

9-1-2014

Postresuscitation debriefing in the pediatric emergency department: A national needs assessment

Naminder Sandhu
University of Calgary

Walter Eppich
Northwestern University

Angelo Mikrogianakis
University of Calgary

Vincent Grant
University of Calgary

Traci Robinson
University of Calgary

See next page for additional authors

Follow this and additional works at: <https://ir.lib.uwo.ca/paedpub>

Citation of this paper:

Sandhu, Naminder; Eppich, Walter; Mikrogianakis, Angelo; Grant, Vincent; Robinson, Traci; Cheng, Adam; Lim, Rod; and Shefrin, Allan, "Postresuscitation debriefing in the pediatric emergency department: A national needs assessment" (2014). *Paediatrics Publications*. 2352.
<https://ir.lib.uwo.ca/paedpub/2352>

Authors

Naminder Sandhu, Walter Eppich, Angelo Mikrogianakis, Vincent Grant, Traci Robinson, Adam Cheng, Rod Lim, and Allan Shefrin

*Pediatric EM***Postresuscitation debriefing in the pediatric emergency department: a national needs assessment**

Naminder Sandhu, MD*; Walter Eppich, MD, MEd[†]; Angelo Mikrogianakis, MD*; Vincent Grant, MD*; Traci Robinson, RN*; Adam Cheng, MD* for the Canadian Pediatric Simulation Network (CPSN) Debriefing Consensus Group[‡]

ABSTRACT

Objectives: The objectives of this study were to assess current postresuscitation debriefing (PRD) practices in Canadian pediatric emergency departments (EDs) and identify areas for improvement.

Methods: A national needs assessment survey was conducted to collect information on current PRD practices and perspectives on debriefing practice in pediatric EDs. A questionnaire was distributed to ED nurses, fellows, and attending physicians at 10 pediatric tertiary care hospitals across Canada. Summary statistics are reported.

Results: Data were analyzed from 183 participants (48.7% response rate). Although 88.8% of the participants believed that debriefing is an important process, 52.5% indicated that debriefing after real resuscitations occurs less than 25% of the time and 68.3% indicated that no expectation exists for PRD at their institution. Although 83.7% of participants believed that facilitators should have a specific skill set developed through formal training sessions, 63.4% had no previous training in debriefing. Seventy-two percent felt that medical and crisis resource management issues are dealt with adequately when PRD occurs, and 90.4% indicated that ED workload and time shortages are major barriers to effective debriefing. Most responded that a debriefing tool to guide facilitators might aid in multiple skills, such as creating realistic debriefing objectives and providing feedback with good judgment.

Conclusion: PRD in Canadian pediatric EDs occurs infrequently, although most health care providers agreed on its importance and the need for skilled facilitators.

RÉSUMÉ

Objectifs: L'étude avait pour objectifs d'évaluer les pratiques actuelles concernant les réunions-bilan après réanimation

(RBAR) dans les services d'urgences (SU) pédiatriques au Canada, et de cerner les domaines susceptibles d'amélioration.

Méthode: Nous avons mené une enquête sur l'évaluation nationale des besoins afin de recueillir des renseignements sur les pratiques actuelles concernant les RBAR et les points de vue sur la tenue de ces réunions dans les SU pédiatriques. Un questionnaire a été envoyé à des infirmières et infirmiers travaillant dans des SU, à des stagiaires et à des médecins traitants, dans 10 hôpitaux pédiatriques, de soins tertiaires, partout au Canada. Des statistiques sommaires ont été notées.

Résultats: Ont fait l'objet d'analyse les données de 183 participants (taux de réponse: 48.7%). Bien que 88.8% d'entre eux considèrent que les réunions-bilan sont un processus important, 52.5% ont indiqué que ce genre de réunion après des réanimations réelles se tenaient dans moins de 25% des cas, et 68.3% ont indiqué qu'ils n'avaient pas d'attentes à l'égard des RBAR dans leur établissement. De plus, 83.7% des répondants estimaient que les animateurs devraient avoir des compétences particulières, acquises dans le cadre de séances de formation structurée, mais 63.4% des animateurs n'avaient pas de formation en matière de réunion-bilan. Par ailleurs, 72% des participants étaient d'avis que les questions médicales et celles relatives à la gestion des ressources en cas de crise étaient bien traitées durant les RBAR, et 90.4% ont indiqué que la charge de travail dans les SU et le manque de temps étaient des obstacles importants à des réunions-bilan vraiment efficaces. Enfin, la plupart des répondants estimaient qu'un outil d'animation des réunions-bilan à l'intention des animateurs pourrait les aider dans de nombreuses habiletés, par exemple l'établissement d'objectifs réalistes à atteindre durant ces réunions et la capacité de donner de la rétroaction témoignant d'un jugement sûr.

From the *KidSim-Aspire Simulation Research Program, Section of Emergency Medicine, Department of Pediatrics, Alberta Children's Hospital, University of Calgary, Calgary, AB; †Division of Emergency Medicine, Children's Memorial Hospital, Northwestern University, Chicago, IL. ‡The CPSN Debriefing Consensus Group includes Rod Lim, MD, Allan Shefrin, MD, Jonathan Pirie, MD, Arielle Levy, MD, Farhan Bhanji, MD, and Seen Chung, MD.

Correspondence to: Dr. Naminder Sandhu, Section of Emergency Medicine, Alberta Children's Hospital, 2888 Shaganappi Trail NW, Calgary, AB T3B 6A8; naminder.sandhu@albertahealthservices.ca.

This article has been peer reviewed.

Conclusions: Les RBAR sont peu fréquentes dans les SU pédiatriques au Canada, malgré le fait que la plupart des fournisseurs de soins de santé conviennent de leur importance et de la nécessité d'avoir des animateurs bien formés.

Keywords: debriefing, emergency department, pediatrics, resuscitation

Effective resuscitation of critically ill patients requires collaboration of health care teams to function effectively in decision making and implementation of knowledge and skills.¹ Resuscitation in the emergency department (ED) is defined as a series of interventions conducted by a trained team aimed at restoring and/or supporting vital function in a critically ill patient.² Due to the complexity of resuscitation processes, patient care is not always delivered optimally. Human systems and occupational sciences literature concerning the optimization of team performance suggests that debriefing critical incidents (CIs) can optimize team performance.³⁻⁵ During a debriefing, health care teams re-examine the clinical encounter to discuss individual and team performance, identify errors, and develop performance improvement strategies via reflective learning processes.^{6,7} Debriefing can also help protect and support those exposed to CIs by minimizing abnormal stress responses.⁸

Anecdotally, providers frequently perceive the need for debriefing in the emergency setting. Individuals who have attended a debriefing typically rate the experience as “valuable” and “helpful” and a “morale maintenance” intervention.¹⁰ Beyond its potential to improve individual and team performance, the International Liaison Committee on Resuscitation (ILCOR) identified the impact of debriefing on actual patient outcomes as an important area of research.¹¹ Despite these endorsements, this educational intervention is still relatively novel in medicine. Few institutions have formal guidelines and standards on team debriefing after CIs, such as a failed resuscitation.^{10,12,13}

We hypothesized that current postresuscitation debriefing (PRD) practices in pediatric EDs across Canada are variable, and few institutions have formalized PRDs in the ED setting. The purposes of this study were 1) to describe current debriefing practices after real-life resuscitations in Canadian tertiary pediatric EDs and 2) to identify barriers to PRD. Our hope was that this study would inform the development of a national framework for a novel debriefing guideline and implementation program in pediatric EDs across the country.

METHODS

Study design

We conducted a national needs assessment survey to determine the current debriefing practices and perceived needs for debriefing in Canadian pediatric EDs. Ethics approval was obtained from the University of Calgary Conjoint Health Research Ethics Board. Informed consent for participation was implied with completion of the online questionnaire after reading an introductory letter.

Study setting and population

The questionnaire was distributed nationwide to staff in EDs at 10 Canadian pediatric tertiary care hospitals over a 6-week period from April to June 2012. The study population was composed of pediatric emergency physicians, nurse educator clinicians, pediatric ED nurses, and pediatric emergency medicine (PEM) fellowship trainees.

Study protocol

Following a review of the literature,¹²⁻¹⁶ the study team, made up of experts in pediatric resuscitation, debriefing, acute care, and education, designed a needs assessment questionnaire. Further iterative steps to ensure content and design validity included revisions by experts at sites across Canada and modifications based on feedback from pilot testing by an independent group of five nurses and physicians. The pilot-tested questionnaire was distributed across Canada (Appendix, available at www.cjem-online.ca). A representative sample of 10 pediatric emergency nurses (including at least one nurse educator) was identified by ED nurse educators at each site. This step ensured that staff with no trauma experience were excluded but allowed for an appropriate set of participants from each site. Educators either personally identified participants or invited trauma room nurses, and the first 10 participants were included. All pediatric ED physicians, nurse educators, and fellows at participating sites were included in the distribution list. Full-time and part-time

physicians were included provided that they had trauma room experience. The survey was electronically formatted and distributed through a commercial electronic survey service provider (*SurveyMonkey*), facilitating distribution and data collection. A follow-up email was sent to initial nonresponders within 2 weeks.

Survey content

We define PRD as a facilitated and guided reflection after a resuscitation that provides an opportunity to review events and develop insight for use in similar cases in the future. Survey items were grouped into one of three areas of interest. The first area was the participant's personal experience with PRD. The second area was the current state of PRD in their ED and included the environment around debriefing and the handling of issues, frequency of debriefing, and identification of debriefing facilitators. The final area was perceived barriers and the improvement of debriefing, including the importance and purpose of debriefing, information required in a debriefing tool, identification of debriefing facilitators, optimal timing for debriefing, and incidents considered important to debrief. Participants were allowed to skip questions at their discretion.

Data analysis

Data were summarized by question in the online survey program and exported into Microsoft *Excel*. Questions evaluated with a 5-point Likert scale (1 = strongly disagree, 2 = agree, 3 = neutral, 4 = agree, 5 = strongly agree) were analyzed individually as ordinal variables. Categories were collapsed into binary groups to calculate proportions: agree (score of 4 or 5) or neutral/disagree (scores of 1–3). All other questions were analyzed as categorical variables. Summary statistics, including proportions, were produced. Subanalyses of nurses and physicians were done where deemed relevant, with data for nurses and nurse educators being combined. Differences in proportions with $p < 0.05$ were considered statistically significant. Free text comments were grouped by theme and summarized.

RESULTS

The combined survey response rate for nurses, attending physicians, and PEM fellows was 48.7%

(183 of 376 distributed surveys). The response rate was 47.2% (108 of 229) for physicians, 43.8% (21 of 48) for PEM fellows, and 54.0% (54 of 100) for ED nurses. Three of the email invitations delivered bounced back (one for physicians and two for fellows) and were not included in the analysis. The baseline characteristics of the participants are shown in Table 1. The number of pediatric emergency physicians at each site ranged from 13 to 43 members and reflected the sizes of the departments involved.

Current state of debriefing

Figure 1 shows participant-reported frequency of debriefing after a resuscitation event. Only 13.7% (96 of 183) of participants stated that debriefing occurs more than 75% of the time, whereas 52.5% (25 of 183) stated that it occurs less than 25% of the time. Only 31.7% (57 of 180) stated that there is an expectation at their institution that debriefing occur after every resuscitation.

The majority of participants have facilitated a small number of debriefings per year after real-life resuscitations (97.3% facilitated less than 10 in the past year; 177 of 182). Furthermore, 71.8% stated that resuscitations occur once a month or less (130 of 181). Typically, the facilitator was a person involved in the resuscitation (71.0%; 125 of 176), either a physician (51.7%; 92 of 178) or a combined nurse/physician pair (21.3%; 38 of 178). The majority (61.7%; 113 of 183) of participants had no previous training in debriefing, but 4.4% (8 of 183) had formal apprenticeship or fellowship training in simulation. Physicians were more likely to have some training from a course compared to nurses (40.7% versus 16.9%; 53 of 130 versus 9 of 53).

When asked about the details of PRD at their institution, only 32.6% (57 of 177) indicated that they had adequate time for the debriefing and a minority felt that it occurred in a timely fashion (40.3%; 70 of 174). Most (81.1%; 142 of 177) agreed that the facilitator has a strong impact on the quality of debriefing.

Table 2 provides participants' agreement on statements regarding the current state of debriefing at their institution. Responses varied by staff role, especially with respect to the amount of attention given to medical issues, with 72.0% (90 of 125) of physicians responding positively compared to only 53.9% (28 of 52) of nurses ($p = 0.008$). A greater proportion of physicians compared to nurses indicated that teamwork, leadership, communication issues, and resource

Table 1. Baseline characteristics of participants

Characteristic	Total sample, n (%)	Nurses, n (%)	Physicians, n (%)	Fellows, n (%)
Role in the ED				
Full-time emergency physician	91 (50.0)			
Part-time emergency physician	19 (10.4)			
Fellow	20 (10.9)			
Nurse educator	3 (1.6)			
Nurse	50 (27.3)			
Gender*				
Male	69 (38.1)	5 (9.4)	58 (53.2)	6 (30.0)
Female	113 (62.1)	48 (90.6)	51 (46.8)	14 (70.0)
Number of years of ED experience*				
< 2	20 (11.0)	1 (1.9)	5 (4.6)	14 (70.0)
2–5	43 (23.6)	11 (20.8)	27 (24.8)	5 (25.0)
5–10	48 (26.4)	18 (34.0)	30 (27.5)	0 (0.0)
> 10	71 (39.0)	23 (43.4)	47 (43.1)	1 (5.0)
Number of ED resuscitations involved in each year†				
> Once a week	9 (5.0)	6 (11.5)	3 (3.7)	0 (0.0)
Once every 1–2 weeks	42 (23.2)	9 (17.3)	26 (23.6)	7 (36.8)
Once a month	65 (35.9)	14 (26.9)	43 (39.1)	8 (42.1)
< Once a month	65 (35.9)	23 (44.2)	38 (34.5)	4 (21.1)

ED = emergency department.
 *n = 182 participants.
 †n = 181 participants.

allocation were addressed adequately (72.6% versus 57.7%; 90 of 125 versus 30 of 52, $p = 0.03$).

Opinions on debriefing

The majority (88.8%; 159 of 179) of participants, irrespective of their clinical role, believed that PRD is important. Most identified multiple purposes of

debriefing: emotional release (89.3%; 159 of 178); review of patient medical care (91.5%; 162 of 177); discussion of medical errors (82.1%; 147 of 179); morale building (92.7%; 166 of 179); and discussion of teamwork, communication, and resource use (96.1%; 171 of 178). Most believed that debriefing facilitators should have formal training (83.6%; 148 of 177). The majority (75.6%; 136 of 180) felt that debriefing

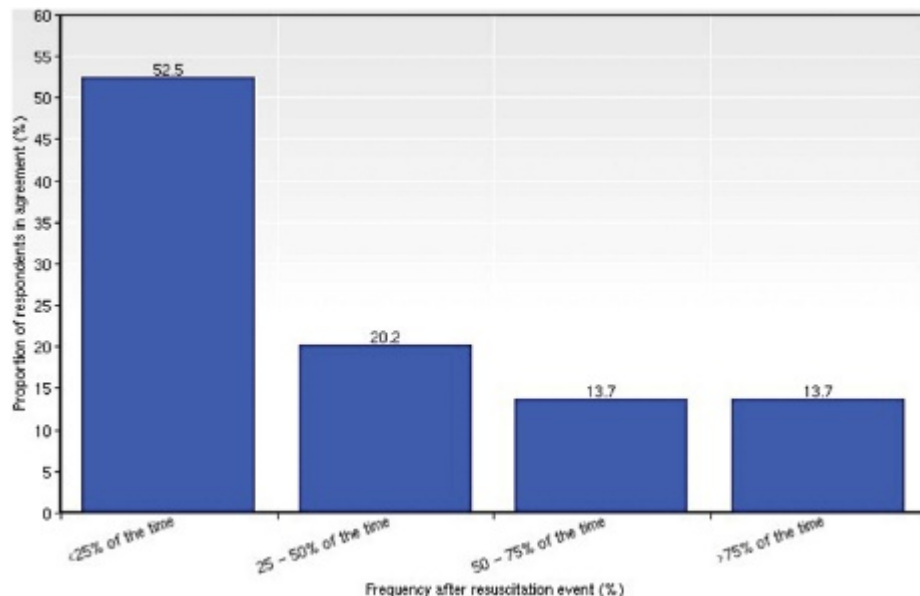


Figure 1. Reported frequency of debriefing after a resuscitation event.

Table 2. Participants' agreement on statements regarding the current state of debriefing at their institution*

Statement	Percentage of physicians in agreement (n = 125)	Percentage of nurses in agreement (n = 52)	p value	Overall percentage in agreement (n = 177)
Medical issues are addressed adequately	72.0	53.9	0.008	66.7
Teamwork, leadership, communication issues, and resource allocation are addressed adequately	72.6	57.7	0.03	68.2
Emotional issues are addressed adequately	54.8	57.7	0.67	50.0
There usually is enough time to cover all issues	34.9	38.4	0.66	32.6
The debriefing environment is supportive and nonthreatening	74.2	66.7	0.28	72.0
The facilitator has a strong impact on the quality of the debriefing	82.2	78.8	0.59	81.1
Postresuscitation debriefings occur in a timely fashion	44.3	30.8	0.06	40.3

*Based on a Likert scale response of agree or strongly agree.

should occur immediately after the resuscitation event or during the same ED shift. Most (67.6%; 120 of 179) participants believed that the physician (team leader) involved in the resuscitation should facilitate and support development of guidelines for similar future resuscitations, although 52.5% (94 of 179) also believed that the facilitator could be a health care provider not involved in the resuscitation.

Table 3 provides participants' opinions on potential barriers to effective debriefing and illustrates that a large proportion of staff feel that the ED workload was a major deterrent. The only statistically significant difference in opinions between nurses and physicians on barriers was that 24.4% of nurses felt that there was no identified interest in or need for debriefing compared to 46.2% of physicians ($p = 0.001$).

Participants were also asked to provide feedback on potential objectives of a debriefing facilitator's guide (Table 4). All listed items were generally accepted as appropriate objectives. Free text comments are summarized by theme in Table 5 and include concerns over time-workload constraints, barriers resulting from a lack of administrative support, and the significance of distinguishing debriefing from "defusing" as post-CI procedures.

DISCUSSION

Current practice and identified obstacles

Our findings shed light on the state of debriefing after resuscitative care in Canadian pediatric EDs. The American Heart Association guidelines for

Table 3. Participants' opinions on potential barriers to effective debriefing*

Potential barrier to effective debriefing	Percentage of physicians in agreement (n = 127)	Percentage of nurses in agreement (n = 52)	p value
ED workload and environment does not allow sufficient time to debrief	90.6	90.2	0.81
No identified interest or need	24.4	46.2	0.001
Lack of qualified/trained facilitators	44.1	49.0	0.48
No appropriate setting available	42.5	38.5	0.53
Did not feel comfortable discussing the event in the group/team environment	18.1	17.3	0.85
Felt criticized and judged	13.4	17.3	0.43
Too soon or late after the event	28.4	40.3	0.07
Lack of administrative support for debriefing	32.8	44.2	0.11

ED = emergency department.
*Based on Likert scale response of agree or strongly agree.

Table 4. Potential objectives of a debriefing facilitator's guide

Item	Percentage of participants in agreement (n = 177)
Set up a supportive environment	87.0
Create realistic objectives for the debrief	93.2
Allow for emotions to be shared during debriefing	92.7
Provide feedback with good judgment	93.8
Promote discussion around teamwork, leadership, communication, and resource allocation	95.5
Formulate questions to understand the reasoning behind people's actions during resuscitation	84.8
Facilitate a discussion to help achieve/sustain good performance	86.5
Distil lessons learned into memorable concepts	79.1
Cover the needs of all the participants	81.8

cardiopulmonary resuscitation and emergency cardiovascular care endorse debriefing for resuscitation events and state that debriefing of cardiac arrest events “improves subsequent CPR performance in-hospital and results in higher rate of return of spontaneous circulation.”^{17,18} Debriefing of actual resuscitation events can be a useful strategy to improve future performance.¹⁹ Our results indicate that despite the value placed on PRD by health care providers, PRD in Canadian pediatric EDs is underdeveloped, infrequently used, and insufficiently supported. Although there is growing evidence of the positive effect of debriefing after surgical, anesthetic, or critical care-based

simulation events,^{20–28} there is a lack of evidence on how PRD impacts teamwork and patient care in the ED.

Our findings are consistent with an Australian study of pediatric ED physicians and nurses that identified a perceived need but a lack of a structured debriefing process. In a survey of 26 clinicians, 89% stated that no ED-specific guidelines existed and most desired a debriefing process.¹³ Ireland and colleagues published a study of 144 nurses and physicians from the United Kingdom on debriefing after failed pediatric resuscitations, 62% of whom indicated that debriefing occurred most of the time.¹² The study group focused on the current state of debriefing without a formal needs

Table 5. Summary of free text comments categorized by theme

Theme	Comments
Importance of debriefing	Debriefings are very important in the ED setting to help all staff with the after-effect of the situation. All too often we just pick up and move on and are left to pick up the pieces on our own.
Issues/barriers	Everyone agrees it is necessary—biggest barrier is that emergency personnel are too busy to stop to debrief most days. EDs are difficult to carry this out due to the business and volumes of patients. They are neither supported by administration nor considered important by the majority of staff. Instituting them would require a significant culture shift. It is imperative that a protocol/guidelines be developed. Too much debriefing can be exhausting to the staff and can make them numb to the experience.
Quality assurance	Leading a debrief requires both a skill set (which can be taught) and a particular personality and ability to use that skill set. Debriefing sessions should not be too formal as this will limit an open and honest discussion... Staff must feel safe and believe that their concerns are entrusted to people who care about our wellness and building a healthy work environment. In our ED, resuscitation occurs infrequently, and a tool that can be easily adapted and intuitively used (e.g., not requiring specific training) makes the most sense as the team involved with each resuscitation is not consistent as with the ready availability of our ED leadership team.
Defusing versus debriefing	Defusing should be [the] norm—quick 15-minute discussion after every resuscitation. Debriefing should be done only for large or critical events, the type of which should be specifically defined ahead of time. Two different types of debriefing that need to occur: one that occurs immediately after a difficult resuscitation that is more intended for the emotional aspect and to ensure all the team members are coping well; this should be led by a social worker. A second debrief could then occur 24 to 48 hours later that focuses more on the medical care and teamwork/communication aspects.

ED = emergency department.

assessment on issues or evidence supporting their practice. In a 1993 pediatric PRD nursing-based survey/interview study, 682 nurses from the United Kingdom were surveyed, 32% of whom had participated in debriefings and 88% of whom found PRDs helpful in reducing CI stress.¹⁴ This study was limited to nursing staff and targeted the perceptions of emotional stress reduction. Our study built on this previous research by surveying multidisciplinary pediatric resuscitation teams with a focus on assessing barriers and issues in current Canadian practice.

One of the main identified barriers to debriefing is the time constraints in the ED given the workload. A multifaceted approach, which includes interventions aimed at increasing leadership, integration of debriefing into simulation and translation to real life, and education on the importance of debriefing, is likely required to address this.

Role of debriefing

Distinguishing debriefing from defusing is a key consideration. Defusing is a distinct crisis management intervention with a less structured format aimed at acute emotional stress responses after a CI.²⁹ CI stress management theory suggests that defusing and debriefing are components of a larger crisis intervention system, and each has a unique purpose following a CI.²⁹ Defusing typically occurs a few hours after a CI, whereas a larger, structured debriefing occurs up to a few days after the event.

Some authors have identified key phases of debriefing, including reactions, description, analysis, and summary or application.^{16,30,31} In our study, only half of participants indicated that they felt that emotional issues were adequately addressed. Our results highlight how these phases transpire in real-world debriefings, including the reactions phase intended for emotional washout³² and defusing.^{29,33} Our results suggest that it could be beneficial to incorporate a brief informal initial defusing with the support of social work in the minutes or hours following a CI followed by a debriefing for the study of team performance.³⁴ A practical option would be a group defusing process in conjunction with PRD with an effective reactions phase facilitated by a skilled debriefer.

Promoting effective teamwork is a natural process goal. Some participants believed that assessing the clinical impact of debriefing on patient outcomes is

important to justify the required resources for a formal debriefing procedure. The effect of debriefing techniques on performance and patient outcomes is a new area of research focus that represents fertile territory for translation of current theoretical and simulation-based debriefing knowledge.¹⁸ Edelson and colleagues developed a performance-integrated debriefing program for events involving cardiopulmonary resuscitation in an inpatient setting and, in a prospective cohort study, found improved objective measures of rescuer performance and initial patient outcomes.¹⁸ “Playback” of actual resuscitation events with targeted discussion was found to be effective in improving rescuer knowledge, performance of cardiac resuscitation, and patient outcomes. These findings have broad applicability for improving resuscitation and raise the appealing possibility of combining debriefing with actual clinical events.

Perspectives by staff role

Debriefing should be an interprofessional exercise; therefore, it is important to identify the different points of view among professions to address specific needs. Nurses and physicians generally shared similar perspectives on debriefing, although some differences were found. Nurses were less likely to feel that medical and crisis resource management (CRM) issues, such as teamwork, communication, and resource allocation, were dealt with adequately and more likely to indicate that a lack of particular interest or need for PRD existed. It is unclear whether this finding represents a lack of interest by the potential facilitators or by participants themselves, and further work is needed to better define and address this obstacle. The overwhelming nursing response that debriefing is an important process after resuscitation suggests that most nurses believe that the lack of interest arises from other professions. The discordance between physicians and nurses related to the adequate addressing of medical and CRM issues supports the importance of debriefing, which is an ideal environment for discussing differences in opinion.

Training in debriefing

Few publications exist on what methods of debriefing exist or how to apply them. The effectiveness of debriefing on achieving learning objectives has been

studied, mostly outside the ED.^{20–28} Simulation provides an active learning environment for health care providers to experience clinical situations and use cognitive, technical, and affective skills, such as those used in real-life resuscitation scenarios.^{7,35} Systematic reviews of simulation literature identified feedback as the most important feature of simulation-based medical education.^{35,36}

Consistent with the lack of expectation for formal debriefing, most participants stated that they had no previous training in debriefing. Of note, debriefing is not a formal part of the Royal College of Physicians and Surgeons of Canada objectives for PEM fellowship training.³⁷ The majority of participants indicated that debriefing facilitates strongly impacts the quality of the debriefing and that a specific skill set developed through formal training sessions is required. Debriefing is a learned skill that tends to improve with practice.^{18,26} Many simulation programs require instructors to attend workshops or courses designed to teach debriefing skills. Such workshops offer skills applicable to real-life PRD and, for greatest impact, should be advertised and made accessible to those who conduct PRD outside the simulation community.

Debriefing tool

The development of a debriefing facilitator tool or cognitive aid to guide the facilitator through the debriefing process would help overcome the perceived lack of expertise in debriefing identified in our study. In a simulation-based study, Cheng and colleagues found that use of a debriefing script for novice instructors improved the acquisition of knowledge and behavioural performance of team leaders in subsequent simulated cardiac arrests.³⁸ Several authors have presented debriefing models or guidelines based on theory from education research, cognitive sciences, and experience. Rudolph and colleagues published an excellent review paper on a structured stepwise debriefing approach.³⁰ The development of a clinical debriefing tool with incorporation of key content areas and a debriefing format with content areas from previous work may help improve the frequency and quality of PRD in Canadian EDs. Outcomes from a pilot simulation debriefing study could lead to the development of a clinically proven debriefing procedure for real-life resuscitation scenarios.

LIMITATIONS

Our study has limitations that should be considered. We reviewed debriefing practices in Canadian tertiary EDs staffed with pediatric emergency physicians and nurses, which may limit the generalizability of the findings beyond such settings. As with any study involving a survey, our response rate was limited and the potential for selection bias exists, in particular because ED staff interested in debriefing might be more likely to respond to the survey and thus may be overrepresented. Our use of purposive sampling for nurses could have added to selection bias. Moreover, the possibility exists in a design such as ours that participants may unknowingly respond in ways that are not truly reflective of their practice or that recall bias could be a factor in the results we obtained.

CONCLUSION

PRD in Canadian pediatric EDs occurs infrequently, although most health care providers agreed on its importance and the need for skilled facilitators. Providers value a debriefing performed by a facilitator with a specific skill set acquired through formalized training. An interest and need exists for formalized debriefing in the pediatric ED setting after CIs, which are an infrequent but stress-provoking event for health care providers. There appears to be a distinct role for emotional defusing versus analytical debriefing; however, both are feasible and important aspects of the post-CI process. The implementation of PRD may be enhanced by the development and use of a debriefing tool.

Acknowledgements: We are grateful to Dominic Allain, Shannon MacPhee, and Bryan Magwood for their participation as site contacts and Alberto Nettel-Aguirre for his statistical advice.

Competing interests: None declared.

REFERENCES

1. Flin R, O'Connor P, Crichton M. *Safety at the sharp end: a guide to non-technical skills*. Surrey (UK): Ashgate Publishing Limited; 2008.
2. Fleisher GR, Ludwig S. *Textbook of pediatric emergency medicine*. 6th ed. Philadelphia: Lippincott Williams & Wilkins; 2010.
3. Campbell JO, Kuncel NR. Individual and team training. In: Anderson N, Ones DS, Sinangil HK, et al, editors, *Handbook*

- of work and organizational psychology. Vol. 1. London: Blackwell; 2001. p. 278-312.
4. Cannon-Bowers JA. Individual and team decision making under stress: theoretical underpinnings. In: Cannon-Bowers JA, Salas E, editors. *Making decisions under stress: implications for individual and team training*. Washington, DC: American Psychological Association; 1998. p. 17-38.
 5. Kozlowski SWJ, Bell BS. Work groups and teams in organizations. In: Borman WC, Ilgen DR, Klimoski RJ, editors. *Handbook of psychology: industrial and organizational psychology. Vol. 12*. London: Wiley; 2003. p. 333-75.
 6. Salas E, Klein C, King H, et al. Debriefing medical teams: 12 evidence-based best practices and tips. *Jt Comm J Qual Pat Saf* 2008;34:518-27.
 7. Arafeh JMR, Hansen SS, Nichols A. Debriefing in simulator-based learning: facilitating a reflective discussion. *J Perinat Neonat Nurs* 2010;24:302-9, doi:[10.1097/JPN.0b013e3181f6b5ec](https://doi.org/10.1097/JPN.0b013e3181f6b5ec).
 8. Mitchell J. When disaster strikes: the critical incident stress debriefing process. *J Emerg Med Serv* 1983;8:36-9.
 9. Tuckey MR. Issues in the debriefing debate for the emergency services: moving research outcomes forward. *Clin Psychol Sci Pract* 2007;14:106-16, doi:[10.1111/j.1468-2850.2007.00069.x](https://doi.org/10.1111/j.1468-2850.2007.00069.x).
 10. Devilly GJ, Cotton P. Psychological debriefing and the workplace: defining a concept, controversies and guidelines for intervention. *Aust Psychol* 2003;38:144-50, doi:[10.1080/00050060310001707147](https://doi.org/10.1080/00050060310001707147).
 11. Soar J, Koenraad GM, Ballance JHW, et al. European Resuscitation Council Guidelines for Resuscitation 2010 Section 9. Principles of education in resuscitation. *Resuscitation* 2010;81:1434-44, doi:[10.1016/j.resuscitation.2010.08.014](https://doi.org/10.1016/j.resuscitation.2010.08.014).
 12. Ireland S, Gilchrist J, Maconochie I. Debriefing after failed paediatric resuscitation: a survey of current UK practice. *Emerg Med J* 2008;25:328-30, doi:[10.1136/emj.2007.048942](https://doi.org/10.1136/emj.2007.048942).
 13. Theophilos T, Magyar J, Babl FE. Debriefing critical incidents in the paediatric emergency department: current practice and perceived needs in Australia and New Zealand. *Emerg Med Aust* 2009;21:479-83, doi:[10.1111/j.1742-6723.2009.01231.x](https://doi.org/10.1111/j.1742-6723.2009.01231.x).
 14. Burns C, Harm NJ. Emergency nurses' perceptions of critical incidents and stress debriefing. *J Emerg Nurs* 1993; 19:431-6.
 15. Dillman DA, Smyth JD, Christian LM. *Internet, mail, and mixed-mode surveys: the tailored design method*. 3rd ed. Hoboken (NJ): John Wiley & Sons; 2009.
 16. Flanagan B. Debriefing: theory and techniques. In: Riley RH, editor. *Manual of simulation in healthcare*. New York: Oxford University Press; 2008. p. 155-70.
 17. Weng TI, Huang CH, Ma MH, et al. Improving the rate of return of spontaneous circulation for out-of-hospital cardiac arrests with a formal, structured emergency resuscitation team. *Resuscitation* 2004;60:137-42, doi:[10.1016/j.resuscitation.2003.09.007](https://doi.org/10.1016/j.resuscitation.2003.09.007).
 18. Edelson DP, Litzinger B, Arora V, et al. Improving in-hospital cardiac arrest process and outcomes with performance debriefing. *Arch Intern Med* 2008;168:1063-9, doi:[10.1001/archinte.168.10.1063](https://doi.org/10.1001/archinte.168.10.1063).
 19. Bhanji F, Mancini M, Sinz E, et al. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science. Part 16; education, implementation, and teams. *Circulation* 2010;122 (18 Suppl 3):S920-33, doi:[10.1161/CIRCULATIONAHA.110.971135](https://doi.org/10.1161/CIRCULATIONAHA.110.971135).
 20. Gururaja RP, Yang T, Paige JT, Chauvin SW. Examining the effectiveness of debriefing at the point of care in simulation-based operating room team training. In: Henriksen K, Battles JB, Keyes MA, Grady ML, editors. *Advances in patient safety: new directions and alternative approaches. Vol 3. Performance and tools*. Rockville (MD): Agency for Healthcare Research and Quality; 2008.
 21. Papaspyros SC, Javangula KC, Adluri RK, O'Regan DJ. Briefing and debriefing in the cardiac operating room. Analysis of impact on theatre team attitude and patient safety. *Interact Cardiovasc Thorac Surg* 2010;10:43-47, doi:[10.1510/icvts.2009.217356](https://doi.org/10.1510/icvts.2009.217356).
 22. Clay AS, Que L, Petrusa ER, et al. Debriefing in the intensive care unit: a feedback tool to facilitate bedside teaching. *Crit Care Med* 2007;35:738-54, doi:[10.1097/01.CCM.0000257329.22025.18](https://doi.org/10.1097/01.CCM.0000257329.22025.18).
 23. Morgan PJ, Tarshis J, LeBlanc V, et al. Efficacy of high-fidelity simulation debriefing on the performance of practicing anaesthetists in simulated scenarios. *Br J Anaesth* 2009; 103:531-7, doi:[10.1093/bja/aep222](https://doi.org/10.1093/bja/aep222).
 24. Savoldelli GL, Naik VN, Park J, et al. Value of debriefing during simulated crisis management: oral versus video-assisted oral feedback. *Anesthesiology* 2006;105:279-85, doi:[10.1097/00000542-200608000-00010](https://doi.org/10.1097/00000542-200608000-00010).
 25. Tan H. Debriefing after critical incidents for anaesthetic trainees. *Anaesth Intensive Care* 2005;33:768-72.
 26. Dine CJ, Gersh RE, Leary M, et al. Improving cardiopulmonary resuscitation quality and resuscitation training by combining audiovisual feedback and debriefing. *Crit Care Med* 2008;36:2817-22, doi:[10.1097/CCM.0b013e318186fe37](https://doi.org/10.1097/CCM.0b013e318186fe37).
 27. Ahmed M, Sevdalis N, Paige J, et al. Identifying best practice guidelines for debriefing in surgery: a tri-continental study. *Am J Surg* 2012;203:523-9, doi:[10.1016/j.amjsurg.2011.09.024](https://doi.org/10.1016/j.amjsurg.2011.09.024).
 28. Arora S, Ahmed M, Paige J, et al. Objective structured assessment of debriefing: bringing science to the art of debriefing in surgery. *Ann Surg* 2012;256:982-8, doi:[10.1097/SLA.0b013e3182610c91](https://doi.org/10.1097/SLA.0b013e3182610c91).
 29. Zigmont JJ, Kappus LJ, Sudikoff SN. The 3D model of debriefing: defusing, discovering, and deepening. *Semin Perinatol* 2011;35:52-8, doi:[10.1053/j.semperi.2011.01.003](https://doi.org/10.1053/j.semperi.2011.01.003).
 30. Rudolph JW, Simon R, Raemer DB, Eppich WJ. Debriefing as formative assessment: closing performance gaps in medical education. *Acad Emerg Med* 2008;15:1010-6, doi:[10.1111/j.1553-2712.2008.00248.x](https://doi.org/10.1111/j.1553-2712.2008.00248.x).
 31. Steinwachs B. How to facilitate a debriefing. *Simul Gaming* 1992;23:186-95, doi:[10.1177/1046878192232006](https://doi.org/10.1177/1046878192232006).
 32. Dieckmann P, Reddersen S, Zieger J, Rall M. Video-assisted debriefing in simulation-based training of crisis resource management. In: Kyle RR, Murray WB, editors. *Clinical simulation: operations, engineering, and management*. Burlington (VT): Academic Press; 2008. p. 667-76.

33. Dismukes RK, Gaba DM, Howard SK. So many roads: facilitated debriefing in healthcare. *Simul Healthc* 2006;1:23-5.
34. Rudolph JW, Simon R, Rivard P, et al. Debriefing with good judgment: combining rigorous feedback with genuine inquiry. *Anesthesiol Clin* 2007;25:361-76, doi:[10.1016/j.anclin.2007.03.007](https://doi.org/10.1016/j.anclin.2007.03.007).
35. Fanning RM, Gaba DM. The role of debriefing in stimulation-based learning. *Soc Simul Health Care* 2007;2: 115-25, doi:[10.1097/SIH.0b013e3180315539](https://doi.org/10.1097/SIH.0b013e3180315539).
36. McGaghie WC, Issenberg SB, Petrusa ER, Scalese RJ. A critical review of simulation-based medical education research: 2003-2009. *Med Educ* 2010;44:50-63, doi:[10.1111/j.1365-2923.2009.03547.x](https://doi.org/10.1111/j.1365-2923.2009.03547.x).
37. Royal College of Physicians and Surgeons of Canada. *Objectives of training in pediatric emergency medicine*. Available at: <http://rcpsc.medical.org/information/index.php?specialty=462&submit=Select> (accessed March 11, 2013).
38. Cheng A, Hunt EA, Donoghue A, et al. Examining Resuscitation Education Using Simulation and Scripting Debriefing: a multicenter randomized trial. *JAMA Pediatr* 2013;167:528-36, doi:[10.1001/jamapediatrics.2013.1389](https://doi.org/10.1001/jamapediatrics.2013.1389).

**ONLINE APPENDIX 1: POST-RESUSCITATION DEBRIEFING
IN THE PEDIATRIC EMERGENCY DEPARTMENT**

Needs Assessment Questionnaire

Please check your response on the most appropriate line.

1. Your current role in the ED:
 - Full-time Attending Physician
 - Part-time Attending Physician
 - Nurse educator
 - Nurse
 - Fellow
2. Gender:
 - M
 - F
3. Please indicate number of years of clinical experience in the emergency department
 - <2
 - 2 – 5
 - 6 – 10
 - >10
4. Resuscitation is a series of interventions conducted by a team of health care providers aimed at restoring and/or supporting vital function in a critically ill child (including but not limited to CPR). Approximately how many ER resuscitations are you involved in each year?
 - > Once a week
 - Once every one – two weeks
 - Once a month
 - < Once a month
5. Post-resuscitation debriefing is a facilitated and guided reflection after a resuscitation that provides an opportunity to review events and develop insights for use in similar scenarios in the future. Of the previously mentioned resuscitations, how often is there a post-resuscitation debriefing?
 - < 25% of the time
 - 25 – 50% of the time
 - 50 – 75% of the time
 - >75% of the time
6. In the past year, how many debriefing sessions have you facilitated...
 - After real resuscitation cases?

- < 10
- 10 – 20
- 20 – 50
- >50

After simulation scenarios?

- < 10
- 10 – 20
- 20 – 50
- >50

7. What, if any, previous training do you have in debriefing?
 - No previous experience
 - Course ≤ 1 day in duration
 - Course > 1 day in duration
 - Formal apprenticeship or fellowship in debriefing and/or simulation

Current experience

8. Is there an expectation in your institution that debriefing occurs after every resuscitation?
 - Yes
 - No
9. Within what period of time does debriefing typically occur after resuscitation?
 - Immediately/same ER shift
 - 24-48 hours
 - Resuscitation does not usually occur
 - 3 – 7 days
 - > One week or later
 - Timing is variable
10. In your opinion, when is the optimal time during which debriefing should occur?
 - Immediately/same ER shift
 - 24-48 hours
 - 3 – 7 days
 - > One week or later
11. Is the facilitator/leader of the debriefing typically a person involved in the resuscitation?
 - Yes
 - No
12. Is the facilitator/leader of the debriefing typically a:
 - Physician
 - Nurse

- Physician/nurse combined
- Other (eg. Spiritual care):_____

13. Who normally attends the debriefing? (*Check all that apply.*)

- Physician
- Medical trainees (medical students, residents)
- Nurse
- Social worker
- Respiratory therapist
- Other:_____

14. How long does debriefing usually take?

- < 15 min
- 16 – 30 min
- 31 – 60 min
- 61 – 90 min
- > 90 min
- Timing variable

Please indicate your level of agreement with the following statements regarding post-resuscitation debriefing in your ED by circling your response:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly agree

Disagree		Agree		
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

- 15. Medical issues are addressed adequately
- 16. Teamwork, leadership, communication issues, and resource allocation are addressed adequately
- 17. Emotional issues are addressed adequately
- 18. There usually is enough time to cover all issues
- 19. The debriefing environment is supportive and non-threatening
- 20. The facilitator has a strong impact on the quality of the debriefing
- 21. Post-resuscitation debriefings occur in a timely fashion

Perceived needs

Please indicate your level of agreement with the following statements regarding debriefing in your ED:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly agree

Disagree		Agree		
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

22. Debriefing is an important process after a resuscitation

23. Critical incidents that should be debriefed:

- Death of a patient
- Trauma resuscitation
- Cardiopulmonary arrest
- Respiratory arrest
- Shock
- Status epilepticus
- Medical errors in resuscitation
- Multiple casualty/disaster
- Any resuscitation in the ED (as defined in question 5)
- Other:_____

24. Facilitators of debriefing should have a specific skill set developed through formal training sessions

25. Who should be facilitating debriefs?

- Resuscitation physician team leader
- Nurse
- Respiratory therapist
- Health care provider not involved in resuscitation
- Other:_____

26. What do you see as the purpose of debriefing?

Disagree					Agree
1	2	3	4	5	
1	2	3	4	5	
1	2	3	4	5	
1	2	3	4	5	
1	2	3	4	5	
1	2	3	4	5	

- Emotional release
- Reviewing the medical care of the patient
- Discussing medical errors
- Developing guidelines or protocols to manage similar resuscitations in the future
- Building team morale
- Discussing teamwork, communication, leadership, and resource allocation
- Other: _____

27. Identify barriers to effective debriefing in your ED:

- ER workload and environment does not allow sufficient time to debrief
- No identified interest or need
- Lack of qualified/trained facilitators
- No appropriate setting available
- Did not feel comfortable discussing the event in the group/team environment
- Felt criticized and judged
- Too soon or late after the event
- Lack of administrative support for debriefing
- Other: _____

1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

28. If a debriefing tool existed to help guide facilitators through the debriefing process, what information on debriefing would you find important to include? How to:

- Set up a supportive environment
- Create realistic objectives for the debrief
- Allow for emotions to be shared during debriefing
- Provide feedback with good judgment
- Promote discussion around teamwork, leadership, communication, and resource allocation
- Formulate questions to understand the reasoning behind people's actions during resuscitation
- Facilitate a discussion to help achieve/ sustain good performance
- Distil lessons learned into memorable concepts
- Cover the needs of all the participants
- Other: _____

1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

Please provide any other comments you may have:

Thank you for your participation?