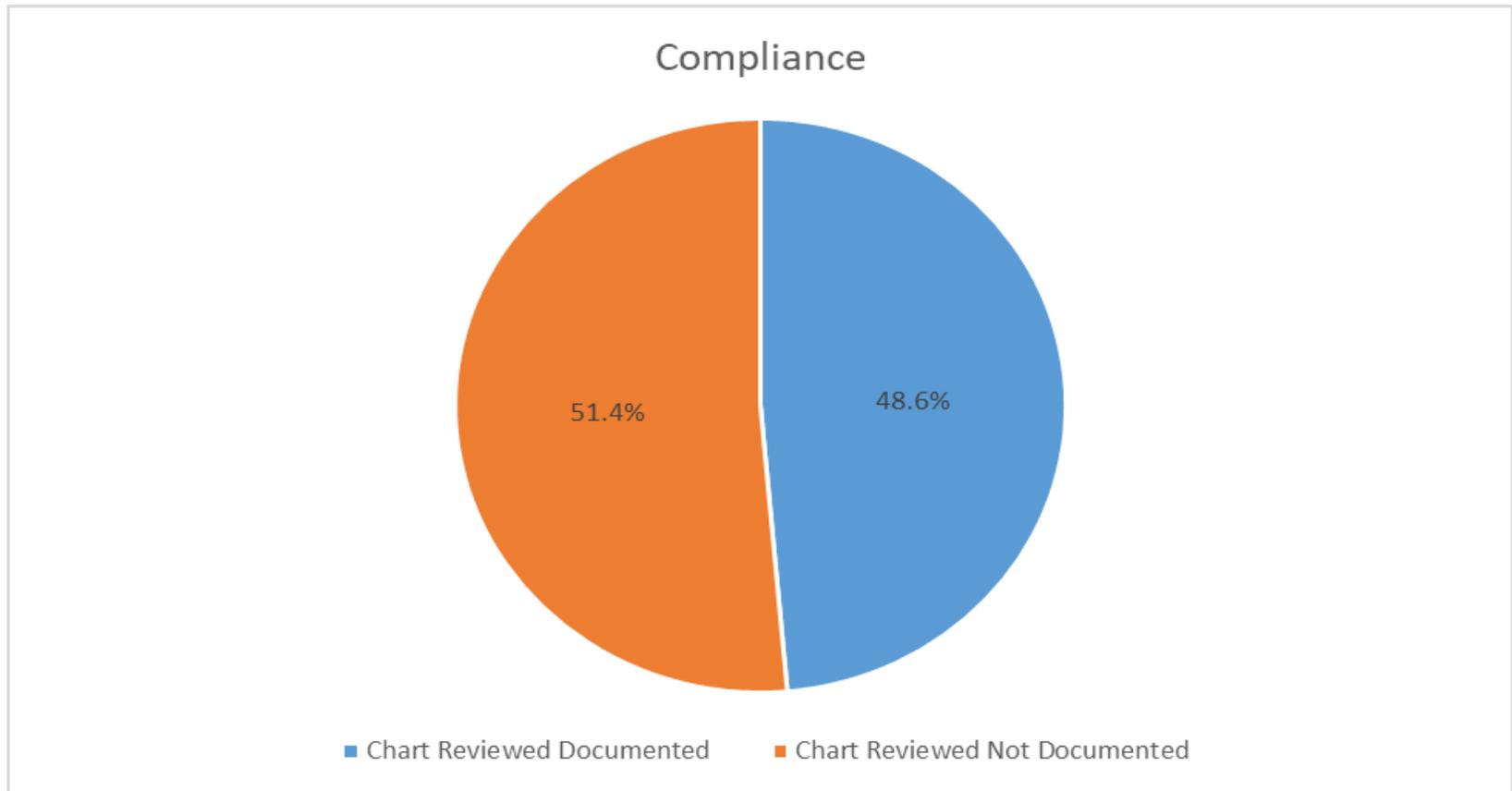
Figure 2. Overall Compliance with ED to IP Handoff Process

Appendix A

Handoff HERO Events Audit Tool

HERO Event #	Units Involved	Issues (s) Noted	Additional Comments

Appendix B

Documentation Compliance Audit Tool

Transfer Date	Transfer Time	IP Unit Patient Transferred To Med A = 1 Med B = 2 Med C = 3	IP RN Handoff Complete Documented Y=1 / N=0

Appendix C

IP Nursing Handoff Satisfaction Survey

1. Report is easily accessible.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

2. Report is clear, logical, and concise.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

3. Report contains sufficient information to provide patient care.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

4. Report matches patient's condition.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

5. Nurse is available for questions.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

6. I am satisfied with the process for ED to Inpatient handoff.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

Appendix D

ED Nursing Handoff Satisfaction Survey

1. Report process is effective for efficient throughput.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

2. Report process is effective for continuity of care.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

3. Report process is effective for patient safety.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

4. Report process contributes to collegiality between departments.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

5. Report process aids in providing additional time to care for patients.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

6. I am satisfied with the process for ED to Inpatient handoff.

5	4	3	2	1
Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree

Appendix E

Handoff Policy

Hand off Report Communication   Policy Number H012

I. POLICY

A. The primary objective of a "hand off" is to provide accurate clinically pertinent information about a patient's/client's care, treatment and services, current condition, and any recent or anticipated changes.

B. Interruptions during hand offs are limited to minimize the possibility that information would fail to be conveyed or would be forgotten.

C. Hand offs require a process for verification of received information, which may include repeat-back or read-back if appropriate.

D. The receiver of the hand off information has the opportunity to review relevant patient/client historical data.

E. While exact formats, times, and personnel present for the shift report will vary by unit, the key policy outlines will be followed on all nursing units. If taped shift report is used, an opportunity for questions will be provided before the prior shift leaves the hospital.

F. The format and initiation of hand off communication between patient care areas may vary. The content in the hand off communication will include:

    A. All information documented in the 'ED to IP' report (ED to Inpatient Medicine units).

    B. All information documented in the 'Overview/Handoff' report (Transfers between Inpatient units, ED to Inpatient units with the exception Medicine units, and shift handoff in Inpatient units).

G. If a caregiver changes within the same shift, the oncoming nurse will review and validate current orders and medications given for assigned patients.

II. DEFINITIONS

A. <u>Hand off:</u> Interactive communication allowing the opportunity for questioning between the giver and receiver of patient/client information when responsibility for a patient's care transfers from one health care provider to another.

B. <u>Health care provider:</u> Health care providers include, but are not limited to, registered nurses, Authorized Prescribers, etc.

III. PROCEDURE

<u>For Nursing Handoffs:</u>

A. Report may be given in multiple ways and should include the opportunity to ask questions.

B. The receiving nurse asks any relevant questions prior to the transfer of assigned care of the patient.

C. The responsibility for care of the patient is conveyed to the receiving nurse.

<u>For Provider Handoffs:</u>

Clinically pertinent information is actively communicated when transfer of primary responsibility of a patient's care occurs. This information may also be included in Sign-out, or other electronic documentation, adjunct to any verbal communication.

IV. SUPPORTIVE INFORMATION

References:
1. The Joint Commission, 2009 National Patient Safety Goals Implementation Expectations, Requirement 2E
2. Patient Care Practices policy no. S-02, SBAR Communication

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