5-2022

No Pass Zone: A Quality Improvement Project

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Recommended Citation

No Pass Zone: A Quality Improvement Project

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A DNP project submitted in fulfillment of the requirements for

the degree of Doctor of Nursing Practice

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May 2022

This is to certify that the DNP Project Final Report by

Casey St. John
has been approved by the DNP Project Team on
3/23/2022
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Abstract

Introduction: Patient call-bell lights are a means for communication from a hospitalized patient's room to staff members. This DNP project involves staff and patients on a 28-bed pediatric medical-surgical unit. The aim was to implement a No pass Zone for patient call bell lights. Additionally, this project served to aid in increasing staff responsiveness to answer patients' questions and concerns.

Methods: Staff completed a Cornerstone education on the No Pass Zone. Data was collected from pre/post-implementation staff surveys and pre/post-implementation Press Ganey scores. Weekly staff audits on direct observation of staff response to patients' call-bell lights.

Results: A total of 35 out of 61 medical-surgical unit staff completed the educational Cornerstone module. Press Ganey reports showed an increase in staff responsiveness to call bells from 71.43% in June 2021 to 78.57% in September 2021, 79.62% in October 2021, and 79.85% in November 2021. Post-project surveys showed 87.50% of staff who completed the measure agreed that implementing a call-bell management protocol resulted in quicker staff response times. Staff audits showed patient wait times decreased from 10-15-minutes to a 2-3-minutes.

Conclusion: The No Pass Zone proved an adoptable protocol for patient call-bell light response that demonstrated benefit on one hospital unit. Staff voiced positive feedback to staff responsiveness. Lastly, with adequate staffing levels and the willingness of staff and supervisory roles, the No Pass Zone can effectively improve the current workflow.

Key Words: No Pass Zone, call bell, call light

Problem Identification, Development of Clinical Question, and Evidence Review

Background and Significance of Problem

Patient call bell lights are a means for communication from a hospitalized patient's room to staff members on a medical unit. Patients admitted to the hospital often spend most of their time in their rooms, leaving patients with limited opportunities to ask questions or voice concerns. The primary means to contact the healthcare team and the nurse is a call bell. Most reasons for using a call bell are pain medication, repositioning, food or fluids, and help to the bathroom. On average, hospital floors receive approximately 7000 call bell alarms per month, establishing the call light as an essential communication tool for hospitalized patients (Ransco et al., 2016). In the hospital setting, responding to a call bell light can be difficult when a nurse tends to other priorities. This delay in care can often lead to a patient feeling neglected or unheard (Lee et al., 2016). Studies have determined that the response to call bells is a crucial component of patient satisfaction. Patients are most likely to give negative feedback after discharge on surveys when staff responsiveness is delayed (Stokowski, 2017).

In facilities which a standardized approach to call bell lights were in effect, there was higher staff compliance (Lee et al., 2016). A team approach is necessary for appropriate staff response times. Education on proper procedures to educate patients on call lights is essential to increase patient satisfaction.

Description of Local Problem/Organizational Priority

This Quality Improvement (QI) project involves staff and patients on a 28-bed pediatric Med Surg unit in the Hartford County, CT area. The global aim is to implement a No Pass Zone for patient call bell lights. By working on this problem, I expect we will increase patient

satisfaction and decrease staff fatigue. Several nurses working on the Med Surg unit have been observed by individual nurses and care team members ignore call lights and walk through the hallway without checking on patients in distress. Some factors that have impeded prompt responses to call bells include high acuity patient assignments, decreased staffing levels, and low staff morale.

Call bell response is an essential ongoing issue hospital-wide, as voiced by patients and employed staff. Figure 1 identifies the current Med Surg floor's call light process. A No Pass Zone in a hospital means not passing by a patient's call bell light without first entering the room to see if the patient is okay. Staff are expected to evaluate to the patient's needs, and the healthcare team member either solves the problem or refer them back to their assigned nurse. In this project patient and staff surveys regarding the response to call bells will provide data and information to guide a quality improvement process implementing a No Pass Zone on a pediatric Med Surg unit.

Figure 1-Process Map
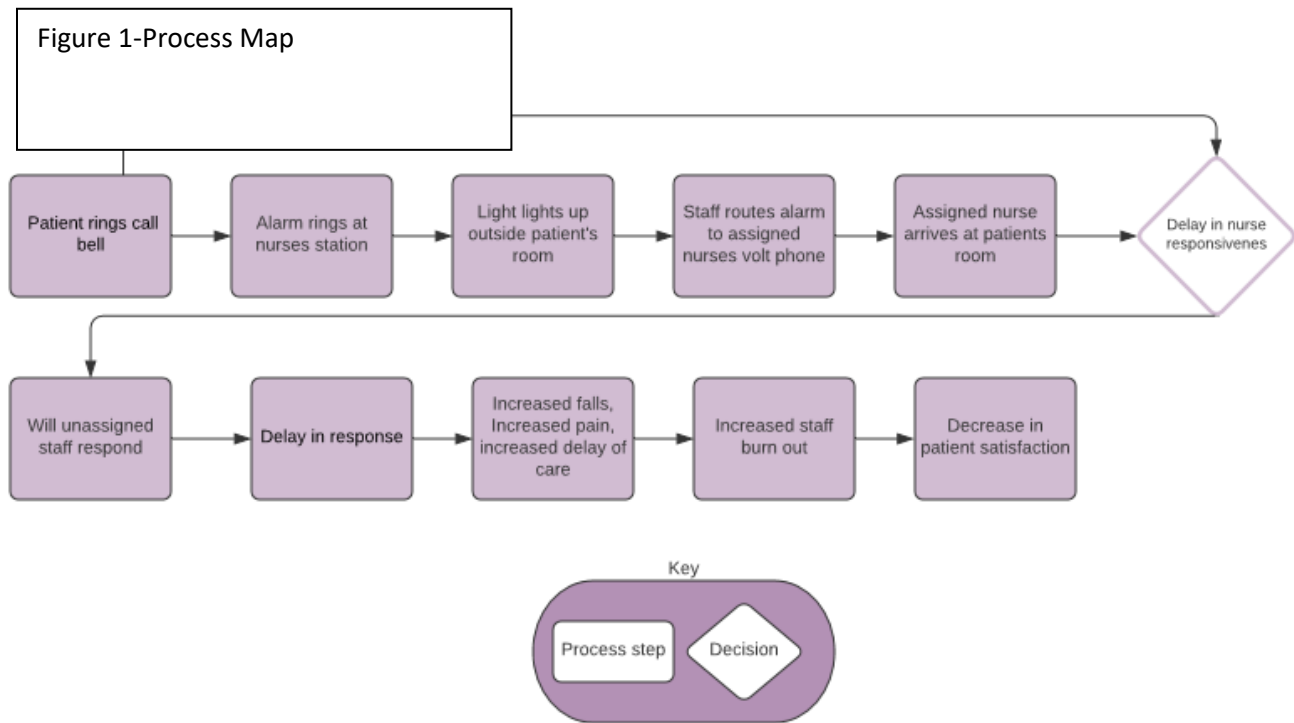
Focused Search Question

In pediatric patients and their families who are admitted to the Med Surg unit (P), does the implementation of a No Pass Zone for call light management (I) versus current standardized call light management (C), improve patient satisfaction and staff responsiveness (O)?

Evidence Review

Systematic Search for Evidence: Process and Results

A search of the following databases was conducted; CINAHL, MEDLINE, and the Academic Search Premier. The keywords searched were; call bell, call light, call light intervention bundle, call light response, call bell use, staff perceptions and call light, and patient perceptions and call light. The filters that were applied were from the USA, published between 2009-2021. The search was for call bell education, staff, and patient perceptions on usage and how they affect patient satisfaction scores (See Appendix A).

Staff on the medical surgical unit were surveyed on their current practice with patient call bell lights before initiating the No Pass Zone. Most staff said that having a call bell management system would improve workflow. Staff reported on their surveys that due to high acuity levels and short staffing levels, response times have become delayed. Press Ganey reports on staff responsiveness were reviewed before initiation and revealed a 62.50 %-71.50% out of 100%. The preliminary data from staff and Press Ganey reports indicate a need to improve patient call bell response times.

Evidence Appraisal, Evaluation, Synthesis, and Recommendations

Nine articles were reviewed, focusing on implementing interventions to respond to patient call bells efficiently. Convincing evidence supported the use of call bell interventions (one level II: randomized control trial (RCT) and four-level IV: EBP implementation). In addition, patient satisfaction regarding call bell response times (two level III evidence case-control study, two-level IV: EBP implementation) (See Appendix B). Summaries of Levels of Evidence (LOE) and outcome synthesis tables of the nine studies support using the patient call bell in practice (see Appendix C).

The nine studies' level of evidence was strongly linked to levels 2, 3, and 4. Level 4 was most of the studies listed. The use of a call bell in clinical practice included call bell frequency, call bell response times, call bell functions, length of stay, patient satisfaction, call bell importance and call bell peak. The evidence's commonality showed a direct link to the significance of call bell education, call bell response times, and their direct effect on patient satisfaction overall. Based on this Evidence, the recommendation was to implement an intervention such as the No Pass Zone for patient call bell lights to improve patient satisfaction in the hospital setting directly.

Evidence from the literature includes a study by Tzeng (2010) that conducted a cross-sectional survey involving four hospitals in the Midwestern region of the United States between 2008 and 2009 to investigate nurses' perspectives on the nature and reasons of patient-initiated call bells. About 808 staff nurses completed the survey. The study revealed that the key reasons for call bells related to toileting assistance, pain medication, and intravenous-related problems. Each staff nurse responded to about 6 to 7 call bells per hour, with an average response time of about 4 minutes (Tzeng, 2010). About 49 percent of the respondents indicated that patient-

initiated calls were important to patients' safety. About 77 percent of the respondents reported

that patient-initiated calls were significant, while 55 percent agreed that the call bells required

immediate attention. A significant percentage of the staff nurses, about 53 percent, believed that

patient-initiated calls hindered them from performing essential aspects of their day-to-day work.

The attitudes and beliefs regarding patient-initiated calls varied across hospitals, with the junior

staff demonstrating an increased tendency to disregard call bells.

Lee, Crouse, and Gipson (2016) investigated the outcomes of implementing a No Pass

Zone in a 76-bed acute care hospital in Pennsylvania. The hospital reported low patient

satisfaction scores relating to nurses' response to call lights. The quality improvement committee

developed a standard system-wide approach to the No Pass Zone that included a standard process

of answering a call light and resolving the staff response through a call system. All the concerned

workers received education and training on handling patients' requests and obtaining assistance

for patient cases requiring specialized skills. The No Pass Zone project's assessment involved

quality improvement measures such as evaluating the average number of call lights answered per

minute, call lights answered by non-nursing staff, and the HCAHPS scores. The researchers

identified a consistent and significant improvement to all three quality improvement measures.

The staff's percentage of call lights answered improved from about 85 percent to 92 percent

within six months of the No Pass Zone system (Lee, Crouse, & Gipson, 2016). Furthermore, the

hospitals' staff survey score on the responsiveness to call lights improved by 8.1 points from the

baseline after implementing the No Pass Zone system.

Project Plan

Project Goals

1. Identify nurse barriers to reduced response times to patient call bells.

2. Educate nurses and implement the no-pass zone for patient call bell lights.

3. Enhance health care safety by increasing staff responsiveness and increasing overall patient satisfaction with the use of a No Pass Zone call light system.

Framework

According to the Institute for Healthcare Improvement (2020), the Model for Improvement (MFI) is a framework to guide accelerated work improvement. Associates in Process Improvement created the model, which comprises three major parts. These parts are:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What change can we make that will result in an improvement?

The Plan Do Study Act cycle (PDSA) will guide the application of the MFI on this project. According to Harris, Roussel, Thomas, and Dearman (2015), the PDSA cycle is a systemic process used to illustrate meaningful learning and knowledge for the ongoing improvement of a product, process, or service.

Plan. The cycles' first step, plan, entails developing a goal to test an observation or hypothesis. This QI project plans to implement a No Pass Zone to ensure prompt response to patients' needs. This plan will decrease patient waiting time and improve the quality of care and patient satisfaction scores.

Do. The second step of the cycle, Do, involves executing the project, usually on a pilot phase (Harris, Roussel, Thomas, & Dearman, 2015). The QI project will include simple surveys for employees and provide educational tools.

Study. The third step, study, involves analyzing the generated data or results to determine the QI plan's viability. The surveys will capture the workers' thoughts, beliefs, attitudes, and knowledge regarding the No Pass Zone and the QI project's impact on patient satisfaction and safety.

Act. The final step of the cycle, Act, involves evaluating the project's results and making the relevant adjustments to ensure optimal outcomes. The refinements to the QI project will include identifying the unresolved gaps in knowledge and skills and educating the staff on the strategies to ensure the working of the No Pass Zone and its benefits. As a result, I expect that the QI project will enable the facility to enhance patient satisfaction and outcomes and decrease staff fatigue.

Intervention/Practice Change

- Propose practice change with key stakeholders to update current responsiveness to patient call bell lights

- Educate staff on the No-pass zone via the internal hospital-wide education system (Cornerstone), followed by a quiz at the end of the training

- Implement the No Pass Zone policy on the unit

- Create a three-question survey for staff to complete on commencement of the project

- Evaluate patient responses about staff responsiveness and overall satisfaction on the Press Ganey reports before and after completion of the project.

Context

  The project setting took place on a pediatric Med Surg unit in a 182-bed Magnet^{®,} in the Hartford County area. This Med Surg unit is a 28-bed unit that mainly provides care to pediatric patients with cardiac, neurologic, and respiratory diagnoses. The unit has a 3 or 4 to 1 nurse patient ratio. Patient care assistants (PCA) are 2-3 on a shift. Health unit coordinators (HUC) are staffed 1-2 until 11:00 pm each day. Respiratory therapists (RT) circulate to the unit each shift. Participants will include all nurses, PCAs, HUCs, RTs, supervisors, and all other staff currently working on the unit.

Key Stakeholders

  Director, Nurse Manager; Assistant Nurse Manager, Myself, Unit nurses, PCAs, unit patients and families. Other stakeholders include child life, social work, and HUCS.

Project Timeline

- Collection of latest Press Ganey reports from management in regards to patient call bell light-Prior to May 4th 2021

- Proposal Review and approval by faculty-May 4th 2021

- Final Proposal review with the management team and unit educator-by May 18th 2021

- Obtain Nurse champions and Patient Care Assistant champions to assist with the project-by May 24th 2021

- Employee pre-survey May 15th to 31st 2021

- Employee Cornerstone on No Pass Zone June 1st 2021-July 1st 2021

- Employee three-question survey June 1st 2021-July 1st 2021 through to assess staff knowledge after completing education

- Placement of No Pass Zone posters in each pod on unit and in break room-July 6th 2021

- Implementation of No Pass Zone on the Med Surg unit -July 6th 2021

- Continuous education to the staff at the change of shift report starting July 6th 2021

- Project Completion-October 2021

- Staff three-question survey (knowledge, attitudes, beliefs) and implementation feedback survey on completion of project-October 2021

- Review Press Ganey reports on commencement of project-October 2021

- Review Press Ganey reports on commencement of project-November 2021

Resources

Resources include time for data collection, implementation, analysis, creation of Cornerstone training for staff, creation of posters for the unit and support from information technology department of the hospital. See Appendix G for poster example.

Review for Ethical Considerations

Quality Improvement project- Institutional Review Board (IRB) is only required if the project qualifies for human subjects' research. This Quality Improvement project was reviewed by the hospital IRB to ensure it did not fit into that category. Approval was granted on 5/18/2021. See Appendix D.

Data Collection and Analysis Plan

Press Ganey reports of patient satisfaction were gathered 3 months before project initiation monthly. Staff completed education online learning; on completion of training staff completed a 3-question survey. During the implementation of the project, staff anonymously submitted staff audits to the project leader about responding to answering call-bell lights. Please

see appendix H for an example of this form. Upon completing the project the unit staff completed another short survey to secure feedback on the No Pass Zone. Press Ganey reports were reassessed monthly to evaluate if patient satisfaction had increased or remained the same since the implementation of the project.

The expected outcome was to change the workers' behaviors regarding patient-initiated call lights regardless of whether the employee was involved in the patient's direct care. The No Pass Zone system motivated workers to respond promptly to call lights regardless of their job description. The project commenced after three months, and its outcomes were evaluated at 1.5 months and three months after implementation. The staff completed a 3-question survey that covered the following:

1) Do you feel that implementing a call bell management protocol assisted with current patient response times?
2) Was creating a Cornerstone training on the No Pass Zone for patient call bells helpful with education you on the protocol?
3) List any feedback you would like to share that could assist with the No Pass Zone for patient call bell lights in the future.

These surveys provided data about the effectiveness of the No Pass Zone system implemented on the Med Surg floor.

Implementation

Project Implementation

Implementation of a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis

occurred in this project to assist the medical-surgical unit in creating the No Pass Zone QI plan.

The SWOT analysis facilitated ways to efficiently identify problems affecting development

within the organization. Using SWOT analysis, the factors that influenced this plan demonstrated

the organization's strengths, weaknesses, opportunities, and threats. (see Figure 2) A SWOT

analysis specifies the possibility of succeeding with this project, given the current dynamics of

the environment (Sammut-Bonnici & Galea, 2015)

Figure 2-SWOT Analysis

STRENGTHS	WEAKNESSES
• The organization strives to identify areas that need improvement and also improve on a patients experience • The team has a strong initiative to work on changes that aid in helping patients and other team members	• By not addressing the impact of not answering patients call lights patient satisfaction will continue to decrease • Patients become at higher risk for injury • The amount of employee stress increases that will continue to lead to more staff burnout
OPPORTUNITIES	THREATS
• This project needs to occur now because of the amount of employee complaints with being overwhelmed • The amount of patients feeling ignored increases • By enacting the "No pass-zone" we will see an increase in patient satisfaction scores and a decrease patient injury	• If we don't act now it is inevitable that there will be an increase in patient complaints and injuries

All the workers on the Med Surg unit completed online education and acknowledged they

would participate in the No Pass Zone and respond to call lights regardless of their job

classification. Staff included maintenance, secretaries, health service coordinators, social

workers, physicians, staff nurses, nursing assistants, nursing supervisors, and respiratory

therapists. The staff completed a survey before the commencement of the project and at three

months after the start of the project. The survey compared the baseline data with the data

obtained at the specified intervals after implementation. The staff received the survey forms via

email. Follow-up of the survey involved multiple approaches, including emails, online learning, and change-of-shift reports. The data collected indicated that health care within the medical-surgical unit based on the patients' feedback was enhanced.

The participating staff learned how to respond to a call bell, respectively. The education strategies for the staff included a PowerPoint presentation and one-on-one discussions of the characteristics, working, and benefits of the No Pass Zone. No external funding was required to complete the project. To celebrate the success of the QI project, the nursing supervisor included the projects' evaluations of the benefits and drawbacks of the No Pass Zone in the weekly newsletters and quarterly meetings with employees. Implementing appropriate adjustments performed during the three-month project ensured necessary changes occur successfully in the long term. For example, a failed or delayed response to a call light initiated by a patient not assigned to the involved nurse will be an adverse outcome.

On the other hand, the prompt and efficient response to a call light leads to improved patient satisfaction scores will be a positive outcome. The goal was to enhance health care within hospitals based on Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) feedback from patients and staff. For example, figure 3 shows improved patient satisfaction scores following the No Pass Zone system implemented at the 76-bed acute care hospital in Pennsylvania.

Figure 3: HCAHPS Composite

| Unit | Baseline[a] | | Postimplementation[b] | | Change From Baseline |
	% Top Box	n	% Top Box	n	
Outpatient Surgery/observation	79	186	83.3	78	+4.3
Maternity	78.9	83	85.5	31	+6.6
Orthopedic/medical-surgical	63.5	278	72.4	114	+8.9
Medical/telemetry	56.9	267	67.6	102	+10.7
Total	66.4	834	74.5	353	+8.1

Abbreviation: HCAHPS, Hospital Consumer Assessment of Health Care Providers and Systems.
[a] May 2013-April 2014.
[b] May 2014-September 2014.

Evaluation

Project Results

Process Measures

The process measurement included the number of staff that completed the Cornerstone education on using the No Pass Zone in practice. A total of 40 out of 61 staff members on the medical-surgical unit completed the non-mandatory educational Cornerstone module. See appendix E. In addition, all 40 signed (attested) to be a part of the No Pass Zone implementation. Data was collected from pre-implementation staff surveys and Press Ganey scores. Tables 1 and 2 available display data on staff surveys.

Table 1. Nurse Identified Barriers to Reduced Response Time to Call Bells

Question	Extremely responsive n(%)	Very responsive n(%)	Somewhat responsive n(%)	Not responsive n(%)
On average, how prompt are you at answering the call lights of your assigned patients?	12(100)			
On average, how responsive are you to call lights that are not your assigned patients?	2(16.67)	1(8.33)	7(58.33)	2(16.67)
	A great deal or a lot	A moderate amount	A little	Not at all
How beneficial would implementing a call light management program on the unit be to you as a healthcare team member?	4(33.33)	4(33.33)	3(25.0)	1(8.33)
	Nurse free-text responses (n=11)			
What are some barriers that prevent healthcare team members from	Busy in other patient rooms/taking care of other patients (n=4) Rounds (n=2) Not enough staff (n=2) Too much going on (n=1)			

answering call lights
promptly?   Prioritizing urgency (n=1

Outcome Measures

The outcome measures included Press Ganey scores for the Med Surg unit and positive

feedback on staff post-implementation surveys. Press Ganey reports regarding staff

responsiveness showed an increase in percentages from 71.43 in June 2021 to 78.57 in

September 2021, 79.62 in October 2021, and 79.85 in November 2021. See Figure 4 for the

progression of staff responsiveness on Press Ganey scores from April 2021 to November 2021.

There was a successful increase in response times. In addition, staff was audited two times a

week by student nurse interns, and those surveys were given to the team leader through July

2021-October 2021. The audits contained two separate questions:

1) How many staff members did you observe walking by an alarming call bell without

   responding? The staff member was a: Nurse, PCA, HUC, Supervisor, Child Life

   member, or social worker?

2) How long did it take for the staff you observed to respond to an alarming call bell?

Staff weekly audits found that approximately five staff members were observed per shift

in July 2021, not responding to an alarming call bell. In August 2021, 5 staff members were

observed per shift. In September, those numbers decreased to 3 staff members per shift.

Furthermore, in October 2021, 1-2 staff members were observed on audits not responding to

alarming call-bell lights. Nurses had the highest number of walk-bys without response, 85% out

of 100; the remaining percentages consisted of PCAs, HUCS, and social workers. See Figure 5

for outcome data to patient wait time audit question 2.

Table 2. Nurses identify education and implementation of the No-Pass Zone for patient Call-bell lights

Question	True n(%)	False n(%)
Do you feel that implementing a call-bell management protocol assisted with current patient response times?	16(87.50)	2(12.5)
Was creating a Cornerstone training on the "No-Pass Zone" for patient call-bells helpful with educating you on the protocol?	17(93.75)	1(6.25)
List any feedback you would like to share that could assist the "No-Pass Zone" for patient call-bell lights in the future	**Nurse free text responses (n=3)** I liked the idea; I believe it improved the workload (n=1) Great idea, helps everyone work together to meet patient needs (n=2)	

Figure 4. **Increase in staff responsiveness on Press Ganey Reports**

Med Surg Floor Press Ganey Reports 2021
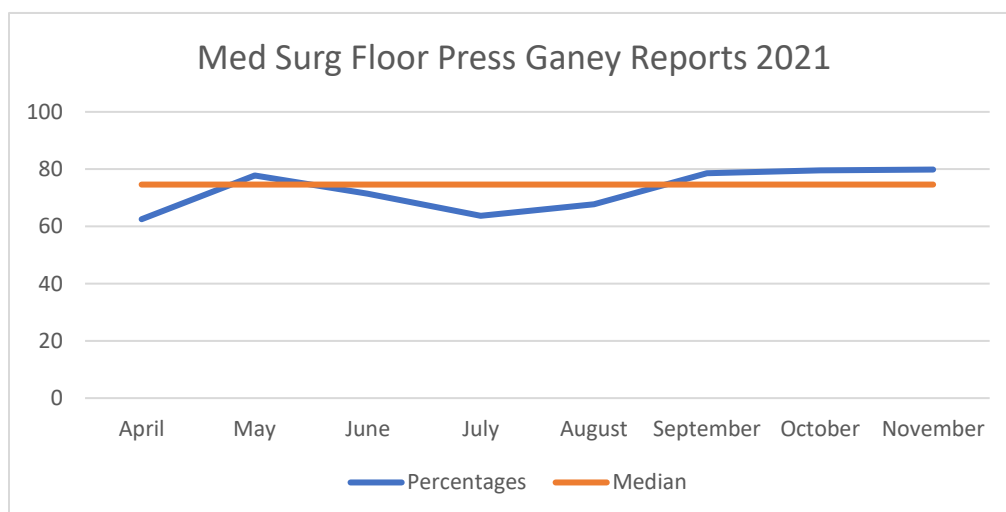
Figure 5. Patient Wait Time Audit Results
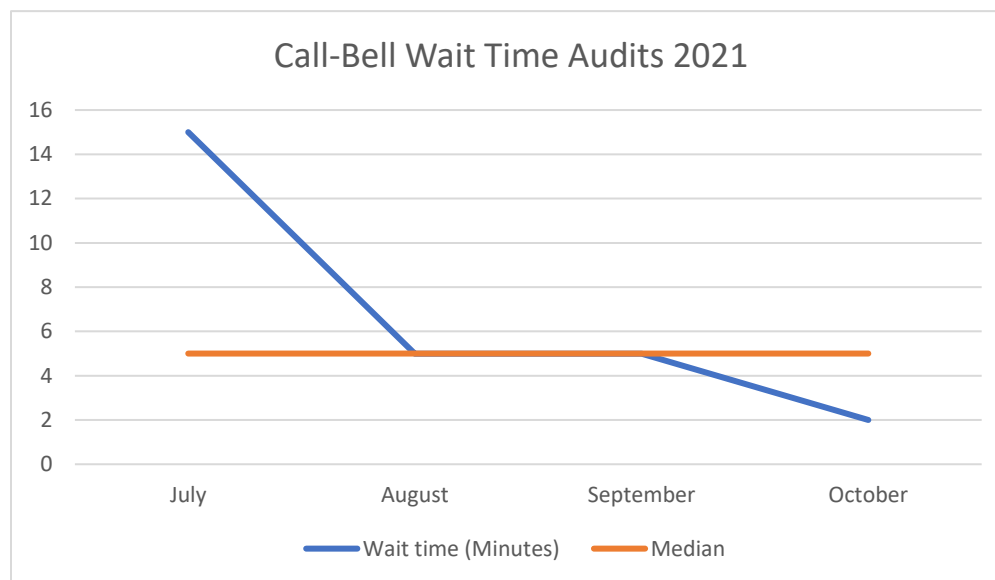
Return on Investment

Expenditures entailed the cost of paying the project leader, staff (Senior Instructional Designer, and Student Nurse Interns), and supplies (posters, lamination, survey flyers, candy for staff). The project leader spent an accumulation of 1 year during and after work hours to comply with data, create surveys, create the Cornerstone training, implement the No Pass Zone call bell protocol, and review project data. The Senior Instructional Designer created the projects posters (Appendix F) for the medical unit and turned the PowerPoint educational training into a Cornerstone module for staff to complete before project initiation. Nurse interns conducted staff audits two times a week from July 2021-October 2021. Table 3 identifies actual expenditures and possible cost savings that might have occurred if the project measured the amount of falls before

the practice change and three months after initiation was measured. Unfortunately, this process

measure was unable to be collected.

Table 3. Return on Investment (ROI)

Expenditures	
Project leader	$60,000/year
Staff (Senior Instructional Designer, Student Nurse interns)	$3589/Bi-weekly
Supplies	$160.00
Total Expenditures	$63,749
Cost Savings	
Cost for prevented falls	$14,000 per patient fall $112,000/year
Total Cost Savings	$48,251

Barriers Encountered During Implementation

Through the months of June 2021-October 2021 the unit lost a significant number of staff

to other endeavors; many new team members were hired after implementation of this project as

well. Due to short staffing levels, implementing a new protocol was difficult to fulfill entirely.

Additionally, the No Pass Zone was to be all-inclusive with all staff on the Med Surg unit.

Unfortunately, it was difficult to include and have the willingness of Residents, Physicians, and

Physicians Assistants to perform the tasks of this project.

Dissemination

Plans for Dissemination

The dissemination of project results will occur through discussions with hospital

leadership. The project abstract (Appendix H) and poster (Appendix I) will be shared with the

hospital, Quality Improvement Committee, and nursing and leadership in lieu of an executive summary. The project's barriers, success, and results will be shared with the university through a final presentation of the quality improvement project to university leadership, assigned project advisor, project mentor, and invited guests. Dissemination of the final project results will be presented at Sacred Heart University through a poster presentation for faculty, students, and other interested parties. Lastly, professional conferences and submissions for publication in scholarly journals will be considered in the future.

Key Lessons Learned

The No Pass Zone proved to be a successful project on the medical unit. However, the recommendation would be to implement such a project outside of a pandemic when staffing levels are higher, enabling more staff to engage and present protocol changes. Moreover, finding more ways to have attendings, residents, and nurse practitioners play a role in unit culture changes would be beneficial.

Sustainability Plan

The first step to process sustainability occurred due to the staff's eagerness for change and the increased productivity from the No Pass Zone implementation phase. The project's success and continued participation will be generated through the data collected (Cullen et al., 2018, St. John, 2020). Through communication, leadership involvement enables the sustainability of the No Pass Zone on the medical-surgical unit by sharing the project's success with the whole organization.

An action plan created to obtain sustainability for the patient call bell light management protocol includes evaluating the process, staff meetings with senior leaders, revisions as needed,

and continuing staff education (Cullen et al., 2018) (St. John, 2020). In addition, Cullen (2018) states that the critical strategies for sustainability are reporting to senior leadership and medical-surgical staff internally monitoring improvements or declines in data results and monthly progress reports (St. John, 2020).

Reporting progress and updates on the process are integral to staying current with evidence-based practice changes that lead to the advancement of patient care (Cullen et al., 2016). The call bell light management protocol was implemented to increase patient satisfaction scores and enable a process that led to unit consistency (St. John, 2020). Updates will be incorporated into daily shift change meetings enabling staff to voice their questions and concerns. On the Med Surg floor, supervisors will meet monthly to review data collected and evaluate trends with the call bell light policy, enabling them to keep staff updated with factual data. Sustainability occurs through monthly senior leadership meetings by promoting unit staff engagement and by changing shift meetings addressing progressive data (Cullen et al., 2018, St. John, 2020).

Conclusion

The No Pass Zone for patient call-bell lights is a relevant adoptable protocol that is beneficial regardless of hospital setting or population. The No Pass Zone can be implemented without drastic alterations to current hospital measures. Patients and staff have voiced positive feedback to staff responsiveness. However, opposition to unit change can cause limitations to the protocol's improvement. Lastly, with adequate staffing levels and the willingness of staff and supervisory roles, the No Pass Zone can effectively improve the current workflow.

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Appendix A

Description of Evidence Search

A search of the following databases was conducted; CINAHL, MEDLINE, and the

Academic Search Premier. The keywords searched were; call bell, call light, call light

intervention bundle, call light response, call bell use, staff perceptions and call light, patient

perceptions, and call light. The filters that were applied were from the USA, published between

2009-2021. The search was for call bell education, staff, and patient perceptions on usage and

how they affect patient satisfaction scores. The initial search synonyms were limited by adding

and call light to staff and patient perceptions to aid in more closely matched searches. The search

also included articles found through reading the evidence found in the initial search The initial

search using CINAHL provided numerous useful articles for my project, as the searches

progressed, articles were repeated on multiple search attempts. Table 1-3 shows the databases

used to search for key terms and show all the search results.

Table 1

CINAHL

Search Terms	Number of hits	Number of title & abstract reviewed	Number of full-text articles reviewed	Number of articles selected for this review without duplicates
Call Light	63	8	8	8

Call Bell	18		0	0
Call light intervention bundle	2		0	0
Call bell response times	2		0	0
Call bell use	4	1	1	0
Staff perceptions and call lights	5		0	0
Patient Perceptions And call lights	10	1	1	1

Table 2

MEDLINE

Search Terms	Number of hits	Number of title & abstract reviewed	Number of full-text articles reviewed	Number of articles selected for this review without duplicates
Call Bell	2		0	0
Call Light	22	1	1	1
Call Light Intervention Bundle	1		0	0
Call bell use	3		0	0
Staff perceptions and call lights	4		0	0
Patient Perceptions and call lights	3		0	0

Table 3

Academic Search Premier

Search Terms	Number of hits	Number of title & abstract reviewed	Number of full-text articles reviewed	Number of articles selected for this review without duplicates
Call Bell	0		0	0
Call Light	10		0	0
Call Light Intervention Bundle	0		0	0
Call bell usage	1		0	0
Staff perceptions And call lights	3		0	0
Patient Perceptions and call lights	9		0	0

Appendix B

Article Analysis

PICO Question: In acute care (P), how does call light management (I) versus no call light management, (C) affect patient satisfaction scores (O)?

Citation	Conceptual Framework	Design/ Method	Sample/Setting	Major Variables Studied and Their Definitions	Outcome Measurement	Data Analysis	Findings	Level of Evidence /Quality	Quality of Evidence: Critical Worth to Practice
Author Year Title County Funding	The theoretical basis for study		Number Characteristics Exclusion criteria Attrition	Independent variables IV1 = IV2 = Dependent variables	What scales used - reliability info (alphas)	What stats used	Statistical findings or qualitative findings	Level =	Strengths Limitations Risk or harm if implemented Feasibility of use in your practice
Article 1									
Roszell, S., Jones, C. B., & Lynn, M. R. (2009). Call bell requests, call bell response time, and patient satisfaction. Journal of nursing care quality, 24(1), 69-75.	N/A	Correlation study to compare call bell request with call bell response and the level of patient satisfaction.	Sample; 30 Registered Nurses and 11 Nursing Assistants were involved and admitted patients in an institutional medical center. Inclusion Criteria: Inpatients who were 18 years or older and could initiate calls. Exclusion Criteria:	IV1: The frequency and effectiveness of call bell requests from patients. IV2: Call bell responses from the staff and corresponding nurse. DV: The level of patient satisfaction after call bell requests	Responder IV call management system was used and its efficiency maximized by call bell management software.	Pearson correlation statistics were obtained using SPSS version 14 to measure the relationship between the number of calls per patient per day, response time, and patient	Out of the 41 patients who responded to the survey, 21 males and 20 females, the patient satisfaction rate was 97%. The calls per patient per day ranged from 1-35 calls with an average of 12 calls.	Level IV/ Good quality	worth to practice

| | | | outpatients and patients who were younger than 18 years or are unable to initiate calls. | have been initiated. | | | satisfaction. | Response time from the nurses ranged from 2 seconds to 5 minutes, with an average of 12 seconds. | | |

Article 2

Nelson, J. J., & Staffileno, B. A. (2017). Improving the patient experience: Call light intervention bundle. Journal of Pediatric Nursing, 36, 37-43.	This study's theoretical framework was based on the Jayne Felgen theory that focuses on creating lasting change.	This study was majorly experimental. It involved the creation of a call light intervention system in a quality improvement project. Pre and post-development, implementation, and evaluation project analysis was done.	Two pediatrics surgical units with 31 A units and 32 B units were used. The sample participant were all inpatient pediatrics in both units. Inclusion Criteria: All inpatient pediatrics younger than 18 years. Exclusion Criteria: Adult patients and outpatient pediatrics did not qualify for the study.	IV1: Call light intervention bundle. DV: Patients' satisfaction with call light responses was the main aim of the study.	Commercial vendor survey used a 5-point Likert scale (1-denoted very poor, 2-poor, 3-fair, 4-good, and 5-very good), which was converted to a 100 scale for reportage used. PSN online system was used to report unit fall incidence.	Descriptive statistics were applied in the examination of the number and distribution of surveys. Wilcoxon test was also used to measure the training effect on staff.	Patient satisfaction post-intervention showed a positive deviation of 11.4% for unit A and 3% for unit B. The frequency distribution ranged from 6.1% to 49% pe-intervention, and 0% to 69.7% post-intervention for unit A. Unit B pre-intervention ranged from 0% to 46% and 6.5 to 60.7% post-intervention. The unit's average score for unit A showed an improvement from 1 to 55th percentile while B improved from 1 to 8th percentile.	Level IV/very good quality.	Worth to practice

Article 3

Lasiter, S. (2014). "The button" initiating the patient–nurse interaction. Clinical Nursing Research, 23(2), 188-200.	Grounded theory was applied.	Literature review of secondary sources using a parent and sub-set grounded theory.	Sample; 10 adults aged 65 to 95 years consisting of 5 men and 5 women who were native English speakers. The research was done in two teaching hospitals in the Midwestern united states. Inclusion Criteria: Adults admitted to the ICU after a critical illness and had no personal experience. Exclusion Criteria: Patients younger than 65 years or those who have had personal experience as patients in the ICU.	IV1: Significance of nurse call lights for senior citizens. IV2: Importance of patient-initiated interaction with the healthcare team. ID: Patient satisfaction on the call light responses from nurses after a patient-initiated interaction.	Comprehensive Literature Review and meta-analysis	Descriptive statistics of the various concepts and research findings from various scientific journals and articles were applied.	One participant explained his understanding that anybody admitted to the ICU must be very sick. Another 1 participant said that ICU had a unique environment that felt more like life and death. Another one felt that nurses were felt more obligated to attend to patients in the ICU. Three patients out of the eight studied talked more about pressing the button and initiating an interaction with the nurse for instant help. Reference to the button was based on two factors; getting instant help and control	Level III/ Good	Worth to practice

Article 4

Colancecco, E. M., Moriarty, S., & Litak, L. (2014). None shall pass… without answering the call bell. Nursing2019, 44(1), 16-17.	N/A	The experimental design was used by utilizing a no-pass model to maintain outstanding nursing care in a busy environment.	The sample was exclusively nurses working in a busy hospital setting.	IV: To maintain high-quality patient care in a busy environment by prompt responses to bell calls. ID: Improved patient safety and care.	Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) was used to generate staff responsiveness scores.	Survey statistics were used in this study.	The education took less than 2 minutes to ask and assess the knowledge of participants. The study showed a positive deviation of 64% in staff responsiveness. The subsection of the call bell was 64%, and the restroom was 64%. The staff responsiveness score was 65%.	Level II/ good	Critical

Article 5

Tzeng, H. M. (2011). Perspectives of staff nurses toward patient-and family-initiated call light usage and response time to call lights. Applied Nursing	N/A	The study utilized a cross sectional method and it was exploratory in nature	The interviews were primarily the health care givers	IV1: Description of perspectives of the staff nursing the patients on the nature and reason for patient- and family-initiated call lights	The use of light calls was seen to be helping in better caregiving to the patients and also communication between the caregivers and the families	Descriptive statistics was used in studying the data gained from the study	Light calls were helping in better caregiving and attention to the patients. They helped in improving the services being offered	Level III/ very good	Worth to practice

Research, 24(1), 59-63..								
Article 6								
Tzeng, H. M. (2011). Perspectives of patients and families about the nature of and reasons for call light use and staff call light response time. Medsurg Nursing, 20(5).	The Model of Extrinsic and Intrinsic Risk Factors for Falls in Inpatient Care Settings was used	It was an exploratory research that also utilized review of already existing literature	The sample comprised of individuals who were 21 years and above	IV1: The patients who used the call lights in the institutions IV2: The families of the patients who were in the institutions who used the light calls.	The patients indicated the reasons that led to them using the light calls and how effective they were.	The data collected was statistically analysed using SPSS	The research concluded that the patients used the light calls and they were effective in calling the caregivers. The patients explained that by using call lights, The nurses arrived in under 2 and a half minutes	level IV	Very good quality
Article 7								
Tzeng, H. M., & Yin, C. Y. (2010). Predicting patient satisfaction with nurses' call light responsiveness in 4 US hospitals. JONA: The Journal of Nursing	NA	A cross-sectional survey was conducted in 4 hospitals	The samples were collected from 4 hospitals. A total of 1253 patients and also families and 988 nurses were surveyed.	IV1: The independent variables were the patients IV2: The dependent variables in the study were the nurses	The patients felt that the response rate and speed of the nurses to the light calls was commendable and they helped in quicker solving of their problems	Descriptive and multiple regression was done on the data collected.	The nurses responded faster to the call lights and the patients were satisfied with the services they received from the nurses.	Level IV/ Good quality	Very good quality

Administration, 40(10), 440-447.									

Article 8

Murray, T., Spence, J., Bena, J. F., Morrison, S., & Albert, N. M. (2010). Perceptions of reasons call lights are activated pre- and postintervention to decrease call light use. Journal of Nursing Care Quality, 25(4), 366-372.	N/A	prospective, cross sectional, and descriptive comparative designs and survey methods were used	The sample was collected from a 1000 plus bed capacity care center and the patients were 18 plus years olds.	IV1: The variables were 162 patients IV2: The 61 nurses that were on the study	The patients felt that the call lights were well implemented and they helped in better service delivery from the nurses.	The data was summarized by mean and standard deviation, and categorical variables were summarized by frequency and percentage. The pearson chi square was then used on the data collected	The patients felt that the use of light calls helped in getting the attention of the nurses more easily and the nurses felt they helped in making the services easier as they could know the patients in need of care.	Level III/ Good	very good to practice

Article 9

Lee, T. L., Crouse, M. & Gipson, K. (2016). No-pass zone: Multidisciplinary approach to responding to	The study is built on dimensions of patient satisfaction: access, communication, quality of care,	The study is a mixed-method study used to examine the impact of the "No Pass Zone" program on nurses' responsiveness to	Lee's (2016) site of the study had 76-bed. Overall, Five hospitals participated in the study. Representatives from the first four	Lee's (2016) first variable was responsiveness to call lights, defined as how quickly nurses attend to patients' needs after the patient	Lee (2016) examined nurses' responsiveness to calling lights by surveying patients in the intervention and obtaining call lights response	Lee (2016) used descriptive statistics for data analysis. The results were reported using	The study found a statistically significant difference in nurses' responsiveness to calling lights before and after	The study has Level III evidence partly because of the	The study has a high quality of evidence. It is well designed, implemented, and analyzed. The results are valid and can be

patient needs. Journal of Nursing Care Quality, 31(4), 327–334. DOI: 10.1097/NCQ.000000000000179.	facility environment, and provider attitude. These are all related to how well nurses respond to call lights. According to Lee (2016), increased responsiveness to calling lights increases patient satisfaction.	call lights and patient satisfaction (Lee, 2016). Lee approached the responsive rate using quantitative metrics while patient satisfaction used qualitative metrics.	hospitals were brought together to form a steering group consisting of different hospital stakeholders. After the project began, a fifth hospital was added to the group.	presses the call light. The second was the satisfaction with care, which is the degree to which patients feel their needs were met during their hospital stay.	frequency from each department's hospital's electronic databases.	frequencies and percentages.	the program's initiation. Essentially, there was also a statistically paramount difference in patient satisfaction with care before and also after the program's initiation (Lee, 2016).	study's use of a large sample that is five hospitals and over 70 beds (Lee, 2016).	generalized to other settings. However, the focus was on how soon call lights were answered, not how fast the patient was served (Lee, 2016).

Appendix C

Levels of Evidence Synthesis Table

X (copy symbol as needed)	1	2	3	4	5	6	7	8	9
Level I: Systematic review or meta-analysis									
Level II: Randomized controlled trial				X					
Level III: Controlled trial without randomization			X		X			X	X
Level IV: Case-control or cohort study	X	X				X	X		
Level V: Systematic review of qualitative or descriptive studies									
Level VI: Qualitative or descriptive study, CPG, Lit Review, QI or EBP project									
Level VII: Expert opinion									

LEGEND

1= Roszell et al., 2009. **2**= Nelson et al., 2017. **3**= Lassiter et al., 2014. **4**= Colancecco et al., 2014. **5**= Tzeng, H., 2011. **6**= Huey-Ming Tzeng, 2010. **7**= Huey-Ming Tzeng, Chang-Yi Yin, 2010. **8=**Murray et al., 2010, **9=**Lee et al., 2016.

Outcome Synthesis Table

↑, ↓, —, NE, NR, ✓	1	2	3	4	5	6	7	8	9
CBRF	✓	✓	✓	✓	✓	✓	✓	✓	✓
CBRT	✓	✓	✓	✓	✓	✓	✓	✓	✓
CBF	NE	✓	✓	NR	✓	✓	✓	✓	✓
LOS	✓	✓	NE	NE	✓	NE	✓	NE	NE
PS	✓	✓	NR	✓	✓	NR	✓	✓	✓
CBI	NR	NE	✓	NE	✓	✓	NR	NE	✓
CBP	✓	NE	NE	NE	NE	NE	NE	NE	NE

SYMBOL KEY

↑ = Increased, ↓ = Decreased, — = No Change, NE = Not Examined, NR = Not Reported (introduced at beginning but never reported at the end), ✓ = applicable or present

LEGEND

1= Roszell et al., 2009. **2=** Nelson et al., 2017. **3=** Lassiter et al., 2014. **4=** Colancecco et al., 2014. **5=** Tzeng, H., 2011. **6=** Huey-Ming Tzeng, 2010. **7=** Huey-Ming Tzeng, Chang-Yi Yin, 2010. 8=Murray et al., 2010. **9=**Lee et al., 2016.

CBRF= Call Bell Request Frequency; CBRT= Call Bell Response Time; CBF= Call Bell Function; LOS= Length of Stay; PS= Patient Satisfaction; CBI= Call Bell Importance; CBP= Call Bell Peak

Table References

Colancecco, E. M., Moriarty, S., & Litak, L. (2014). None shall pass... without answering the call bell. *Nursing2019*, *44*(1), 16-17.

Lasiter, S. (2014). "The button" initiating the patient–nurse interaction. *Clinical Nursing Research*, *23*(2), 188-200.

Lee, T. L., Crouse, M. & Gipson, K. (2016). No-pass zone: Multidisciplinary approach to

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Nelson, J. J., & Staffileno, B. A. (2017). Improving the patient experience: Call light intervention bundle. *Journal of Pediatric*

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Roszell, S., Jones, C. B., & Lynn, M. R. (2009). Call bell requests, call bell response time, and patient satisfaction. *Journal of nursing*

   care quality, *24*(1), 69-75.

Tzeng, H. M., & Yin, C. Y. (2010). Predicting patient satisfaction with nurses' call light responsiveness in 4 US hospitals. *JONA: The*

   Journal of Nursing Administration, *40*(10), 440-447.

Tzeng, H. M. (2011). Perspectives of staff nurses toward patient-and family-initiated call light usage and response time to call

lights. *Applied Nursing Research*, *24*(1), 59-63.

Tzeng, H. M. (2011). Perspectives of patients and families about the nature of and reasons for call light use and staff call light

response time. *Medsurg Nursing*, *20*(5).

Appendix D

Institute Review Board Decision

IRB Office

Institutional Review Board A
IRB Registration #: IRB00000703

Human Subject Research Determination

May 18, 2021

Casey St. John,

Re: IRB NUMBER **21-080**

        No-Pass Zone: A Quality Improvement Project

Dear Casey St. John:

Based on your description, the Institutional Review Board determined that the project entitled "No-Pass Zone: A Quality Improvement Project", (21-080) does not satisfy the definition of human subject research.

Therefore, the project does not require IRB review and approval.

Thank you for keeping the IRB informed.

IRB Office

Appendix E

Educational Cornerstone Module

Educational Cornerstone Module

Appendix F

"No Pass Zone" Unit Posters

Appendix G

Staff Audit Form

Name:

Date:

How long you observed:

1) How many staff members did you observe walk by an alarming call-bell without responding?

   Staff member was a: Nurse, PCA, HUC, Supervisor, Child Life member, or social worker?

2) How long did it take for the staff you observed, take to respond to an alarming call bell?

Appendix H

DR. SUSAN L. DAVIS, R.N., & RICHARD J. HENLEY COLLEGE OF NURSING
Sacred Heart University

The No Pass Zone a Quality Improvement Project

Casey St. John, BSN, RN; Geraldine Budd Ph.D., FNP-BC, FAANP; DNP; Katherine Hinderer, Ph.D., RN, CNE, BC

Rationale

This DNP project involves the staff on a 28-bed pediatric medical-surgical unit in the Hartford County area. The global aim was implementing a No Pass Zone for patient call bell lights. This project served to aid in increasing staff responsiveness to answer patient's questions and concerns.

Background

- Staff on the Med Surg unit were surveyed on their current practice with patient call bell lights prior to initiation of the No Pass Zone..
- Majority of staff said that having a call bell management system would improve work flow.
- Staff reported on surveys that due to high acuity levels and short staffing levels, response times have become delayed.
- Press Ganey reports on staff responsiveness were reviewed prior to initiation and revealed a 62.50 %-71.50% out of 100 percent.
- The evidence's commonality showed a direct link to the importance of call bell education, call bell response times, and their direct effect on patient satisfaction overall.
- Based on this evidence, the recommendation was to implement an intervention such as the No Pass Zone for patient call bell lights to increase patient satisfaction in the hospital setting directly.

PICO Question

In pediatric patients and their families who are admitted to the Med Surg unit (P), does the implementation of a No Pass Zone for call light management (I) versus current standardized call light management (C), improve patient satisfaction and staff responsiveness (O)?

Evidence-Based Recommendations

Summary of Evidence:
Nine articles were reviewed, focusing on implementing interventions to aid in responding to patient call bells efficiently. Convincing evidence supported the use of call bell interventions (one level II: randomized control trial (RCT) and five-level IV: EBP implementations).

In addition, patient satisfaction regarding call bell response times (two-level III evidence case-control study, two-level IV: EBP implementations). Summaries of levels of evidence (LOE) and outcome synthesis tables of all nine studies support using the patient call bell in practice.

Information Sources: A search of the following databases was conducted; CINAHL, MEDLINE, and the Academic Search Premier.

Key Words Searched: call bell, call light, call light intervention bundle, call light response, call bell use, staff perceptions and call light, and patient perceptions and call light.

Project Goals

- Identify nurse barriers to reduced response times to patient call bells.
- Educate nurses and implement the no-pass zone for patient call bell lights.
- Enhance health care safety by increasing staff responsiveness and increasing overall patient satisfaction with the use of a No Pass Zone call light system.

Method

Aim: To implement the No Pass Zone protocol to improve current staff response times and improve patient satisfaction in regards to staff responsiveness.

Setting/Population: 28-bed Pediatric medical-surgical unit in the Hartford County area.

Framework: The Plan Do Study Act cycle (PDSA) guided the application of The Model for Improvement on this QI Project.

PDSA Cycle:

PLAN: Reevaluating staff surveys and Press Ganey reports, the project goal will be continually evaluated.
**DO:** Cornerstone educational training for staff on No Pass Zone
STUDY: Implementation of the No Pass Zone on the Med Surg unit 7/6/21-10/16/21
ACT: Refinements to this QI project involved identifying the unresolved gaps in knowledge and skills and educating the staff continually.

Implementation Plan

- All workers in the Med Surg unit completed education through Cornerstone, acknowledging they would participate in the No Pass Zone and respond to call lights regardless of their job classification.
- The staff and patients completed a survey before the implementation of the project and on commencement of the project.
- The survey compared the baseline data with the data obtained at the specified intervals after implementation.
- Student nurse interns preformed weekly staff audits in regards to staff responsiveness.
- Follow-up of the survey involved multiple approaches, including emails, online learning, and change-of-shift reports.
- The participating patients and staff learned how to use and respond to a call bell.
- The education strategies for the staff included PowerPoint presentations and one-on-one discussions about the characteristics, working, and benefits of the No Pass Zone.

Results

Med Surg unit Press Ganey Reports 2021

Call Bell Wait Time Audits 2021
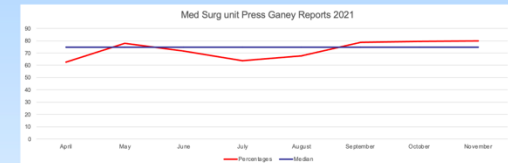
Evaluation:
- Press Ganey reports regarding staff responsiveness showed an increase in percentages from 71.43 in June 2021 to 78.57 in September 2021, 79.62 in October 2021, and 79.85 in November 2021.
- Call bell wait time were approximately 15 minutes in July 2021 and by October 2021 that number decreased to about a 2 minute wait time.
- Staff unresponsiveness to alarming call bells decreased from 5 in July 2021 to approximately 1-2 walk bys a shift in October 2021. Nurses had the highest number of walk bys without response: 85% out of 100; the remaining 15 percent consisted of PCAs, HUCS, and social workers.

Sustainability Plan

- The project's success and continued participation will be generated through the data collected.
- Through communication, leadership involvement enables the sustainability of the No Pass Zone in the Med Surg unit by sharing the project's success with the whole organization.
- An action plan was created to obtain sustainability for the patient call bell light management protocol includes process evaluation, staff meetings with senior leaders, revisions as needed, and continuing staff education.

Lessons Learned

- The No Pass Zone proved to be a successful project on the Med Surg unit.
- The recommendation would be to implement such a project outside of a pandemic when staffing levels are higher, enabling more staff to engage and present protocol changes.
- Finding more ways to have attendings, residents, and nurse practitioners play a role in unit culture changes would be beneficial.

Contact: Casey St. John, BSN, RN, DNP, FNP Student-st.johnc2@mail.sacredheart.edu

Appendix I

Abstract

No Pass Zone: A Quality Improvement Project

Casey St. John, BSN, RN

Introduction: Patient call-bell lights are a means for communication from a hospitalized patient's room to staff members. This DNP project involves staff and patients on a 28-bed pediatric medical-surgical unit. The aim was to implement a No pass Zone for patient call bell lights. Additionally, this project served to aid in increasing staff responsiveness to answer patients' questions and concerns.

Methods: Staff completed a Cornerstone education on the No Pass Zone. Data was collected from pre/post-implementation staff surveys and pre/post-implementation Press Ganey scores. Weekly staff audits on direct observation of staff response to patients' call-bell lights.

Results: A total of 35 out of 61 medical-surgical unit staff completed the educational Cornerstone module. Press Ganey reports showed an increase in staff responsiveness to call bells from 71.43% in June 2021 to 78.57% in September 2021, 79.62% in October 2021, and 79.85% in November 2021. Post-project surveys showed 87.50% of staff who completed the measure agreed that implementing a call-bell management protocol resulted in quicker staff response times. Staff audits showed patient wait times decreased from 10-15-minutes to a 2-3-minutes.

Conclusion: The No Pass Zone proved an adoptable protocol for patient call-bell light response that demonstrated benefit on one hospital unit. Staff voiced positive feedback to staff

responsiveness. Lastly, with adequate staffing levels and the willingness of staff and supervisory roles, the No Pass Zone can effectively improve the current workflow.

Key Words: No Pass Zone, call bell, call light