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Reducing Patient Handoff Inadequacies Using an Electronic Medical Record Based Standardized Handoff Tool in the Critical Care Unit

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Abstract

INTRODUCTION: Inadequate handoff communication is a contributing factor in sentinel events and adverse patient outcomes. Research has shown that the use of a standardized handoff tool can improve quality of handoff communication. This quality improvement (QI) project sought to standardize handoff and reduce the risk of adverse patient outcomes by utilizing the I-PASS handoff tool available in the electronic medical record (EMR).

AIM: The aim of this quality improvement project was to improve the accuracy of nurse-to-nurse patient handoffs.

METHODS: The outcomes measured by the post-intervention survey were the number of reported handoffs received with omissions, the percentage of staff using the standardized report tool regularly, and staff satisfaction with the standardized handoff tool. The primary measures were the percentage of handoffs with omissions as reported on the post-intervention surveys. A quantitative analysis of post-intervention survey responses was performed using descriptive statistical analyses. The frequency of reported handoffs with omissions and the associated method of handoff were obtained from the post-intervention survey responses using a tick and tally method.

RESULTS: The I-PASS handoff tool post-educational feedback survey results were as follows (1) 100% of the nursing staff either strongly agreed or agreed that they were confident in their ability to give an organized and concise handoff report; (2) 84% of respondents agreed or strongly agreed that the I-PASS tool could be beneficial in increasing patient safety on the unit (3) 83% of nursing staff either agreed or strongly agreed that utilizing the handoff tool could be beneficial in keeping report on topic; (4) 100% of respondents either agreed or strongly agreed that they liked the idea of using an I-PASS tool that is linked to the patients EMR; and (5) 100% of respondents agreed that I-PASS could be a beneficial tool for relaying patient handoffs and that SBAR would be a good way to communicate patient status changes.

DISCUSSION: The purpose of this QI project was to minimize the risk of adverse patient outcomes caused by inadequate communication. Due to conflicting priorities, the outcomes of this QI project deviated from the previously outlined aims. The updated aim of the final project was to provide staff education related to the I-PASS tool while obtaining feedback from the nursing staff on their perceptions of usefulness of integration into practice. The key finding of this project was that the staff nurses agree that I-PASS could be useful in several ways if integrated into practice.

Key words: nurse handoff, standardized handoff tool, handoff omissions, electronic handoff tool, I-PASS.

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Reducing Patient Handoff Inadequacies Using an Electronic Medical Record Based Standardized Handoff Tool in the Critical Care Unit

Introduction

In the last five years, the Joint Commission has identified inadequate handoff communication as a contributing factor in sentinel events and adverse patient outcomes (The Joint Commission, 2017). A handoff is form of communication performed to transfer care and responsibility to another provider or team of providers to ensure continuity of care. The potential for patient harm may be introduced when information received during handoff is inaccurate, incomplete, misinterpreted, untimely, or unnecessary (The Joint Commission, 2017). The degree of potential harm from these miscommunications can range from minor to severe. Examples of adverse events identified in the Joint Commission's database include wrong site surgery, treatment delays, medication errors, and falls (The Joint Commission, 2017). Handoff miscommunications combined with the frequent patient care transfers between providers from shift-to-shift can contribute to adverse patient events. Depending on the facility, care of a single patient is transferred from nurse-to-nurse, at minimum, two to three times per twenty-four-hour period. Additionally, patient acuity and staffing can play a role in increasing the number of handoffs required per day, leaving patients at an increased risk for adverse events.

To understand more about the root causes of handoff inadequacies, The Joint Commission Center for Transforming Healthcare conducted a research study on possible reasons breakdowns in communication. The research findings suggest that insufficient patient information, absence of safety culture, ineffective communication, lack of time, poor timing, interruptions, lack of standardized procedures, and insufficient staffing as contributing factors for handoff breakdown (The Joint Commission, 2017). Subsequently, The Joint Commission

suggested eight actions for reducing further inadequate handoff communications. These include (1) identifying the critical information needed for a safe handoff; (2) utilizing a standardized tool to communicate; (3) not relying on electronic only forms of information transfer; (4) combining information received from different sources; (5) communicating designated necessary information such as allergies, code status, etc; (6) communicating face-to-face in an interruption free environment; (7) involving the care team, patient, and family members; and (8) utilizing electronic health records to support hand-off efforts (The Joint Commission, 2017).

Problem Description

In the Critical Care Unit (CCU), there was not a standardized process for patient handoff. The typical process for patient handoff constitutes a verbal report at the nurses' station using the off going nurse's notes and sometimes the electronic medical record (EMR) for reference. Patient handoffs do not always follow a consistent pattern of information, which could lead to errors caused by omissions or misinformation. Other factors to that may lead to inadequate patient handoff include off topic conversations, receiving excessive or minimal information, and environmental distractions.

In order to adequately assess the units baseline handoff process, an initial 10-question survey focusing on the nursing experience of handoff was made available to the staff nurses to complete after receiving handoff from the outgoing nurse (Appendix A). Additional input from staff nurses was obtained through semi-structured interviews to supplement the survey responses. In consideration of nursing staff feedback on handoff experience, there is room for improvement in the nurse-to-nurse verbal and written hand-off process in the CCU.

The CCU's electronic medical record (EMR), Epic Hyperspace, has a handoff function embedded in the system. Information contained in a patient's chart, such as past medical and

surgical history, recent lab values, medication infusion rates, and line, drain, airway (LDA) information, can be pulled into the handoff document. Epic Hyperspace uses I-PASS to structure handoff information using 5 essential components to quality patient handoff. The pneumonic, I-PASS, stands for (I) illness severity; (P) patient summary; (A) action list; (S) situational awareness; and (S) synthesis. Many staff nurses were unaware of this function within Epic Hyperspace and those who have used this function before, were employed at other hospitals within the Massachusetts General-Brigham (MGB) network, where the handoff function is frequently used.

This hand-off tool can be printed before shift change and given to the receiving nurse as a reference before verbal report begins. This tool has the potential to decrease the amount of writing the receiving nurse must do, preventing inadvertent transcription errors, thereby helping to reducing omissions and misinformation. A handoff printout also ensures the receiving nurse has the basic information necessary to care for their patient. Improving patient handoffs using The Joint Commission's suggested actions could prevent inadvertent harm from occurring through inadequate handoffs.

Available Knowledge

A literature review was conducted using two primary databases including PubMed and Google Scholar. Search terms used included "nurse handoff," "standardized handoff tool," "handoff omissions," and "electronic handoff tool." The search criteria included full text articles available in English, which were published in the last ten years. The search yielded 53 articles. Returned articles were assessed for project relevance. 49 articles were excluded due to alternative primary foci such as bedside report implementation. After exclusion, one systematic

review and an additional three articles relevant to the design of this project were selected and subsequently reviewed.

A systematic review of the literature conducted by Holly & Poletick (2013) sought to strengthen the understanding of the intershift handoff process in the acute care setting. The authors reviewed 29 qualitative studies using the Qualitative Assessment Review Instrument (QARI) program to categorize the findings based on meaning. The study was conducted to assess the experience and process of patient handoff in nursing. The findings suggest that the information given in report is variable and is at the discretion of the off going nurse, which may cause omissions to pertinent information. The handoff process was found to be sensitive to context and social norms of the environment. Additional findings suggest there can be an incongruence with the handoff received and actual patient status. The authors suggest that a standardized guideline or framework may help to reduce the variability of patient information given during handoff. This review calls for a multimodal handoff process utilizing both verbal and written communications to improve quality and safety of patient care. The authors also noted that the addition of an EMR-based report with a prepopulated set of data may be a helpful in supplementing the handoff process.

An example of implementing a multimodal handoff process was conducted by Shanian, et al. (2017). This was a quality improvement project aimed to improve the handoff process hospital-wide in response to decreased safety culture survey scores surrounding transitions of care. Additionally, survey scores indicated that deficient handoffs were frequently associated with preventable errors and adverse events (Shanian, et al., 2017). Once the need for handoff improvement was identified, the authors determined that hospital wide I-PASS structured handoff reporting would be implemented. There was an overlap between project implementation

and adoption of a new EMR that could create I-PASS formatted handoff sheets. Handoff sheet creation was utilized as an adjunct to hospital-wide I-PASS implementation.

The researchers found that, due to diversity, implementing a structured handoff across a tertiary care hospital required modifications of the basic I-PASS structure for service specific needs. Details that may be essential in caring for patients on one unit may be irrelevant in another. One of the major benefits of using I-PASS in this study was the ability to customize the information necessary in the handoff while maintaining the same structure among care givers throughout the hospital.

The implementation of I-PASS structured handoffs was largely successful, but some units, such as surgical services, struggled to adopt the process. Two major complaints were identified after implementation including difficulty with the synthesis portion of I-PASS as well as insufficient time for structure handoffs on multiple patients. The authors note that consistent adoption of I-PASS will require cultural change to assure consistent adoption and sustainability.

Another quality improvement initiative, reported by Blazin, et al. (2020), sought to standardize the handoff process across multiple contexts using I-PASS in a well-known pediatric research hospital. This initiative began as a phased implementation, beginning with nursing handoffs on inpatient units. The authors found that the perceived handoff error rates decreased after implementation of I-PASS. Additionally, an increase in perceptions of general and personal handoff performances were identified following I-PASS implementation. The findings suggest that the use of I-PASS can be successful in improving patient safety through a standardized handoff process.

Similarly, a single-center quality improvement initiative by Koo et al. (2020) aimed to increase handoff completeness and accuracy in a level 3 neonatal intensive care unit (NICU).

This initiative used an EMR-generated handoff tool with 15 auto populated data points to supplement verbal handoff. These data included patient demographics, medical information as well as, active medications and dosing, among others. Prior to implementation, the handoff tool used was a blank textbox with no format or structure, with considerable variations in information included. The results indicated that there was an increase in user satisfaction, decrease in printed handoff errors, and decrease in handoff incompleteness with the new handoff tool. This quality improvement initiative found that implementing an EMR-generated handoff tool improved structure, standardization, and completeness of handoffs in addition to increasing provider satisfaction with the new handoff process.

In summary, this literature review indicates that there is a need for standardized, multimodal handoff processes. Additional finds indicate that success in implementing EMR based I-PASS handoff tools is possible and beneficial in improving patient care transitions. Across all reviewed articles, the use of a standardized handoff tool was found to decrease omissions and increase completeness of handoffs. Furthermore, the widespread adoption of EMR-based structured handoff tools has the potential to dramatically improve patient care and handoff quality. Based on these findings, the CCU could benefit from the addition of a standardized handoff process that can be initiated using the Epic Hyperspace handoff tool in order to reduce handoff omissions.

Rationale

The rationale for standardizing handoff communication was to minimize the risk of adverse patient outcomes caused by inadequate communication. The Plan-Do-Study-Act (PDSA) model was used to formally guide this quality improvement (QI) project. During the initial

phase, the project plan, steps, and deliverables were defined. The following steps included executing the plan as well as studying and analyzing the results (AHRQ, 2015).

The plan phase of this project consisted of creating a standardized template to use for every patient within the CCU. Additionally, how to present the project at staff meetings, when to schedule in-services, and ways to promote staff participation happened during the "plan" stage. The "do" phase included providing staff education and piloting the implementation of an EMR-based handoff tool for intershift nursing handoffs. The study phase included survey follow up and data interpretation. Finally, the act phase involved determining what changes should be made for the next PDSA cycle.

Global Aim

The global aim of this QI project was to improve the accuracy of nurse-to-nurse patient handoffs.

Specific Aims

The specific aim of this QI project was to reduce handoff omissions by increasing the percentage of staff nurses using the standardized handoff tool from 0% to 50% by July 15, 2022

Methods

Context

This QI project took place on the Critical Care Unit (CCU) at a community hospital in New Hampshire. The macrosystem is a 178-bed, Magnet-recognized facility that has been the recipient of many awards since its inception. The CCU microsystem is an 11-bed unit with a core mission to stabilize acutely ill individuals and help them to progress to the next level of care. Outside of patient stability, the CCU provides support to families with ill family members, patient education, and work to improve a patient's quality of life.

The patients admitted to the CCU present with unique situations and illnesses. The CCU only accepts patients eighteen years or older, requiring infants, children, and adolescents to be transferred to tertiary care hospitals to receive intensive care. The number of patients treated per month is tracked by the CCU leadership team and ranges from 190 to 305 patients. The total number of patients requiring critical care in 2021 was 2,801. The average length of stay in the CCU is 8.4 days. CCU specific and hospital wide mortality rate data is not currently available.

The macrosystem is comprised of roughly 400 providers, 3,500 employees, 500 nurses, 200 volunteers. The CCU has twenty-five full time staff nurses, two part-time nurses, ten per diem nurses, and seven traveling nurses. The CCU also has three full time nursing assistants, one part-time nursing assistant, and four per diem nursing assistants. The unit has one nurse manager and two clinical practice leaders, one for day shift and one for night shift, respectively. Other notable members of the team include the nursing supervisor and charge nurse for each shift. The nursing supervisor is in frequent communication with the CCU charge nurse and gives updates on potential transfers to the floor. The nursing supervisor also attends each shift huddle when possible.

During the day, there are significantly more staff present on the unit. This includes a dedicated pharmacist, intensivist, the nurse manager, and an administrative assistant on the unit during the day. The intensivist is usually not in the hospital at night unless there is an urgent need for them to be present at the bedside. Most communication is done through a desktop application called Imprivata or by paging the intensivist, hospitalist, or specialist through the switch board. There are typically five nurses staffing each shift, including a charge nurse. The charge nurse may not have a patient assignment in anticipation for additional patient admissions

or have a patient assignment depending on patient acuity, unit census, and staffing. The charge nurse is required to attend rapid response team activations and code blues hospital wide.

In terms of patterns of the microsystem, admissions are variable and do not happen on one shift more than the other. However, certain procedures such as spontaneous breathing and spontaneous awakening trials happen during the day because providers are in the hospital. Morning rounds with nutrition, the pharmacist, intensivist, and primary nurse also happen during day shift so a plan can be made for the day. Transfers to other units mostly happen on dayshift later in the day after hospital wide discharges have left, however patients with a downgraded level of care can be moved off the unit if the acuity on the CCU changes, regardless of shift.

One of the major processes of the CCU microsystem is a pre-shift huddle and individual handoff reporting. The staff start the shift a half hour early with a huddle where the oncoming staff meet with the charge nurse from the previous shift to briefly discuss the patient census for situational awareness. Once pre-shift huddle ends, the oncoming nurses select their assignments amongst each other and then disperse to receive report from the appropriate off going nurse. If a nurse works multiple shifts in a row, they often keep the same patient assignment to ensure continuity of care. Once patient assignments are chosen, report begins at various locations on the unit. Currently, this handoff report is unstructured and prone to errors in communication such as the dissemination of inaccurate, incomplete, or unnecessary information.

This QI project sought to incorporate an EMR-based standardized handoff tool as an adjunct to current handoff processes in the CCU. The main inquiry investigated was “in nursing staff on the critical care unit, does a standardized handoff tool decrease the percentage of handoffs with omissions?” As previously discussed, this context supports the opportunity to

improve and standardize handoff communications to reduce the potential for adverse patient events.

Cost Benefit Analysis

The direct costs associated with this project are time spent by this author, the day and night shift clinical practice leaders (CPLs), and CCU nurse informatics officer. This time was used for continued project planning, resource creation, project implementation, and staff education. The time required after implementation is minimal. Indirect costs associated with this project included the cost of materials. Other direct and indirect costs associated with this quality improvement intervention were minimal however, the opportunity costs could be substantial without intervention. According to a report published by CRICO Strategies (2015) it is estimated that errors in communication are contributing factors in thirty percent of medical malpractice claims which resulted in $1.7 billion in hospital costs as well as over 1700 deaths. Given the opportunity cost, this microsystem stands to benefit from the implementation of a standardized handoff tool to reduce the potential for communication errors resulting in patient safety events and hospital costs.

Interventions

A basic handoff template was created and made available to all CCU nurses in Epic Hyperspace as a SmartPhrase insert. Staff were informed of the process change through staff meetings and emails with the help of the day shift and night shift clinical practice leaders (CPLs) and nurse manager. Additionally, a brief demonstration of how to create a handoff, as well as, how to use smart links and smart text to pull information directly from Epic Hyperspace was planned for the next staff meeting with the help of the CCU informatics nurse and project

champions. Epic Hyperspace handoff tip sheets were made available to the unit as a reference. In-service education by this author was planned for both day shift and night shift staff.

Study of Interventions

Research has shown that the use of a standardized handoff tool can improve quality of handoff communication. However, due to the time constraints associated with this project and inability to attend each handoff report, quality was measured through post-handoff survey responses. This post-intervention survey was created by this author and required free-text responses regarding the standardized handoff experience as perceived by the staff nurses. The post-intervention survey was available at the end of the implementation phase and made available for two weeks.

Measures

The outcomes measured by the post-intervention survey were the number of reported handoffs received with omissions, the percentage of staff using the standardized report tool regularly, and staff satisfaction with the standardized handoff tool. The primary measures were the percentage of handoffs with omissions as reported on the post-intervention surveys.

Analysis

A quantitative analysis of post-intervention survey responses was performed using descriptive statistical analyses. The frequency of reported handoffs with omissions and the associated method of handoff were obtained from the post-intervention survey responses using a tick and tally method. The number of handoffs given using the standardized report tool was analyzed by the number of printed sheets collected during the implementation phase. The secondary measures of perceived handoff quality and staff satisfaction with the standardized

handoff tool were collected from free-text survey responses. Subsequently, these qualitative data were analyzed using thematic analysis.

Ethical Considerations

Before implementation, this QI project was submitted to the University of New Hampshire Department of Nursing Quality Committee to determine if the proposal meets the criteria for a quality improvement project. Direct patient contact, participation, or use of identifiers were not used for this project. As such, this project is exempt from Institutional Review Board review.

Results

The initial steps of this QI project included creating SmartPhrases that aligned with information deemed necessary to communicate during intershift handoff in the CCU. A step-by-step tip sheet was created specifically for the CCU staff to ensure applicability to the specialty. The inpatient informatics officer was consulted to ensure the tip sheet complied with the system wide Epic tip sheet formatting. After consulting with the inpatient informatics officer, it was determined that the timeline for this QI project was conflicting with other unit and facility wide projects.

Due to the unit and facility conflict, this QI project shifted focus to promote education on the benefits of utilizing the I-PASS tool. A poster detailing the use of I-PASS (Appendix B) was displayed in the CCU huddle room for one week. Additionally, a follow up survey was made available to the staff nurses to gain information on the nurses' perspective on the potential usefulness of the I-PASS tool as a method of communication in the CCU. The six-question post-educational feedback survey was created using Qualtrics and made available for one week. Finally, a quick response (QR) code linking the survey was displayed next to the poster.

The process measures involved assessing nursing staff feedback on the usefulness of the I-PASS handoff tool. The feedback was gathered using a Qualtrics survey and measured using the Likert scale. The survey results were expressed as a percentage of staff nurses selecting a degree of agreement out of the total number of nurses completing the survey (Table 1). At the time of survey, the unit had a total of 26 full-time nurses, 2 part-time nurses, 8 per-diem nurses, 4 float pool nurses, and 0 traveling nurses. A total of six responses were received in the one-week time frame allotted for the post-educational feedback survey. This response rate is equal to 15% of staff nurses.

Table 1

I-PASS Handoff Tool Post-Educational Feedback Survey Results

	Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
I am confident in my ability to give an organized, concise, and safe handoff report.	50%	50%	0%	0%	0%
I think that utilizing I-PASS for patient handoffs will increase patient safety on our unit.	17%	67%	17%	0%	0%
Using a standardized handoff tool could be helpful for keeping handoff report on topic.	33%	50%	17%	0%	0%
The I-PASS handoff tool could help decrease omissions and misinformation communicated during handoff.	17%	83%	0%	0%	0%
I like the idea of using I-PASS linked to the patient's EMR to guide handoff report.	17%	67%	0%	17%	0%

I think that I-PASS would be beneficial for patient handoff reporting in addition to using SBAR as a way to communicate a change in patient status.	0%	100%	0%	0%	0%

Note. Values may not equal 100% due to rounding.

The results indicated that 100% of the nursing staff who participated in the survey either strongly agreed or agreed that they were confident in their ability to give an organized and concise handoff report. 84% of respondents agreed or strongly agreed that the I-PASS tool could be beneficial in increasing patient safety on the unit. 83% of nursing staff either agreed or strongly agreed that utilizing the handoff tool could be beneficial in keeping report on topic. Of the staff that completed the survey 100% either agreed or strongly agreed that they liked the idea of using an I-PASS tool that is linked to the patients EMR. Additionally, 100% of respondents agreed that I-PASS could be a beneficial tool for relaying patient handoffs and that SBAR would be a good way to communicate patient status changes.

Associations

During QI project implementation, the macrosystem was being affected by another local hospital diverting patients there. This led to the macrosystem running at max capacity. This led to difficulty in transferring patients with a downgraded level of care to an inpatient medical floor in order to make space for critically unstable patients. With the macro and microsystems at max capacity, the nursing staff were tasked with increasing patient acuity and difficult staffing ratios. This was made more difficult due to significant staffing changes related to travel nurse contracts ending, staff moving on to other facilities, and new-to-specialty nurses coming off training. At the conclusion of this QI project, the unit had a total of 26 full-time nurses, 2 part-time nurses, 8

per-diem nurses, 4 float pool nurses, and 0 traveling nurses. These factors in combination with alternate priorities resulted in nursing staff attention to this project being deferred.

Unintended Consequences

This project had many unintended consequences. There was a significant delay in intervention due to conflicting projects, leadership summer vacation, and competing priorities. The CCU was implementing other projects during this QI project's proposed timeline, requiring a change in project outcomes. The Nursing Education, Research, and Innovation (NERI) team was working on utilizing the same handoff tool for inter-unit handoffs and had concerns about this QI project interfering or confusing the staff. The CCU unit manager also expressed concern with tasking the nursing staff with too many projects at once and ultimately decided that this QI project would be better served during an alternate timeline.

Due to staff survey responses being voluntary, the survey responses obtained were limited. Additionally, the timeline for survey responses was limited to one week. This may have resulted in nursing staff missing the opportunity to participate in the survey. Finally, the survey was only available in electronic format, potentially leading to staff without an electronic device capable of scanning a QR code not being able to complete the survey.

Discussion

Summary

The purpose of this QI project was to minimize the risk of adverse patient outcomes caused by inadequate communication. The final QI project had the same overarching rationale, however, was limited to an educational component rather than a practice change that directly reduced the risk of adverse patient outcomes. The outcomes of this QI project deviated from the previously outlined aims. The proposed global aim of improving the accuracy of nurse-to-nurse

patient handoffs in the CCU was unmet. The specific aim of improving handoff accuracy to reduce handoff omissions by increasing the percentage of staff nurses using the standardized handoff tool was also unmet. The updated aim of the final project was to provide staff education related to the I-PASS tool and obtain feedback from the nursing staffs on their perceptions of usefulness related to integration into practice.

Interpretation

The key finding from this QI project was that most of the nursing staff that participated in the post-educational survey agree that I-PASS could be useful if integrated into practice in the CCU. However, given the staffing changes, increase in patient census, ongoing projects, and conflicting priorities on the unit, implementing a practice change during this QI project's timeline was not possible. A practice change of any kind at the microsystem level has an impact on the staff and patients. Handoff report is such an integral part of nursing practice that changing from the well-known SBAR to I-PASS could prove to be difficult, however the opportunity cost associated with this practice change may be enough for the macrosystem to push for a change in handoff communications.

Limitations

The most notable limitations were stakeholder buy-in and sample size. Unit leadership and staff nurses as stakeholders lacked interest in this quality improvement project, leading to difficulty with proposed and adjusted project implementation as well as obtaining survey responses. Survey participation was voluntary; thus, the data and analyses are only reflective of the perceptions of nurses who chose to participate. Additionally, the timeline for survey responses was limited to one week. This may have resulted in nursing staff missing the opportunity to participate in the survey. The survey was only available in electronic format,

potentially leading to staff without an electronic device capable of scanning a QR code not being able to complete the survey. Efforts were made to minimize limitations through providing anonymity during the post-educational feedback survey. Due to the low survey response rate, the validity of the results reported in this paper are reduced, since the survey responses received are not fully representative of all nursing staff handoff perceptions. Finally, this quality improvement project was limited to one PDSA cycle due to time constraints.

Conclusions

Inadequate handoff communication has been identified as a contributing factor in sentinel events and adverse patient outcomes (The Joint Commission, 2017). Insufficient patient information, absence of safety culture, ineffective communication, lack of time, poor timing, interruptions, lack of standardized procedures, and insufficient staffing are possible factors contributing to handoff breakdown (The Joint Commission, 2017). This QI project sought to increase handoff quality thereby reducing adverse patient outcomes by combining four of the eight actions suggested for reducing further inadequate handoff communications in the CCU. These actions included identifying and communicating the critical information needed for a safe handoff while utilizing a standardized tool to communicate within the EMR to support hand-off efforts.

The original QI project proposal was not able to be carried out to plan and needed to shift focus to an educational outcome related to the standardized hand off tool I-PASS. The data gathered during the final QI project serve as an important indicator of staff perceptions and readiness to change. The original QI project proposal still has the potential to standardize and improve handoff quality for the CCU while also reducing the risk of adverse patient outcomes or sentinel events. An additional benefit of utilizing the I-PASS handoff tool for handoff report is

that the tool can be generalized to any unit making it easy to spread to other contexts. The practice of using I-PASS to guide report is a sustainable change that has been used successfully in other units in the same macrosystem. The original I-PASS tool was created with physicians in mind, and many physicians currently utilize the I-PASS tool to guide patient handoffs already. The integration of the Epic Hyperspace I-PASS handoff tool still has the potential to be utilized in this microsystem in the future. The most important implication identified for future practice to note is the need for stakeholder buy-in. This QI project did not have an abundance of buy-in from leadership or the nursing staff, making succeeding with a practice change difficult.

Recommendations

The recommended next steps for this project include gathering additional feedback from the CCU nurses, providing more in-depth I-PASS education, and expanding to other units. It would be important for leadership to obtain more information about CCU staff perceptions on the I-PASS handoff tool and assess the staff's readiness for a practice change. Education on the I-PASS tool could be presented to other inpatient units and include a similar survey assessing nursing staff perceptions of utilizing a new tool. If staff are interested in the practice change, trials of using I-PASS for intershift handoff could be conducted. If found to be beneficial, a macrosystem wide practice and educational change could be implemented to decrease the risk of adverse patient outcomes. Finally, the EMR-based I-PASS tool available in Epic Hyperspace should be integrated into practice.

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Appendix A

Patient Handoff Satisfaction Survey

How long did it take to receive report? _____

Was report given in a clear, concise, and logical manner? _____

Did you receive sufficient information to safely take care of your patient? If not, what information was missing? _____

_____

Did you notice any omissions or discrepancies in the report received? If so, what were they?

_____

_____

Did you experience any interruptions or distractions during report? If so, what were they?

_____

Did you participate in a bed side report (full, modified, other)? _____

_____

Did conversation go off topic before report was complete? _____

Are you satisfied with how the handoff went? Why or why not? _____

_____

Is there anything that could have gone better during the report process? _____

_____

Please leave any comments, concerns, questions, or ideas in this space _____

_____

Appendix B

I-PASS Handoff Tool Poster

Utilizing the I-PASS Handoff Tool

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Mass General Brigham
Wentwort-Douglass Hospital

Opportunity

- Standardize patient handoffs among nursing staff to reduce the potential for adverse patient outcomes
- Utilize the I-PASS handoff tool within Epic

Background

- In the last 5 years, The Joint Commission has identified inadequate handoff communications as a contributing factor in adverse patient outcomes and sentinel events (The Joint Commission, 2017)
- Errors in communication are contributing factors in 30% of medical malpractice claims, resulting in $1.7 billion in hospital costs and over 1700 deaths (CRICO Strategies, 2015).
- Suggested actions to reduce inadequate handoff communications
  - Identify critical information needed for a safe handoff
  - Utilize a standardized handoff tool
  - Utilize EMR to support handoff (The Joint Commission, 2017)

Literature Review

- Lack of standardized handoff processes limit the ability to provide safe and high-quality patient care (Blazin et al., 2020).
- Implementing an EMR-based handoff tool improves structure, standardization, and completeness of handoffs (Koo et al., 2020)
- I-PASS is a handoff communication program that utilizes a pneumonic to structure the exchange of information during handoff reporting (Blazin et al, 2020)

Literature Review Cont.

- Significant reductions in medical errors and preventable adverse patient events have been associated with the use of I-PASS handoff bundles (Starmer et al., 2014)
- I-PASS can be customized to fit unit needs while maintaining the same handoff structure among providers throughout the hospital (Shanian et al., 2017)

I-PASS
BETTER HANDOFFS. SAFER CARE.

I	Illness Severity	• Stable, "watcher," unstable
P	Patient Summary	• Summary statement • Events leading up to admission • Hospital course • Ongoing assessment • Plan
A	Action List	• To do list • Time line and ownership
S	Situation Awareness and Contingency Planning	• Know what's going on • Plan for what might happen
S	Synthesis by Receiver	• Receiver summarizes what was heard • Asks questions • Restates key action/to do items

Clinical Implications

- Improved communication between healthcare providers
- Reduction in adverse patient outcomes and hospital costs
- Promotion of standardized, high-quality handoff reporting

Practice Recommendations

- Implement hospital-wide practice change from SBAR to I-PASS handoff reporting
- Update handoff policy to include I-PASS as the primary tool for handoff reporting
- Utilize I-PASS handoff functionality embedded within each patient's chart in Epic
- Provide staff education on utilizing the Epic handoff tool function

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