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Standardizing Nursing Hand-Off Report Using I-PASS on a Behavioral Health Unit: A Quality Improvement Project

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STANDARDIZING NURSING HAND-OFF REPORT USING I-PASS ON A BEHAVIORAL HEALTH UNIT: A QUALITY IMPROVEMENT PROJECT

By

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Abstract

Background: Deficient or ineffective communication in clinical hand-off has been established by prominent international health organizations as a significant cause of adverse clinical events, compromising clinical safety, an ongoing common problem for healthcare professionals and institutions. Existing literature unanimously called for improvement in hand-off communication to improve patient outcomes and recommended beginning such efforts by building various types of structure into hand-off (McCloughen et al., 2008).

Aim: The aim of this quality improvement project was to improve clinical communication among nurses transferring care of patients in acute psychiatric care.

Methods: Utilizing the Plan, Do, Study, Act framework over a total of eight weeks, nurses on an inpatient behavioral health unit were surveyed about the current state of shift hand-off communication and related errors, received education about the existing I-PASS reporting structure in use at the hospital, implemented I-PASS reporting structure for shift report hand-off for three weeks, and were surveyed three weeks later to assess impact on communication.

Results: The results of the project indicated a 56 percent decrease in errors transmitted in shift report hand-off, and an overall improvement perceived by nurses in shift hand-off given and received.

Conclusion: The customized I-PASS report template for nursing shift hand-off is an effective tool to reduce communication errors in the acute behavioral health setting. Further observations are recommended after this project to evaluate sustainability, impact on time consumption, patient perception of the improvement, and usability for interdisciplinary communication in the microsystem.

Keywords: Behavioral health, psychiatric nursing, shift report, clinical hand-off, clinical handover, standardized communication, I-PASS

Introduction

Problem Description

A clinical information hand-off was defined in a project by The Joint Commission as "a transfer and acceptance of patient care responsibility achieved through effective communication. It is a real-time process of passing patient specific information from one caregiver to another, to ensure the continuity and safety of the patient's care" (The Joint Commission, 2017, p.1). When communication processes are poorly defined and deficient, they are prone to create opportunities for error in transferring complete and consistent information, which is an ongoing common problem for healthcare professionals and institutions (The Joint Commission, 2017). Deficient clinical hand-offs can be dangerous for patients and have been shown to result in poor outcomes such as "delays to diagnosis, treatment, and care; tests being missed or duplicated; and subsequent incorrect operationalization of care plans or drug follow-up" (Tacchini-Jacquier et al., 2020).

The Behavioral Health Unit (BHU) located in New Hampshire uses an Electronic Health Record (EHR) for patient documentation and within that EHR, nurses do not have access to a Health Information Exchange (HIE) to view patient records from other facilities. Emergency Department (ED) records from the transferring facility are placed in a patient's paper chart and are not scanned into the EHR. Most communication between and among nurses on the BHU is verbal. There are two scheduled verbal hand-offs that occur daily for the nursing staff. Mental Health Techs (MHTs) have their own verbal shift hand-off at 06:45 and 18:45, and information presented there is not reviewed by nursing. Simultaneously, nurses have a verbal shift hand-off in a separate room where all incoming nurses are present, and the outgoing nurses take turns going into the room and giving report on their caseload. Incoming nurses take their notes on an EHR-generated printed census sheet that includes patient room number, name, admission date,

reason for admission or diagnosis, and date of birth. If the incoming nurse has had the patient

before, an update on the patient's behavior and treatment compliance that shift is given along

with any issues that need to be addressed with the treatment team on that shift or next. If the

incoming nurse has not had the patient, then a brief synopsis of events prior to admission,

diagnoses, any medical issues, and shift update is given.

The Joint Commission found that contributing factors to breakdowns in hand-off

communication are "insufficient or misleading information, absence of safety culture, ineffective

communication methods, lack of time, poor timing between sender and receiver, interruptions or

distractions, lack of standardized procedures, and insufficient staffing" (The Joint Commission,

2017, p.2). On the BHU, patient care communication is limited to non-standardized verbal

reports between team members, and important details are at times incorrect or overlooked if the

reporter is unaware of the detail, simply forgets to verbalize it, or there are interruptions or

distractions. These mistakes can carry through for a patient's entire admission if not intercepted,

and influence or cause an adverse event or negative outcome.

Available Knowledge

It has been well established by health organizations around the world, such as The World

Health Organization (WHO), that poor communication in clinical hand-off has been identified as

a significant cause of adverse events and can compromise clinical safety (Vallabhaneni et al.,

2022). The purpose of this literature review was to examine existing research and

recommendations regarding unique qualities of shift hand-off in inpatient behavioral health and

psychiatry, and strategies to improve hand-off communication without compromising existing

strengths. All existing literature reviewed unanimously called for improvement in hand-off

communication to improve patient outcomes and recommended beginning such efforts by building various types of structure into hand-off.

Databases searched for relevant material were the University of New Hampshire Library, Cochrane Library, AHRQ, PubMed, and Google Scholar. Material published prior to 2008 was excluded to account for the changes to communication in healthcare that have been influenced by increased availability of technology. Studies from all countries were included due to a paucity of behavioral health specific research in the United States on this topic, but studies unavailable in English were excluded due to lack of adequate translation resources. Articles focused on acute mental or behavioral health care, or psychiatry were included, articles that did not specifically discuss this specialty were excluded.

Preference for studies specifically referencing nursing was given, however, studies that fit other criteria and upon further inspection were groups that work directly with psychiatric nurses and were easily translatable to nursing were also included. Of note, there was a study by Vallabhaneni et al. (2022) about improving hand-off for psychiatry specific Consult Liaison teams which was deemed relevant and included due to the population and treatment setting being examined. The copious literature discussing improvements to hand-off by implementing electronic solutions was regretfully excluded due to the limitations of this project. To make a change to electronic processes at the organization requires navigating an approval process through multiple levels of leadership to ensure changes are not disruptive to adjacent processes and are compliant with hospital policies or healthcare laws. The amount of time allotted for this project was less than three months, which is not enough time to successfully complete the approval process, test the change, and study results.

The studies remaining after exclusions were two qualitative studies, one quantitative study, and one literature review. McCloughen et al. (2008) performed a qualitative review of verbal report practice and beliefs of nurses working in an inpatient mental health setting. As with other studies reviewed, findings indicated that the current ritual that had been molded by time-honored nursing customs warranted examination and change. The nurses noted no formal structure or required content, wide variations in effectiveness without training or an evaluation of competency, and an inefficient use of time. The authors gathered their data for two months, then analyzed the transcribed hand-off with identifiers removed, and the interviews of nurses, performing a content analysis using a content matrix to guide the process. Their findings were that the type, amount, and quality of information given in hand-offs varied greatly, and tended to focus on problems rather than solutions. The authors ultimately recommend further studies of process improvement, and consideration of deeper questions related to the role of nurses working in mental health rehabilitation, encouraging nurses to challenge traditions such as the verbal hand-off.

Cleary et al. (2009) performed a review of literature relating to the purpose of hand-offs in psychiatric settings, and how it could be improved. Although written in 2009, the authors cite increasing staff changes, clinician fatigue, changing work patterns, increasing amounts of information requiring transfer, and a growing reliance on casual staff as impetus for information transfer improvement, factors that are even more relevant today. The authors emphasize the benefits of a good hand-off being improved patient care, increased safety, decreased errors, decreased morbidity and mortality, improved patient experience, and decreased staff stress through the benefits of clear and accountable communication.

Invisible aspects of nursing hand-off highlighted by Clearly et al. (2009) that are important for the wellbeing of staff are a time to transition in and out of a shift by preparing for what is ahead and taking stock at the end of a shift, providing a venue and opportunity to briefly discuss general unit issues, knowledge sharing and social and emotional connection, and to review adverse incidents that all staff should be aware of. Thus, the authors caution against only considering cost-saving and efficiency when altering hand-off processes, urging consideration of whether actions are undermining nurses in fulfilling patient care expectations. Cleary et al. (2009) encourage standardized hand-off protocols including time and duration, a carefully selected location separate from patient care areas, incorporating technology wherever available, and continuously monitor and evaluate the effectiveness of hand-off, modifying accordingly.

Deacon and Cleary (2012), both doctorly prepared nurses, conducted a qualitative study exploring the occupational activities of mental health nurses on an acute inpatient psychiatric unit, with teamwork being identified as the top themes, which encompassed hand-off and the interdisciplinary team meeting. The authors collected data by observing participants and recording naturally occurring talk over a two-year period. Deacon and Cleary (2012) report inpatient mental health to be a unique and particularly challenging work environment for nurses due to the *concentrating* effect that deinstitutionalization has had, multidisciplinary work and managing the work of others becoming the responsibility of nurses, and the need to work independently but be constantly available to each other as responsibility for all the patients on the unit is shared. These elements of the culture led to a necessary devotion to teamwork.

The authors note that regardless of staffing instability nursing hand-off always occurred, with time structured by shift overlap. The outgoing nurse reported from notes written on scraps of paper, and the incoming nurse recorded notes on their scraps of paper. The reasons that

nursing reports of patients in this setting may appear less focused and less descriptive than

reports of colleagues in other specialties can be attributed to the nurse's role as unit host "where

their embodied conduct was unique and representative of their particular and taken-for-granted

disciplinary obligations" (p. 55), their responsibility to articulate the treatment team's point of

view in addition to their own, and ongoing involvement with mundane matters of patients that

interweave with therapeutic contact (Deacon & Cleary, 2012). The authors conclude their

discussion encouraging nurses to reflect and further develop their practice by illuminating how

they achieve teamwork in this environment, and be involved with changes to activities, including

hand-off.

    Vallabhaneni et al. (2022) conducted a quality improvement study standardizing hand-off

for a multidisciplinary liaison psychiatry service consisting of nurses, doctors, social workers,

assistant health practitioners, managers, and administrators in an acute hospital in north London.

Their aims were to reduce hand-off length to 30 minutes, improve team satisfaction with the

hand-off process, improve hand-off structure by introducing Situation-Background-Assessment-

Recommendation (SBAR), and implement supplementary teaching sessions with the time saved.

Baseline data was collected over one week, and then a questionnaire was distributed to the team

to gather collaborative feedback for the project. Multiple change ideas were tested in the Plan,

Do, Study, Act (PDSA) model, the first of which was introducing the SBAR model. Over the

four weeks that progress was tracked, the mean hand-off time was reduced from 47 minutes to

31.25 minutes, and qualitative questionnaire feedback indicated that the team felt that SBAR

enabled a concise and structured approach that improved the quality of information giving.

Despite this successful intervention, the authors feel that more time is needed for this

improvement to be sustained. One weakness of this study was the length of it in total and the

brevity of the baseline data collection stage, which is acknowledged by the authors and attributed to constraints of academic deadlines.

The study by Vallabhaneni et al. (2022) was performed by junior medical doctors, who advise hand-off to be a formalized process to be "kept as brief as possible" (p. 5). All articles acknowledge that improvement and change in hand-off strategies is needed and recommend implementing a structure to ensure consistency in content and quality of information shared. Research performed and presented by nurses in acute psychiatric care settings provide context to how hand-off has evolved within the specialty and caution against hastily eliminating the team cohesion and social connection that verbal hand-off provides. Coproduction is suggested in one study (Vallabhaneni et al., 2022), an approach which could produce great returns in improving verbal hand-off without compromising the value it provides and promote sustainability of change.

With multiple studies highlighting the cultural significance of nursing shift hand-off and the positive opportunities it provides for social connection and unit teamwork, it appeared inadvisable to alter the existing group setting of shift hand-off on the BHU. Operator involvement and co-production would be important for engagement of the team and sustaining ongoing development, with authors strongly recommending that the team be involved in developing and implementing the changes in their environment. A repeated finding specific to behavioral health hand-off was a focus on events and problems from the prior shift, with The Joint Commission (2017) a shift to focusing on goals and solutions. Resoundingly, incorporating an existing validated reporting structure into hand-off is recommended, which was within the realm of possibility to implement on the BHU.

Rationale

The Plan, Do, Study, Act (PDSA) model of improvement is widely accepted in healthcare quality improvement efforts because it provides structure for systems improvement by iterative testing of changes (Taylor et al., 2014). The PDSA model guided this effort, with adherence to the concept of small-scale change with frequent and focused data review in order to maintain integrity of this framework and utilize it most effectively. In the PDSA model, the *Plan* phase requires defining the populations and other parts of the system that will be affected by the project, setting time-specific and measurable goals (or aims), establishing measures to determine whether the change has been effective in achieving or moving towards the aim, and selecting possible ideas for change (Institute for Healthcare Improvement, 2022). In the *Do* phase, one change idea is tested and monitored. In the *Study* phase, the success of the change is evaluated, and the lessons learned are reflected upon (Institute for Healthcare Improvement, 2022). In the *Act* phase, a decision whether to permanently integrate the change into the process going forward is executed, with what modifications if any, and then the cycle returns to the *Plan* phase for the next test of change (Institute for Healthcare Improvement, 2022).

Global Aim

The global aim of this quality improvement project was to improve communication among nurses when transferring a patient's care to another nurse.

Specific Aim

The specific aim of this quality improvement project was to achieve a 30 percent decrease of incidents of patient care related communication errors identified as occurring in nursing hand-offs on the BHU by July 9, 2022 by trialing a standardized I-PASS based reporting structure for four weeks, and analyzing the results immediately following.

Methods

Context

Located in New Hampshire, the Behavioral Health Unit (BHU) is a 30-bed inpatient

psychiatric stabilization unit for adults. The BHU is located within a 209-bed acute care general

hospital, which is operated by a for-profit network. The BHU is designed for acute short-term

care of patients with a primary behavioral health diagnosis who are not medically complex and

can be expected to participate in unit programming to some degree when they return to their

baseline level of functioning. The unit provides inpatient admission voluntarily or involuntarily

on an emergency basis, and is intended to be a safe, stable, secure environment providing

therapeutic structure for recovery.

This quality improvement project began in June 2022 and concluded in July 2022. The

impetus for improvement in the area of shift hand-off was inspired by feedback from BHU

nurses and BHU nursing leadership that shift hand-off could consume excess time or be a source

of errors due to its reliance on memory, perspective, and the absence of the electronic support of

EHR documentation that other hand-offs such as the treatment team meeting have. The reason

that nursing hand-off lacks this electronic support is that the facility's required nursing

documentation is misaligned with patient information, events, and goals presented in nursing

shift hand-off, and development of a report embedded in the EHR that contained the required

information for shift hand-off would consume more than the time allotted for this project. While

not possible at the time, it may be useful in a future PDSA cycle.

The resources required to complete this project were the time of the project team which

includes the author, the BHU nurses, and the BHU Director of Nursing. The author, a graduate

nursing student, allotted 200 hours present on the unit planning, observing and collecting data in

the form of time studies and pre and post surveys, facilitating collaboration among nurses, and

analyzing and presenting results. Because the author was a student, there was no cost to the organization for this time.

There were two newly created and filled nurse leader positions on the BHU and existing budgeted time for these RNs was used, as a dedicated percentage of their time was allotted to quality improvement efforts. The student and the BHU nurse leaders educated other BHU nurses about the new process before and during shift report and evaluated a need for modifications to the intervention during the one-month pilot. The Director of Nursing on the BHU used existing budgeted time for quality improvement to review the proposal, advised when needed, and reviewed results at the end of the evaluation period.

The potential benefits of this effort were cost savings resulting from a decrease in patient care errors and subsequently decreased legal risks to the organization as communication improved, decreased length of stay, increased staff satisfaction and in turn a decrease in associated turnover costs (Cleary et al., 2009). An improvement in the patient experience and satisfaction was also possible as patients may have felt that their nurses were consistently receiving pertinent information before assuming their care, and issues able to be addressed by nursing were resolved in a single shift as opposed to being passed to the next one.

Intervention

With communication failures commonly being identified as root causes of serious medical errors, available literature is unanimous in recommending implementation of structure to hand-off because structured and standardized hand-offs improve communication and ultimately patient safety (Starmer et al., 2012), leading this to be the intervention selected. The hospital's communication policies for nursing units indicated a preference for the Illness Severity, Patient Summary, Assessment/Action List, Situation & Safety, Synthesis (I-PASS) structure, a hand-off

structure that was originally proven to decrease medical errors and preventable patient harm

when used in physician communication, and recommended for broader application (Starmer et

al., 2012). To remain consistent with the hospital's existing standardization efforts, the I-PASS

structure was implemented in nursing shift hand-off on the BHU.

Figure 1

Elements of the I-PASS Mnemonic (Starmer et al, 2012)

To promote user engagement in this effort, ensure hand-off content is relevant to the

BHU, and build a template, nurses were queried in staff meetings and informal interviews prior

to implementation regarding specific content needed during shift hand-off. For example, in the

Illness Severity and Patient Summary sections of an IPASS hand-off, there are multiple details

that BHU nurses may want to include. A Patient Summary may need to include suicidality on the

prior shift, audiovisual hallucination status, comorbidities and their statuses, fall risk status,

detoxification protocols in place, legal status, medication compliance, behavior in the milieu, and

others. The project team compiled these responses and built a template to include requested

topics. Paper and electronic versions of these customized report templates were made available at

the nursing station, on the desktop computers at the nursing station, and via email, as some of the

BHU nurses preferred to type out their shift hand-off to prepare for report.

      During a BHU nursing staff meeting, a formal explanation of the pilot and an educational

session on the I-PASS reporting structure was led by the project team. Questions and concerns

were addressed, and the pilot phase using the new structure was implemented beginning with

night shift handing over to day shift at 06:45. Shift hand-off was periodically monitored to

evaluate and address any concerns or deviations from the I-PASS structure, and post-

implementation data was collected four weeks later.

Study of the Intervention

      The nurses on the BHU received a brief pre-intervention anonymous survey hosted by

Qualtrics™ via email to self-report the current rate of errors experienced in nursing shift hand-

off. The nurse indicated which shift they work and responded to a Likert scale rating their

experiences receiving report and giving report separately, by responding whether they *never,*

rarely, sometimes, often, or *always* receive all the information they need for the upcoming shift,

and then *always, often, sometimes, rarely,* or *never* make an error or accidental omittance in

giving report that they recognized later (Figure 2). These answers were in opposite order to allow

a higher score to indicate a higher quality hand-off. The respondents were then asked to quantify

the number of times in the past two weeks they have experienced discovering that they did not

hear a crucial piece of patient information that they felt should have been reported in shift hand-off.

The survey utilized categorical data to understand existing familiarity with the I-PASS reporting structure by providing answers *yes, no,* or *not sure.* A qualitative element was available for participant suggestions to improve shift hand-off and communication, which was intended to provide ideas for future expansion of the pilot and continued improvement in communication. The impact of the intervention was assessed with subjective informal interviews during the implementation, and a formal post-survey also using *Qualtrics™* during fourth week that the BHU nurses were using I-PASS. The post-survey was identical to the pre-survey. Responses assessing the quality of shift hand-off received, occurrences of errors, and familiarity of I-PASS were compared by the student using *Qualtrics™* analysis tools.

Measures

The pre-intervention survey data was reviewed and maintained by the student and an electronic database was used to store the data. Incomplete surveys were not included in the project to allow for simplicity in ensuring complete data, and if there was a trend of decreased engagement on the surveys, it was to be noted. Responses from each shift were compared to identify any problematic areas of concentration present on either shift, and the survey responses for both shifts together before and after the intervention were compared. The subjective data field for further improvement suggestions on the post-survey was not anticipated to be as high yield as on the pre-survey, but if there were to be information present, it was also to be included in evaluation of the intervention and future recommendations.

No other changes were anticipated to the nursing communication structure during this time, indicating changes on the post-surveys to be a result of the intervention. If changes or major staffing disruptions were to occur outside of this study, they were to be noted in the evaluation of the intervention.

Analysis

The characteristics of the sample were described in a summary statistics table to indicate categorical data to include the number of nurses responding from each shift and familiarity with I-PASS. The prevalence of each response for each question was presented in a table comparing the responses pre and post-intervention, and indicating the percentage of change represented by these data points. The purpose of using identical pre and post surveys was to track the differences in the same data over time, and to ensure data is comparable without the variability of individual interpretation. For continuous data provided by the Likert items, descriptive statistical analysis provided the mean, standard deviation, and range.

Ethical Considerations

There were no conflicts of interest identified for this study. There was no exchange of monetary value, no patient data was extracted for this study, and patients were not interviewed. Participants provided informed consent to participate and were able to easily opt out before providing any data. The nurses involved were present on the unit during shift hand-offs to evaluate whether I-PASS was being utilized to ensure validity of results, all of whom have received formal training on patient confidentiality, satisfied the hospital's competency on the

patient confidentiality, and legally agreed to maintain said confidentiality as part of their

employment and/or education on the BHU.

Results

The project retained its overall structure, with some alterations to timeline to

accommodate for customization of an I-PASS reporting template to include data and topics that

the BHU nurses prioritized in their unique environment of care. There was a one-week delay in

the timeline to accommodate for planning the distribution of education on I-PASS reporting

structure after distribution of the pre-intervention survey. This consumed more time than

anticipated when the planned nursing staff meeting was cancelled, and the education needed to

be provided via email instead of live. Due to difficulty gathering responses from a survey

administered via email, attributable to email firewalls, the survey was shortened and distributed

on paper in real-time. The student used the existing framework created in *Qualtrics™* to input

responses from the paper surveys to utilize the software's analysis tools.

There were twelve respondents for each survey, with day shift and night shift being

equally represented. Some respondents who took the pre intervention survey did not take the post

intervention survey, and some who did not take the pre intervention survey took the post

intervention survey, due to availability at the times of survey distribution. Every participant who

began the survey consented to participation and answered all questions. In the project proposal,

the author intended to identify any trends related to reported hand-off quality from day shift and

night shift but opted not to pursue this as both shifts appeared equally as enthusiastic about the

project and identifying differences between the shifts would not be a useful data point at this

time. The survey results are depicted in Fig. 2, below.

Figure 2

Pre and post intervention survey results comparison

1

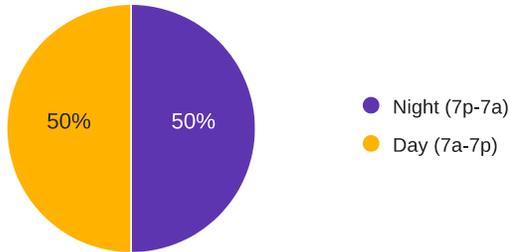**Pre: Q1 - Please indicate whether you consent to participating in this project**
12 Responses

0.00%

100.00%

● I do not consent ...
● I consent to part...

Post: Q1 - Please indicate whether you consent to participating in this project
12 Responses

0%

100%

● I do not consent ...
● I consent to part...

Pre: Q2 - Which shift do you primarily work?
12 Responses

50% 50%

● Night (7p-7a)
● Day (7a-7p)

Post: Q2 - Which shift do you primarily work?
12 Responses
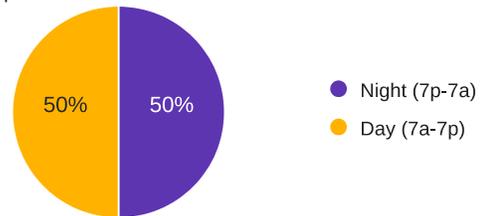
50% 50%

● Night (7p-7a)
● Day (7a-7p)

Pre: Q3 - How frequently do you feel you receive all the information needed in hand-off?
12 Responses

| Often [42%] | Sometimes [58%] |

● Always [0%]   ● Often [42%]   ● Sometimes [58%]   ● Rarely [0%]   ● Never [0%]

Post: Q3 - How frequently do you feel you receive all the information needed in hand-off?
12 Responses

Often [83%]

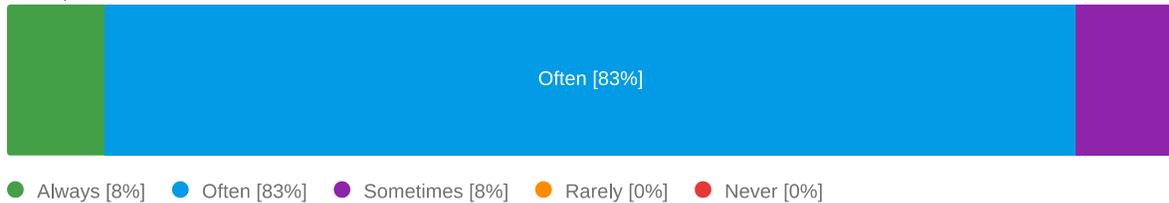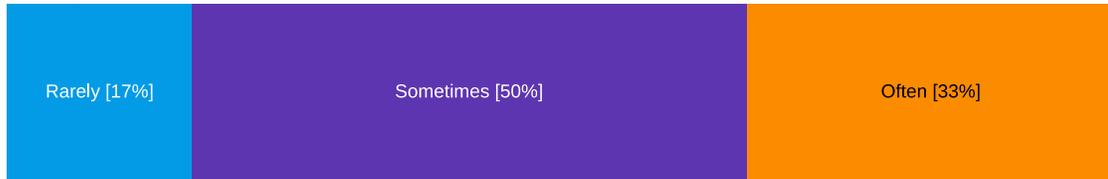● Always [8%]   ● Often [83%]   ● Sometimes [8%]   ● Rarely [0%]   ● Never [0%]
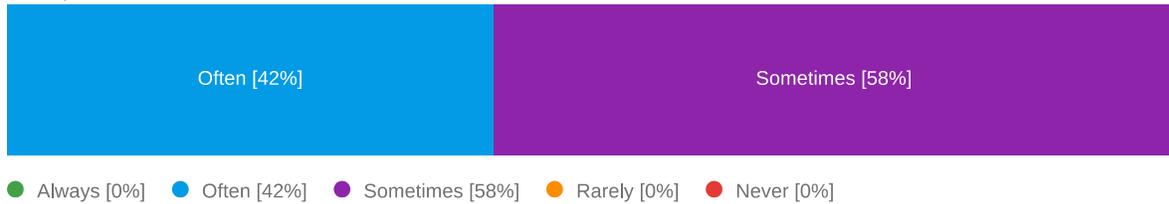
Fig. 2

Pre and post intervention survey results comparison, continued

2

Pre: Q4 - How frequently have you accidentally omitted information when giving report hand-off, realizing the error later?

12 Responses

Rarely [17%]	Sometimes [50%]	Often [33%]

● Never [0%]   ● Rarely [17%]   ● Sometimes [50%]   ● Often [33%]   ● Always [0%]

Post: Q4 - How frequently have you accidentally omitted information when giving report hand-off, realizing the error later?

12 Responses

Rarely [50%]	Sometimes [50%]

● Never [0%]   ● Rarely [50%]   ● Sometimes [50%]   ● Often [0%]   ● Always [0%]

Pre: In the past 2 weeks, how many times was information missed in a hand-off to you?

12 Responses

Estimate	Min	Max	Mean	Median	Standard Deviation	Variance	Responses	Sum
Episodes of missed information	1.00	10.00	4.17	3.00	2.82	7.97	12	50.00

Post: In the past 2 weeks, how many times was information missed in a hand-off to you?
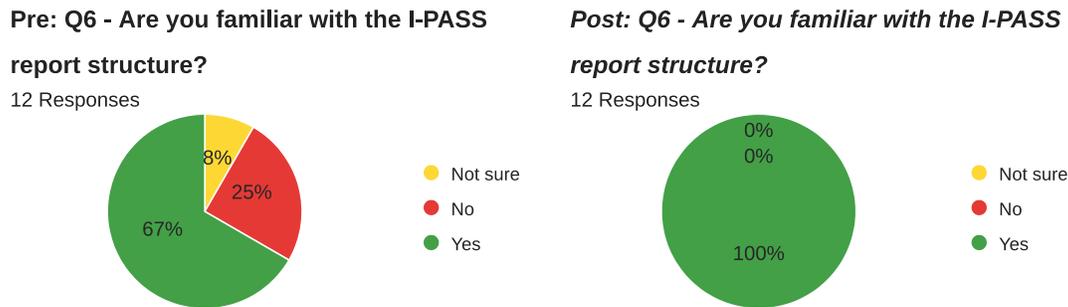
12 Responses

Estimate	Min	Max	Mean	Median	Standard Deviation	Variance	Responses	Sum
Episodes of missed information	0.00	5.00	1.83	1.50	1.28	1.64	12	22.00

Fig. 2

Pre and post intervention survey results comparison, continued

3

Pre: Q6 - Are you familiar with the I-PASS report structure?

12 Responses

Post: Q6 - Are you familiar with the I-PASS report structure?

12 Responses

Question 3 sought to evaluate whether nurses felt that other nurses handing off patient care to them was sufficient. In the pre intervention survey no participants felt the information was always adequate, 42 percent felt the information was often adequate, 58 percent felt it was sometimes adequate, and no participants felt that the information was rarely or never adequate. After the intervention participants had improved experiences receiving shift hand-off, with 8 percent feeling that the information was always adequate, 83 percent often adequate, 8 percent sometimes, and again no participants felt it was rarely or never adequate.

Question 4 also indicates improvement. Before the intervention 17 percent of respondents rarely, 50 percent sometimes, and 33 percent often accidentally omitting information when giving shift hand-off, realizing their error later. Post intervention responses indicate a decrease in this type of error with 50 percent rarely omitting information and 50 percent again sometimes omitting information. No respondents reported that they often accidentally omitted information post intervention.

In question 5, respondents indicated that they did not receive necessary information in shift hand-over an average of 4.17 times in 2 weeks, with a standard deviation of 2.82, a variance of 7.97, and a total of 50 separate occurrences recalled and reported by the 12 respondents. Post intervention the mean decreased to 1.83 occurrences in 2 weeks, a standard deviation of 1.28, a variance of 1.64, and a total number of 22 occurrences. Question 6 indicates that prior to the intervention 67 percent of respondents were familiar with the I-PASS hand-off report structure being used, 8 percent were unsure of their familiarity with it, and 25 percent were not familiar at all. After the intervention, 100 percent of the nurses participating felt familiar with I-PASS.

<div align="center">**Discussion**</div>

Summary

The aims of this project were subjectively met, according to the responses from participating nurses. The global aim of improving patient care hand-off communication between nurses was met, evidenced by the reported decrease in frequency of errors in reporting and receiving, and decrease in separately reported occurrences over a two-week period before and after the intervention. The specific aim of a 30 percent decrease in incidents of patient care related communication errors occurring in nursing hand-offs on the BHU was met and surpassed, evidenced by the responses to question five on the survey. With a rate of 50 errors in a two-week period prior to the intervention decreasing to 22 after the intervention, a 56 percent decrease in errors was achieved. However, the project did not meet the time component of the specific aim with the target date of post-intervention survey being July 9 because of the initial delay to begin the pilot, but the improvement goal was met within the original intended four-week "do" and "study" portions of the PDSA cycle.

Key findings were that the educational intervention delivered electronically was effective in familiarizing nurses with the I-PASS hand-off structure, nurses felt that there was improvement in the quality and completeness of hand-off received from the previous shift, and it improved nurses' perception of being able to deliver an improved and more complete hand-off to the oncoming shift. A strength of this project was that both shifts participated equally and enthusiastically, which has historically been a challenge among this workgroup. Additionally, utilizing the existing I-PASS structure that was already ingrained in this hospital's policies about clinical hand-off communication allowed the project to move forward mostly on the proposed timeline without administrative barriers or additional approvals required. This project had significant engagement from existing clinical nurses and nurse leaders on the BHU, leading to the rapid development of a customized template that met the needs of the microsystem, which promoted the success of this project.

Interpretation

The data from this project indicates an improvement in hand-off report quality and thus an improvement in clinical communication among nurses. Many qualities of shift report hand-off remained consistent through the pilot. It was held 30 minutes prior to the start of the next shift in a room with windows on two sides for milieu visibility, and the entire group of oncoming nurses was present while the outgoing nurses rotated out of the room to report on each of their respective teams. Prior to this intervention, many nurses on the BHU anecdotally reported feeling as though shift hand-off report is too long and that having the whole group present prolongs it unnecessarily. It was anticipated that there may be some resistance to altering shift hand-off report without separating the group by treatment team, but the nurses reportedly felt as

though the quality of communication was also a priority and were willing to conduct this test of change first.

Limitations

The limitations of this project were time, the number of participating nurses, and the survey design. With additional time for the project in total, additional surveys could be delivered at different points in the intervention timeline, and there would be opportunity to increase the number of nurses engaged in reporting the results they experienced resulting from the intervention. The survey was shortened to promote engagement and encourage results reporting, but this led to limitations in conclusions that can be drawn from the data. It is understood that fewer errors were transmitted, but unknown whether new error types were generated by the new structure, and unknown which types of errors remained for those who did not experience an improvement. Because there were no time studies performed as part of the work, it is unknown whether there was a time cost or other negative results associated with the improvement project.

Conclusions

This quality improvement project demonstrated that using a customized I-PASS report template for nursing shift hand-off can decrease communication errors in the acute behavioral health setting. As previous studies have indicated, shift hand-off in behavioral health contains less quantitative data than in other acute clinical settings and tends to be defined by the operator. With electronic means of communication in healthcare lagging behind other industries, it becomes increasingly important to identify ways to improve clinical communication to minimize errors and subsequently improve the quality of care.

To continue this project, it is recommended that the BHU continue using this shift report hand-off format and evaluate periodically whether the improvement is maintained. Should further errors develop, it would be fruitful to track the categories of errors by capturing specific incidents from nurses as they occur, design an intervention tailored to address the problem, and perform an additional test of change. Further, as the amount of time that shift report hand-off consumes is frequently identified as a source of conflict among nurses on the unit, time studies should be performed to evaluate which future iterations of this structure lead to time cost, and which lead to improvement in both communication quality and time. The patient perception of the impact of hand-off would be useful to obtain in the near future to obtain a baseline and evaluate whether patients feel that their nursing care improves over time. The I-PASS structure could be a useful tool for other clinical microsystems seeking to streamline and improve shift report hand-off, particularly in behavioral health. Customization of the template is simple, and it can be tailored to individual microsystems and applied successfully as it was here. I-PASS is a validated instrument for interdisciplinary communication, and a customized version for behavioral health could be used beyond nursing.

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