

Running Head: QUALITY INCIDENT REVIEW TEAM

An Interprofessional Quality Incident Review Team:

Effects on Reporting and Resolution

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### Abstract

**Background:** Since the Institute of Medicine's (IOM) report, *To Err is Human*, there has been increased focus on patient safety, to include use of incident reporting systems for gathering data to improve knowledge and decrease errors in the hospital. With increased pain and suffering, and cost associated with errors, the justification for these processes are clear. It is known that underreporting of incidents continues. There is a need for reporting systems, with available research focusing on organizational safety culture, barriers to reporting, and the acceptance of reporting systems in practice. Process improvement methods to increase incident reporting, and resolution of incidents is lacking in literature.

**Method:** A descriptive repeated measures quality improvement project was undertaken at baseline, 3-months, and 6-months post intervention. Quality metrics were number of patient safety incidents and time to resolution of incident review. The intervention consisted of the development of An Interdisciplinary Quality Incident Review Team (QIRT) at a 147 bed acute care hospital in central Texas, U.S. A. The QIRT process, involved education of staff and managers on the new processes of reporting, evaluating, and completing incident reports.

**Results:** Implementation of the QIRT process resulted in an increase in overall reporting of patient safety incidents in the categories of medication errors, hospital, nursing, and safety. At 3-months and 6-month post intervention, incident reports increased by 41% (n=21) and 59% (n=30). Hospital Incidents made up greatest increase in report types, while Medication Errors had the fewer reports. Time to resolution of Nursing Incident reviews had the largest decrease in resolution time with an average of 11 days. Nursing Incident reporting demonstrated that consistency lead to sustainability over time, as the number of reported incidents continued to increase during the 6-month follow-up.

**Conclusions:** Implementation of the QIRT, including educational materials and expectations for nursing staff and managers, increased incident reporting in all areas. Education regarding reporting, awareness of reported events, and follow-up from the QIRT were shown to increase reporting across the organization. Nursing incident reports were the only category where the time from the incident was reported, to resolution of the incident in the reporting system decreased.

*Keywords:* Incident Reporting, Patient Safety, Quality Incident Review, Quality review, Safety Culture

## **Introduction**

Patient Safety or Incident Reporting Systems became prevalent in healthcare, after publication of the Institute of Medicine's (IOM, 2000) report, "To Err is Human". This report was historic in that it suggested that errors in healthcare occur much more frequently than previously thought, resulting in adverse outcomes for patients. The use of adverse incident reporting systems has been widely adopted, yet it is still recognized in literature that incidents and medical errors remain underreported. According to Boling (2017), twenty-two states have now adopted legislation requiring the use of reporting systems.

Preventable adverse events in healthcare can cost the patient pain and suffering, but also the organization in reputation and dollars (Canaway, Bismark, Dunt, & Kelaher, 2017). In 1999, it was estimated that approximately 93,000 patients die in U.S. hospitals each year from preventable adverse events, and that number has steadily increased over the past two decades. In that time, hospitals nation-wide have been implementing measures focusing on patient safety. The goal of decreasing preventable events carries ethical, physical, and financial implications. Significantly increased length of stay for patients, costs associated with errors, and morbidity and mortality are all known to be results of these events (Canaway, et al., 2017).

Hospital-acquired conditions (HACs), including injuries, infections, and errors, create a high financial burden on health care systems. They have also been shown to contribute significantly to inpatient morbidity and mortality. There are several initiatives that have been developed through the Agency for Healthcare Research and Quality (AHRQ), Centers for Medicare and Medicaid Services (CMS), and the Centers for Disease Control and Prevention (CDC) to improve patient safety thus reducing HACs through evidence-based strategies, improved measurement and increased reporting (Bysshe, et al., 2017).

In additions to HACs, sentinel events also create a significant area of financial strain on health care systems. These “never events” are serious, reportable, and make up the third most common cause of death in the United States after heart disease and cancer. The Society of Actuaries estimated that the non-reimbursable medical costs per error ranged from \$810 to \$47,099, with total costs including in-hospital mortality and short-term disability reaching over \$93,000 (Quantros, 2019). It was identified through the Agency for Healthcare Research and Quality Patient Safety Culture survey that there was room for improvement in the area of incident reporting at a facility. This prompted a look into the current methods used to educate staff and managers about incident reporting, their perceptions about reporting and the expectations after reporting, and the process for a complete investigation and closure of reports. All of these items were lacking prior to this development.

### **Literature Review**

#### **Patient Safety**

A comprehensive literature review was completed using Ebscohost and CINAHL databases. Search terms included, “hospital incident reporting”, “hospital incident reporting systems”, “closure of hospital incident reporting”, “hospital incident reporting management”, “increase hospital incident reporting”, “resolution of hospital incident reports”, “increased error reporting in hospital”, and “increase adverse event reporting.” Articles discussing physician specific or resident use of incident reporting systems, and duplicate articles were excluded. Selected articles are displayed in Table 1.

In the Institute of Medicine’s (1999) report, one of the key recommendations that has been adopted by hospitals world-wide is the use of incident reporting systems. The report brought to light the depth of patient safety concerns that hospitals and patients endure, and aided

in shifting the focus from human factors to process and system improvement (Carlfjord, Ohrn, & Gunnarsson, 2018). Incident reporting systems allow for data collection and aggregation in order to review, determine patterns, and develop action plans following patient safety events (Hewitt, Chreim, & Forster, 2017), and were adopted into healthcare from other high-risk industries such as aviation and engineering (Tricarico, et al., 2017).

Approximately 14% of errors reported by hospital staff in the United States, according to the study undertaken by Levinson and colleagues (2012), it is clear that there is opportunity for improvement in reporting of incidents, and continued need for more research in this area (Levinson, 2012 & Carlfjord, Ohrn, & Gunnarsson, 2018). Often when discussing low rates of incident reporting, the topic of patient safety culture is the primary topic of interest.

### **Reporting Environment**

**Organizational Factors.** Factors affecting an organizations safety culture include management behaviors, safety systems, and employee perceptions of safety (Okuyama, Sasaki, & Kanda, 2010). The Institute for Healthcare Improvement (IHI) has developed a Culture of Safety Survey for organizations to self-assess their culture and identify areas for improvement.

Many investigators found the primary factors that influence reporting, who reports within facilities and predictors of reporting, staff perceptions on reporting, and alternate ways of obtaining adverse event data within organizations in addition to IRS. Chiang, Hsiao, and Lee (2017), found that error-reporting culture was a predictor of nurse safety practices and reporting, whereas professional development, environmental factors, and nurse workload had limited predictability of safety behavior. Yoo and Kim (2017), discuss that nurse perception of work-environment and patient safety culture, correlated with attitudes toward incident reporting. They concluded that improving these areas will result in improved attitudes in reporting events.

Carlford, Ohn, and Gunnarson (2018), completed a 10-year retrospective study, finding that incident reporting is a widely accepted practice that has aided in making patient safety a priority. It was also acknowledged that moving forward there be an increased focus on action and improved tools for reporting, tracking, and managing incidents.

**Personnel Factors.** Sujan (2015) discusses that a lack of learning from and absence of change or feedback are greatly related to the perception of usefulness of reporting by staff. Interviews with nurses within this study stated that they do not understand how incident reporting works or who looks at the reports, that they do not receive any meaningful feedback, that they are fearful of negative repercussions, and that electronic reporting can be difficult for various reasons such as time, usability, lack of computers, and lack of training. Richter, McAlearney and Pennell (2015), also found that feedback and organizational learning were predictors of safety culture and error reporting, as well as manager support for patient safety. Interesting in this study was that amongst managers, manager support was not a predictor, showing that managers were unaware of the impact that their support for patient safety can have on staff compliance with reporting. In a study of Emergency Department nurses, willingness to report decreased as the nurse's years of experience increased, and willingness to report increased as feedback increased (Farag, et al., 2017). Tricarico, et al. (2017), developed a way of standardizing incident reporting rates based on full-time employees in order that hospitals would be able to compare rates amongst each other. Comparing rates in this manner is a different way of using the information gained from incident reporting systems to attempt to analyze the data and determine where safety culture is compared to other facilities.

Feijter, et al. (2012) confirmed that incident reporting systems should be combined with complementary information regarding diagnostic errors and delayed treatment, patient



complaints, and retrospective chart reviews. Incident reporting systems rely on staff being able to recognize the occurrence of an error, understanding that reporting is necessary and required, and then overcoming fear of reporting. There must also be trust that if an incident is reported action will be taken and changes made, as this is what staff are taught is the purpose of reporting (Okuyama, Sasaki, & Kanda, 2010). Ramos and Zuniga (2018), completed a retrospective analysis of an incident reporting system and found that in more than 50% of incidents reported at a facility, no cause was identified. Having no identified cause prompted the conclusion that these reports are being underutilized in addressing patient safety interventions at the front-line or even more so, on senior staff. Anderson and Kodate (2015), conducted observations of incident review meetings in the acute care and mental health settings. The results of this qualitative study showed that formally structured meetings and processes for discussion and review of incidents legitimized the work of reviewing them. Having a multi-disciplinary team membership allowed for insights of clinical staff's working practice as opposed to just procedures specified in protocols or policies. Challenges presented in identification of causes, effective actions, or effectiveness of interventions. Also, it was difficult to determine if reviewing only the most important incidents or in-depth review of all incidents was the most effective use of time (Anderson & Kodate, 2015).

There is a recognized need for incident reporting systems and finding ways to improve patient safety culture and reporting. There are various barriers to reporting, with known low rates of reporting, which make overall improvement in patient safety a challenge. Lacking in the literature are process improvement methods for use of incident reporting systems, increased reporting, and development of action plans leading to closure of incidents. When performing the

literature search, no results were found relating to the completion, closing, or resolution of patient safety events or incident reports.

### **Aims**

The overarching goal of this process improvement project was to determine if implementation of an interdisciplinary Quality Incident Review Team (QIRT) would increase incident reporting and time to resolution in an acute care hospital. Assessment of hospital incident reporting program identified that there was a lack of new hospital employee education regarding the purpose, variables, and methods for incident reporting. It was identified that the method for entering an incident was time consuming and cumbersome for staff, and the general attitude around incident reporting was identified to be in need of improvement based on the Agency for Healthcare Research and Quality (AHRQ) patient safety culture survey. There was no formal path for nurse managers to follow, leading to lack of understanding of the expectations for investigation, follow-up, or timelines, after an incident was reported.

The following specific aims and research questions were developed to address employee incident reporting, tools for incident reporting, and education of hospital employees, and employee perceptions of the incident reporting process.

#### **Specific Aim 1**

Specific Aim 1 was to institute a QIRT educational campaign (Safety Zone Reboot) and new hospital employee education regarding the purpose, variables, and methods for incident reporting.

**Research Question 1.** Does a QIRT educational intervention (Safety Zone Reboot and new employee patient safety session) improve incident reporting in an acute care hospital at 3 months post intervention?

**Specific Aim 2**

The second study aim was to develop and implement user friendly QIRT process and expectations for nurse managers to improve understanding of reviewing, investigating, and completing follow-up for incident reporting in the incident reporting system.

**Research Question 2.** Does having a user friendly and well-defined process and expectations for nurse managers, decrease the amount of time from the date an incident is reported in the incident reporting system, to resolution of the event as determined by the QIRT?

**Theoretical Framework**

Healthcare organizations are considered complex adaptive systems, where constantly changing environments affect the processes and interactions across varying disciplines. Lewin's Change Management Theory has been used in healthcare for various quality improvement projects (Wojcieckowski, 2016). Lewin's Theory is a three-step model of unfreezing, changing or moving, and refreezing. These steps require that the organization first create awareness of a problem through educating and demonstration of the problems or issues. Then alternatives are sought with demonstration of the benefits of change through training, brainstorming, and coaching. Finally, the new processes are stabilized, resisting further change, and performance is monitored (Wojcieckowski, 2016).

Lewin's Theory was applied in the development of the QIRT. The problem was identified as a need to increase incident reporting while also shortening the time to resolution, related to a lack of education and training for staff and nurse managers in the importance of reporting and follow-up. Creation of the multidisciplinary QIRT, educating newly hired staff during orientation, and presenting assignments of tasks daily at nurse manager huddles were all used to

demonstrate the benefits of the new process. These changes were implemented for a three-month time period, and all have stabilized and been sustained.

### **Methods**

The intention of this project was to determine if implementation of an interdisciplinary Quality Incident Review Team (QIRT) would increase incident reporting and time to resolution in an acute care hospital. This process improvement project took place at a regional city-county non-profit hospital with 126 staffed inpatient beds and a 21 bed Emergency Department. The procedures for this project will be described by specific aim components.

### **Procedures**

**Education.** The first study aim was to launch a QIRT educational campaign, titled the Safety Zone Reboot, included education for current staff and nurse managers, and education for new hospital employees. Implementation of the Quality Incident Review Team took place over a 3-month period from the beginning of April to the end of June, 2019. A flyer showing the development of the team and what the team referred to as the “Safety Zone Reboot” went out to all nursing staff and managers (Figure 1). It is important to note that the process for putting an event into the already active incident reporting system (IRS) did not change. Education on increasing incident reporting and expectations with regard to investigating, responding to, and closing these events was presented for all nurse managers. Nurse managers were presented with data to support and track progress over time, which had not been done previously. The complete process of incident reporting was outlined from the incident report being entered into the IRS, the incident being assigned to nurse managers, responses and action plans recorded by the nurse manager, the incident being reviewed by the QIRT, and the data and information related to events being taken to administrators and the Executive Committee. Having this defined process

created the structure that was needed to show that these incidents were going to be reviewed by multiple people or groups of people to determine if appropriate actions were taken to close the event.

**Incident Assignment.** To aid nurse managers in identification that a new incident was entered, the incident manager began attending the nurse manager daily huddle and would announce new incidents, including the type, where they occurred, and any updates regarding additional information needed.

**Quality Incident Review Team.** Due to the high volume of pending events prior to implementation, the QIRT initially met weekly to review and manage these events. After six weeks it was decided that the team would be able to meet every other week, and that was carried out for the duration of the study. After the QIRT reviewed the incidents it would be determined if the response from the nurse manager was sufficient for an action plan and closure. If the QIRT decided that more information was needed or additional action planning required, then the department manager would be notified by the incident manager, and the incident would remain open or occasionally placed on hold if the action plan required an extended amount of investigation, planning, or implementation.

### **Inclusion/Exclusion Criteria**

The facility has a total of eight different types of Incident Reports for staff to choose from when entering an incident into the incident reporting system. The four types of Patient Safety Events that are included in this study are Medication, Safety/Environment of Care, Hospital and Nursing. Medication events are entered any time patient harm or the potential to cause harm occurs related to a medication, or a known medication error has occurred, including an omission, regardless of whether harm occurred. Safety/Environment of Care Incidents are entered any time

the environment plays a role in patient safety. Examples might be equipment malfunctions or unit security issues. Nursing incidents are those that involve nursing care and may include development of pressure ulcers or missed protocols. Hospital incidents are any incidents that involve other departments or staff besides nursing. These may include radiology errors such as imaging the wrong patient or body part, and lab delays or missed tests. It is important to note that staff occasionally place incidents in categories that are not accurate to their event. There are several reasons for this including lack of knowledge or education regarding the reporting system, difficulty of use of the current reporting system, and time constraints when attempting to report and find the appropriate label for reporting. This was taken into account and incidents were updated to reflect the appropriate type, by the Incident Manager, during the data analysis process.

The events that were excluded from this study include Falls, Disruptive Patient, Against Medical Advice (AMA), and Adverse Drug Reaction. Falls were excluded due to an unexpected change in reporting process that began during the project and moved the electronic reporting to paper reporting. Disruptive Patient and AMA reports were excluded due to the purpose for reporting being data collection and documentation, and not for patient safety or process improvement. Adverse Drug Reaction (ADR) reports were excluded due to rare occurrence with ADR reporting being less than 1% of the overall reported incidents.

### **Instruments**

Severity scoring, using the Medication Error Reporting and Prevention (MERP) method (Figure 2), was determined by the Incident Manager. Although this tool was originally created and adopted for use with classifying medication errors, it has been generally accepted as a tool for classifying all patient safety events (Dufek, Ryan-Wenger, Eggleston, & Mefferd, 2017).

Severity data is categorized by types A (define "from chart"), B (define "from chart"), C (define "from chart"), type D (define "from chart"), E (define "from chart"), and F (define "from chart"). To establish QIRT inter-rater reliability an additional member from the QIRT was given the incidents, blindly scored a sample of them (30), and inter-rater reliability was 95%.

Outcome metrics included type of incident (Medication error, Nursing, Hospital, and Safety), location where the incidents occurred, and severity of incidents using MERP scoring. Additionally, the resolution of incidents was reviewed from the time that the incident was entered into the Incident Reporting System, until the assigned leadership entered their final follow-up note prior to the incident being closed by the QIRT. This measurement was chosen due to the expectation of the nurse managers to follow-up and complete their tasks in a timely manner.

### **Data Analysis**

At the end of the three-month implementation period, incident reporting data was collected and analyzed using descriptive methods and Excel statistical functions. The data reports were collected using the incident reporting system and compiled into Excel workbooks for analysis. Three measurement times were (1) Baseline (pre-implementation – January through March 2019), (2) 3-month post-implementation data (April through June 2019), and (3) 6-months. These time periods provided for a baseline, 3-month, and 6-month analysis.

### **Results**

The total number of safety event incidents reported increased from 51 at Baseline, to 72 at 3-months, for a 3-month increase in reporting of safety events of 41%. The increased continued at the 6-month measurement to 81 incidents reported for an overall increase of 59% (Table 2). Hospital incidents was the highest category type reported, while Medication incidents

had the smallest number reported, supporting the premise that medication incidents were already one of the primary events that nurses were aware of the need to report. When doing a detailed analysis of the hospital incidents that were reported based on location, there was not only an increase in overall reporting (Table 5), but an increase in the locations from which they were being reported. There were six locations across the organization that had not previously reported any hospital events during the baseline (January to March) time period prior to the intervention. The majority of incidents that were reported were located on the Medical floor, with the Emergency Department being the location with the largest increase in reporting and are displayed in Tables 3 and 4.

Severity data was analyzed and found that types A, B, C, and E increased in reporting while type D and F severity reporting remained the same (Table 6). The majority of incidents reported across all measurement periods was severity type C (an error occurred that reached the patient but did not cause the patient harm), which was almost half ( $n=90$ ; 46%) of all the other incident severity types combined. The MERP severity scoring can be further categorized into incidents that reach the patient versus those that did not reach the patient. Severity types A and B make up incidents that did not reach the patient, while all other categories did reach with patient with increasing severity of harm to the patient. When looking at reporting of types A and B together, there was an increase from 12 incidents prior to the intervention time period, to 21 at 3-months. This finding supports that the education and focus on reporting, created awareness of patient safety events so that staff increased their reporting of events even if they did not reach the patient.

Results for time to resolution of incidents varied and may be multifactorial in nature. Nursing incidents showed the greatest and only significant decrease in time to resolution (Table



7). Considering all factors associated with closure of incidents and the location of where the incidents occur, it is understandable that this decrease is probably due to the focus of the Safety Zone education and management expectations being communicated to nursing managers and staff. Although the flyer was presented to all areas, the education provided to managers was given primarily during morning nurse manager huddles where managers of other departments may not be in regular attendance, if at all. This means that those other non-nursing managers are also not present for the morning huddle assignment of incidents entered, and any discussion regarding the incidents at that time. Hence, less opportunity for non-nursing managers to receive QIRT education reinforcement. It was also identified that some newer department directors, were not fully aware of how to enter their follow-up into the system. Such was the case for the location of occurrence that makes up the great majority of hospital incidents entered.

All of the identified factors likely contributed to the study findings and may have limited the impact of the intervention. There was a great increase in reporting of hospital incidents, but also some lacking in the knowledge and technical ability for timely follow-up.

### **Discussion**

Reporting increased from all hospital units at 3-month and 6-month measurement periods. Closure of events, did not show any significant decrease in resolution time, with the exception of Nursing incidents. Since beginning education for new employee hospital orientation, there have been incidents regarding safe nursing practices of nurses who are training new staff. Managers who have interviewed these staff have reported that the staff stated they felt empowered to report because of the education provided to them at their orientation. Nurse managers have also reported that they are more aware of incidents that are placed in the system and that they have more support from the QIRT in managing and resolving their incidents. It was

also noted that with a significant increase in reporting in a relatively short amount of time, the workload for nurse managers had also increased. Nurse managers would often batch their follow-up response entries for several incidents. Although the follow-up for each many have occurred in succession, the final response to the incident in the reporting system was not entered until a later date, likely when the manager had time to go into the system and enter them all together. This also could have contributed to the lack of decrease in time to resolution.

Having a multidisciplinary team to review and analyze incidents, and support staff and managers through education, awareness, and expectations has shown to both increase number of reported incidents. This coincides with the goals set forth by the Institute of Medicine (1999) and many other governing bodies (REFERENCES) who endorse the use of incident reporting systems to improve patient safety in the hospital. This is a practice that must be a focus of patient care at all times and that requires dedication from leadership to ensure that staff are reporting and that resolution of these incidents is a priority.

Recommendations for future process improvement initiatives includes a more thorough involvement of all leadership and managers in education, the resolution process, and outcome expectations. Although nursing is the largest portion of staff managing patient care, the entire care continuum should be assessed and included in patient safety management (REF). Similarly, a way to notify all managers and leaders when a task has been assigned to them, in real time, is important for awareness and follow-up of all patient safety events. Finally, having a dedicated patient safety and risk manager to track, assist, and support managers in their follow-up and resolving events could prove beneficial both in capturing the patient safety metrics and in improving and providing safe patient care.

Although the use of the QIRT's interventions and tools resulted in improvement in incident reporting, there continues to be room for improvement in order to better capture and learn from patient safety events. More research is needed in the areas of analyzing, investigating, and following-up so that actions are taken to prevent future occurrences. It is well known that patient safety events occur in hospitals, and increased reporting is the first step in acknowledging this fact. After sustainability is shown with regards to reporting of incidents, the next step for a facility will be to focus on prevention of similar events and improved safety and care for patients.

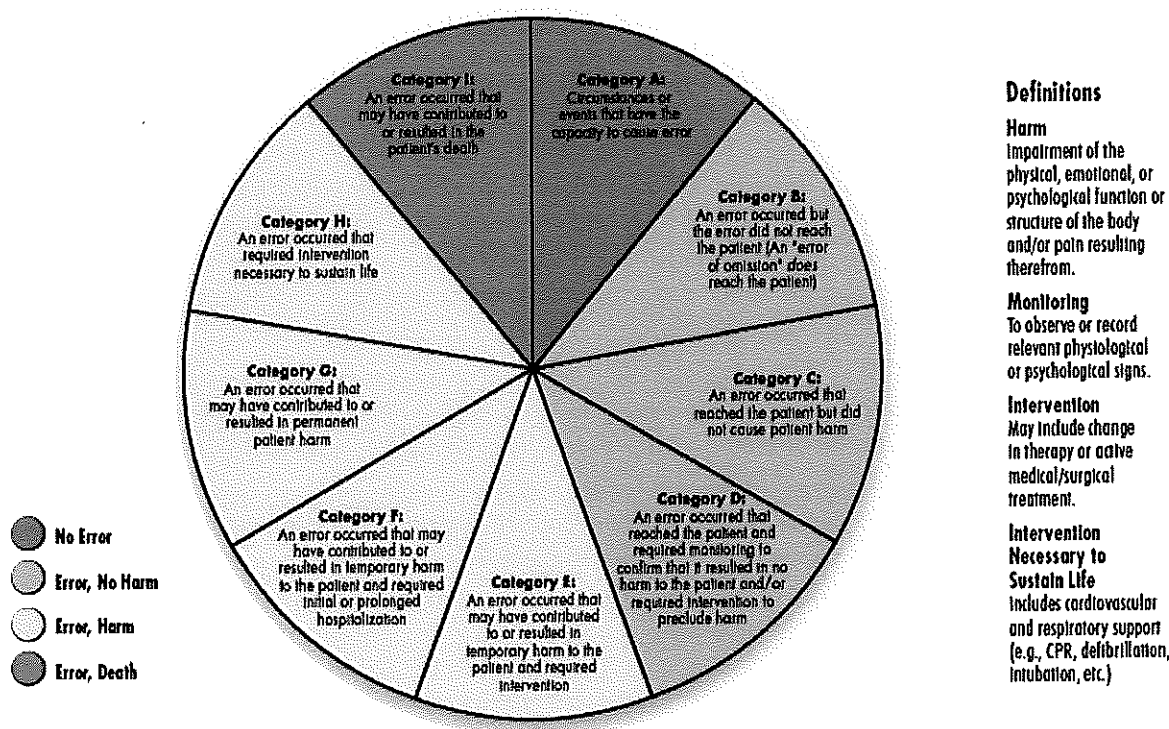
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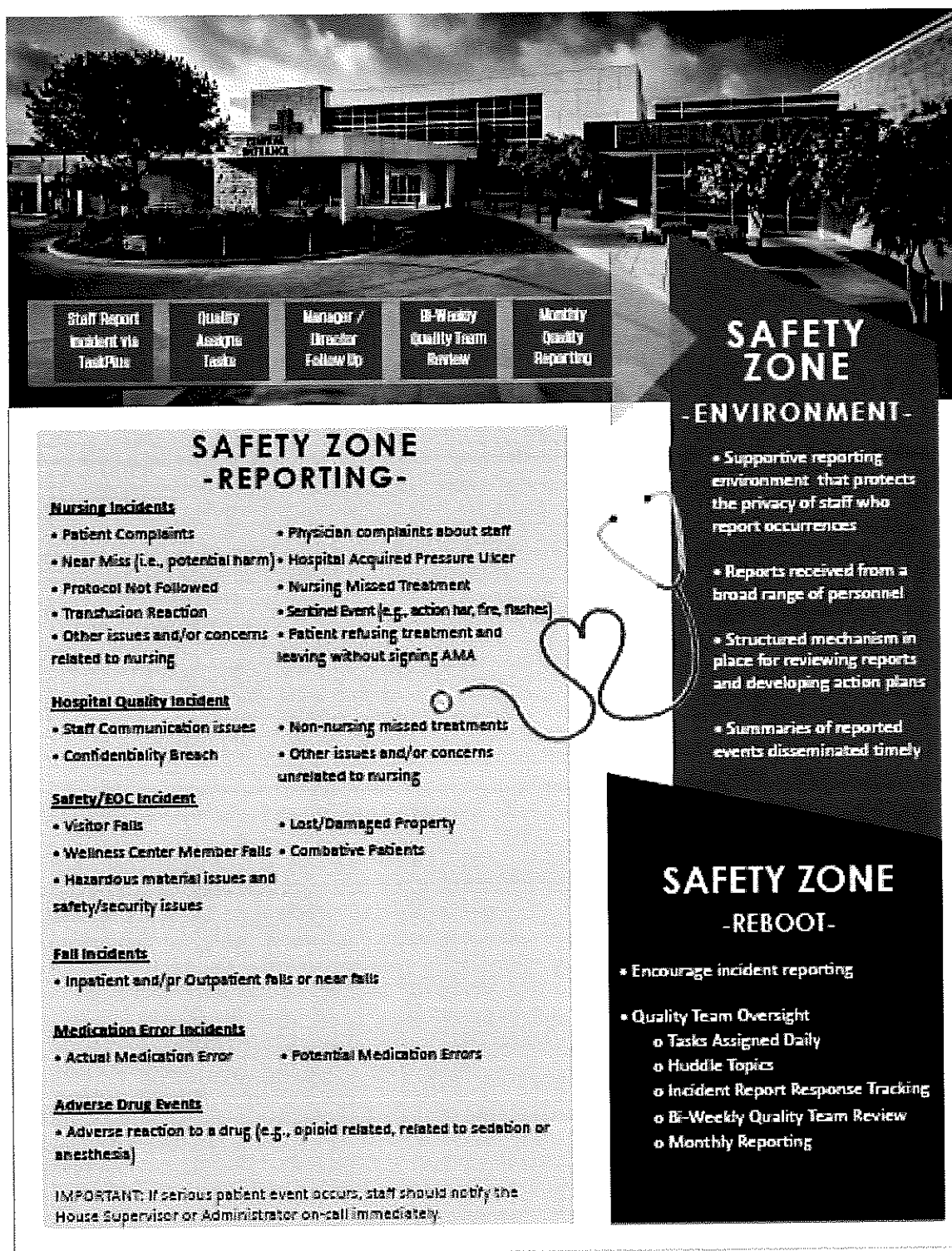
## NCC MERP Index for Categorizing Medication Errors



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PS1006

Figure 1. National Coordinating Council for Medication Error Reporting and Prevention Index for Categorizing Medication Errors (Hartwig, S., Denger, S., & Schneider, P., (1991). Severity-indexed, incident report-based medication error-reporting program. *American Journal of Hospital Pharmacy*, 48, 2611-2616)



The flyer features a background image of a modern hospital building. At the top, a horizontal bar lists five key components: Staff Report Incident via Task/Alert, Quality Analysis Tasks, Manager / Director Follow Up, Bi-Weekly Quality Team Review, and Monthly Quality Reporting. A large, dark, stylized arrow points from this bar towards the right side of the flyer.

## SAFETY ZONE -REPORTING-

**Nursing Incidents**

- Patient Complaints
- Near Miss (i.e., potential harm)
- Protocol Not Followed
- Transfusion Reaction
- Other issues and/or concerns related to nursing
- Physician complaints about staff
- Hospital Acquired Pressure Ulcer
- Nursing Missed Treatment
- Sentinel Event (e.g., action bar, fire, flashes)
- Patient refusing treatment and leaving without signing AMA

**Hospital Quality Incident**

- Staff Communication issues
- Confidentiality Breach
- Non-nursing missed treatments
- Other issues and/or concerns unrelated to nursing

**Safety/EOC Incident**

- Visitor Falls
- Wellness Center Member Falls
- Hazardous material issues and safety/security issues
- Lost/Damaged Property
- Combative Patients

**Fall Incidents**

- Inpatient and/or Outpatient falls or near falls

**Medication Error Incidents**

- Actual Medication Error
- Potential Medication Errors

**Adverse Drug Events**

- Adverse reaction to a drug (e.g., opioid related, related to sedation or anesthesia)

**IMPORTANT:** If serious patient event occurs, staff should notify the House Supervisor or Administrator on-call immediately.

## SAFETY ZONE -ENVIRONMENT-

- Supportive reporting environment that protects the privacy of staff who report occurrences
- Reports received from a broad range of personnel
- Structured mechanism in place for reviewing reports and developing action plans
- Summaries of reported events disseminated timely

## SAFETY ZONE -REBOOT-

- Encourage incident reporting
- Quality Team Oversight
  - Tasks Assigned Daily
  - Huddle Topics
  - Incident Report Response Tracking
  - Bi-Weekly Quality Team Review
  - Monthly Reporting

Figure 2. Safety Zone Reboot Education Flyer





Table 1. Selected Review of Process Improvement Literature

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Anderson, J.E. & Kodate, N., (2015).  Learning from patient safety incidents in incident review meetings: Organisational factors and indicators of analytic process effectiveness.  <i>Safety Science</i>	Identify factors that facilitated and hindered the process of analyzing incidents in teams and to develop and apply a framework of indicators of effective analytic processes.	Incident review meetings in acute care and mental health care were observed. Full field notes were analyzed thematically.	Thematic analysis, framework of process measures was developed and used to rate each meeting using the field notes	Factors hindering analysis were lack of organizational support, high workload, and a managerial autocratic leadership style.  Facilitating factors were participatory interactions and strong safety leadership.  Deficits in critiquing the causes of incidents, seeking further information, critiquing potential solutions and solving problems that	Direct observation of incident review meetings, looking at factors that hinder or facilitate the process of analyzing incidents.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Canaway, R., Bismark, M., Dunt, D., & Kelaher, M., (2017). Medical directors' perspectives on strengthening hospital quality and safety <i>Journal of Health Organization and Management</i>	To understand the concerns and factors that impact on hospital quality and safety, particularly related to use of performance data, within a setting of devolved government 17 medical directors were interviewed	Qualitative study used thematic analysis of interviews with public hospital medical directors  Semi-structured interview conducted of each medical director between June and August 2016. Eight were face-to-face, eight by phone, and 1 via email.	Findings were framed by themes from a review of hospital safety and quality in the same jurisdiction.  Qualitative data analysis software used to facilitate line-by-line coding of the interview transcripts.  Two interviewers independently coded three transcripts, compared, discussed and resolved discrepancies.	crossed organizational boundaries.  Lack of electronic medical records and inefficient incident reporting system limit the extent to which performance and incident data can be analyzed, linked and shared, and limiting hospital performance improvement, oversight, and learning.  Not generalizable, but underlying absence of system-wide agreement on how to perceive, retrieve, analyze, prioritize, and action hospital performance data. Having efficient reporting systems are important to performance improvement and learning from incidents  Looking at it from physician/provider view which is unique in research.	
Carlford, S., Ohm, A., &	To explore the experiences of IR from two	Interviews and focus group discussions.	Qualitative content analysis.	Two main themes emerged: Incident reporting has	How IR is used and perceived in health care practice.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
<p>Gunnarsson, A., (2018).</p> <p>Experiences from ten years of incident reporting in health care: a qualitative study among department managers and coordinators.</p> <p><i>BMC Health Services Research</i></p>	<p>different perspectives, including heads of departments and IR coordinators, to better understand how they value the practice and their thoughts regarding future application.</p> <p>Ostergotland County, Sweden.</p> <p>9 heads of departments from three hospitals, two focus group discussions with IR coordinators took place</p>	<p>Qualitative</p>	<p>Meaning units were labeled with code. Codes were then organized into sub-categories. Overarching themes were identified. Discussions were then held between all three authors, if uncertainties were identified, they were discussed and solved.</p>	<p>come to stay (perceived advantages, observed changes, and value of IR system); Remaining challenges in incident reporting (need for action, encouraged learning, continuous culture improvement, IR system development, proper use of IR)</p>	<p>Identifies specific areas for improvement such as creating action from incident reporting.</p> <p>No process improvement initiative</p>

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Chiang, H-Y., Hsiao, Y-C., & Lee, H-F, (2017).  Predictors of Hospital Nurses' Safety Practices: Work environment, Workload, Job Satisfaction, and Error Reporting.  <i>Journal of Nursing Care Quality</i>	Explored the prediction between safety practices and work environment factors, workload, job satisfaction, and error-reporting culture.  1429 Taiwanese nurses, 6 teaching hospitals	Self-administered questionnaire to collect data, random selection of eligible participants  Newly hired nurses who have worked less than 3 months were excluded  If more than 10% of questionnaire unanswered it was excluded.  Likert-type scale was used  Environmental factors treated as independent variables	Statistical methods including descriptive statistics, bivariate correlation, and multiple linear regression analyses.  Scores of 4 or 5 were high involvement (NSPS)  Scores of 4 or 5 for reporting medical errors were recorded as "agreed"	Nurses' job satisfaction, error-reporting, and one environmental factor for nursing quality were major predictors of safety practices. Other variables had limited predictability on safety practices.	Predictors and perceptions of patient safety practices and reporting errors
Farag, A., Blegen, M.,	To examine the relationship	Cross-sectional descriptive design	Data were analyzed using descriptive,	Willingness to report decreased	Discusses contributing factors and perceptions

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Gedney-Lose, A., Lose, D., & Perkhounkova, Y., (2017).  Voluntary Medication Error Reporting by ED Nurses: Examining the Association with Work Environment and Social Capital.	among work environment (nurse manager leadership style and safety climate), social capital (warmth and belonging relationships and organizational trust), and nurses' willingness to report medication errors  71 emergency nurses	using questionnaire with convenience sample of emergency nurses	correlation, Mann-Whitney U, and Kruskal-Wallis statistics	as the years of experience increased.  Willingness to report increased as they received more feedback about errors.  Willingness to report increased when their managers used a transactional leadership style.	to reporting. What predicts increases in reporting errors versus decreases.  Specific to medication errors. Specific to ED nurses.
<i>Journal of Emergency Nursing</i>  Feijter, J.M., Grave, W.S., Muijtjens, A.M., Scherpbier, A.J., &	To provide a more comprehensive overview of medical error in hospitals using a combination of	Incident reports collected from IRS, patient complaints and retrospective chart review were classified using the International	Outcome measures were distribution of incidents over the thirteen categories of the ICPS classifier "Incident Type", described as	A total of 1012 incidents resulted in 1282 classified items. Large differences between data from IRS and patient	Discusses alternatives to IRS for patient safety information and incidents.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Koopmans, R.P., (2012).  A Comprehensive Overview of Medical Error in Hospitals Using Incident-Reporting Systems, Patient Complaints and Chart Review of Inpatient Deaths.  <i>PLOS ONE</i>	different information sources.  An academic acute care hospital  1012 Incidents	Classification for Patient Safety.	odds ratios and proportional similarity indices (PSI)	complaints and from IRS and retrospective chart review were mainly attributable to behavior, clinical administration, clinical process, and resources.  IRS do not capture all incidents in hospitals and should be combined with complementary information about diagnostic error and delayed treatment.	
Hewitt, T., Chreim, S., & Forster, A., (2017).	Investigate frames (templates that individuals hold and that guide interpretation of	Qualitative case study, confidential in-depth interviews with physicians and nurses in General Internal Medicine	2 researchers met to the themes and the derivation of codes based on the data gathered in the Atlas.ti software	Frames that inhibit reporting are shared by physicians and nurses and include fear of blame, and	Perceptions and the focus on learning from reporting. Non-punitive.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Sociocultural Factors Influencing Incident Reporting Among Physicians and Nurses: Understanding Frames Underlying Self- and Peer-Reporting Practices. <i>Journal of Patient Safety</i>	events) of physicians and nurses who report into a voluntary incident reporting system as well as to understand enablers and inhibitors of self-reporting and peer reporting.  Canadian tertiary care hospital, 23 interviews	7 physicians, 3 residents, 4 nursing leaders, 15 RN/LPNs	used to code interviews and retrieve quotations. A third researcher also participated in reviewing quotes and the emerging analysis.	tattletale. These are underpinned by the focus on the individual verses the organizational message of learning.  Learning is a frame that enables reporting. The focus becomes preventing recurrence and not the individual.	
Institute of Medicine. 2000 <i>To Err Is Human: Building a Safer Health System.</i>	A comprehensive strategy by which government, health care providers, industry, and consumers can	Literature review and Committee report	1. Establishing leadership, research, tools, and protocols to enhance knowledge of safety 2. Identify and learn from errors through immediate	The majority of medical errors do not result from individual recklessness or the actions of a particular group. Errors are caused by faulty systems,	Overall basis for improvement of patient safety in healthcare. Why incident reporting systems were widely adopted.



Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
	reduce preventable medical errors. 44,000-98,000 patients die in hospitals each year		and strong reporting efforts and expectations for improvements in safety through the actions of oversight organizations, group purchasers, and professional groups 4. creating safety systems inside health care organizations through the implementation of safe practices at eh delivery level.	processes, and conditions that lead people to make mistakes or fail to prevent them.	
Okuyama, A., Sasaki, M., & Kanda, K., (2010).  The Relationship Between	Examines the relationship between nurses' perceptions of incident reporting, the frequency of incident	A self-administered survey; Likert-type scale  Perceptions: 20-questions pertaining to recognition of incidents required to report,	Examined using Pearson correlation coefficients calculated using ward scores	Safety manager attitudes and safety management at the ward level were found to have significant correlation with	Discusses perceptions and predictors of reporting, directly relates to management affects on reporting.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Incident Reporting by Nurses and Safety Management in Hospitals <i>Quality Management in Health Care</i>	reporting on wards, and safety management in hospitals  528 nurses in 8 hospitals in Japan. Each hospital has more than 90 beds.	recognition of importance of incident reporting, fear of reprisal if reporting, willingness to report  Frequency of reporting: Responses from 6 scenarios were collected: incidents uncovered either before or after they affect patients, each with 3 possible degrees of severity for consequences. Nurses were asked whether each type was subject to reporting, how often they had reported such incidents  Safety management: 23 questions  Demographic information: age, sex,		rear of reprisal cause by incident reporting, willingness to carry-out incident reporting, and recognition of the importance of incident reporting.  Need for ward managers to discuss incidents with staff.	

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Ramos, F.O. & Zuniga, R.A., (2018).  Underutilization of the reports of adverse events in an Argentine hospital  <i>International Journal of Risk &amp; Safety in Medicine</i>	To describe the adverse events that affect patient safety, reported in 2015 in a private hospital in the city of Cordoba, Argentina  800 employees, 222 general beds, 39 ICU beds, 5 delivery rooms, 2 ORs, NICU.  Mean age of patients is 50.7 years old.  678 events were analyzed	education, position, years of experience  Adverse events that affect patient safety in 2015  Nursing professionals reporting, drug therapy process, communication failures, patient falls.  Reporting in three dimensions: a checklist with staff demographics, area where occurred/environmental and human factors, free-text of chronology of events/causality/patient characteristics	Reports were analyzed according to Capucho to identify the cause of event and professional category.  Unit of analysis was each adverse event report. Data were analyzed with descriptive statistics with Infostat/P software.	91% occurred during normal business hours  4% at overtime  40% were directly involved and 37% were spectators  41% were notified by nursing staff, 27% by other health professionals, 32% did not specify  44% were inpatient  51.9% had no cause  32% the morbidity related	Directly related to most common reports of patient safety events, education provided, contributing factors to reporting or not, or choosing not to report certain information  Descriptive analysis, no process improvement intervention  The authors directly related using "No Answer" as providing inaccurate/incomplete information regarding the event, making it difficult to analyze and utilize the information.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Richter, J.P., McAlearney, A.S., & Pennell, M.L., (2015).  Evaluating the Effect of Safety Culture on Error Reporting: A Comparison of Managerial and Staff Perspectives  <i>American Journal of Medical Quality</i>	Identify the organizational factors with the greatest perceived effect on error reporting and to determine whether associations differ for management and clinical staff  515,637 respondents from 1052 hospitals completed the Hospital Survey (2008-2011) on Patient Safety Culture	Nine organizational factors were tested as predictors of error reporting using weighted least-squares multiple regression: Error feedback, Organizational learning, Management support, Teamwork across units, Supervisor support, Communication openness, Nonpunitive response to events, Teamwork within units, Staffing  Clinical staff and managers took the survey		to the incident was null or low, intermediate was 24%, high was 13%  Error feedback was perceived as the most significant predictor, while organizational learning was another significant factor.  Management support was significant for clinical staff reporting, but not for manager reporting. Management may not realize that their support affects their staff decision in reporting.	Discusses survey perceptions of incident reporting and other patient safety culture variables. Very large sample size.  Implementation of the QIRT and improved patient safety directly related to our own patient safety culture survey, prior to implementation of the project.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Sujan, M., (2015). An organization without a memory: A qualitative study of hospital staff perceptions on reporting and organizational learning for patient safety <i>Reliability Engineering and System Safety</i>	To explore current perceptions of healthcare staff towards reporting and organizational learning for improving patient safety.  35 healthcare professionals in two NHS organizations	Semi-structured interviews  Qualitative multi-site research design	Thematic analysis  Interview transcripts were analyzed inductively and iteratively using Thematic analysis. Read and coded by the author using open coding. Categories were identified through clustering of similar or related codes. Relationships between categories were described until overarching themes were identified.	Two key themes: 1) Perceptions on incident reporting, barriers to reporting and the perceived lack of improvements  2. perceptions on less formal, locally owned processes for reporting and learning that might complement the more formal, risk management and clinical governance processes.	Describes perceptions to different ways of managing reporting  No process improvement initiative, but recommendations from results of interviews.
Tricarico, P., Castriotta, L., Battistella, C., Bellomo, F., Cattani, G., Grillone, L., Degan, S., De	To establish categories of professionals' attitudes toward incident reporting by analyzing the	No interventions were completed.  Patient complaints	Reporting rates, stratified by year and profession, were estimated using non-mandatory reported events/full-time	Reporting rate of doctors was 0.44 and nurses was 0.40. During the measurement period only doctors had	Discusses the importance of adverse event reporting in hospitals and the impact they have on outcomes.

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
<p>Corti, D., &amp; Brusaferrro, S., (2017).</p> <p>Professional attitudes toward incident reporting: can we measure and compare improvements in patient safety culture?</p> <p><i>International Journal for Quality in Health Care</i></p>	<p>trends in incident reporting while accounting for general risk indicators</p> <p>1000-bed Italian academic hospital</p> <p>3200 professionals (staff of the hospital), over 6 year period</p>		<p>equivalent rate.</p> <p>Staff attitudes toward self-reporting were analyzed.</p> <p>Univariate and multivariate analyses were performed.</p> <p>Outcome measures: Reporting rates (above), self-reported rates, patient complaints/praises, work accidents among professionals, and 30-day readmissions.</p>	<p>significant increase in reporting rate (0.29 – 0.67).</p> <p>Patient complaints decreased from 384 to 224. Work accidents decreased from 296 – 235. Other indicators were constant. Self-reporting was more likely among nurses.</p>	<p>Discusses current research and lacking research</p>
<p>Yoo, M.S. &amp; Kim, K.J., (2017).</p> <p>Exploring the Influence of Nurse Work</p>	<p>To explore the influence of nurse work environments and patient safety culture on attitudes toward</p>	<p>Cross-sectional survey design was used.</p> <p>Head nurses and those with less than 3-months work experience were excluded.</p>	<p>General characteristics were analyzed with descriptive statistics.</p> <p>Independent t-test, 1-way analysis of</p>	<p>Nurses perceptions of work environment and patient safety culture were positively correlated with</p>	<p>Perceptions and predictors of reporting incidents.</p> <p>Recommendations for increasing reporting.</p>

Authors, Title, Journal, and Level of Evidence (LOE)	Purpose of study, setting & sample size	Design & Variables (independent and dependent)	Data Analysis & Outcomes	Results	Relevance to your research & Your analysis of the article
Environment and Patient Safety Culture on Attitudes Toward Incident Reporting <i>Journal of Nursing Administration</i>	incident reporting 191 nurses working at tertiary university hospital in South Korea	Surveys were sealed in envelopes to ensure anonymity.	variance, and post hoc test (Scheffe test). Pearson's correlation coefficients were used to analyze the correlation between the main study variables. Multiple regression analysis was used to examine the factors influencing nurses' attitudes toward incident reporting.	attitudes toward incident reporting. Improving work environment and patient safety culture increases incident reporting	No process improvement initiative, recommendations on how to improve culture.

Table 2. Total Number of Incident Reports at Baseline, 3-Months, and 6-Months After  
Implementing An Interdisciplinary Quality Incident Review Team (QIRT) Process (N=204)

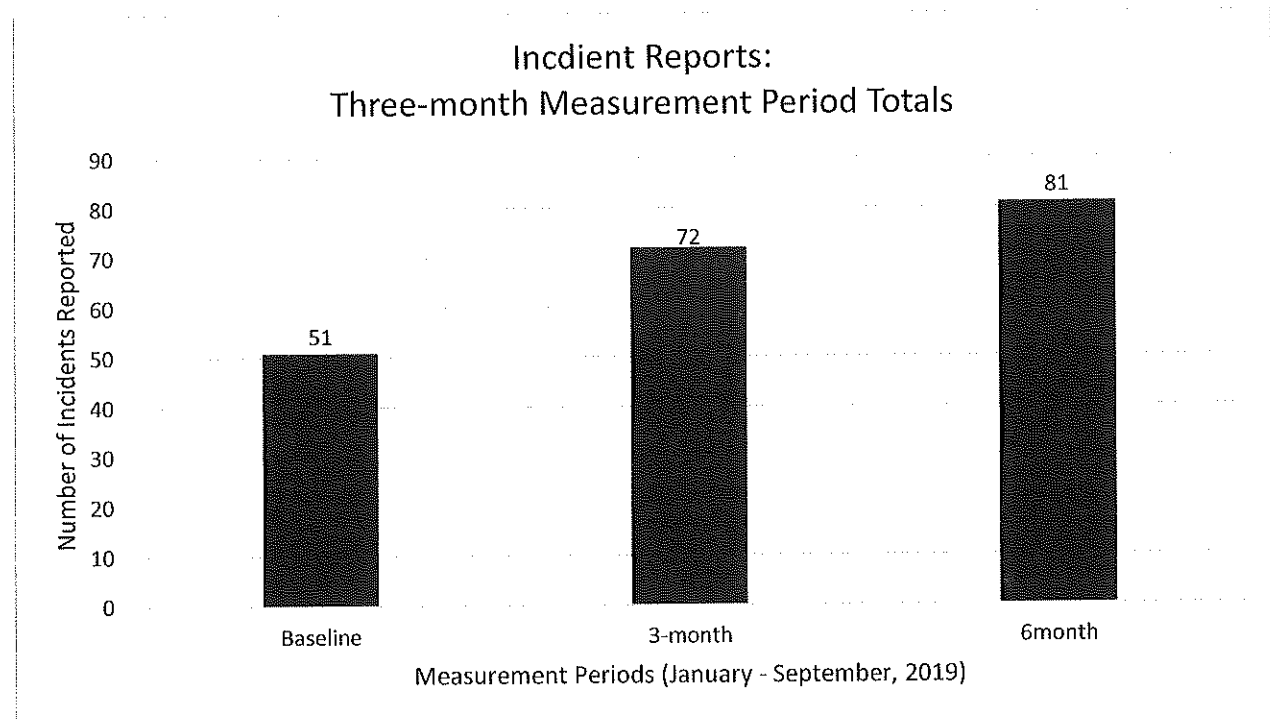
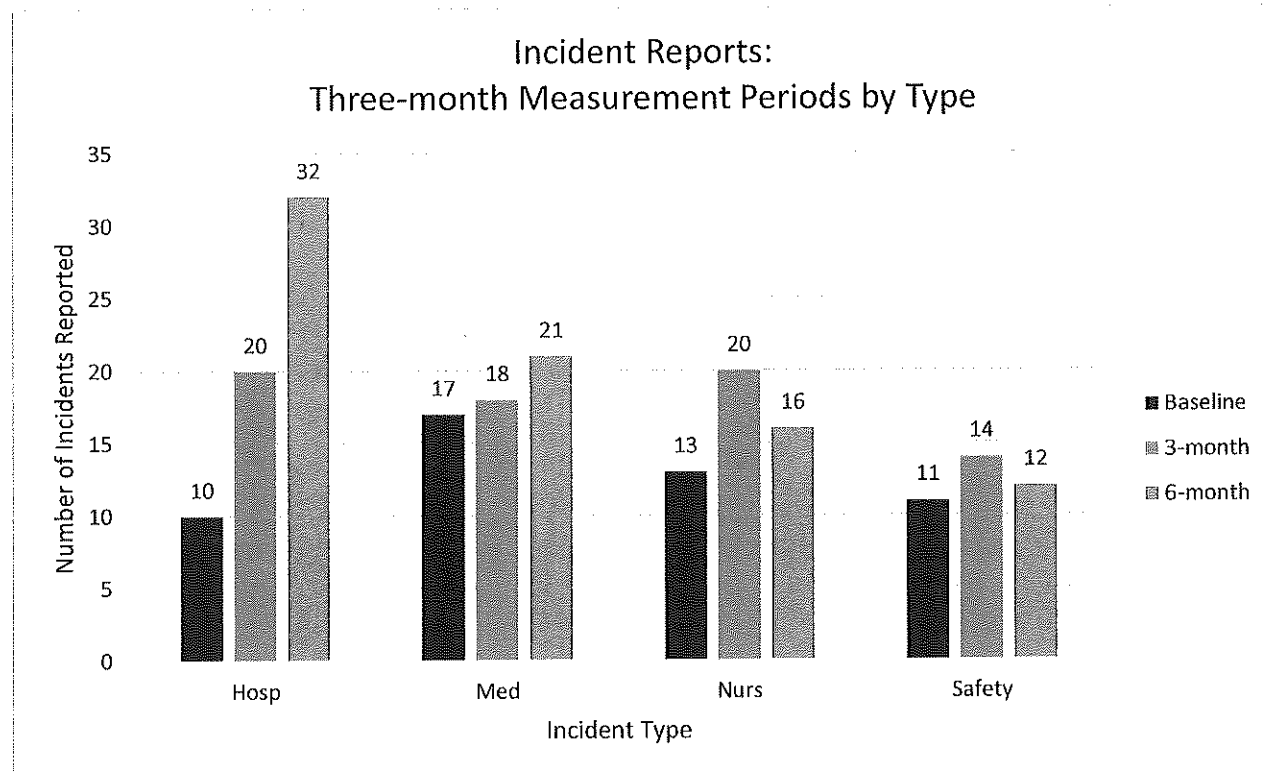


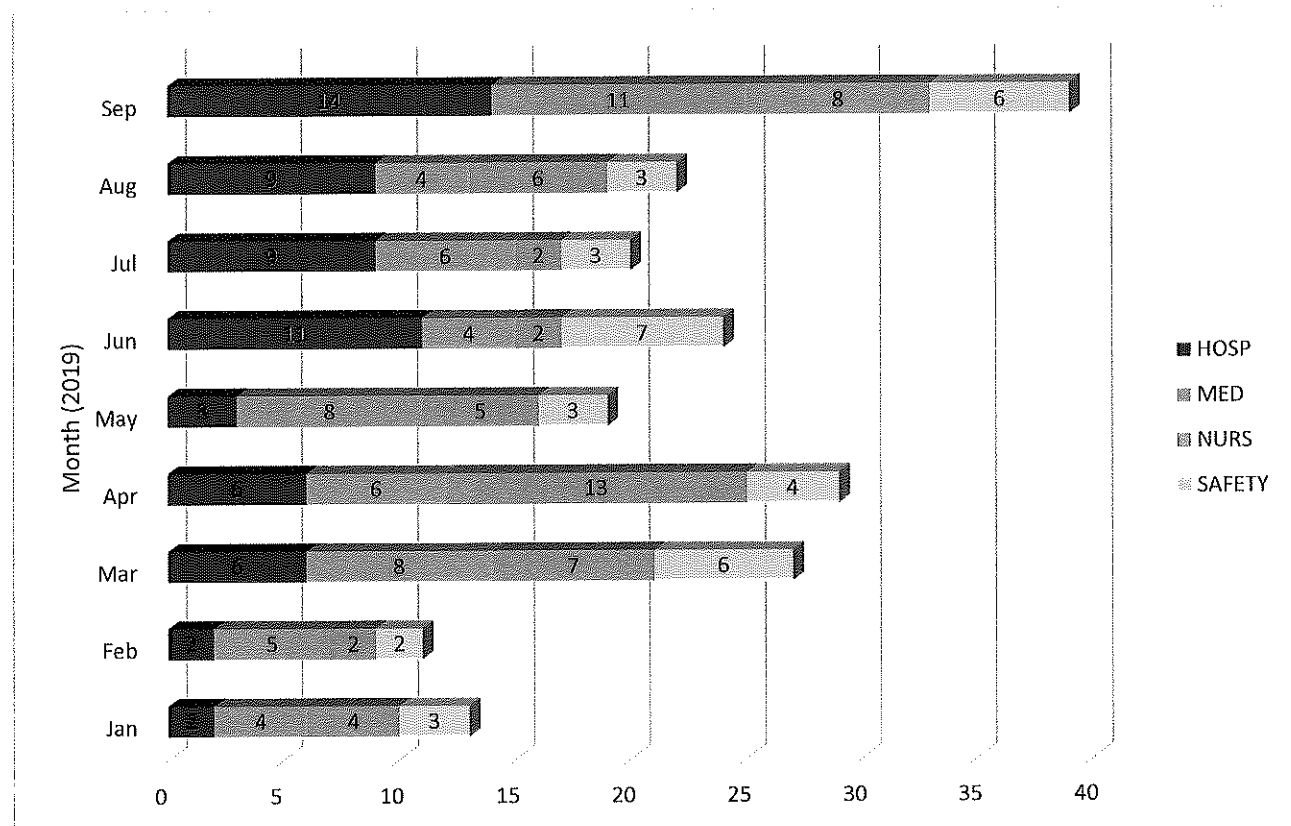


Table 3. Types of Incident Reports at Baseline, 3-Months, and 6-Months After Implementing An Interdisciplinary Quality Incident Review Team (QIRT) Process (N=204)



*Note:* Hosp = Hospital Quality, Med = Medication Error, Nurs = Nursing Quality, Safety = Safety/Environment of Care

Table 4. Monthly Incident Reports for Hospital, Medicine Error, Nursing, and Safety for Nine Months (N=204).



*Note:* Hosp = Hospital Quality, Med = Medication Error, Nurs = Nursing Quality, Safety = Safety/Environment of Care

Table 5. Reporting of Hospital Incident Type by Month, January through September, 2019

(N=61)

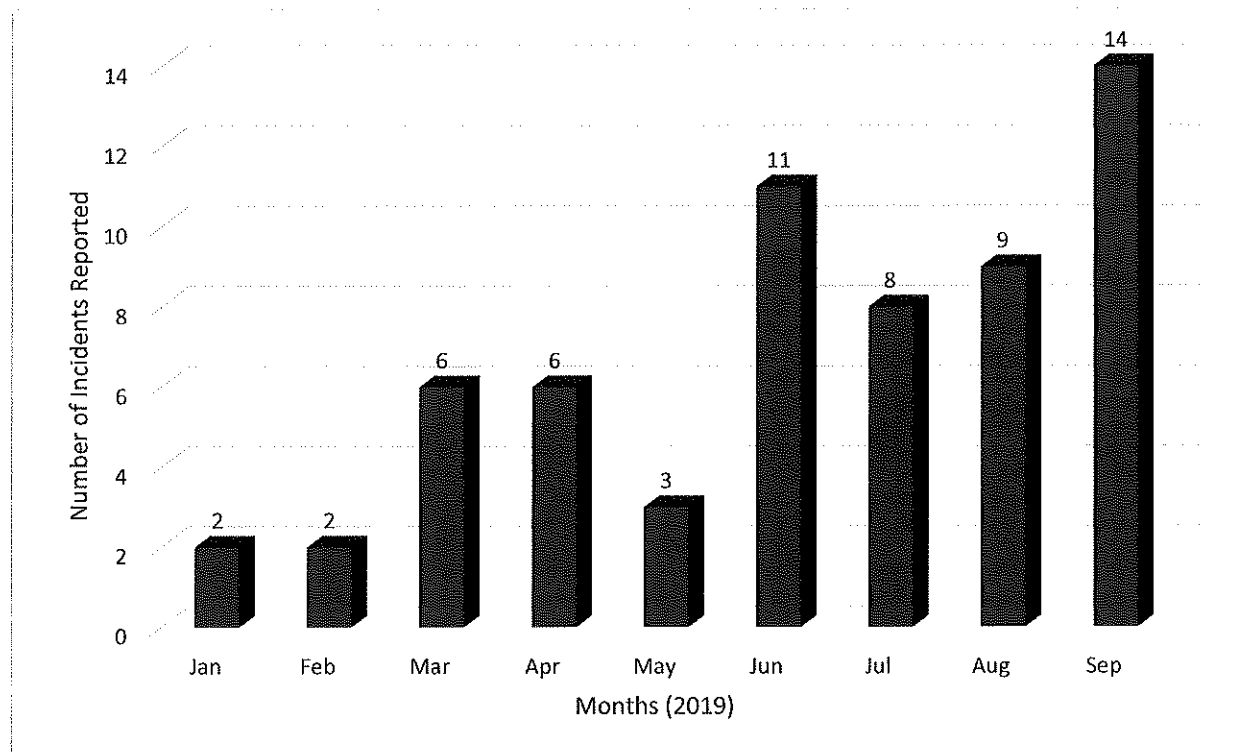


Table 6. Monthly Incident Reports by Severity Category for Hospital, Medicine Error, Nursing, and Safety for Six Months (N=204).

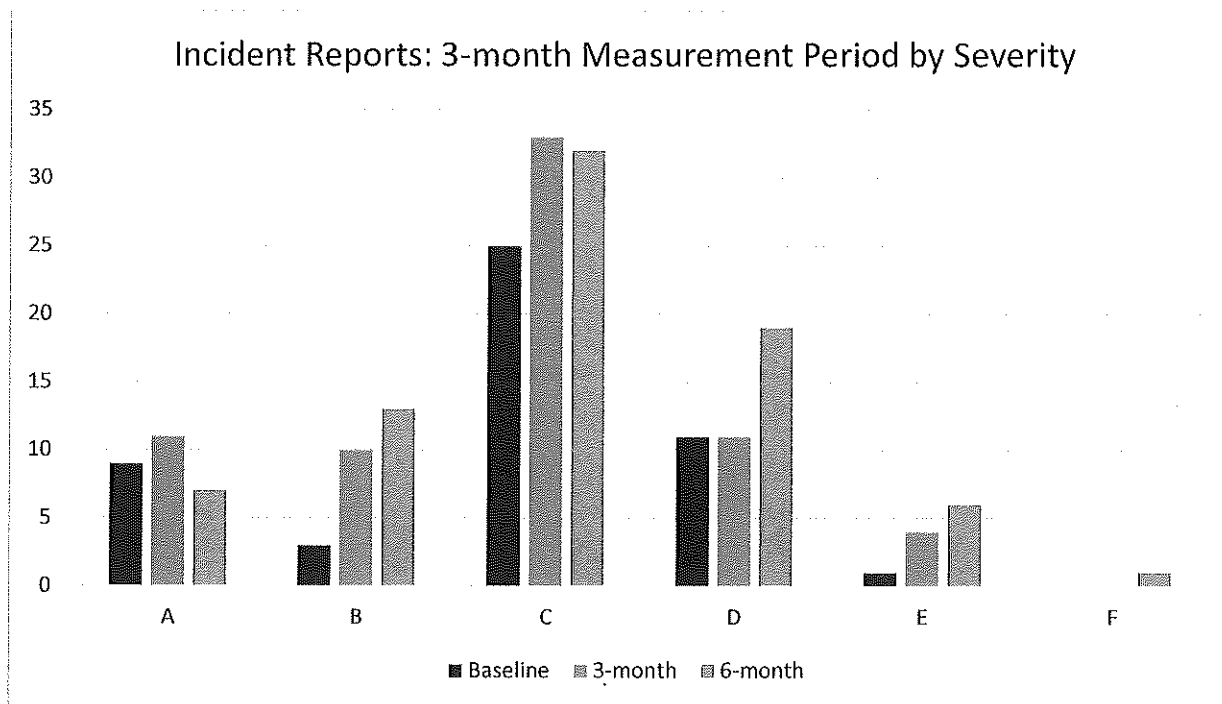


Table 7. Number of Days Until Nursing Incident Reports Were Resolved by Month

