Create a Safe Night

An Interdisciplinary Approach to Risk Identification and Mitigation for Hospitalized Patients

Doron Schneider*, MD,
Danielle Meyer†, RN,
Mary C. Naglak‡, PhD,
and Annmarie Chavarria§, RN

*Corresponding author

‡Abington Hospital – Jefferson Health

Disclosure: The authors declare that they have no relevant or material financial interests.
Abstract

Background: The ultimate goal and purpose of healthcare is to improve health while preventing morbidity and mortality. The optimal approach to this is through teamwork using a reliability framework. Upon review of our institution’s 2012 patient safety culture survey data, we noted that the teamwork domain of the Agency for Healthcare Research and Quality (AHRQ) assessment was in the lowest decile. Our institution implemented the Crimson Analytics tool in 2013, and an analysis of inpatient mortality data revealed higher than expected mortality statistics.

Objective: Hospital systems and team-based care are more developed during daytime hours, leaving patients more vulnerable to adverse events (morbidity and mortality) during the overnight period. Our objective was to develop optimal transitions of care and proactive risk identification/mitigation through an interprofessional team-based approach, with resultant decrease in patient harm and improvement in safety culture.

Methods: In a community hospital, standardize transitions to identify “at risk” patients for nurses, physicians, and respiratory therapists with subsequent interprofessional review of care plans/patient status in a centralized mid evening standup briefing, subsequent proactive rounding on “at risk” patients, use of error prevention behaviors aimed to mitigate cognitive bias, and end-of-shift reflection process.

Results: The ultimate goal and purpose of healthcare is to improve health while preventing morbidity and mortality. The optimal approach to this is through teamwork using a reliability framework. Upon review of our institution’s 2012 Surveys on Patient Safety Culture (SOPS) data, we noted that the teamwork domain of the Agency for Healthcare Research and Quality (AHRQ) assessment was in the lowest decile.

Conclusion: An interprofessional approach to high-quality transitions in care, risk identification, and mitigation, along with structured huddles and proactive rounding, can improve patient safety at night while simultaneously improving staff satisfaction, joy, and safety culture.

Keywords: high reliability, transitions in care, night time, teamwork, proactive risk mitigation, interdisciplinary

Introduction

The ultimate goal and purpose of healthcare is to improve health while preventing morbidity and mortality. The optimal approach to this is through teamwork using a reliability framework. Upon review of our institution’s 2012 Surveys on Patient Safety Culture (SOPS) data, we noted that the teamwork domain of the Agency for Healthcare Research and Quality (AHRQ) assessment was in the lowest decile. Our institution implemented the Crimson Analytics tool in 2013 and an analysis of inpatient mortality data revealed higher than expected mortality statistics. Baseline inpatient mortality rates (April 2013–March 2015) were 2.08% (compared to the Crimson national cohort average of 1.78%) and top quartile of 1.65%. Our baseline observed/expected mortality ratio was 1.04.

Expected mortality rates were determined from Crimson comparator of risk-adjusted “like cases” in the database of over 100 hospitals. Increased mortality occurred despite Rapid Response Team (RRT) scoring tools such as the Modified Early Warning Score (MEWS) demonstrated relatively low sensitivity and specificity for ability to identify patients at risk for clinical decline.6 Finally we increasingly became aware of the tenets of high reliability. Becoming “highly reliable” will require organizations to move towards higher functioning interprofessional teams that are situationally aware of risk and are able to anticipate and mitigate potential harm before it occurs.6

With this as context, we set out to create an approach to impact interprofessional team dynamics and performance with an ultimate goal of reduction of inpatient mortality—with a particular focus on the unmet need of patient safety and risk during the overnight period.

Methods

Our institution realized that the structures and processes for teamwork and response to patient decline were significantly more advanced and developed during daytime hours. A goal was set to bring additional order and structure to the evening/night hours with an ultimate goal of reduction of harm at night.7 Several focus groups and brainstorming sessions with night shift leadership were held to inform the development of the program. The CSNP was launched in April 2015 after a significant educational effort that included live, in-person didactic information sessions, memos, and distribution of PowerPoint presentations to all involved stakeholders and leaders (nursing, residents, attending physicians).

The CSNP has multiple components. Daily it begins with the identification of patients that are at risk for clinical decline in the overnight period. Borrowing from the Patient Safety Institute’s I-PASS program, we used the word “watcher” to identify these patients. Resident physicians were trained to identify watchers using clinical judgment by asking, “Which patients on my service are at most risk of having a clinical decline overnight?” Attending physicians were trained to supervise the process, and watchers were systematically signed out to covering night float interns/residents. Watcher patients were clearly noted in a column in the electronic medical record (EMR) that allowed transparency for all staff to see the identified patients. Similarly, nurses were trained to identify watcher patients on their units who they believed had risk for clinical decline.8

A 9:30 p.m. huddle was implemented to bring covering intern night floats, nursing representatives from each floor, respiratory technicians, and the evening nurse coordinators together. During these 15–20 minute sessions, the status of each watcher was ascertained, care plans were reviewed, and contingencies were developed for each patient. Critically, this function served as an opportunity for interdisciplinary collaboration in the development of optimal care plans.9

Figure 1. Number of Rapid Response Team (RRT) calls per month from November 2009 to March 2015 at Abington Hospital
Our institution has long had error prevention behaviors similar to those found in TeamSTEPPS. These have traditionally focused on optimizing team function by creating standardized language and expectations through the use of tools such as SBAR (Situation-Background-Assessment-Recommendation) andCUS (I am Concerned! I am Uncomfortable! I am in a Priority Issue!). As part of our evolution and in response to the Institute of Medicine’s report on diagnostic error, we developed and deployed new behaviors called “Talk Out Loud” and “What Else Can It Be.”

These strategies were based on recent literature of cognitive bias. Use of these tools was encouraged during the 9:30 p.m. huddle, during proactive rounding at the bedside, and during emergent responses to evolving situations.

Between 11 p.m. and 1 a.m. interns proactively went to their assigned nursing units accompanied by nurses and used a “watcher” form (this process commenced in October 2016). Twelve of the 16 teams that cover the general medicine service identified as watchers at end-of-shift rounding on WATCHER patients. A total of 1,920 interactions occurred for a rate of 72.7%. Data capture to verify the presence of appropriate action planning for unplanned transfers to a higher level of care, and 12 had RRTs but remained in the room. Many insights were had on the part of the day teams. A few examples of learnings and reflections included the need for earlier consultation of specialists, more attention to changes in daytime vital signs, need for more aggressive medical management, different triage decisions regarding level of care from emergency trauma center, and more aggressive use of blood products.

A convenience sample of 105 staff members was surveyed using an electronic survey capture tool. The majority of the survey respondents were nurses and intern/resident physicians (82.8%) (Figure 3). As indicated by the survey results (Table 1) the overall program was extremely well received. The 9:30 p.m. interdisciplinary huddle was shown to be positive in improving situational awareness (67% somewhat or completely agreed) and in allowing the development of appropriate action planning for risk mitigation. (66.9% somewhat or completely agreed.)

Through its use of structured process and standard language the CSNP has dramatically improved the organization’s ability to be proactive in identifying risk; 67.6% somewhat or completely agreed that it helped reduce risks for unanticipated clinical decline and 84.7% somewhat or completely agreed the watcher created clarity and focus for priority setting (Table 1). The CSNP has led to improved interactions (72.4% somewhat or completely agreed) and collaboration and communication between disciplines at night (71.4% somewhat or completely agreed), while simultaneously impacting efficiencies (52.3% somewhat or completely agreed) and “joy at work” (57.2% somewhat or completely agreed) (Table 1).

Figure 2. Mortality data for Abington Hospital before (April 2013–March 2015) and after (April 2015–March 2017) the initiation of the Create a Safe Night Program

Figure 3. Clinical Role of Survey Respondents (N=105)
Sustainability of any new initiative or tactic is key for long-term improvement. The CSNP is likely to improve the following given the data's direct causal link between the program and the outcomes presented: patient safety, enhanced team-based interactions, high-quality transitions in care, improved resource utilization, the ability to monitor real-time performance data, and enhanced patient engagement and experience.

The main result of the project was the 9:30 p.m. huddle, which was led by a senior nurse who oversaw all organized slightly differently but involved all unit-based staff and leadership from each discipline. The program prioritizes the application of resources in the evening to mitigate the risk of patient decline (e.g., respiratory technicians, pharmacists, etc.) can be brought in as necessary to support as well as a senior nurse who is operationally “in charge” in the evening. Other types of providers (e.g., respiratory technicians, pharmacists, laboratory professionals, etc.) can be brought in as necessary and able.

Technology will continue to evolve, and predictive tools (e.g., MEWS) will improve over time. The CSNP creates the cultural and structural foundation to manage and mitigate risk before events occur. At the end of the day, technology is important, but people working collaboratively in teams is necessary to achieve the outcomes our patients deserve.

Conclusion

An interprofessional approach to high-quality transitions in care, risk identification, and mitigation, along with structured huddles and proactive rounding, can improve patient safety at night while simultaneously improving staff satisfaction, joy, and safety culture. This approach is possible without the application of additional resources and may be replicable at most hospitals.

Sustainability of any new initiative or tactic is key for long-term improvement. The CSNP is likely to improve the following given the data's direct causal link between the program and the outcomes presented: patient safety, enhanced team-based interactions, high-quality transitions in care, improved resource utilization, the ability to monitor real-time performance data, and enhanced patient engagement and experience. Given the face validity of the results, the CSNP and the outcomes presented are likely to sustain over time. The CSNP is a formula of: 1) set expectations, 2) educate, and only then, 3) hold accountable. The form of interns in training and residents needed to be very clear regarding the daytime where patients are now being discussed, as well as the aforementioned ability to collect real-time performance data that can be fed back to leadership should drift emerge.

Many lessons have been learned through this project. Through the lens of the reliability framework we need to carefully follow the formula of: 1) set expectations, 2) educate, and only then, 3) hold accountable. We studied the data presented that 37.2% of providers experienced more joy at work through this initiative. We asked bedside providers climbing year over year, any intervention that may increase joy at work should be critically evaluated and supported.

Discussion

We believe that the CSNP has contributed to patient safety, enhanced our culture, and possibly improved joy of work for involved staff. Acknowledged, however, is the fact that the intervention took place in a non-static environment with concurrent staff turnover and other improvements were taking place. It is possible a direct causal link between the CSNP and the outcomes presented and studied cannot be scientifically proven without a randomized controlled trial of hospitals.