7-7-2022

Implementation of a Critical Event Debriefing Tool in the Pediatric Intensive Care Unit

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B.S. Nursing, University of Missouri- Columbia, 2017

A Dissertation Submitted to The Graduate School at the University of Missouri- St. Louis
in partial fulfillment of the requirements for the degree
Doctor of Nursing Practice with an emphasis in Pediatric Nurse Practitioner

August 2022

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Abstract

Problem: Working in the Pediatric Intensive Care Unit (PICU), staff encounter critical patient events without warning. Debriefing after adverse patient events has been shown to give staff the opportunity to process these events in an open, honest, and judgement-free environment. Debriefing has been recognized as a tool for detecting medical errors, improving team communication, providing emotional support, and analyzing team performance.

Methods: A descriptive, observational pilot study was used to implement the DISCERN tool into a large, midwestern, urban PICU. The aim of the quality improvement project was to achieve a debriefing tool completion rate of 20% over a one-month period. After an adverse patient event, a bedside debrief was led by a facilitator who followed the promptings on the DISCERN tool. The tool was then completed and returned to the charge nurse office. Once a week the tools were collected, and data was analyzed. A Qualtrics survey was then sent to staff after the data collection period.

Results: Four adverse patient events met criteria during the data collection period and four events were debriefed using the DISCERN tool (n=4, 100%). Themes were discovered after reviewing the completed tools. Six surveys were completed, and 100% of staff agreed that debriefing after adverse patient events necessary.

Implications for Practice: While the DISCERN tool provided great feedback and identified what went well during adverse patient events and areas for improvement, this information will further be used to create a new unit specific debriefing tool.

In the Pediatric Intensive Care unit, critical events happen frequently and often without warning. Debriefing after critical patient events gives staff the opportunity to process through the event in an open, honest, stress free, and safe environment (Khpal & Matthewman, 2016). Ugwu et al. (2020) found that following a critical event, debriefing was acknowledged as a key technique for discovering medical errors, increasing team communication, analyzing team performance, and providing emotional support to the staff involved. While several studies discuss the benefits of debriefing, implementation of debriefing tools is still not a common practice in most hospital settings. Limited resources, lack of properly trained facilitators, time constraints among providers, understaffed units, and lack of a formal guide to follow are barriers for formal debriefing implementation (Khpal & Matthewman, 2016).

While debriefing may not be a common practice in the hospital setting, formal debriefs occurred in World War II and were advocated for by General Marshall as psychological support for the military (Ireland, Gilchrist, & Maconochie, 2008). Structured debriefs were first implemented in military and aviation training, where high stress but rare incidents occurred comparable to those in the hospital environment (Gillen et al., 2019). While other professions have successfully implemented debriefing, healthcare providers have only recently started to develop an interest in implementing formal debriefs into the hospital setting. To accurately define what a clinical debriefing is, Toews et al. (2021) sought to develop an operational definition for clinical debriefing and concluded that clinical debriefing is a gathering of interprofessional team members following a critical event in the clinical setting. Critical events in the clinical setting include cardiac resuscitation, extracorporeal membrane oxygenation cannulations,

unexpected or unplanned adverse patient events, difficult family interactions, and patient expirations (Gillen et al., 2019).

In considering best practices for debriefing protocols after critical events, Ugwa et al. (2020) discovered that the timing and facilitator training were major factors impacting overall success. According to Ugwu et al., (2020), debriefing immediately after the event is best practice and 78.5% of the healthcare professionals surveyed prefer it at that time. Additionally, 71% of healthcare providers also stated that the facilitator should be the attending, fellow, or nurse practitioner on service (Ugwu et al., 2020). Lastly, Gillen et al. (2019) found the common themes that were most discussed were communication, teamwork, equipment problems, standards of care, and team culture.

The purpose of this proposed Clinical Scholarship Project (CSP) is to implement a critical event reporting mechanism in the pediatric intensive care unit using a validated debriefing instrument. The validated debriefing instrument will be The Debriefing In Situ Conversation after Emergent Resuscitation Now (DISCERN) form. This specific debriefing tool was chosen by the stakeholders of this proposed CSP because it was successfully implemented in a comparable pediatric healthcare institution and was chosen by the stakeholders in the PICU. The evidence-based framework that will guide this project is the Iowa Model for Evidence-Based Practice to Promote Quality Care. The aim of this proposed CSP is to achieve a debriefing form completion rate of 20% over a one-month period. This proposed CSP will seek to answer the following study question: In the pediatric intensive care unit, how does the implementation of a critical event debrief tool affect the number of debriefs over a one-month period?

Literature Review

A literature search was performed to discover current practices and research on the effective implementation of a critical event debriefing tools in inpatient hospital settings. The literature search was conducted using The Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed and Medline (EBSCO), and Summon search engines. The first literature search used the key search terms of *debrief tool AND debrief event and debrief form AND critical event*. Another literature search was then conducted, and the key search terms were expanded to include *critical event* debrief* tool* OR critical event* debrief* form*. Together these two searches generated 6,446 articles. The search was then refined using inclusion and exclusion criteria. Inclusion criteria included: scholarly & peer reviewed publications, English language, nursing as the profession, medical and intensive care units, and published from 1/1/2008-8/1/2021. Exclusion criteria included: professions outside of the nursing, publications before 1/1/2008, non-peer reviewed or scholarly publications, and non-English language. After duplicate articles and articles that did not aid in answering the study question were removed, ten articles were chosen for this literature review.

Overall, the studies included in this literature review revealed that healthcare providers desired debriefing after critical events that, and when given formal training, facilitators felt more confident and prepared to implement debriefing in everyday practice. The studies in this literature review are a majority of retrospective, cross-sectional studies with survey design, along with a meta-analysis, and a concept analysis.

Toews et al. (2020) conducted a concept analysis that examined and selected 45 articles for review. Toews et al., (2020) identified the five attributes of a successful debrief include an experienced facilitator, an open and judgement free environment,

focus on team and individual education, evaluation of performance, and a space to process emotions surrounding the event.

Several studies have focused on investigating best practices for debriefing after critical events. Ugwa et al. (2020) conducted a cross-sectional observational study using a 20-question survey to better understand the current practice guidelines, limitations, and the best timing of debriefs in a high acuity area of a hospital system. Participants in the study were healthcare workers with direct patient care positions (n= 130). The results of this study revealed that 50% of those that responded to the survey reported little to no debriefing (described as <25% of the time) and only 15.4% of respondents reported debriefing (described as >75% of the time) (Ugwa et al., 2020). In addition, 78.5% of respondents indicated that the timing of the debrief played a major role in its success and that it should happen immediately after the event when possible (Ugwa et al., 2020). This study found one of the biggest barriers to performing debriefing is lack of a formal debriefing process. Successful debriefs require an established and tested protocol and should be implemented in the clinical setting.

Ireland et al. (2008), conducted a survey of 50 United Kingdom trusts to better understand the current practice guidelines in place, if any, at the specific hospital institutions. A questionnaire was sent to 180 emergency medicine and pediatric healthcare workers with an 80% response rate. The purpose of this study was to collect data about current practices that will then be used to develop best practice guidelines. The results of the survey revealed that 62% of respondents indicated that debriefs after critical events occurred most of the time, but only 17% of respondents indicated that a formal debriefing policy was in place (Ireland et al., 2008). Additionally, this study identified

that 92% of debriefs occurred within one week of the event. The study ends with a recommendation that debrief guidelines should ensure that the debrief should occurs as soon after the event as possible, all staff involved in the patient's care should be invited, and topics for the debrief should cover both medical and psychological concerns.

Other studies have investigated the existence of formal protocols for debriefing and how those protocols or their absence impacted debriefing in clinical settings. One of the most popular and easy to use tools is The Debriefing In Situ Conversation after Resuscitation Now (DISCERN) tool. The DISCERN tool was created to be an in the moment review of the adverse patient event, draw attention to team performance during the event, and potentially trigger a formal debrief that will take place after information from the event is collected and analyzed (Mullan et al., 2012). Mullan et al. (2013), conducted a retrospective observational cohort study that looked at the one-year completion rates after the DICERN tool was implemented in a high-volume single patient emergency department. During the study 241 cardiac resuscitations occurred and 63 debriefs were documented. The median time of starting the bedside debrief was ten to 33 minutes after the adverse patient event (Mullan et al., 2013). Major themes addressed during the debriefs were communication, team performance and cooperation, and situational awareness. Barriers to debriefing included lack of time and providers deciding the debrief was unnecessary.

The SHARP: 5-step Feedback Tool for Surgery was implemented and designed for debriefing in the operating room. In a prospective cross-sectional study by Ahmed et al. (2013), the SHARP tool was implemented, and education on how to use the tool took place in a university teaching hospital in London using 100 total cases. There were 50

preintervention cases and 50 postintervention cases. Results showed a preintervention completion rate of 76% (36/50) compared to a post intervention completion rate of 100% (50/50), $p<0.001$. Results of this study showed the SHARP tool was successful when implemented in this institution, but further research is needed if it were to be used in units outside of the operating room. Limitations of this study include small sample size, inability to generalize to other institutions or areas of nursing, and the primary researcher was not blinded to pre and post cases.

Lastly, successful debriefs are led by trained facilitators. For a debrief to run smoothly and be successful it is important for the person who is leading the debrief to be fully trained and to feel confident in facilitating (Ireland et al. 2008; Tannenbaum & Matthewman, 2013; Toews et al., 2021; Zinns et al. 2015). After performing a meta-analysis of 46 samples (N=2,136), Tannenbaum & Matthewman (2013) concluded facilitated debriefs (d=27%) are three times more effective than non-facilitated debriefs (d= 10%). Furthermore, Zinns et al. (2015) examined the debriefing experiences of pediatric emergency room fellows from all 69 emergency medicine programs in the United States (n=393). The cross-sectional survey found 86.5% of pediatric emergency medicine programs do not have a formal debriefing structure, and when asked, 91.5% of fellows expressed an interest in wanting to learn more about debriefing and how to facilitate. Of the fellows who had experience in facilitating debriefings, the study found that those who had participated in several debriefings felt more comfortable than those who had facilitated only a few ($x2$= 12.78, p=0.01).

Several frameworks have been used during the implementation of debriefing tools, and the Iowa Model for Evidence-Based Practice to Promote Quality of Care was

chosen to guide this CSP. This framework was chosen due to its scientific design and focus on the structure, process, and outcome indicators. The DISCERN form has been implemented in the past in this pediatric intensive care unit, but its implementation was not successful. This framework will help identify the barriers from the past and then focus on changing the direction of the project for a successful reimplementation.

In summary, debriefing after adverse patient events has several significant benefits to the healthcare providers involved. Moving forward, the focus on this topic should be to develop best practice guidelines, present recommendations on the best time to debrief, and train the leaders on the unit that will be facilitating the debriefs. While debriefing after adverse events is not a new concept, debriefing in the hospital is evolving and further research is needed on this topic to make its implementation into practice successful. With the guidance of the Iowa Model, this CSP project will focus on empirically analyzing the implementation of the DISCERN form into the pediatric intensive care unit in order to understand the factors that will lead to a regular, effective practice of debriefing after critical events.

Methods

Design

The proposed QI project utilized an observational descriptive design. Quantitative and qualitative data was collected. The quantitative data collected included the number of adverse patient events, the number of DISCERN forms competed, and the number of events that were not debriefed. Qualitative data collected included the reason(s) why a debrief did not occur, themes identified after analyzing the completed forms, and a post implementation Qualtrics survey of staff involved in the debrief event.

Setting

This QI project took place in a large, midwestern, urban PICU with 402 licensed inpatient pediatric beds including a 40-bed PICU. This PICU currently has 136 staff nurses, 15 APRNs, 17 attending physicians, 17 fellows, a rotating resident team, 2 social workers, 1 child life specialist, and various ancillary team members. This PICU saw 1,923 patients in 2020.

Sample

This QI project used a convenience sample of pediatric patients between the ages of one day to 18 years who were hospitalized in the PICU. Patients hospitalized in the cardiac intensive care unit, neonatal intensive care unit, and patients outside of the determined age range were excluded. No patient identifying information was used to complete the DISCERN form and a numerical identifier was assigned to each form and used for data collected.

Data Collection/Analysis

Communication with the resuscitation committee led to the conclusion that a formal debrief process has never been in place in this PICU and debriefs that occurred at the bedside were done at the discretion of the attending without formal documentation. Hence retrospective data collection was not done. Data collected includes the number of adverse patient events, number of completed DISCERN forms, and if applicable, the reason why a debrief did not occur. A post implementation Qualtrics survey was sent to staff involved in the debrief event. This survey included Likert style questions regarding perceived staff confidence level using the DISCERN tool and self-perception of the form's usefulness. No demographic or patient identifying data was collected. Descriptive

statistics was used to analyze the number of adverse patient events compared to the number of DISCERN forms completed. Qualitative data was collected regarding reasons why a debrief did not occur. Qualitative data was analyzed for common themes or reasons regarding the debriefing event.

Approval Process

Formal written approval was obtained from the participating institution. This project was evaluated and determined to be quality improvement and not human subjects research. Formal approval through the University of Missouri- St. Louis (UMSL) Institutional Review Board (IRB) was obtained prior to implementation.

Procedures

After collaborating with the resuscitation committee, PICU management, and PICU quality improvement and patient safety specialist the DISCERN form was chosen to be implemented in this PICU. The PICU shifted from current practice of not debriefing to completion of the DISCERN form after adverse patient events. This change was led by the DNP candidate. Bedside staff and charge nurse education was completed in November and December of 2021. On November 10, 2021, the DNP candidate attended the PICU charge nurse meeting and presented education regarding the importance of use of a debriefing in adverse patient events in the PICU and taught the charge nurses how to complete the DISCERN form. Bedside education was given to all nurses, respiratory therapists, social workers, child life specialists, and ancillary staff prior to implementation of the debriefing DISCERN form. This education focused on why debriefing is beneficial, what is expected of them as bedside staff, and a copy of the DISCERN form was reviewed. Additionally, during meetings between attending

physicians and nurse practitioners in the PICU the decision was made that the fellow or nurse practitioner will lead any debrief. Charge nurses were responsible for filling out the DISCERN form during the debriefs and then returning the form in the binder in the charge nurse office. On Wednesday morning every week the DNP candidate collected the forms and entered data into the data collection instrument. After implementation of this CSP several attendings came forward with concerns about the debriefing tool chosen by the resuscitation committee. The major concern about the debriefing tool was that it was believed that there is a better debriefing tool that has been developed and would work better with the PICU population. After several attempts at follow up with the opposing physicians no tool was identified as one that would be more beneficial to the unit. It was decided to continue the DNP candidate's proposal tool for a trial period of one- month and then to use the data collected to create a new tool made specifically for this PICU.

Results

Demographics

Data collection took place between March 9, 2022 and April 9, 2022. During this time four adverse patient events took place that met criteria for debriefing (n=4). The criteria for debriefing included cardiac resuscitations, unexpected or unplanned life-threatening events, extracorpreal membrane oxygenation cannulations, and patient expirations. All PICU staff were provided education on the DISCERN tool prior to the data collection period. The adverse patient events that were debriefed included four cardiopulmonary arrests that required resuscitation (Appendix A). One of the resuscitation events ended in patient expiration. All four events were debriefed using the DISCERN tool (100%). Two of the debriefs were led by a PICU fellow (50%), one was

led by a PICU advanced practice registered nurse (25%), and one was led by a PICU charge nurse (25%). The debriefs took place between thirty minutes and two hours post event at the bedside or in a nearby conference room and ranged from ten to twenty-two minutes in length. All debriefs were attended by the primary nurse, respiratory therapist, charge nurse(s), fellow, advanced practice registered nurse/resident, documenting nurse, physician team leader, and ancillary staff involved in the event.

Themes

After analyzing the completed DISCERN forms several themes were identified. Positive themes identified included a calm environment, good communication, quick responses and prompt identification of nursing roles, code medications available quickly and drawn up correctly, and a clear physician lead leader was identified (Appendix D). Areas of improvement identified included quicker identification of the team leader, placing the backboard under the patient sooner, and initiation of infant CPR on a patient less than one year old.

Post implementation Survey

A post implementation Qualtrics survey was sent to the PICU nursing staff after the period of data collection. The survey was filled out by 6 nurses, 4 of which were the charge nurses that completed the DISCERN tool during the debriefs. Of those surveyed 3 nurses had 3-5 years of experience (50%), 1 nurse had 5-7 years of experience (16.7%), 1 nurse had 7-10 years of experience (16.7%), and 1 nurse had 10+ years of experience (16.7%) (Appendix B). All 6 of the nurses that participated in the survey were female (100%). Two nurses reported feeling somewhat confident (33.3%), while 4 nurses (66.6%) reported feeling confident when participating in a debrief after an adverse patient

event (Appendix C). Almost all the nurses surveyed participated in 1-2 debriefs during the period of data collection (n= 5, 83.3%), and one nurse participated 3+ debriefs (n= 1, 16.7%). All 6 nurses reported strongly agreeing that debriefing after adverse patient events is helpful (n= 6, 100%). Finally, the charge nurses that completed the DISCERN tool during the debriefs were surveyed and asked for a confidence level when filling out the tool. 2 nurses reported feeling somewhat confident (n= 2, 50%) and 2 nurses reported feeling confident (n= 2, 50%) (Appendix C). No suggestions for improving debriefs or additional comments were submitted.

Discussion

This clinical scholarship project was guided by the Iowa Model for Evidence-Based Practice to Promote Quality Care had a positive impact on the number of debriefs that occurred in the PICU in a one-month period. Four adverse patient events occurred and all four of the events were debriefed. The aim of this project was to have a 20% DISCERN form completion rate and the clinical scholarship project had a 100% completion rate. Feedback from the Qualtrics survey sent out at the end of the data collection period was then analyzed and will be used to better understand how debriefing impacted those involved, how to improve debriefing in the future, identification of processes and PICU specific policies or workflows that need improvements, and what changes can be made to the debriefing tool to help facilitate both emotional and professional support for those involved.

While the results from this clinical scholarship project have been overall positive, this project was piloted for one-month and the feedback collected will be used to develop a new debriefing tool that is designed specifically for this PICU. After implementation of

the project, several attending physicians were concerned about the overall long-term goals of debriefing adverse patient events and felt that the DISCERN tool did not address the needs of this PICU. The attending physicians feel that one created by this specific unit will have a better overall impact and will fit the needs of the unit in ways that the DISCERN tool could not. The results from this project have been compiled and passed along to the physician stakeholders of this project.

The next PDSA cycle for this project should focus on development of the new debriefing tool and then implementation of the tool into this PICU. After a period of data collection, the new debriefing tool and the DISCERN tool should be analyzed using a t-test to compare the results from the two tools to better understand which debriefing tool is the best fit for this PICU. For this next PDSA cycle to be successful it is imperative that 100% buy in from the attending physicians is obtained.

Additionally, another consideration for future practice would be providing facilitator training for those who will be leading the debriefs. Another barrier to this project was facilitation of the debriefs and identifying who would be the best team member to lead them. Some providers felt comfortable assuming this role and others turned to the charge nurse to lead the discussion. Doctorally prepared Advanced Practice Nurses are key players during debriefs and it is within the DNPs scope of practice to be facilitators and leaders during these events. Providing education to the facilitators will help build confidence and in return increase the number of debriefs that taka place in this PICU.

Conclusion

Debriefing after adverse patient events has made a tremendous impact in the healthcare setting. Not only does it improve patient care but helps to improve teamwork, communication, and foster a safe environment for team members to be open and honest after adverse patient events. Debriefs can be utilized to take a step back and to analyze a critical event and to carefully look at the processes and policies in place in a unit that are utilized during critical patient events.

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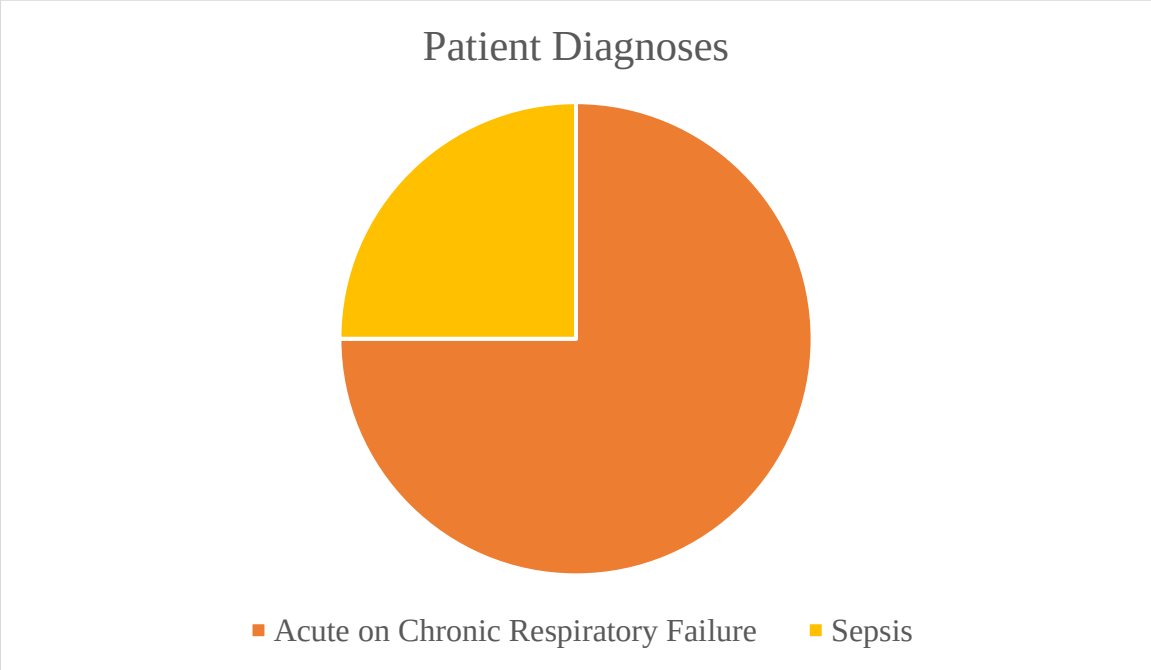
Appendix A

Figure 1.

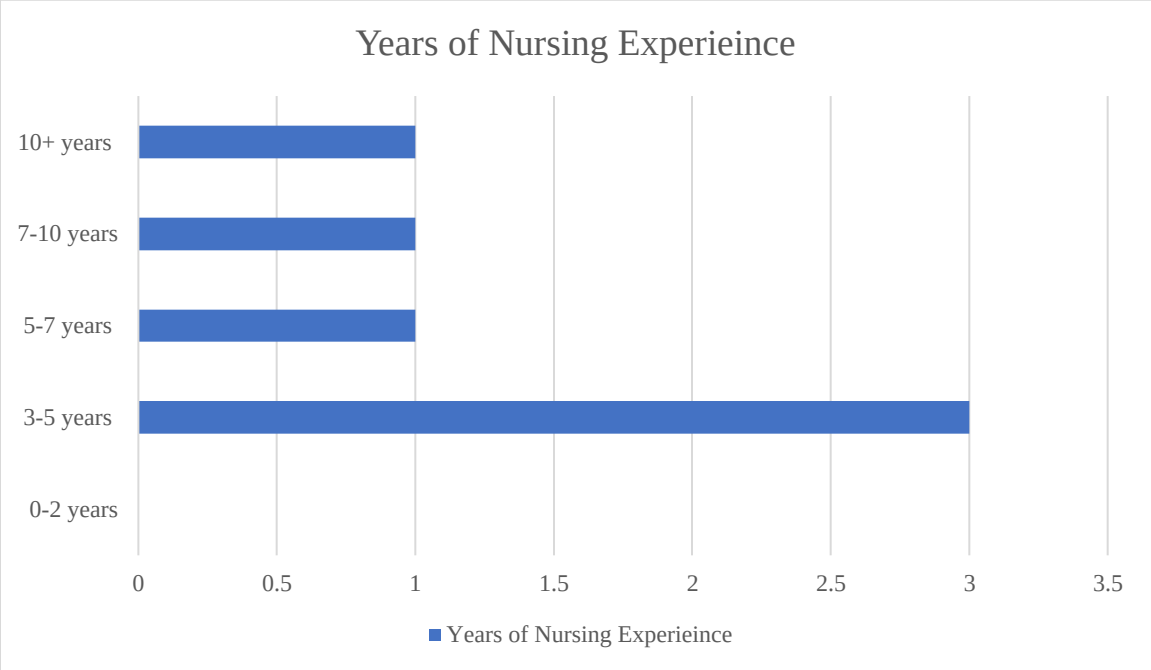
Patient Diagnoses



Appendix B

Figure 2.

Nursing years of Experience



Appendix C

Figure 3.

Qualtrics Survey Results

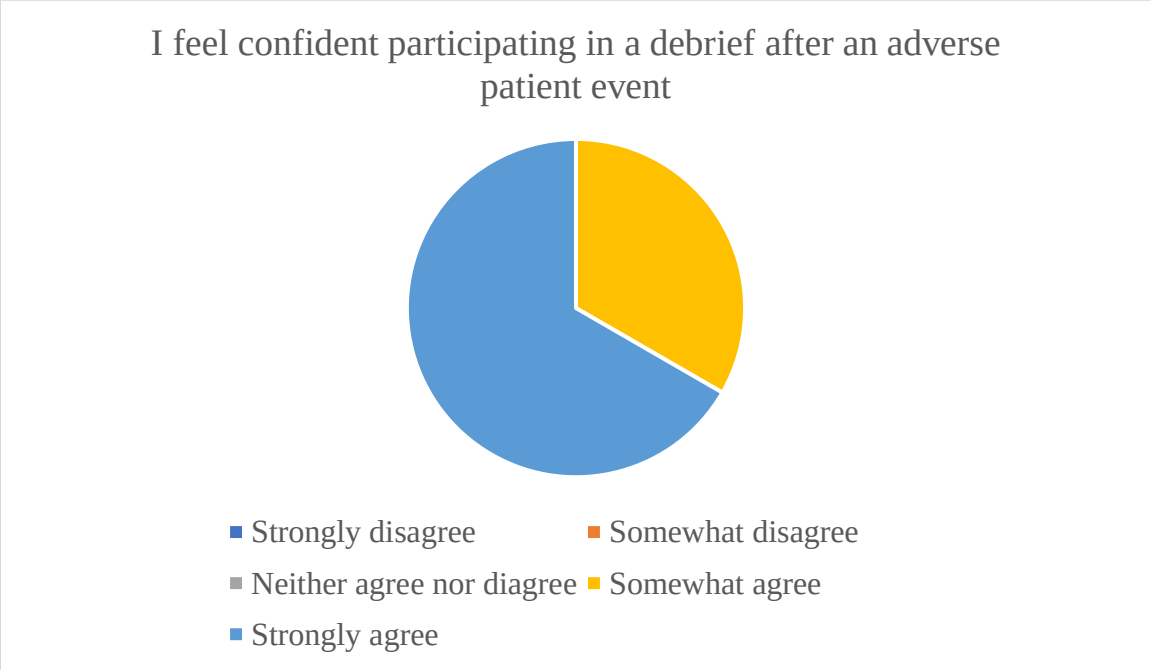
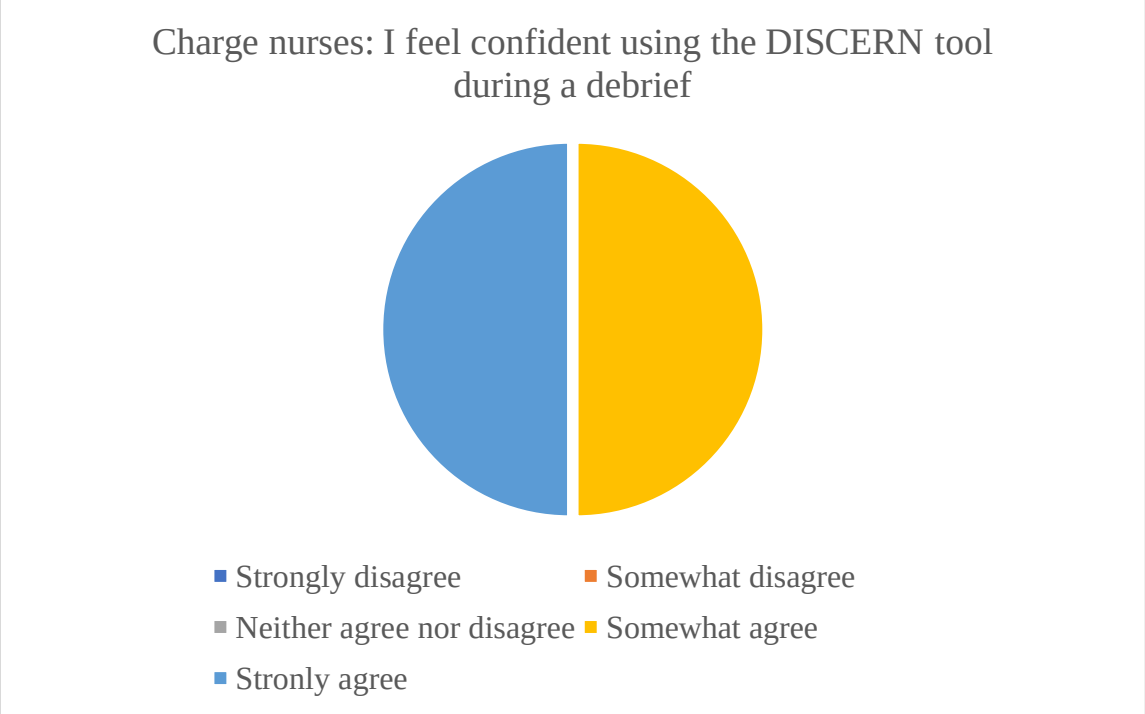


Figure 4.



Appendix D

Figure 5.

Themes