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Interventions to Increase Safety Event Reporting by Unlicensed Patient Care Technicians

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DNP Project Final Report

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This project was completed in partial fulfillment of the requirements of the Doctor of

Nursing Practice program at the University of New Hampshire.

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Abstract

Background

Patient safety is an area of focus for healthcare providers, consumers, and regulatory agencies in the United States. To maintain a culture of safety and high reliability within the hospital setting all team members must engage in reporting safety events. Unlicensed patient care technicians (PCTs) are integral members of the care team however the frequency of reporting of safety events by these caregivers is less than other roles.

Purpose

The goal of this project was to increase the frequency of reporting by unlicensed patient care technicians by providing reporting education and implementing a standardized process for providing feedback and communication when safety event reports are submitted.

Methods

PCTs received training about safety event reporting and performed a return demonstration. Interventions were evaluated with a post-implementation survey and frequency of safety event reporting by PCTs.

Results

This quality improvement project did not produce evidence that the interventions resulted in an increase of reporting of safety events by PCTs. Pre-intervention frequency of PCT reporting was 0.64% of total safety events reported during the 5- month period preceding the training. Post-training the PCTs reported 0.80 % of the total number of safety reports for the service.   Barriers to reporting were identified as time and ease of using the reporting system.

Keyword: patient safety; reporting; safety event; quality improvement

Introduction

Problem Description

Patient safety has been a priority since the Institute of Medicine's (IOM) report "To Err is Human: Building a Safer Health System" (IOM, 1999) identified preventable medical errors as a leading cause of death in U.S. hospitals with an estimated 44,000 and 98,000 people dying each year as a result. The report gained the attention of healthcare providers and resulted in an outcry from the public for safer patient care. The IOM recommendations became the foundation for development of error prevention programs in healthcare (NPSF, 2015). Despite these efforts patients continued to experience preventable harm in U.S. hospitals. In 2010 the Office of Inspector General reported a study estimating nearly 1 in 7 Medicare beneficiaries discharged from acute care hospitals experienced an adverse event resulting in harm and 44 percent of these events were preventable (Levinson, 2010). Examples of preventable harm include hospital acquired conditions (HACs) such as infections and pressure ulcers. The Agency for Research and Quality tracked incidence of HACs from 2010 to 2015 and reported a decline of 21 percent with a reduction from 145 to 115 per 1000 patient discharges (AHRQ National Scorecard, 2016). While the numbers represent a significant decrease in HACs, over 3.7 million patients were harmed from such events in 2015 (AHRQ, 2016). In 2015 the National Patient Safety Foundation (NPSF) analyzed improvements to patient safety since the IOM report and determined progress had been incremental and patient safety remained a serious public health issue.

The IOM (1999) defined error as the "failure of a planned action to be completed as intended or use of a wrong plan to achieve an aim; the accumulation of errors results in accidents" (p. 210). Error occurs when there is a failure to provide a standard of care resulting in

preventable patient harm (PSNET, 2017). Reporting of errors and potential errors is the

foundation for ensuring a high reliability culture (Reason, 1997). It is necessary for healthcare

organizations to create systems to capture information, detect, and analyze potential risks to

patient safety (Barach & Small, 2000). The two purposes of reporting systems are to collect

patient safety information and use the information to avoid error or prevent error from

reoccurring (Harper & Helmreich, 2005; Health Quality Ontario, 2017).

Safety events are often a result in a deviation from generally accepted performance

standards resulting in potential or actual patient harm. The deviation may be related to human

error or the failure of equipment, material, or technology. Human performance in regard to

maintaining safety is impacted by systems including the environment, organizational culture and

structure, workflow and processes, and policies (HPI, 2011). The use of a standardized

classification system for safety events provides organizations with consistent methods to collect

and analyze patient safety data. The HPI (2011) safety event classification system provides a

consistent methodology to identify variation; determine the relationship between the deviation

and the patient outcome; and classify the event according to the level of patient harm. Patient

harm is classified using an algorithm assigning multiple levels of harm from a near miss safety

event that never reaches the patient to patient death. The goal of a high reliability organization is

to identify and report safety events before they reach the patient or cause detectable harm.

Safety event reporting can be mandated by regulatory agencies such as The Joint

Commission or Centers for Medicare & Medicaid Services. Mandated adverse event reporting

of serious patient harm or death is intended to hold organizations accountable to the public and

ensure implementation of internal systems to prevent the likelihood of reoccurrence. Voluntary

reporting is designed to detect weaknesses before harm occurs and is the foundation for hospital

quality improvement initiatives (IOM, 1999). Voluntary reporting is necessary to enable an error prevention program to improve safety through process improvement and staff education (Wolf & Hughes, 2008). The greater the number of reports, the greater the number of opportunities to improve processes, and as a result the system becomes safer (Wolf & Hughes, 2008). Reports from frontline staff provides detailed information necessary to analyze a problem and potential solution. Organizations can increase reporting and maximize rapid detection when safety issues are identified from a broad range of employees including clinicians who provide direct patient care.

Underreporting of preventable safety events is a limitation to voluntary reporting and produces a threat to patient safety (Nuckols, 2011). The result is an information gap leading to incomplete analysis of potential threats (Noble & Pronovost, 2010) and inadequate evaluation of improvement efforts (Wolf & Hughes, 2008). Many factors contribute to underreporting by direct care providers. Barriers identified in the patient safety literature include fear of blame and/or retaliation; fear of getting someone in trouble; lack of knowledge about processes for reporting; and need for knowledge about what to report (Health Quality Ontario, 2017). Reporting processes can be time consuming and cumbersome. Lack of acknowledgement and feedback about the variance and resolution has also been identified as a contributing factor to underreporting (Livorsi et al., 2016).

Reason (1997) describes closing the communication loop with reporters as a best practice of highly effective safety programs creating a reporting culture where individuals are motivated to report events. Acknowledgement and feedback are an essential step to increase the use of voluntary reporting systems (Nuckols, 2011). Conversely the lack of feedback can inhibit

reporting. Nuckols (2011) describes that lack of feedback results in the perception by nurses of a 'black hole' where events are reported with no follow-up communication.

The way individuals behave and practice in the clinical setting are often influenced and constrained by other members of the team and how team members interact and communicate with each other (Vincent, Taylor-Adams & Stanhope, 1998). In many hospital settings nursing professionals complete the majority of error reporting resulting in participation bias when compared to other roles such as physicians. Inconsistent reporting practices across specific roles or disciplines on the care team can contribute to the perception that not all team members are equally responsible for incident reporting or maintaining safety (Noble & Pronovost, 2010). Inequity between roles can be further compounded in an environment where power gradients exist between roles such as physicians and nurses; nurses and unlicensed clinical technicians; and physicians and unlicensed clinical technicians (Lancaster, Kolakowsky-Hayner, Kovacich & Greer-Williams, 2015). Employees working in roles with less hierarchical power may not report safety events because they do not believe the information would be valued by other members of the team or they may be fearful of retaliation from other team members who have more authority. Unlicensed assistive personnel (UAP) in the acute care hospital are considered to have less power in the organizational hierarchy than nurses, physicians, and other clinical team members. The American Nurses Association describes UAP roles inclusive of nurses' aides, certified nursing assistants, orderlies, attendants and health aides (ANA, 2012).

Studies have identified factors influencing reporting among healthcare professionals such as physicians and nurses. However, few studies include UAPs and none have focused on the UAP group of direct patient caregivers. Currently UAPs comprise a significant portion of the patient care workforce in the acute hospital setting and provide a financially efficient skill mix

for staffing (Pittman, Li, Han & Lowe, 2018).   The United States Bureau of Labor Statistics

projects an expected growth for UAPs in the upcoming years as the baby-boom population grows

older and requires assistance with self-care (OOH Healthcare, 2018).

For the purpose of this quality improvement project the UAP will include the role of

Clinical Technician and Patient Care Associate and will be referred to collectively as Patient

Care Technicians (PCTs). PCTs comprise approximately 30 percent of the total skill mix in the

nursing care delivery models on the general inpatient surgical units in the identified acute care

hospital setting. The competency of the PCT to perform assigned patient care activities is

validated upon completion of an orientation.

PCTs function in a support role by providing direct patient care are delegated by and

under the supervision of the registered nurse including assisting the patient with activities of

daily living such as hygiene, toileting, ambulation, and meals. While considered basic care, the

interventions performed by the unlicensed staff impact the quality of patient care outcomes such

as pressure ulcers and patient falls (Montalvo, 2007). Variances related to direct patient care

activities can result in harm to the patient and cost to the organization (Mansfield, Caplan,

Campos, Dreis & Furman, 2015). The Agency for Healthcare Quality and Research (AHRQ)

estimated an incidence of hospital acquired pressure ulcers for Medicare beneficiaries to be 36.3

per 1000 days at an estimated cost of $17,000 per case. Incidence of hospital patient falls was

estimated to be 6.7 per 1000 days at a cost of $7234 per case (AHRQ National Scorecard, 2016).

In addition to the cost burden, hospital patient falls can result in patient injury including

fractures, lacerations, emotional distress and can even lead to brain injury and death.

Maintaining sensitivity to front line operations and the staff performing direct patient care

is crucial to high reliability. It is essential to patient safety for unlicensed patient care providers

to participate in early detection of patient harm by reporting potential and actual safety events and deviations from standards of care. Voluntary reporting of safety events is critical to ensuring high reliability and preventing patient harm. Direct care providers including unlicensed patient care staff can provide information necessary to identify and correct potential sources of harm. Unlicensed staff such as PCTs provide patient care for activities where failure to maintain safety can result in significant risk such as patient falls. However, the total number of reports generated by PCTs is less than other members of the team. The aim of this project is to determine if the frequency of reporting by unlicensed patient care employees will be increased through education regarding the reporting of safety events and the use of a standardized process for providing feedback to reporters.

The AHRQ identifies characteristics of a safety reporting system. The reporting system should be utilized by a broad range of personnel; summaries of events should be shared; a structured mechanism for reviewing and developing action plans; and the safety reporting process must take place in a supportive environment that protects those who report issues (AHRQ Patient safety primer: Reporting patient safety events, 2017). Underreporting of safety events by unlicensed PCTs can result in missed opportunities for early identification and detection of potential threats to patient safety and to prevent patient harm. Education and training using a standardized process and system for reporting safety events and closing the communication loop with feedback may increase the frequency of safety event reporting by unlicensed PCTs.

Yale New Haven Hospital (YNHH) is a 1541 bed Magnet® designated academic medical center in New Haven Connecticut. YNHH provides initial training for online electronic reporting safety events during orientation to all employees including PCTs. In 2014 the

organization conducted mandatory high reliability (HRO) training for all employees including

didactic content about the importance of reporting; what to report; and an overview of the

electronic system. Staff unfamiliar with the online system are instructed to reach out to their

safety leads or managers for additional training. The HRO training was also added to new

employee orientation. The goal of the training is to promote a culture where all staff participate

in maintaining a high reliability culture by reporting safety events and to increase the number of

safety reports available for early detection of error.

Voluntary reporting is further reinforced with an organizational goal to increase the total

number of safety events reported. Each service area within the organization sets a target to

increase total number of reports including the 148 patient beds within Inpatient General Surgery.

For the first 5 months of calendar year 2018 a total of 777 safety event reports were entered into

the electronic reporting system for the inpatient surgical unit reporting locations (Appendix A).

A total of 497 events were entered by registered nurses. The pharmacy staff entered 104 events

and laboratory staff entered 79. Smaller numbers of events were entered by other roles such as

physician assistants. There were 5 reports entered anonymously and 22 were unable to be

assigned to a specific role. PCTs entered a total of 5 reports or less than 1 percent of the total.

There are approximately 50 PCTs employed within the inpatient general surgery units. During

discussions about patient safety and event reporting with the patient safety nurse many PCTs

from inpatient genera surgery units communicated they had not entered a report into the system

and some were unsure if they remembered how to logon to the online system.

Numerous studies have explored the barriers to error reporting by healthcare personnel.

Early exploratory studies identified inadequate knowledge about safety event reporting and lack

of feedback as potential barriers to the reporting of safety events (Uribe, Schweikhart, Pathak,

Dow & Marsh, 2002).   Holden and Karsh (2007) performed a literature review and summarized

factors contributing to successful reporting system. A reporting system known to users and easy

to use is essential as well as providing feedback. Lack of feedback following reporting can

impact behavioral determinants facilitating the voluntary reporting of events (Alqubaisi, Tonna,

Strath & Stewart, 2016). AHRQ defined an effective voluntary reporting system as a learning

system that disseminates information in a timely fashion (AHRQ Patient safety primer:

Reporting patient safety events, 2017).

Available Knowledge

A literature search was conducted to gain knowledge about reporting practices of

healthcare employees including unlicensed staff such as PCTs and the interventions utilized to

increase frequency of safety event reporting. The following databases were searched: CINAHL;

PUBMED; PROQUEST; and Cochrane Database of Systematic Reviews. The search terms

included: medical error; safety event; and incident reporting.   The literature was searched from

the time of release of the IOM study in 1999 to the present. Inclusion criteria consisted of

articles studying education and feedback communication interventions to increase safety event

reporting by healthcare providers. Study participants included employees of healthcare agencies,

students and trainees, and physicians in any healthcare setting providing patient care.

Results of the search yielded 5 articles supporting the use of education and feedback

communication as interventions successfully increasing event reporting. Two articles were

research studies in community practice settings; 1 was a quality improvement project in an

academic medical center; and 2 were quality improvement projects with physician trainees. The

study in the academic medical center setting focused on physicians, physician trainees, and

nurses. The studies in the community practice setting examined reporting practices of physicians and employees including office staff and assistants.

Tuttle, Holloway, Baird, Sheehan and Skelton (2004) administered education interventions when transitioning staff at an academic medical center from a paper reporting system to an electronic web-based event reporting system. The educational program was designed to increase awareness about reporting and also included training about how to use the electronic system.   Training employees and physicians on how to use the system was necessary to make the change.   Employee knowledge about safety was also necessary to foster voluntary reporting and education about the purpose and importance of event reporting was provided at hospital, departmental, and nursing meetings for a period of 6 months preceding the implementation of the electronic system and during the 12 months following implementation. In addition, during this time there were hospital wide communications requesting support for using the electronic system.   Managers also attended a 1- hour meeting to receive instruction about the reporting aspects of the system. There was an increase in reporting in the year following the adoption of the electronic system and an increase from 1,542 reports the year preceding the transition to 2,843 reports the year after full implementation. Nurses reported 70 percent of the safety events for a total of 1968 events. Managers reported a total of 368 events and other roles including pharmacists, physicians, LPNs and nurse practitioners reported 268 events. There were 239 events reported as entered by 'other'. It is unclear if PCTs contributed to the other category. The extent to which the increase can be attributed to the electronic system versus the complementary education and the sustainability of the increase over time is unknown.

Macht, Balen, McAneny and Hess (2015) designed a project to increase reporting among general surgery residents using interventions for education, feedback, and event resolution. A

patient safety curriculum was delivered during interactive sessions at the quarterly resident

academic conferences. Content included the types of safety events to report as well as how to

access the hospital electronic reporting system. Aggregate data from the events reported by the

residents were reviewed including the number and type of safety report. Specific cases and

resolutions were presented for discussion.   Residents who reported an event received a feedback

email acknowledging the receipt of the report and feedback regarding any investigation. There

were 0 reports during the 2 months preceding the interventions. Reports increased in each of the

6 months following the interventions and there were 17 reports filed the final month.

A second improvement project was conducted with pediatric residents and medical

students implementing event review conferences (Smith, Hatoun & Moses, 2017). Over a 22-

month training period trainees participated in monthly 1- hour sessions consisting of patient

safety education, process to submit a safety report, and review of issues reported in the previous

month. The event review process focused on near miss information and identifying sources of

vulnerability in patient safety with the goal of increasing event reporting. Trainee reporting

increased from 6.7 reports per month to 14.1 during the 22- month study period. Trainees

increased reporting from 27.1% to 46.1% of the total number of reports generated.

Verbakel, Verheij, Zwart, Langelaan, and Wagner (2016) conducted education activities

about patient safety with physicians, clinicians, and office staff in 30 community practice

settings in the Netherlands. The randomized mixed methods study included 2 intervention

groups and a control group. Both intervention groups completed a patient culture of safety

survey and the second intervention group also attended an educational 3.5- hour workshop about

patient safety. The workshop was led by an independent trainer and held at the practice location

and each practice was required to have 75% attendance. Attendees received an introduction to

patient safety and information about human factor engineering.   The survey results for each

practice location were shared during the session and discussed. Each attendee was asked to

examine the culture of safety for their practice and participate in group discussion about possible

actions to improve the culture of safety. The impact on event reporting was measured using

participant self-report.   Both intervention groups demonstrated an increase in reporting as

compared to the control group. The group receiving the survey and attending the workshop

reported 42 times more events than the control group with 70 events reported pre-intervention to

224 following the intervention. The group completing only the survey intervention reported 5

times the number of events with an increase from 15 to 82 event reports.

Hoffman et al. (2014) conducted a randomized controlled trial within 60 community

practice settings in Germany. The intervention consisted of a team- based patient safety

education session based on a structured patient safety framework. The session followed with 3

additional facilitated team sessions at 4 weeks, 3 and 6 months to reinforce patient safety

concepts. The control group attended a 90-minute patient safety seminar followed by two phone

calls at 5 months and between 8 to 9 months following the seminar.   The frequency of

reporting increased for both groups with the intervention group increasing the most. In the 12

months after the intervention the number of reports of patient safety incidences per practice were

4.68 for the intervention group as compared to 2.91 for the control group.

Project Rationale

An electronic reporting system and safety event classification system can standardize

reporting, data collection, and analysis of safety events but the systems are dependent on the

voluntary reporting practices of the end-users.   Adequate knowledge about how to report is

necessary to ensure consistent reporting practices by all employees across the hospital. Feedback

communication reinforces the importance of reporting to prevent patient harm and can motivate

healthcare providers not only continue but to increase reporting of actual or potential safety

events.

Few research studies provide evidence regarding the use of education and feedback

communication to increase event reporting. Empirical evidence supports the interventions within

the quality improvement domain and are guided by recommendations from patient safety

organizations such as AHRQ. Education ensures adequate knowledge about the importance of

reporting and the process for reporting. Feedback communication reinforces knowledge and

facilitates behavioral determinants for reporting by providing the reporter by acknowledging the

report and providing information about the possible resolution. The impact of interventions in

maintaining increased quantity of event reporting over time is unknown making sustainability a

common limitation across the research studies and improvement projects. Therefore, a quality

improvement project was designed to test educational interventions to increase PCT baseline

knowledge about safety event reporting to encourage reporting; tracking of reports entered by

PCTs; and reinforcing learning by establishing a process to give feedback to the PCT reporting

the event.

Kolb's Experiential Learning Theory (ELT) will be used as the theoretical framework for

the project. Kolb's model depicted in Appendix B consists of a 4-phases of the learning cycle: a

concrete experience; a reflective observation; conceptualization; and active experimentation

(David, 2017; Kolb, 2015). The iterative learning cycle links and integrates theory, experience,

and practice making it applicable to workplace learning (Wilkinson, 2017).

Kolb defines learning as "the process whereby knowledge is created through the

transformation of experience" (Kolb, 2015, p. 49). ELT provides an educational model where

learners practice skills as they are learned in a participative role versus the role of observer

(Fewster-Thuente, 2018). Currently PCTs enter less than 1 percent of the total number of safety

events in inpatient general surgery despite having attended high reliability training in the

classroom setting.   The quality improvement intervention provided training and reinforced

content through group discussion and application of learned content to situations in the

workplace.   Practice was supported with hands-on training and learners performed a return

demonstration. Further reinforcement took place with a follow-up communication after a PCT

utilized the learned skill in the workplace.

Specific Aims

The primary aim of this quality improvement project was to increase safety event

reporting by PCTs through an educational intervention and implementation of a communication

feedback process. The purpose of this report is to evaluate the frequency of safety event

reporting by PCTs following education and training about the importance of reporting; what to

report; and how to enter a report into the electronic system; implementation of a communication

feedback process; and to understand remaining barriers to reporting as perceived by PCTs. This

report is presented utilizing the Standards for Quality Improvement Reporting Excellence

(Squire, 2015).

<p align="center">**Methods**</p>

Context

The project took place at Yale New Haven Hospital (YNHH), a 1541 bed Magnet®

designated academic medical center in New Haven Connecticut. Inpatient general surgical care

at YNHH is provided at 2 campuses, the York Street campus and the Chapel Street campus also

known as the Saint Raphael's campus. There are 8 inpatient general surgery units within

surgical services including 3 surgical intensive care units and 5 post-general surgery units. Unit-based staff consist of registered nurses, PCTs, and clerical staff. The units provide surgical nursing care to patients within general surgery services including trauma, GI surgery, urology, plastics, and podiatry. The 8 units consist of 148 beds and average an 85% occupancy.

The population consisted of PCTs with specific job code of clinical technician and patient care associate. PCTs are scheduled around to clock and makeup approximately 30% of the patient care team skill mix within inpatient surgery. Under the supervision and direction of registered nurses PCTs provide direct patient care such as hygiene, ambulation, assisting with meals and toileting. PCTs perform tasks such as measurement of blood glucose and vital signs, phlebotomy, and EKGs. PCTs document activities and record measurements in the electronic medical record. Although the environmental surroundings differ at each campus policies, procedures and practice standards are aligned. The clinical technicians are unionized and patient care associates are not.

PCTs were obtained using a convenience sample and participation was voluntary. Inclusion criteria were PCTs permanently assigned to an inpatient general surgery patient care unit and regularly scheduled for at least 24 hours/week. Per-diem PCTs, float PCTs or PCTs who had resigned and were completing employment at YNHH were excluded. A total of 52 PCTs received an email invitation to register and attend a class; 22 registered; and 19 attended a class. There were 6 classes originally scheduled. One additional class was scheduled with re-notification to the PCTs however no additional PCTs attended this session. One attendee terminated employment the month after attending a training session.

Study of Interventions

Interventions began in July of 2018 and specific timeline is displayed in Appendix C.

Information about the purpose and content of the educational training was given to PCTs in the

month prior to the training sessions and was shared in the surgery service newsletter with an

invitation to register to attend a session. Training schedules were coordinated with unit

leadership to facilitate attendance and minimize disruption of workflow on the patient care units.

There were seven 1- hour training sessions conducted by the patient safety nurse and

inpatient surgery nursing director. The classes were held at the Chapel Street campus in a

conference room outside of the patient care unit and equipped with computer stations. The 7

training sessions were offered over a two-week period with each PCT attending one session.

Class enrollment did not exceed 5 PCTs to ensure participants had individual access to a

computer station.

PCTs received content about the value of early detection and prevention of patient harm

(Appendix D). Examples of previously reported safety events and resolutions were shared.

Attendees were asked to logon to the live environment of the electronic reporting system to

validate they would have future access and were then instructed to sign-off the live system and

access the test environment of the electronic reporting system. PCTs identified at least one

example of a safety issue they have or might encounter in their workday that would be suitable

for reporting.   With guidance and direction from the Patient Safety Nurse the PCTs performed a

return demonstration including accessing the test environment of the electronic system, entering

data into the fields and submitting the example as an event. Before departing the session, PCTs

were asked to identified an area of care where they expect a potential safety event may occur and

commit to practicing a questioning attitude when involved in this aspect of care.   Each attendee

was given resources to answer questions that may arise following training or to assist with any issues encountered when using the electronic reporting system. All attendees completed the training session; successfully logged on to both the live and test electronic reporting system; and entered a report in the test environment.   The majority of participants, 17 out of 19, received a welcome message when logging on to the live system indicating they had not accessed the system previously.

Measures

To measure training effectiveness PCT perceptions of training content and participative educational methods were obtained using a post training survey completed before leaving the session. The survey asked participants to rate six statements about the training session using a 5-point Likert scale (Appendix E). The statements addressed perception of post-training ability to understand the importance of reporting safety events; identifying events suitable for reporting; value of exercise to logon to electronic reporting system; the expectation of how training will increase frequency of reporting; and if attendees would recommend the training to fellow PCTs. Lastly there was statement about the physical training environment. The survey concluded with an open-ended section for comments and suggestions.

Four weeks following the intervention PCT attendees received an email link to an anonymous electronic survey about perceptions of impact of training in the workplace. The survey asked participants to rate 6 statements using a 5-point Likert scale (Appendix F). Statements assessed the participants perception of the impact of training on awareness of safety events in their workplace; reporting practices since training; and likelihood of reporting. There was an open-ended question to identify perceived barriers to reporting since participating in the training session.

The number of safety events entered by PCTs were measured for the first 5 months of 2018 as previously reported (Appendix A) and compared to the frequency of event reporting post-intervention.   The frequency of reporting by PCTs was monitored following initiation of the first training class. The measure included all safety reports identifiable to a PCT attending a session. Reports entered anonymously were not considered. Reports entered by PCTs not attending a class were identified and included in the total number of safety events for the PCTs in the service area.   Safety reports were monitored daily and reports submitted by a caregiver self-identified with name and role of PCT, tracked by the Patient Safety Nurse. The PCTs worked a range of 16 to 40 shifts during this time depending on number of regularly scheduled hours; these hours provided an opportunity to identify and report an actual or potential safety concern. PCTs reporting safety events received an acknowledgement of the report with an email communication within 48 hours of submission. The aggregate number of reported safety events for the inpatient general surgery patient care units and the number of events entered by PCTs were measured and reported weekly.

Analysis

The frequency of safety event reporting by PCTs was quantified using reports generated from the online electronic safety event reporting system and collected following the first training session. PCT perception of training was measured using an anonymous paper survey returned at the conclusion of the training session. The PCTs intent and their actual use of the knowledge and resources provided in training was measured using an anonymous electronic survey distributed by email 4 weeks following the final training session.   The surveys were summarized using descriptive statistics.

Ethical Considerations

University of New Hampshire (UNH) Internal Review Board (IRB) approval was not required. Yale New Haven Hospital IRB approval for implementation of a quality improvement project was obtained prior to initiating the project.

There was no expected risk to employees for participating in this project and participation was voluntary. The DNP student and practice personnel conducted the project following the YNHH Standards of Professional Behavior and policies for research and quality improvement projects. All information collected as part of evaluating the impact of the project is presented as aggregate data and does not include employee identifiers. Electronic files containing identifiable information for employees or patients is password protected to prevent access by unauthorized users and only the inpatient general surgery nursing director and the patient safety nurse for Inpatient General Surgery have access to the file.

Results

Post Training Survey

Participants agreed with statements about the usefulness of training and the majority strongly agreed that training would increase frequency of using the electronic system for reporting safety events. PCT comments were consistent with feedback verbalized during the sessions about the usefulness of the instruction. The survey results are displayed in Appendix G.

Post Implementation Survey

Four weeks following the last training class PCT attendees received an email link to an anonymous survey to identify perceived barriers to reporting since participating in the training session. A total of 9 participants completed the survey for a response rate of 47%. Survey results are displayed in Appendix H. The majority of PCTs agreed or strongly agreed that

training increased awareness of safety events in their work area and responded positively to

statements about knowledge and intent to report safety events when identified. Six PCTs found

the take-home resources helpful and 6 had consulted the Patient Safety Nurse following the

training. Each statement received at least one 'strongly disagree' rating. It is not clear if the

ratings were from the same participant as the survey was administered anonymously.

 Four of the PCTs reported a safety event since training. However, during the weeks

between the training and return of the survey there were 3 safety events entered by a reporter

self- identifying their role as a PCT. Barriers identified were availability of time and speed of

entering a safety event.

Frequency of Reporting by PCTs

The total number of reported safety events and the frequency of reports generated by

PCTs is displayed in Appendix I.   There were 3 safety events reported entered into the electronic

system by PCTs in the 8 weeks following the training sessions.   Following the initial 8-week

measurement period the data was aggregated and reported monthly as part of ongoing operations.

There was one safety event reported by a PCT during this next 4- week period.

During one of the training sessions two PCT's expressed concern that nurses might be

upset if a PCT entered a safety event concerning one of their patients. The Patient Safety Nurse

and Director reinforced expectation of reporting by all employees regardless of role. The

information presented to PCTs and the expectations for reporting were shared with all employees

in the service including registered nurses. It is unknown how this factor may have contributed to

the frequency of reporting.

There were 3 missed opportunities for safety events to be entered into the electronic

system by PCTs post-intervention. During the 12-week period following the initiation of

training there were 3 great catches or near misses verbally reported by PCTs. One was reported
at the daily safety call and entered into the electronic system by an RN. The other 2 were
reported at the safety call and recorded by the Patient Safety Nurse.

Discussion

Summary

This quality improvement project did not produce evidence that educational and
communication interventions resulted in an increase of reporting of safety events by PCTs. Pre-
intervention frequency of PCT reporting was 0.64% of total safety events reported during the 5-
month period preceding the training. Post-training the PCTs reported 0.80 % of the total number
of safety reports for the service, still representing less than 1 percent of the events.

There are many factors facilitating reporting of safety events in the organization.
Organizational commitment to an environment of high reliability and early detection of harm
provides support for strategies to increase frequency of event reporting.   Keeping patients safe
by identifying and reporting sources of patient harm is an expectation of all employees and
supported by the YNHH Standards of Professional Behavior (YNHH, 2017).   Voluntary
reporting is fostered through a non-punitive culture and an employee recognition program for
identification of great catches.

 Since 2012 the hospital has conducted a daily morning safety report to identify safety
issues that have taken place in the past 24 hours and to identify potential concerns for the next 24
hours. Each unit within inpatient general surgery conducts a safety huddle each shift and
employee assigned to the unit or deployed to the unit gather to identify safety issues and increase
situational awareness of potential safety issues such as patients who are high risk for falls. In
December 2017 the surgery service instituted a safety call for the inpatient general surgery units

to report concerns. This call takes place during the week at 11am and facilitates sharing of

information and best practices across the inpatient surgery units. Critical items are escalated to

the hospital wide meeting the following morning.

Learner readiness and PCT interest in attending workplace training was identified as a

strength for this project. Lack of knowledge about reporting safety events and using the

electronic reporting system has been identified as a learning need by PCTs through discussion at

their hospital Growth and Development committee.

Interpretation

For the purpose of this project we cannot construe that educational intervention and

implementation of a communication feedback process positively impacts the frequency of safety

event reporting by PCTs at YNHH after 12 weeks. Although there were no studies involving

PCTs exclusively there were studies successfully demonstrating an increase in reporting

following educational interventions among unlicensed employee clinical and office roles. The

barriers to reporting identified by the PCTs taking the post-implementation survey were time and

ease of using the system. Both factors were identified in the literature as common barriers to

reporting of safety events.

Limitations

The number of PCTs participants was less than expected with 52 PCTs being invited and

19 participating in a class or 37% of invitees. Voluntary versus mandatory participation in the

training was purposeful to ensure attendees wanted to attend and did not feel coerced. Voluntary

participation may have resulted in lower attendance. The intervention was initiated in the month

of August and it is unknown how other competing priorities affected attendance. Historically

this month can be slower than usual for elective surgery however the hospital census was over

90% for several months resulting in consistent volume due to surge and medicine overflow. Despite collaborating with unit leadership to offer a variety of classes avoiding busy times such as mealtimes, workload could have been a barrier to PCT interest in attending.

The ability to report events anonymously in the electronic system is available to foster voluntary reporting and provide a reporting option for an employee who does not want to be identified. If used, the anonymous option was barrier to measuring the expected outcome as it would not be identified as an event entered by a PCT.

Conclusion

Although the interventions did not result in a significant increase in reporting the work of the project was useful and provided benefits to team members and supported organizational strategy to foster an environment of reporting by all employees. PCTs enjoyed attending the training class and found the content useful. Participants were interactive and participative during the sessions and shared information about recent issues they had encountered.

The Patient Safety Nurse and Director learned 89% of attendees had never signed on to the safety event reporting system and did not know the process for entering an event despite having attended hospital-wide training about reporting. Given this information the expectations of such training and the content require evaluation. For instance, entering a safety event may be reviewed in orientation class but require a hands-on demonstration during unit-based orientation. Since this was initial training for many PCTs reinforcement and encouragement are strongly recommended to increase reporting.

PCT attendance for this project was voluntary and this was purposeful to ensure attendees were engaged. The nursing director did not make training mandatory out of concern the PCTs would perceive attendance as coerced because non-compliance with mandatory training results

in discipline per hospital policy. If replicated as part of clinical operations and aligned with

hospital strategy, attendance can be increased by deeming participation mandatory. Increasing

the number of participants could potentially increase to increase frequency of reporting.

The costs associated with the quality improvement project are outlined in Appendix J and

are not expected to be a barrier to potential spread to other areas. The labor expenses associated

with the implementation are based on average salary and expected length of educational session

and employees will attend education sessions during scheduled worktime with minimal impact to

YNHH salary budgets. There were no additional costs associated with the project.   Printed

material was obtained from hospital online resources and printed for distribution.

PCT team members across 8 surgical units attended the training sessions with

approximately 2 or 3 on each unit attending in total. Future training should consider the benefit

of conducting training for the unit-based team together so the PCTs can support each other in

practice on the unit. In addition, consideration should be given to asking the manager and

registered nurses to participate with the PCTs in the training possibly as coaches. Ensuring

expectations are aligned is critical for success especially given the PCT concerns about the

nurses being upset if a PCT entered an event.

Other leaders familiar with the project have inquired about providing education to

unlicensed members of their teams such as surgical techs in the operating room. The previous

recommendations will be shared with these leaders as they plan implementation.

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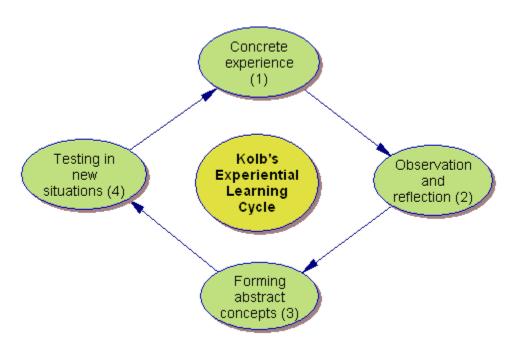
Appendix A

Summary of Safety Events Entered by Role/Department

January 1, 2018 – May 31, 2018

Table 1

Role	Number of Events
RN	497
Pharmacist/Pharmacy Residents	104
Laboratory Staff/Techs	79
Unable to determine	22
Physician Assistant	17
Infection Prevention	14
Respiratory Therapist	7
Anonymous	5
Radiology/Radiology Tech	5
PCT	5
EKG Tech/Cardio-diagnostic	4
Physician	4
Business Associate/Unit Clerk	4
APRN	4
Patient Transporter	2
Care Management RN	2
ED Admitting Registrar	1
ED Tech	1
TOTAL	**777**

Appendix B

Kolb's Experiential Learning Theory

From: David L, "Experiential Learning (Kolb)," in *Learning Theories*, February 13, 2007, https://www.learning-theories.com/experiential-learning-kolb.html.

Appendix C

Timeline 2018

Table 1

Task	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Complete Proposal with acceptance by DNP team Complete YNHH IRB process	X							
Obtain YNHH IRB approval			X					
Prepare Intervention material and evaluation tools Establish process for feedback loop Logistics for intervention - scheduling		X	X					
Intervention				X				
Post-implementation Survey					X			
Collect and analyze outcome data						X	X	
Results presented to YNHH								X
Results presented to UNH								X

Appendix D

Outline

Education and Training

Objective(s)

At the conclusion of the educational session, the PCT will:

1. Articulate example of an event suitable for reporting as a safety event.

2. Successfully logon to the electronic reporting test system.

3. Demonstrate entering one safety report into electronic reporting system completing all necessary data elements.

1. 80% of the PCT employees from the identified units will attend a training session.

2. Each PCT attendee will submit at least one classifiable safety event report during the 4-week period following the completion of the training session

3. Following the 4-week post-implementation period each PCT attendee will complete a post-implementation survey do identify reporting barriers encountered since training.

4. Safety themes and resolutions from events reported by PCTs will be shared with all staff at unit safety huddles and in inpatient general surgery newsletter.

Content

1. Introduction

2. Importance of event reporting to preventing and reducing harm to patients

3. Examples of safety events for reporting

4. Identification of potential safety events by PCTs Demonstration of Electronic Reporting System

5. Return Demonstration of Electronic Reporting System

a. Logon to system test environment

b. Demonstrate entering one safety report with all necessary data elements

Appendix E

Safety Event Reporting						
Post- Training Survey						
		Survey Scale 1=Strongly Disagree 2=Disagree 3=Neutral 4= Agree 5=Strongly Agree				
Circle the correct numeric response to each question						
1	I found this training useful to understanding the importance of reporting safety events	1	2	3	4	5
2	I can identify 2 examples of safety events for reporting	1	2	3	4	5
3	I found the class exercise with logging on and reporting an event to be helpful	1	2	3	4	5
4	I expect this training will increase my frequency in using the system to report safety events	1	2	3	4	5
5	The room environment was conducive to learning	1	2	3	4	5
6	I would recommend this training class to a PCT colleague	1	2	3	4	5

Comments/Suggestions

Appendix F

Post-Implementation Survey

Survey						
Safety Event Reporting						
1 Month Following Training						
		Survey Scale **1=Strongly** **Disagree** **2=Disagree** **3=Neutral** **4= Agree** **5=Strongly** **Agree**				
Circle the correct numeric response to each question						
1	I found the training has increased my awareness of potential and actual safety events in my work area	**1**	**2**	**3**	**4**	**5**
2	I have referred to or used the take-home resources provided in class	**1**	**2**	**3**	**4**	**5**
3	Since training I have consulted the patient safety nurse about patient safety concern or question	**1**	**2**	**3**	**4**	**5**
4	If I identified a patient safety concern, I would know how to report an event in the electronic system	**1**	**2**	**3**	**4**	**5**
5	If I identified a patient safety event, I would report the event using the electronic system	**1**	**2**	**3**	**4**	**5**
6	I would recommend this training class to be offered to all PCTs	**1**	**2**	**3**	**4**	**5**

Since training have you reported a safety event using the electronic system?   Please circle answer

Yes   No

Barriers/Challenges to Reporting Safety Events

Appendix G

Safety Event Reporting
Post Training Survey

Table 2

Table 2: Safety Event Reporting: Post-Training Survey Results		Survey Scale 1=Strongly Disagree 2=Disagree 3=Neutral 4= Agree 5=Strongly Agree				
Level of Agreement	n	1	2	3	4	5
I found this training useful to understanding the importance of reporting safety events	19	0%	0%	0%	0%	100%
I can identify 2 examples of safety events for reporting	19	0%	0%	0%	0%	100%
I found the class exercise with logging on and reporting an event to be helpful	19	0%	0%	0%	0%	100%
I expect this training will increase my frequency in using the system to report safety events	19	0%	0%	0%	5%	95%
The room environment was conducive to learning	19	0%	0%	0%	0%	100%
I would recommend this training class to a PCT colleague	19	0%	0%	0%	0%	100%

Comments/Suggestions
None
Enjoyed being empowered with education to help provide safe, efficient care to all patients
Great class
I'm glad I ihave this tool. I think I can be heard a little better
None

Appendix H

Safety Event Reporting
Post Implementation Survey

Table 3

Table 3: Safety Event Reporting: 1 Month Following Training Survey Results		Survey Scale 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree				
Level of Agreement	n	1	2	3	4	5
I found the training has increased my awareness of potential and actual safety events in my work area	9	11%	0%	0%	67%	22%
I have referred to or used the take-home resources provided in class	9	22%	0%	11%	67%	0%
Since training I have consulted the patient safety nurse about patient safety concern or question	9	11%	22%	0%	44%	22%
If I identified a patient safety concern I would know how to report an event in the electronic system	9	11%	0%	0%	78%	11%
If I identified a patient safety event I would report the event using the electronic system	9	11%	0%	0%	56%	33%
I would recommend this training class to be offered to all PCTs	9	11%	0%	0%	67%	22%

Since training have you reported a safety event using the electronic system?

Yes No
45% 55%

Barriers/Challenges to Reporting Events
Time
Wish it were a faster process
Having time to complete task
None

Appendix I

<div align="center">

Post-Implementation

Safety Events Reported by PCTs

</div>

Table 4

Table 4: Safety Event Reporting by PCTs Post-Training	Frequency	
	Total # of events	Total # by PCTs
Training initiated	54	1
Training	36	0
Training	40	0
Week 1 (first full week after completion of training sessions)	33	1
Week 2	27	0
Week 3	24	1
Week 4	40	0
Week 5	32	0
Week 6	17	0
Week 7	35	0
Week 8	33	0
Weeks 9-12	127	1
Total	498	4

Appendix J

Budget

Table 1

Project Expenses	Estimated Expense	Estimated Cost	Note
PCT Salary & Wages	$570	None – included within scheduled work hours	Based on 30 PCTs X 1 hr. training X $19/hr.
Supplies and Materials	$ 0	$ 0	Printed instructed material