RESEARCH ARTICLE

A Qualitative Exploration of the Impact of a Distressed Family Member on Pediatric Resuscitation Teams

Amanda Deacon, PhD,[a] Tom O'Neill, PhD,[a] Nicole Delaloye, MSc,[a] Elaine Gilfoyle, MD[a,b]

ABSTRACT

BACKGROUND AND OBJECTIVES: Family presence during resuscitation (FPDR) is commonplace in many hospitals today. Research has supported the positive effects it can have on family members; however, there is little research about how it may affect the resuscitation team's performance, especially in a pediatric population. Our objective was to identify how resuscitation team members perceive and respond to the presence of a distressed family member during a resuscitation.

METHODS: This is a qualitative study in which we examine FPDR-related themes raised by pediatric resuscitation team members after a resuscitation simulation. As part of a team training educational intervention, pediatric resuscitation teams, composed of nurses, respiratory therapists, and resident physicians, participated in a video-recorded simulated event in which they attempted to resuscitate an infant. During the scenario, a confederate actor played the role of a distressed "parent." Video-recorded debriefs occurred immediately after each simulation. Video recordings were transcribed verbatim, and then transcripts were coded and analyzed via thematic analysis to saturation.

RESULTS: Thirteen postevent video debriefs were analyzed. A total of 74 participants took part in these simulations and debriefs. Analysis revealed 15 major and 29 minor themes, which were mapped to 5 factors, namely resuscitation environment, affective responses, cognitive responses, behavioral responses, and team dynamics.

CONCLUSIONS: FPDR has an impact on resuscitation team members' responses and influences their adaptive behavior. If not managed well, this may pose potential patient safety concerns. Policy and training of specific teamwork skills are ways in which we can better equip health care providers to effectively manage FPDR.

www.hospitalpediatrics.org
DOI:https://doi.org/10.1542/hpeds.2020-0173

Address correspondence to Elaine Gilfoyle, MD, Department of Critical Care Medicine, Hospital for Sick Children, 555 University Avenue, Toronto, ON, Canada T3B 6A8. E-mail: elaine.gilfoyle@ahs.ca

HOSPITAL PEDIATRICS (ISSN Numbers: Print, 2154-1663; Online, 2154-1671).

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: Funded by the Strategy for Patient-Oriented Research Graduate Studentship in Patient-Oriented Research, award 201500631. The Alberta Strategy for Patient-Oriented Research Graduate Studentship is jointly funded by Alberta Innovates and the Canadian Institutes of Health Research. This work was also funded by the Social Sciences and Humanities Research Council Doctoral Joseph-Armand Bombardier Canada Graduate Scholarship, award 767-2016-1467.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

Ms Deacon partook in the conceptualization and design of the study, generated the initial and final code index, conducted the analysis and interpretation of the data, and drafted the initial manuscript; Dr O'Neill partook in the conceptualization and design of the study, reviewed the initial code index, and contributed to the interpretation of the data; Ms Delaloye contributed to the generation of the initial code index; Dr Gilfoyle partook in the conceptualization and design of the study, coordinated and supervised data collection, contributed to the generation of the initial code index, and participated in the interpretation of the data; and all authors and reviewed and revised the manuscript, approved the final manuscript as submitted, and agree to be accountable for all aspects of the work.

[a]University of Calgary, Calgary, Alberta, Canada; and [b]Alberta Children's Hospital, Calgary, Alberta, Canada

More than half of children who suffer in-hospital cardiac arrest do not survive[1,2] despite resuscitation teams' best efforts. This survival rate has improved over recent years[3]; however, it has not improved substantially even with better understanding of the pathophysiology of cardiopulmonary resuscitation. One way to potentially improve patient outcomes is to examine factors associated with team error, which is common during this complex, high-stress event.[4]

Family presence during resuscitation (FPDR) is a potential new challenge to resuscitation team performance as widespread endorsement of family-centered care including FPDR has recently occurred.[5–8] Evidence of its potential benefits for families include parental perception of decreased grief and anxiety and a belief that it aids the child.[9–12] However, there lacks evidence of its potential effects on resuscitation team performance and consequently patient safety. Using previous surveys, researchers have identified 3 primary concerns of health care providers: psychological trauma of family members, medicolegal concerns, and quality of resuscitation.[12–15] With research findings, authors have challenged the existence of negative effects on families witnessing resuscitation,[11,16,17] as well as concerns of increased legal action.[13] Quality of resuscitation team performance remains the least studied concern, especially in pediatric populations. In fact, authors of a recent systematic review identified only 1 pediatric randomized controlled trial used to examine the effects of FPDR on resuscitation quality.[18] Therefore, a large gap exists in the literature concerning the potential effects of FPDR on patient safety.

We aimed to address the following research question: "How do resuscitation team members perceive and respond to the presence of a distressed family member during a resuscitation?"

METHODS

This was a qualitative study used to examine FPDR-related themes raised by pediatric resuscitation team members after a resuscitation simulation. This study was part of a multicenter interventional study used to examine the effects of team training on adherence to resuscitation guidelines.[19] This study was conducted between 2011 and 2015 at the simulation centers affiliated with 4 academic children's hospitals located across Canada. Institutional review board approval was granted at each institution, and written informed consent was obtained from all participants. Participants were made aware of the study's primary objective but were unaware of the specific challenges built into the scenarios ahead of time as well as the specific research question for this study.

Participants and Design

As part of the team training educational intervention, pediatric resuscitation teams, composed of nurses, respiratory therapists, and resident physicians, participated in a video-recorded simulated event in which they attempted to resuscitate an infant in asystole (Supplemental Information). The teams ranged in size from 5 to 7 participants, with varying levels of previous exposure to one another. During the scenario, a confederate actor played the role of "parent." Actors were trained to act concerned, ask the team questions, and remain in the room. They were not allowed to become physical with the team or intentionally prevent patient care, such as covering the patient with their body. They were instructed to adjust their known presence in the room depending on if they were addressed by the resuscitation team or not. There was no specific previous training provided to participants regarding effective management of the parent; however, teams were trained on concepts related to effective teamwork, including the importance of managing distractions.

Video-recorded debriefs occurred immediately after each simulation, facilitated by 1 or 2 trained instructors. The advocacy-inquiry framework[20] was used to structure each debrief, and teamwork was the primary focus of the discussion, with less emphasis placed on medical or clinical issues.

Data Analysis

All debrief events were reviewed by the study team for audio quality and richness of participant discussion. On the basis of this review, a purposive sampling technique was then implemented to identify a subset of debrief discussions that provided a wide variety of participant perspectives and study site representation. The selected video recordings were then transcribed verbatim.

Transcripts were coded and analyzed via thematic analysis to saturation. Consideration was given to code versus meaning saturation.[21] Thematic analysis was used to identify and group themes.[22] Using NVivo software,[23] the lead author generated the initial codes, and the constant comparison method was employed to expand or merge thematic codes. Two coauthors independently coded a subset of the videos. Discussion then took place to compare codes and create a final code index. This final coding scheme was then applied to all transcripts by the lead author and second coder to ensure relative consistency of code application to FPDR-related comments. On the basis of this coding, themes were identified, and a thematic map was developed. Themes were further defined and named before the development of a final model that described the interaction between themes. Throughout this process, the theories of team adaptive processes were applied as a sensitizing concept.

RESULTS

Thirteen postsimulation video debriefs were analyzed, sampled from the original data set of 42 videos. A total of 74 participants took part in these simulations and debriefs, including 32 nurses, 15 respiratory therapists, and 27 resident physicians. Analysis revealed 15 major and 29 minor themes, which were mapped to 5 factors, namely resuscitation environment, affective responses, cognitive responses, behavioral responses, and team dynamics (Fig 1).

Resuscitation Environment

Three major themes were identified regarding how the presence of a parent changed the resuscitation environment: (1) "additional voice and questions" (teams voiced struggling with the added volume and questions the parent brought to the situation, sometimes making it difficult to hear and focus on tasks); (2) "parent

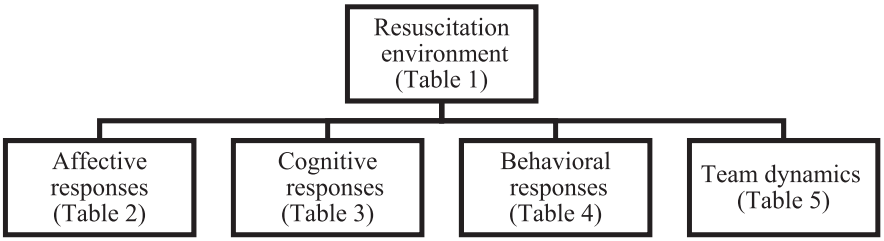

FIGURE 1 Five key factors identified as being influenced by the presence of a parent. This figure provides a map of the 5 key factors identified through the thematic analysis and their relationship to each other.

physically in the way" (team members described the parents physical location in the room interfering with access to medical equipment, the patient, and/or not being able to perform necessary procedures); and (3) "limited people" (teams reported not having enough members to dedicate someone to the parent, a role they reported as needed) (Table 1).

Affective Responses

The second factor addressed how the team reported feeling emotionally during the simulation. Four major themes were identified. "Environmental reactions" involved how team members mentioned the realism of the parent (ie, confederate actors), affirming that they thought it was common for parents to not understand, ask questions, want to be close to their child, and want to be present. Many noted that the parent may have exacerbated an already stressful situation, making the event more challenging to manage, and that it was another energy and voice, so everything was heightened.

The parents' well-being was a common concern of the team and was captured by the theme "need to support parent." Participants commented on how they felt the need to talk to the parent, give them good news, reassure them, and to overall support them. If this could not be done, some expressed feelings of anxiety and guilt. They described having a difficult time ignoring the parent and wanted someone (themselves or another) to be with the parent for the entire resuscitation.

Next, teams discussed "struggles with the parent." They voiced frustration and feeling uncomfortable when the parent was physically in the way. Others expressed anxiety over how the parents may behave (eg, interfering with resuscitation or becoming violent) when they were left without support. Many expressed not feeling confident in their approach to managing and speaking to the parent, which led to noted feelings of helplessness, guilt, irritation, and frustration.

The final major theme was "affective reactions towards FPDR." Immediately after the simulation, participants articulated pro- and anti-FPDR views. Pro-FPDR comments included feelings that the parent should be in the room during the resuscitation, citing that it helped the parent, the parent should be there because the child may die, it was a right of the parent, and it was in accordance with family-centered care. Anti-FPDR comments, although uncommon, stated that the resuscitation process would be more effective if the parent was not present. It was expressed that no matter where they put the parent in the room, it would "hamper" some team member(s) and that the ideal situation is no parent in the room (Table 2).

Cognitive Responses

Three themes were identified describing cognitive influences of FPDR. One of the more concerning themes was the "increased cognitive load" brought by the parent's presence. A typical resuscitation requires high amounts of information processing, which requires cognitive energy and creates a cognitive load. The parent appeared to add to this existing cognitive load by asking questions. This created a dilemma about whether and how to answer, as well as increased worry for the parent and engagement in actively trying to tune them out. This may have led to the team describing that the parent could cause a "loss of focus" on the task because they were a source of distraction. Whereas some identified the extra excitement the parent brought to the code or the addition of their voice to the situation as a possible source of distraction, many participants emphasized the parent asking questions as the primary challenge. Some reported being distracted even when the parent was asking other

TABLE 1 Resuscitation Environment: Team Quotes

Minor Themes and/or Subthemes	Quotes
Additional voice and questions	Leader: "like I felt like I was almost yelling at some point. Like my, my tone of voice was actually louder than normal just because I think those side conversations that have to happen with mom. And then mom coming in, like kinda having to supersede mom's voice, and mom's…like it makes it so much more." (029)
Parent physically in the way	RN 1: "and the kid was fully dressed, the pajama was on, and you had to undress him. But then there's mom in the way, and people in the way, so you couldn't get the monitor as quickly." (042)
Limited people	Leader: "but it's hard because it's like, who could have done the role right? [Name] was bagging, you're drawing up meds, or you're looking up to the monitor, or you're drawing up meds, so everyone was doing something, so there wasn't enough people to look after mom as well. Ya." (049)

RN, registered nurse.

TABLE 2 Affective: Team Quotes

Minor Themes and/or Subthemes	Quotes
Feelings toward FPDR after simulation	
Pro-FPDR	Leader: "Even if they're hysterical, I've had hysterical parents and hysterical family before, but I'm a strong [believer] of having them in the room cause it just helps them." (018)
Anti-FPDR	Leader: "I think, ideally is to get, and I know there's controversies, but ideally is to get mom out of the room." (038)
Need to support parent	
Supporting parent and desire to comfort	Unidentified: "So um, I felt somewhat helpless because I thought it was more important to focus on . . . the airway, and on compression, than to talk to dad. But the whole time I was like, 'God I wish there was somebody here to talk to him. God, he looks so upset. God, I wish I could do something else.'" (048)
Fears and/or struggles with parent	
Parent physically in the way	Unidentified: "He (dad) wasn't really interfering with the airway, but you were so…so damn close. Like you'd started rubbing the chest, and then you're holding everything, and I'm like… you started to get into that patient bubble and that made me start to get uncomfortable." (048)
Uncertain how to deal with parent	Leader: "I could even think of maybe just asking the mom to sit outside, we would come and do frequent updates, and if she still was freaking out, like call a security guard to sit with her. I don't know, that may escalate the whole thing ten times more, but I mean, or even just moving her outside, like moving her to the back of the room, not at the head of the bed. I don't know…" (001)
Speaking to parent	Resident 2: "Well I felt pretty taken back when she [mom] came up to me as I'm bagging, and she's like 'Why is she [patient] blue?,' and I was like… all I [could say] is 'I don't know.' Like I didn't say that, but I was literally like [blank pause]…And then it, like the scenario stopped as soon as she asked me, and I was like 'What would I have said?' Like I'm literally at the head of the bed of [her] child, and she just comes up to me and stares at my face, and like 'Why is she blue?' And like, I don't know what I would say to a parent in that situation because I didn't know why…I didn't know what was wrong with her kid, so… What do you say like, professionally?" (029)
Fear of parents' possible behavior	Unidentified: "She wasn't the screaming/crying, ballistic parent but that could have been where she went." (029)
Environmental reactions	
Parental reaction normal	Unidentified: "So while I wanted to say 'Step aside,' you [parent] just, you kept coming back and I think that's very realistic. Parents want to be there." (048)
Exacerbated stress	RN 2: "But anyways, I think it was another energy, another voice, another….and a panicked voice, like sounding really concerned. And that was distracting for sure. . . . It's funny, it's not like you're [talking to the mom] completely covering

team members questions. Team members spoke of being concerned by the distraction because they feared it drew focus away from the patient and their tasks and led to forgotten tasks or disruption of normal procedure. Possibly in reaction to this, members described making a conscious decision to "prioritize patients" over the parent. Some even stated that parent management was not their job (Table 3).

Behavioral Responses

Teams often recognized early on that they required a dedicated person to take on a "parent management role." This was approached in 1 of 3 ways, as detailed by participants: (1) leaders either took on the management role themselves or assigned it to a team member, (2) team members self-assigned to the role in full or in addition to their current roles, or (3) availability dictated who took on this role, resulting in people on the team taking turns with the parent rather than having 1 person on the team dedicated to the parent. The third approach appeared to be the most common path chosen.

Next, "parent management approach" was identified as a major theme. These ranged from exclusive to inclusive. If the parent was deemed to be a distraction and there was no one able to manage them, then respondents stated that the parent should be removed from the room. Team members spoke of an ultimatum in which the parent could watch but they had to cooperate. Some members spoke of tuning the parent out so as to not be distracted, or giving them minimal attention, which typically included a cursory explanation followed by ignoring them. On the more inclusive side, some people reported seeing the value in the parent's presence in terms of providing a possible history. However, it appeared to put a strain on the team to assign a team member to leave and take the history. Others described actively interacting with the parent with the purpose of giving the parent updates. Cited reasons for updating the parent included to (1) comfort and reassure the parent, (2) calm them down so as to aid the team (decrease questions and emotions), and (3) instruct them (ask them

TABLE 2 Continued

Minor Themes and/or Subthemes	Quotes
	the patient, like you're not really doing anything that's that…obstructing our care. But it was just that element that was there that I could tell everybody was getting a little bit…yea everybody was more amped, myself including. I mean I'm not going to lie, but it was like that." (028)

RN, registered nurse.

to give the team space to work and to physically move) (Table 4).

Team Dynamics

The fifth factor concerned the identification of crucial team processes and states that were affected during the resuscitation simulation.

Effectively managing the parent required additional team "coordination," as team members discussed dealing with a lack of people, having to call for help, taking turns with the parent, and providing back-up behaviors for teammates. Although some of this was done implicitly (ie, it was done without being verbally asked), people highlighted the need for explicit coordination because some assumptions led to disappointment when team members did not exhibit desired behaviors. However, the parent posed a challenge to closed-loop communication by adding to both the volume in the room and the number of questions asked, which participants noted made it difficult to hear and easy to miss information. One protective factor discussed as crucial for maintaining high performance was mutual monitoring, a cognitive action in which teammates regularly observe each other to catch slips, mistakes, or errors, so they can correct them as rapidly as possible,[24] and back-up behavior via verbal feedback and/or assistance.[25–27] This was especially helpful in instances in which an individual was attempting to do their job while simultaneously trying to answer the parent's questions. In such cases, ideally, other team members would take on the parent management role to help the team member refocus on their task.

TABLE 3 Cognitive: Team Quotes

Minor Themes and/or Subthemes	Quotes
Cognitive load	RN 2: "I think that, I know that my energy changes around certain people, but it's really interesting when there's a distraction there, and even though I didn't have a huge role in this, in this code, just um, recognizing how much that distraction was on my mind, and then how much better I felt being able to be the one that was with her." (028)
	Leader: "Maybe once I get a little more comfortable or experienced at running codes, I'll be able to do a little more multitasking. But for me I feel like that's multitasking, and I'm not able to that at this point in my training. Like I'm just not… good enough at running codes. Like I need to be able to think by myself instead of explaining to the parent." (048)
Loss of focus	Resident 3: "It was really hard not having somebody dedicated to the mom…
	RN 1: It was a big distraction." (029)
Prioritizing patients	RN 1: "She [parent] was asking a million questions, and she was asking anybody . . . I don't want to stop what I'm doing, but I don't want…I don't want to take away from being with the patient . . . So, it was challen—, like, I was drawn to her, and then I had to be like 'Stop being a pediatrician. Like, you're running this code now, and move away and she's stressed out and overwhelmed, but we'll deal with that after.'" (038)

RN, registered nurse.

Members' "roles" were affected during the process in numerous respects. Role confusion occurred during uncertainty about who should be managing the parent. This led to the occurrence of dual roles despite many individuals reporting that dual roles created focus and situational awareness challenges. To include the extra role of parent management into the resuscitation, team members described finding that they had to effectively alternate roles on the fly. This was supposedly due to the leader reassigning roles for periods of time, then temporarily taking on the role of parent management, or helping out a team member and switching roles with them. The key to this being done successfully was mentioned numerous times as effective usage of closed-loop communication.

Finally, team members expressed attempting to maintain "team situation awareness," which is a "shared understanding of a situation among team members at one point in time."[28] Some teams were able to achieve situational awareness more efficiently than others and maintain it throughout the scenario, usually attributing this to strong closed-loop communication. However, individuals noted that it was challenging to maintain strong team situation awareness after engaged with the parent because they lost track of the team's activity (Table 5).

DISCUSSION

In the current research, we identified themes representing teams' responses to family presence. This was done by analyzing debriefings of a simulated resuscitation event with the presence of a distressed confederate parent. In general, the presence of a parent created a change in the

TABLE 4 Behavioral: Team Quotes

Minor Themes and/or Subthemes	Quotes
Managing parent as a role	
Leader (take on or assign)	Resident: "I think that's reasonable to have the team leader speak briefly to- [the parent], because that's the person in charge." (018)
Self-delegation	Leader: "I just kinda felt like she needed some reassurance, that she was coming right to me, so I didn't feel right to leave her for somebody else to deal with." (001)
Availability	RN: "I was doing something very mechanical that needed time, it's just pushing the boluses, and she's [mom] right there so I felt like that was an opportunity to kinda try to speak to her quietly without interrupt." (029)
Parent management approach	
Remove parent	Leader: "I was like, if he gets in the way, you're gonna have to get security. That's it, he's got one more chance." (025)
Tune out	RT: "I only dealt with her [mom] once, when I came to the head of bed, . . . and she was there, so I introduced myself and I just…really just let her stay there and tuned her out." (043)
Minimal attention	RT: "Maybe you should focus just on that [the resuscitation] and say 'I'll be with you soon, I have to take care of your child right now. And as soon as I'm done, I will come to you.'" (018)
Parent for information and/or history	Resident: "I feel like, the few times I chatted with the mom, I was trying to get more information each time. Plus the bonus of like, you know, calming her down as well. But I did try to get [extra] information, so…" (018)
Update the parent	Leader: "Well my goal was to tell her that, like, we all want the best for your child and we want to save your child and want to make sure that that is what we are doing and to do that we need this space and we need you to step back, and we will come back to you as soon as we can. (Shrugs) I mean, I mean easier said than done." (007)
Distance parent from team	Mom confederate: "And one thing that RN 1 did, again, and I don't know if anyone noticed, [I heard her say] 'Can you back up, can you back up,' and I said 'No the last time I left him this is what happened, I'm not leaving him.' But when RN 1, you came around, you brought a chair, so you didn't try to take me to the chair, you brought the chair to me. And you ever so kindly and gently pulled me back." (028)

RN, registered nurse; RT, respiratory therapist.

environment that most team members felt unprepared to handle. The parent was found to be distracting because of questions, physical positioning, and added noise level. Teams typically reported that the parent had to be actively managed to minimize potential effects on the team. However, this appeared to pose numerous challenges such as identifying how best to manage the parent, identifying whose responsibility it was to take on this task, and maintaining high performance.

The debriefs contained a wide range of strategies for parent management, all with potentially different levels of effectiveness. Most were chosen from an individual's past experiences or via improvisation. However, many expressed lacking confidence in their chosen strategy. Furthermore, this reactive, disjointed strategy resulted in multiple individual strategies being employed simultaneously instead of a possibly more effective united team-based strategy. Interestingly, not all teams fell victim to this fractured approach to parent management. Although still relying on past experience and improvisation in most cases, we found that some teams effectively managed the situation by using closed-loop communication to create a shared mental model, redistributing roles to meet demands, and applying back-up behavior to prevent errors.

Given our observations, there appears to be the potential for FPDR to compromise team performance, potentially adversely affecting patient outcomes. Team members noted the parent sometimes took focus away from their tasks. Behaviors that exacerbated the issue included asking questions, being another voice in the room, being physically in the way, and causing anxiety in team members. This was usually compounded because there were not enough people to have someone dedicated to the parent, which allowed us to see more clearly the effects of the parent on the team without the presence of a support person.

When individuals think about an off-task demand, it has been shown that this decreases the likelihood that they will perform to their full potential.[29] If a team member's cognitive load is too great then there is an increased risk of error. These demands may be further amplified if they elicit an emotional response. If team members are unable to control their affective responses, then arousal, anxiety, and rumination may affect the effectiveness of task-related information processing and thereafter performance.[29–31] These effects can be exacerbated when performance is highly complex,[29] like resuscitation. Although there was discussion of selective attention, which is deciding what to pay attention to (usually what is highly relevant and important) and can improve under times of high stress,[32] it is common for perceived threatening stimuli to be categorized as highly relevant; thus, attention can be directed to task-irrelevant stimuli.[31] This may mean many team members may still have been distracted by the parent even if

TABLE 5 Team Dynamics: Team Quotes

Minor Themes and/or Subthemes	Quotes
Coordination	Leader: "Yea, so I think the challenging thing here was the mother. Uh, and that fully disrupted, I mean was a poss—, had a possibility to disrupt our teamwork or closed-loop communication. Um, what happens is that there's almost turn taking as to who would take care of the mother. But that was okay, I mean I reattributed the roles, you know, if the IV person went to take care of the mother, then someone else would take care of the IV, and so forth. . . I felt like people were telling me 'Okay, IV in.' So, I think we managed the…in terms of teamwork despite the mother." (020)
Communication	RN 1: "and she kept interrupting everybody… because she was asking whoever she was close to. And that, for me, it was very distracting, because that's all I heard, was her. Honestly for me, that was…hard." (043)
Back-up behavior	Resident: "Because I had been assigned a role but then it very quickly became obvious that you [leader] couldn't do team leader and look after mom and do everything else so I was trying to chat with her [mom]." (049)
Roles	
Role confusion	Leader: "But it's hard because it's like, who could have done the role right? [Name] was bagging, you're drawing up meds, or you're looking up to the monitor, or you're drawing up meds, so everyone was doing something so there wasn't enough people to look after mom was well. Ya." (049)
Dual roles	Leader: "Maybe once I get a little more comfortable or experienced at running codes, I'll be able to do a little more multitasking. But for me I feel like that's multitasking, and I'm not able to that at this point in my training. Like I'm just not… good enough at running codes. Like I need to be able to think by myself instead of explaining to the parent." (048)
Role switching	Leader: "Um, what happen is that there's almost (turn taking), as to who would take care of the mother. But that was okay, I mean I reattributed the roles, you know, if the IV person went to take care of the mother, then someone else would take care of the IV, and so forth." (020)
Team situation awareness	Resident: "The challenge was doing that [speaking to the parent] while also being aware of what was going on. That was like, next to impossible I found. Like, the more I spoke to her, the more calm she would get, the more easy she was, but the less I knew what was going on." (038)

IV, intravenous; RN, registered nurse.

they engaged in conscious prioritizing of the patient. This may result in too high a cognitive load, increasing risk of errors.[31]

This study has several limitations. First, the resuscitation was a simulation, which may question the generalizability of our findings to real life. However, simulation can be effective when environmental, physical, and psychological fidelity are high.[33] We argue that our study simulations met these requirements (see Supplemental Information). Therefore, it is reasonable to assume that team members behaved similarly to how they would have during a real event, making their responses recorded during the debriefs valid. Second, there may not have been adequate standardization of the confederate actors' portrayals of the parent. Although scripted, there was still some variation in actor behavior; however, we believe this may increase the generalizability of our findings. Family members' reactions can be extremely varied during a resuscitation, suggesting that variance in performances from the confederate actors may have aided in eliciting and capturing a wider range of themes than a completely standardized scenario would have. Third, although we feel we were able to capture an encompassing range of responses that ideally reflect the majority of themes that would emerge, our findings may not be applicable to parent behavior that would be characterized as representing ends of the spectrum (be it an extremely quiet and distant family member or an extremely loud and disruptive family member). Fourth, the confederate actors were known to participants in many cases because they held a clinical position at the hospital, which could have impacted the realism of the scenario. However, provided the range and intensity of the themes identified by health care professionals, we believe the effects, if any, were limited. A final potential limitation is the makeup of the team and scenario. For example, team leaders were resident physicians, and at their stages of training, they may not be as comfortable with resuscitation to also deal adequately with the added complexity of FPDR.

We present 4 recommendations that may help future researchers and educators address some of the themes identified in this study. (1) Guidelines that require a support person dedicated to managing the parent at all times should be incorporated. This will help to prevent the parent from being physically in the way, redirect their questions away from the team, and overall reduce any distraction and anxiety in the team. (2) Strategies to best manage FPDR should be developed further. The literature would benefit from the continued proposal and experimental testing of strategies for

educators to use when providing training on this topic. (3) Teams should be educated and trained in managing FPDR. This will likely increase team members' comfort with FPDR and increase comfort with communicating with the parent.[34] Training may help decrease team members' anxiety and, ideally, reduce their cognitive load. Education can also help teams have a contingency plan for how best to manage the parent.[35] (4) Teams should be trained in effective overall team skills. Teamwork behaviors, such as closed-loop communication and back-up behaviors, likely translate into decreased error and consequent improvements in patient safety.[36–39]

CONCLUSIONS

Our objective with this research was to identify themes of how team members responded to the presence of a distressed family member during a resuscitation. This was approached from multiple angles including affective, cognitive, behavioral responses, and team dynamics. Using this more holistic view, we believe we now better understand how resuscitation team members respond and adapt to parents' presence, how they may struggle, and how patient safety may be affected. Policy, education and training, and teamwork skills were identified as areas for future growth to better equip health care providers to effectively manage FPDR.

Acknowledgments

This work was made possible by the help and assistance of Logan Van Roessel and Jobair Jaber who volunteered their time to help review and code the videos. We thank Dr Jocelyn Lockyer for her consultation and guidance on the method. We also thank those who assisted with running the simulations and debriefs, as well as the health care providers who took part in the simulations, because they contributed to further advancing our knowledge on this topic.

REFERENCES

1. Moler FW, Meert K, Donaldson AE, et al; Pediatric Emergency Care Applied Research Network. In-hospital versus out-of-hospital pediatric cardiac arrest: a multicenter cohort study. *Crit Care Med*. 2009;37(7):2259–2267
2. Del Castillo J, López-Herce J, Matamoros M, et al; Iberoamerican Pediatric Cardiac Arrest Study Network RIBEPCI. Long-term evolution after in-hospital cardiac arrest in children: prospective multicenter multinational study. *Resuscitation*. 2015; 96:126–134
3. Martinez PA, Totapally BR. The epidemiology and outcomes of pediatric in-hospital cardiopulmonary arrest in the United States during 1997 to 2012. *Resuscitation*. 2016;105: 177–181
4. St. Pierre M, Hoffinger G, Buerschaper C, Simon R. *Crisis Management in Acute Care Settings: Human Factors and Team Psychology in a High Stakes Environment*. 2nd ed. Berlin, Germany: Springer-Verlag; 2011
5. Canadian Association of Critical Care Nurses. Family presence during resuscitation. Position statement. 2015. Available at: www.caccn.ca/en/pdfs%CACCN%20Family%20Presence%20During%20Resuscitation%20Oct%202005.pdf. Accessed September 21, 2017
6. American Association of Critical-Care Nurses. Practice alert: family presence during resuscitation and invasive procedures. 2015. Available at: https://www.aacn.org/clinical-resources/practice-alerts/family-presence-during-resuscitation-and-invasive-procedures. Accessed September 12, 2016
7. American Heart Association. Family presence during resuscitation. 2010. Available at: https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/part-12-pediatric-advanced-life-support/intra-arrest-care-updates/family-presence-during-resuscitation/. Accessed July 14, 2017
8. Oczkowski SJW, Mazzetti I, Cupido C, Fox-Robichaud AE; Canadian Critical Care Society. Family presence during resuscitation: a Canadian Critical Care Society position paper. *Can Respir J*. 2015;22(4):201–205
9. Mangurten JA, Scott SH, Guzzetta CE, et al. Family presence: making room. *Am J Nurs*. 2005;105(5):40–48; quiz 49
10. Powers KS, Rubenstein JS. Family presence during invasive procedures in the pediatric intensive care unit: a prospective study. *Arch Pediatr Adolesc Med*. 1999;153(9):955–958
11. Robinson SM, Mackenzie-Ross S, Campbell Hewson GL, Egleston CV, Prevost AT. Psychological effect of witnessed resuscitation on bereaved relatives. *Lancet*. 1998;352(9128): 614–617
12. Sacchetti A, Lichenstein R, Carraccio CA, Harris RH. Family member presence during pediatric emergency department procedures. *Pediatr Emerg Care*. 1996; 12(4):268–271
13. Booth MG, Woolrich L, Kinsella J. Family witnessed resuscitation in UK emergency departments: a survey of practice. *Eur J Anaesthesiol*. 2004;21(9): 725–728
14. McClenathan BM, Torrington KG, Uyehara CFT. Family member presence during cardiopulmonary resuscitation: a survey of US and international critical care professionals. *Chest*. 2002;122(6): 2204–2211
15. Bauchner H, Waring C, Vinci R. Parental presence during procedures in an emergency room: results from 50 observations. *Pediatrics*. 1991;87(4): 544–548
16. Mangurten J, Scott SH, Guzzetta CE, et al. Effects of family presence during resuscitation and invasive procedures in a pediatric emergency department. *J Emerg Nurs*. 2006;32(3):225–233
17. Meyers TA, Eichhorn DJ, Guzzetta CE, et al. Family presence during invasive procedures and resuscitation. *Am J Nurs*. 2000;100(2):32–42; quiz 43
18. Oczkowski SJ, Mazzetti I, Cupido C, Fox-Robichaud AE. The offering of family presence during resuscitation: a systematic review and meta-analysis. *J Intensive Care*. 2015;3:41
19. Gilfoyle E, Koot DA, Annear JC, et al; Teams4Kids Investigators and the

Canadian Critical Care Trials Group. Improved clinical performance and teamwork of pediatric interprofessional resuscitation teams with a simulation-based educational intervention. *Pediatr Crit Care Med*. 2017;18(2):e62–e69

20. Rudolph JW, Simon R, Raemer DB, Eppich WJ. Debriefing as formative assessment: closing performance gaps in medical education. *Acad Emerg Med*. 2008;15(11):1010–1016
21. Hennink MM, Kaiser BN, Marconi VC. Code saturation versus meaning saturation: how many interviews are enough? *Qual Health Res*. 2017;27(4):591–608
22. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101
23. *NVivo* [computer program]. Version 11. Melbourne, Australia: QSR International; 2016
24. Burke CS, Stagl KC, Salas E, Pierce L, Kendall D. Understanding team adaptation: a conceptual analysis and model. *J Appl Psychol*. 2006;91(6):1189–1207
25. Day DV, Gronn P, Salas E. Leadership capacity in teams. *Leadersh Q*. 2004;15(6):857–880
26. Salas E, Sims DE, Burke CS. Is there a "Big Five" in teamwork? *Small Group Res*. 2005a;36(5):555–599
27. Salas E, Sims DE, Klein C. Cooperation at work. In: Spielberger CD, ed. *Encyclopedia of Applied Psychology*. Vol 1. San Diego, CA: Academic Press; 2004:497–505
28. Salas E, Prince C, Baker DP, Shrestha L. Situation awareness in team performance: implications for measurement and training. *Hum Factors*. 1995;37(1):123–136
29. Beal DJ, Weiss HM, Barros E, MacDermid SM. An episodic process model of affective influences on performance. *J Appl Psychol*. 2005;90(6):1054–1068
30. Eysenck MW, Byrne A. Anxiety and susceptibility to distraction. *Pers Individ Dif*. 1992;13(7):793–798
31. Eysenck MW, Derakshan N, Santos R, Calvo MG. Anxiety and cognitive performance: attentional control theory. *Emotion*. 2007;7(2):336–353
32. Chajut E, Algom D. Selective attention improves under stress: implications for theories of social cognition. *J Pers Soc Psychol*. 2003;85(2):231–248
33. Salas E, Wilson KA, Burke CS, Priest HA. Using simulation-based training to improve patient safety: what does it take? *Jt Comm J Qual Patient Saf*. 2005b;31(7):363–371
34. Pye S, Kane J, Jones A. Parental presence during pediatric resuscitation: the use of simulation training for cardiac intensive care nurses. *J Spec Pediatr Nurs*. 2010;15(2):172–175
35. Marks MA, Mathieu JE, Zaccaro SJ. A temporally based framework and taxonomy of team processes. *Acad Manage Rev*. 2001;26(3):356–376
36. Eppich WJ, Arnold LD. Family member presence in the pediatric emergency department. *Curr Opin Pediatr*. 2003;15(3):294–298
37. Baker DP, Day R, Salas E. Teamwork as an essential component of high-reliability organizations. *Health Serv Res*. 2006;41(4, pt 2):1576–1598
38. Bedwell WL, Ramsay PS, Salas E. Helping fluid teams work: a research agenda for effective team adaptation in healthcare. *Transl Behav Med*. 2012;2(4):504–509
39. Salas E, Rosen MA. Building high reliability teams: progress and some reflections on teamwork training. *BMJ Qual Saf*. 2013;22(5):369–373

A Qualitative Exploration of the Impact of a Distressed Family Member on Pediatric Resuscitation Teams

Amanda Deacon, Tom O'Neill, Nicole Delaloye and Elaine Gilfoyle

Hospital Pediatrics 2020;10;758
DOI: 10.1542/hpeds.2020-0173 originally published online August 14, 2020;

Hospital Pediatrics®

AN OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

A Qualitative Exploration of the Impact of a Distressed Family Member on Pediatric Resuscitation Teams

Amanda Deacon, Tom O'Neill, Nicole Delaloye and Elaine Gilfoyle

Hospital Pediatrics 2020;10;758
DOI: 10.1542/hpeds.2020-0173 originally published online August 14, 2020;