



RAPID RESPONSE TEAMS: QUALITATIVE ANALYSIS OF THEIR EFFECTIVENESS

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CNE 1.0 Hour

Notice to CNE enrollees:

A closed-book, multiple-choice examination following this article tests your understanding of the following objectives:

1. Identify 5 categories that encompass team effectiveness.
2. Discuss the components of an effective rapid response team (RRT).
3. Describe potential barriers to implementation of an RRT.

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Background Multidisciplinary rapid response teams focus on patients' emergent needs and manage critical situations to prevent avoidable deaths. Although research has focused primarily on outcomes, studies of the actual team effectiveness within the teams from multiple perspectives have been limited.

Objective To describe effectiveness of rapid response teams in a large teaching hospital in California that had been using such teams for 5 years.

Methods The grounded-theory method was used to discover if substantive theory might emerge from interview and/or observational data. Purposeful sampling was used to conduct in-person semistructured interviews with 17 key informants. Convenience sampling was used for the 9 observed events that involved a rapid response team. Analysis involved use of a concept or indicator model to generate empirical results from the data. Data were coded, compared, and contrasted, and, when appropriate, relationships between concepts were formed.

Results Dimensions of effective team performance included the concepts of organizational culture, team structure, expertise, communication, and teamwork.

Conclusions Professionals involved reported that rapid response teams functioned well in managing patients at risk or in crisis; however, unique challenges were identified. Teams were loosely coupled because of the inconsistency of team members from day to day. Team members had little opportunity to develop relationships or team skills. The need for team training may be greater than that among teams that work together regularly under less time pressure to perform. Communication between team members and managing a crisis were critical aspects of an effective response team. (*American Journal of Critical Care*. 2013;22:198-210)

As the coordination of work in organizations has become more complex, teams and teamwork have become necessary to accomplish organizational goals.^{1,2} High-risk environments such as nuclear power plants and naval aircraft carriers have pioneered a path to achieve optimal levels of safety via high-performing teams.³ In health care, the tradition of relying on individual clinicians and individual expertise has changed to relying on team-based delivery of care to ensure expected outcomes. Effective team functioning was one principle emphasized as necessary to create safe hospital systems.⁴ In acute care hospitals, increased complexity and interdependence amid the need for efficiency have accelerated a focus on the advantage of teams, teamwork skills, and team training.

Teams are more than a group of individuals who come together acting independently of one another.⁵ Teams are 2 or more persons who have shared goals that inform their individual and collective actions. Teams consist of individuals who have roles within the team, carry out interdependent tasks, share common goals, and are able to adapt to changes in the environment.⁵ Multidisciplinary teams have been investigated in operating rooms,⁶⁻¹² critical care units,¹³⁻¹⁸ and emergency departments.¹⁹ Each study revealed barriers, including difficulties with team formation, variation in shared understanding of purpose and roles, communication breakdowns, and power and hierarchy interference with collaboration. These teams routinely face the challenge of managing a patient's crisis and working in critical situations.

Crisis management creates circumstances of risk or high stakes because the crisis creates a context of uncertainty, time pressure, and knowledge that decisions are often irreversible. Situations such as these, with the expectation that knowledge and clinical expertise will be applied to successfully manage critical situations, demand effective team performance. Because of interdependence, effective team functioning means that the team's tasks are coordinated, and cooperation is inherent because the work cannot be successfully accomplished by individuals working in isolation.

Concerns about patients' safety in acute care hospitals in the United States led to national patient safety initiatives^{4,20} to reduce adverse events and, specifically, to prevent avoidable deaths among hospitalized

patients. One initiative was the creation of rapid response teams (RRTs), also called medical emergency teams. These crisis management teams were designed to rescue patients by preventing cardiorespiratory arrests that occurred outside intensive care. The RRT is a resource that can be called on to intervene early enough in the clinical course of patients who are experiencing signs and symptoms of compromise to prevent further deterioration in the patients' clinical condition, adverse outcomes, and preventable deaths. Team composition is multidisciplinary; teams typically include a registered nurse, a respiratory therapist, and a physician.

Before use of RRTs, the usual approach to a patient crisis was an ad hoc, individual search for needed resources or for a cardiac arrest team. The advent of RRTs has changed the response from a critical-situations approach to a systems approach that is coordinated and operational at the level of the patient and the health care provider.²¹ Most of the research on response teams has focused on tracking and reporting the hospital outcomes. Findings have been mixed. Most of the studies, starting with the research by Lee et al,²² were done at a single site and involved use of historical controls; the results included fewer cardiopulmonary arrests (codes) and lower mortality rates after implementation of RRTs.²²⁻⁴² In contrast, beginning with the Medical Emergency Response Improvement Team study,⁴³ code rates and mortality rates were not significantly reduced, although some downward trends were noted.⁴³⁻⁴⁵ In a meta-analysis of 18 studies (1950 through 2008), Chan et al⁴⁶ reported mixed findings. Rates of cardiopulmonary arrest outside the intensive care unit (ICU) in adults were reduced by 33.8% (relative risk [RR], 0.66; 95% CI, 0.54-0.80), yet the rates were not associated with lower hospital mortality rates (RR, 0.96; 95% CI, 0.84-1.09). The reduction in the rate of non-ICU cardiopulmonary

Effective team functioning is necessary to create safe hospital systems.

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Research on rapid response teams and improved hospital outcomes has yielded mixed findings.

arrests for children was 37.7% (RR, 0.62; 95% CI, 0.46-0.84) and was associated with a 21.4% reduction in hospital mortality rates (RR, 0.79; 95% CI, 0.63-0.98), but the mortality rate was not a strong finding. No further meta-analysis for the years after 2008 has been published, and no multicenter clinical trials have been reported. Despite the mixed findings, hospital leaders have not actively questioned the use of RRTs. Rather, current discourse on RRTs is that the teams are valued because early recognition of patients at risk is important for patient safety.⁴⁷ In order to support such efforts, bringing a team of experts to the bedside to prevent adverse events such as cardiorespiratory arrests makes sense. And, RRTs require only modest resources to prevent escalation of deterioration in a patient's condition and the need for transfer to intensive care.⁴⁷

RRTs do their work within an organizational culture. Unfortunately, much remains unknown about organizational structures and RRTs.⁴⁷ For example, knowledge of a team's performance, including how teamwork develops, is applied, or evaluated and the extent to which team debriefing is used, is limited. No research on work coordination or on relational influences on communication, trust, and respect among the members of RRTs has been reported. Because of the social nature of organizational cultures, a broader range of methods to generate knowledge about complex organizational relationships is recommended.⁴⁷ Specifically, use of an RRT is a complex intervention involving organizational, political, cultural, and financial factors and a system of complex human activities for which the traditional scientific

method of randomized controlled trials is not possible or recommended.²⁹ Therefore, descriptive studies, case and observational methods, as well as qualitative methods are most useful.⁴⁷ Health care leaders need an understanding of how members of an RRT work together as a team and how much teamwork influences performance. Investigating RRT performance in the context of organizational social processes provides the opportunity not only to elucidate team performance

but also to better understand the social processes in operation that may or may not affect a team's effectiveness. Because no research was available on this subject in the context of an organizational cultural social process, we used a qualitative method to describe the effectiveness of RRTs. The associated research question was, How does a rapid response team function effectively?

Methods

In this descriptive qualitative research study, a grounded-theory method was used to describe the perceptions and observations of RRT events as the events occurred in the natural setting. A total of 1 to 2 investigators were on site at any time, depending on the availability of the individual investigators. Grounded theory was used to illuminate the social and technical process of a multidisciplinary health care team and the members' interactions in order to explain the subjective aspects of team-based care delivery and participating as an individual on the team.

Data sources for the study included field notes from observed RRTs, hospital documents, and transcripts from recorded semistructured, individual interviews. Data collection and analysis were concurrent with the use of theoretical sampling to identify specific ongoing data sources, such as participants for interview or in-service orientation curricula. Because RRTs are not planned events, neither the events nor the team members could be preselected or randomly selected for this study. Data were coded in a 2-step process. The first step, termed *open coding*, involved coding the data as they were being collected. This step resulted in numerous categories. The second step, termed *axial coding*, was to examine those initial categories for similarities. Where similarities existed, those first-step categories were combined into fewer more comprehensive categories. Theoretical saturation of categories was determined when no additional data were being found to develop properties of any new codes or axial relationships between codes.

Approval for the study was obtained from the institutional review boards of the study site and the University of California, Los Angeles. Participation by RRT members, staff registered nurses, and other professionals involved with RRTs was voluntary, and informed consent was obtained.

Setting

The study was conducted at a large, public, university-affiliated medical center in northern California. This hospital was purposefully selected because it was identified in a previous study⁴⁸ of RRTs in 6 hospitals as an exemplar hospital with an organizational culture that supported the introduction of the RRT process. Primary factors in the selection were the organization's commitment to innovation to achieve safe care and improve patient safety and the staff's acknowledgment of the original finding.⁴⁵

With more than 6000 employees, the medical center is a large public, tertiary care, university-affiliated teaching hospital. It is a safety-net facility

for the county and a regional resource for specialty care in burns, trauma, and spinal cord injury. The patients are primarily low income, and 85% of patients do not have private health insurance.

Sampling Method and Sample

A convenience sample for RRT observations was used because the timing of events that required an RRT was unpredictable. Because of differences in availability of the investigators, 1 investigator (L.S.L.) observed 3 RRT events and 2 investigators (L.S.L., A.M.M.) observed 6 RRT events for a total of 9 observations that were made on different days of the week (Sunday, Monday, Tuesday, and Wednesday) during a 30-day period in August and September 2008.

Initially, purposive sampling was used to identify hospital documents that needed review. A previous study¹⁸ of 6 hospitals in which nurse leaders and educators from the study site participated in interviews indicated which hospital documents were relevant to the design and ongoing monitoring of RRTs and patients' outcomes. The documents included RRT training materials, a log of RRT calls, an RRT documentation template, and a job description for the registered nurse members of the RRT. Theoretical sampling of documents occurred as the study progressed, leading to, for example, examination of documents of the RRT quality improvement committee that provided information on decision making about changes in RRT processes. Again, purposive sampling was used initially to identify key informants for interviews. The 2 categories of informants were RRT members and hospital administrative leaders involved with implementing the use of RRTs. The final interview sample size was 17 and included registered nurses who called an RRT, nurses who responded as members of the team (RRT nurse), physician members of the team (hospitalists), and administrators, including the department heads of respiratory therapy, nursing, and medicine. Theoretical sampling of participants informed the addition of more RRT nurses because the nurses had more experiences with RRTs than did any other RRT members.

Data Collection

The research question, How does a rapid response team function effectively?, framed this qualitative grounded theory study. Both study investigators (L.S.L. and A.M.M.) conducted individual interviews and observations. Each investigator has medical-surgical and intensive care nursing backgrounds and has had leadership roles in both areas.

Interviews. Interviews with RRT members and hospital leaders associated with the introduction of

RRTs and training of RRT members were conducted in a private setting in the hospital. Two categories of participants were involved in face-to-face, individual interviews. Real-time interviews after events that involved an RRT were conducted with the response team members, who made themselves available for interviews, and system level-focused interviews were conducted with hospital administrative leaders. For example, RRT members who were interviewed included bedside nurses who called for an RRT and RRT nurses and hospitalists who responded to those calls. Questions for these participants focused on the team's structure, effectiveness, and communication. Conducting research interviews immediately after an RRT event gave insight into RRT members' perception of the team's performance but limited the availability of 1 group of team members (ie, respiratory therapists) because of workload issues.

Interviews with a nurse executive, a manager of the RRT, several physician leaders, and a quality improvement administrator were conducted for the primary purpose of learning about administrators' expectations of RRT performance. The administrators were specifically interviewed about their expectations of RRTs' performance and the contributions of the various team members to the team's performance. Interviews were digitally recorded and were transcribed later for analysis.

Observations. Observations of actual RRT events were conducted in patients' rooms and hallways as the events unfolded. The focus of the study observations was the functioning of each team member in his or her specific role and the interactions of the team members as the RRT event progressed. Field notes were taken for each observation to record activities, individuals involved (eg, RRT members, other care providers, and the patients), location of team members in the room, actions taken, team interactions, communication of information, and how the patients' crisis or the reason for the RRT was resolved.

Hospital Documents. Data from hospital documents were collected as field notes. The data gathered included the training content presented and information disseminated about RRTs during implementation of the team; frequency and reason for the RRT calls; sample documentation forms used to record patient care and assessment during an RRT event; and hiring criteria for RRT nurses. Hiring criteria were included because the RRT nurses were the only team members hired exclusively for the RRT. Selection of the hospital documents was based on data from the ongoing interviews with the participants in the study.

Nine rapid response team observations were conducted in a 30-day period.

Table
Categories and subcategories of response team effectiveness

Category	Subcategory
Organizational culture	Organizational leadership support
Team structure	Surveillance Leadership
Expertise	Clinical knowledge and experience Managing a crisis
Communication	
Teamwork	Shared purpose Familiarity Collaboration/conflict Training

Data collection ceased when saturation was reached, that is, when data from participants, observations, and documents had become repetitive in terms of contributing to any new categories.

Data Analysis

On the basis of the grounded theory method, data collection and analysis were ongoing, allowing refinement of interview questions and exploration of emerging categories of data. Data were handled by using open and axial coding and an iterative constant comparison to compare, contrast, and categorize data.⁴⁹ Both study investigators read transcripts independently and then compared codes to identify similarities, differences, and patterns until categories were agreed on.

In addition to the interview transcripts, detailed notes from field observations were coded and integrated into this analysis phase of the study. In order to enhance credibility, the categories and codes were shared with an audience of nurses (bedside and RRT nurses from the study site) along

with an abstract representation of the RRT's performance. The members of this audience confirmed that they recognized the experience from the description presented.

Results

Five categories were identified as important in the description of the effectiveness of an RRT. The Table gives the categories and the subcategories.

Organizational Culture

The participants in the study described their organizational culture as mission driven, character-

ized by dedication to their institution's teaching purposes, and focused on patients and the challenges associated with the care the participants provide. Participants said that they carry out their work in a context infused by the pursuit of innovation to continuously improve quality and safety. The culture was typically described as follows: "People who work in this hospital are really aware of our mission and they are committed to care for our patients and to our purpose." One participant commented, "This is a very collegial kind of teaching environment." Additional descriptions included the following: "We're all focused on the patient and what we ought to do . . ." "Our mission makes most of our teams very effective . . ." "This is a teaching hospital . . . it's a teaching learning organization that is involved with the Institute for Healthcare Improvement. . . There is a tendency to want to be front wave and there is a status associated with being known for that."

Organizational leadership support. The category organizational culture includes the subcategory organizational leadership support. Participants described a need for leadership and active support for change when innovations in care delivery are introduced. They conveyed that patient safety was a recognized priority and that organizational resources would be applied to achieve successful approaches to patient care. Organizational leadership support meant backing and reinforcement from administrative and clinical leaders to organize and manage the development and use of an RRT. Typical comments were as follows: "Administrative leadership provides support, and I think that is what has created teamwork between RRT members and the staff." "Leadership is very important; it's critical. I don't think it would get off the ground if you didn't have that support. When issues come up, there is less willingness to deal with it if you don't have leadership support." "The goal is to improve patient care and to facilitate processes in which the patient can get optimal care."

Team Structure

Team structure includes the function of an RRT, the design of the team, and the description of the role of each team member. Participants described an RRT as a mobile team that responds rapidly at any time of the day, 7 days a week, to a bedside nurse's request for assistance with a patient whose condition might be worsening. Team members were expected to respond to the RRT call within 5 minutes and to work with the bedside nurse to determine and address the patient's needs. The responsibilities of

Patient safety was a recognized priority and resources would be applied to achieve successful approaches to patient care.

the RRT nurse included developing a plan of action with the bedside nurse, the respiratory therapist, and the patient's intern and/or resident to stabilize the patient's condition, assisting with implementation of the emergent plan, and completing documentation on the RRT form. The goal of the response team was to prevent further deterioration in the patient's clinical condition, improve management of patient care, and determine the level of care needed to address the patient's clinical situation. The mean number of RRT calls had been about 790 annually during the past several years, a mean of 70 calls per month or approximately 2 calls per day.

Each RRT includes an RRT nurse, a bedside nurse, a respiratory therapist, and the patient's primary physician intern and resident (house staff). The RRT nurse is an ICU-trained nurse who is a resource for the various nursing needs due to emergency and unpredictable situations. The RRT nurse is a dedicated position; that is, the nurse's main job function is to respond to RRT events. Nurses were hired for this position to specifically carry out the duties of an RRT nurse, and 1 to 2 RRT nurses are present on each shift. A dedicated RRT nurse is in contrast to a nurse of the ad hoc, rotational model, in which a nurse with a primary role responsibility in another capacity, such as charge nurse in an ICU, is called upon to respond to the RRT call. The 24/7 service provided by hospitals results in rotations of health care providers who may work 3 or 4 shifts in a row and then be off for 2 shifts. Therefore, the same RRT nurse will not respond to every RRT event. However, with a dedicated position, a finite core group of 9 nurses are RRT nurses. An RRT nurse is not assigned to a specific unit or area for patient care and does not have assigned patients. The nurse's primary activities are to respond to RRT events, perform rounds (to recognize potential decline of patients early and preemptively identify patients at risk) when not responding to RRT events, and function as the recorder during any cardiopulmonary arrests. The study participants all agreed that to fulfill this role, a nurse must have had critical care experience and fundamental skills in critical care. Team structure had 2 subcategories: surveillance and team leadership.

Surveillance. RRT nurses were actively engaged in surveillance to identify patients at risk for complications or for becoming seriously ill. This surveillance is a primary function of their role on an RRT. Participants in the study talked about how RRT nurses collaborate with the bedside nurses on each patient care unit by making rounds regularly twice each shift and additionally as needed. Rounds were used for consultation, and the RRT nurses reported

that bedside nurses invite involvement of the RRT nurses in a dialogue about at-risk patients. A bedside nurse said, "The RRT nurses are good at identifying potential problems and the rounds support that." One RRT nurse explained, "I make rounds with them [bedside nurses]—they're comfortable and able to come to me and discuss [concerns about patients] without feeling intimidated." Surveillance by RRT nurses led to a change in the conversations between bedside nurses and RRT nurses. Bedside nurses thought that the consistent and routine presence of RRT nurses and the RRT nurses' support, clinical knowledge, and expertise engendered trust and familiarity. Another RRT nurse stated, "They recognized that you know how to help them." In this way, an RRT nurse is a resource to a bedside nurse, and the collaboration of the 2 nurses promotes their ability to work together when a patient crisis occurs.

Leadership. Study participants described their RRT as nurse led, with the goal of bringing critical care nursing expertise, at any time, day or night, to the bedside of patients located outside the ICU who have early indications of a deterioration in their condition. The response team assists the bedside nurse and the physician in assessment, intervention, stabilization, and, if needed, transfer to a higher level of care. Participants thought that team leadership was grounded in the organizational values embodied in the mission, as expressed in this quotation, "The teaching mission contributes to the team working together; people who work in this hospital are really aware of our mission and they are committed to care for our patients and to our purpose."

Team leadership was evident and was provided primarily by the RRT nurse and the physician. Leadership was dynamic between these 2 members and reverted to one or the other during the RRT intervention. The RRT nurse usually led the team at the beginning of the RRT event and at the end of the response. The responding physician, upon arrival and during the event, assumed leadership, particularly in verbal orders for treatment of the patient.

Study participants varied in their responses about who led the RRT. RRT nurses indicated that the team was nurse led and that the RRT nurse was the leader. The RRT nurses led by "being advocates for our patients, getting the patient to relax, teaching the staff, guiding the physician, and making sure the patient is safe." Several physicians concurred,

The rapid response team is nurse-led, with the goal of bringing critical care nursing expertise to patients outside of the intensive care unit.

but a few participants said the physician was the leader of the RRT. However, observations of RRT interventions revealed that the leadership was shared and further clarified that the RRT nurse led the initial response to the call for assistance and that the resident or intern had a leadership role in ordering medication, laboratory tests and studies, and other treatments for the patient.

Expertise

Expertise was discussed by participants as foundational to carrying out the RRT's purpose of rescuing. Expertise meant being highly skilled, using a proactive approach by making rounds to identify at-risk patients early, being good at identifying potential problems, and being able to rapidly respond (within 5 minutes). Additional descriptions included excellent assessment skills and ability of team members to focus on the crisis and manage it to prevent further worsening of a patient's condition. Expertise incorporated knowledge, skills, and characteristics identified as necessary for the individual team member. Expertise had 2 subcategories: clinical knowledge and experience and managing the crisis.

Clinical Knowledge and Experience. Participants described expertise as clinical knowledge and experience and said these were necessary to respond to the patient's situation and to provide a basis (foundation) for a team member's clinical judgment and reasoning. Clinical knowledge was described as "able to assess the patient quickly; excellent assessment

skills applied very rapidly." Experience was also identified as a component of credibility within the team. One participant said, "Team member experience is important for their ability to rapidly identify issues and is a critical factor in the team's acceptance of that member." Clinical knowledge and the ability to make decisions on the

basis of previous experience were then applied in managing the crisis. As one RRT nurse said, "An effective team member is able to apply their knowledge and expertise to anticipate patient needs, identify risks . . . assess and monitor the patient."

Managing the Crisis. Managing the crisis was discussed as a necessary dimension of expertise among team members, specifically, that clinical expertise, knowledge, and experience alone were not adequate. Team members also must have additional knowledge, skills, and experience in managing a crisis. RRT members described managing the

crisis as being aware of urgency and time pressures yet taking speedy actions to meet a patient's needs.

Participants said that to manage a crisis, team members need to "be confident in their skills and judgment and project that. . . Be calm about it, not scream and yell but direct things in less than an ideal situations. Manage problems . . . find out what is going on and look at the facts . . . working toward a solution." An RRT nurse said, "Effective team members are able to focus on the crisis, to manage the crisis to prevent further deterioration, and to prevent an adverse event."

Communication

Communication included seeking and reporting information. During RRT observations, communication was both verbal and nonverbal and informal and structured. Structured communication was the type taught and practiced during RRT orientation. For example, bedside nurses provided a structured patient assessment to the RRT nurse upon the nurse's arrival.

The importance of communication was discussed in relation to the team's effectiveness. For example, poor communication (eg, when the bedside nurse did not provide a problem-focused assessment) resulted in lengthy exchanges between members of the RRT to extract relevant information, thus slowing the team's effectiveness in making timely decisions. One participant described effective communication as "the style of response is one that allows people to give information and doesn't shut them down . . . being an information gatherer and willing to have a dialogue." Participants identified issues with communication in the context of communication among members of different disciplines: "Communication is definitely the No. 1 issue and the key to a multidisciplinary approach." "The only barrier I think is figuring out people's roles; when people come in the room they don't introduce themselves or tell you who they are." Communication was at its best when individual team members, regardless of the member's position, were perceived as not intimidating and the dialogue was focused on the patient.

Teamwork

Teamwork was most often discussed and observed as coordination among team members working toward the common goal of addressing a patient's immediate needs. Teamwork was viewed as working well together, having an understanding of the purpose of an RRT and the reason the members came together as a team. Training in teamwork was considered desirable. RRT members identified being familiar with one another, in particular being familiar with and trusting the RRT nurses and knowing one another, as important

Expertise was discussed as foundational to carrying out the team's purpose of rescuing.

contributors to the team's performance. RRT nurses and bedside nurses discussed knowing one another as something that had evolved since the time the RRT was established and, more importantly, from when the daily rounds by the RRT nurses began. This regular and consistent connection fostered familiarity and trust. Subcategories of teamwork were shared purpose, familiarity, collaboration/conflict, and team training.

Shared Purpose. Shared purpose was described as knowing what the team was expected to do and why the team was constructed. This subcategory reflected collective knowledge about the reason that use of an RRT was developed and implemented and the overarching goal of patient safety. A typical comment was "The team has a shared understanding or collective agreement on what their purpose is and how to go about achieving it." Another participant said, "I think people believe in what we're doing. . . . we all have the same goal."

Familiarity. Familiarity meant knowing one another. Participants in the study described this aspect of teamwork as being familiar with one another, recognizing members of the RRT, and having worked with one another previously. Familiarity was considered important because it enabled trust. One physician member of an RRT said, "I think it helps because you know what to expect, you have certain expectations. I know who has certain strengths."

Events that required an RRT were perceived as events that called for time-pressured, time-sensitive responsiveness in an urgent situation. Although not all RRT events were critically urgent, the underlying premise of time urgency added to the importance of familiarity among the team members. Introductions and role descriptions were kept to a minimum; RRT members focused on addressing the patient's situation and immediate needs. The members had little if any time to establish relationships and develop trust in such situations. Familiarity served as a bridge that promoted trusting behaviors when urgency and time pressures took precedence. One RRT member said, "That made a big difference because we've worked with each other before."

Collaboration/Conflict. The study participants said that collaboration meant cooperation, coordination, and willingness to work together. They thought that these qualities were reflected in attitudes and behaviors of the RRT members and said, "The ability to anticipate and collaborate with your team members . . . not individuals making decisions. It's a collaborative decision." A typical RRT nurse comment was "We are not afraid to discuss or have conflict. . . . we coach . . . give a lot of input. . . . we're here to help

out for the patient and for nurses at the bedside."

In contrast, conflict relative to cooperation and collaboration was described as occurring with the interns and residents during the initial phase of implementing use of an RRT. Members of the RRT described barriers as a disruption to the traditional role expectations of the physician of being in charge. The study participants discussed the attitudes held by these physicians during this initial phase that conveyed a sense of failure if an RRT had to be called. A bedside nurse reported, "The house staff would tell the nurse, 'Don't you dare call an RRT or I'll report you.'"

The leadership role of the RRT nurse was described as threatening to the house staff because the RRT nurses had learned during training to assume responsibility for the patient. One administrator said, "We were having problems with at least a handful of residents. Some of the house staff felt pretty threatened." Another administrator said, "There have been a few instances where physicians resisted RRTs being called on their patients but that has been worked out; when issues come up, they are addressed."

Training. The study participants described RRT training as a 1-day educational program for nurses that focused on conditions likely to lead to deterioration in a patient's clinical condition, such as stroke and sepsis. Communication was included as a topic, but the focus was on structuring the communication by using the technique of situation, background, assessment, and recommendation. This training was for nurses involved in the RRT. Physicians involved in implementing use of an RRT provided the lectures on the early recognition and management of critical situations, but no physicians attended the lectures as learners in RRT training. Training to promote communication, collaboration, and a team orientation among nurses, physicians, and respiratory therapists together was not provided. One physician leader discussed how the physicians were prepared for RRTs: "They [residents] go through a couple of orientation RRTs, sort of learning on the fly as well. . . . We do a more formal orientation to RRT . . . 1-hour conference . . . present the data in terms of the good effect it has had."

The study participants identified future training needs that included a focus on communication; using simulation; and bringing individual nurses, physicians, and respiratory therapists together. RRT members commented on the need to have individuals from the involved disciplines interact in learning about

Team familiarity promotes trusting behaviors when urgency and time pressures take precedence.

teamwork as a team in a nonurgent setting and said it would “help build communication . . . camaraderie between nursing and physicians and other health staff. . . . I think simultaneous training [of nurses and MDs] is best with sample cases and simulation so that people could have a dialogue when it’s not an actual critical situation.”

Discussion

Response team effectiveness began with an organizational culture in which innovation to improve patient safety was valued and organizational leaders were supported to adopt initiatives with the potential to reduce adverse outcomes. The supportive culture contributed to the development of a response team. As a public, safety-net hospital, the study site’s mission is to serve a vulnerable population of patients. This mission elicited a unifying

commitment to improvement and contributed to the support evident for innovations in patient safety.

Design and implementation of an RRT were the direct result of a pervasive mission, organizational leadership, and active support for change. Administrative leaders were committed to improvement, and a nurse and a physician acted

as coleaders of the RRT design team as clinical champions. Alignment of administrative and clinical leadership was a foundation that enabled innovation and advancement of safety practices.

Qualifications for members of an RRT included specialized clinical knowledge and experience. Nurses who were preparing to respond as the RRT nurse participated in training that focused on clinical scenarios and recognizing deterioration in a patient’s clinical condition.

The structure of an RRT contributed to the nurses’ effectiveness in detecting patients’ risks and responding. Having dedicated nurses with critical care nursing experience interact with bedside nurses to assess risk strengthened surveillance, engendered trust, and promoted nurse-nurse synergistic collaboration. When an RRT was called to intervene, the team process involved sharing leadership in the team’s response to the situation, applying clinical knowledge and experience, and managing the priorities and urgency of the patient’s needs.

The interviews clearly indicated that expertise was perceived as key to an RRT’s effectiveness. Team members needed to be highly skilled, able to identify potential problems, and have excellent assessment skills. The perceived importance of expertise is

consistent with findings from studies of other health care teams working in high-risk environments.⁷ Although clinical knowledge and experience were seen as necessary, the application of both in a crisis situation was also identified as an important part of effectiveness. The RRT nurse was a leader and decision maker in managing the crisis situation. Typically, the critical care nursing experience acquired by nurses who work in ICUs contributes to the nurses’ proficiency in recognizing and taking appropriate actions in crisis situations. Residents and interns who respond to an RRT event may or may not have this experience. Crisis situations are complex and dynamic, and members of an RRT need to collaborate, make contributions according to their individual abilities and experience, and work as a team. The importance of a team member’s ability to focus on and manage critical situations is a distinctive finding in our study and can be used to guide selection, training, coaching, and evaluation of response teams.

Teamwork behaviors occurred as individual members of an RRT coordinated actions and communication. Coordination centered on the common goal of meeting the patient’s immediate needs. Open communication with purposeful dialogue was identified as important for team effectiveness. Effective team members used their communication skills to focus on the patient’s needs, coordinate information seeking, and obtain a clinical grasp of the critical situation at hand. To the study participants, teamwork meant knowing one another and working collaboratively with a shared purpose. Although familiarity was not expected, when present, it contributed to trust. Members of an RRT typically have little opportunity to form as a team or to develop relationships because the urgency of the response situation usually takes precedence. The next call for a RRT might involve a team that, except for the RRT nurse, consists of different members. Thus, familiarity may be a more important dimension for effectiveness in these teams that must perform under conditions of uncertainty and urgency. Although the rotational nature of the responders, who are different each shift, may preclude the development of relationships in situ, interprofessional team training among members of an RRT can be an alternative way to foster familiarity. Time and attention to multidisciplinary training that focuses on communication, collaboration, and a team orientation were recognized as necessary for effective performance of an RRT. Training needs identified included building relational skills as a team by using simulation to facilitate learning together and by practicing performing as a team in a nonurgent setting. Training

A nurse and a physician led the team that designed the rapid response team.

in teamwork was not provided as part of the training for the RRT. This situation is not atypical, and many teams in health care have not had training in teamwork. This trend is beginning to reverse with the development and dissemination of a national initiative to provide team training in health care settings by using TeamSTEPPS,⁵⁰ a program available from the Agency for Healthcare Research and Quality and the Department of Defense.

Implications

Effective teamwork and communication are associated with safe, high-quality care delivery.^{2,14} Communication is one of the required standards adopted by the American Association of Critical-Care Nurses as a necessary component of healthy work environments.⁵¹ In this study, communication between physicians and nurses was identified as key to the effectiveness of an RRT. Good communication was identified as critical to both the effectiveness of individual team members in responding to emergency situations and the effective functioning of the team. Responding to potential deterioration in a patient's clinical condition requires effective communication and is therefore an important focus in evaluating effectiveness. The work carried out by an RRT nurse is often referred to as critical care outreach, meaning that critical care practices are used outside the ICU. The actions of an RRT nurse are similar to those used by critical care nurses for patients in urgent and life-threatening circumstances. In this context, communication among physicians and nurses in critical care has been an area of focus for more than 20 years.

In a landmark study published in 1986, Knaus et al⁵² found that communication and collaboration between critical care nurses and physicians influenced mortality. Some would say that communication and collaboration between these 2 groups of health care providers have not yet been optimally addressed. In health care settings, in particular, teams are formed, and individuals are expected to perform in teams, but little development and training are provided to teach individuals from different disciplines about how to perform together as a team. The finding that RRTs encounter communication as an obstacle is not surprising. Development of these response teams is both an opportunity and a challenge to clinicians to develop relationships, credibility, and trust and to eliminate traditional hierarchies among physicians and nurses in decision making and communications.^{48,53}

Our interview data and observations of the RRTs indicated that the RRT nurses have individually

developed skill in good communication. The RRT nurses effectively communicated with physician team members without overtly usurping the physicians' authority and respectfully ensured safe care for the patient. These nurses have adapted to meet a need on a case-by-case basis that supports the RRTs' performance as a team. We should not, however, continue to rely solely on the strengths that experienced critical care nurses contribute to multidisciplinary teams. Rather, we must use interprofessional education that involves physicians and nurses learning together as the standard that supplements the individual skills of the professionals involved. A systematic approach that includes practice and dialogue to advance communication, achieve clarity of roles, gain an understanding of the authority and scope of practice of nurses and physicians, and learn how to collaborate in shared decision making is overdue.

Exploring what constitutes effective multidisciplinary teams from the perspectives of the teams' members and from the points of view of the professionals involved in actualizing the team is useful. Findings can provide a basis and a guide for evaluation, by using observation and/or qualitative inquiry, by individuals external to the team. These findings raise awareness of the need for evaluation of effective team functioning internally as well. Communication is essential to the performance of multidisciplinary teams. Determining at regular intervals how well the members of a team perceive communication is necessary. Hospitals are complex health care environments where immediate feedback is critical for safe care even under the pressure of time constraints. For RRTs then, once the teams are operational, external and internal evaluation of effective team functioning is indicated. These teams operate in a natural setting; respond to calls episodically; and are loosely coupled, with members changing frequently. The unpredictability of the events that require an RRT can make planning observation of the team difficult. However, evaluation via team debriefing immediately after an intervention can be highly informative and useful for performance evaluation and team learning.

Limitations

Our study findings represent the development and evolution of the RRT in a single health care organization, but inclusion of study participants from nursing, medicine, and administration and observations of RRT calls in several different med-

It was evident from the interviews that expertise was perceived as key to the team's effectiveness.

ical, surgical, monitored telemetry patient care areas and ambulatory care help address variations that may be present in similar settings. The structure of an RRT, which may influence performance, varies among health care institutions that have implemented this type of team response. Future research should address various team structures.

Although our interviews included leaders from all disciplines (nursing, medicine, and respiratory therapy), the interviews with RRT team members after an actual RRT event did not include respiratory therapists. Unlike the RRT nurses and physicians whose role with the patient diminished after the RRT episode, the RRT respiratory therapist usually accompanied the patient to a higher level of care or, because of workload issues, was not available for interviews after the RRT event. Future studies should include negotiations with the respiratory therapy department to allow the RRT respiratory therapists time for interviews after each RRT episode.

Conclusion

Our data revealed that health care professionals involved in developing and implementing RRTs perceive that effective team function means having the support of an organization's leaders within a culture that values innovation and patient safety. The effective performance of an RRT at a patient's bedside is viewed as a means to minimize delay in treatment to prevent worsening of the patient's condition by bringing critical care expertise to the patient. Along with the call for increased patient safety in acute care hospitals, a critical need for responsive systems that address the increasing complexity of health care delivery may have influenced the development of RRTs. Response teams are an innovation that makes sense as a strategic approach to critical situations with patients. Studying the nature of teams that come together and dissolve quickly and carry out their work in high-risk situations is important for optimizing safe hospital systems. In our study, we expanded knowledge of multidisciplinary teams in health care by examining a particular type of response team and describing the team members' perceived view of effective team performance. Our findings add to knowledge on response teams and extends the science of care delivery, teams, and teamwork in health care.

Our use of a qualitative approach was an innovative contribution. Members of an RRT need to understand the contributions and role of each member, the meaning of the members' partnership in a crisis situation, and how knowledge is shared. These elements are not revealed when evaluation is

focused on patients' outcomes. Team members do not have much opportunity to form relationships or to know one another. In order to support the added value of familiarity, additional efforts are needed to provide training on teamwork by having team members learn together as a team in simulated rapid response situations, and debriefings after RRT episodes are indicated. Additional evaluation that includes each team member's assessment of the team's performance and observation of the team applying the knowledge and skills from training to clinical practice in actual response situations is needed. Evaluation of team functioning and what a team needs to function effectively, including qualities such as expertise, behaviors such as communicating, and influences of the environment in which the team functions, is an important element of team building, improvement, and effectiveness, particularly among teams that form and dissolve rapidly yet need to deliver coordinated care in every response the team makes. Research to measure the performance of health care teams in relation to the structure of the teams and teamwork and the influence of structure and teamwork on outcomes is needed. Team-based care delivery is not an optional approach in the quest to achieve safe and reliable care for every patient, every time—it is an imperative.

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CNE Test Test ID A13223: Rapid Response Teams: Qualitative Analysis of Their Effectiveness

Learning objectives: 1. Identify 5 categories that encompass team effectiveness. 2. Discuss the components of an effective rapid response team (RRT). 3. Describe potential barriers to implementation of an RRT.

1. Which of the following is the definition of a team?

- a. Two people who come together and act interdependently
- b. A group of people that have shared goals with separate roles, who carry out interdisciplinary tasks, and are able to adapt to changing situations
- c. A group of people working on an activity
- d. Individuals who act independently

2. This study is which of the following?

- a. A phenomenological study
- b. An ethnographic study
- c. A case study
- d. A descriptive qualitative study with a grounded theory method

3. The inclusion criteria for selection of an institution included which of the following?

- a. Support of the RRT process, innovation with the organization to achieve safe care and improve patient safety, and staff's acknowledgement of the success of the RRT
- b. Informed consent obtained from patients and support from leadership
- c. It was a small, community, non-teaching hospital
- d. Support of the RRT process and a poor safety record with the need to improve patient safety

4. Hospital documents that were reviewed during data collection included which of the following?

- a. RRT training manual, RRT log, RRT documentation template, and RRT physician orders
- b. RRT training manual, RRT log, RRT documentation template, and description of the role of the RRT
- c. RRT training manual, RRT log, RRT documentation template, and description of the role of the respiratory therapist
- d. RRT training manual, RRT log, RRT documentation template, description of the role of the RT, and RRT physician orders

5. The study concluded that there are 5 categories that contribute to an effective RRT. These categories include which of the following?

- a. Organizational leadership support, surveillance, leadership, expertise, and familiarity
- b. Organizational culture, team structure, surveillance, expertise, and communication
- c. Shared purpose, familiarity, defined roles, and surveillance
- d. Organizational culture, team structure, expertise, communication, and team work

6. Through the interview process, the participants in the study identified which of the following as important to RRT success?

- a. Communication
- b. Team Work
- c. Expertise
- d. Organizational support

7. The authors concluded that which of the following is the key to RRT effectiveness?

- a. Surveillance of at risk patients during rounding
- b. Use of critical thinking
- c. Prior critical care experience
- d. Communication between the nurses and physicians

8. Limitations of this study include which of the following?

- a. Single health care system, the structure of RRTs varies in other institutions, lack of interviews with the respiratory therapists
- b. Use of the health care system in a prior RRT study, lack of support from leadership
- c. Providers who felt threatened by the implementation of the RRT, lack of interviews with the respiratory therapists
- d. No limitations were identified

9. To improve functionality of the RRT, organizations should support team training, simulation and debriefings to add which of the following important values to the RRT?

- a. Training
- b. Shared purpose
- c. Familiarity
- d. Clinical knowledge

10. Two primary roles of the RRT nurse include which of the following?

- a. Surveillance of patients at risk and bringing critical thinking to the bedside
- b. Collaboration and leadership
- c. Responding to code blue calls and collaboration
- d. Surveillance and assisting with critical care transport

11. During RRT observations, which of the following were barriers to effective communication?

- a. Lack of problem-focused report, inability to identify people's roles, and lack of patient focus
- b. Disinterest on the part of the bedside nurse and lack of time to provide information
- c. Use of jargon and unfamiliar terms
- d. Information overload and inattentiveness

12. Conflicts that may arise during implementation of an RRT may include which of the following?

- a. Lack of support from leadership and staff nurses
- b. Different goals of care among providers, fear of criticism
- c. Role confusion, sense of failure to identify/rescue prior to RRT initiation, feeling threatened
- d. Lack of critical care expertise, role confusion, negative feedback during debriefing

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