

Improving Safety Culture through Standardized Debriefing in a Medical Intensive Care Unit

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Author Note

This author is currently employed at the organization and unit where this quality improvement project will take place. There are no other known conflicts of interest to disclose.

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Abstract

Problem: The Medical Intensive Care Unit (MICU) has a poor safety climate, suggesting the unit's response following critical events is either absent or not disseminated to the staff. Despite organizational standards, the MICU completed one debriefing for over 100 qualifying events from July 2022-January 2023. Literature supports that failure to address poor safety climate can lead to drifts in clinical practice, failure to identify unit or system improvements, and adverse patient outcomes. **Purpose:** The purpose of this project is to assess implementation adherence of a standardized debriefing process to address unit safety climate. The project is expected to increase adherence to debriefings and identify, resolve, and disseminate quality improvements (QIs) reported in debriefings to improve patient and staff safety.

Methods: Implementation occurred over 15 weeks in the Fall of 2023. Preceding the project start, an interdisciplinary team was mobilized. Twenty charge nurses received formal training on debriefing and qualifying critical events. The charge nurses were utilized as champions and followed the INFO debrief tool to debrief critical incidents. Unit-based committees reviewed the debriefings to establish sustainable resolutions, then disseminated the changes to staff through the unit's communication platforms. Data was collected through weekly chart and Smartsheet audits to determine whether eligible events underwent debriefing. Project data was analyzed weekly by the project lead and run charts were used to analyze trends in data collected. **Results:** Pre-implementation data showed forty-two applicable events with 7% undergoing critical event debriefing. 0% of quality improvements were identified, resolved, or disseminated to staff. During the 15-week implementation period, compliance and median number of critical events debriefed was 66.6%. Three unit based QIs were identified and resolved, and two hospital wide QIs were identified and escalated. **Conclusions:** The project suggests that it is feasible to implement critical event debriefing in the intensive care unit and utilize charge nurses as champions. Variations in acuity, staffing, and leadership are influential in compliance. Debriefing successfully identifies QIs to be addressed and resolved at the unit and organizational level. **Keywords:** Critical events, debriefing, ICU.

Improving Safety Culture through Standardized Debriefing in a Medical Intensive Care Unit

In an adult Medical Intensive Care Unit (MICU) at an urban, academic medical center, there was a poor safety climate. The Safe and Reliable SCORE survey was conducted hospital wide in October 2022. The purpose of the survey was to assess unit culture with correlation to predicted safe and reliable outcomes in healthcare. The findings indicated that just culture was poorly integrated or understood, and the unit's response following critical events was either absent or not disseminated to the staff. The concept of just culture encompasses nonpunitive measures to improve patient safety by fostering trust and an environment where nurses report unsafe conditions or errors voluntarily (Safe & Reliable Healthcare, 2018). Hospital units and organizations with reported poor safety climates indicate that staff perceive a lack of dedication to both patient and staff safety (Safe & Reliable Healthcare, 2018). The MICU scores were in the sixth percentile for safety climate, indicating there was need for significant improvement. In the MICU, the staff reported on the survey and in interviews that they did not feel supported discussing or reporting critical events or trust that quality improvements that arose would be addressed. Failure to address poor safety climate concerns can lead to drifts in clinical practice, failure to identify unit or system improvements, and adverse patient outcomes (Safe & Reliable Healthcare, 2018). Staffing, nursing experience, and provider experience all fostered a poor safety climate. The root cause for poor safety climate was multifactorial, primarily related to no standardized processes for debriefing critical events, not addressing quality improvement action items, and disseminating outcomes of quality improvements to staff.

The organization and unit expectation were for each critical event to be debriefed. The immediate, personal assessment, fast facilitated feedback, and opportunity to ask questions (INFO) tool, was previously established as the debriefing structure. However, per staff in the MICU, there was no standardized process or regular performance of debriefings. An audit over a six-month period revealed one submitted debriefing despite over 100 qualifying events. The staff were not aware of the benefits of

debriefing, critical events that warranted a debrief, or persons responsible for initiation and follow up of the debriefings. Also, the staff were not educated on just culture practices, leading to fears that discussing errors or deficiencies identified with patient care may result in punitive action. See Figure B1 for fishbone diagram.

A standardized process to conduct and review critical incident debriefings and disseminate QI was implemented. The purpose of this QI project was to standardize the process of performing debriefings following critical events including, cardiac arrest, peri-code (use of resuscitation medications), unplanned intubation or difficult airway incident, self-extubation, massive transfusion event, ECMO cannulation, patient fall, and violence or security incident with the outcome goals of improving adherence to critical event debriefings and improve safety through quality improvements identified through debriefing.

Available Knowledge

An evidence review conducted examined the feasibility of debriefings in a high acuity environment, as well as the effects on safety climate. The studies included ranged from level II-V evidence and grade B to C. Fontenot et al. (2020) discussed how high levels of moral distress in critical care nurses leads to burnout, and debriefings were a useful strategy to reduce moral distress. Garcia et al. (2019) determined a statistically significant relationship between burnout and direct patient safety and identified teamwork and improved safety culture as important factors to decreasing burnout and behaviors that increased patient harm. Conoscenti et al. (2021), Ugwu et al. (2020), Gillen et al. (2019), and Rose et al. (2020) all concluded that debriefing after critical events was well received by participants, improved teamwork, and communication, offered the opportunity for self-reflection and stress management, and identified areas for improved patient care. Gillen et al. (2019), Rose et al. (2018), and Cincotta et al. (2021) implemented initiatives to address multiple quality improvements (QI) identified in the debriefing process and each reported that debriefings were impactful to clinical practice, feasible,

and sustainable for facilitation from multiple disciplines with education and a debriefing script. See Table A1 and A2 for the full evidence review and synthesis.

Overall, the studies reported that debriefings were beneficial to staff and patient safety. Improvements in teamwork, communication, and resilience resulted by providing staff opportunities to learn and share their reactions and perceptions of clinically challenging events. Additionally, through identified themes and quality improvement changes, patient safety was enhanced.

Rationale

The framework that was utilized for the project was the Promoting Action Research Implementation in Health Services (PARIHS). The framework recognizes a relationship between the evidence, context, and facilitation of change, and that the three factors simultaneously effect the successful implementation of practice change (Kitson et al., 1998). The research evidence revealed that support from healthcare staff members who believed in the importance of critical event debriefings could improve safety climate. With consideration of context, the MICU had a longstanding, supportive, manager, large senior clinical nurse group, and the project team consisted of a large interdisciplinary team. Also, the unit was a teaching environment that was well adapted to change and lifelong learning. Lastly, facilitators, including the quality improvement-project lead (QI-PL) and charge nurses helped the adopters understand why the change must occur and how to make the changes, which was addressed with education and ongoing support for staff throughout the project implementation (Kitson et al., 1998). See figures B2 and B3 for framework.

Methods

Context

The MICU was a fast paced, high acuity, academic environment within a complex healthcare system. The unit staffed approximately 130 nurses and had an average of 20 permanent charge nurses. Each day there were three primary care teams each consisting of physicians, advanced practice

providers, nurses, pharmacists, respiratory therapists, and other multidisciplinary members. The unit culture was supportive of change and had previously implemented numerous doctoral projects with the support of the unit manager. Additionally, the unit had a structured governance consisting of multiple interdisciplinary committees, which consisted of nursing staff members. The Safety and Quality (S&Q) Committee and Steering Committee were designated to review patient care, to target strategies to improve care, and to monitor the progress of initiatives. The unit also had two designated communication platforms, Friday Forum, and the LENS board, which provided staff with updates and other significant information at the unit and organization level.

Given the complexity of the unit, there were many critical incidents and quality improvements that required attention. The MICU did not have a standardized process for debriefing critical incidents that occurred on the unit. The organization's Resuscitation Committee provided a validated debriefing tool. However, no persons or groups had been educated or designated as responsible for completing the unit debriefings. Since the unit environment was fast paced, critical incidents occurred frequently, and unit staff often continued their daily activities without reflecting on the events. This could have led to unidentified QI's that impacted future patient care. Additionally, the S&Q and Steering Committees did not have a standardized process for identifying QI items to address. These committees depended on self-reporting or hospital quality indicators to determine unit initiatives, which may have led to staff missing important potential improvement projects. Since nurses on the MICU reported poor understanding of just culture, self-reporting may have lacked all-encompassing information of events or errors and QIs were difficult to identify and create action plans to resolve, which impacted the unit's safety climate with potentially recurring issues. See Figures B4 and B5 for previous and updated process.

Intervention

The project's primary intervention was to implement the institution's critical event debrief tool, adopted from the INFO tool by standardizing the process. Tactics to ensure the best chance for success

were implemented, as outlined by Bingham's ABCDE framework. See Table A4 for implementation strategies. These strategies involved collaboration and formal commitments from the charge nurses to utilize them as unit champions and facilitators of debriefings. Desired structure changes included charge nurses receiving training and education on debriefing strategies and the adherence to the implementation of debriefings. An education plan was developed to guide the charge nurse education process which consisted of enhancing knowledge and training skills through a training session provided by the hospital's simulation lab debriefing expert. Once competent, charge nurses were champions for the project and trained orienting charge nurses throughout the implementation period and thereafter. The learning objectives of the modules were that the charge nurse would be able to: explain the debriefing process and describe the impact of debriefing on patient care outcomes. Following didactic learning each charge nurse demonstrated competence with accessing the quick response (QR) code for the debriefing tool. See Figure B6 for script. In conjunction with charge nurse education, desired structure goals included 100% of the charge nurses and nursing staff being educated on just culture and qualifying critical events developed by the (QI-PL). A posttest education quiz was administered to assess staff knowledge requiring a passing score of 80%. The education completion and posttest score of at least 80% was measured directly from organizations online education platform.

QR codes were placed on five crash carts, the charge nurse station, and the difficult airway cart to promote timely debriefing documentation. Desired processes included 10% of QI items resolved by the S&Q Committee and 100% of resolved items to be disseminated to the MICU staff through the weekly Friday Forum or LENS board. A secondary outcome from the intervention included identifying and resolving QI's through a standardized process. Desired processes included the submitted debriefings via QR code be reviewed by the QI-PL and Q&S and Steering Committee members, with dissemination of QI's to staff through the Friday Forum or LENS board. The information was transcribed in real time during

meetings and minutes disseminated to participants, so the data and information were reliable. See table A3 for a detailed list of project team members.

The outcome goal to achieve the desired process of the dissemination of QIs to staff through the Friday Forum or LENS board was that 100% of resolved QIs were disseminated biweekly during the implementation process. The data was collected by audits of the committee meeting minutes and weekly digital Friday Forum and LENS board. The information was transcribed in real time during meetings and minutes disseminated to participants, so the information was reliable. The number of items reported as resolved was divided by the number of items reported in the Friday Forum or LENS board. Contextual elements were considered to assist with sustainability of the project implementation. Biweekly conversations with unit champions and committee chairs occurred to assess the progress of the interventions. As conversations occurred, barriers were identified and addressed in a timely manner with key stakeholders and the clinical site representative.

Measures

The primary outcome goal for these interventions was to increase the number of documented critical incident debriefs to 100% and resolve 10% of QI's identified. Documented critical incident debriefs were measured by an increase in documented debriefings during the implementation period compared to the 14 weeks prior. The data was collected from Smartsheet, a project management software system. The organization adopted the validated INFO debriefing tool and made it electronically accessible to document debriefings into Smartsheet. Reports were run from EPIC Portfolio, an electronic health record, and the hospital event reporting system, which captured documented and reported critical incident events. The data was collected directly from sources on various platforms making it highly reliable. The event reporting was used to capture event types, not event details, thus making it reliable documentation. The number of debriefings submitted was divided by the number of events documented to determine the percentage. Resolved quality improvements were defined as action items

that were identified and addressed with a sustainable intervention. The data was collected through committee member interviews, staff and electronic meeting minutes transcribed during the S&Q and Steering Committee meetings. The resolved action items were divided by the number of debriefings submitted over the implementation period to determine the percentage of identified quality improvements resolved. See Table A5 for the measurement plan. The QI-PL utilized the University of Maryland, Baltimore Research Electronic Data Capture (REDCap) as an electronic data capture tool. The data was input to REDCap software using the MICU debriefing audit tool to ensure reliable data tracking. See figures B6 and B7 for REDCap tools.

Ethical Considerations

The project site required that individuals apply for approval for non-human subject's research determination from the Human Research Protection's Office of the University's Institutional Review Board (IRB). The project received approval from the clinical site sponsor, clinical site representative, and unit manager. Upon approval, an application was submitted through CICERO, an online submission portal, to undergo review from the IRB committee. Data retrieved during the chart and event reporting audit were entered electronically into REDCap, a HIPAA compliant, and password protected system, accessible only to the QI-PL and project faculty, in a private location at the clinical site. Project data risks were mitigated by charge nurses submitting debriefings into a HIPPA compliant and password protected with VPN requirement database, Smartsheet. Additionally, chart data is electronically entering by the QI-PL into REDCap. Patient identifiers were coded as "identifiers" within REDCap, which eliminated patient identifiers when running reports for data analysis.

Results

In the 14 weeks prior to project implementation, only 7% of forty-two qualifying critical events were debriefed and 0% of quality improvements were identified, resolved, or disseminated to staff. During week one of implementation, 100% of charge nurses were trained and demonstrated

competency with the debriefing QR code. 100% of part- and full-time staff completed the online education module with at least 80% posttest scores. Overall, the compliance and median number of debriefings completed was 66.6% in the 14 weeks of implementation. During weeks 1-4 of implementation, 50-66.6% of critical events were debriefed. There was an uptrend to 100% compliance with debriefing during weeks 5-7. During weeks 8-9 and week 12, there was a significant decrease in debriefing completion to 50- 60%. During weeks 10-11, 100% of debriefings were completed. Following the decrease in compliance during week 12, 66.6% of critical events were debriefed during weeks 13-14.

At the conclusion of week fifteen, five consistent quality improvement trends were identified. Overall, 60% of identified improvements were resolved and 100% of resolved improvements were disseminated to staff through Friday Forum and the LENS board. The Safety and Quality Committee, and Steering Committee resolved identified improvements related to patient falls and respiratory events being influenced by inadequate supplies on the MICU. This resolution required collaboration with the respiratory and materials management department to update the periodic automatic replenishment (PAR) level barcodes to adequately stock necessary supplies for patient care. The committees also implemented code roles to eliminate overcrowding during emergency situations based on feedback from debriefings. Additionally, two hospital wide issues were identified through data collection. Upon completing chart reviews, the QI-PL identified that nearly 75% of resuscitation narrators had inaccurate resuscitation end times, resulting in falsely prolonged resuscitation documentation or end times that were omitted. This finding led to changes in the hospital wide resuscitation education curriculum, which all emergency department and ICU nurses were required to attend. Additionally, there were identified breaches in hospital security. The hospital wide quality improvements were escalated to the appropriate hospital wide committees and leadership. Other areas for improvement reported in debriefings were related to knowledge gaps, technical issues, or geographics of supply room locations. Appendix C displays a run chart of the data collected.

Analysis

The overall aim of the data analysis was to demonstrate a favorable change in debriefings overtime. A run chart was used to illustrate percentages, which inferences were drawn from to determine the project outcomes. A bar chart was used to display the variation in types of events the unit experienced. In the 14 weeks prior to implementation, all debriefings that occurred were cardiac arrests with failure to achieve return of spontaneous circulation. Following implementation, a wide variety of critical events underwent debriefing with identifiable quality improvements. The most common event debriefed were the 13 peri-codes. See appendix C for all critical events debriefed. The run chart demonstrated an upward trend in qualifying events undergoing debriefing immediately after implementation. During weeks 1-4 of implementation, there was a 4-point run below and on the median. While the run was below the median, there was a significant increase in debriefing from 0% to 50% during week one following education. During weeks 5-7 there was a 3-point run above the median demonstrating 100% compliance. Given the timeframe, it was easy to identify the project as a likely influence for debriefings and quality improvements that occurred.

Over the 14-week implementation, there was a suggested pattern of variability within the data. The variability occurred specifically during weeks 8-9 and week 12. Barriers identified during these weeks included absence of management, poor staffing, and a high patient acuity. At the beginning of week 10, charge nurses were re-educated on qualifying critical events and how to perform debriefs using the QR code. There was a likely responsive increase to re-education during weeks 10-11 as there was 100% compliance. During week 12 there was the highest number of critical events with debriefings below the median which correlated with a significant increase in acuity and inadequate staffing on the unit. Given the data variation during specific weeks with known barriers, it was feasible to suggest these barriers as one likely special cause of data variation.

Discussion

This quality improvement focuses on standardizing the debriefing process to identify QI's and improve patient and staff safety. The outcome goal to debrief 100% of qualifying events was not achieved. However, key findings of the project indicate that it is feasible to standardize the critical event debriefing process and utilize charge nurses as champions. The project also demonstrates that QI's can be identified and resolved through debriefing by meeting the goal to resolve 10% of QI's. The debriefing process comes with no additional cost to the organization as all resources are available on the unit. Unexpected costs may arise from identified QI's requiring funding to resolve. A comparison of this project to other publications indicate that the project results are consistent with previous studies demonstrating improved debriefing compliance with a standardized process and designated champions. Like studies, this project also results in identified and resolved QI's, which increases both patient and staff safety. This project is consistent with studies that it is reasonable to perform debriefs in a high acuity, fast paced environment like the intensive care unit.

Limitations to the project include individual perceptions of critical events requiring debriefing. The most consistent missed event is massive transfusion events (MTE). The nursing staff report that they are not likely to debrief an MTE or a critical event that the team perceived went well. Poor staffing, high acuity, and reported burnout impacts staff participation in debriefing. Some shifts staffed up to five nurses short requiring nurses to extend patient ratios and pair a typical one to one assignment. These factors are a potential source of bias since the healthcare team can subjectively determine whether an event should be debriefed, and confounding factors may influence the decision to debrief. Additionally, audits are reliant on accurate nursing documentation of critical events, therefore internal validity may be impacted by inaccurate documentation. Lastly, access to hospital leadership impacts the ability to resolve identified QI's. Although the MICU Safety and Quality Committee chair, manager, and PI-QL have contacted leadership regarding security incidents, the identified QIs have not resolved and remain unaddressed.

Conclusion

The project suggests that it is feasible to implement critical event debriefing in a high acuity, fast paced intensive care unit and utilize charge nurses as champions. Key components to the success include adequate training on debriefing and a streamlined process. For this project, that included training from a debriefing expert, easily accessible QR codes, and using established unit committees to review debriefings. Variations in acuity, staffing, and leadership are uncontrolled barriers that are influential in compliance. Completing debriefings successfully identifies QIs to be addressed and resolved at the unit and organizational level. The findings of this project contribute to the body of knowledge regarding the impact of safety culture on patient outcomes.

The strengths of this project include support from unit leadership including the nurse manager, medical director, committee chairs, and charge nurses. Additionally, the initiative requires multidisciplinary collaboration to conduct debriefs, review the data, and resolve identified QIs. Buy in from leadership and the multidisciplinary team aids in sustainability of the initiative. Sustainability is addressed by incorporating debriefing in the MICU charge nurse orientation blueprint allowing for a constant introduction of trained unit champions. Through sustained debriefing and ongoing review and resolution of QI, institutional return on investment could be demonstrate high reliability characteristics and improved patient outcomes. Next steps should include continued resolution of QIs and dissemination to staff. Unit leadership could also consider administering the SCORE survey to reevaluate the unit safety culture.

The project has significant implications for practice including the identification of QIs through debriefing and positive impacts to unit and organization safety culture. Hospital units and organizations should consider implementing a standardized process to conduct critical event debriefings to improve safety for staff, patients, and families. Future QI initiatives should continue to research and explore the benefits of critical event debriefings on patients and healthcare staff to expand the utility of debriefing

and sustain the impacts. In conclusion, the strengths of the project, impact on safety, and improved patient outcomes make it valuable to healthcare quality improvement.

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Appendix A

Table A1

Evidence Review Table

Citation: Conoscenti, E., Martucci, G., Piazza, M., Tuzzolino, F., Ragonese, B., Burgio, G., Arena, G., Blot, S., Luca, A., Arcadipane, A., & Chiaramonte, G. (2021). Post-crisis debriefing: A tool for improving quality in the Medical Emergency Team System. <i>Intensive and Critical Care Nursing</i> , 63, 102977. https://doi.org/10.1016/j.iccn.2020.102977					Level: III Grade: B
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
“To examine clinicians’ perception of quality of technical and non-technical response to emergencies and application of post crisis debriefing.”	Descriptive, anonymous, self-reporting survey	<p>Sampling technique: Convenience sampling of healthcare workers who received post-crisis debrief training at a 78-bed medical institution for solid organ transplants</p> <p>Subjects: 593 potential respondents, n=148 (25%) response rate</p> <p>Eligible: Healthcare providers including RN’s, physicians, aides, and unit clerks</p>	<p>A web-based voluntary, self-administered survey was emailed and available for response for 12 days. The participants were not allowed re-entry into the survey once completed.</p> <p>The survey was a 14 question with four domains including respondent characteristics, adherence to resuscitation guidelines and assessment and value of training, teamwork and leadership awareness of mutual respect, professional</p>	<p>Dependent: Perception of application of guidelines and evaluation of debriefing implementation during in-hospital emergencies</p> <p>Independent: Post crisis debriefings</p>	<p>Results were analyzed using descriptive statistics and chi-square or fisher’s exact test. Data management and statistical analysis were done with SAS 9.4 and SAS Institute.</p> <p>The results showed that 97% of respondents were aware of the principles of teamwork and 45% of participants always felt valued during the debrief. 52% of respondents considered the incident an occasion for personal and professional growth. 85% of participants reported that debriefing was useful and relevant. The application of debrief showed statistically significant usefulness for 90% of nurses, 88% of physicians, and 77% of aids (p<0.01).</p>

			development, and debriefing.		
Citation: Fontenot, N. M., & White, K. A. (2019). Using evidence-based debriefing to combat moral distress in Critical Care Nurses: A pilot project. <i>Journal of Nursing Education and Practice</i> , 9(12), 1. https://doi.org/10.5430/jnep.v9n12p1					Level: II Grade: C
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“The purpose of this pilot project was to determine the feasibility of using evidence-based debriefing sessions for critical care nurses to reduce their self-reported level of moral distress.</p> <p>The pilot project had 3 secondary aims: (1) examine whether a correlation exists between the number of sessions attended</p>	<p>Quasi-experimental one group, before, during, and after design</p>	<p>Sample technique: Convenience sample of nurses on a 23-bed Medical Intensive Care Unit at a large, quaternary care hospital</p> <p>Inclusion: Employed as a nurse on the MICU, 18 years old, full, part, or per diem employment, day or</p>	<p>Pre data was gathered 2 weeks before. 30 minute debriefs held by a social worker based on AACN 4 A’s of moral distress were open to nurses, then a 4-week washout period was done and participants were surveyed with the</p>	<p>Independent: Evidence based debriefings on 4 days over a 10-week period</p> <p>Dependent: Self-reported moral distress in MICU nurses using moral distress thermometer (MDT) score, a validated tool measuring moral distress</p>	<p>A paired-sample-t- test was used to evaluate pre and post scores. Pearson’s product-moment correlation coefficient was used to examine relationships between the number of sessions attended and the post-MDT scores. $p < 0.10$ statistically significant.</p> <p>The pre and post MDT scores were not statistically significant ($p = 0.450$)</p>

<p>and the amount of change in nurses' self-reported level of moral distress, (2) assess whether changes in self-reported moral distress are sustainable after a 4-week washout period with no debriefing, and (3) determine whether debriefing sessions helped participants create strategies to reduce their moral distress."</p>		<p>night shift, function as staff, charge, or nurse manager</p> <p>Exclusion: Nurse residents with <6 months of employment</p> <p>Eligible n=87, included n=21, surveys complete n=13</p>	<p>MDT and two open ended questions</p>	<p>in real time every 2 weeks</p>	<p>The open-ended questions identified 3 themes: increased self-awareness, connection with colleagues, and foster self-care habits</p>
<p>Citation: Garcia, C., Abreu, L., Ramos, J., Castro, C., Smiderle, F., Santos, J., & Bezerra, I. (2019). Influence of burnout on Patient Safety: Systematic Review and meta-analysis. <i>Medicina</i>, 55(9), 553. https://doi.org/10.3390/medicina55090553</p>					<p>Level: II Grade: B</p>
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>"Thus, the objective of this study is to analyze the relationship between burnout and patient safety."</p>	<p>Systematic review and meta-analysis</p>	<p>Sampling technique: Databases including PubMed and Web of Science were searching using a combination of descriptors including patient safety, burnout, and organizational culture.</p> <p>Inclusion: Studies</p>	<p>Quality assessment: The Cochrane Manual for Systemic Intervention Reviews was used, and discrepancies were resolved with a third reviewer</p> <p>Data Extraction: After initial abstracts were excluded, full articles were reviewed and data on method, participants, interventions, and</p>	<p>The relationship between burnout and patient safety</p>	<p>The analysis revealed an effect of 2067 with a confidence interval of 2.3 to 3.0 indicating a relationship between burnout and patient safety.</p> <p>An analysis of proportions demonstrated an effect on patient safety of 0.60, evidencing a probability of superiority of 66.4%.</p> <p>High levels of provider burnout were associated deterioration of teamwork climate, safety, and job satisfaction as well as</p>

		<p>with human beings in English, evaluating the relationship between health professional and patient safety</p> <p>Exclusion: Study protocols or qualitative research</p> <p>Eligible: n=24, 5 excluded</p> <p>Included: n=19</p> <p>Effect size was evaluated using weighted mean difference and dichotomous outcomes assessed using the risk ratio with a 95% confidence interval</p> <p>Heterogeneity was evaluated with I² statistics, random effects model was applied</p>	<p>outcomes were analyzed and extracted by two independent reviewers</p>		<p>unfavorable outcomes, patient dissatisfaction, and increased patient and family complaints.</p>
<p>Citation: Gillen, J., Koncicki, M. L., Hough, R. F., Palumbo, K., Choudhury, T., Daube, A., Patel, A., Chirico, A., Lin, C., Yalamanchi, S., Aponte-Patel, L., & Sen, A. I. (2019). The impact of a fellow-driven debriefing program after pediatric cardiac arrests. <i>BMC Medical Education</i>, 19(1). https://doi.org/10.1186/s12909-019-1711-y</p>					<p>Level: III Grade: B</p>

Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“The goals of this study were to 1) develop a debriefing tool and debriefing training curriculum, 2) train fellows to use the debriefing tool, 3) implement a standardized debriefing after each cardiac arrest in the PICU using fellow facilitators, 4) determine the effectiveness of fellow-led debriefings and 5) assess the effect of fellow-led debriefings on communication amongst multidisciplinary team providers.”</p>	<p>Pre and post intervention survey study</p>	<p>Sampling technique: The study took place at a 41-bed pediatric intensive care unit at an urban, quaternary care center who cared for medical, surgical, and cardiac patients.</p> <p>Subjects: 236 invitations, pre-survey respondents n=129 and post survey respondents n=96. The resuscitation team included attendings, fellows, nurses, residents, NP’s, RT’s, social work, consultants, and administrators were all included in the debriefings</p> <p>Eligible: All cardiac arrest events, defined by the study, were eligible for debrief</p>	<p>Standardized tools, the Data Sheet and the Debriefing Tool, were implemented and led by a fellow involved in the incident. The debriefing tools were continuously evaluated and adapted using the PDSA model.</p> <p>Debriefings following the event on the same shift the event occurred. The debriefs were studied and identified topics were analyzed using the TEAM framework to evaluate the resuscitation. Monthly feedback was provided to the fellows regarding their compliance.</p>	<p>Dependent: The effect of debriefings on communication amongst multidisciplinary team providers using a Likert scale</p> <p>Independent: Fellow driven debriefings following cardiac arrests</p>	<p>Statistical analysis using 2-tailed Fisher’s exact test was used and p value of <0.05 was significant.</p> <p>Over 27 months, 75 data sheets and 63 formal debriefings were completed. Post intervention debriefing rates were 84%.</p> <p>Perceived debriefings occurring at least frequently increased from 9 to 58%, pre- and post-intervention respectively ($p < 0.0001$).</p> <p>Pre intervention providers who had previously participated in debriefs agreed with a facilitator and standard script the quality of debriefs improved (69%), overall quality of communication during arrests improved (62%), and interdisciplinary team interactions improved (58%). 91% of post intervention respondents agreed that debriefing after arrest should be standard practice ($p = <0.01$).</p> <p>The debrief reflection is shown to be a critical step in learning and identification of changes in practice for future events.</p>

Citation: Koželj, A., Šikić Pogačar, M., Fijan, S., Strauss, M., Poštuvan, V., & Strnad, M. (2021). Exploring the feelings of nurses during resuscitation—a cross-sectional study. <i>Healthcare</i> , 10(1), 5. https://doi.org/10.3390/healthcare10010005					Level: III Grade: B
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“This study aimed to present some aspects of nurses’ experiences during and after resuscitation procedures and to identify the stressors connected with resuscitation that nurses encounter and to what extent these stressors affect nurses.”</p>	<p>A cross sectional observational design</p>	<p>Sample technique: Nurses and medical technicians with national vocational qualifications working in emergency units with sample size: n=457; 95% confidence level</p>	<p>Method: An anonymous two-part survey containing demographics and individual questions and questions regarding the effect of stressful situations during CPR. The magnitude of stress was measured using a Post-Code Stress Likert scale.</p> <p>Validity: Cronbach’s alpha was calculated. Reliability testing with a sample demonstrated internal consistency on questions for specific situations during CPR ($\alpha=0.840$), stress following CPR ($\alpha=0.936$), and post-code stress scale ($\alpha=0.939$)</p>	<p>Dependent: Nurses experiences and feelings toward cardiopulmonary resuscitation efforts</p>	<p>Statistical analysis was done using t-test for independent samples, Pearson correlation test, and ordinal logistic regression to identify associations.</p> <p>Procedures identified as most disturbing were artificial mouth to mouth ventilation, failure to establish an IV pathway, chaotic situation during resuscitation, and making a decision about termination of resuscitation.</p> <p>The most distressing events included fracture or chest injury and resuscitation for organ procurement.</p> <p>The post code stress scale items were grouped into 5 dimensions with decomposed representing the highest stress (MV= 11.2, SD= 3.8).</p> <p>The researchers believe that most of these stressful situations for nurses could be reduced or even eliminated with better work</p>

					organization, a healthy work environment, regular debriefing after resuscitation and additional education. Exposed irregularities during debriefing should be considered as opportunities to correct future mistakes.
Citation: Rose, S. & Cheng, A. (2018). Charge nurse facilitated clinical debriefing in the emergency department. <i>Canadian Journal of Emergency Medicine</i> , 20(5), 781-785. https://doi.org/10.1017/cem.2018.369					Level: V Grade: B
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
“The purpose of this project was to develop a feasible and sustainable charge–nurse-facilitated clinical debriefing program across Calgary area adult EDs.”	Educational report on feasibility of charge nurse led debriefings	Sampling technique: Charge nurses across multiple ED’s	Implementation of a clinical debriefing tool in adult emergency departments Fidelity: A four step process occurred: -Development of a debriefing tool based on successful principles was modified and finalized with a standard script	Feasibility and sustainability of charge nurse facilitated	254 debriefings were performed from March 2016 to September 2017 with 1300 staff members across three emergency departments (ED’s). The duration was a median of 10 minutes. Charge nurse facilitated debriefings are feasible and can be implemented in busy, clinical areas, such as ED’s with minimal training. A structured approach results in regular debriefings and can be a part of routine improved team management of high stakes or unexpected clinical events.

			<p>-Stakeholders were identified and involved in the process</p> <p>-A teach the teacher workshop was held to educate nurse champions and educators, which then educated charge nurses</p> <p>-A workshop was held to provide feedback to charge nurses on their debriefing performance and ongoing assessments were done after implementation</p>		<p>Structured debriefing promotes a culture of teamwork and feedback that results in clinical practice change.</p>
<p>Citation: Rose, S. C., Ashari, N. A., Davies, J. M., Solis, L., & O’Neill, T. A. (2022). Interprofessional Clinical Event Debriefing-Does It make a difference? attitudes of emergency department care providers to Info Clinical Event Debriefings. <i>Canadian Journal of Emergency Medicine</i>, 24(7), 695–701. https://doi.org/10.1007/s43678-022-00361-6</p>					<p>Level: III Grade C</p>
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“The purpose of the research was to determine whether healthcare workers:</p> <ol style="list-style-type: none"> 1. Considered debriefing to be a psychologically safe, helpful experience. 2. Felt less stressed after debriefing. 	<p>Interview-based qualitative study</p>	<p>Sampling technique: Recruitment emails and posters were disseminated to hospitals</p> <p>Sample: Interprofessional</p>	<p>Identification numbers were assigned to anonymize participants. 30–45-minute standardized, scripted interviews were done regarding safety and</p>	<p>Independent: INFO debriefing sessions</p> <p>Dependent: Healthcare workers perception of debriefings and impact on care</p>	<p>The study revealed 5 themes including: effect of debriefing on clinical practices and patient care, psychological safety and teamwork, emotional acknowledgement after critical events, managing work stress in the ED, barriers to debriefing.</p>

<p>3. Were aware of barriers to regular debriefing. 4. Thought debriefing provided opportunities for improving their own clinical practice.”</p>		<p>members (Pharmacists, Physicians, Registered Nurses, and Respiratory Therapist) from adult and pediatric emergency departments (n=30)</p>	<p>security incidents where the INFO debrief was utilized. Information on the impact of stress alleviation and emotional well-being were gathered.</p>		<p>97% of participants reported that the debrief and lesson learned during helped them provide improved patient care. 87% of staff reported an improved relationship with the team. 83% of participants felt that their emotions were acknowledged during the debrief and 66% had shared emotions with team members. 90% reported that debriefs assisted with coping in a stressful environment. 100% of participants reported time constraint as a barrier and debriefs were less likely to occur if the event was less traumatic. The study provides evidence that debriefs are helpful in clinical areas and 83% of participants agreed that recommendations from debriefs were implemented when possible.</p>
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Citation: Scott, Z., O'Curry, S., & Mastroyannopoulou, K. (2021). The impact and experience of debriefing for clinical staff following traumatic events in clinical settings: A systematic review. *Journal of Traumatic Stress, 35*(1), 278–287.
<https://doi.org/10.1002/jts.22736>

Level: III
Grade: C

Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“The aim of the present review was to systematically consider the research literature on the use of debriefing for clinical staff following direct and vicarious trauma in</p>	<p>Systematic Review</p>	<p>Sampling technique: Databases including CINAHL complete, PsycINFO, EMBASE,</p>	<p>Method: Primary author screened eligible studies and second independent researcher screened 10% to ensure</p>	<p>The Impact of debriefing on posttraumatic distress symptoms</p>	<p>Four studies demonstrated evidence that debriefings showed reduction in psychological sequelae.</p>

<p>clinical settings. Specifically, we examined whether the use of debriefing following a PTE impacts symptoms of distress in clinical staff and explored how clinical staff experience debriefing, including the factors that influence this experience.”</p>		<p>MEDLINE, and PubMed were searched for literature using a variation of words such as: debrief, psychology, PTSD, stressful event, or clinical event.</p> <p>Inclusion criteria: Participants 18 years and older, described as clinical staff, intervention following trauma exposure, exposure in a clinical work environment, intervention that clearly defined as involving reflection, normalization of distress, support for future coping, single or multiple intervention or groups.</p> <p>Eligible: n= 14, one</p>	<p>inclusion criteria was met. Disagreements were discussed through a third reviewer.</p> <p>Quality assessment: A quality assessment was conducted by two independent raters using the Quality Assessment Tool for Studies with Diverse Designs and papers were assigned poor 25% to high 75% methodological quality. The evidence selected for inclusion was rated as moderate to good methodological quality.</p> <p>A narrative synthesis of the papers was conducted. Meta analysis was not possible, studies were independently interpreted.</p>		<p>Debriefing provided an opportunity to reflect on what went well, and what could be improved.</p> <p>Single session group critical incident stress debrief (CISD) for hospital emergency department staff and financial sector workers was more effective at reducing posttraumatic distress compared to no intervention ($p < 0.05$).</p> <p>CISD attendance in healthcare workers following a traumatic event showed reduced symptoms in anxiety ($p < 0.05$) and depression ($p < 0.01$).</p> <p>Hospital and emergency service personnel reported significant reduction in scores from time of event to 2 weeks post-CISD ($p < 0.001$).</p> <p>Emergency nurses rated CISD as helpful in reducing critical stress symptoms (88.0%), helpful in reducing the intensity of their stress response (47.0%), and beneficial for coping in the future (82.0%)</p>
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		excluded for poor methodological quality Accepted: n=13			The most frequently cited detrimental factor was inexperienced facilitators with a lack of knowledge about the relevant clinical working environment
Citation: Ugwu, C. V., Medows, M., Don-Pedro, D., & Chan, J. (2020). Critical event debriefing in a Community Hospital. <i>Cureus</i> . https://doi.org/10.7759/cureus.8822					Level: III Grade: B
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
“The aim of this study was to assess the current practice and limitations of debriefing and to ascertain the best timing, effectiveness, need for training, use of established format, and expected goals of debriefing among health care workers in a community hospital.”	Cross sectional observation study	Sampling technique: Voluntary, anonymous sampling by any healthcare provider with direct patient contact. Eligible: Healthcare providers from adult emergency and adult and pediatric intensive care units (n=130).	Participants were administered a 20-question anonymous survey in a private room	Outcomes measured were current debrief practices, including protocols, effectiveness, and frequency of debriefs. Additionally, participants were asked about prior training or need for training, eligible events, importance of debriefs and perceived goals and barriers of debriefs.	50% of participants had rarely or never attended a debriefing and 15% always engaged in debriefs. 99.2% of respondents reported that debriefs were important to patient safety and the majority responded that debriefs should be led by the attending physician immediately after an event. The respondents reported that ideal practice for debriefs provided a manner for reviewing medical care, developing protocols, discussing teamwork, building morale and emotional support. The barriers identified were lack or training/knowledge and no format or tool.
Citation: Zhang, X.-jie, Song, Y., Jiang, T., Ding, N., & Shi, T.-ying. (2020). Interventions to reduce burnout of physicians and nurses. <i>Medicine</i> , 99(26). https://doi.org/10.1097/md.000000000020992					Level: III Grade B
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results

<p>“This study aimed to discuss bundled strategy to reduce burnout of physicians and nurses, and attempted to present a protocol of intervention model.”</p>	<p>Systematic review and meta-analysis</p>	<p>Sampling technique: Databases including Cochrane Library, PubMed, Ovid, Scopus, EBSCO and CINAHL database were searched using the terms burnout, physicians, nurses, and interventions</p> <p>n= 22 studies from 2014-2019</p> <p>Inclusion: Systematic review or/and Meta-analysis; Physicians or/and nurses; Intervention strategies for reducing burnout; Baseline/no intervention; Primary outcome: burnout (evaluated by Maslach Burnout Inventory); Secondary outcome: stress, anxiety, depression,</p>	<p>Method: Titles and abstracts were reviewed and screened by two of the authors, then independently selected and evaluated. Disagreements were settled as a team discussion. Data from studies was extracted independently using a pre-standardized data abstraction form.</p> <p>Quality assessment: Two independent reviewers evaluated using risk of bias in Systematic reviews and AMSTAR 2 scale to evaluate risk and methodological quality.</p>	<p>Summarization of evidence and provide a bundled strategy to reduce physician and nurse burnout</p>	<p>Three types of interventions identified including individual-focused, structural, or organizational, and combined</p> <p>Individual focuses included self-care workshops and stress management skills, and communication skills.</p> <p>Organizational or structural focuses included workload or schedule rotation, stress management training, teamwork/transitions, debriefing sessions, and focus groups.</p>
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		<p>resilience, and general health status</p> <p>Exclusion: The systematic evaluation plan repeats the traditional review and the conference abstract; Medical students, nursing students, nonmedical providers or beyond hospitals; Non-relevant interventions; Interventions lacking robust research evidence; Studies that did not measure a reduction in burnout qualitatively or via self-reporting scales</p>			
<p>Citation: Cincotta, D. R., Quinn, N., Grindlay, J., Sabato, S., Fauteux-Lamarre, E., Beckerman, D., Carroll, T., & Long, E. (2021). Debriefing immediately after intubation in a children's emergency department is feasible and contributes to measurable improvements in patient safety. <i>Emergency Medicine Australasia</i>, 33(5), 780–787. https://doi.org/10.1111/1742-6723.13813</p>					<p>Level: V Grade: B</p>
<p>Purpose/ Hypothesis</p>	<p>Design</p>	<p>Sample</p>	<p>Intervention</p>	<p>Outcomes</p>	<p>Results</p>

<p>“Primary aim is to implement a feasible process for immediate debriefing and feedback for emergency airway management. Secondary aims are to contribute to reduced frequency of adverse intubation-related events and implement qualitative improvements in patient safety through team reflection and feedback.”</p>	<p>Prospective quality improvement (QI) study</p>	<p>Sampling technique: A pediatric emergency department</p>	<p>Development and implementation of a debriefing and feedback intervention following identified safety gaps with intubations</p> <p>Fidelity: Targeted training for staff including consultants, fellows, nursing leaders, and NPs with structured training in debriefing real and simulated airway courses</p> <p>-Staff informed of process change and intervention</p> <p>-Ongoing refinement with audits and feedback</p>	<p>Feasibility and safety outcomes following debriefings</p>	<p>85% of intubations were debriefed and had a median duration of 5 minutes. The most common barrier was nightshift due to staffing and workload.</p> <p>Debriefs were associated with reduced adverse events, such as hypoxia with intubation. Qualitative outcomes identified the importance of clear leadership/crowd control, role clarity, use of an airway checklist, and importance of communication/coordination. The outcomes identified were addressed through various quality improvement interventions implemented.</p> <p>Overall, debriefing is feasible and can lead to tangible quality improvement changes from feedback and identified themes or outcomes.</p>
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Table A2

Synthesis of Evidence

JHNEBP Model Level	Total Number of Sources	Author and Quality Rating of each study	Synthesis of Findings
<p>Level II Quasi-experimental studies · Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis</p>	<p>2</p>	<p>Fontenet et al., (2019); C Garcia et al., (2019); B</p>	<p>Fontenet et al., (2019) utilized a quasi-experimental design to determine the impact of regular standing debriefs on moral distress in nurses. The authors discuss how moral distress leads to burnout. Garcia et al., 2019, demonstrates a link between burnout and patient safety. In Fontenet et al., (2019), the study sample size was small and there was no statistical significance in moral distress scores following debriefs. However, the authors report that a historical natural disaster occurred during the study period, which may have impacted the results due to substantial impact on the hospital. Despite, no statistical significance of moral distress scores, the anecdotal data identified three themes: increased self-awareness, connection with colleagues, and self-care habits. The study concluded that the results suggest debriefs as a strategy for nurses to increase moral resilience.</p> <p>Garcia et al., (2019) conducted a systematic review with meta-analysis to determine if a relationship existed between burnout and patient safety. There was strong quantitative evidence that burnout negatively impacts patient safety. The main contributors were work environment stress, excessive workload, and lack of organizational support. Teamwork and safety culture were important factors to decrease burnout and behaviors that increase patient harm.</p>

<p>Level III Non-experimental study · Systematic review of a combination of RCTs, quasi-experimental, and non-experimental studies, or non-experimental studies only, with or without meta-analysis · Qualitative study or systematic review of qualitative studies with or without meta-synthesis</p>	<p>8</p>	<p>Zhang et al., (2020); B Ugwu et al., (2020); B Scott et al., (2021); C Rose et al., (2020), C Conoscenti et al., (2021), B Koželj et al., (2021); B Gillen et al., (2019); B</p>	<p>Conoscenti et al., (2021), Ugwa et al., (2020), Gillen et al., (2019), and Rose et al., (2020) all studied the effects of debriefing after critical events on healthcare professionals using survey methods. The studies used varying debrief tools and were in different clinical settings including pediatric and adult emergency departments and intensive care units, but each study concluded that debriefing had positive effects on healthcare workers. The conclusions demonstrated that debriefing after critical events was well received by participants, improved teamwork, communication, offered the opportunity for self-reflection and stress management and identified areas for improved patient care.</p> <p>Scott et al., (2021) conducted a systematic review to determine the impact and experience of debriefing for staff after a traumatic event. The studies included had heterogeneity making a meta-analysis not possible. The study was not limited to the hospital setting, however, the results from seven of the thirteen studies provided support that debriefing reduced the incidence of posttraumatic stress symptoms in healthcare workers. Despite the flaws in the study, debriefs showed valuable impact and usefulness.</p> <p>Zhang et al., (2020) a systematic review with meta-analysis reviewed interventions to reduce burnout. A combination of personal and organizational focused measures were identified to reduce burnout. Among the recommendations were teamwork/transitions, debrief sessions or focus groups, and resilience were identified. This is consistent with the findings from Conoscenti et al., (2021), Ugwa et al., (2020), Gillen et al., (2019), and Rose et al., (2020) which concluded positive effects on healthcare workers following debriefs. Additionally, the significance of the relationship between burnout and patient safety was demonstrated in</p>
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			<p>the study by Garcia et al., (2019), which indicated the importance for organizations to address burnout to improve patient safety.</p> <p>Koželj et al., (2021) conducted a cross sectional observational study. The study explored nurse feelings during resuscitation. The post code stress scale results revealed that nurses do not feel a serious burden from the act of cardiopulmonary resuscitation except for during certain situations. The authors concluded that the higher stress situations could be mitigated by work organization, healthy work environment, and debriefs after resuscitation.</p>
<p>Level V Evidence obtained from literature reviews, quality improvement, program evaluation, financial evaluation, or case reports · Opinion of nationally recognized expert(s) based on experiential evidence</p>	<p>2</p>	<p>Rose et al., (2018); B Cincotta et al., (2021); B</p>	<p>Rose et al., (2018) had a large sample size across multiple emergency departments, although no power analysis was done. The study suggests that charge nurse facilitated debriefs are feasible and sustainable for clinical practice change. Rose et al., (2018), Gillen et al., (2019, and Cinotta et al., (2021) each suggest that debriefings are impactful to clinical practice and feasible for facilitation from multiple disciplines.</p>

Table A3

Team Table

Project Team Table	
Team Member	Responsibilities
Team Leader	Team Leader will identify practice problem and implementation. Collaborate with stakeholders and team members. Delegate responsibilities and perform meetings and audits.
Member 2	Clinical site representative and informatic Committee Member/IT support to assist with creating and reviewing event reporting data and EPIC reports
Member 3	MICU EBP Committee Chair will assist with charge nurse education and workflow
Member 4	MICU Safety and Quality Chair will follow up with quality improvements identified
Member 5	NP Team Lead will support the team leader and ensure advanced practice provider participation
Member 6	Physician support and lead to ensure physician participation in debriefing
Member 7	Pharmacist participation as part of the multidisciplinary team
Member 8	MASTRI center debriefing expert in charge of training current charge nurses and providing guidelines for future charge nurses to train orienting charge nurses
Member 9	MICU Charge Nurse Committee Chair responsible for charge nurse meeting attendance and charge nurse accountability

Table A4

Implementation Tactics and Strategies

ERIC Strategy	Context-Specific Approach and Rationale	Effectiveness Evaluation
Accountability		
Obtain formal commitments	The unit charge nurses will be utilized for accountability. Rationale: The charge nurses are a consistent group of nurses on day and night shift who are reliable and approachable leaders on the unit who will facilitate debriefings	All unit charge nurses will attend debriefing training.
Buy-In		
Incentive/allowance structures	Provide treats to charge nurses and nurses when 100% debriefs are submitted. Recognize the charge nurse who submits the most debriefings with positive points.	Charge and staff nurse participation in debriefings
Collaboration, Communication, and Changes in Structures		
Identify and prepare champions	Utilize charge nurses as champions to support implementation and train new charge nurses to debrief as needed during orientation. Rationale: Charge nurses are key stakeholders and unit leaders who are dedicated and support change initiatives.	Each charge nurse completes training
Meetings	Schedule and attend biweekly safety, quality, and steering committee meetings with key stakeholders to review debrief themes and develop strategies for resolving quality improvements. Rationale: Meetings will provide a platform to review events and collaborate as a team.	Quality improvement initiatives resolved
Data		
Complete audits and provide feedback	Complete weekly audits of debriefings and provide feedback for incomplete debriefings or seek additional information as needed. Rationale: Audits allow for measurement of project impact.	Compliance with debriefing critical events
Education		
Develop educational materials	Staff nurses will receive education on just culture, qualifying events to debrief, and debriefing process through education platform. Rationale: The online education sessions offer flexibility for scheduling conflicts and completion score.	Completed education certificate on the education platform.

Table A5

Measurement Plan for Standardized Debriefing

Measures		
Project Goals	Measure Pre-Implementation	Measure During Implementation
Structure		
1. 100% of charge nurses will be educated on debriefing, provided guidelines and given a standard script for debriefing by August 2023	N/A	Attendance log for mandatory charge nurse meeting and debrief training
2. 100% of FTE 0.6-0.9 nursing staff will be educated on just culture, critical incident debrief process and qualifying events by August 2023	N/A	Online learning platform completion report
3. The top 3 identified themes through debriefing will be identified with resolution plan with the Safety and Quality and Steering Committee by December 2023	N/A	Themes reported on critical incident debriefings
Process		
1. 100% of quality improvement items resolved by Safety and Quality Committee will be disseminated to staff through Friday Forum by end of project implementation	Numerator= Number of quality improvements resolved 14 weeks before implementation Denominator= Number of items reported in Friday Forum 14 weeks before implementation	Audit biweekly Friday Forum for quality improvements reported Numerator= Number of items reported resolved by Safety and Quality and Steering committee Denominator= Number of items reported in Friday Forum
Outcome		
1. 100% of qualifying events will have a critical incident debrief completed and documented via Smartsheet by end of project implementation	Numerator= Number of debriefs submitted 14 weeks before implementation Denominator= Number of qualifying events recorded in EPIC, event reporting system, and charge nurse Smartsheet 14 weeks before implementation	Audit Smartsheet weekly for submitted debriefs and EPIC, event reports, and charge nurse Smartsheet for documented critical events that occurred Numerator= Number of debriefs submitted Denominator= Number of qualifying events recorded in EPIC, event reporting system, and charge nurse Smartsheet
2. 10% of debriefs will have resolved identified quality improvements through Safety and Quality and Steering Committee by end of project implementation	Numerator= Number of action items resolved 14 weeks before implementation Denominator= Number of debriefs submitted 14 weeks before implementation	Audit the reported action items biweekly and coordinate with the Safety and Quality committee chair biweekly on the status of action items Numerator= Number of action items resolved Denominator= Number of debriefs submitted over project implementation
Measurement Plan		

Project Goals	Data Collection Procedures (who, how, when)	Name of Data Collection Tool
100% of FTE 0.6-0.9 nursing staff will be educated on just culture, critical incident debrief process and qualifying events	Who: Measured by project lead and CSR How: Online learning platform completion report When: Week 1 of project implementation	Module Report printed from online learning platform
100% of charge nurses will be educated with education handout, debriefing guidelines and given a standard script for debriefing	Who: Measured by Charge Nurse Committee chair How: Charge nurse meeting attendance When: Week 1 of project implementation	Charge nurse meeting attendance from meeting minutes
1. 100% of qualifying events will have a critical incident debrief completed and documented via Smartsheet 2. 10% of debriefs will have resolved identified quality improvement through Safety and Quality and Steering Committee 3. 100% of quality improvement items resolved by Safety and Quality Committee will be disseminated to staff through Friday Forum 4. The top 3 identified themes through debriefing will be identified with resolution plan with the Safety and Quality and Steering Committee	Who: Project lead, Safety and Quality committee members and steering committee members How: Audits via Smartsheet, EPIC, event reporting system, and Friday Forum Audit When: Weekly	Debrief Tool adopted from INFO debriefing tool and Audit Tool

Appendix B

Figure B1

Fishbone Diagram

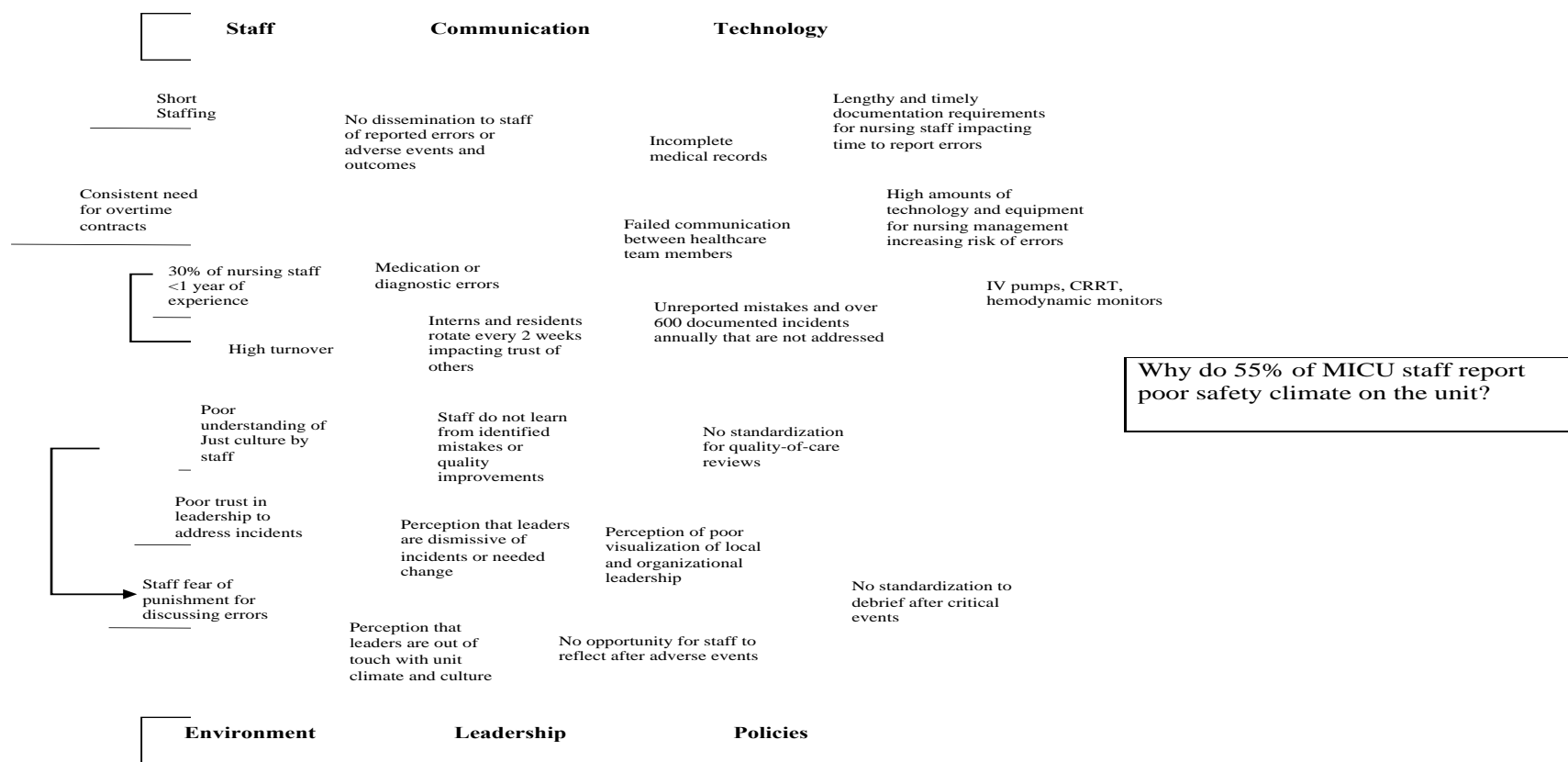


Figure B2

PARIHS Framework



Figure B3

PARIHS Framework on the Medical Intensive Care Unit



Figure B4

Current Debriefing Process

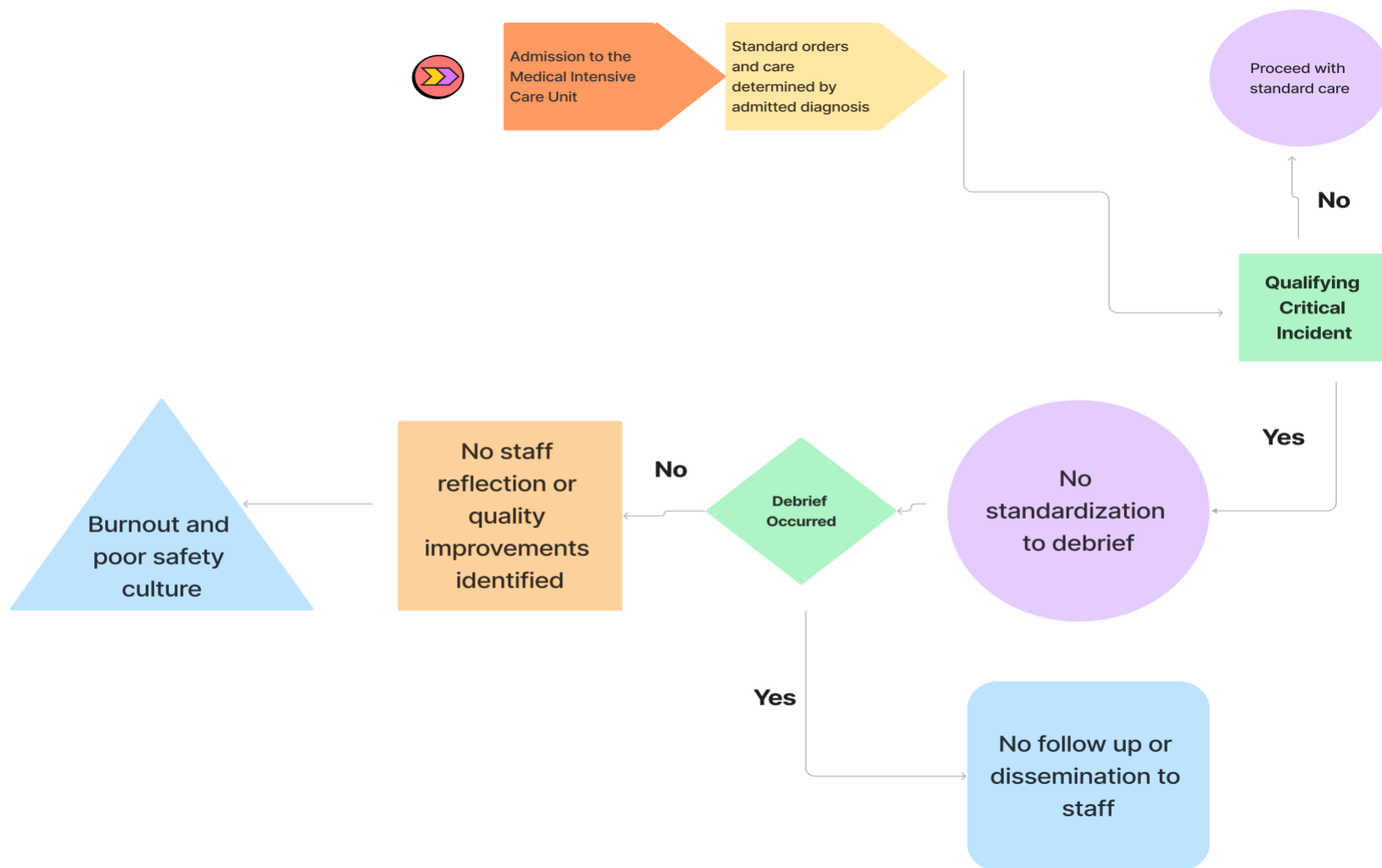


Figure B5

Updated Debriefing Process

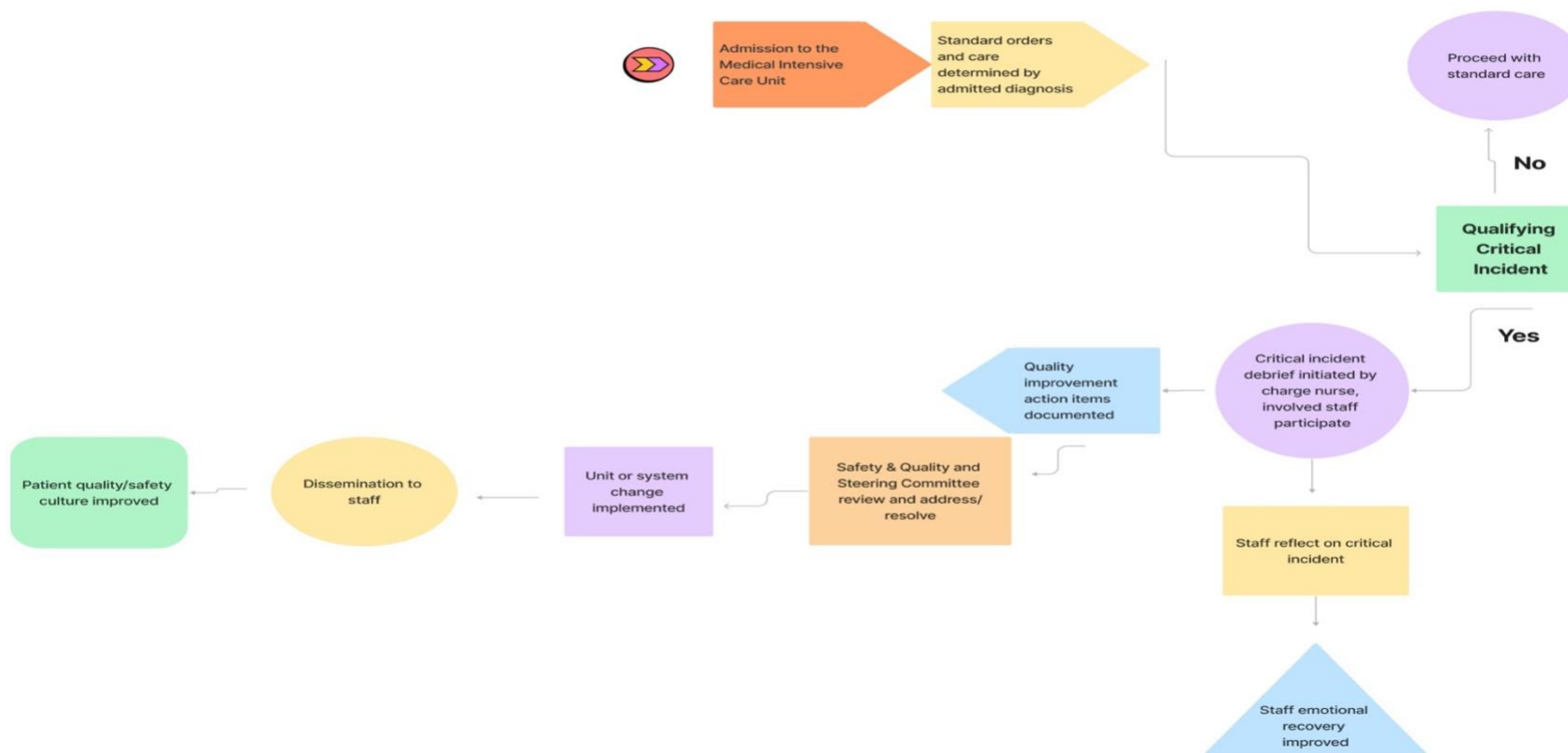


Figure B6

INFO Debrief Script

CRITICAL INCIDENT DEBRIEFING SCRIPT

- cardiac arrest
- peri-code (use of resuscitation medications)
- unplanned intubation or difficult airway incident
- self-extubation
- massive transfusion event
- ECMO cannulation
- patient fall
- violence or security incident

Basic Assumption:

“We believe that everyone participating in patient care is intelligent, capable, cares about doing their best and wants to improve”

Adapted from the Center for Medical Simulation, Boston.

SUGGESTED FLOW

- Thank group for taking time to gather
- Allocate scribe and timekeeper
- Go through INFO mnemonic i.e. the rules
- Ask each participant for feedback making sure they do both plus and delta before moving on to the next person.
- Document feedback
- Record any recommendations that the group decides on
- Remind group of resources if more support is needed
- Note - INFO does not replace normal process
- Ask if there are any final questions
- Thank group for taking part in INFO

NB - It is not the objective of an INFO session to assess or evaluate personal performance during this resuscitation

INFO

I - Immediate - as soon as possible after the event.

N - Not for personal assessment - INFO is a safe environment.

F - Fast - 10-15 minutes maximum /

Feedback - expected that all members of the team will take part in a “plus / delta” format i.e. plus = what went well / delta = what could be done differently.

Facilitated - by the nurse clinician in charge of the unit for the shift.

O - Opportunity - to ask questions / clarify events / identify areas to improve patient care.

REMINDER

- It is not the objective of a critical incident debrief to assess or evaluate personal performance during the resuscitation
- If participants are identified who would benefit from further counseling please provide details for EAP, RISE, or pastoral care

FOLLOW UP

- Resilience in Stressful Situations (RISE): 410-559-9595 or TigerConnect “XXXX RISE On Call”
- Employee Assistance Program (EAP): 667-214-1555
- Pastoral Care: 8-2337 (BEEP); Page ID: 4659 (HOLY) or TigerConnect “XXXX Pastoral Care”

Figure B7

Critical Event Debrief Tool

Improving Safety Culture through Critical Incident Debriefing
Page 1

Critical Event Debrief Audit Tool

Record ID _____

Critical Event Type Cardiac Arrest
 Difficult Airway Response Team
 ECMO activation/ cannulation
 Intubation (emergent)
 Self Extubation/ Trach decannulation
 Massive Transfusion Event Activation
 Peri code/ chemical code
 Patient Fall
 Other

Patient Name _____

Patient MRN _____

Location of Event AED
 ICU
 IMC
 Floor/Step-down unit
 Other

Event Report Filed in ? Yes
 No
 Planning to complete

Debrief Documenter _____

Team Members Present for Debrief _____

Team Roles Present for Debrief Bedside RN
 Charge RN
 PCT/CNA
 Attending
 Fellow
 Resident
 Intern
 NP/PA
 Respiratory Therapy
 Pastoral Care

What went well during the emergent situation? _____

What could have gone better? _____

If cardiac arrest, there were issues with:

- Delay in activation
- Delay in arrival of code team
- Identification of code leader
- Communication
- Uncertain of code roles
- Equipment
- Medications
- Airway
- Crowd control
- CPR quality
- Adherence to ACLS Guidelines

Future emergent events would benefit from the following practice/culture changes: _____

Patient and family made aware of this event Yes
 No

Do you recommend this critical event for cold debriefing including unit/ hospital leadership? Yes
 No

Note. Adopted from INFO debriefing tool

Figure B8

Audit Tool

Medical ICU Debrief Audit Tool

Page 1

Please complete the survey below.

Thank you!

-
- 1) MRN: _____
-
- 2) Today's date _____
-
- 3) Date of Event _____
-
- 4) Type of critical incident event debriefed:
- Cardiac arrest (CPR > 1 minute, cardioversion, or defibrillation)
 - Peri-code
 - Unplanned intubation or difficult airway incident
 - Self-extubation
 - Massive transfusion event
 - ECMO cannulation
 - Patient fall
 - patient, or family violence or security incident
-
- 5) Was a critical incident debrief submitted? Yes
 No
-
- 6) Was an Event Report submitted? Yes
 No
-
- 7) Reported opportunities for improvement from debrief: _____
-
- 8) Dissemination of information in Friday Forum? Yes
 No

Appendix C

Figure 1C

Average Number of Critical Event Debriefings

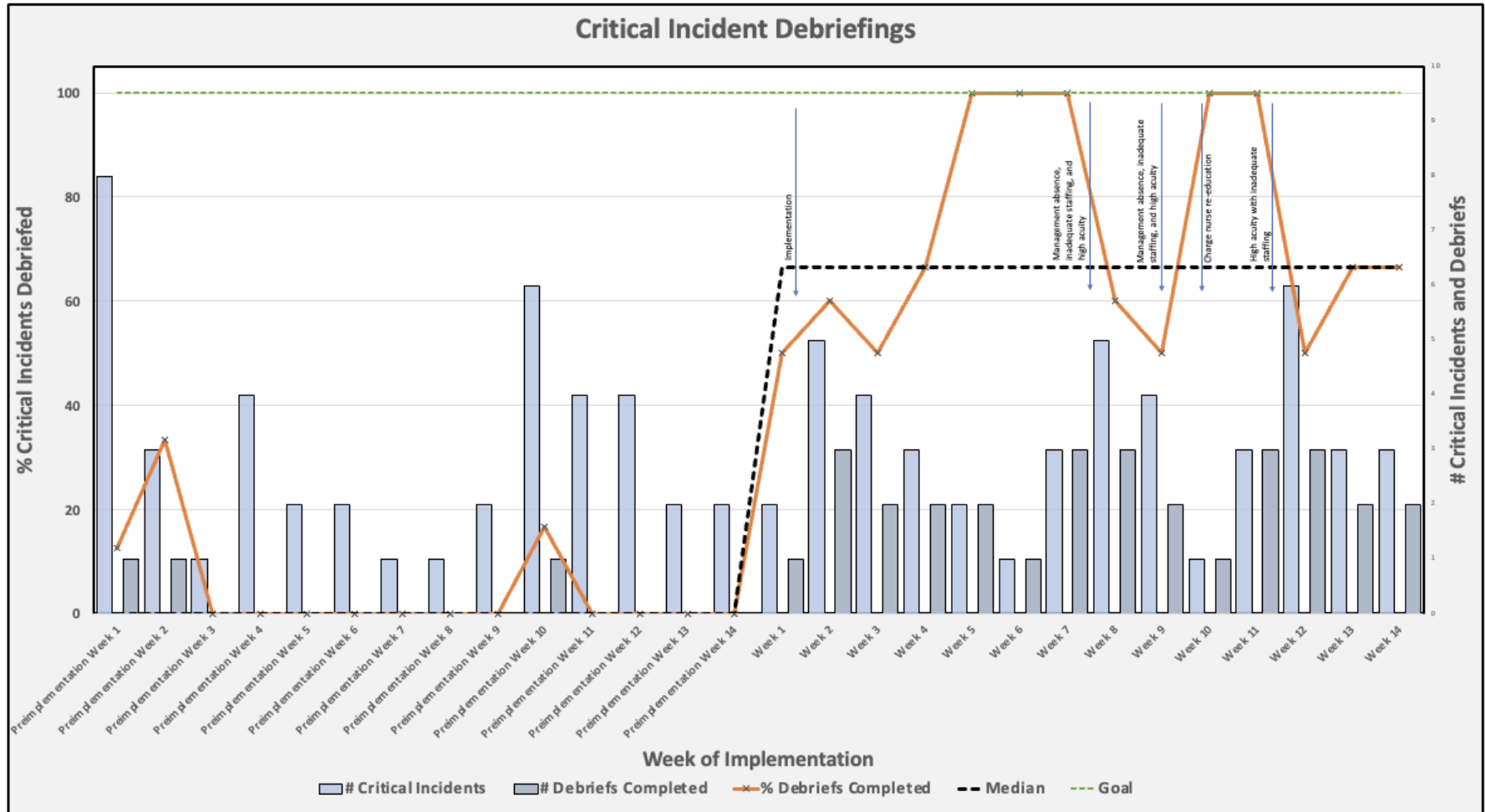


Figure 2C

Qualifying Events by Event Type

