

Improving Throughput from ED to ICU/CCU

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Abstract

Background: Handoff report between the Emergency Department (ED) and the Intensive Care Unit/Critical Care Unit (ICU/CCU) is a time where patient information is shared and lost between the reporting and receiving nurses. Up to seventy percent of sentinel events happen as a result of communication errors, so it is imperative that information is reported accurately so that data is not lost in translation. In its 2006 National Patient Safety Goals, the Joint Commission called for a plan to standardize the way that handoff communication is delivered. *Methods:* This project explored the perception of handoff between the ED and ICU/CCU nurses by use of a Likert-style survey completed by the ICU/CCU nurses before and after an educational intervention for the ED nurses. After the initial surveys were collected from the ICU/CCU, ED nurses were assigned a PowerPoint style instruction on how to use the Illness Severity, Patient Summary, Action List, Situation Awareness, Synthesis (I-PASS) handoff tool. *Outcomes:* One month after the implementation was started, the nurses in the ICU/CCU were again surveyed to determine if there was a perceived improvement in how handoff communication was delivered. The number of results were limited due to the COVID-19 pandemic, but the data collected did not show a statistically significant difference in the staff perception of handoff. *Implications:* More data is needed to determine if this tool is effective in improving handoff. If the data proves the tool is ineffective, a modification or different tool should be used to improve handoff.

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Improving Throughput from ED to ICU/CCU

Patients admitted from the Emergency Department (ED) to the Intensive Care Unit (ICU) and Critical Care Unit (CCU) have much more complex needs than patients admitted to the medical/surgical or telemetry floor. Typically, these patients will have requirements for more frequent measurement of vital signs, titration of intravenous medications, and management of advanced airway devices. As the care of these patients is being transferred from the nursing staff in the ED to the nursing staff in the ICU/CCU, critical information must be conveyed in a way where information is not lost in translation with all of the pertinent information being given in a concise and logical manner.

This project explored the effect of implementing an education program for a standardized report system to improve how report is given from the ED to the ICU/CCU. The project will involve a survey of nursing staff in the ICU/CCU to determine their satisfaction on the current method of reporting method. There will be an intervention that educates ED staff on how to give report using a modified I-PASS method. After this method is implemented, a post intervention Likert scale survey will be collected from ICU/CCU staff to determine satisfaction with the new reporting method.

Background and Significance

Handoff report is a time where information regarding a patient can be transferred from nurse to nurse, but this is also a time where critical information can be omitted. The Joint Commission in their 2006 National Patient Safety Goals called for a plan to standardize the way that “hand off” communications are handled between units (Catalano, 2006). According to Starmer et al. (2017), it is estimated that up to 70% of sentinel events and serious events occur as a consequence of miscommunication, and one of the main sources of this is handoff between

nurses. With a high rate of nursing turnover, an increase in the number of new nurses that are working on a given floor occurs (Dawson et al., 2014). A study by Cairns, Dudjak, Hoffman, and Lorenz (2013) discusses how newer nurses identify having incomplete or missing information as being one of the main causes of adverse events and near misses.

Critically ill patients who require close monitoring of heart rate and blood pressure, titration of vasoactive medications, have invasive monitors placed, are on mechanical ventilation, or require frequent monitoring of blood sugar, typically require more of a nurse's attention in the ED as compared to other non-critical patients. The ICU has a higher ratio of nurses, typically one nurse to two patients, and physicians per patient when compared with the ED. As a result, they are able to spend more time managing the patient (Zhang, Bokhari, Guo, & Goyal, 2019). The critical care nurse has to focus on all aspects of care for the patient, and be able to interpret slight changes to their condition in order to give their patients the best outcome (Scholtz, Nel, Poggenpoel, & Myburgh, 2016). Similarly, the ED nurse has to contend with the overcrowding that has been increasing in recent years and may not be able to focus on slight changes in a patient's condition (Carter, Pouch, & Larson, 2014).

Admitted patients may stay in the ED for longer periods of time which increases the risk of mortality. Moving patients to the ICU/CCU in an expedited manner can help to reduce their overall mortality (Zhang et al., 2019). One reason for a delay in transfer from the ED to the ICU/CCU relates to how report is delivered between nursing units, as each nurse may have their own way of giving a report (Briones, 2016). Utilizing a standardized handoff tool can help to reduce the amount of time that report is given, and therefore reduce the time that is spent in the ED (Dahlquist et al., 2018). In order to encourage nursing staff to properly utilize a new reporting system, they must be satisfied that the method is better than their current one. A study

by Sheth et al. (2016) showed that staff was more satisfied with report after having education on standardizing report content using the I-PASS handoff tool.

Needs Assessment

Improving handoff has been a goal of the Joint Commission since the release of the 2006 patient safety goals (Catalano, 2006). However, there is still a major gap in implementing standardized report from the ED to the ICU/CCU at the project hospital site. The I-PASS reporting tool has been shown to increase staff satisfaction in how information is transferred regarding patients (Sheth et al., 2016), however, it has to be tailored to the needs of the units and hospital. ED nurses at the project site may not perceive what is important for the needs of an ICU/CCU nurse in terms of information about the patient.

The setting for this project is a community based hospital in central New Jersey that is a part of a large New Jersey based hospital system. Patients come from Somerset, Middlesex, Hunterdon, and Morris counties. The hospital has 16 total ICU and CCU beds, as well as 12 intermediate care unit (IMCU) beds. Typical staffing in the ICU/CCU is two patients per one nurse. There are 43 ED rooms, as well as hallway sections that are used when patient volume increases beyond this capacity. Typical staffing is 3-4 patients per nurse, but can increase to five to seven patients depending on patient volume.

An analysis of strengths, weaknesses, opportunities, and threats (SWOT) was conducted to identify potential benefits or obstacles to this planned project. One strength is the site's maintenance of their Magnet® designation since 2011. Magnet® hospitals have a commitment to improving empirical outcomes by empowering nurses who are treated as partners in the delivery of healthcare to patients (American Nurses Credentialing Center, 2019). This hospital has nurses involved in research that aim to improve patient outcomes and delivery of nursing

care. Another strength is that the hospital has an electronic medical record system (EMR) which will allow for the receiving nurse to review the patient's chart prior to handoff report to be better prepared to ask clarifying questions. A final strength identified is the enthusiasm of ED physicians to help with improving throughput to the ICU/CCU. An identified weakness is nursing staff's reluctance to change the way that they take report. Changing practice can be stressful. The process of receiving a new patient to the floor at this institution can currently take up to an hour. Situations like these would need to be addressed as part of education and protocols for the nursing staff in order to expedite patient transfers to the ICU/CCU.

An identified opportunity is the hospital's desire to implement protocols to improve transfer to other critical care areas. The hospital has already attempted to improve throughput from the ED to the IMCU by implementing a system where the IMCU nurse will call the ED nurse within 20 minutes of being assigned a room. This protocol has not been evaluated to date.

Problem Statement

There is no standardized way of giving report from the ED to the ICU/CCU. Each nurse has their own way of giving report which can sometimes lead to omitting critical information. A standardized method of giving report using I-PASS as a base will need to be implemented to improve staff perception of the effectiveness of the handoff report.

Clinical Question

The clinical question that is guiding this project is, "Does implementing a standardized reporting system based on the I-PASS handoff improve staff satisfaction with handoff of critical care patients?"

Aims and Objectives

The main goal in this project is to improve the way that staff gives report during handoff from the ED to the ICU/CCU. This will be accomplished by collaboration between the ED and ICU/CCU nursing staff to come up with a standardized handoff tool that incorporates the needs of the ICU/CCU while simultaneously taking into consideration the workflow in the ED.

The objectives of this project will be to:

- Increase number of staff nurses trained to deliver I-PASS (Illness severity, Patient summary, Action list, Situation awareness and contingency planning, Synthesis by receiver) communication within one month of start of training implementation.
- Assess ICU/CCU nurses' satisfaction with the current reporting method using a Likert scale pre-intervention.
- Assess ICU/CCU nurses' satisfaction with the improved I-PASS reporting method after staff has been educated on the proper way to deliver a standardized handoff report.

Review of Literature

Several search engines were utilized to gather evidence-based research studies that were pertinent to the clinical question, including the Rutgers Library search, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Medline, and EBSCO HOST.

Keywords and search terms used included “emergency department to ICU handoff” which yielded 16 results, and one qualitative study was appropriate for this project. Other combinations of “emergency department”, “critical care” and “handoff” did not yield usable data, so search was expanded by removing “critical care” and “emergency department”. Keywords “I-PASS AND handoff” in CINAHL yielded 13 results when dates were limited to 5 years, with one quantitative study and one qualitative study relevant to the topic. A CINAHL search for

“admission handoff” yielded 28 results, of which two quantitative studies were able to be included. A PubMed search for “bedside report” and “handoff” yielded 40 results of which 35 were timely, and two quantitative studies were able to be used for the project. All articles that were used for this project were evaluated using the Johns Hopkins Nursing Evidence-Based Practice tool to evaluate the level of evidence and quality. Although the Joint Commission lists “Improve staff communication” on the 2019 National Patient Safety Goals (Joint Commission, 2019), the number of articles that pertain to the timeliness of staff communication were difficult to find, and most data that discussed timeliness at all were as part of mixed method studies. Studies that met basic criteria regarding handoff and bedside reporting or I-PASS reporting were evaluated to determine if study also included data regarding length of stay in ED, length of handoff report, or reduction of report flow distractions. A total of 10 articles were included in the Table of Evidence for critical appraisal (see Appendix A).

Length of Handoff Time

Increased length of stay in the ED has been shown to increase the risk of mortality in critical care patients boarded in the ED for greater than six hours (Zhang et al., 2019). One way that the time in the ED can be reduced is by using novel handoff communication methods to give report. This can reduce the amount of time it takes to give report because pertinent data is disseminated in an efficient manner without excessive anecdotal data. Two studies discussed a study where total length of stay in the ED was evaluated after an intervention where staff were educated on a standardized handoff tool using the situation, background, assessment, and recommendations (SBAR) tool. These studies found that using that the tool was able to reduce handoff time from 12.5 minutes to 7.5 minutes, and reduce handoff time in the second study

from an average of 5.87 minutes to 3.33 minutes (Dahlquist et al., 2018; Usher, Nones Cronin, & York, 2018).

Another study whose implications can contribute to a reduction in total handoff time shows how interruptions that occurred during handoff could be reduced from 67% to 40% with the application of the I-PASS (Illness severity, Patient summary, Action list, Situation awareness and contingency plans, Synthesis by receiver) handoff tool (Starmer et al. 2017). It can be extrapolated that reducing the number of interruptions during handoff would likely reduce the amount of time that it takes to give handoff report.

A systematic review was included in this review of literature as it had information that pertains to the main focus of the clinical question. In this study, 1408 articles were found for review, and 39 total were included in the review. Out of those, six were found to have a decrease in the amount of time that handoff takes (Mardis et al., 2016). Another theme that was present in this systematic review was that 5 studies also discussed a decrease in the amount of overtime hours. Another study whose intervention was to utilize bedside shift reporting to improve the effectiveness of their handoff noted that there was a decrease in the amount of overtime hours from 6,194 minutes pre-intervention to 5,281 post intervention, which is a 15% decrease. (Mardis et al. 2016; Cairns et al. 2013). Using bedside report was utilized in more than one study in this review. A study by Evans, Grunawalt, McClish, Wood and Friese (2012) discusses how utilizing bedside report decreased the average amount of time for report from 45 minutes prior to intervention to 29 minutes one year post intervention. While many of these studies showed a favorable trend in their results, none were known to have statistically significant results.

The reduction in handoff time was not universal in all studies, however. Two studies that noted an increase in their hand off times were included in this literature review. These studies were both quality improvement studies that were studying how effective hand off can improve communication between different units and different shifts. In one study, handoff report took an average of 4.1 minutes prior to the intervention, and 8.0 minutes post intervention, while in the other study, handoff report took 2:15 minutes per patient pre-intervention and 2:38 minutes post-intervention, which had a p-value of 0.016, a statistically significant result (Lane-Fall et. al, 2018; Smith et al., 2018). It should be noted however, that these studies also showed an increase in the amount of pertinent data given by the reporter during the handoff and a decrease of 21.3% in the amount of omissions from report (Lane-Fall et. al, 2018; Smith et al., 2018). The theme of increased length of time for handoff was also present in a qualitative study that was reviewed. In this qualitative review, themes that came up regarded how the I-PASS tool seemed to be more thorough than the unit's typical handoff, There were concerns that there would be an increase in the amount of time that the nurses would be in report, and this could lead to an increase in time that the patients would have to wait for cares as the nurses are busy giving report at change of shift (Heilman, Flanigan, Nelson, Johnson, & Yarris, 2016).

Length of Stay in ED

Length of stay in ED can be attributed to handoff communication. Two studies were identified that discussed ED length of stay as a measurement of the effectiveness of the tool that was implemented. In the study by Dahlquist et al. (2018), the median length of stay in the ED was 472 minutes, whereas post intervention, it was 455 minutes, however this number is not statistically significant with a p-value of 0.092. However, in another study that was reviewed, the ED length of stay actually increased from 330 minutes to 338.9 minutes (Singleton, Sanchez,

Masser, & Reich, 2018). In Dahlquist et al., the intervention used was the SBAR tool, whereas in the study by Singleton et al. (2018) used was an electronic sign-out handoff between providers. While Singleton et al. (2018) took into account seasonal timing, and had their pre-intervention data and post-intervention data take place during the same months one year apart, the study by Dahlquist et al. (2018) were two six-week periods back to back during the late summer through most of autumn. This could possibly skew the data as changes in seasons can change the demographic of ED patients (Dahlquist et al., 2018; Singleton et al. 2018).

Other Aspects of Improved Handoff

ED handoff time and length of stay were not the only factors reviewed. The theme in many of the articles is the improved perception of the handoff procedure by staff, which is present in five different studies. Staff report that they have an improved feeling regarding the handoff procedures after the intervention (Cairns et al., 2013; Evans et al., 2012; Heilman et al., 2016; Usher et al., 2018). However, in another study, the staff had a negative reaction to the intervention, and fewer people had a positive report about their feelings regarding the tool (Mardis et al., 2016). Another theme that was seen was how effective the tool was at getting data from either nurse to nurse or provider to provider. While in some of these studies, there was an increase in the length of stay of the patients, or an increase the amount of time that the provider or nurse was in handoff, the other side of this is that there was a decrease in the number of omissions of data (Lane-Fall et al. 2018; Singleton et al., 2018; Smith et al., 2018; Starmer et al., 2017).

Theoretical Framework

This project uses the Plan-Do-Study-Act (PDSA) theoretical framework (see Appendix B). The Agency for Healthcare Research and Quality (2015) describes the PDSA as four steps in a continually revolving test model which breaks down the problem into smaller tasks or steps. The four-step cycle finishes back at the beginning, allowing for changes to be made to improve upon the methods that were tested. In the *Plan* phase, the parameter that you will be testing is stated, including the measurement that the project hopes to achieve. The interventions that will be taken to execute the project are also in this section, including the population that will be in the study, and the time limit for the study. In the *Do* phase, the interventions from the Plan phase are executed with the population to be studied. In the *Study* phase, the data that was discussed in the plan phase is collected and analyzed. In the *Act* phase, the data which was collected and analyzed in the Study phase is used to determine whether or not the interventions were successful. At this point the cycle is complete, and can begin again with improvements determined by the Act phase, or further testing can be done with the same interventions on a larger scale if necessary (Agency for Healthcare Research and Quality, 2015).

In the *Plan* phase of this project, the main parameter that is planned to be tested is the staff satisfaction with handoff report between nurses in the ED and the nurses in the ICU/CCU. This will be accomplished by obtaining buy-in from stakeholders in the ED and ICU/CCU to agree to education utilizing the standardized reporting protocol I-PASS between ED and ICU/CCN nursing staff. Evidence based articles showing that the utilization of standardized reporting and I-PASS has improved staff satisfaction as well as omissions in critical communication will be distributed to stakeholders. In the *Do* phase, a Healthstream PowerPoint presentation will be utilized to teach staff how to use I-PASS hand off and bedside reporting. Badge buddies with I-PASS and bedside reporting information will be distributed to all nurses

who are participating in the study. A handout will be distributed that showcases all of the pertinent items that should be in an I-PASS bedside report. After these items are complete, bedside reporting will be implemented with assistance from the I-PASS handoff tool. During the *Study* phase, data will be collected to assess if there is any change in staff satisfaction related to handoff report while using the standardized I-PASS handoff report. This will be accomplished by utilizing a Likert scale to determine the nursing staff in the ICU/CCU's satisfaction while receiving report. In the *Act* phase, the findings from the data will be discussed and any future recommendations for further research will be evaluated. Items that worked and items that did not work in the study will be evaluated, and questions about how they can be changed will be addressed in this phase. After the Act phase is complete, the whole process can start again with the new information and recommendations on the same population, or the project can be expanded to a larger group.

Methodology

This study will be a pre and post survey quality improvement design. A survey questionnaire (see Appendix C) will be used that will determine the ICU/CCU registered nurses (RNs) feelings about hand off report. RNs in the ED will begin a training module on how to deliver report using the I-PASS handoff method, and have materials including a laminated information hanger for their ID Badge (Badge Buddy) and handouts with key elements about I-PASS handoff distributed to them over a period of two weeks. After one month, a post-survey (see Appendix C) will be distributed to the ICU/CCU RNs to determine if the educational intervention had any effect on the perception of how report is delivered from the ED to the ICU/CCU.

Setting

This project will be in a community based hospital in central New Jersey. The involved units are an emergency department (ED) and the Intensive Care Unit and Critical Care Unit (ICU/CCU). The ED has 43 rooms with expansion for multiple hallway beds depending on volume. The ED sees approximately 53,000 patients annually and has a staff of 125 nurses and techs. The ICU/CCU are separate units that function congruently and are only separated for logistical reasons, and have 16 beds.

Study Population

This project will include a convenience sample of volunteers from the pool of staff RNs from the ICU/CCU. Inclusion criteria will be staff RNs in the ICU/CCU who are not on orientation and are working independently in their assignment. Exclusion criteria are all non-RNs.

RNs in the ED will comprise the intervention group. They will be trained in the use of the I-PASS handoff report which is the element that is being evaluated by the ICU/CCU RNs. The RNs in the ED will be briefed on their role in the project, and consent and demographics will be obtained from all nurses involved in the intervention group.

A power analysis was run using the sample size calculator from ClinCalc LLC (2019) to determine the sample size using anticipated means. With an anticipated mean in the pre-intervention survey (priori power analysis) of two plus or minus two and an anticipated post-intervention survey (post hoc power analysis) mean of four, with an alpha of 0.05 and a power of 80%, the total sample size would have to be 32, with 16 in the pre-intervention survey and 16 in the post intervention survey to achieve statistical significance.

Subject Recruitment

Information regarding the project will be displayed on 8.5" x 11" posters in the ICU/CCU break room and in various areas around the unit (see Appendix D). Besides the informational posters, the co-investigator (CI) will recruit subjects personally, by word of mouth, and by snowballing from ED and ICU/CCU directors and managers. The CI will also speak with those individuals who represent the ICU/CCU in the [REDACTED] Nurse Practice Council, who contribute to the improvement of nursing practice in the hospital, to promote the project by word of mouth in their respective units. A handout will also be distributed by the CI to individuals in the ICU/CCU with more specific information regarding the study, including pre- and post-intervention surveys (see Appendix E).

Consent Procedure

Informed consent will be obtained from all participants in the study. Each participant will fill out a consent form (see Appendix F) which will be filed separately from any data collection forms. Consent for ICU/CCU RNs will take place after the applicant contacts the CI, and will take place in the break room in the ICU/CCU in private. Consent for ED RNs will take place after the applicant contacts the CI, and will take place in the Emergency Department Express break room. Explanation of consent will take five to ten minutes, allowing for questions. Participants who choose not to participate shall have no actions taken against them in the work place, and will not be included in the study. Participants who provide consent can withdraw at any time, but data that is already collected from them will be included in the study.

Risks and Ethical Considerations

This study is intended to follow the guidelines of a quality improvement (QI) project. Stiegler and Tung (2017) discuss that while there are human subjects involved, QI projects focus more on practice changes that occur in a single unit, between multiple departments, or even the

whole hospital. Therefore, a QI project is not considered to have human subject research (HSR). Risks for bodily harm to individuals in this study are not applicable, as there are no medications, procedures, or techniques involved in the study that would put those involved at risk of bodily harm. Other potential risks include breach of private identifiable data and confidential information. Data collected from individuals will include the individual's name and signature, and the date that they consented and signed their consent form. All other data will be anonymous, and no identifying data will be included in any information gathering sessions. All consent forms, surveys, and electronic data will be stored at the Rutgers School of Nursing at 65 Bergen St. Newark, NJ 07107.

Subject Costs and Compensation

There will be no cost for those individuals who are taking part of this project. Participants who fill out questionnaires will not be compensated financially.

Study Intervention

An educational module will be completed by the ED staff RNs on the use of the I-PASS handoff method. The source for the education will be from the I-PASS Handoff Study, and a PowerPoint presentation will be developed that outline the principals present in the education modules from the I-PASS study (I-PASS Study Group, 2014). The education will be as part of a Healthstream® online learning module to be completed by ED RNs. Further reinforcement will be in the form of handouts that describe what is necessary content for a handoff report between the ED and ICU/CCU (see Appendix F). ID badge hangers with the I-PASS Mnemonic will further aid in reminding ED staff nurses about how to given a standardized report using the I-PASS method.

Outcomes to be Measured

Surveys will be distributed to ICU/CCU staff nurses and will evaluate whether they strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree with the

following statements: I find that handoff report from the ED is thorough; I find that the handoff report from the ED is efficient; I am sometimes frustrated when receiving report from the ED; I feel as though there is information missing from the report from the ED; I am satisfied with the report that I receive from the ED (see Appendix C). One month after the intervention is completed in the ED, a post-intervention survey, which is a copy of the original survey, will be distributed to the ICU/CCU staff nurses to determine whether or not the intervention helped to increase satisfaction of handoff report.

Project Timeline

The project time is included in Appendix I. After proposal is discussed with team which consists of the Principal Investigator and DNP Project chair Dr. Kamienski, the Co-Investigator Charles Mahoney, and the DNP team member Dr. Maye, the project will be sent to the Hospital Research Council for review. When this is completed, it will be submitted to the [REDACTED] [REDACTED] Hospital's Institutional Review Board (IRB). After obtaining approval from the hospital IRB, it will be sent to the Rutgers IRB for review. After obtaining approval for the project from the IRB, recruitment of nurses from the ICU/CCU staff and the ED staff began in January, 2020, and informed consent forms were signed. Following consent being obtained, ICU/CCU staff nurses will be given a survey to fill out and placed in a sealed envelope to maintain anonymity. At the end of March, 2020, a post-intervention survey will be distributed again to ICU/CCU nurses to fill out and seal in an envelope to maintain anonymity throughout the process. Data will be analyzed with SPSS software and the final document will be completed throughout March and April, 2020. The final presentation will take place in April of 2020 (See Appendix I).

Resources Needed/Economic Considerations

Costs associated with the project will be the responsibility of the PI. The budget that is anticipated for this project is approximately \$297.03. Recruitment flyers using glossy paper and color will cost approximately one dollar each for a total of \$10.00. Information handouts for ED staff nurses will be black and white copies and will cost approximately \$20.00. Surveys will be black and white copies and will cost approximately \$10.00. ID Badge Hangers (Badge Buddies) will be a significant expense, costing approximately \$127.64 for supplies. A locking paper drop box to be used in the ICU/CCU will cost \$40.39. IBM SPSS statistics software for the statistical analysis will also be needed for the completion of this project.

Evaluation Plan

This project will be evaluated with Likert-scale surveys pre-intervention and post-intervention. The project will be said to have a positive result if the median and mode of the scores is higher in the post-intervention survey than it was in the pre-intervention survey. The project will be said to have a negative result if the median and mode of the scores is the same or lower in the post-intervention survey than it was in the pre-intervention survey.

Data Analysis Plan

SPSS software will be utilized to assist in analysis of the quantitative data that is obtained in the pre-intervention survey and the post-intervention survey. As the values in the Likert scale are ordinal, they do not represent a constant and therefore a paired t-test will not be appropriate. A Mann-Whitney U test (Laerd Statistics, 2018) will be used to compare the differences in the pre-intervention and post-intervention phases. Descriptive statistics will help to determine if there is a positive trend to how handoff report is given in the post-intervention phase compared to the pre-intervention phase.

Data Maintenance/Security

All surveys collected will not include identifiers, and envelopes will be blank save for a mark designating them as pre-intervention surveys or post-intervention surveys. The only information on the survey other than the answers to the questions will be the date that it was completed. These completed surveys will remain in their sealed envelope and either handed directly to the CI, or placed in a locked box to be provided by the CI and kept in the ICU/CCU break room until it can be retrieved by the CI. The data from the surveys will be uploaded to an SPSS spread sheet and Microsoft® Excel for backup. All consent forms, surveys, and electronic data will be stored at the Rutgers School of Nursing at 65 Bergen St. Newark, NJ 07107.

Results

Participants

For the pre-survey, a total of 31 nurses from the ICU/CCU participated. Individuals were registered nurses who worked in the ICU/CCU and were not on orientation. Pre-surveys were collected for two weeks between January 27, 2020 and February 8, 2020. Those who participated were a convenience sample of those who were working at the time of data collection and who were available to listen to the explanation of the project, to give informed consent, and complete the five question survey. Nurses were chosen from both day and evening shifts. The nature of the project was explained to the nurses that agreed to participate. Consent was obtained from all nurses taking part in the survey prior to completing the survey. Nurses completed the five question survey and returned it to the co-investigator folded in half to protect the anonymity of the questions. No demographic data was collected from the pre-survey group.

For the ED nurses who took part in the project, the co-investigator verbally described the project, explained why it was being done, and gave a description about their role in the project. Consent was obtained from the ED staff to take part in the project. After consent was obtained, staff were required to complete the PowerPoint education module that was assigned to them through Healthstream. Of 68 eligible staff nurses, excluding management who would not be giving report to the ICU/CCU nurses, 62 were consented, five were not present during any time that the co-investigator was present for consent, and one nurse refused to consent. This is approximately 91.2% of ED staff nurses that consented to take part as the intervention group in this project.

For the post-survey, nine nurses from the ICU/CCU were able to be consented and fill out and return the survey questions. For those who did not take part in the pre-survey, the project was explained, the consent process was discussed and consent was obtained, and the survey was collected. No demographic data was collected from the nurses who took part in the post-survey. The post-survey was a convenience sample of nurses in the ICU/CCU who were not involved in direct patient care at that time.. These surveys were obtained on March 15, 2020 through March 17, 2020. The survey period had to be limited due to the 2019 Novel Coronavirus (COVID-19) pandemic. Student activities not directly involved in researching the virus were halted. The safety of the co-investigator in the sampling area (the ICU/CCU of [REDACTED] [REDACTED]) was compromised, and further surveys could not be obtained.

Survey Results

The pre-survey and post-survey are five questions that are rated by the subject using a 5 point Likert scale, with one being Strongly Disagree, 2 being Disagree, 3 being Neither Agree nor Disagree, 4 being Agree, and 5 being Strongly Agree. Question 1 is “I find that handoff

report from the ED is thorough”. Question 2 is “I find that the handoff report from the ED is efficient”. Question 3 is “I am never frustrated when receiving report from the ED”. Question 4 is “I never feel as though there is information missing from the report from the ED”. Question 5 is “I am satisfied with the report that I receive from the ED”. These questions were developed by the co-investigator as a way to gauge how the ICU/CCU Registered Nurses perceived the completeness, thoroughness, and satisfaction when receiving report from the ED Registered Nurses.

Question 1. Do ICU/CCU nurses feel that the report that they receive from the ED nurses is thorough. Before the intervention, the mean score for this question was 2.48, indicating that the staff did not agree that report was thorough. After the intervention, the mean score for this question was 3, indicating that they neither agreed nor disagreed with the statement. A Mann-Whitney U test was done, and did not find a statistically significant difference between the pre-intervention and post intervention surveys ($z = -1.267$), as $p = 0.205$ when the standard $p = 0.05$.

Question 2. Do ICU/CCU nurses feel that the report is efficient, and is used to gauge their satisfaction with the report. Before the intervention, the mean score for this question was 2.58, indicating that the staff did not agree that the report was efficient. After the intervention, the mean score for this question was 3.33, indicating that the ICU/CCU nurses had a slightly more than neutral agreement with the statement. A Mann-Whitney U test was done, and did not find a statistically significant difference between the pre-intervention and post intervention surveys ($z = -1.737$), as $p = 0.082$, when the standard $p = 0.05$.

Question 3. ICU/CCU nurses are frustrated with report from the ED, and is used to gauge satisfaction with the report. Before the intervention, the mean score for this question was 2.45,

indicating that the ICU/CCU nurses did not agree that they were never frustrated when receiving report from the ED nurses. After the intervention, the mean score for this question was 2.67, indicating that the ICU/CCU nurses did not agree that they were frustrated when receiving report. A Mann-Whitney U test was done, and did not find a statistically significant difference between the pre-intervention and post-intervention surveys ($z = -0.721$), as $p = 0.471$ when the standard $p = 0.05$.

Question 4. ICU/CCU nurses feel as though there is information missing from their reports from the ED nurses, and is used to gauge the ICU/CCU nurses' perception of thoroughness. Before the intervention, the mean score for this question was 2.32, indicating that the ICU/CCU nurses did not agree that the report from the ED nurses was never missing information. After the intervention, the mean score for this question was 2.67, indicating that the ICU/CCU nurses did not agree that the report from the ED nurses was never missing information. A Mann-Whitney U test was done, and did not find a statistically significant difference between the pre-intervention and post-intervention surveys ($z = -0.511$), as $p = 0.609$ when the standard $p = 0.05$.

Question 5. ICU/CCU nurses are satisfied with the report given from the ED nurse. Before the intervention, the mean score for this question was 2.45, indicating that the ICU/CCU nurses did not agree that they were satisfied when receiving report from the ED nurses. After the intervention, the mean score for this question was 3.11, indicating that the ICU/CCU nurses had a slightly more than neutral amount of satisfaction when receiving report. A Mann-Whitney U test was done, and did not find a statistically significant difference between the pre-intervention and post-intervention surveys ($z = -1.855$), as $p = 0.064$ when the standard $p = 0.05$.

Average. The overall average when all questions were considered before the intervention was 2.46, which indicates that they did not agree with the statements in the survey. After the intervention, the overall average was 2.91. A Mann-Whitney U test was done and did not find a statistically significant difference between the pre-intervention and post-intervention surveys ($z = -1.451$), as $p = 0.147$ when the standard $p = 0.05$. With a post intervention average of 2.91, the ICU/CCU nurses still have an overall disagreement with the statements in the survey.

Discussion

This project's goal was to determine if switching to a standardized handoff report would improve the way that handoff report would be delivered by the ED nurse to the ICU/CCU nurse. The questions in the survey that was completed by the nurses discussed several aspects of handoff report. These included efficiency, completeness, and ICU/CCU nurse feeling/satisfaction when report is being delivered. A study on the effects of implementing I-PASS handoff on communication quality and workflow had demonstrated that there was an improvement in the way that the process of verbal handoff without having a negative effect on workflow (Starmer et al., 2017). This project did not have the same results, and did not find that there was a statistically significant difference from before and after the I-PASS handoff communication method was adopted.

Up to 70% of all sentinel events happen because of communication errors between healthcare staff (Starmer et al, 2017). Amanda Briones (2016) describes that while 90% of nurses in her survey stated that they were satisfied with the report, there were multiple instances where the nurses who were receiving reports had issue with the way that report was given. 34.5% of nurses had observed that they were involved in near misses or errors that happened as a result of

information missing from the report. She also states that 44% of the nurses surveyed believe that the report that they received was not detailed enough, and 38% believe that there was a lack of organization. The Joint Commission regarded this as an issue. JCAHO included “Implement a standardized approach to “hand-off” communications, including an opportunity to ask and respond to questions” as part of their 2006 National Patient Safety Goals (Catalano, 2006).

Implementing a standardized handoff system that the ED nurses could use to deliver report at the bedside had the goal of improving several aspects of the report, including organization and reduction of data omission.

Facilitators/Barriers

This project was conducted to improve the communication between the registered nurses in the ED with the registered nurses in the ICU/CCU. The co-investigator had conducted ad hoc discussions with ICU/CCU staff nurses prior to the project implementation to determine if there was any interest in improving handoff report. Multiple nurses in the ICU/CCU had expressed interest, and the director of the ED also expressed interest in improving handoff report.

The facilitators that made it possible for this project to take place were the principal investigator (PI), DNP teammate in the ED, and the stakeholders for the organization. The stakeholders included the ED director, the ICU/CCU director, the ED nursing educator, the liaison for the research committee, the Vice President of Research, and the medical director of the hospital. As the specialty director for the Emergency Care Program, the PI had experience navigating IRB and research, and was able to provide guidance to the co-investigator when he was conducting his research. The ED director and ICU/CCU director were able to help facilitate initial approval to pursue the project in their respective units. The nursing educator put the co-

investigator in touch with the Vice President of research and the liaison for the research committee. The Liaison for the research committee assisted the co-investigator with navigating the Institutional Review Board (IRB), both with [REDACTED] [REDACTED] [REDACTED] and with the Rutgers University IRB. The Vice President of Research assisted with facilitating to make the project viable to [REDACTED] and Rutgers University IRB. The medical director of [REDACTED] [REDACTED] reviewed the IRB application and approved it to be reviewed by Rutgers University IRB.

There were several barriers that worked against this project being successful in improving the way that the ICU/CCU nurses perceive handoff report. In the intervention group, which consisted of nurses from the Emergency Department, there was not a strict adherence to using the I-PASS handoff tool when delivering report to the ICU/CCU. The majority of the ED nurses were consented, and completed the training module. The retention of how to do the I-PASS handoff might be lost if there is a long time between completing the course and implementation. While cheat sheets and a badge buddy were available, this might not have been enough.

Another barrier that could not have been expected when making the timeline for this project was the occurrence of the COVID-19 coronavirus pandemic that struck the world in late 2019 to 2020. This prevented the co-investigator from being able to go to the ICU/CCU to distribute and collect surveys from the ICU/CCU staff. A total of only nine post surveys were completed, and this prevented the co-investigator from getting a sample that had statistical significance.

Limitations

Some of the limitations of this project include its reduced timeline for collecting post-intervention surveys from the nurses in the ICU/CCU. The COVID-19 pandemic was beginning

to hit the hospital at the very beginning of the collection period. As such, only three days were available to collect surveys from staff before collection had to stop conducting research in the ICU/CCU. This was not adequate enough time to collect enough surveys to have a statistically significant sample for the surveys.

Another limitation for this project is the limited amount of time that passed between the initial survey, implementation, and the post-surveys. Due to the length of time that it took to receive approval from multiple IRBs, only one month could pass between implementation and the post-surveys taking place. Multiple nurses in the ICU/CCU stated that they could not fill out the survey, as they had not had any admissions from the ED in the previous month and could not faithfully score a tool that they never used. Similarly, multiple nurses in the ED had not given report to the ICU as they did not have any ICU patients that month, so they also did not get a chance to use the I-PASS handoff tool. There might have been more opportunity for ED nurses to give report with the I-PASS tool, and more opportunity for the ICU/CCU nurses to receive report with the I-PASS tool if the implementation had gone on a longer time frame such as six months.

Overall, the limitations for the project deal with the shortened time frame for the project. It is hoped that a continuation for the project can be accomplished, and more data can be collected to find if there is a statistically significant difference between the pre-intervention and post-intervention data.

Implications

The implications of this project do not show that there is a statistically significant change in the way that handoff report between the ED nurses and the ICU/CCU nurses. However, there are other studies which showed an increase in staff satisfaction with the I-PASS handoff report, such as Starmer et al., which found a positive improvement in the elements of a standardized

report being prevalent, and less data was being lost, reducing risk of adverse events related to miscommunication (2017).

Economic

With miscommunication in hospitals being responsible for up to 70% of sentinel events (Starmer et al., 2017), miscommunication is a factor that could expose the hospital to litigation. According to Budryk (2016), miscommunication in healthcare settings can cost \$1.7 billion, and is responsible for almost 2000 deaths annually. As described previously, implementing and continuing to use a standardized handoff tool, such as I-PASS can help to facilitate the way that report is given, and will help to reduce errors of omission and give a report that is in a more logical manner.

Hospital length of stay can also be a factor in the efficiency of handoff report. According to Zhang et al. (2019), patients who are held in the ED for greater than six hours have a longer hospital stay. In their study they found that patients who were held in the ED for greater than six hours had a seven day hospital stay, when those who were transferred to ICU in less than six hours had a hospital stay of only six days, which was a statistically significant result. Having a shortened hospital stay for the patient can reduce costs for the hospital.

Quality and Safety

This is a quality improvement project, meaning that it is designed to systematically arrange activities with the goal of improving the quality of health care delivered at a facility. The main goal of the project is to improve the way that handoff report is delivered from the ED nurses to the ICU/CCU nurses in a way that reduces the amount of missing data and errors, and in general improves the feeling and flow of how handoff report is delivered.

This will be accomplished by implementing the standardized handoff reporting system, I-PASS. Once properly implemented, the I-PASS handoff will aim to reduce errors of omission and missing data by putting the handoff data in a logical manner, and training the ED nurses to do it the same way every time. This will improve the quality of how handoff report is given over time. This has the added bonus of creating a safer environment for patients, as there will be less omissions in data, which may reduce errors and improve patient outcomes.

Health Policy

This project has the possibility of changing policies in the hospital in relation to how handoff report is communicated from the ED to the ICU/CCU, and possibly later to include all floors receiving report, whether it be the ED or other units. There are other studies that showed a positive result from switching to a standardized reporting system. It is possible that further study beyond the initial implementation period might yield a positive skew to the handoff report results, and these numbers will be statistically significant. If the handoff report is shown to be an improvement on the “SBAR” that was done before it was implemented, there is a possibility that it will be accepted as the standard reporting system for the hospital.

Education

As of now, the findings from this project do not show a positive correlation in the satisfaction of ICU/CCU nurses on the usage of the I-PASS handoff tool. However, there are other studies that have shown a positive correlation with standardized handoff reports, and it is possible that over time, a second study might show a positive correlation with the I-PASS handoff system. Staff would have to be educated about properly delivering the I-PASS handoff report, and have a way to remain up to date on how to deliver report until they are able to do it consistently every time. New nurses coming into the organization will have to be trained on how

to deliver the I-PASS handoff tool so that they too are able to properly deliver a standardized handoff report.

Sustainability

The original goal that was discussed with the ED director was to evaluate the way that I-PASS handoff system worked when giving report to the ICU/CCU and evaluate it for use to give report from the ED to the other units throughout the hospital. As the project had to be cut short due to the COVID-19 pandemic, a proper evaluation of the handoff tool was not able to be completed. Another study will be completed six months – one year after the initial implementation to determine if the implementation of the I-PASS handoff report was successful, as measured by an improved perception of the way ED nurses given report to the ICU/CCU nurses.

One factor that will lead to the sustaining of the I-PASS handoff in the [REDACTED] Health system is with the implementation of the Epic electronic health record. The electronic medical record handoff tool will incorporate the I-PASS handoff tool for its electronic handoff (Menon et al., 2020). This will be integrated into the system, and staff will be trained in its use to facilitate handoff report. A longitudinal study can be attempted to identify whether or not this is a preferred method of giving handoff report.

Future Scholarship

Due to the COVID-19 pandemic which was becoming more prevalent at the very beginning of the second data collection period, as well as the time constraints for the project, not enough data has been obtained to show a statistically significant sample. The co-investigator will do a follow up six months after the initial survey to have ICU/CCU nurses fill out more surveys than were originally obtained to see if there is a difference in the way that handoff had occurred.

Multiple nurses had refused the survey in the second data collection period, stating that they had not received handoff report from the ED nurses, and thus could not give an honest opinion of the I-PASS handoff method. This will be done as a quality improvement project through the [REDACTED] [REDACTED] Institutional Review Board.

Other possibilities for future scholarship include the development of an entirely different tool that incorporates the needs of the ICU/CCU level of detail that can be provided by the ED nurse. This could be a collaboration that incorporates the necessity of different elements that ICU/CCU would want in a handoff report, combined with the limitations of focusing on the detail that is not possible in the emergency setting.

Dissemination

This project's plan for dissemination includes presenting the project to the Principal Investigator/Department Chair and project teammate on April 20, 2020 and presenting on the virtual poster day that same day. The final project will be shared with [REDACTED] [REDACTED] stakeholders so that it might be presented at the facility. An abstract and possibly a manuscript will be sent to the *Journal of Emergency Nursing* to be considered for publication. The poster and abstract will also be sent to the New Jersey State Nurses Association/ Institute for Nursing for consideration to be presented in their convention.

Summary

Current handoff report between the ED and ICU/CCU is not standardized, and each nurse has their own way of delivering handoff report. Standardizing report using the I-PASS method will help staff nurses in the ED improve how information is delivered during transfer of care. Besides the implications that this could improve care, this will help to improve how report is perceived by the ICU/CCU and increase staff satisfaction. This project hopes to improve the way

that the ED and the ICU/CCU communicate by allowing the ICU/CCU to have input into what is necessary information when they are receiving report. This project used a pre/post intervention design that used a Likert-scale series of five questions to determine how satisfied the ICU/CCU staff nurses were when receiving handoff report from the ED nurses. The project did not show a statistically significant correlation for improvement of satisfaction in ICU/CCU nurses when receiving report from the ED. Further testing and education may be necessary to determine if the I-PASS handoff tool is effective or not in improving the way that handoff report is delivered between the ED nurses and the ICU/CCU nurses.

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Appendix A

Table of Evidence

Clinical Question: Does improving handoff communication between the ED and the ICU/CCU reduce the amount of time a patient remains in the ED after an ICU/CCU bed is assigned?

Date: 3/17/2019

Article #	Author & Date	Evidence type	Sample, Size, and Setting	Study findings that help me answer my EBP Question	Limitations	Evidence level and Quality
1	Starmer, A. J., Schnock, K. O., Lyons, A., Hehn, R. S., Graham, D. A., Keohahe, C., Landrigan, C. P.	Quasi-experimental	126 total patients: 81 pre-intervention 45 post-intervention. Set in hospital	Implementing the I-PASS bundle reduces the number of Interruption to workflow by 40%	Only one ICU in one hospital was evaluated. Possibility of Hawthorne effect due to the subjects knowing that they are being watched.	Level II evidence; (B) Good quality.
2	Dahlquist, R. T., Reyner, K., Robinson, R. D., Farzad, A., Laureano-Phillips, J., Garrett, J. S., ... Wang, H.	Quasi-experimental	1006 patients: 327 pre-intervention, 679 post-intervention. Set in hospital.	Handoff time in minutes was reduced from 12.5 minutes to 7.5 minutes. Length of stay was reduced from 472 minutes to 455 minutes	Prospective study in a single center. Not all outcomes can be measured such as patient satisfaction, 30-day readmission or prescription errors as a	Level II evidence; (A) High quality.

				post intervention.	result of the handoff system.	
3	Usher, R., Nones Cronin, S., York, N. L.	Quasi- experimental	32 nurses pre intervention, 23 nurses post intervention Hospital setting, ED.	Standardize d tool was used as the intervention. Study found that there was a reduction of time from a median of 5.87 minutes to 3.33 minutes pre intervention and post intervention respectively.	Small sample size, as this is only one unit. Competing priorities from other nursing units	Level II evidence; (B) Good quality.
4	Lane-Fall, M. B., Pascual, J. L., Piefer, H. G., Di Taranti, L. J., Collard, M. L., Jablonski, J., ... Lee, A. F.	Quasi- experimental	165 total: 68 pre- intervention ; 97 post intervention ; Hospital postoperativ e unit to ICU.	Standardize d tool increased handoff time from 4.1 minutes to 8.0 minutes after implementat ion.	Re-admitted patients did not have any changes in omission of data, suggesting that there is a false sense of security when giving report on these patients.	Level II evidence; (B) Good quality.
5	Cairns, L. L., Dudjak, L. A., Hoffman, R. L., Lorenz, H. L	Quasi- experimental	Unknown Hospital ED setting	Overtime hours at end of shift decreased from 6194 minutes to 5281 minutes which is a 15% decrease,	Unknown number of subjects in the study does not allow others to replicate study.	Level II evidence; I Low quality or major flaws.

				suggesting that handoff time at the change of shift has been decreased.		
6	Evans, D., Grunawalt, J., Mcclish, D., Wood, W., Frieze, C. R.	Quasi- experimental	42 nurses Hospital 32 bed medical/ surgical unit	Average report time went from 45 minutes pre intervention to 29 minutes 1 year post intervention.	Concerns regarding HIPAA compliance and patient confidentiality can cause some nurses to stray away from bedside reporting.	Level II evidence; (B) Good quality.
7	Singleton, J. M., Sanchez, L. D., Masser, B. A., & Reich, B	Quasi- experimental	2,151 patients. 1045 pre- intervention, 1106 post intervention Hospital ED setting	ED LOS was 330 minutes pre intervention (318.6 – 341.4 minutes at 95% CI) and 338.9 minutes post intervention (327.4- 350.4 minutes at 95% CI).	Length of time is for all patients, and does not take into account patients with a prolonged length of stay in due to boarding, where the handoff process did not delay transfer.	Level II, (B) Good quality
8	Smith, C. J., Buzalko, R. J., Anderson, N., Michalski, J., Warchol, J., Ducey, S., & Branecki, C. E.	Quasi- experimental	220 patients. 110 pre intervention, 110 post intervention. Hospital ED setting	Mean time of length of report was 2:15 minutes pre intervention versus 2:38 minutes post intervention.	Study is from a single institution, so results might not be universal. Transcripts were evaluated, so tone of voice and inflection might have been missed.	Level II, (B) Good quality

9	Heilman, J. A., Flanigan, M., Nelson, A., Johnson, T., Yarris, L. M.	Qualitative	44 responded to the survey. 22 residents and 22 attending physicians.	Time was discussed as an issue in regards to handoff, and whether or not the I- PASS system would increase the amount of time that handoff takes.	Study is from a single center, and therefore results might not be universal. The small sample size might not allow for all relevant themes to be uncovered.	Level III, (B) Good quality.
10	Mardis, T., Mardis, M., Davis, J., Justice, E., Riley Holdinsky, S., Donnelly, J., ... Riesenberg, L.	Systematic Review	1408 unique articles were identified. Abstracts were reviewed and 39 articles were included in the review.	6 studies that were reviewed showed that there was a decrease in time spent during handoff. 5 studies showed that there was a decrease in the total amount of overtime after implementat ion.	Research studies that may have had negative results or those that were quality improvement might not have been published, and therefore data might be skewed to only show positive results.	Level V. (A) High quality

Appendix B

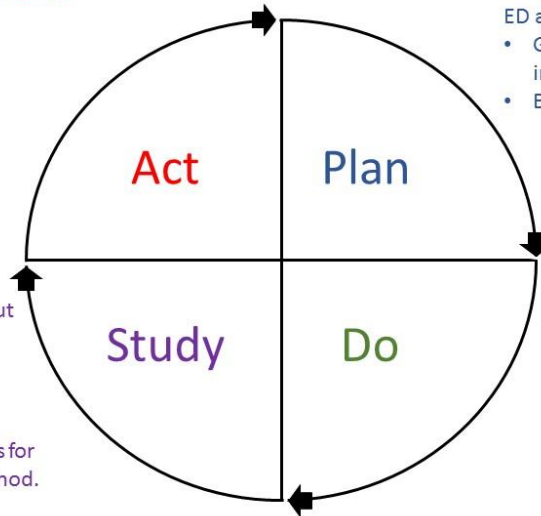
Recommendations based on findings.

- What worked?
- What went wrong?
 - How can it be fixed?

Recommendations for future research.

Evaluate staff perception about satisfaction with new handoff report system:

- Evaluate Likert scale pre intervention.
- Evaluate recommendations for additions to reporting method.
- Evaluate Likert scale post intervention.



Improve handoff communication between ED and ICU/CCU:

- Get buy in from stakeholders regarding interviews from ICU/CCU nurses
- Education modules for I-Pass Handoff:
 - Speak with ED and ICU staff regarding must have items in report.
 - Get top 5 requests from each department to add to bedside report.

Evaluation: Likert scale test for satisfaction regarding current handoff.

Education:

- Develop Healthstream powerpoint for Bedside reporting and I-PASS Handoff.
- Distribute Badge-Buddies with I-PASS information.
- Distribute handout with I-PASS Handoff and requested bedside report items.

Appendix C

Pre-Intervention and Post-Intervention Survey

Improving handoff from the ED to the ICU/CCU

Rate your agreement of the following questions:

Date: _____

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neither Agree nor Disagree
- 4 = Agree
- 5 = Strongly Agree

1. I find that handoff report from the ED is thorough.

2. I find that the handoff report from the ED is efficient.

3. I am never frustrated when receiving report from the ED.

4. I never feel as though there is information mission from the report from the ED

5. I am satisfied with the report that I receive from the ED.

Appendix D

Recruitment poster



RUTGERS
School of Nursing

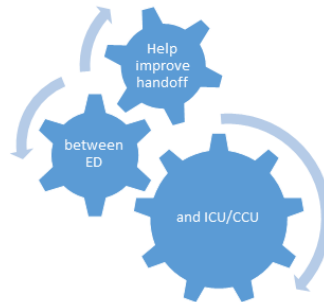
Principal Investigator: Dr. Mary Kamienski
Rutgers School of Nursing
65 Bergen Street
Newark, NJ 07107

Improving throughput from ED to ICU/CCU

Purpose: assess satisfaction levels of ICU/CCU staff nurses with handoff report before and after ED staff nurse training in I-PASS handoff method.

Involvement: eligible nurses will be asked to fill out a survey before the intervention and 1 month after conclusion of intervention.

Location: Robert Wood Johnson Barnabas Health Somerset Campus ICU/CCU and ED



Help us improve our handoff reports!

Participants in ICU/CCU will be evaluating how satisfied they are with handoff report.

Participants in the ED will be trained in how to deliver report using the I-PASS method by means of a PowerPoint Healthstream

Any questions?

Contact Charles Mahoney, DNP Student, in the ED or at

Appendix E

Recruitment handout



Principal Investigator: Dr.
Mary Kamienski
Rutgers School of Nursing
65 Bergen Street

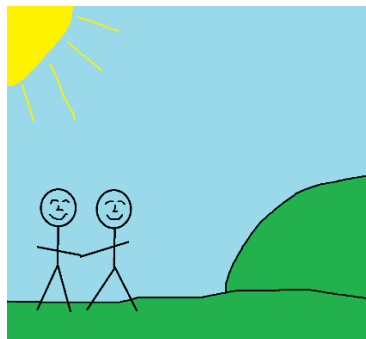
Improving throughput from ED to ICU/CCU

Purpose: assess satisfaction levels of ICU/CCU staff nurses with handoff report before and after ED staff nurse training in I-PASS handoff method.

Involvement: eligible nurses will be asked to fill out a survey before the intervention and 1 month after conclusion of intervention.

Location: [REDACTED]

[REDACTED]



Participants will take a short (5 questions) survey describing how they feel about the current way that report is given. One month after the intervention is completed, they will take another survey to determine if they feel that the intervention was effective in improving handoff communication between the ED and ICU/CCU.

Contact Charles Mahoney at [REDACTED] or [REDACTED]

Appendix F

I-PASS Handout for ED staff

Room #	Name	MR#	Service/ attending	DOA	Age/ Gender	DOB	Chief Complaint	Weight
I	Illness severity: Stable "Watcher" Unstable							
P	Patient summary: Chief complaint, patient history, events leading up to hospitalization, current treatment course, plan of care, pertinent medications, IV access							
A	Action items: To do list, timeline of items, ownership of tasks							
S	Situation awareness and contingency planning: Current assessment, plan for what might happen							
S	Synthesis by receiver: Receiver summarizes the report and asks questions, restates key items and action items that they need to complete.							

Appendix G

ID-Badge Hanger

I	Illness Severity
P	Patient Summary
A	Action List
S	Situation Awareness and Contingency Planning
S	Synthesis by Receiver

Appendix H

Informed Consent

CONSENT TO TAKE PART IN A RESEARCH STUDY

TITLE OF STUDY: Improving throughput from Emergency Department (ED) to Intensive/Critical Care Units (ICU/CCU).

Principal Investigator: Dr. Mary Kamienski

STUDY SUMMARY: This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want to take part in this study. It is your choice to take part or not. The purpose of the research is to: evaluate satisfaction with handoff report between ED and ICU/CCU, and improve handoff communication between ED and ICU/CCU. If you take part in the research, you will be asked to fill out a questionnaire. For ICU/CCU nurses, your time in the study will take approximately 5 minutes to complete the survey before and after the intervention. For ED nurses, your time will take approximately 30-60 minutes reviewing a PowerPoint style presentation. Possible harms or burdens of taking part in the study may be dissatisfaction from taking the questionnaire, and possible benefits of taking part may be having input in regards to how handoff report is given. Your alternative to taking part in the research study is not to take part in it.

The information in this consent form will provide more details about the research study and what will be asked of you if you choose to take part in it. If you have any questions now or during the study, if you choose to take part, you should feel free to ask them and should expect to be given answers you completely understand. After all of your questions have been answered and you wish to take part in the research study, you will be asked to sign this consent form.

Who is conducting this research study?

Dr. Mary Kamienski is the Principal Investigator of this research study. A Principal Investigator has the overall responsibility for the conduct of the research. However, there are often other individuals who are part of the research team. Charles Mahoney is the Co-Investigator of this research study.

Dr. Mary Kamienski may be reached at [REDACTED] or [REDACTED]

Charles Mahoney may be reached at [REDACTED] or at [REDACTED]

The Principal investigator or another member of the study team will also be asked to sign this informed consent. You will be given a copy of the signed consent form to keep.

Why is this study being done?

This study is being done to evaluate a handoff tool to facilitate handoff between the ED and ICU/CCU

Who may take part in this study and who may not?

Registered Nurses (RN) who work in the ED and ICU/CCU may take part in this study.
Study is not open to others.

Why have I been asked to take part in this study?

You have been asked to take part in this study because your position as an RN in the ED or ICU/CCU puts you at the giving and receiving end of report from the ED. Your understanding of what is needed information as part of handoff will allow a more efficient and thorough way to deliver handoff from ED to ICU/CCU.

How long will the study take and how many subjects will take part?

This study will take approximately 2 months, with an initial survey for ICU/CCU nursing staff, education to ED staff regarding the new handoff tool, and post intervention survey.

What will I be asked to do if I take part in this study?

For Intensive Care Unit/Critical Care Unit Registered Nurses, you will be asked to fill out a questionnaire regarding how you feel about the way that handoff report is delivered before the tool is implemented and after the tool is implemented. For Emergency Department Registered Nurses, you will be asked to take a short educational module that describes the steps necessary to complete an I-PASS handoff report. You will be given a handout and a ID badge hanger with reminder information on the information covered in the educational module.

What are the risks and/or discomforts I might experience if I take part in this study?

There are no risks of bodily harm in this study.

Are there any benefits to me if I choose to take part in this study?

The benefits of taking part in this study may be improving how you receive handoff report from the ED, and increased satisfaction in receiving handoff report. However, it is possible that you may not receive any direct benefit from taking part in this study.

What are my alternatives if I do not want to take part in this study?

Your alternative is not to take part in this study.

How will I know if new information is learned that may affect whether I am willing to stay in the study?

During the course of the study, you will be updated about any new information that may affect whether you are willing to continue taking part in the study. If new information is learned that may affect you after the study or your follow-up is completed, you will be contacted.

Will I receive the results of the research?

You will not be notified of the results directly. However, your managers will notify you if the handoff tool will remain in effect after the study has concluded.

Will there be any cost to me to take part in this study?

There will be no cost to take part in this study.

Will I be paid to take part in this study?

You will not be paid to take part in this study.

Who might benefit financially from this research?

The hospital might benefit financially from this research, as it could help to improve the quality of reporting which could in turn improve the care delivered in the ICU/CCU.

How will information about me be kept private or confidential?

All efforts will be made to keep your personal information in your research record confidential, but total confidentiality cannot be guaranteed. All survey data will be collected in sealed envelopes to assure anonymity.

What will happen to my information collected for this research after the study is over?

The information regarding improving handoff collected about you for this research will not be used by or distributed to investigators for other research.

What will happen if I do not wish to take part in the study or if I later decide not to stay in the study?

It is your choice whether to take part in the research. You may choose to take part, not to take part or you may change your mind and withdraw from the study at any time.

If you do not want to enter the study or decide to stop taking part, your relationship with the study staff will not change, and you may do so without penalty and without loss of benefits to which you are otherwise entitled.

You may also withdraw your consent for the use of data already collected about you, but you must do this in writing to Dr. Mary Kamienski, 65 Bergen St. Newark, NJ 07103

Who can I call if I have questions?

An Institutional Review Board (IRB) is a federally mandated committee with the responsibility of protecting the rights of human subjects in research.

If you have questions about taking part in this study or if you feel you may have suffered a research related injury, you can contact the Primary Investigator: Dr. Mary Kamienski at

██████████ or co-investigator Charles Mahoney, ED, ██████████

You may contact the [REDACTED] [REDACTED] IRB at:

████████████████████

If you have questions about your rights as a research subject, you can call the IRB Director at:

Newark HealthSci (973)-972-3608 or the Rutgers Human Subjects Protection Program at (973) 972-1149.

AGREEMENT TO PARTICIPATE

1. Subject consent:

I have read this entire consent form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form and this study have been answered. I agree to take part in this study.

Subject Name: _____

Subject Signature: _____ Date: _____

2. Signature of Investigator/Individual Obtaining Consent:

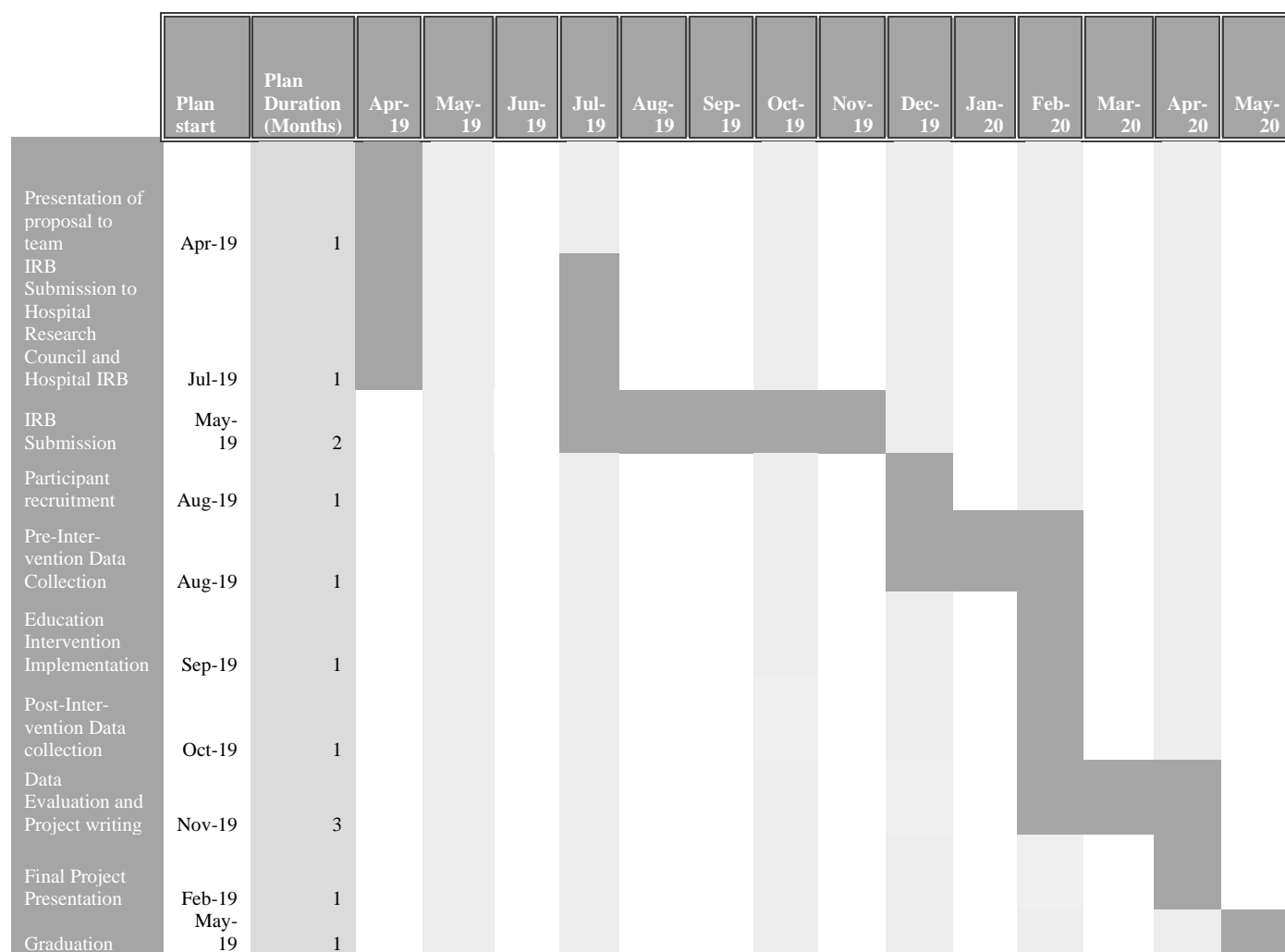
To the best of my ability, I have explained and discussed all the important details about the study including all of the information contained in this consent form.

Investigator/Person Obtaining Consent (printed name): _____

Signature: _____ Date: _____

Appendix I

Project Timeline



Appendix J

Budget

Expense	Cost per Item	Total Cost (Dollars)
Recruitment posters	10 @ \$1.00	10
Informational handouts	200 @ 0.10	20
Cardstock for Badge Buddies	1 @ \$68.71	68.71
Lamination for Badge Buddies	1 @ \$49.97	49.97
Slotted hole punch for Badge Buddies	1 @ 8.96	8.96
Surveys	100 @ \$0.10	10
Locking Paper Drop Box	1 @ 40.39	40.39
SPSS Software	1 @ \$89.00	89
TOTAL BUDGET		297.03