Rapid Response After-Action Review: Improving Patient Safety in a Military Hospital

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Abstract

Problem: The after-action review is the military's version of debriefing and a validated tool to elicit feedback, facilitate reflection, and improve processes. Failure to debrief results in missed opportunities to reflect on performance and use feedback to mitigate risk and prevent errors. The rate of after-action review completion following rapid responses on a 40-bed adult medical unit at a large military hospital is inconsistent, occurring less than 20% of the time. After-action review completion rates, inefficiencies, and poor data quality correlate with a lack of structure, the absence of a standardized tool, and facilitator training. *Purpose:* The purpose of this quality improvement project was to implement a standardized after-action review process post-rapid response using an electronic TeamSTEPPS debriefing tool. The goal was to improve after-action review effectiveness, completion rates, and patient safety. *Methods:* Implementation of the project occurred over 15 weeks. The rapid response team received facilitator training using the TeamSTEPPS Debrief Module, and unit staff received an overview of the task, purpose, and participation requirements. Goals and outcomes included total staff trained, completion rates using the tool, and patient safety events. Data were analyzed using descriptive statistics. Run charts visually displayed completion rates and associated patient safety reports. *Results:* The rate of after-action reviews conducted increased from 0% to 48.6% in fifteen weeks. Opportunities to improve clinical performance included communication, training, and resource availability. Patient safety events associated with rapid response events decreased by 75% for all inpatient units during implementation. *Conclusions:* Findings suggest rapid response after-action review completion rates increased by introducing a structured process and standardized electronic tool. After-action review data revealed opportunities to enhance team effectiveness and fill knowledge gaps to reduce patient safety events associated with rapid response activation.

Keywords: debrief, after-action review, effectiveness, patient safety, hospital

Rapid Response After-Action Review: A Proactive Approach to Improve Patient Safety

The rapid response team (RRT) concept is a product of the Institute for Healthcare Improvement initiative aimed to decrease morbidity and mortality by improving the safety, quality, and effectiveness of healthcare delivery (Berwick et al., 2006). The RRT addresses the needs of acutely deteriorating patients and facilitates the stabilization or transfer to the intensive care unit before cardiac arrest (Fischer et al., 2021). A learning opportunity exists for staff participating in rapid response events in the form of a debrief or after-action review (AAR). The AAR is the military version of debriefing and a validated tool to elicit feedback and improve processes following an event or activity (Morrison, 1999).

The landmark report, *To Err is Human* (Institute of Medicine, 2000), thrust preventable adverse events into the spotlight by highlighting the nearly 100,000 annual deaths attributed to medical errors. Even with the resultant patient safety movement, current literature estimates that one in every twelve patients will experience an adverse event in the hospital, with more than half being preventable (Sauro et al., 2021). The AAR incorporates a systems approach to error prevention by identifying contributing factors. Addressing identified factors makes errors less likely to occur, improving patient outcomes (Keiser & Arthur, 2021). Despite evidence of value and widespread use in the military, AAR use following rapid response team activation at a large military hospital or military treatment facility (MTF) was largely absent. Real-time feedback between RRT and unit staff can facilitate error recognition and mitigation strategies to improve performance. Conducting an AAR in this setting is critical. The transient nature of military personnel results in decreased team continuity and may increase patient safety events reported in the Joint Patient Safety Reporting (JPSR) system, a web-based application used to report adverse events, near misses, and unsafe conditions (Keyser et al., 2021). Over one hundred rapid response activations occurred on the 40-bed adult medical-surgical unit during the previous year. No requirements mandated completion or participation in an AAR following a RRT activation. The use of AARs was inconsistent, occurring less than 20% of the time following a rapid response. AAR completion rates, inefficiencies, and poor AAR data quality correlated with a lack of AAR structure, standardized tool, and facilitator training (Figure 1).

A facilitated debrief, or AAR, is a powerful tool to identify systems gaps and improve safety and healthcare delivery. Evidence supported standardizing the rapid response AAR process using a standardized debrief tool to identify practices and procedures requiring improvement or change. This organized method to gather feedback could improve clinical performance and potentially reduce the number of patient safety events during rapid response events. The purpose of this quality improvement project was to implement and evaluate a standardized after-action review process post-rapid response in a military treatment facility.

Available Knowledge

Debriefing has gained considerable popularity as a method to improve processes in the clinical setting, although the quality of evidence supporting debriefing varies. Some studies have limitations, such as small sample sizes and a lack of control groups, and specific debriefing methods differ, making it difficult to draw definitive conclusions about what makes an effective debrief. However, good and consistent evidence supports a practice change in the MTF setting. Findings by Lee et al. (2020) and Hale et al. (2020) infer the potential for improved clinical performance by incorporating an AAR following a rapid response. The debriefing process provides an opportunity to analyze performance through real-time analysis and feedback. The Agency for Healthcare Research and Quality (AHRQ) has a similar stance and advocates for structured, real-time debriefing (AHRQ, 2014). A review and analysis of current literature (Table

A1 & Table A2) found no established debrief standards for facilitation following a rapid response activation. Couper and colleagues (2013) identified that structured debriefs following a life-threatening emergency improved cardiopulmonary resuscitation and short-term patient outcomes. A meta-analysis by Keiser & Arthur (2022) examined characteristics influencing the effectiveness of the AAR. It concluded that AAR use following complex tasks, such as medical crises and resuscitation events, enhanced overall AAR effectiveness. Similarly, Mullen et al. (2013) found that higher rates of debriefing occurred following life-threatening events with the implementation of a structured tool. Keiser & Arthur (2021) had comparable findings to Hale and colleagues (2020) in that the effectiveness of the after-action review is associated with the environment. Facilitator-led after-action reviews with a shorter duration were most effective in the healthcare setting, which is consistent with findings by Lee et al. (2020).

Rationale

The PARIHS (Promoting Action on Research Implementation in Health Services) framework, which emphasizes three key elements of evidence, context, and facilitation, guided the adoption of the standardized AAR process after rapid responses (Kitson et al., 1998). The PARIHS framework suggests that implementing an AAR process should be based on the best available research evidence for debrief use and tailored to the specific needs and context of the MTF setting. Furthermore, the framework recognizes that the AAR's implementation context, including military culture, resources, leadership support, and staff attitudes and beliefs, is critical to its success. The Department of Defense and AHRQ support debriefing, demonstrated by the widespread use of evidenced-based Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) across the military health system (Ward et al., 2017). The dynamic relationship between the level of evidence and factors supporting favorable conditions characterized the approach to facilitation (Figure 2) (Kitson et al., 1998; Ritchie et al., 2010). The focus of the facilitation process included leadership support, clear guidance, and providing resources. Lastly, communication, staff training, feedback, and ongoing process evaluation created an environment conducive to facilitating and adopting new AAR practices.

Methods

Military personnel from all services, federal civilians, and government contractors comprised the MTF's 40-bed medical-surgical unit staffing. In addition to providing care in the MTF, military personnel routinely deploy to support war efforts or augment civilian healthcare systems. Permanent changes in duty stations and deployments for the military created a staffing environment wrought with high turnover rates, long-term staff absences, and routine unit leadership changes. Constant staffing transition and instability resulted in decreased continuity, and interventions to improve AAR practices had to withstand the challenging environment. Seventeen registered nurses on the rapid response team had a critical care background. Unit nurses had varying levels of experience, ranging from novice to expert. The MTF is a teaching facility, and there was a wide range of training and experience among physicians and non-physician providers. Fluctuations in the unit and rapid response team composition, and clinical expertise made effective communication and establishing a routine difficult. The lack of defined protocols also contributed to uncertainty, unclear expectations, and inconsistent practices.

Implementation of the initiative occurred over fifteen weeks and involved unit leadership, clinical nurse specialists assigned to select units, rapid response team members, and unit staff (Table 1). Early and ongoing leadership engagement was vital in creating, implementing, and maintaining effective AAR practices. Variations and ambiguity of AAR processes (Figure 3) required operationalization and definition of participation requirements (Figure 4). The primary structure goals were to train the rapid response team to facilitate an AAR and achieve a 100% AAR completion rate post-RRT activation. The primary intervention to achieve the goal was conducting a facilitated AAR after a rapid response using the validated TeamSTEPPS debrief tool illustrated in Appendix B (AHRQ, 2014). Rapid response team staff received facilitator training over three weeks using the TeamSTEPPS Debrief Module (AHRQ, 2014), and unit staff received an overview of the task, purpose, and participation requirements. The rapid response nurse facilitated real-time feedback after the rapid response with healthcare providers participating in the event and was responsible for submitting the electronic debrief tool to a central repository on the LENS™ (Learning and ENgagement System) platform (Safe & Reliable Healthcare, 2021). The facilitator reviewed and documented events occurring during the rapid response, examined outcomes, and allowed staff to reflect on actions to improve or sustain rapid response performance. Staff conducted the AAR as close to the event as possible or before the shift's end and submitted documentation on the electronic tool accessed by a quick response (QR) code. The project lead compared AAR submissions with rapid response events submitted via the JPSR system. The project lead also reviewed data from the AARs and shared it with unit leadership and clinical nurse specialists, who then mitigated identified issues and actioned recommendations from staff for processes to improve or sustain. Available data were then used to guide decisions for education and training and policy measures to improve performance.

The LENS™ board, JPSR, and REDCap were the primary platforms to capture structure, process, and outcome measures for tracking project progress during the implementation phase and assessing the impact of interventions (Table 2). Staff completed a REDCap survey after the training session. Process goal measures included the number of AARs submitted via the LENS™ board using the electronic TeamSTEPPS debrief tool. The Defense Health Agency (2019) defines a patient safety event as any incident or condition that could have resulted in or did cause harm to a patient. Such events may result from a flawed process or system, process or system breakdown failure, malfunction of equipment, or human error. Adverse events, no-harm events, near-miss events, and unsafe conditions also constitute patient safety events and were documented using a Patient Safety Report (PSR) in the JPSR system. Reducing the rates of reported patient safety events occurring during a rapid response constituted the project's primary outcome measure. Changes in PSR rates were used to determine the effectiveness of real-time feedback gathered during the standardized rapid response AAR.

The design of this quality initiative project used strategies to improve the rate of AAR completion and subsequent modifications to actions or processes that compromised patient safety during rapid response events. The AAR training defined the mandatory completion of the validated TeamSTEPPS debrief tool and eligible events. Eligible rapid response events requiring an AAR included scenarios necessitating rapid response activation and where patient stabilization or transfer to the intensive care unit occurred. Rapid response events outside of the specified unit were excluded. Staff received face-to-face education during shift change, and the facilitator module was incorporated into the monthly rapid response staff training. The rapid response nurse facilitated real-time feedback after rapid responses, and staff participating in the AAR consisted of those involved in the event (rapid response team, primary nursing team, providers, and respiratory therapists). Pre- and post-implementation rapid response debriefing and patient safety event data, submitted per policy, were collected retrospectively by the rapid response team lead and project lead.

Data collected from the JPSR, LENS™, and REDCap were analyzed and summarized to identify AAR and patient safety event trends. Descriptive statistics allowed a quantitative description of the demographics of staff trained, including employment status and type, previous AAR training, and responses to Likert scale questions. The seven binary questions and three dichotomized open-ended questions on the validated Team STEPPS debrief tool were also analyzed using descriptive statistics and reported as numbers and percentages. A run chart was utilized to visually illustrate data to display trends over time in AAR frequency reported by electronic AAR submissions. Analyzing weekly AAR completion rates over the implementation period helped determine if variation was random or if a meaningful change in the rapid response AAR practice occurred. Patient safety events occurring during rapid response activations were reviewed monthly and compared with the frequency of after-action reviews to determine trends and timeline variables.

The project was registered with the organization’s Performance Improvement Program after receiving a non-human subjects research determination from the University of Maryland Baltimore Human Research Protection Office and through an electronic Institutional Review Board application from the organization's Department of Research. Confidentiality protections included PSR and AAR data that were only accessible on the Department of Defense non-classified network using a common access card. AAR data were de-identified to ensure privacy and did not include participant names. Data exported to REDCap for analysis did not include identifiable information and were accessible only by the project lead and university faculty.

Results

Leadership requested to extend the rapid response after-action review training period resulting in increased training rates throughout the initial project implementation period. By week seven, 45 rapid response and unit team members completed the training survey, equating to 69% of the total staff (Table 3). Ad hoc training continued throughout the implementation to increase process transparency without the training survey requirement after week seven. Training survey results revealed that 62.2% of personnel previously received training on AAR or debrief practices (Figures 5 & 6). Notably, 87.7% of respondents perceived AAR data as important and valuable to clinical practice, and none disagreed (Figure 7). Respondents were primarily registered nurses (66.7%), and 64.4% were military service members (Figures 8 & 9).

The project run chart (Figure 10) highlights that conducting debriefs or after-action reviews following rapid responses pre-implementation was not consistent, even though many staff received previous training. The rate of AAR completion following eligible rapid response events was 100% in three out of the first four weeks of implementation, but only 20% in week two, likely the result of the novel practice and workflow change. With on-the-spot guidance and reminders at shift change at least weekly, leadership engagement facilitated AAR compliance. The run chart illustrates a steady increase in the AAR completion rate following the electronic tool and standardized process implementation, with a median completion rate of 67% at the end of the implementation period and an overall completion rate of 48.6%. Of note, there were no eligible rapid response events necessitating an AAR in weeks 13 and 15. Table 4 contains summarized after-action review responses, and Figures 11, 12, and 13 illustrate dichotomized answers to open-ended questions. Seventeen AARs were electronically submitted, and one patient safety event occurred on the participating medical-surgical unit during the implementation period. Answers to the AAR survey indicated that communication (76.4%) and roles and responsibilities (82.3%) are more often clear during rapid response events, and resources have been available 100% of the time. The rate of intervention and teamwork are the most frequently observed categories of what went well during rapid response events. Communication was the category most often reported as needing improvement. After-action review feedback suggests areas of clinical performance to address include coordination and organization, provider engagement, and proper training and skillset for staff.

Real-time feedback gathered during the AAR process was from many healthcare personnel types. The most frequently observed staff participating in the AAR was the primary nurse (88.2%) and the rapid response nurse (100.0%). The primary provider for the patient (physician, physician assistant, or advanced practice registered nurse) participated in the AAR 88.2% of the time, and respiratory therapy participated in just over half of the AARs (58.8%). Table 5 presents the frequencies and percentages of all AAR participants. A barrier to the AAR process included patterns of power and authority within the military health system and the facilitator's ability to require provider participation. Mitigation included process transparency and unit leader engagement with the medical teams' chain of command.

Pre-implementation patient safety report (PSR) data indicated a steady state of patient safety events associated with rapid responses. An average of four patient safety events occurred during a rapid response each month, for three consecutive months, for all inpatient units, not including intensive care units (ICU) and pediatric units, before the project implementation. Patient safety events related to rapid responses occurring in the non-critical adult inpatient units decreased by 75% over the four months project implementation period (Figure 14).

Discussion

Debriefing in the form of an AAR following rapid responses is a crucial practice that helps healthcare providers review and analyze clinical performance and improve patient safety. Providing facilitator and unit training to the unit staff increases awareness and benefits of conducting an AAR after rapid response events, demonstrated by the 87.7% of respondents who agree that data from the AAR are important to clinical practice. The prominent use and availability of evidenced-based STEPPS tools in the organization lend to the cost-effectiveness of facilitator and tool training and ease of implementation. Utilizing trained facilitators, who follow a structured procedure, ensures that the AAR process is effective and meaningful. The median AAR completion rate of 67% after rapid responses is consistent with research observations in that using structured, standardized tools results in higher rates of debriefing following life-threatening events (Mullen, 2013).

The Team STEPPS Debrief Tool standardizes the gathering of relevant data to evaluate the resuscitation efforts' effectiveness and resource availability and identifies practices to improve or sustain. This standardization reflects debriefing best practices in literature and demonstrates the potential of the AAR to improve clinical performance (Couper et al., 2013; Hale et al., 2020; Keiser & Arthur, 2021; Lee et al., 2020). Another key benefit of incorporating the AAR following a rapid response is that it promotes open communication and collaboration among healthcare professionals. By bringing together those involved in the rapid response event, the AAR creates an opportunity for team members to share individual perspectives, experiences, and insights and to work together to find solutions to improve the clinical environment. The routine distribution of AAR data and findings allows leadership to provide resources and training and address identified process issues. Mitigation strategies and actionable recommendations improve clinical performance, evidenced by decreasing rates of patient safety events during rapid responses by 75% over the course of implementation.

There are several limitations to this project. First, conducting facilitator and unit training for all staff members across multiple units is not feasible with a short timeline for training. Extending training across multiple platforms and timeframes allows for additional opportunities to learn and review the AAR process. However, all staff only 69% of staff could receive face-to-face training without dedicated training time. Second, the AAR tool does not capture the total number of staff participating in the rapid response. Therefore, feedback from those who did not participate in the AAR is unknown, which may limit the generalizability of AAR responses. The small sample size of AAR responses (*n*=17) also limits the generalizability of findings. Lastly, patient safety event tracking occurs at an organizational level due to the small denominator of events at the unit level. Strategies to ensure fidelity include weekly communication between the project lead, key leaders, and rapid response staff. Routine site visits for data collection and interaction with staff promote feedback on the process and identification of barriers during implementation and sustainment activities. Shadowing of rapid response events and the AAR process supports process fidelity. Additionally, the project lead does not facilitate AARs to limit any perception of cohesion and decrease bias.

Conclusion

Conducting an AAR promotes continuous improvement, enabling rapid response participants to recognize system-wide issues, such as inadequate processes or resources and lack of standardization. Identifying factors contributing to errors or inefficiencies allows for subsequent mitigation strategies and efforts to prevent similar events. The AAR process also plays a significant role in learning for healthcare professionals and teams. Reflection of clinical performance during the AAR promotes self-awareness, builds on existing knowledge, identifies and addresses gaps in knowledge and skills, and allows staff to seek ongoing education and training opportunities. In conclusion, implementing a standardized AAR following rapid responses can help improve clinical performance by promoting reflective practice, identifying areas for improvement, and promoting a culture of safety and learning.

This quality improvement initiative has several strengths, particularly leadership support, the cost-effectiveness of the intervention, and the overall improvement in clinical decision-making and patient care. Leaders in the organization recognize the quality and validity of evidence supporting the use of the AAR and the desired outcomes of reducing patient safety events. Furthermore, the AAR process requires no additional resources when using existing technological platforms and validated Team STEPPS training and tools. Unit leaders, clinical nurse specialists, and the rapid response team dedicated themselves to supporting the process, marketing, providing education, and assisting in barrier mitigation. Sustainment strategies include writing AAR requirements into organizational policy to promote the process as routine and incorporating AAR education into the mandatory (initial and ongoing) rapid response team training. Integrating AAR data into staff meetings, quality improvement committees, grand rounds, and monitoring measures through existing quality management channels further promotes the process value. After-action review use following a rapid response has several implications for practice, including improved communication and teamwork, enhanced patient safety, improved quality of care, and increased accountability. Patient safety becomes a priority when the healthcare team engages in regular AARs. There is increased reporting of errors and adverse events and subsequent development of solutions to improve the system. Creating a culture of safety within the military health system results in higher-quality patient care and better patient outcomes. Future quality improvement initiatives in this setting should include strategies for evaluating the AAR’s effectiveness, ensuring the process achieves its intended outcomes. Additionally, improved clinical skills, team communication, and clinical processes promote a safer clinical environment. Therefore, initiatives evaluating cost avoidance related to reducing medical errors and delays in care should be considered.

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Table 1

Site Team

Team Member	Responsibilities
ICU CNS/ RRT supervisor	Ensure availability of RRT for AAR facilitator education/training Provide clear expectations and guidance for completion of AAR following rapid response events
Lead RRT member (s)	Serve as lead AAR facilitator and subject matter experts for submission on LENS™ board
Unit CNS	Assist with project implementation and data collection from LENS™ Communicate project purpose and details during daily rounds Attend rapid response calls and provide guidance and problem mitigation to promote feasibility of intervention
Patient safety/ quality committee representative (s)	Send PSR reports to project lead and medical surgical unit clinical nurse specialist as requested
Section Chief (supervisor) of med/surgical unit	Ensure availability of unit staff following rapid response events Provide clear expectations and guidance for completion of AAR following rapid response events
Information Technology support	Assist with LENS™ survey build and dissemination on unit boards as required

Note. ICU= intensive care unit; CNS= clinical nurse specialist; RRT= rapid response team; AAR= after-action review; LENS= Learning Engagement System; PSR= patient safety report

Table 2

Goal and Outcome Measures

Project Goals	Measure Pre-Implementation	Measure During Implementation
Structure Goal(s)		
Train rapid response team members use a standardized AAR tool and facilitate AAR following a rapid response activation.	Training audit for rapid response team members.	Training completion documented via REDCap survey.
Identify a standardized AAR tool for use following AAR activation.	Evaluate use of tools currently in use (if any)	Standardized AAR tool (TeamSTEPPS debrief template) built into LENS™ survey
Provide rapid response team members training for AAR facilitation.	Identify intensive care unit nurses on rapid response team requiring AAR facilitation training.	Review AAR feedback to determine if additional educational measures are needed.
Process Goal(s)		
An AAR will be conducted using standardized tool 100% of the time following RRT activation on the medical surgical unit.	Numerator: # of AAR completed following RRT Denominator: # of RRT activations	Numerator: # of AAR completed following RRT measure through LENS™ board survey Denominator: # of RRT activations documented in PSR system
Outcome Goal(s)		
Decreased rates of adverse patient events or near misses reported in the joint patient safety reporting system.	Numerator: Number of patient safety reports occurring during rapid response monthly Denominator: Number of RRT activations	Numerator: Number of patient safety reports occurring during rapid response weekly during implementation Denominator: Number of RRT activations

Note. AAR= after-action review; RRT= rapid response team; PSR= patient safety report

Table 3

Training Survey Response Statistics and Percentages for Variables

Variable	*n*	%
Employee Status		
Military	29	64.4
Department of Defense Civilian	13	28.9
Contractor	3	6.7
Employee Type		
Registered Nurse	30	66.7
Physician		
Advanced Practice Provider	1	2.2
Medic/ Corpsman	9	20
Respiratory Therapist		
Other	5	11.1
Training Type		
Facilitator Training	16	35.6
Overview	29	64.4
Have you ever received training on how to facilitate/ conduct an AAR or debrief?		
Yes	28	62.2
No	17	37.8
The information presented in a clear and understandable manner		
Strongly Agree	15	34.1
Agree	27	61.4
Neutral	2	4.5
Disagree		
Strongly Disagree		
The information presented is important and useful to improve clinical practice(s)		
Strongly Agree	19	43.2
Agree	20	45.5
Neutral	5	11.4
Disagree		
Strongly Disagree		
I would like additional training on facilitating after-action reviews		
Strongly Agree	4	9.1
Agree	21	47.7
Neutral	16	36.4
Disagree	3	6.8
Strongly Disagree		

Note. n = 45. AAR = After-Action Review

Table 4

After-Action Review Response Statistics and Percentages for Variables

Variable	*n*	%
Did a patient safety event occur?		
Yes	1	5.9
No	16	94.1
Was communication clear?		
Yes	13	76.4
No	4	23.5
Were roles and responsibilities clear?		
Yes	14	82.3
No	3	17.6
Was situation awareness maintained?		
Yes	15	88.2
No	2	11.8
Was workload distribution equitable?		
Yes	15	88.2
No	2	11.8
Was task assistance requested or offered		
Yes	15	88.2
No	2	11.8
Were errors made or avoided?		
Yes	10	58.8
No	7	41.2
Were resources available?		
Yes	17	100.0
No	0	0.0

Note. n = 17.

Table 5

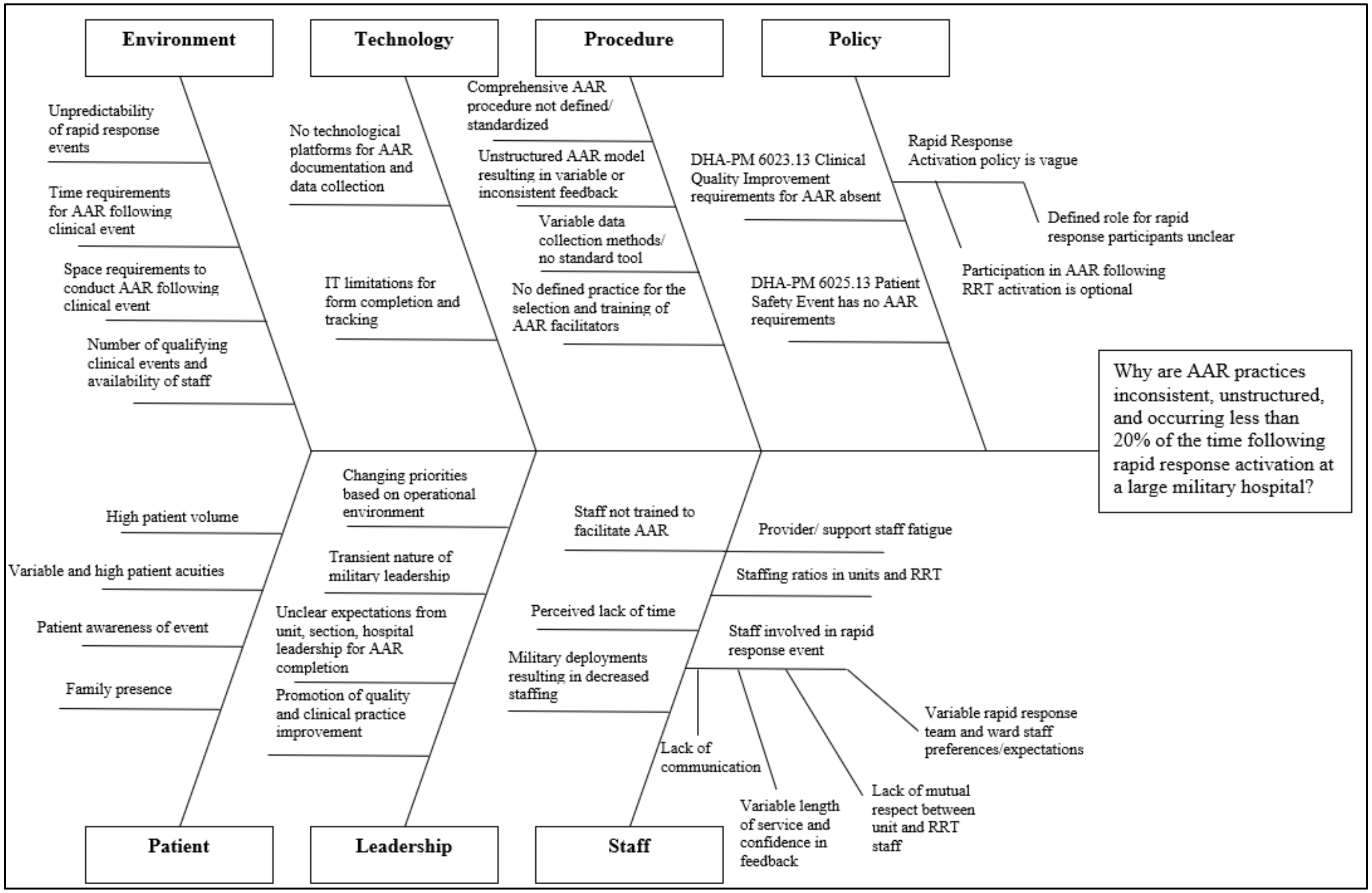
Frequency Table for After-Action Review Participants

Variable	*n*	%
Primary nurse		
Yes	15	88.2
No	2	11.8
Secondary nurse, rapid response team		
Yes	2	11.8
No	15	88.2
Primary rapid response nurse		
Yes	17	100.0
Primary provider (physician, PA, or APRN)		
Yes	15	88.2
No	2	11.8
Secondary nurse, unit staff		
Yes	2	11.8
No	15	88.2
Secondary provider (physician, PA, or APRN)		
Yes	6	35.3
No	11	64.7
Respiratory therapist		
Yes	10	58.8
No	7	41.2
Unit charge nurse		
Yes	12	70.6
No	5	29.4

Note. Due to rounding errors, percentages may not equal 100%. PA= physician assistant; APRN= advanced practice registered nurse.

Figure 1

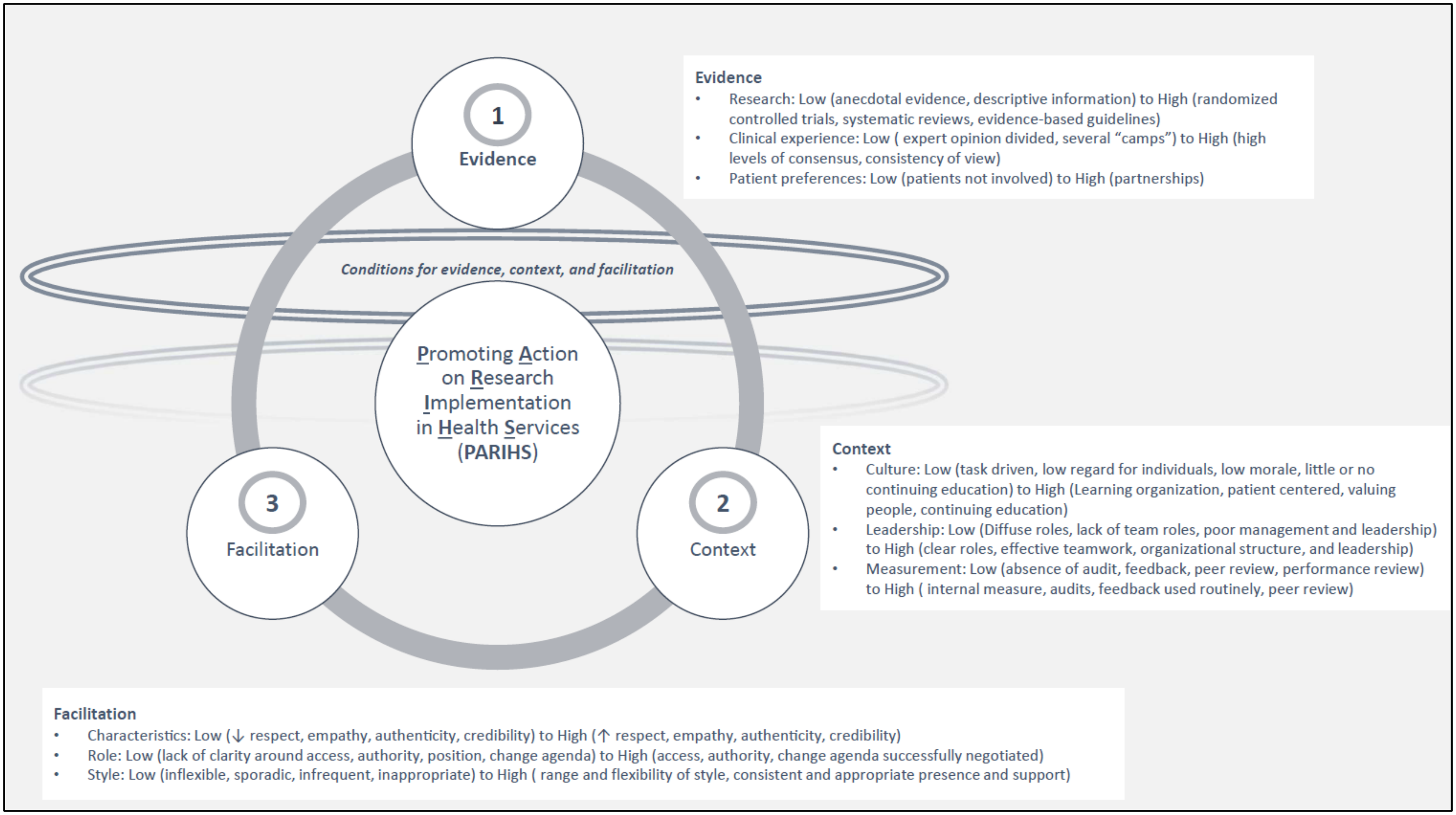
After- Action Review Fishbone Diagram



Note. Abbreviations: AAR: After- Action Review; RRT: Rapid Response Team; DHA: Defense Health Agency; PM: Procedural Manual

Figure 2

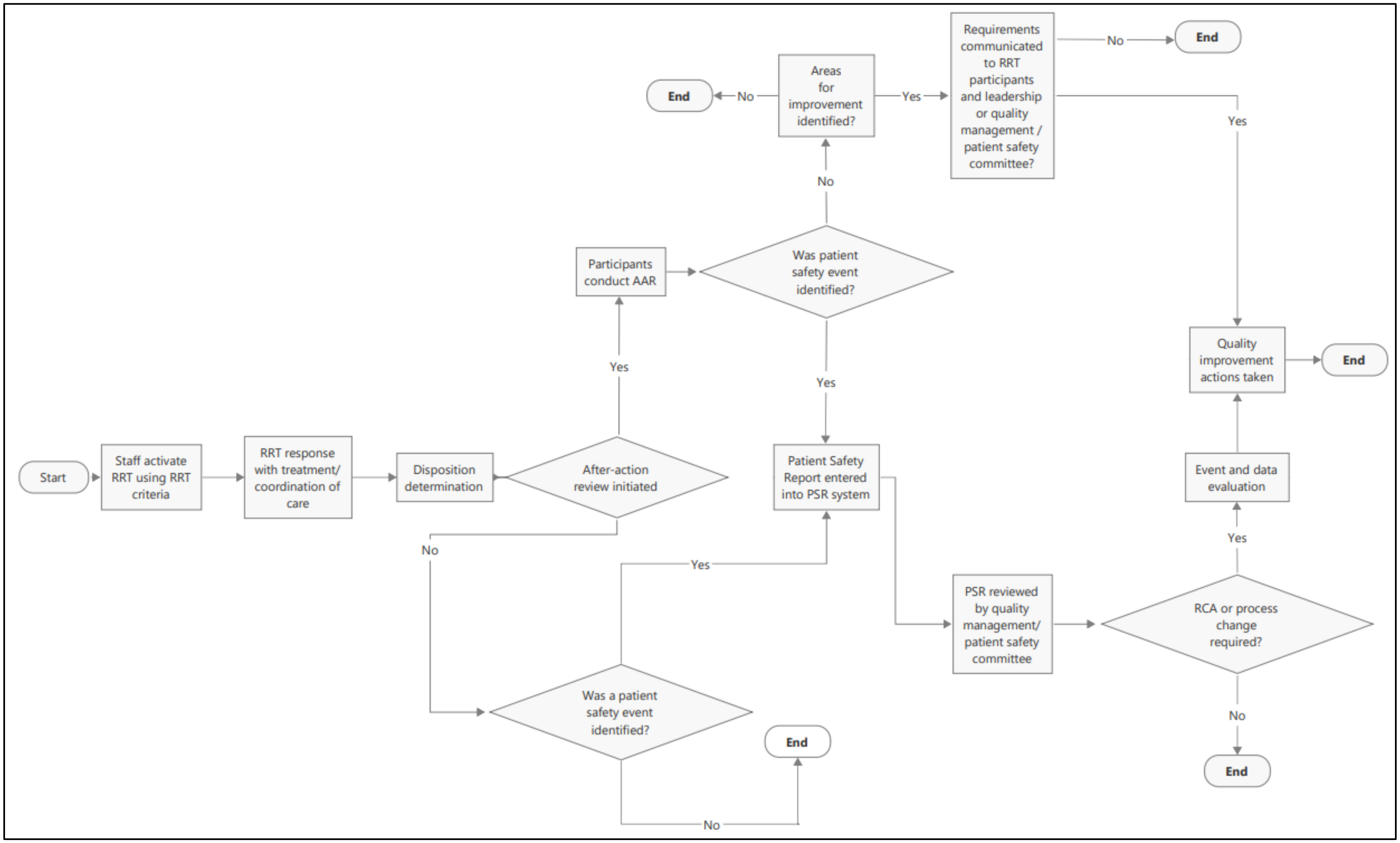
Framework: Promoting Action on Research Implementation in Health Services



Note. Adapted from "Enabling the implementation of evidence-based practice: a conceptual framework," by Kitsen et al. 1998. *Quality in Health Care*, *7*, 149–1589. (https:// doi:10.1136/qshc.7.3.149)

Figure 3

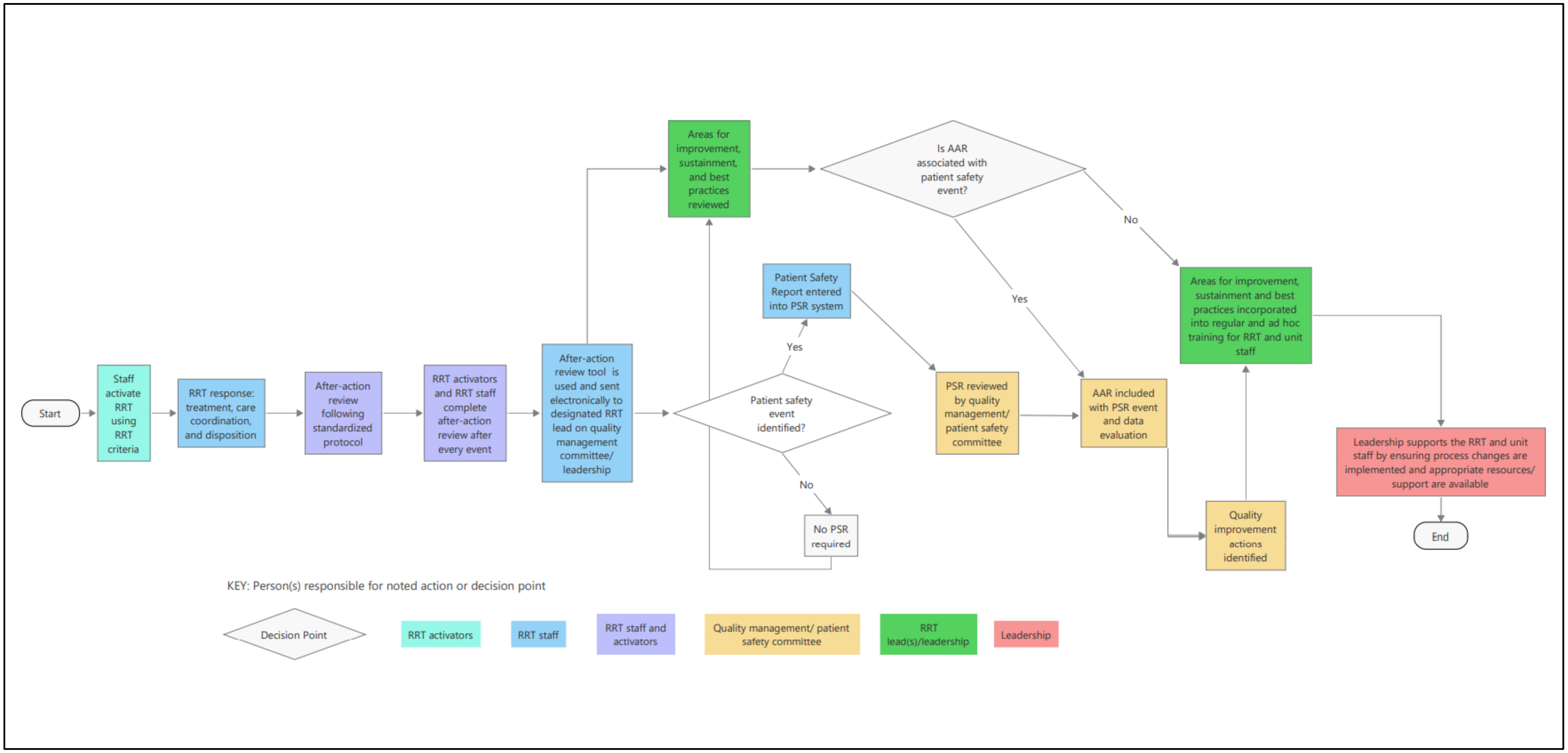
Current State Process Map



Note. RRT: rapid response team; AAR: after-action review; PSR: patient safety report system; RCA: root cause analysis.

Figure 4

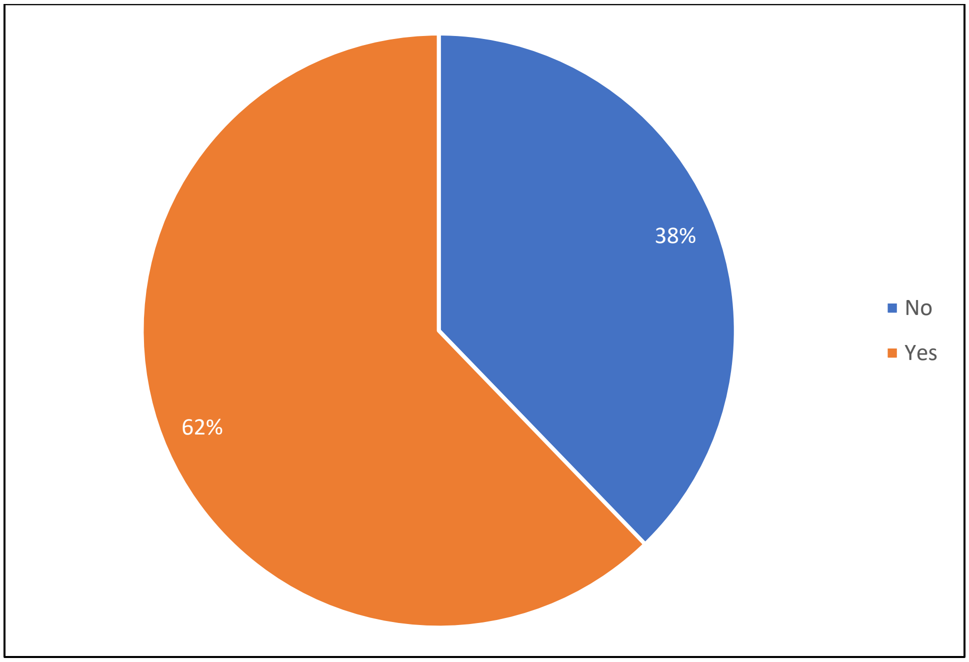
Desired State Process Map



Note. RRT: rapid response team; AAR: after-action review; PSR: patient safety report system.

Figure 5

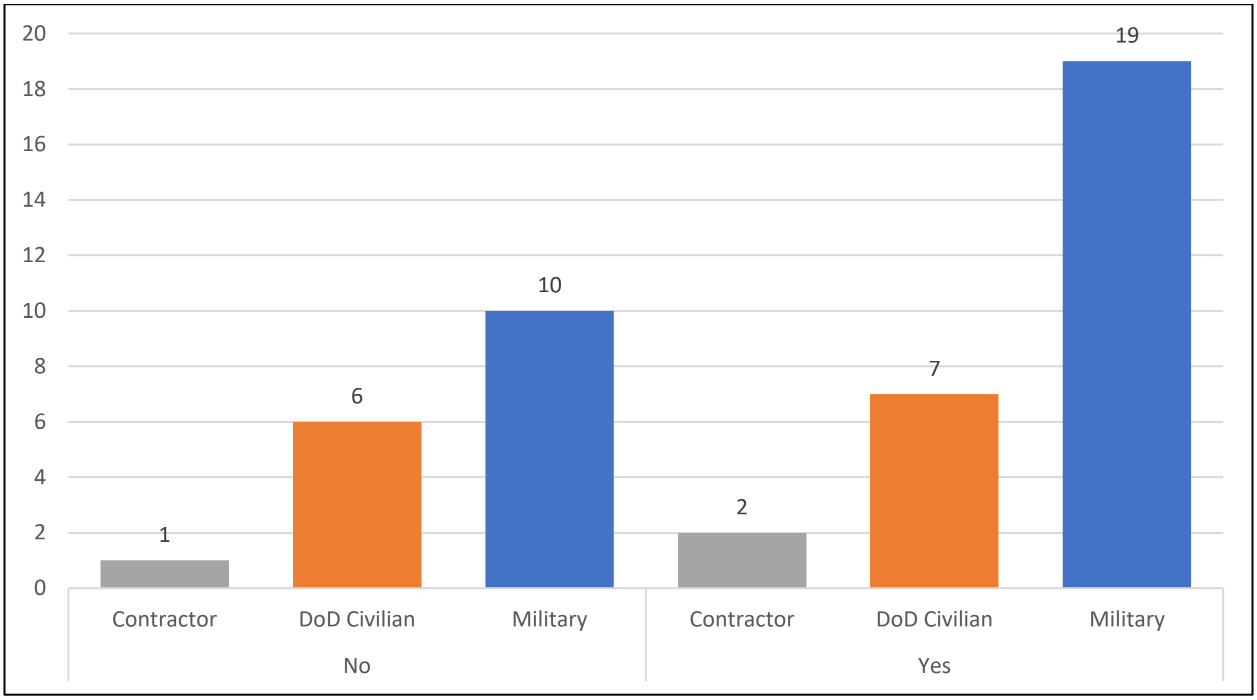
Staff Who Previously Received Training



Note. n = 45.

Figure 6

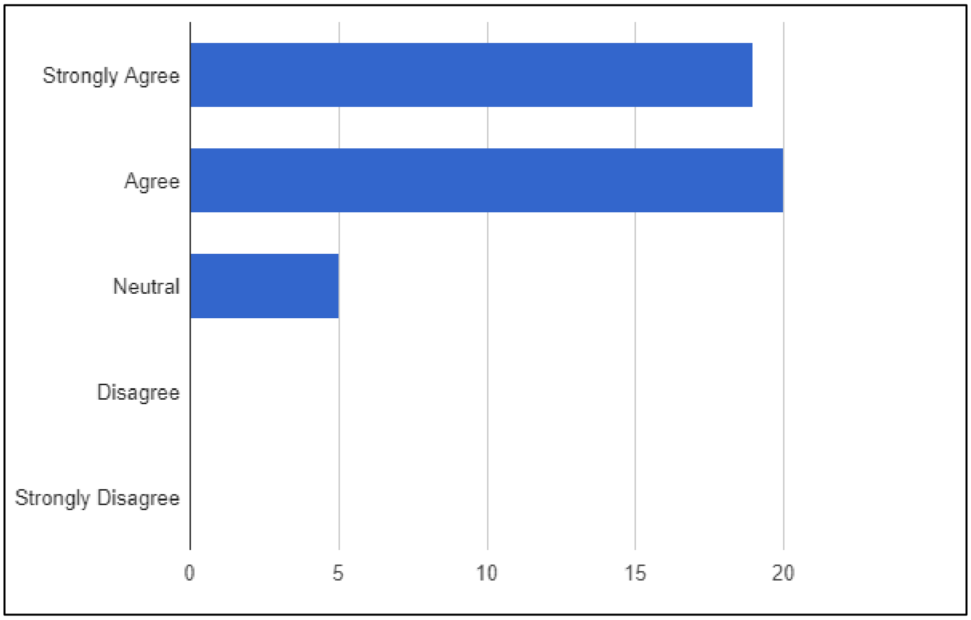
Rates of Previous Training by Status



Note. *n* = 45.

Figure 7

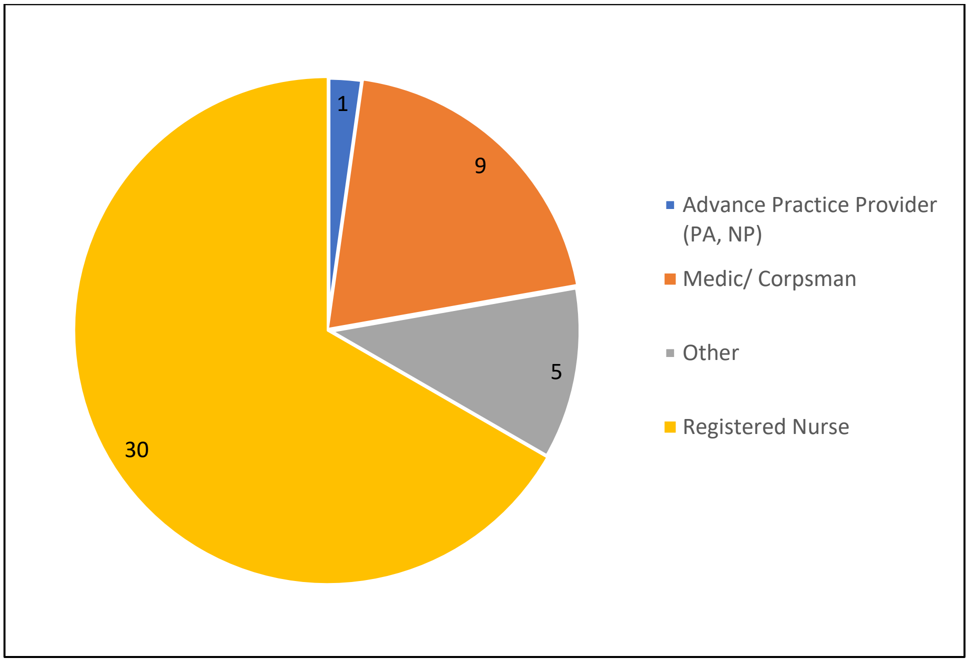
Staff Rating on Importance of Information and Use to Improve Clinical Practice



Note. n = 45.

Figure 8

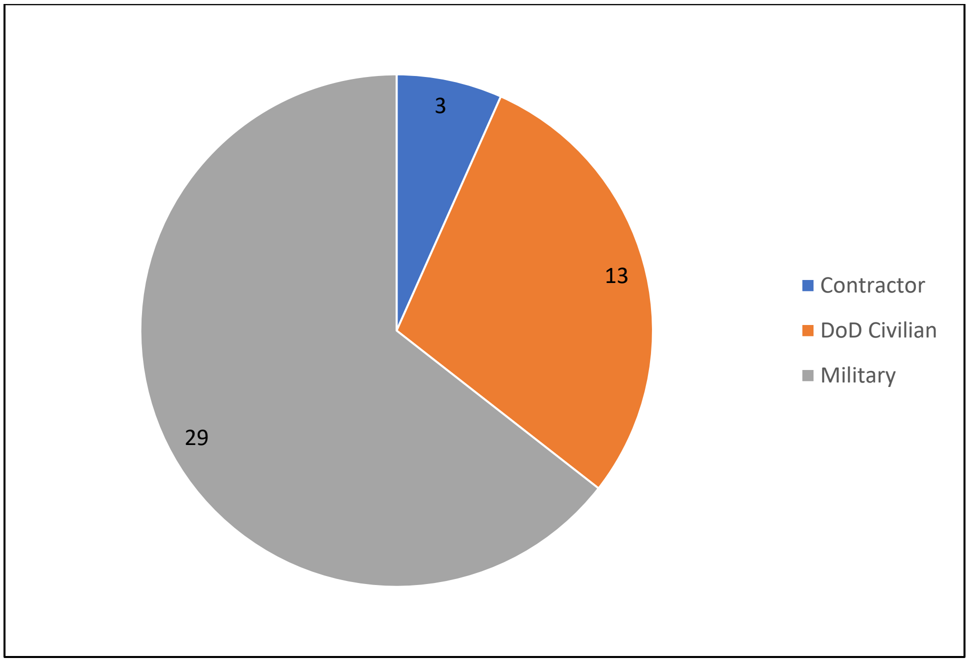
Employee Type



Note. n = 45.

Figure 9

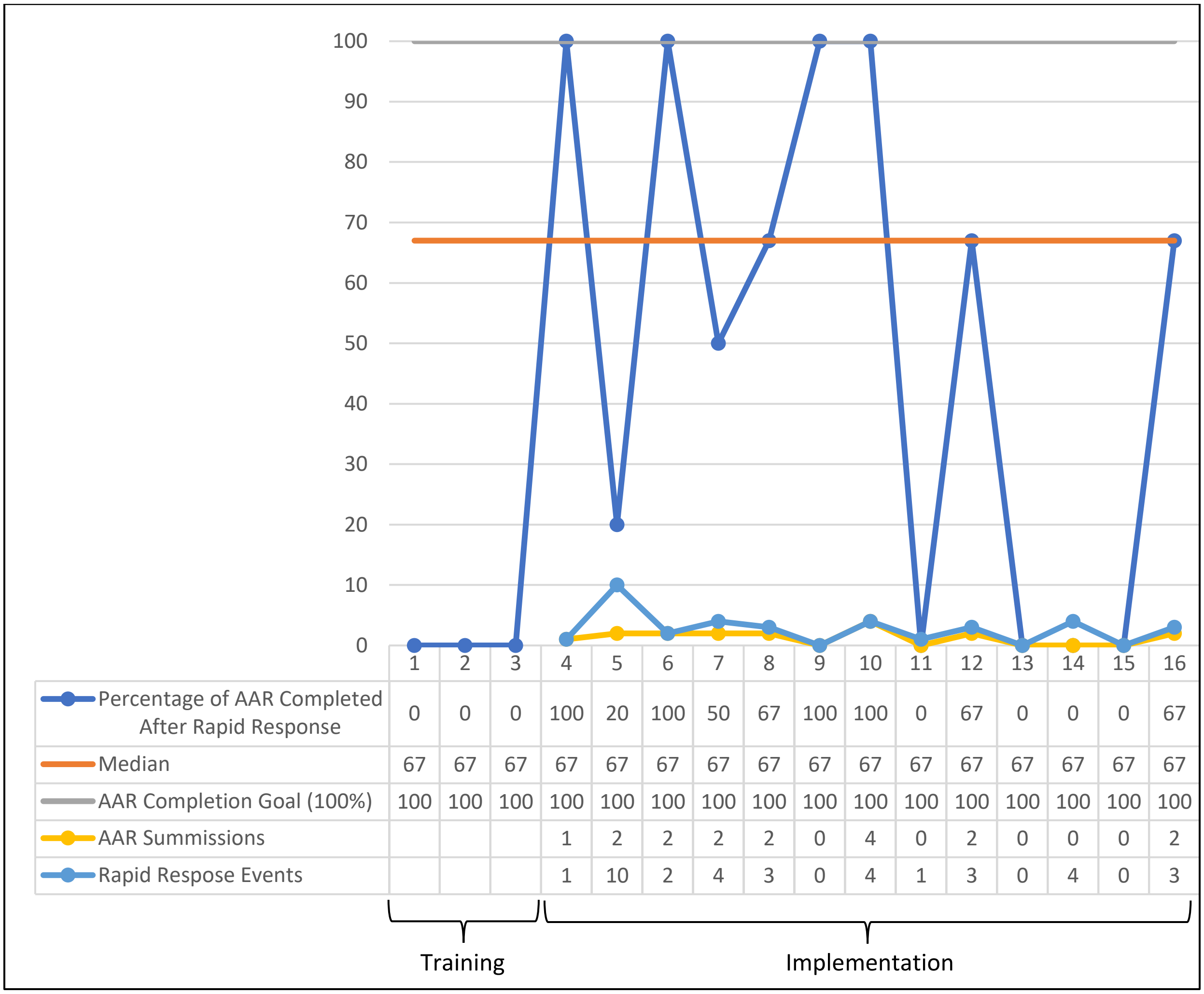
Employee Status



Note. n = 45.

Figure 10

Run Chart of Percentage of AAR Completion Rates After a Rapid Response



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Percentage of AAR Completed After Rapid Response	0	0	0	100	20	100	50	67	100	100	0	67	0	0	0	67
Median	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67
AAR Completion Goal (100%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
AAR Summissions				1	2	2	2	2	0	4	0	2	0	0	0	2
Rapid Respose Events				1	10	2	4	3	0	4	1	3	0	4	0	3

Note. No eligible rapid response events occurred during weeks 13 and 15.

Figure 11

Response: What Went Well

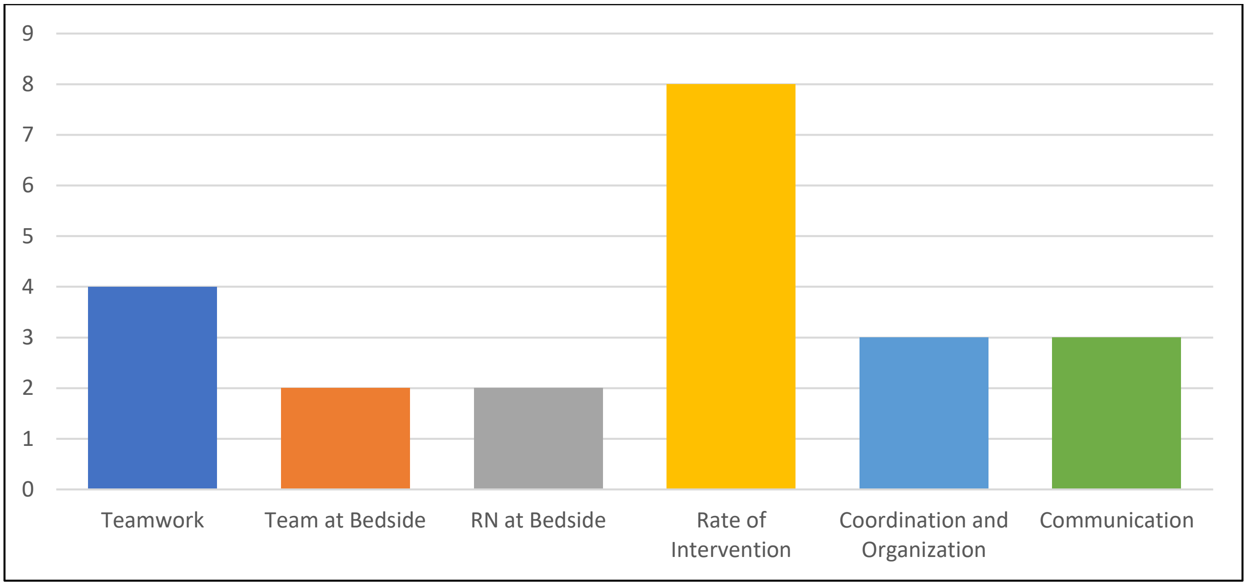


Figure 12

Response: What Went Wrong and What to Address to Prevent Reoccurrence

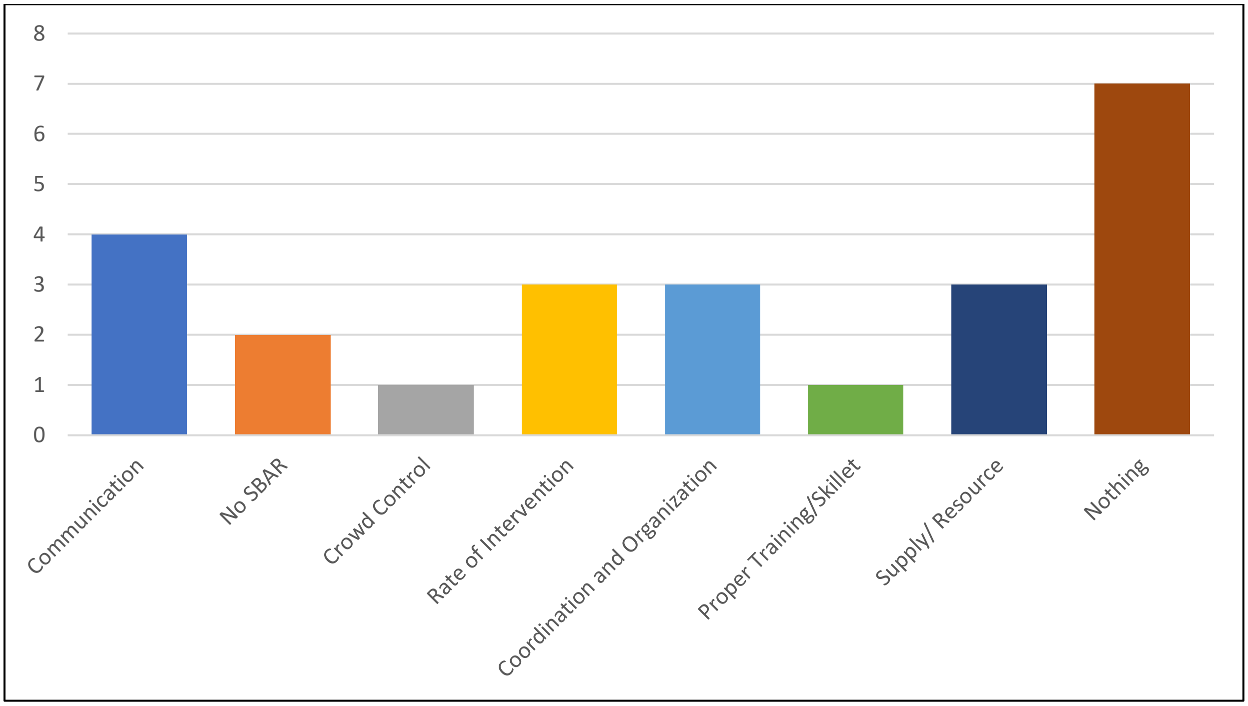


Figure 13

Response: What Should Improve

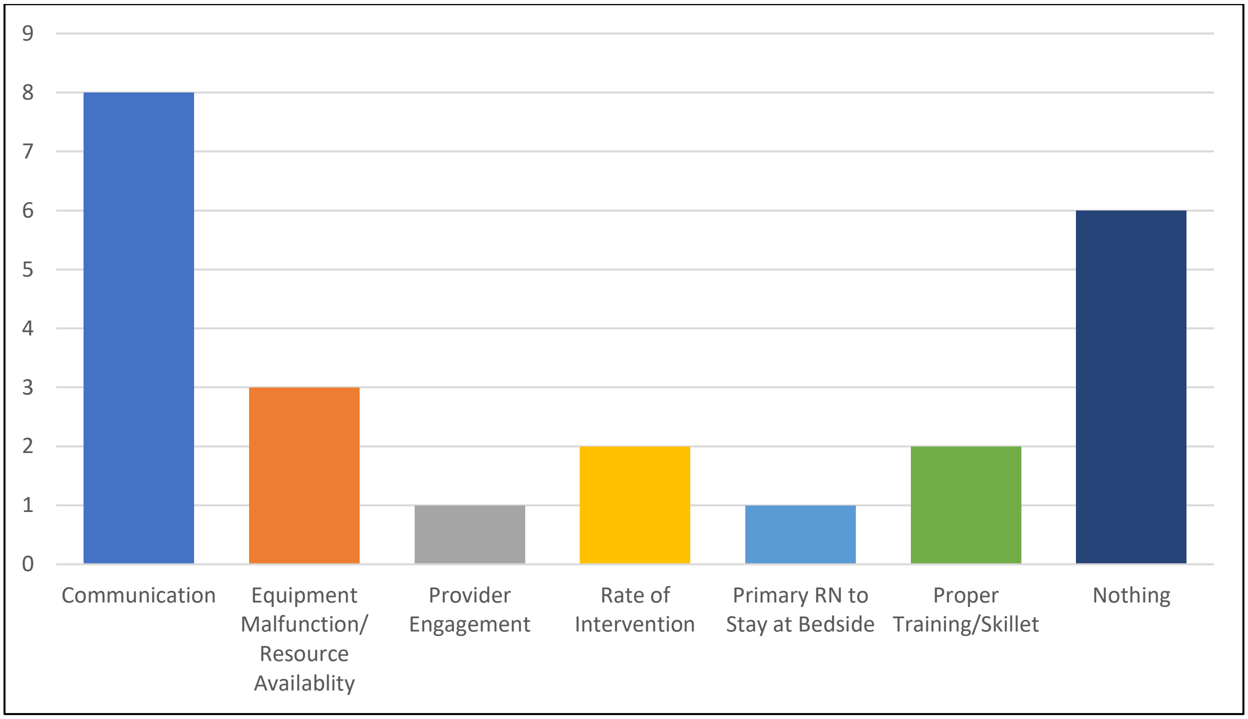
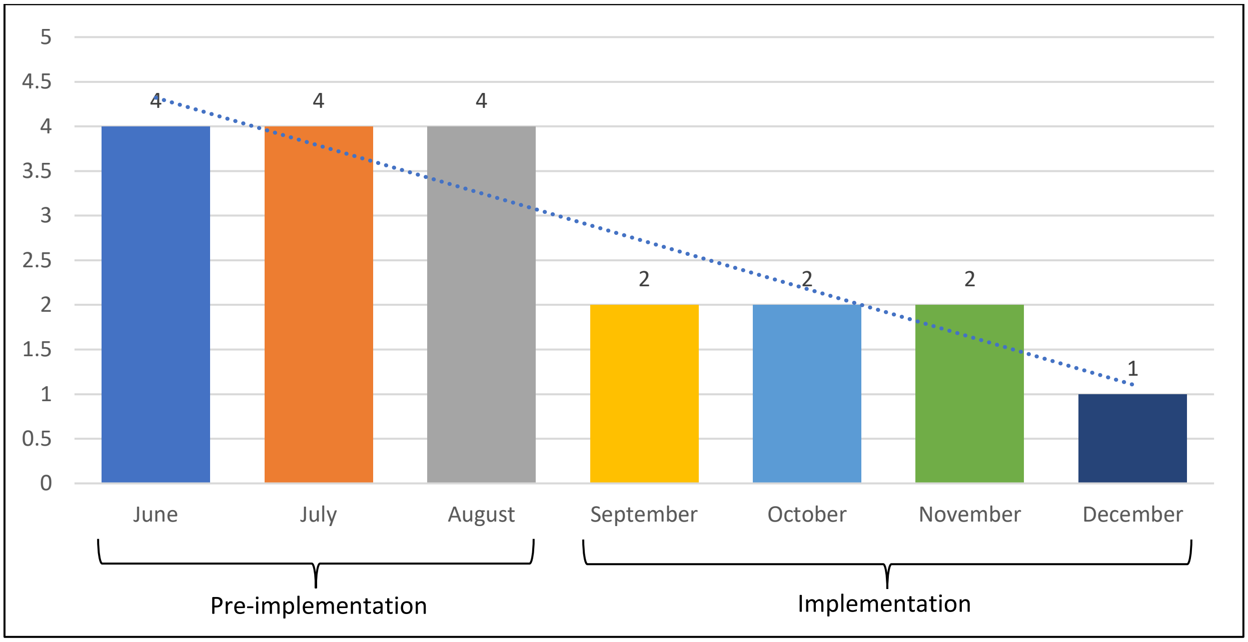


Figure 14

Patient Safety Reports Per Month Pre-implementation and Implementation



Appendix A

Table A1

Evidence Review

Citation: Alhaj Ali, A., Miller, E., Ballman, K., Bakas, T., Geis, G., & Ying, J. (2020). The impact of debriefing modalities on nurse practitioner students' knowledge and leadership skills in managing fatal dysrhythmias: A pilot study. *Nurse Education in Practice*, *42*, 102687. https://doi.org/10.1016/j.nepr.2019.102687					**Level and Quality** IIB
Purpose/ Hypothesis	**Type of Evidence Research Design**	**Sample – Population, Size, Setting**	**Intervention/Procedures**	**Primary Outcome/Measures**	**Results/Conclusions**
The study aimed to investigate differences in debrief methods and effects on knowledge acquisition and retention, clinical performance, and self-efficacy of code team-leader in treating life-threatening dysrhythmias.	Quasi-experimental, non-randomized	**Sampling Technique:** Convenience sample. Randomization and extensive prescreening were not used due to the teaching and education environment. **Eligible:** 28 acute care nurse practitioner students. **Intervention groups:** 16 were assigned to the experimental video-assisted debrief group; 12 assigned to the verbal debrief group. **Power analysis:** the proposed sample size (n = 16 in VAD vs. n = 12 in VD) reached 82% power to distinguish an effect size of 1.2 between groups.	**Intervention:** Students received a comprehensive pre-brief session of expected learning and leadership outcomes. Intervention groups were divided into further subgroups allowing each student to manage/ lead scenario. Following simulation, debriefs were conducted in video assisted or oral format with the same faculty. After 6 weeks, students received a posttest to evaluate knowledge retention. **Intervention Fidelity:** Using the backward design framework, experienced acute care nursing faculty developed clinical scenarios. Laerdal's SimMan, a high-fidelity simulator, was used to mimic a patient with life-threatening dysrhythmias. The scenario, debriefing tools, and simulation equipment were piloted prior to implementation. Two independent evaluators	**DV/ DV Measurements:** (1) Knowledge acquisition and retention: dysrhythmia test consisting of 10 knowledge/ practice questions. Two experienced ACLS instructors established validity, illustrated by test-retest reliability of 0.94; (2) Clinical performance: Measured by the American Heart Association Advanced Cardiac Life Support Checklist. Interrater reliability between two evaluators established. (3) Team leader self-efficacy: measured by team leader self-efficacy tool. Test-retest reliability 0.91; (4) ACLS team leader skills: measured using the ACLS team leader	**Statistical Results:** Knowledge test scores for video assisted group were not statistically significant ($t\ (1) = -0.23$, $p > .5$). No significant difference in scores for self-efficacy as a code team leader ($t\ (1) = -1.06$, $p > .5$). No statistically significant difference in performance scores in clinical competence ($t\ (26) = 1.91$, $p = .06$). T-test measured difference in means at times. both debrief methods resulted in improved self-efficacy. **Clinical Significance:** Debriefing in learning environments can influence confidence in clinical and leadership skills and translate to clinical settings. **Conclusions:** No significant differences noted between the two groups in knowledge acquisition/ retention, leader self-efficacy, and competency. Team and student performance in ACLS protocol, team leader role,

			reviewed records and clinical and leadership competencies.	assessment tool. Test-retest reliability 0.87.	competency, and communication improved.

Citation: Couper, K., Salman, B., Soar, J., Finn, J., & Perkins, G. D. (2013). Debriefing to improve outcomes from critical illness: a systematic review and meta-analysis. *Intensive Care Medicine*, *39*(9), 1513–1523. https://doi.org/10.1007/s00134-013-2951-7					**Level and Quality** IIIB
Purpose/ Hypothesis	**Type of Evidence Research Design**	**Sample – Population, Size, Setting**	**Intervention/Procedures**	**Primary Outcome/Measures**	**Results/Conclusions**
Assess the impact of debriefing on patient and process outcomes during and following emergent treatment for life threatening conditions.	Systematic review and meta-analysis of experimental and non-experimental studies	**Sampling Technique:** Review is registered and conducted in accordance with PRISMA guidelines. Databases were searched for studies using debriefing following emergencies. Narrative syntheses were used to synthesize findings from most studies because of study heterogeneity. **Total eligible:** 210 **Total accepted:** 27 **Inclusion:** Clinical or simulation-based emergency scenarios. Four cardiac arrest studies were included meta-analysis. **Exclusion:** Full-text articles excluded, for debriefing combined with another intervention, no debriefing or emergency, effect of intervention not evaluated, non-clinical responders, editorial/ review article/ trial protocol. **Bias:** Risk of bias examined by the two authors independently using the ILCOR process.	**Intervention:** A total of 35 debriefing interventions used across 27 studies. Two or more debriefing interventions were provided concurrently, in oral or written format. Meta-analysis was conducted using Revman software using a random-effects model. Mean difference was calculated for continuous outcomes, and odds ratios calculated for dichotomous outcomes.	**DV:** Study outcomes were identified as being in support of, opposing or neutral to use of debriefing, with a minimum of one intervention effect with significant effect ($p \leq 0.05$). **DV Measure:** Studies were grouped by Kirkpatrick's system for evaluation of educational intervention to include (1) feedback to debrief/ reaction of clinician, (2) impact on clinical process variables, (3) clinician learning, (4) patient-focused outcomes.	**Statistical Results:** Review found indications of a positive association between debriefing and improved CPR process (compression fraction: mean difference 6.80; 95 % CI:4.19–9.40, p\0.001) and short-term patient outcome (ROSC OR 1.46; 95 % CI 1.01–2.13, p = 0.05). Debriefing was not associated in long-term patient outcome differences (survival to discharge: OR 0.80, 95 % CI 0.38–1.67, p = 0.55) **Clinical Significance:** Debriefing has potential to identify improvement measures for clinical skills and care delivery in the critical care setting. **Conclusions:** Structured debriefs following a life-threatening emergency facilitated improvement in processes and patient outcomes.

Citation: Hale, S. J., Parker, M. J., Cupido, C., Kam, A. J., & Clarke, S. (2020). Applications of Postresuscitation Debriefing Frameworks in Emergency Settings: A Systematic Review. *AEM Education & Training*, *4*(3), 223–230. https://doi-org.proxy-hs.researchport.umd.edu/10.1002/aet2.10444					**Level and Quality** Level IIIB
Purpose/ Hypothesis	**Type of Evidence Research Design**	**Sample – Population, Size, Setting**	**Intervention/Procedures**	**Primary Outcome/Measures**	**Results/Conclusions**
Post resuscitation briefing (PRD) to improves patient outcomes and resuscitation team performance is recommended by resuscitation guidelines. The systematic review aimed to recognize and evaluate existing PRD frameworks to guide the implementation of PRD in emergency setting.	Systematic review of qualitative studies	**Sampling Technique:** A systematic review using PRISMA guidelines was performed to identify PRD frameworks used in both emergency medicine and elsewhere in acute care medicine. A literature search was performed in PubMed, Ovid Medline, CINAHL, and Cochrane databases. **Eligible Studies:** English and peer reviewed studies were included in initial search. Studies required to include a use and description of a debriefing framework. Sufficient detail to for analysis and implementation, and an appropriate framework for debriefing in the emergency department. PRD, methods had to satisfy Lederman's definition of the debriefing process with the ability to translate to ED use. **Accepted:** Of 2,741 total results, 2,045 unique results were screened. 96 studies were identified and 6 met all criteria for the systematic review.	**Intervention:** Six debriefing methods implemented physical debriefing tools across various settings. Methods included the DISCERN, INFO, Post Code Pause (PCP), REFLECT, PediRes-Q, and the Christiana Care Heath System debriefing.	**Dependent Variable:** Successful implementation of bringing tool and improvement of quality debriefing. **DV Measure:** Variable across studies, included identification of system level barriers, improvement of team function, and improved accuracy of recall.	**Results:** PRD improved communication, and team skills, and reduced anxiety among learners. Perceived barriers for PRD implementation were associated with lack of time and complexity of some models. Effective training of facilitators was a contributing factor for effective PRD and associated with higher quality feedback. **Clinical Significance:** Debriefing methods are a useful tool to improve performance and patient outcomes. **Conclusions**: The systemic review would not make a recommendation to which PRD method was most effective. However, authors note each debrief method has particular advantages and the decision for implementation should be based on the goals and preference of the organization.

Citation: Keiser, N. L., & Arthur, W., Jr. (2021). A meta-analysis of the effectiveness of the after-action review (or debrief) and factors that influence its effectiveness. *Journal of Applied Psychology*, *106*(7), 1007–1032. https://doi.org/10.1037/apl0000821					**Level and Quality** Level IIIB
Purpose/ Hypothesis	**Type of Evidence Research Design**	**Sample – Population, Size, Setting**	**Intervention/Procedures**	**Primary Outcome/Measures**	**Results/Conclusions**
The primary objective is to contribute to the advancement of the after-action review literature by using a meta-analysis to assess the current state of after-action review literature.	Systematic review, meta-analysis of descriptive and qualitative studies	**Sampling Technique:** A literature in relevant data bases and Unpublished studies though ProQuest Dissertation and Theses using search terms *after-action review, after-event review, debrief, guided team self-correction, reflexivity, huddle.* **Eligible Studies:** A search and review of abstracts (10,513) resulted in the identification of 270 articles. Articles inclusion criteria: (1) Use of an after-action review (AAR) that included feedback, reflection, and discussion of feedback; (2) assessment of the effects of the after-action review; (3) included a reported effect size or adequate information to calculate; (4) a reported sample size associated with the training conditions. **Accepted:** A total of 61 sources were retained, which included a total of 915 teams and 3,499 individuals. **Bias:** PUB- _BIAS macro for SAS, Egger Regression, Funnel Plot Regression, and Trim and Fill method found mixed indication of publication bias.	**Intervention:** Moderating conditions influencing after-action review include (1) individual versus team (2) facilitator, (3) performance review media, (4) session duration. **Analysis:** Training evaluation criteria were operationalized with distinction of team versus individual AAR. Structure of the AAR was operationalized in terms of standardization levels. Using Hunter and Schmidt's random effects procedures, the authors performed a bare-bones meta-analysis. Effect sizes were calculated using validated formulas by Morris and DeShon and data analyzed using a statistical software, *psychmeta*. Authors validated variance as a result of sampling error, confidence intervals, and differences between moderating conditions.	**Dependent Variable:** Effectiveness of the AAR **DV Measure:** Evaluation criteria categorized as attitude, cognitive process, and task performance assessed in training.	**Statistical Results:** Effectiveness for the AAR is larger than overall effectiveness of organizational training (d=0.62), various team training approached (d= 0.39) and error management training (d=0.44). Behavior modeling training was more effective than AAR (d=1.09) as well as managerial leadership development (d= 1.36). **Clinical Significance:** AAR aligned to team or task is effective in healthcare setting **Conclusions**: Individual versus team aligned conditions are associate with larger AAR effectiveness. Objective media appear to be important to the individual AAR since recall relies on the individual and may increase risk of recall errors. High structured after-action reviews effectiveness are comparable to low structured when associated with the respective industry. The after-action review regularly leads to improvement in attitude, cognitive process, and task performance.

Citation: Keiser, N. L., & Arthur, W. (2022). A Meta-Analysis of Task and Training Characteristics that Contribute to or Attenuate the Effectiveness of the After-Action Review (or Debrief). *Journal of Business & Psychology*, 1–24. https://doi.org/10.1007/s10869-021-09784-x					**Level and Quality** IIIA
Purpose/ Hypothesis	**Type of Evidence Research Design**	**Sample – Population, Size, Setting**	**Intervention/Procedures**	**Primary Outcome/Measures**	**Results/Conclusions**
The purpose of the meta-analysis is to expound on a recent meta-analysis and examine attributes of task and training on the effective of the after-action review.	Meta-analysis	**Sampling Technique:** A comprehensive literature search in relevant databases using terms *after-action review, after-event review, debrief, guided team self-correction, huddle, reflexivity* **Eligible:** The total eligible studies were 330, with 83 accepted for meta-analysis. Inclusion criteria included after-action review use, defined by event, action, feedback, discussion, and reflection. After- action review effects were examined with reported sample and effect size. **Bias:** PUB- _BIAS macro for SAS, Egger Regression, Funnel Plot Regression, and Trim and Fill method found mixed indication of publication bias.	**Intervention:** Assessment of characteristics influencing after-action review effectiveness. Retained studies were coded by first author. 34 studies were subsequently coded by a subject-matter expert, who has vast knowledge with the AAR and meta-analysis. Agreement in coding of this subset of studies was >95%. Hunter and Schmidt's random effects procedures guided the meta-analysis and data were examined using Dahlke and Wiernik's psychmeta statistical package.	**DV:** Influential characteristics examined include (1) feedback was intrinsic or extrinsic, (2) inclusion of a reaction phase, (3) if reviewed performance was a failure, success, or both, (4) Source of reviewed performance as either canned, personal, or both, (5) low, medium, or high task complexity, (6) no or high consequences of error.	**Statistical Results:** AAR is particularly effective for highly complex tasks that lack intrinsic feedback (d = 1.35, k = 12). Effectiveness of AAR is decreased when an initial reaction phase is included (AAR with a reaction phase d = 0.74 versus without d = 0.99). AARs which included both failures and successes (d = 0.92) enhanced evaluation criteria compared to failures alone (d = 0.60). For induvial or canned approach, the finding support reviewing team or individual performance (d = 0.98). The after-action review is exceedingly effective for highly complex tasks (d = 1.00), followed by medium (d = 0.91), and low complexity (d = 0.84) tasks. **Clinical Significance:** Implementing AAR practices with identified characteristics will improve AAR efficiency **Conclusions:** Characteristics of effective AAR include one not providing intrinsic feedback that is not a part of the task, is highly complex, and no consequences of error.

Citation: Lee, J., Lee, H., Kim, S., Choi, M., Ko, I. S., Bae, J., & Kim, S. H. (2020). Debriefing methods and learning outcomes in simulation nursing education: A systematic review and meta-analysis. *Nurse Education Today*, *87*, 104345. https://doi-org.proxy-hs.researchport.umd.edu/10.1016/j.nedt.2020.104345					**Level and Quality** Level IIIB
Purpose/ Hypothesis	**Type of Evidence Research Design**	**Sample – Population, Size, Setting**	**Intervention/Procedures**	**Primary Outcome/Measures**	**Results/Conclusions**
Methods of debriefing used in simulation vary widely and evidence supporting the most effective debriefing method is insufficient. The purpose of the review was to verify the effects of debriefing methods on learning outcomes in simulation in nurse education. A quantitative approach was used to analyze the effectiveness of debriefing methods in improving nursing students' learning outcomes.	Systematic review and meta-analysis of experimental and non-experimental studies	**Sampling Technique:** A systematic review and meta-analysis was conducted in accordance with PRISMA guidelines. A literature search was performed in relevant data bases using keywords *nurse*, *nursing student*, *simulation*, *simulator, standardized patient, and debriefing* as single search terms or in combination using MeSH terms. **Eligible Studies:** Inclusion criteria were (1) studies with nursing students as subjects; (2) learning outcomes were measured according to the debriefing methods in simulation; (3) randomized control trial (RCT) or quasi-experimental designs conducted with comparison groups with usual debriefing, meaning faculty or instructor-led verbal discussion debriefing **Excluded:** Grey literature, review papers, editorials, and dissertations/academic research were excluded **Accepted:** 18 studies were included in systemic review and 7 in meta-analysis.	**Interventions:** Length of debriefing models, individual versus group debriefing, and debriefing method (video debriefing, debriefing for meaningful learning, peer led video debriefing, senior debriefing, verbal debriefing, and instructor led debriefing.	**Dependent Variable:** Effectiveness of debriefing methods **DV Measure:** A subgroup analysis to determine effective debriefing methods was performed using identical validated measurements. Selected learning outcomes were measured using the Debriefing Assessment for Simulation in Healthcare–Student Version (DASH–SV), Health Sciences Reasoning Test (HSRT), Lasater Clinical Judgment Rubric (LCJR), and Debriefing Experience Scale (DE).	**Statistical Results:** The effect sizes of learning outcomes were analyzed for the debriefing method and calculated for ten datasets. Effect sizes ranged from 0.60 to 1.49, indicating reporting of a low level of difference (Q = 2.54, df = 3, p = 0.47, I 2 = 0; Fig. 3). Different debriefing methods improved learning outcomes. **Clinical Significance:** Improved learning in the clinical setting occurs with structured debrief. **Conclusions**: Video debriefing, debriefing for meaningful learning, or Lasater Clinical Judgment Rubric generally improved learning outcomes and debriefing quality. Peer led debrief were inferior to instructor led debriefs. The most effective methods of debriefing are structured and highlights the importance of de-briefers have well defined debriefing goals and strategies to effectively target the learner.

Citation: Mullan, P. C., Wuestner, E., Kerr, T. D., Christopher, D. P., & Patel, B. (2013). Implementation of an in situ qualitative debriefing tool for resuscitations. *Resuscitation*, *84*(7), 946–951. https://doi.org/10.1016/j.resuscitation.2012.12.005					**Level and Quality** III B
Purpose/ Hypothesis	**Type of Evidence Research Design**	**Sample – Population, Size, Setting**	**Intervention/Procedures**	**Primary Outcome/Measures**	**Results/Conclusions**
The purpose of the study was to describe the use of debriefing following resuscitation events, and to outline debriefing attributes to include content, timing, predictors, patient outcomes, and patient characteristics.	Retrospective, observational cohort study	**Sampling Technique:** convenience sample, team members in his single pediatric emergency department of a high acuity tertiary care hospital **Sample:** 241 patients requiring resuscitation in the ED setting, defined as cardiopulmonary resuscitation (CPR), intubation. **Included:** A total of 191 DISCERN forms were completed over the study period, 63 of which required debriefing.	**Intervention:** Debriefing in situ conversation after emergent resuscitation now (DISERN) tool training on usage. **Intervention fidelity:** Provider training on DISCERN tool was conducted at two consecutive staff meetings. Baseline and 6-month training 20 minutes in length provided to all nurses. Validation of DISERN form completion performed through a chart review by investigators. Interrater reliability between primary nurse and study investigators evaluated using Cohen's Kappa statistic.	**DV:** characteristics up resuscitation and characteristics of patients resuscitated and whether or not resuscitation was debriefed. **DV Measurement:** Adherence to DISCERN form completion following eligible resuscitations. DISCERN form comments were categorized by a framework approach23 into eight elements as described in the Team Emergency Assessment Measure (TEAM), a validated measurement tool for medical resuscitations was used to categorize comments from DISCERN form.	**Statistical Results:** DISCERN form completion took place after 79% of resuscitations meeting criteria. Higher rates of debriefing occurred after CPR or death in the emergency department. TEAM Themes identified included coordination, communication, and situational awareness. Primary reason for not completing a debrief included viewing it as a necessary and limited time. Rates of DISCERN form completion were higher following higher acuity events, lasting approximately 10 minutes. **Clinical Significance:** A minimal amount of training is required to learn and implement the DISCERN tool, making it a viable option for standardization of debriefing. **Conclusions:** The DISCERN tool completed rates increased following higher acuity resuscitations, were brief, and was most effective when done shortly after the event.

Note. Evidence graded following *Johns Hopkins nursing evidence-based practice: Model and guidelines*, by Dang, D. & Dearholt, 2018. Copyright 2022 by Johns Hopkins Health System/Johns Hopkins School of Nursing.

Table A2

Evidence Synthesis Table

Category (Level Type)	Total Number of Sources/Level	Overall Quality Rating	Synthesis of Findings
Level 1 - Experimental study · Randomized Controlled Trial (RCT) · Systematic review of RCTs with or without meta-analysis			
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	1 quasi-experimental, non-randomized	B	Alhaj Ali et al. (2020) found no substantial differences between debriefing methods in individual knowledge retention, competency, leadership, and self-efficacy. However, the authors note improved team performance with advanced cardiac life support protocols and communication from first debrief to the second simulation.
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	3 systematic review and meta-analysis, 1 systematic review, 1 meta-analysis, 1 retrospective, observational cohort study	B	Performing a debrief in the form of an after-action review following an event, provides an opportunity to examine and analyze performance. Although of the debrief or after-action review (AAR) has gained considerable popularity as a method to improve processes, the evidence review found no established standards for facilitation following a critical event or rapid response activation. Couper and colleagues (2013) identified that structured debriefs following a life-threatening emergency facilitated improved CPR processes and short-term patient outcomes. The literature consensus highlights AAR potential to improve clinical performance (Couper et al., 2013; Keiser & Arthur, 2021; Lee et al., 2020; Hale et al., 2020). However, few studies demonstrate real-time benefits for improved outcomes and patient safety in clinical scenarios. Many studies focus on AARs following educational simulation in healthcare (Alhaj Ali et al., 2020; Lee et al., 2020), but the theoretical construct for learning translates to improved clinical processes and patient outcomes when applied to rapid response events. Couper et al. (2013) and Lee et al. (2020) illustrate the value of structured debriefs in knowledge and skill attainment and subsequent implementation into clinical practice. Hale et al. (2020) could not make a recommendation to which debriefing method was most effective. Instead, authors note each debrief method has advantages and effectiveness levels correlate with the organization's goals and structure. Keiser & Arthur (2021) had similar findings to Hale and colleagues

	(2020) in that the effectiveness of the after-action review is associated with implementation environment. Facilitator led after action reviews with a shorter are most effective in the healthcare setting, which is also consistent with findings by Lee et al. (2020). The meta- analysis by Keiser & Arthur (2022) was an expansion of previous work and looked to examine specific characteristics influencing effectiveness of the after-action review. The absence of intrinsic feedback that is not a part of the task, proved to improve effectiveness and as well as AAR use following highly complex tasks such as medical crisis and resuscitation events. Similarly, Mullen et al. (2013) found higher rates of debriefing occurred following life-threatening events with the implementation of a structured tool.
Level IV · Opinion of respected authorities and/or reports of nationally recognized expert committees/consensus panels based on scientific evidence 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	

Recommendations Based on Evidence Synthesis: Good and consistent evidence to support practice change.

Appendix B

TeamSTEPPS Debriefing Tool for the Rapid Response After-Action Review

Record ID	______________________
Date of After- Action Review	______________________
Time of After-Action Review	______________________
Did a patient safety event occur?	◯ Yes ◯ No (A patient safety event is defined as any incident or condition that could have resulted or did result in harm to a patient. Such events may be the result of a defective process or system, process or system breakdown failure or malfunction of equipment, or human error. Adverse events, no-harm events, near miss events, and unsafe conditions also constitute a patient safety event.)
If a patient safety event occurred, was a Patient Safety Report (PSR) submitted?	◯ Yes ◯ No ◯ Not applicable
PSR number, if submitted	______________________

After- Action Review

	Yes	No
Was the communication clear?	◯	◯
Were roles and responsibilities understood?	◯	◯
Was situation awareness maintained?	◯	◯
Was workload distribution equitable?	◯	◯
Was task assistance requested or offered?	◯	◯
Were errors made or avoided?	◯	◯
Were resources available?	◯	◯

In terms of tasks, transitions, and achievement of patient stabilization: What went well?	______________________ (What went well and how can we ensure it always goes well? These are "sustains" or "Best Practices"
In terms of tasks, transitions, and achievement of patient stabilization: What went wrong and how can we change the rapid response process to prevent recurrence?	______________________
In terms of tasks, transitions, and achievement of patient stabilization: What should improve?	______________________ (These are the "Improves" - things to avoid or correct, if possible. Why were there were shortcomings and why did it occur? Try to develop at least three concrete ideas for better clinical performance or response.)

	Rapid response nurse	Unit charge nurse	Primary nurse	Primary provider (MD, PA, APRN)	Respiratory therapist	Secondary nurse (rapid response team)	Secondary nurse (unit)	Secondary provider (MD, PA, APRN)	Other
AAR participants	☐	☐	☐	☐	☐	☐	☐	☐	☐

Additional comments	______________________

Note. Adapted from "TeamSTEPPS Rapid Response Systems Module," Agency for Healthcare Research and Quality. 2014.

(https://www.ahrq.gov/teamstepps/rrs/instructor_slides/rrsinstructmod.html#rrssl42)