PEARLS Scripted Debriefing Tool – Quickstart Guide

Walter Eppich, MD, MEd, Adam Cheng, MD

PEARLS Debriefing Framework

REACTION

- "How did that feel?"

DESCRIPTION

- "Can someone summarize what the case was about from a medical point of view? What were the main issues you had to deal with?"

ANALYSIS

Pick one of the three methods below

Learner Self-Assessment (e.g. Plus-Delta)	***Directive feedback and teaching***	***Focused Facilitation (e.g. Advocacy-Inquiry)***
"What aspects of the case do you think you managed well?" "What aspects of the case would want to change?"	I noticed you ***[insert performance gap here].*** Next time, you may want to … [***close gap]***…because ***[provide rationale***]	***Elicit underlying rationale for actions: see page 2 for approach***

Are there any outstanding issues we haven't discussed yet before we start to close?

APPLICATION/SUMMARIZING

- *Lea*rner Driven: "I like to close the debriefing by having each you state one two take-aways that will help you in the future".

PEARLS Scripted Debriefing Tool – Quickstart Guide

Walter Eppich, MD, MEd, Adam Cheng, MD

Advocacy-inquiry: pairing your point of view with a question to get trainees' perspective

ADVOCACY - INQUIRY			
	Observation about a performance gap	**Express your point of view about the observed performance gap**	**Ask about the perspective**
STEP 1: EXPLORE PERFORMANCE GAPS	I noticed that… *I heard you say…*	**Appreciation** I liked that…. **Appreciation or concern** I was thinking… **Concern** I felt uncomfortable because… I was worried/concerned…	How do you see it? I wonder what your thoughts were at the time? What was going through your mind?
	Clarify understanding of the trainee's rationale for action	**Explore the rationale and close the performance gap**	**Help learners generalize**
STEP 2: UNDERSTAND RATIONALE AND CLOSE PERFORMANCE GAPS	So what I'm hearing is that *[insrt performance gap]* was related to *[insert frame here]….*	Teach to close performance gap when learning need is clear	What strategies do you see going forward that would he helpful here? How will this impact your performance next time?

Postevent Debriefing Hot

Core Elements (marked with *) Must be completed

Subject ID — Automatically Populated

How many hours after conclusion of event?*

Debrief Faciliator*

- ◯ RN
- ◯ MD
- ◯ PA
- ◯ NP
- ◯ Other

(Lead facilitator discipline)

Number in attendance: Nurses*

Number in attendance: Physicians*

Number in attendance: NP and/or PA*

Number in attendance: Administrators*

Number in attendance: RT*

Number in attendance: Students (nursing, medical, etc.)*

Number in attendance: Other

(specify (#); specify (#)....)

Duration of Debriefing*

(HH:MM (25 minutes = 00:25))

What Went Well? *
[Free Text]

What could have been improved upon in this patient's care? *
[Free Text]

Were there any delays in therapy? If so, provide a description of the delay. *
[Free Text]

How could this event have been predicted or prevented? *
[Free Text]

PEDIATRIC/NEONATAL CODE BLUE and RAPID RESPONSE 5 minute TEAM DEBRIEFING GUIDE

Goal: Debrief completed after all emergency responses. Also debrief situations that 1) are outside the norm or offer an opportunity to identify system improvements. Any staff member may call for a debriefing. **Hospitalis**t leads on acute care units**; PICU/CV Attending** leads in ICU's

Date/time: _____ Patient name and MRN _____

Code Blue: Neonatal ☐ Pediatric ☐ Adult ☐ OR Rapid Response Call ☐ ECMO Call ☐ VAD call ☐ Pediatric Stroke call ☐

Thinking about team performance in this emergency event:

Identify what went easily (check all that apply):

☐ Communications were closed-loop, clear and heard; reports were in SBAR format
☐ Everyone knew what the emergency was (shared mental model)
☐ Team Leader was identified; leadership was clear; TL did not perform a task
☐ R-series ETCO2 and CPR feedback used to determine compression effectiveness and Return of Spontaneous Circulation (ROSC) by CPR Monitor

Comments: _____

Identify what was challenging?

☐ Communication issues
☐ Members on the team were not aware of what was going on (No Situational Awareness)
☐ There was no clear leadership (ONE Clear team Leader)
☐ No Crowd Control provided by Event manager and/or Charge Nurse
☐ Deviations from PALS /ACLS/ NRP algorithms (Explain)
☐ Compressor was not replaced every 2 minutes, No CPR Monitor Role
☐ Delay in obtaining access (Explain)
☐ Barriers that made it challenging (Explain what team thinks can be done to decrease barriers?

Comments: _____

Thinking about this pediatric/neonatal emergency, identify system issues that need improvement (Check all that apply)

☐ Operator or Pager Issues
☐ Equipment issues
☐ Medications issues
☐ Crowd Control Issues
☐ Delays in transporting the patient (within the hospital)
☐ Push back to make the RRT call
☐ If RRT could have been called earlier

Comments: _____

Code Roles in an emergency

☐ Event Manager assigned code roles; Ensured key members have armbands on upper arms; Assisted with Crowd Control; Collected armbands to be returned to Defibrillator paddles; brought immediate together to conduct this "hot" debrief
☐ Primary RN stayed at bedside, performed ABC's; available for communication
☐ Recorder documented and prompted TL on algorithm
☐ CPR Monitor placed pads, prompted TL on 2 min.rythmn checks, Zoll CPR feedback; ETCO2; rotated compressors
☐ Team Leader checked and signed Code Record and participated in debrief
☐ Pharmacist announced arrival; given a table to work; established who was TL; provided the weight and algorithm being followed and offered Broselow Tape if no weight available
☐ Hospitalist at code cart and manage defibrillator; applying pads immediately; notifying TL when shock required

Briefly describe: _____

Please enclose this form with Code Record in an envelope and address to Code Committee Mail Code 5893 LK 4-1-14

PICU Resuscitation Form

Pt Name (_____) Date (_____)

MRN (_____) ☐9C ☐9N ☐9T ☐11C

Code Start Time: (_____) AM / PM

Code End Time: (_____) AM / PM

Code Outcome: ☐Alive ☐Dead ☐ECMO

Parental Request to Cease Resuscitation? ☐Y ☐N

Attending ICU MD Present:

☐Y-Fully ☐Y-Partially ☐N

RN:Pt Staffing Ratio: ☐1:1 ☐1:2

How many people in room (maximum): ☐0-5 ☐6-10 ☐11-15 ☐>15

RHYTHM

☐Asystole ☐PEA

☐VT ☐VF

☐Sinus Tach ☐JET

☐Sinus Brady ☐NSR

☐A fib/flutter ☐SVT

☐Other _____

SHOCKABLE RHYTHM? ☐Y ☐N _____

Time shockable rhythm detected: (_____) AM / PM

Type of electricity: ☐Defibrillation ☐Cardioversion

Time of first shock: (_____) AM / PM

Multiple shocks: ☐Y ☐N

AIRWAY/BREATHING

TOOLS USED DURING CODE

☐Bag/ mask

☐Oral airway

☐Bag/ ETT

☐Quant ETCO2

INTUBATION? ☐Y ☐N ☐Already Intubated

Meds given: (_____)

Complications: ☐Multiple DL ☐Airway bleeding ☐Pneumothorax ☐>20% drop in O_2 saturation ☐Intubated by anesthesia

Appropriate PPV rate: ☐Y ☐N ☐Inconsistent

CIRCULATION

☐Fluid bolus

☐Electrolyte bolus

☐Cardiac med bolus

COMPRESSIONS? ☐Y ☐N

Duration: (_____) min

Good quality: ☐Y ☐N ☐Inconsistent

Unnecessary pauses: ☐Y ☐N

Vasc access w/i 2 min? ☐Y ☐N

Privileged information for Quality Improvement. Not to be placed in patient charts.

Updated 6.30.15

Debriefing performed: ☐Y ☐N

If no, reason: ☐RN busy ☐No interest in debriefing ☐MD busy ☐Resuscitation w/o problem ☐Other _____

Introduction: We're here to learn from this event to improve ourselves as clinicians. We'd like to discuss what guided our actions during the event, with the goal of improving patient care, not assigning blame.

Choose 1-4 focus areas and complete GAS cycle for each:

TEAMWORK	MEDICAL MANAGEMENT	ENVIRONMENT
☐ Closed loop communication ☐ Clear messages ☐ Clear roles ☐ Knowing one's limitations ☐ Knowledge-sharing ☐ Re-evaluation ☐ Summarizing ☐ Mutual respect	☐ Adherence to PALS algorithms ☐ Effective ventilation ☐ High quality chest compressions ☐ Limited breaks between compressions ☐ Rhythm identified and managed appropriately ☐ Defibrillation without delay	☐ Medication availability ☐ Equipment available/functioning ☐ Noise interference ☐ Crowd control

GAS Cycle:		Focus area:	Focus area:
GATHER	*Team Observations* • Can you describe your perspective? • How did you think our code went? • What did the team do well? • What could we have improved? *Leader Observations* • I noticed that... • I observed that... • I saw that...	DESCRIPTION OF ISSUES	
ANALYZE	*Done Well* • How were we able to... • Why do you think we were able to... • Tell me a little more about... *Needs Improvement* • Why do you think ____ occurred? • How could we improve... • What was your thinking while... • What prevented us from....		
SUMMARIZE	*Team Summary* • What are the main things we learned? • Can we summarize the key points? • What are the main take-home points? *Leader Summary* • Let's summarize what we learned... • Here is what I think we learned... • The main take-home messages are...	PROPOSALS	

DEMOGRAPHICS

Debrief Leader Name: ☐ Debrief Leader Role: *MD RN RT NP* Debrief Recorder Name: ☐

Number of Attendees:

☐ PICU Fellow ☐ PICU Attending ☐ ICU RN ☐ Resident ☐ RT ☐ SW

☐ Med student ☐ Administrator ☐ Housedoc/NP ☐ Other_____

OVERVIEW

Estimated time spent debriefing: ☐ min

Were there any delays in therapy? ☐ Y ☐ N If Y, describe:_____

Could the event have been prevented? ☐ Y ☐ N If Y, how: _____

What went well? _____

What could have been improved? _____

DO NOT SCAN OR PUT INTO PATIENT CHART PEER REVIEW QI DEBRIEFING FORM

Post-Resuscitative Care Review

This information is privileged and confidential - Peer Review Work Product

Advice for Team Debriefing:

1. Try to find a quiet, isolated place. Anyone present during the event may lead the debriefing. Debriefing leader should start by thanking team members for being present.
2. State: "The purpose of debriefing is to improve the quality of medical care by CHOP providers; it is not a blaming session. Everyone's participation is welcome and encouraged."
3. State: "We will briefly review the patient's summary and then we can discuss what went well and what could have gone better. Please feel free to ask any questions."
4. State: "All information discussed during the debriefing is confidential."
5. Please limit debriefing to 10 minutes.

Fill out this section BEFORE the debriefing
Team discusses whether to do a debrief

1. Patient MRN		
2. Date (MM/DD/YY):		
3. Location in Hospital:		
4. Clinician Team Leader:		
5. Recording Nurse:		
6. If debriefing did not occur please state reason(s) why:	☐	Time constraints
	☐	Team dispersion
	☐	Team change
	☐	Team declined
	☐	Other pt care issues
7. Event Type:	☐	Medical (ED/Floor/ICU)
	☐	Surgical (OR)
	☐	Trauma
8. Circumstances: (select all that apply)	☐	Resuscitation event
	☐	Respiratory event
	☐	Surgical event
	☐	Psychosocial event
	☐	Other:

9. Debriefing Leader Role: (circle one)
RN | MD | SW | other: _____

10. Debriefing Documenter Role: (circle one)
RN | MD | SW | other: _____

11. Multidisciplinary Debriefing?	☐	Yes
	☐	No

Fill out this section DURING the debriefing
(Person completing form is *not* the person leading debriefing)

1. Debriefing Start Time: ☐

2. What went well during our care for the patient? Why? *Please select all that apply and add comments as necessary.*

☐	Clinical care (ex. airway, access, CPR)
☐	Team work
☐	Communication
☐	Leadership
☐	Other (please specify):

3. What could have improved during our care for the patient? What are potential solutions? *Please select all that apply and add comments as necessary.*

☐	Clinical care (ex. airway, access, CPR)
☐	Team work
☐	Communication
☐	Leadership
☐	Other (please specify):

4. If a post-arrest care huddle was performed, were the following issues addressed? *Please select all that apply and add comments as necessary.*

☐	Hypotension
☐	Fever
☐	Seizures
☐	Cardiac Arrest Resource Group Notification (pager 78280)
☐	Not applicable

5. Debriefing End Time: ☐

* Confidential document pursuant to the MCare Act and the Pennsylvania Peer Review Protection Act, 63 P.S. 425.1 et. seq. and HCQI Act, 1986. Form adapted from Resuscitation. 2013 Jul;84(7):946-51

* If anyone requests referral for free counseling, please call Employee Assistance Program at (888) 321-4433 or go online to www.pennbehavioralhealth.org. *Updated 8/5/15*

Pediatric Code W Debrief Form

A. **PATIENT INFORMATION** **Date**
Name: **MR#**

Location:

B. **ACTIVATION:**
1. Activated by floor team, announced via overhead and pagers? Y N
   If **no**, please describe issues:
   _____

C. **RESPONSE**

Delay in Code Team arrival (> 5 Minutes) Y N

Is the Code Team Leader identified and in charge? Y N

Were all team members fulfilling their assigned roles? Y N
If **no** to any of the above, please explain:
_____

D. **Equipment**

Any malfunctioning or missing equipment? Y N
If **yes,** what was wrong or missing?
_____

E. **NRP/PALS PROTOCOLS**

Were protocols followed appropriately? (Comments): _____
_____

Was End Tidal CO_2 monitored and documented? Y N

Were compression depth and rate monitored and documented? Y N

Was ventilation rate monitored and documented? Y N

F. **DOCUMENTATION** (S= satisfactory D= deficient)
Personnel _____ Patient Status/Vitals _____
Medications _____ Other interventions _____

Were defibrillator pads used? Y N
If no, why not?_____

Was data captured to card? Y N

G. **Medication Variations:**

If any, please explain: _____

H. **OUTCOME**

Outcome of arrest: Alive _____ Expired _____
Patient disposition: _____

If there were any issues not addressed above, please describe:

_____
_____
_____
_____

What intervention(s), if any, could have been performed prior to event to avoid patient's decline in status?

_____
_____

WHAT WENT WELL DURING EVENT	AREAS NOTED FOR IMPROVEMENT

Attendance:

DO NOT SCAN OR PUT INTO PATIENT CHART

Debriefing In Situ Conversation in Emergency Room Now (DISCERN) Form

ALL patients need this section completed - NURSE must decide with the doctor whether a debrief is necessary for EVERY

Place Patient Sticker Here

1. Date (MM/DD/YY)
2. Physician Team Leader
3. 1° Nurse filling this out:
4. If team leader & 1° nurse together decide not to do a debriefing, state reasoning: (check one box to the right)
   - ☐ Too many urgent patient care issues to make time
   - ☐ Did not feel it was needed.
   - ☐ Other reason: _____
5. Resuscitation Type (check all that apply)
   - ☐ Respiratory
   - ☐ Medical (includes seizure)
   - ☐ Trauma
   - ☐ Pulseless
6. Interventions (check all that apply)
   - ☐ Intubation
   - ☐ Defibrillation
   - ☐ Code 3 Trauma Activation
   - ☐ CPR
7. Time Resusc Ended (Either "time of death" or "time left EC", whichever was 1st
8. Patient outcome
   - ☐ Alive
   - ☐ Expired

Fill out this section only if debriefing occurs

1. Members Present ("X" box if present during debriefing)
   - ☐ Charge Nurse
   - ☐ 1° /Documenting Nurse
   - ☐ Physician Team Leader
   - ☐ PEM Fellow
   - ☐ Resident
   - ☐ Secondary Nurse
   - ☐ Respiratory Therapist
   - ☐ Pharmacist
   - ☐ PCA
   - ☐ Other:
   - ☐ Other:
   - ☐ Other:
2. Debriefing Physician. Team Leader Name
3. Debriefing Documenter Name (NOT same as #2 above; can be RN or Dr

Fill out this section during the debriefing
(Person writing not the person leading debriefing)

1. Time Debriefing Started: _____
2. What went well during our care for the patient?

2. What could have gone better during our care for the patient (offer potential solutions if able)?

- ☐ Was the Physician Team Leader (PTL) the **only** doctor calling out medication orders? YES NO
- ☐ Was **anyone** confused at any time during the resuscitation about who was the PTL? YES NO

4. Time Debriefing Ended _____

DEBRIEFING FORM

FILL OUT LEFT SECTION BEFORE PATIENT LEAVES EC

Advice for Running A Team Debriefing

1. Pick a quiet or isolated space if possible - start by thanking members for being present & encouraging all members to participate.
2. State: "The purpose of debriefing is for education, quality improvement, and emotional processing; it is not intended to be a blaming session."
3. State: "These debriefings usually take several minutes and if you have urgent issues to attend to, you are welcome to leave at any time."
4. Outline agenda: "I will briefly the patient's summary and then we as an entire team can discuss what went well and what could have gone better."
5. Proceed as team leader or documenter with a brief summary of the patient's course (<1 minute) and then proceed to the group discussion.

Team Dynamics Debriefing Tool

Instructions

- Use the table below to guide your debriefing
- Observe and record elements of team dynamics
- Identify 2 or 3 elements of team dynamics to discuss per debriefing session

ACTION	GATHER	ANALYZE	SUMMARIZE
Closed-Loop communication • Orders acknowledged and confirmed when given • Orders announced when executed ***Clear Messages*** • Team members speak clearly • Orders are questioned when doubt exists ***Clear Roles*** • All team members have appropriate roles • Roles are reallocated when appropriate ***Knowing One's Limitations*** • Calls for assistance • Seeks advice when appropriate ***Knowledge Sharing*** • Sharing information between team members • Asks for ideas and suggestions ***Constructive Intervention*** • Identifies priorities • Questions colleagues who make mistakes ***Reevaluation and summarizing*** • Revaluates patient • Summarizes patient condition and treatment plan ***Mutual Respect*** • Speaks in a professional, friendly tone of voice • Provides positive feedback	***Student Observations*** • Can you describe the events from your perspective? • How did you think your treatments went? • Can you review the events of the scenario? (*directed to the recorder*) • What could you have improved? • What did the team do well?	***Done well*** • How were you able to [*insert action here*] • Why do you think you were able to [*insert action here*] • Tell me a little more about how you [*insert action here*]	***Student-led summary*** • What are the main things you learned? • Can someone summarize the key points made? • What are the main take home messages?
	Instructor observations • I noticed that [*insert action here*] • I observed that [*insert action here*] • I saw that [*insert action here*]	***Needs Improvement*** • Why do you think [*insert action here*] occurred? • How do you think [*insert action here*] could have been improved? • What was your thinking while [*insert action here*] • What prevented you from [*insert action here*]	***Instructor-led summary*** • Let's summarize what we learned… • Here is what I think we learned…. • The main take home messages are….

DO NOT PUT THIS SHEET INTO THE PATIENT'S CHART

Debriefing In Situ Conversation in Emergency Room Now (DISCERN) Form

INSTRUCTIONS for Debriefing Nurse to facilitate debriefing:

1. Fill out Pre-Debriefing questions #1 - #7 while waiting for other team members to arrive.
2. Once ready to start , state: "**Debriefing is for quality improvement, educational, and emotional processing purposes. It is not a blaming session. Everyone is encouraged to participate. Anything you say here is legally protected from discoverability and will not be used to evaluate your performance. The team leader will start by reviewing our primary objective in this patient's care & then we as a team can answer some questions together."**

PRE-DEBRIEFING

1. Place patient sticker (preferred)

or

MRN #: _____

or

LastName, FirstName: _____, _____

2. Today's date: _____

3. Members present ("x" if present):

☐	Charge Nurse (Unit)	☐	Doctor: Physician team leader
☐	Charge Nurse (Code)	☐	2nd Doctor (Name):_____
☐	Nurse: Left	☐	ED Tech
☐	Nurse: Medication	☐	Social Worker
☐	Nurse: Right	☐	Other:
☐	Resident	☐	Other:
☐	Resp Therapist	☐	Other:

4. Patient type: ☐ Med-alert ☐ Med Alert-PICU (invite ICU:8038)

5. Our team performed: ☐ Intubation ☐ CPR ☐ No CPR & No intubation

6. MD Lead Last Name: _____ (Role: Facilitate debrief)

Debriefing RN Last Name: _____ (Role: Lead & document debrief)

7. Debriefing Location: ☐ Code Bay / Crisis Room (preferred location)
☐ Other --> _____

DEBRIEFING

1 Start Time: _____

"**Will the team leader please state our primary objective for this patient's care**?"

2. **What went well to help us achieve our objective for this patient's care?**

3. Were we able to establish vascular access in the 1st 2 minutes? NO YES IV/IV-Already-placed

4. How could we have decreased the time to establish access? (Skip if "IV/IO already placed" above)

5. Did the patient have CPR, SEIZURE, and/or INTUBATION **in** the ED?
YES? --> Proceed to #6 questions on ***back*** side of this form before proceeding to #7 below
NO? --> Proceed to #7 below

7. Was the patient summary verbalized in the first 5 minutes of care? NO YES

8. Was the patient summary verbalized at least once more after the 1st 5 minutes of care? NO YES

9. Were there any medication or equipment delays? NO YES--> _____

10. How could we have done anything else better in this patient's care?

11. **If anyone would like to talk more about today's event, please contact the chaplain or social worker**

12. End Time: _____ Do not put sheet into patient's chart, instead:

SZ --> "Completed Debriefing Forms" box between code bays. **UMC** --> box outside Paris' office

DISCERN Debriefing Form

(BACK Side - Start on opposite side)

Complete each section(s) of question #6 only if the stated activity(ies) occurred in the ED

(Then turn back over and proceed to #7)

CPR occurred in ED:

6A. Did we get the AED pads on the patient in the first 2 minutes after starting CPR? | NO | YES

6B. How could we have decreased the time to placing defibrillator pads on the patient?

6C. Did any of our pauses in compressions between CPR cycles last more than 10 seconds? | NO | YES

6D. How could we have decreased the duration of pauses in compressions between CPR cycles?

6E. Did we get an epinephrine bolus into the patient in the first 5 minutes of the arrest? | NO | YES

6F. How could we have decreased the time to 1st epinephrine bolus?

INTUBATION occurred in ED:

6G. How many intubation attempts did we perform (1 attempt = 1 blade insertion into mouth)? | 1 | ≥ 2

6H. How could our team have prepared or performed the intubation better?

6I. Were there any desaturations to less than 90% during the intubation (from RSI meds given to tube secured)? | NO | YES

6J. How could we have optimized the patient's oxygenation or ventilation better?

6K. Did we use End Tidal CO2 continuous monitoring after endotracheal tube insertion to confirm placement? | NO | YES

SEIZURE occurred in ED:

6L. Approximately how long was the patient seizing in the ED before the 1st anti-epileptic drug was given? | minutes

6M. How could we have decreased the time to administration of the anti-epileptic therapies?

Hot Debrief

Event Debriefed: ☐ Yes ☐ No

Event Time: ___:___ ___/___/___ Debrief Time: ___:___ ___/___/___

Attendees (Circle): MD RN RTs SW Administration Other:_____

[How about medical students? Other specialties (Anesthesia? Surgery?) I think we should clarify what administration means because it likely varies by institution. Also, do we want to collect how many of each of these providers are present for future reporting?]

Debrief Leader (position): _____

Core elements:

What went well?

How could have been improved in this patient's care?

Systems issues identified?

Were there any pauses in chest compressions of more than 5 seconds?
(If yes) How could we avoid these compression pauses in the future?

Common Elements

☐ Team Leader identified and in control

☐ Orderly scene – this needs to be better defined.

☐ Closed loop communication/ clear communication

☐ PALS protocols followed

☐ Equipment issues

☐ Knowledge of cart/defibrillator

☐ Timeframes (until compressions, Zoll pads, etc) – this likely refers more to cold debriefing as it might be hard to collect the timeframe data in a hot debrief.

Other Issues Identified:

This Page Left Intentionally Blank

Journal of Perinatology (2016), 1–5

www.nature.com/jp

SPECIAL FEATURE

Post-event debriefings during neonatal care: why are we not doing them, and how can we start?

T Sawyer[1,2], D Loren[1] and LP Halamek[3,4]

Post-event debriefings are a foundational behavior of high performing teams. Despite the inherent value of post-event debriefings, the frequency with which they are used in neonatal care is extremely low. If post-event debriefings are so beneficial, why aren't they conducted more frequently? The reasons are many, but solutions are available. In this report, we provide practical advice on conducting post-event debriefing in neonatal care. In addition, we examine the perceived barriers to conducting post-event debriefings, and offer strategies to overcome them. Finally, we consider opportunities to foster a culture change within neonatal care which integrates debriefing as standard daily work. By establishing a safety culture in neonatal care that encourages and facilitates effective post-event debriefings, patient safety can be enhanced and clinical outcomes can be improved.

Journal of Perinatology advance online publication, 31 March 2016; doi:10.1038/jp.2016.42

INTRODUCTION

Post-event debriefings in healthcare are defined as a 'discussion of actions and thought processes after an event to promote reflective learning and improve clinical performance'.[1] Post-event debriefings have also been described as a 'facilitated or guided reflection in the cycle of experiential learning'.[2] We define post-event debriefings as a facilitated discussion of a clinical event focused on learning and performance improvement. Essential elements of post-event debriefings include active self-learning, a primary intent for improvement, reflection on specific events (not general performance) and the inclusion of input from multiple team members.[3] Post-event debriefings differ from meetings aimed at assisting staff in managing emotionally taxing incidents; a process known as 'critical incident stress management'.[4,5]

Post-event debriefings are a foundational behavior of high performing teams. A recent meta-analysis found that organizations can improve individual and team performance by up to 25% by conducting effective debriefings.[3] In simulation-based studies, debriefing has been associated with enhancements in team performance, and improvements in both technical and behavioral skills.[6–14] In clinical medicine, post-event debriefings have been shown to increase overall performance, reduce the frequency of equipment-related problems, and improve communication and teamwork.[15–18] The American Heart Association (AHA) endorses debriefing as a strategy to improve cardiopulmonary resuscitation quality.[19] However, despite the wealth of evidence supporting routine post-event debriefing, a recent multicenter safety audit found that only 19% of 84 neonatal intensive care units (NICUs) participating in the Vermont Oxford Network Days Delivery Room Resuscitation Audit conducted post-event debriefings, and only 5% had established policies regarding debriefing.[20]

If post-event debriefing are so beneficial, why aren't they conducted more frequently? In this report we provide practical advice on how to conduct post-event debriefings in neonatal care. We also explore the perceived barriers to conducting post-event debriefings, and offer strategies for overcoming them. Finally, we consider opportunities to foster a culture change within neonatal care which integrates debriefing as standard daily work. This report provides the guidance necessary to facilitate more frequent post-event debriefings, and thereby enhance patient safety and improve neonatal care.

CONDUCTING A POST-EVENT DEBRIEFING

As described by Kessler *et al.*, any guidance on post-event debriefing must include not only the 'how' of debriefing, but also the 'who,' 'what,' 'when' and 'where'.[21] These foundational pillars are all essential to effective post-event debriefing, and addressing each is necessary to foster the development of a safety culture which allows debriefing to become a standard practice.

Who

To improve team performance, all members of the team should participate in the post-event debriefing.[22] Common neonatal care team members include nurses, physicians, nurse practitioners, respiratory therapists and pharmacists. Each of these team members possesses a unique perspective, and each perspective is important to understanding the individual and team strengths and weaknesses. Input from all team members during the debriefing enhances the ability of the neonatal care team to improve future performance.

One individual on the team should be designated as the leader, or facilitator, of the debriefing. This individual both guides and participates in the discussion. As implied by the term 'facilitator', the debriefing leader should facilitate, not dominate, the conversation. This is accomplished primarily by asking open-ended questions and practicing self-restraint in answering the questions. Any member of the team can serve as the facilitator.

[1]Division of Neonatology, Department of Pediatrics, University of Washington School of Medicine, Seattle, WA, USA; [2]Neonatal-Education and Simulation-based Training (NEST) Program, Seattle, WA, USA; [3]Division of Neonatal and Developmental Medicine, Department of Pediatrics, Stanford University School of Medicine, Palo Alto, CA, USA and [4]Center for Advanced Pediatric and Perinatal Education (CAPE), Palo Alto, CA, USA. Correspondence: Dr T Sawyer, Division of Neonatology, Department of Pediatrics, University of Washington School of Medicine, 1959 NE Pacific Street, Seattle, WA 98195, USA.
E-mail: tlsawyer@uw.edu
Received 15 October 2015; revised 10 February 2016; accepted 16 February 2016

Establishing a unit policy outlining which team member will act as the facilitator is helpful to clarify roles and avoid confusion; one common practice is to assign the senior physician or senior nurse to be the facilitator.[21,23,24] Pre-assigning a specific team member to be the facilitator also helps to ensure that debriefings occur consistently.

What

The neonatal care environment offers frequent opportunities where post-event debriefings can be conducted. These include neonatal resuscitations (both in the delivery room and NICU); invasive procedures; near misses and adverse events; high-acuity admissions; emergent transfers; and challenging parent/family interactions. These events challenge the cognitive, technical and behavioral skills of the healthcare professionals involved and – regardless of the quality of the team's performance – deserve mindful, team-based review accomplished through post-event debriefings. Learning how to replicate successful team performance is just as important as understanding how to avoid repeating suboptimal performance.

When

Finding the optimal time to reconvene a team involved in a clinical event is one of the most challenging aspects of post-event debrief. The interprofessional team present at a clinical event will have competing demands on their time as they continue fulfilling their clinical responsibilities after the event. Geographic separation of team members after the event may add an additional barrier to post-event debriefing. Debriefings can be conducted either immediately after the event ('hot' debriefing), or at a time remote from the event ('cold' debriefing); benefits and drawbacks for both types of debriefing exist.[21] Of these two options, most experts recommend the hot debriefing for the following reasons:[22]

- All members of the team are already physically present.
- The risk of recall bias is minimized.
- It creates the potential to quickly address issues identified during the debriefing.

Immediate post-event debriefings may uncover significant care system vulnerabilities that demand greater exploration, and require engagement of unit leadership. In these situations, the initial hot debriefing should focus on team performance, while the subsequent cold debriefing can focus on system function and process improvement. The cold debriefing may be part of a root cause analysis, with a goal to identify and eliminate latent safety risks.

Where

Choosing the location of a post-event debriefing is guided by a careful balance between convenience and confidentiality. Debriefings of clinical events can be conducted in either patient care or non-patient care areas. The utility of debriefing in a patient care area lies in the fact that the members of the team involved in the event are already physically gathered in that location. However, this advantage is outweighed by several problematic issues. Patient care areas are dynamic environments where clinical care can easily distract team members, making it difficult to achieve an effective debriefing. In addition, the close proximity to other patients can also result in frequent interruptions of the debriefing to deliver care to those patients. Another major limitation to debriefing in a patient care area is the inability to guarantee the confidentiality of the discussion. Based on these issues, we recommend that debriefings occur in a non-clinical area, such as a conference room or break room, which separates the debriefing event from clinical care, and also ensures the confidentiality of the discussion.

How

Post-event debriefings are most effective when structured and facilitated.[3,22] Figure 1 provides an example of a post-event debriefing structure and conversational prompts to aid in effective facilitation. This structure is based on 'Gather, Analyze, Summarize' approach to debriefing endorsed by the AHA and incorporated in its life support courses, and includes the 10 Key Behavioral Skills of neonatal resusitation.[25–27] As noted in Figure 1, the facilitator begins with an opening statement and establishment of a shared mental model of what happened during the event (Gather), and then examines team performance (Analyze). During the analysis phase, actual team performance is compared with ideal team performance using the 'plus-delta' technique, which focuses on what went well (plus), and what did not go well (delta). The debriefing ends with a summarization of what will be done differently in the future, and identification of issues that require further follow-up (Summarize). By asking open-ended questions, and limiting statements of his/her own opinions, the facilitator guides but avoids dominating the discussion. If the team agrees that a certain aspect of performance went well the circumstances that enabled a high level of performance should be explored. Similarly, when suboptimal performance is identified an examination of the underlying causes should take place. Keeping track of the 'pluses' and the 'deltas', and the strategies that sustain and improve them, is common practice in military post-event debriefings.[28,29]

To optimize the debriefing experience, those being debriefed must feel empowered to speak frankly and offer their unfiltered observations, opinions and suggestions.[22] Such an atmosphere of psychological safety, where team members feel secure in critically analyzing their own performance, is best achieved when the debriefing proceeds in a non-punitive fashion, and all members of the team understand that patient care is a collaborative, rather than an individual undertaking. As such, it is the responsibility of the team to support the performance of the individual through the use of skills such as situational awareness and cross-monitoring.[22] Through continually reframing the discussion of suboptimal performance and errors in the context of team responsibility, the facilitator can help the team members understand their interdependence and help achieve superior team performance.[22]

To foster psychological safety, debriefing practices should conform to the medicolegal environment of the healthcare system in which they take place. Risk management leaders within the healthcare system have specific knowledge of relevant case law and state level statutes regarding debriefing. This can guide the inclusion of possible quality assurance protection preamble statements that may need to be stated out loud before a debriefing occurs to maintain legal protection for the conversation. Addition measures, such as having team members sign a form acknowledging the protected status of the conversation under quality improvement, can also be employed. Maintaining medicolegal protection of team debriefing is fundamental to ensure all team members feel comfortable speaking candidly. Risk management can also provide guidance on the management of written records from post-event debriefings. As a general rule, post-event debriefings notes or forms are not placed in the patients' medical record.[24]

A key aspect of an effective clinical debriefing is keeping the conversation brief. A skilled facilitator does this by focusing on a few critical performance issues, keeping the team on task, and avoiding tangential conversations.[22] Focusing on high-value issues such as adherence to guidelines, technical, equipment or procedural issues, and 2 to 3 behavioral skills, as outlined in

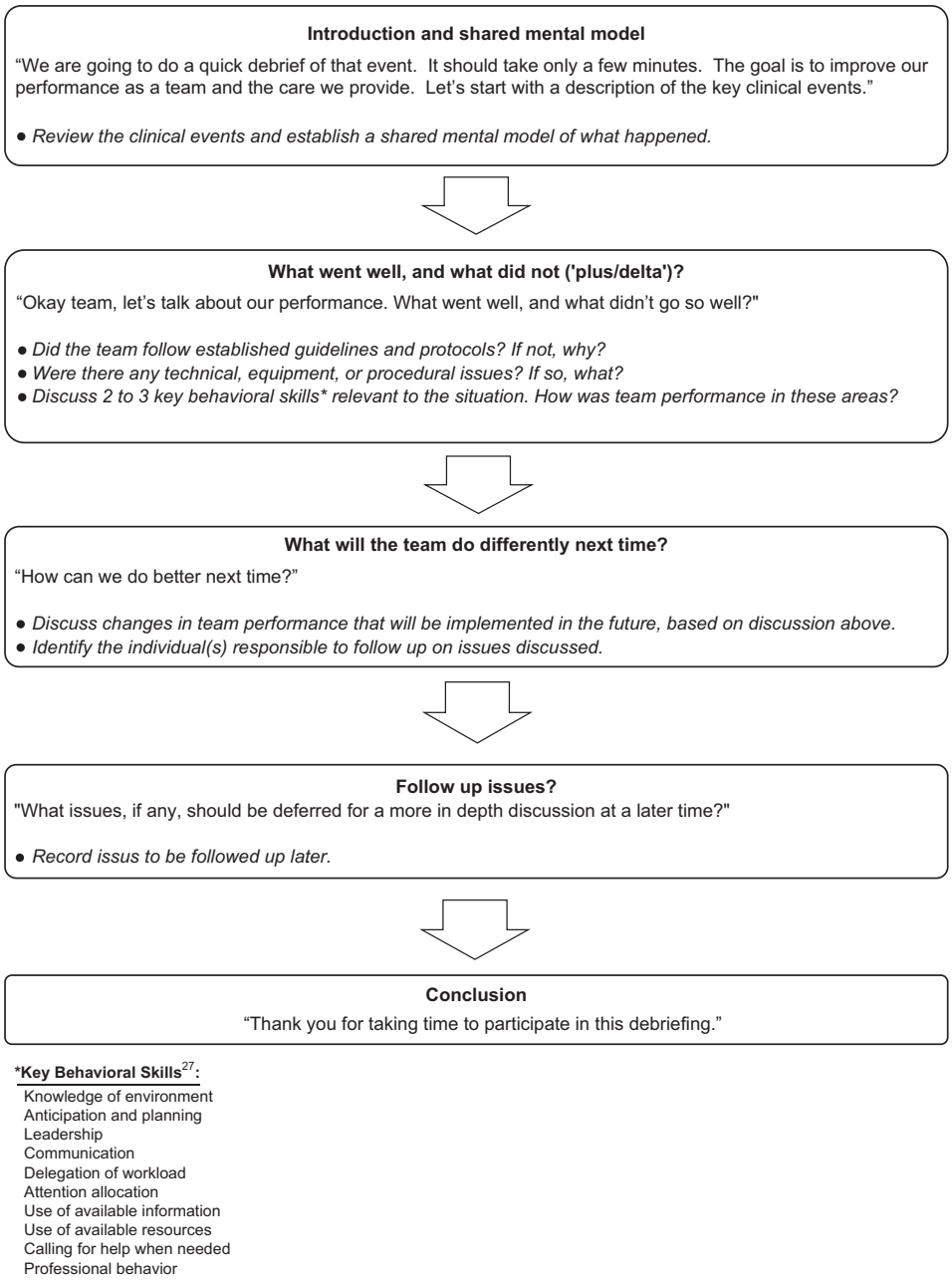


Figure 1. Suggested post-event debrief structure and conversational prompts for facilitator.

Figure 1, can help ensure the debriefing proceeds in an organized manner. Prolonged discussions of systems issues without an immediate solution should be avoided, as this is often counter-productive and can lead to frustration among those being debriefed. Instead, such issues should be acknowledged, recorded, and scheduled for discussion at a later time during a cold debriefing with unit leadership and administrative personnel who are able to effect the necessary change. Dutifully ensuring that these issues are then appropriately followed up, and the results communicated to the care team, are critical components of an effective post-event debriefing.

DEVELOPING A CULTURE THAT FOSTERS DEBRIEFING

Healthcare is not the only industry in which the risk to human life is high. Commercial aviation, spaceflight, mass transportation, nuclear power and the military are all endeavors where overt or latent human and system weaknesses can lead to loss of life. What separates these other industries from healthcare is a safety culture that is less tolerant of conditions that place human lives at risk. When human and system weaknesses become manifest in these non-healthcare industries, the process for analysis often includes both an immediate debriefing focused on identifying issues that require prompt attention and remediation, followed by a subsequent more comprehensive review that involves experts both internal and external to the organization. Regardless of when the debriefing occurs, it is invariably focused on the facts of what happened during the event, rather than the feelings of the individuals involved in the event.[30] Should it become apparent that individuals have experienced psychological trauma resulting from the event, critical incident stress management can be conducted.[4,5]

Table 1. Perceived barriers to post-event debriefing, and suggested solutions

Perceived barriers	*Suggested solutions*
Insufficient time	Limit debriefings to ⩽10 min. Use a structured approach to keep the conversation on track (Figure 1). Table systems issues not immediately solvable for a later discussion with unit leadership, where a solution and action plan can be developed.
Lack of skilled facilitators	Seek out individuals who have training in post-event debriefing (for example, simulation educators). Conduct training in clinical debriefing for facilitators. Practice debriefing skills during regular simulation-based training sessions. Develop a policy on debriefing that outlines the roles, responsibilities and provides tools for facilitators.
Lack of an appropriate setting	Identify a room in the nursery or NICU as the 'debriefing room'. Ensure the room is available 24/7. Ensure debriefing conversation held in that room are kept confidential.
Threat of litigation	Involve hospital risk management to ensure concerns regarding confidentiality and discoverability are adequately addressed. Develop a policy for conducting debriefings as part of protected quality improvement efforts. Develop a procedure for disclosing medical errors identified through debriefing. Follow risk management guidance regarding the handling of written records from debriefings.

In these non-health-care related high-risk operating environments, debriefing is not restricted to only near miss and adverse events; rather, it is integral to daily activities and part of standard work. The National Aeronautics and Space Administration's Johnson Space Center (JSC) in Houston, TX, USA, is a perfect example of a culture that has embraced debriefing as a method to improve human and system performance. At JSC both simulated and real spaceflights are debriefed. Because of the collaborative nature of their work, these debriefings involve not only the astronauts who fly the spacecraft but also the flight controllers and flight directors who work in Mission Control. When crews return from space, one of their first responsibilities is to undergo extensive debriefings of every aspect of their mission. The astronauts themselves facilitate the debriefing, critically analyzing the details of the mission, without the need for prompting.[31] Astronauts also routinely debrief with the simulation supervisors and others who trained them; these individuals want to know whether they adequately prepared the astronauts for their mission and what they need to change in order to do a better job of training the next crew.

How can healthcare develop a culture that actively fosters debriefing as a way of continuous objective assessment and performance improvement? An example of the type of leadership that is required to change healthcare culture is the Neonatal Resuscitation Program (NRP). The NRP is a training program established in 1987 to facilitate the acquisition of the cognitive, technical and behavioral skills necessary to successfully resuscitate neonates.[32] Over the past decade the NRP has established debriefing as part of standard training, and created materials to aid healthcare professionals in developing skill in debriefing methodology.[32] To highlight the importance of debriefing in clinical care, the 7th Edition NRP Flow Diagram for neonatal resuscitation specifically requires a team debriefing after all neonatal resuscitations.[33] To establish a local culture that fosters debriefing, as recommended by the NRP, nurseries and NICUs should provide:

- Explicit permission and active encouragement of debriefing during neonatal care.
- Staff training and simulation-based practice in debriefing.
- Procedural guides and policies on debriefing approved by risk management.
- Regular evaluation and quality assurance of debriefing activities.
- Private space in which debriefings can be conducted confidentiality.
- A system to follow-up on issues identified during debriefings, and communication of these activities to staff.

These resources and activities will allow motivated neonatal care teams to overcome any real and imagined barriers to debriefing.

PERCEIVED BARRIERS TO DEBRIEFING, AND POTENTIAL SOLUTIONS

There are many perceived barriers to post-event debriefing during neonatal care. Sandhu *et al.* conducted a needs assessment of post-resuscitation debriefing in Canadian pediatric emergency rooms and found the three most commonly reported perceived barriers to be: (1) insufficient time to conduct debriefings, (2) lack of qualified/trained facilitators and (3) lack of an appropriate setting in which to conduct a confidential debriefing.[23] These perceived barriers are true for neonatal care as well. In addition to these three, in the US the threat of litigation is also a potential barrier to frank and open post-event debriefing. Developing policies and procedures to address these potential barriers is critical in establishing a culture in neonatal care that fosters debriefing, and the creation of an environment where debriefing can be conducted regularly and effectively. Some suggested solutions to these perceived barriers are provided in Table 1.

CONCLUSION

Despite the proven benefits of post-event debriefings, the frequency with which they are used in neonatal care is extremely low. A careful examination of the barriers in conducting debriefings indicates that while real, none are insurmountable. By employing specific strategies to overcome these barriers, human and system vulnerabilities in neonatal care can be identified, and plans for their remediation developed. Establishing a safety culture that encourages and facilitates effective post-event debriefings enhances patient safety and improves clinical outcomes, benefitting neonates, their families and the healthcare professionals who care for them.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENTS

LPH is supported in part by the Endowment for the Center for Advanced Pediatric and Perinatal Education (CAPE).

REFERENCES

1 Mullan P, Kessler D, Cheng A. Educational opportunities with post-event debrief. *JAMA* 2014; **312**(22): 2333–2334.
2 Fanning RM, Gaba DM. The role of debrief in simulation-based learning. *Simul Healthc* 2007; **2**(2): 115–125.
3 Tannenbaum SI, Cerasoli P. Do team and individual debriefs enhance performance? A meta-analysis. *Hum Factors* 2013; **55**: 231–245.
4 Mitchell JT, Everly GS Jr. The scientific evidence for critical incident stress management. *JEMS* 1997; **22**(1): 86–93.
5 Everly GS Jr. A primer on critical incident stress management: what's really in a name? *Int J Emerg Ment Health* 1999; **1**(2): 77–79.
6 Savoldelli G, Naik V, Park J, Joo HS, Chow R, Hamstra S. Value of debrief during simulated crisis management: oral versus video-assisted oral feedback. *Anesthesiology* 2006; **105**(2): 279–285.
7 Morgan P, Tarshis J, LeBlanc V, Cleave-Hogg D, DeSousa S, Haley M *et al.* Efficacy of high-fidelity simulation debrief on the performance of practicing anaesthetists in simulated scenarios. *Br J Anaesth* 2009; **103**(4): 531–537.
8 Falcone R, Daugherty M, Schweer L, Patterson M, Brown R, Garcia VF. Multidisciplinary pediatric trauma team training using high-fidelity trauma simulation. *J Pediatr Surg* 2008; **43**(6): 1065–1071.
9 Dine C, Gersh R, Leary M, Riegel B, Bellini L, Abella B. Improving cardiopulmonary resuscitation quality and resuscitation training by combining audiovisual feedback and debrief. *Crit Care Med* 2008; **36**(10): 2817–2822.
10 Sawyer T, Sierocka-Castaneda A, Chan D, Berg B, Lustik M, Thompson M. Deliberate practice using simulation improves neonatal resuscitation performance. *Simul Healthc* 2011; **6**(6): 327–336.
11 Barry J, Gibbs M, Rosenberg A. A delivery room-focused education and deliberate practice can improve pediatric resident resuscitation training. *J Perinatol* 2012; **32**(12): 920–926.
12 Sawyer T, Sierocka-Castaneda A, Chan D, Berg B, Lustik M, Thompson M. The effectiveness of video-assisted debrief versus oral debrief alone at improving neonatal resuscitation performance: a randomized trial. *Simul Healthc* 2012; **7**(4): 213–221.
13 Cordero L, Hart B, Hardin R, Mahan JD, Nankervis CA. Deliberate practice improves pediatric residents' skills and team behaviors during simulated neonatal resuscitation. *Clin Pediatr (Phila)* 2013; **52**(8): 747–752.
14 Sawyer T, Leonard D, Sierocka-Castaneda A, Chan D, Thompson M. Correlations between technical skills and behavioral skills in simulated neonatal resuscitations. *J Perinatol* 2014; **34**(10): 781–786.
15 Edelson DP, Litzinger B, Arora V, Walsh D, Kim S, Lauderdale DS *et al.* Improving in-hospital cardiac arrest process and outcomes with performance debrief. *Arch Intern Med* 2008; **168**(10): 1063–1069.
16 Jiang C, Zhao Y, Chen Z, Chen S, Yang X. Regular feedback learning from real-time video recording improved the quality of major CPR variables. *Resuscitation* 2010; **81**(12): 1664–1669.
17 Wolfe H, Zebuhr C, Topjian AA, Nishisaki A, Niles DE, Meaney PA *et al.* Interdisciplinary, post-event quantitative debrief program significantly associated with improved cardiopulmonary resuscitation quality, and survival with favorable neurologic outcome. *Crit Care Med* 2014; **42**(7): 1688–1695.
18 Nadler I, Sanderson PM, Van Dyken CR, Davis PG, Liley HG. Presenting video recordings of newborn resuscitations in debriefs for teamwork training. *BMJ Qual Saf* 2011; **20**(2): 163–169.
19 Bhanji F, Mancini ME, Sinz E, Rodgers D, McNeil M, Hoadley T *et al.* Part 16: education, implementation, and teams: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation* 2010; **122**(18 Suppl 3): S920–S933.
20 Edwards E, Soll R, Ferrelli K, Morrow K, Suresh G, Celenza J *et al.* Identifying improvements for delivery room resuscitation management: results from a multicenter safety audit. *Matern Health Neonatol Perinatol* 2015; **1**: 2.
21 Kessler D, Cheng A, Mullan P. Debrief in the emergency department after clinical events: A practical guide. *Ann Emerg Med* 2015; **65**(6): 690–698.
22 Salas E, Klein C, King H, Salisbury M, Augenstein JS, Birnbach DJ *et al.* Debriefing medical teams: 12 evidence-based best practices and tips. *Jt Comm J Qual Patient Saf* 2008; **34**(9): 518–527.
23 Sandhu N, Eppich W, Mikrogianakis A, Grant V, Robinson T, Cheng A. Post-resuscitation debrief in the pediatric emergency department: a national needs assessment. *CJEM* 2013; **15**(0): 1–10.
24 Mullan P, Wuestner E, Kerr T, Christopher D, Patel B. Implementation of an in situ qualitative debrief tool for resuscitations. *Resuscitation* 2013; **84**(7): 946–951.
25 Phrampus P, O'Donnell J. Debriefing using a structured and supported approachLevine A, DeMaria S, Schwartz A, Sim A. *The Comprehensive Textbook of Healthcare Simulation*. 1st edn Springer: New York, NY, USA, 2013; 73–85.
26 Cheng A, Rodgers D, Van Der Jagt E, Eppich W, O'Donnell J. Evolution of the Pediatric Advanced Life Support Course: enhanced learning with a new debriefing tool and web-based module for pediatric advanced life support instructors. *Pediatr Crit Care Med* 2012; **13**(5): 589–595.
27 Kattwinkel J. *Textbook of Neonatal Resuscitation*. American Academy of Pediatrics and American Heart Association: Elk Grove Village, IL, USA: 2011. 6th edn.
28 Training Circular 25-20, A Leaders' Guide to the After-Action Review, Headquarters, Department of the Army, Washington DC. 30 September 1993.
29 Sawyer T, Deering S. Adaptation of the U.S. Army's After-Action Review (AAR) to simulation debrief in healthcare. *Simul Healthc* 2013; **8**(6): 388–397.
30 McDonnell LK. Facilitation techniques as predictors of crew participation in LOFT debriefings. *NASA Contractor Report; 196701*. 1996; 1–36.
31 Apollo 13: The NASA Mission Reports. Vol 2. Burlington, Ontario, Canada: Apogee Books; 2000.
32 Halamek LP. The genesis, adaptation, and evolution of the Neonatal Resuscitation Program. *NeoRev* 2008; **9**(4): e142–e149.
33 Eichenwald E, Strand M. NRP Instructor Update Fall/Winter. *American Academy of Pediatrics/American Heart Association* 2015; **24**(2): 1–10.

Debriefing in the Emergency Department After Clinical Events: A Practical Guide

David O. Kessler, MD, MSc*; Adam Cheng, MD; Paul C. Mullan, MD, MPH

*Corresponding Author. E-mail: dk2592@cumc.columbia.edu, Twitter: @y2kessler.

One vital aspect of emergency medicine management is communication after episodes of care to improve future performance through group reflection on the shared experience. This reflective activity in teams is known as debriefing, and despite supportive evidence highlighting its benefits, many practitioners experience barriers to implementing debriefing in the clinical setting. The aim of this article is to review the current evidence supporting postevent debriefing and discuss practical approaches to implementing debriefing in the emergency department. We will address the who, what, when, where, why, and how of debriefing and provide a practical guide for the clinician to facilitate debriefing in the clinical environment. [Ann Emerg Med. 2015;65:690-698.]

A **podcast** for this article is available at www.annemergmed.com.
Continuing Medical Education exam for this article is available at http://www.acep.org/ACEPeCME/.

0196-0644/$-see front matter

http://dx.doi.org/10.1016/j.annemergmed.2014.10.019

CASE STUDY

You are working in the emergency department (ED) and a mother rushes in screaming with her pale child. The child is taken to the resuscitation room, intubated, and transferred to intensive care. Your resident asks whether the team should debrief. You have debriefed in simulation but never after an actual resuscitation. You decide to conduct a debriefing. What does debriefing in the clinical setting entail and where should you and your team begin?

INTRODUCTION

Debriefing is a "facilitated or guided reflection in the cycle of experiential learning."[1] Debriefing performance in the field was first promoted by military teams, but was soon co-opted by other high-stakes industries such as aviation and more recently medical teams.[2-4] The purpose of debriefing in health care is to facilitate discussion of actions and thought processes, encourage reflection, and ultimately assimilate improved behaviors into practice.[5]

Debriefing is a powerful quality and educational tool that can potentially change team behavior and positively influence patient outcomes. In a meta-analysis of team-based debriefings after clinical events, there was improved effectiveness in teams that debriefed compared with those that did not.[6] After clinical cardiopulmonary resuscitation events, debriefing programs have demonstrated improved rate of return of spontaneous circulation, neurologic outcomes, hands-off compression times, and time delay to first compression.[7-10] Accordingly, the 2010 American Heart Association resuscitation guidelines officially recommend the use of debriefing after resuscitations to improve clinical performance.[11]

Despite the evidence, debriefing implementation in the ED is variable. Two surveys were conducted that queried ED providers (US pediatric emergency medicine fellows in one; Canadian emergency physicians and nurses in the other) to recall the frequency of debriefing after resuscitation events in their ED environments. The majority of respondents in both surveys indicated that they debriefed after less than or equal to 25% of ED resuscitations.[12,13] The majority of health care providers recognized the importance of debriefing and desired a structured debriefing program; however, insufficient time, lack of trained facilitators, and lack of a debriefing setting were cited as barriers to implementation.[12]

A practical structure for debriefing after clinical events can capitalize on the rich learning opportunities unique to this often-chaotic environment. In this article, we conduct an ad hoc review of the current evidence supporting team debriefing in the ED and discuss practical approaches to implementing debriefing. We will provide a practical guide for the who, what, when, where, why, and how of debriefing in the ED (Table 1).[14]

WHY?

The function of debriefing is to identify areas of optimal and suboptimal performance and then determine ways to improve future team performance. The ultimate focus of debriefing should not be on blaming individuals but on

Table 1. Guide to creating a debriefing program in the ED.

Category	Strategy
Who	**Determine the facilitator**
	Internal vs external team member
	Single vs multiple
	Trained vs untrained vs scripted guidelines
	Onsite vs remote
	Determine the participants
	Team members with or without external participants
	Trained vs untrained vs scripted guidelines
What	**Decide what events will trigger debriefings**
	Eg, trauma cases, intubations, poor outcomes, cardiac arrests
When	**Determine timing**
	Eg, hot (immediate) vs warm (delayed minutes to hours) vs cold (delayed days to weeks)
	Select criteria for a hybrid approach
	Eg, patient death with a warm debriefing and follow-up cold debriefing
Where	**Select a location to debrief**
	On site in the location where the event occurred
	On site in a location not where the event occurred
	Off site (not in the ED)
Why	**Determine the objectives for debriefing**
	Eg, improve future performance (individual, team, system), improve specific ED metrics, evaluate environment
How	**Create a standardized format for all debriefings**
	Overview of purpose, ground rules, and format
	Define a debriefing method
	Consider the use of a debriefing tool or script
	Consider the use of adjuncts (eg, video, quantitative data)
Postdebriefing	**Determine documentation methods to capture debriefing content**
	Determine who will address modifiable issues discussed in debriefings
	Determine how to close the loop with debriefing participants on actions taken
	Determine local resources available for staff for psychological distress
Promoting debriefing	**Determine your multidisciplinary local debriefing champion(s)**
	Determine a tracking method to track adherence to debriefing triggers
	Engage ED and hospital leadership to receive their support for debriefing
	Determine methods to spread debriefing throughout your hospital

taking a look at all available facts and perspectives that will help improve processes and patient outcomes. The quality of future performance can potentially be improved by incorporating a number of quality improvement processes into the debriefing (Table 2).

For individuals and teams, recognizing and understanding the contributions to an error (ie, an abbreviated root-cause analysis) is a vital step toward correcting this behavior.[15] Individuals and teams benefit from the group's reflection on knowledge, attitudes, skills, or teamwork behaviors exhibited during a clinical event. Identifying barriers or facilitators of performance can provide feedback to administrators from frontline providers on latent safety threats. These administrators can then investigate methods to improve the process-level (eg, trauma protocol) or system-level (eg, restructure scheduling) activities in the ED. Structured debriefing should be distinguished from defusing, whose sole purpose is venting emotions to reduce tension. Debriefing takes the additional step of conceptualizing ways to improve future performance.[16-18]

WHAT?

What Clinical Events Should Trigger a Debriefing in the ED?

Simulation-based education typically includes a structured debriefing, with learning objectives based on the nature of the simulation.[11,19-22] Conversely, in the ED, the nature and timing of critical events are unpredictable, making the trigger for debriefing a complex decision process.[13] Standardization of which clinical events to debrief can enable team members to anticipate a debriefing, align departmental goals, and increase debriefing frequency.

Selection of the appropriate clinical events to debrief should be driven by local needs and priorities (Table 3). Most current evidence surrounds the high-yield effect of debriefing after cardiac arrest.[5,7-9] However, other critical events, dysfunctional interpersonal interactions, or even common problems in noncritical patients provide opportunities to debrief for educational and quality improvement purposes. For example, debriefing cases of septic shock could allow team-based reflection on process metrics (eg, time to fluid administration and antibiotics), with the proximate goal of improving guideline compliance and ultimately sepsis outcomes. In a new debriefing program, one should select triggers that occur frequently enough to promote incorporation into the culture of the ED but not so common that it becomes an overwhelming time burden. Most important, events that are debriefed must be relevant to staff. Forming an interprofessional group of stakeholders to help determine the triggers for debriefing can help with buy-in.

What Content Should Be Discussed During a Debriefing to Best Enhance Clinical Care in the Future?

The focus of debriefings should be on individual, team, process, or system issues that, if modified, would benefit the next patient with a similar presentation. Specific content discussed during debriefings can include clinical management (eg, adherence to protocols or standards), technical skills (eg, chest compressions), teamwork, and

Table 2. Processes within clinical debriefing and expected targets for improvement.

Potential Processes Within Debriefing	Targets for Improvements				Examples
	Individual	Team	Process	System	
Self-improvement and self-assessment	✓				Physician identifies a knowledge gap (eg, wrong vasopressor choice)
Performance analysis of specific metric(s)	✓	✓	✓	✓	Time to intravenous fluids and antibiotics for all septic shock patients is reviewed by team
Root-cause analysis after a suboptimal outcome	✓	✓	✓	✓	After wrong dose of epinephrine is given, a debriefing is conducted solely to determine root cause of this action
Mental model sharing across disciplines	✓	✓	✓	✓	Joint debriefing after a major trauma is conducted so that both disciplines can agree about how it was handled and how it could be done differently
Examinations of efficiency, cost-effectiveness, lean analysis, human factors			✓	✓	After 4 chest tube kits are opened for a trauma patient, the team debriefs about how the kits are organized, where they should be located, and which parts can be reused
Environmental assessment for latent safety threats			✓	✓	After team reports that they could not find the proper size chest tubes, a question about finding proper supplies is added to each future clinical debriefing session

behavioral issues.[5,7,8,21,23-25] In discussing the system, it is useful to reinforce good processes that lead to resiliency of a team's performance. Metacognition is the act of reflecting on the cognitive tasks of an individual. Bringing discussion of metacognition into debriefing may be useful to help teams understand one another's frames of thinking around medical management. It is important to be mindful of the information that team members will have available during a debriefing. Most programs will rely on the memory of participants to guide discussion. Teams may therefore be at risk of bringing inaccurate information into a debriefing (eg, attending physician: "Surgery was never contacted."). One advantage of team debriefing, therefore, is to leverage the team's collective knowledge for a more accurate account of events (eg, nurse: "Actually, we paged surgery twice, but they were in surgery.").[6] The use of objective data, such as code sheets or electronic health records, data captured by a defibrillator, or video review of clinical events, may serve as the basis of discussion and reflection during debriefing. For select cases (eg, cases of high-risk injury or preventable deaths), a detailed root-cause analysis may need to be conducted at a different time to permit a closer examination of causes than an abbreviated clinical debriefing may allow.

WHO?

Debriefing Participants

Who should participate in the debriefings? All team members who actively participated in the clinical event should be invited to participate in the debriefing.[26] In the study by Mullan et al,[5] multiple team members were often present, including the physician leader (98%), primary nurse (95%), respiratory therapist (83%), secondary nurse (83%), charge nurse (81%), and resident (70%); other members included pharmacists, social workers, translators, and patient advocates. Participation by all team members should be encouraged, but exceptions could be allowed for members who are emotionally unable to attend. Inviting others who were not engaged in the event enables more people to learn from the experience.[8] This benefit may be outweighed by potential harms of a longer duration of debriefing or a more limited discussion of sensitive topics because of a decreased sense of psychological safety.[27] Although parents and patients could theoretically participate in the debriefing, their presence may also have a significant effect on the scope and content of

Table 3. Potential triggers for debriefing in the clinical setting.

Category	Examples
Presenting complaint	Respiratory distress
	Cardiac arrest
	Hypotension
	Unresponsiveness
Final diagnosis	Sudden infant death syndrome
	Cardiac tamponade
	Septic shock
	Stroke
Acuity level	Highest severity triage level (eg, level 1)
	Crash cart used
	Extremely abnormal vital signs (eg, any pulse rate >220 beats/min)
Disposition	Death
	Intensive care
	All transfers out of institution
Location of care	Trauma bay
	Medical resuscitation room
Complications, errors	Near-miss event
	Patient harm
Interpersonal	Upset/violent patients involving calls to security
	Arguments between clinical providers

communication from the group. Medicolegal implications of debriefing with family members are also uncertain.

Debriefing Facilitator

Who should facilitate the debriefing? Although team authority figures (eg, physician team leader, charge nurse) most commonly lead debriefings,[5,12,28,29] their role as facilitator has the potential to inhibit or bias the discussion. Adding a co-debriefer may help mitigate this effect. Alternative facilitators could include other team members who were not leading the resuscitation. The nurse documenter is often a good choice to facilitate or cofacilitate because they can share knowledge of when medications were administered or other critical actions were performed. Having somebody from outside the ED serve as a facilitator is also an option, but this is generally limited because of logistic challenges.

Training of Facilitators

In a recent ED survey, a lack of trained or qualified debriefing facilitators was cited as the second most common barrier to debriefing.[12] Ideally, specific training in postevent debriefing would also incorporate education in human factors, patient safety, and quality improvement methodologies. Although integrated courses such as this do not exist, specific training in debriefing methodology for health care workers is available (although primarily focused on simulation-based debriefing).[1,30,31] Most important is to cultivate the skill of debriefing through experiential learning. Using an evidence-based script is one way to standardize debriefing sessions while offering novice debriefers "on the job" experience.[5,26] Social workers and psychologists may also be considered candidates for further training because they already possess formal training in facilitating discussions.[3] Typically, a facilitator more familiar with clinical medicine (eg, physician, nurse) is the preferred choice.[5,12,28,29] Another potential solution to the lack of trained facilitators is to teleconference in a remote facilitator. Although some simulation programs are embracing this method, challenges for postevent debriefing include patient privacy concerns, technology reliability, and lack of intimacy.[32]

HOW?

Debriefing should include a friendly atmosphere, open-ended questions, honest dialogue, and identification of behaviors or perceptions that lead to improved outcomes.[1] Postevent debriefing literature is scant compared with the simulation literature. Although similar theories may apply to both, there are unique aspects to debriefing in each setting that are still being worked out.[5,7,8,11,16,21,30,33,34] Careful selection of the appropriate debriefing method(s) should be considered when implementing a clinical debriefing program in the ED. Like any skill, various debriefing methods will vary with regard to how much skill and practice is needed to attain mastery (personal communication, Adam Cheng, November 2014).

Debriefing Methods

The most commonly cited method for debriefing in the clinical environment is usually referred to as "plus-delta" and involves group-based reflection and assessment of what went well, what did not go well, and what participants need to change to improve care. The focus here is not simply on patient outcomes (eg, patient survived or died) but on the structures (eg, "The video laryngoscopy was broken") and processes (eg, "We established intravenous line access fast") that contributed to the outcomes.[35] The essence of this approach is to engage participants in an active assessment of performance and then use their observations as starting points for discussions on how to improve performance.[1,5,36] Although this approach is easy to learn and implement, some pitfalls for the inexperienced debriefer to avoid may include tangential discussion (eg, generating lists of mistakes without dissecting the underlying rationale), turning the debriefing into a blame session, and leaving members out of discussion. Following a structured format can help debriefing participants and facilitators to avoid these pitfalls.[5]

Reflective learning is a strategy (used as part of the "advocacy-inquiry" and "cognitive autopsy" methods) that should be incorporated into debriefing to engage participants in a deeper discussion to uncover underlying rationales for decisions, behaviors, or actions.[21,30,33,34,37] Once the rationale is uncovered, it is used for discussion, learning, and the formation of concrete "take-home" messages. These methods are highly effective in promoting rich discussion but may be challenging to learn and difficult to master (personal communication, Adam Cheng, November 2014). Blending various debriefing strategies can customize the right method for a given event. For example, a facilitator may home in on an error discussed during a plus-delta exercise ("We didn't give the correct dose of epinephrine"), switch to reflective inquiry to discover why the incorrect thought process occurred ("We can all agree this was an issue, but why do you think that occurred"), and learn from the nurse that the dosing was based on pounds and not kilograms. Note that emphasis is not on the error but on discovering why it happened and preventing it for future cases.

Directive feedback is commonly used after simulation-based procedural skills training as a unidirectional approach (facilitator to participant) to address specific gaps in individual performance.[38] Facilitators, however, can run

the risk of not addressing the appropriate learning gap if they have not taken the time to uncover the underlying rationale behind specific behaviors. Directive feedback can often be perceived as harsh criticism, especially in a team-based debriefing format. A meta-analysis of debriefing styles revealed that team-based debriefing had the greatest effect when the debriefing focused on the team's performance rather than the individual.[6]

Debriefing Phases

Debriefing in any high-risk industry includes 3 general phases: description, analysis, and application to future events.[39] Although there is no single criterion standard for what phases should be part of a clinical debriefing, most sessions will generally include an overview of the purpose of the debriefing, the format and ground rules needed to establish a psychologically safe environment, discussion of content relevant to the objectives, review of actual actions, discussion of what went well and what did not, discussion of how to improve in the future, and a summary of take-home points.[31,33]

Debriefing Tools and Scripts

Standardization is challenging for any clinical debriefing program. One potential solution is the use of debriefing tools or scripts to help guide facilitators and teams through a specific method of debriefing.[12,20,21,24] Cheng et al[20] used a debriefing script for novice pediatric advanced life support facilitators in a simulation-based study to promote standardized discussion of key learning objectives, using the advocacy-inquiry method of debriefing, tailored to promote reflective learning.[23] Mullan et al[5] described the implementation of the Debriefing In Situ Conversation in Emergency Room Now debriefing tool in the ED setting, which guides facilitators through a scripted plus-delta method of debriefing (Figure). Implementation of debriefing tools in the clinical environment should be paired with appropriate orientation for providers to ensure they are used appropriately.

Use of Adjuncts During Debriefing

Inherent risks of relying on participant memory include recall errors and potentially missing actionable items that

DO NOT SCAN OR PUT INTO PATIENT CHART - STAPLE TO CODE SHEET AND TURN INTO MEA'S FOLDER

Texas Children's Hospital - Debriefing In Situ Conversation in Emergency Room Now (DISCERN) Form

This info is privileged and confidential pursuant to TX Health & Safety Sections 161.031-033, TX Occupations Code Section 160.007 &/or TRCP 192.5

ALL patients need this section completed - NURSE must decide with the doctor whether a debrief is necessary for EVERY resuscitation

Place Patient Sticker Here

1. Date (MM/DD/YY)
2. Physician Team Leader
3. 1° Nurse filling this out:
4. If team leader & 1° nurse together decide not to do a debriefing, state reasoning: (check one box to the right) (skip #4 if doing debrief)
   - ☐ Too many urgent patient care issues to make time
   - ☐ Did not feel it was needed.
   - ☐ Other reason: _____
5. Resuscitation Type (check all that apply)
   - ☐ Respiratory
   - ☐ Medical (includes seizure)
   - ☐ Trauma
   - ☐ Pulseless
6. Interventions (check all that apply)
   - ☐ Intubation
   - ☐ Defibrillation
   - ☐ Code 3 Trauma Activation
   - ☐ CPR
7. Time Resusc Ended (Either "time of death" or "time left EC", whichever was 1st)
8. Patient outcome
   - ☐ Alive
   - ☐ Expired

Fill out this section only if debriefing occurs

1. Members Present ("X" box if present during debriefing)
   - ☐ Chaplain
   - ☐ Charge Nurse
   - ☐ Child Life
   - ☐ Family Advocate
   - ☐ Pediatric Emerg Medicine Fellow
   - ☐ Pharmacist
   - ☐ Physician Team Leader
   - ☐ Primary /Documenting Nurse
   - ☐ Resident
   - ☐ Respiratory Therapist
   - ☐ Secondary Nurse
   - ☐ Other:
   - ☐ Other:
2. Debriefing Physician. Team Leader Name:
3. Debriefing Documenter Name (**NOT** same as #2 above; can be RN or Dr.)

Fill out this section during the debriefing
(Person writing not the person leading debriefing)
(Write on the back of form if there is not enough space)

1. Time Debriefing Started: _____
2. What went well during our care for the patient?
2. What could have gone better during our care for the patient (ADD potential solutions if able)?
3. Was the Physician Team Leader (PTL) the **only** doctor calling out medication orders? YES NO
4. Was **anyone** confused at any time during the resuscitation about who was the PTL? YES NO
5. Time Debriefing Ended
6. State: "If anyone wants counseling support, please see referral numbers at the bottom of this form"

DEBRIEFING FORM
FILL OUT LEFT SECTION BEFORE PATIENT LEAVES EC

Advice for Running A Team Debriefing

1. Pick a quiet or isolated space if possible - start by thanking members for being present & encouraging all members to participate.
2. State: "The purpose of debriefing is for education, quality improvement, & emotional processing; it is not a blaming session. Everyone's participation is welcome & encouraged."
3. State: "These debriefings usually take several minutes and if you have urgent issues to attend to, you are welcome to leave at any time."
4. State: "I will briefly review the patient's summary and then we as an entire team can discuss what went well and what could have gone better. Please feel free to ask any questions."
5. Proceed as team leader with a brief summary of the patient's course (<1 minute) and then proceed to the group discussion. Documenter (not team leader) records on this form.

* If anyone needs or requests referral for free counseling, call the appropriate institution at 832-824-3327 (TCH) or 713-500-3327 (BCM) *Updated 2/3/2012*

Figure. Sample debriefing instrument: DISCERN.

might be identified from more accurate data-capturing methods.[5] Therefore, the use of adjuncts during debriefing, such as video playback and quantitative performance data, has promise in improving outcomes in simulated and clinical contexts.[25,33,40-42] Clinicians in ED, neonatology, and trauma care have implemented real-time video capture of resuscitation events in the clinical environment as part of local quality programs.[43-51] Nadler et al[25] demonstrated that including video recordings of neonatal resuscitations in debriefings improved teamwork in future neonatal resuscitations. The simulation literature is more mixed, with a meta-analysis demonstrating that video-assisted debriefing has negligible and nonsignificant effects on time-related skills.[10,11,33,40-42] Last, debriefing with the addition of quantitative data in the form of transcripts of the clinical event or chest compression data adds an objective nature to the discussion.[7,8] The benefits of adding technology adjuncts should be weighed against the expenses, time, and resources necessary to establish and maintain a program.[27]

WHEN?

Finding the time to debrief is often challenging. The timing of debriefing has been classified with temperature adjectives, termed "hot" (immediately after the event), "warm" (minutes to hours after an event), and "cold" (days to weeks after an event) debriefings.[52] When feasible, some form of debriefing should be conducted as soon as possible after an event.[23] Advantages of hot and warm debriefings are that the entire team is usually available, a greater variety of clinical staff is typically involved, recall bias is minimized, and urgent issues can immediately be addressed. Potential disadvantages include limited time during a shift, limited space to debrief, and the emotional readiness of members to debrief. Cold debriefing can take advantage of the availability of quantitative data and follow-up patient information, as well as the ability to include nonparticipants in the debriefing. Disadvantages include the challenge of reassembling the entire team, the administrative resources needed to organize these sessions, and potential alterations in the quality of the discussion because of the larger group format.[27] Prescriptive durations for debriefing do not exist, but generally hot and warm debriefings last approximately 10 minutes, whereas cold debriefings typically take an hour or longer.[6,27]

The goals of hot and cold debriefing are both to improve care delivery, but the processes and structure of each method will affect the capabilities to improve the system with each type of debriefing. Factors to help decide whether further cold debriefing should take the form of morbidity and mortality rounds, root-cause analysis, or other quality assurance processes may be derived from local protocols or based on whether the debriefing team believed that the hot or warm debriefing did not provide enough time, quantitative data, or administrative representatives to address all of the pertinent issues encountered. A hybrid approach may be taken routinely for certain select events (eg, high-risk injuries or preventable deaths), with both a hot and cold debriefing occurring for the same event.

WHERE?

With most ED space already designated for 1 or more functions, finding an ideal location to debrief events can be challenging.[27,53,54] The value of debriefing in the space where an event occurred will depend on the objectives of the debriefing. Debriefing in the actual space helps teams to evaluate factors that may otherwise be missed by debriefing in a separate space, including the setting, resources, and processes of an event.[55] Also, a team can practice technical skills with the same equipment from an event (eg, rapid infuser setup). Debriefing in the same location as the clinical event should be balanced with the need to prepare or use that location for the next patient. Alternatively, a separate location may allow tension to be defused, enhance privacy, limit distractions, and enhance participant comfort.[1] Some departments might consider an assigned room proximal to patient care that can be used for debriefing after clinical events. If technological adjuncts will be used as part of the debriefing, the debriefing location may be limited to a specific location with such capabilities. The question of where will also depend on when the debriefing occurs. Cold debriefings traditionally happen in a conference room separate from the clinical environment, whereas warm debriefings happen in either the location of the event or one nearby.[5,8]

OTHER CONSIDERATIONS

Postdebriefing

Documentation of key findings and discussion points raised in a debriefing can help with follow-up and promote accountability in a clinical debriefing program.[26] Whatever recording method is used (eg, paper, video), it should coordinate with existing quality improvement processes. The recording methods should also be reviewed with the hospital's medicolegal team to ensure that proper safeguards are in place to protect teams from medicolegal liabilities. Without such protections, teams might feel hesitant to share information about suboptimal care that could drive improvements in future care delivery.[5] Furthermore, collaborating and coordinating with preexisting quality and patient safety processes can be integral to the long-term success of any program focused on patient improvement.

Designating a follow-up person for system issues that are identified during debriefings can be critical to building the trust in your ED that the concerns raised in debriefings are being adequately addressed. Ideally, this person will either have a role or work in concert with quality, patient safety, or risk management so that missions and goals are clearly aligned with existing hospital or other academic obligations. This person should prioritize issues identified from debriefings because some safety issues are more time sensitive (eg, missing vital equipment) than others. Realistically, several ED management staff will likely be necessary to address various issues from debriefings (eg, pharmacist for medications, respiratory therapist for equipment problems, medical director for clinical issues). Learning points and actions taken in response to clinical debriefings should be communicated in a structured manner to ensure that all relevant health care providers have the opportunity to learn from the clinical event and debriefing. Closing the loop with ED staff is an important feature to reinforce a culture of safety and let people know that their feedback leads to actual change and improvement. Some examples include hanging posters displaying improvement in metrics or sending a monthly e-mail summarizing specific changes resulting from debriefings.

Another important consideration is caring for the ED staff involved in the event. ED providers may experience psychological distress after a clinical event as a "second victim" or as a result of debriefing the event.[56,57] Most hospitals have resources available for employees who experience distress at work. Debriefing facilitators should routinely make participants aware of the available resources for employees and be prepared to direct them to further professional help when necessary.[5]

Promoting Uptake of Debriefing Practices

Identifying and cultivating a champion is essential to beginning, sustaining, and growing an ED clinical debriefing program.[5] The champion(s) should be charged with receiving advanced education in debriefing techniques, educating fellow ED providers in the art of debriefing, encouraging peers to comply with debriefing when predetermined event triggers arise, and providing tools (eg, standardized debriefing forms) for providers to use in practice.

For a debriefing program to succeed, a culture of safety for patients and staff must be reinforced.[26] Debriefing participants need assurance from leadership that their job is not in jeopardy for reporting suboptimal care occurrences in a debriefing. Participants also need to know that debriefings are not hostile blaming sessions. Although the general lessons learned from debriefings will be shared widely across the ED, any sensitive discussion points in a debriefing should remain confidential to the debriefing group.

To promote hospital-wide support, debriefings should become standard practice for specific clinical events that are predetermined by each unit in the hospital. Hospital and division leadership must value debriefing, protect the time of its employees to perform this activity, and allocate time for debriefing champions to run the program. Standardizing the format, language, and processes of debriefing across a hospital will promote sustainability and make it easier to monitor and report on debriefing outcomes within a system. We encourage new and existing programs to use Table 1 as a guide to integrating debriefing into the clinical environment.

Case Study Redux

After 15 minutes to attend to other urgent patient needs, you call a debriefing back in the code bay for the resuscitation team that just cared for the patient. Using a standardized debriefing form, you and the patient's nurse co-debrief the team. The form includes a scripted statement of the purpose of the debriefing, guidelines for discussion, and an outline for framing the discussion. The team identifies areas of strength and describes specific actions that could be taken to improve future care. The form is passed on to the local debriefing champion, who works with leadership and responds to the team with feedback based on their input.

CONCLUSIONS

Although the clinical environment is more chaotic than a classroom setting, there are unique learning opportunities in the clinical setting. Structured debriefing can help teams to improve future clinical care and is an important tool for emergency physicians to have in their management toolbox to help them run a successful ED. This article serves as a practical guide to help practitioners start debriefing after clinical events and help stakeholders to initiate debriefing programs in their ED.

The authors acknowledge Daniel Tsze, MD, for offering critical feedback on the manuscript.

Supervising editor: Daniel A. Handel, MD, MPH

Author affiliations: From the Columbia University Medical Center, New York Presbyterian Morgan Stanley Children's Hospital of New York, New York, NY (Kessler); the Children's National Medical Center, George Washington University School of Medicine and Health Sciences, Washington, DC (Mullan); and the KidSIM Simulation Program, Alberta Children's Hospital, University of Calgary, Calgary, Alberta, Canada (Cheng).

Funding and support: By *Annals* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). The authors have stated that no such relationships exist.

Publication dates: Received for publication July 30, 2014. Revision received October 7, 2014. Accepted for publication October 10, 2014. Available online November 15, 2014.

REFERENCES

1. Fanning RM, Gaba DM. The role of debriefing in simulation-based learning. *Simul Healthc*. 2007;2:115-125.
2. Marshall SLA. *Island Victory—The Battle of Kwajalein Atoll*. New York, NY: Penguin Books; 1944.
3. McDonnell LK, Jobe KK, Dismukes RK. *Facilitating LOS Debriefings: A Training Manual. Moffett Field: Part 1: An Introduction to Facilitation*. Mountainview, CA: Ames Research Center: National Aeronautics and Space Administration; 1997.
4. Bacon A. Death on the table—some thoughts on how to handle and anaesthetic-related death. *Anaesthesia*. 1989;44:245-248.
5. Mullan PC, Wuestner E, Kerr TD, et al. Implementation of an in situ qualitative debriefing tool for resuscitations. *Resuscitation*. 2013;84:946-951.
6. Tannenbaum SI, Cerasoli CP. Do team and individual debriefs enhance performance? a meta-analysis. *Hum Factors*. 2013;55:231-245.
7. Edelson DP, Litzinger B, Arora V, et al. Improving in-hospital cardiac arrest process and outcomes with performance debriefing. *Arch Intern Med*. 2008;168:1063-1069.
8. Wolfe H, Zebuhr C, Topjian AA, et al. Interdisciplinary ICU cardiac arrest debriefing improves survival outcomes. *Crit Care Med*. 2014;42:1688-1695.
9. Jiang C, Zhao Y, Chen Z, et al. Improving cardiopulmonary resuscitation in the emergency department by real-time video recording and regular feedback learning. *Resuscitation*. 2010;81:1664-1669.
10. Cheng A, Eppich W, Grant V, et al. Debriefing for technology-enhanced simulation: a systematic review and meta-analysis. *Med Educ*. 2014;48:657-666.
11. Bhanji F, Mancini ME, Sinz E, et al. Part 16: education, implementation, and teams: 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2010;122:S920-S933.
12. Sandhu N, Eppich W, Mikrogianakis A, et al. Postresuscitation debriefing in the pediatric emergency department: a national needs assessment. *CJEM*. 2013;15:1-10.
13. Staple L, O'Connell K, Mullan P, et al. National survey of pediatric emergency medicine fellows on debriefing after medical resuscitations. *Pediatr Emerg Care*. 2014 Sep 5. [Epub ahead of print].
14. Raemer D, Anderson M, Cheng A, et al. Research regarding debriefing as part of the learning process. *Simul Healthc*. 2011;6(suppl):S52-S57.
15. Lewin K, Heider F, Heider G. *Principles of Topological Psychology*. New York, NY: McGraw-Hill; 1936.
16. Zigmont JJ, Kappus LJ, Sudikoff SN. The 3D model of debriefing: defusing, discovering, and deepening. *Semin Perinatol*. 2011;35:52-58.
17. Patterson MD, Geis GL, Falcone RA, et al. In situ simulation: detection of safety threats and teamwork training in a high risk emergency department. *BMJ Qual Saf*. 2013;22:468-477.
18. Geis GL, Pio B, Pendergrass TL, et al. Simulation to assess the safety of new healthcare teams and new facilities. *Simul Healthc*. 2011;6:125-133.
19. Cook DA, Hatala R, Brydges R, et al. Technology-enhanced simulation for health professions education: a systematic review and meta-analysis. *JAMA*. 2011;306:978-988.
20. Cheng A, Hunt EA, Donoghue A, et al. Examining pediatric resuscitation education using simulation and scripted debriefing: a multicenter randomized trial. *JAMA Pediatr*. 2013;167:528-536.
21. Cheng A, Rodgers DL, van der Jagt E, et al. Evolution of the pediatric advanced life support course: enhanced learning with a new debriefing tool and web-based module for pediatric advanced life support instructors. *Pediatr Crit Care Med*. 2012;13:589-595.
22. Cheng A, Goldman RD, Aish MA, et al. A simulation-based acute care curriculum for pediatric emergency medicine fellowship training programs. *Pediatr Emerg Care*. 2010;26:475-480.
23. Arafeh JM, Hansen SS, Nichols A. Debriefing in simulated-based learning: facilitating a reflective discussion. *J Perinat Neonatal Nurs*. 2010;24:302-309; quiz 310-311.
24. 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;35:738-754.
25. Nadler I, Sanderson PM, Van Dyken CR, et al. Presenting video recordings of newborn resuscitations in debriefings for teamwork training. *BMJ Qual Saf*. 2011;20:163-169.
26. Salas E, Klein C, King H, et al. Debriefing medical teams: 12 evidence-based best practices and tips. *Jt Comm J Qual Patient Saf*. 2008;34:518-527.
27. Zebuhr C, Sutton RM, Morrison W, et al. Evaluation of quantitative debriefing after pediatric cardiac arrest. *Resuscitation*. 2012.
28. Ireland S, Gilchrist J, Maconochie I. Debriefing after failed paediatric resuscitation: a survey of current UK practice. *Emerg Med J*. 2008;25:328-330.
29. Theophilos T, Magyar J, Babl FE, et al. Debriefing critical incidents in the paediatric emergency department: current practice and perceived needs in Australia and New Zealand. *Emerg Med Australas*. 2009;21:479-483.
30. Rudolph JW, Simon R, Rivard P, et al. Debriefing with good judgment: combining rigorous feedback with genuine inquiry. *Anesthesiol Clin*. 2007;25:361-376.
31. Rudolph JW, Simon R, Raemer DB, et al. Debriefing as formative assessment: closing performance gaps in medical education. *Acad Emerg Med*. 2008;15:1010-1016.
32. Ahmed R, King Gardner A, Atkinson SS, et al. Teledebriefing: connecting learners to faculty members. *Clin Teach*. 2014;11:270-273.
33. Sawyer TL, Deering S. Adaptation of the US Army's after-action review for simulation debriefing in healthcare. *Simul Healthc*. 2013;8:388-397.
34. Rudolph JW, Simon R, Dufresne RL, et al. There's no such thing as "nonjudgmental" debriefing: a theory and method for debriefing with good judgment. *Simul Healthc*. 2006;1:49-55.
35. Donabedian A. The quality of care: how can it be assessed? *JAMA*. 1988;260:1743-1748.
36. Ahmed M, Arora S, Russ S, et al. Operation debrief: a SHARP improvement in performance feedback in the operating room. *Ann Surg*. 2013;258:958-963.
37. Croskerry P. Diagnostic failure: a cognitive and affective approach. In: Henriksen K, Battles J, Marks E, eds. *Advances in Patient Safety: From Research to Implementation (Volume 2: Concepts and Methodology)*. Rockville, MD: Agency for Healthcare Research & Quality; 2005:241-254.
38. Hatala R, Cook DA, Zendejas B, et al. Feedback for simulation-based procedural skills training: a meta-analysis and critical narrative synthesis. *Adv Health Sci Educ Theory Pract*. 2014;19:251-272.
39. Mackinnon R, Gough S. What can we learn about debriefing from other high-risk/high-stakes industries? *Cureus*. 2014;6:e174.
40. Grant J, Moss J, Epps C, et al. Using video-facilitated feedback to improve student performance following high-fidelity simulation. *Clin Sim Nurs*. 2010;6:e177-e184.
41. Byrne AJ, Sellen AJ, Jones JG, et al. Effect of videotape feedback on anaesthetists' performance while managing simulated anaesthetic crises: a multicentre study. *Anaesthesia*. 2002;57:176-179.

42. Sawyer T, Sierocka-Castaneda A, Chan D, et al. The effectiveness of video-assisted debriefing versus oral debriefing alone at improving neonatal resuscitation performance: a randomized trial. *Simul Healthc*. 2012;7:213-221.
43. Carbine DN, Finer NN, Knodel E, et al. Video recording as a means of evaluating neonatal resuscitation performance. *Pediatrics*. 2000;106:654-658.
44. Finer NN, Rich W. Neonatal resuscitation: toward improved performance. *Resuscitation*. 2002;53:47-51.
45. O'Donnell CP, Kamlin CO, Davis PG, et al. Ethical and legal aspects of video recording neonatal resuscitation. *Arch Dis Child Fetal Neonatal Ed*. 2008;93:F82-F84.
46. Gelbart B, Barfield C, Watkins A. Ethical and legal considerations in video recording neonatal resuscitations. *J Med Ethics*. 2009;35:120-124.
47. Finer N, Rich W. Neonatal resuscitation for the preterm infant: evidence versus practice. *J Perinatol*. 2010;30(suppl):S57-S66.
48. Gelbart B, Hiscock R, Barfield C. Assessment of neonatal resuscitation performance using video recording in a perinatal centre. *J Paediatr Child Health*. 2010;46:378-383.
49. Ellis DG, Lerner EB, Jehle DV, et al. A multi-state survey of videotaping practices for major trauma resuscitations. *J Emerg Med*. 1999;17:597-604.
50. Brown DM. Video recording of emergency department trauma resuscitations. *J Trauma Nurs*. 2003;10:79-80.
51. Oakley E, Stocker S, Staubli G, et al. Using video recording to identify management errors in pediatric trauma resuscitation. *Pediatrics*. 2006;117:658-664.
52. Cooper S, Cant R, Porter J, et al. Rating medical emergency teamwork performance: development of the Team Emergency Assessment Measure (TEAM). *Resuscitation*. 2010;81:446-452.
53. Pines JM, Hilton JA, Weber EJ, et al. International perspectives on emergency department crowding. *Acad Emerg Med*. 2011;18:1358-1370.
54. Institute of Medicine Committee on the Future of Emergency Care in the United States Health System. *Hospital-Based Emergency Care: At the Breaking Point*. Washington, DC: National Academies Press; 2006.
55. Small SD. Simulation applications for human factors and systems evaluation. *Anesthesiol Clin*. 2007;25:237-259.
56. Seys D, Wu AW, Van Gerven E, et al. Health care professionals as second victims after adverse events: a systematic review. *Eval Health Prof*. 2013;36:135-162.
57. McCay L, Wu AW. Medical error: the second victim. *Br J Hosp Med (Lond)*. 2012;73:C146-C148.

Resuscitation 84 (2013) 946–951

Contents lists available at SciVerse ScienceDirect

Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation

Clinical paper

Implementation of an In Situ Qualitative Debriefing Tool for Resuscitations☆

Paul C. Mullan[a,*], Elizabeth Wuestner[b], Tarra D. Kerr[b], Daniel P. Christopher[b], Binita Patel[b]

[a] Children's National Medical Center, George Washington University School of Medicine and Health Sciences, United States
[b] Texas Children's Hospital, Baylor College of Medicine, United States

ARTICLE INFO

Article history:
Received 14 September 2012
Received in revised form 26 October 2012
Accepted 3 December 2012

Keywords:
Debriefing
Resuscitation
Pediatric
Emergency
Teamwork
Communication

ABSTRACT

Aim: Multiple guidelines recommend debriefing of resuscitations to improve clinical performance. We implemented a novel standardized debriefing program using a Debriefing In Situ Conversation after Emergent Resuscitation Now (DISCERN) tool.
Methods: Following the development of the evidence-based DISCERN tool, we conducted an observational study of all resuscitations (intubation, CPR, and/or defibrillation) at a pediatric emergency department (ED) over one year. Resuscitation interventions, patient survival, and physician team leader characteristics were analyzed as predictors for debriefing. Each debriefing's participants, time duration, and content were recorded. Thematic content of debriefings was categorized by framework approach into Team Emergency Assessment Measure (TEAM) elements.
Results: There were 241 resuscitations and 63 (26%) debriefings. A higher proportion of debriefings occurred after CPR ($p < 0.001$) or ED death ($p < 0.001$). Debriefing participants always included an attending and nurse; the median number of staff roles present was six. Median intervals (from resuscitation end to start of debriefing) & debriefing durations were 33 (IQR 15, 67) and 10 min (IQR 5, 12), respectively. Common TEAM themes included co-operation/coordination (30%), communication (22%), and situational awareness (15%). Stated reasons for not debriefing included: unnecessary (78%), time constraints (19%), or other reasons (3%).
Conclusions: Debriefings with the DISCERN tool usually involved higher acuity resuscitations, involved most of the indicated personnel, and lasted less than 10 min. Future studies are needed to evaluate the tool for adaptation to other settings and potential impacts on education, quality improvement programming, and staff emotional well-being.

1. Introduction

Effective communication contributes to patient safety and teamwork and is essential to delivering high quality care.[1–3] This is especially true for critically ill patients with respiratory failure or those requiring cardiopulmonary resuscitation (CPR). Unfortunately, the quality of resuscitation attempts is often suboptimal in both inpatient[4] and out-of-hospital[5] settings. European Resuscitation Council[6] and American Heart Association[7] (AHA) guidelines recommend that teams use debriefings after resuscitations to improve performance. Debriefing refers to a facilitated discussion of participant actions and thought processes to encourage reflection and assimilation of learning into practice.[8] Goals of debriefing include future clinical performance improvement, education, improved team morale, and emotional processing. Despite recommendations, debriefings rarely occur after resuscitations.[9,10]

A United Kingdom-based survey[11] of Emergency Department (ED) physicians and nurses revealed that 86% of EDs did not have a formal debriefing policy. An ED survey from Australia reported that 54% of physicians and 69% of nurses would like to debrief more often; 89% would like an ED debriefing program.[12] The Institute of Medicine[13] and the American Academy of Pediatrics[14] have emphasized the need for tools promoting effective teamwork and patient safety. A feasible and acceptable model for debriefing resuscitations in the pediatric ED could be one such tool.

Two debriefing formats are used in clinical care. Qualitative debriefing relies on participant recall of events, interactions, and thought processes. It focuses primarily on patient information gathered from bedside CPR recording devices, patient monitors, and records.[15] Published quantitative debriefings typically occurred days to weeks after the resuscitation, invited large groups of providers who were either involved or uninvolved in the resuscitation, and lasted approximately 1 h.[15–17] Cited challenges included a low frequency of debriefings, difficulties with gathering the entire

☆ A Spanish translated version of the abstract of this article appears as Appendix in the final online version at http://dx.doi.org/10.1016/j.resuscitation.2012.12.005.

* Corresponding author at: Children's National Medical Center, Pediatric Emergency Dept, 111 Michigan Ave NW, Washington, DC 20010, United States. Tel.: +1 713 855 4827; fax: +1 202 476-3573.
E-mail address: mullan20@gmail.com (P.C. Mullan).

0300-9572/$ – see front matter © 2012 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.resuscitation.2012.12.005

code team, an "intimidating" perception with the large group format, the requirement for technological equipment, and a labor-intensive burden for facilitators. A qualitative debriefing program that utilizes in situ debriefing could minimize many of these challenges.

In June 2010, our ED formed a multi-disciplinary implementation team [ED and intensive care unit (ICU) physicians, residents, nurses, trauma team, pharmacy, respiratory, child life, family advocacy, unit clerks, and interpreters] whose mission was to improve the quality of communication between ED healthcare team members caring for critically ill children. A needs assessment showed that 30% of our staff had never debriefed; of those who had debriefed, 70% found it worthwhile. The implementation team used established quality improvement (QI) methodology to identify key barriers to accomplishing our mission. One identified barrier to debriefing was the lack of a standardized protocol. The implementation team reviewed the literature to create a standardized checklist form called the Debriefing In Situ Conversation after Emergent Resuscitation Now (DISCERN) tool to facilitate qualitative debriefings and collect data on their performance. Two other identified barriers were addressed by establishing team consensus on whether the following occurred during the resuscitation: (1) no confusion on physician team leader (PTL) status, and (2) PTL as the only person calling out orders.

The primary objective of this study was to describe the first year subsequent to the implementation of this novel debriefing tool in the pediatric ED setting. Our primary hypothesis was that a higher proportion of debriefings would occur for those resuscitated patients who required CPR than in those who did not require CPR. Additionally, we sought to describe the debriefing content, timing, predictors, patient outcomes, and patient characteristics. To our knowledge, no qualitative debriefing tools for the ED population have been published.

2. Methods

2.1. Setting and study design

This retrospective observational cohort study was designed to describe a multi-disciplinary debriefing program implemented in a single pediatric ED of a high volume, high acuity tertiary care hospital. Resuscitations are led by a physician team leader (PTL): a pediatric emergency medicine (PEM) physician, a PEM fellow, or a general pediatrician experienced in the ED care setting.

2.2. Subjects

Subjects included all team members whose patients were resuscitated in the pediatric ED from May 9, 2011 to May 8, 2012. A resuscitation was defined as any patient who required CPR, intubation, or defibrillation in the ED. Any debriefings that did not meet inclusion criteria were excluded from analysis and described separately.

2.3. Description of DISCERN form creation

The goal of the implementation team was to create a standardized debriefing form that would be readily available, quick to complete, useful for QI, followed medico-legal standards, and simple to use for leaders with varied debriefing experience. To assure face and construct validity, we followed debriefing best practice guidelines while creating the form[11,18] and met with several on-site multi-disciplinary focus groups to discuss modifications to the form (Table 1).

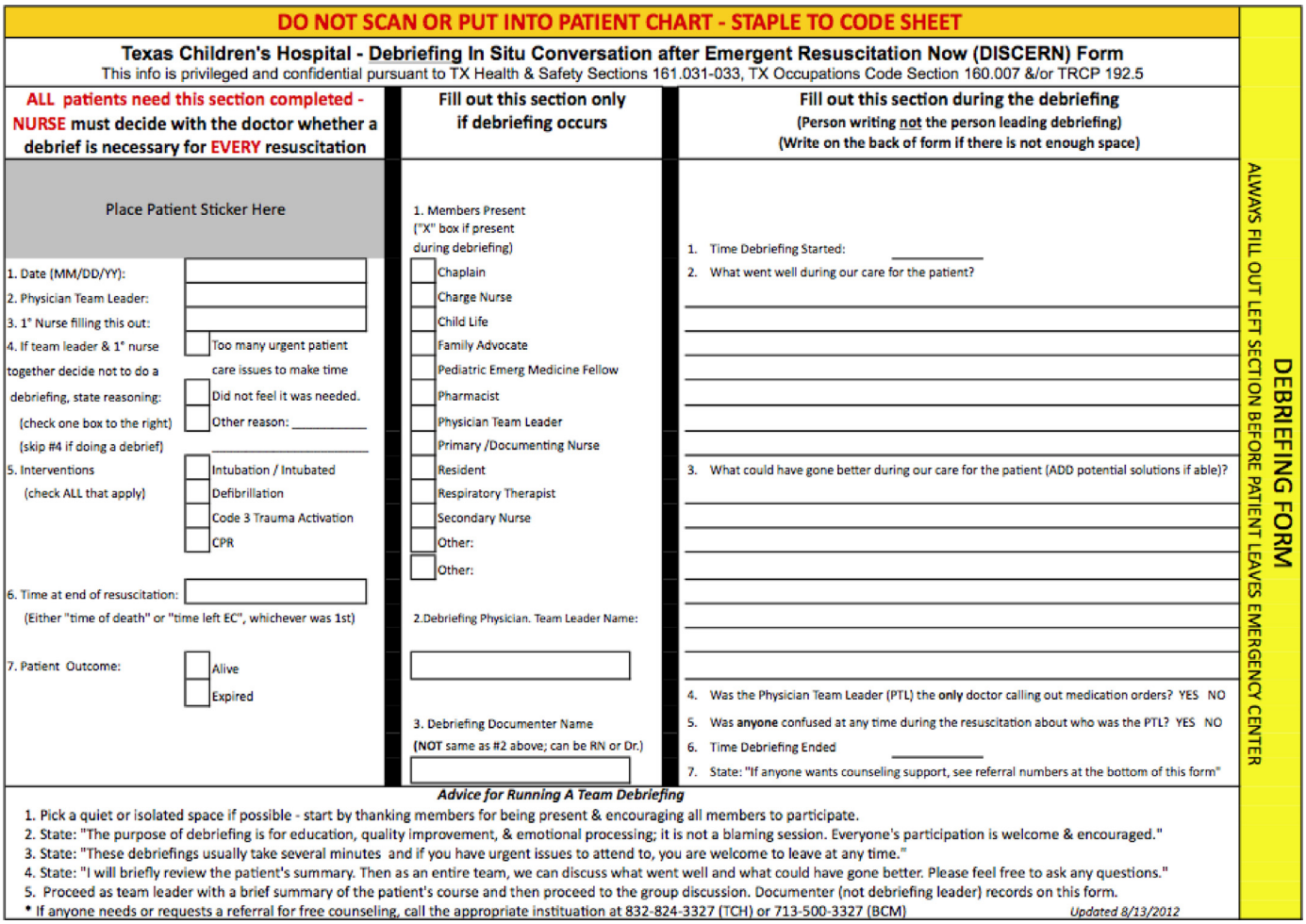
The DISCERN tool was then pilot tested by study investigators (BP, PM) for two months and minor modifications were made. ED nurses and physicians were trained in the form's usage and it was implemented in May 2011 (Fig. 1). Minor modifications were made in the study period that did not affect primary data collection. The DISCERN form did not become part of the patient's medical record and content was assured confidentiality by state law.[19,20]

Table 1
Published best practices on creating a debriefing program and actions implemented by our group.

Item	Best Practice	Action
1	Ensure that the organization creates a supportive learning environment for debriefings.[18]	Departmental level agreement to support debriefing program. Baseline ED staff survey suggested worthwhile nature of debriefing. ED staff had opportunities to provide form feedback.
2	Educate team leaders and team members to be attentive of teamwork processes during performance episodes.[18]	DISCERN form contained questions on barriers to effective teamwork communication processes that were identified in focus groups.
3	Educate team leaders on the art and science of leading team debriefings.[18]	Taught ED staff on use of DISCERN form. Held workshop to simulate debriefings with DISCERN form. Advice on running a debriefing included on the DISCERN form.
4	Ensure team members feel comfortable during debriefings.[18]	Instructions on DISCERN form to find a private space and scripted instructions provided to team leader. Assured exclusion from patient record through medico-legal clearance.
5	Focus on a few critical performance and teamwork issues during the debriefing process.[18]	Plus-Delta method of focused group feedback utilized.
6	Support feedback with objective indicators of performance.[18]	Code sheet was available to provide timing metrics and documentation of events.
7	Shorten the delay between task performance and feedback as much as possible.[11,18]	Aim of DISCERN form was to use it, when deemed necessary, shortly after the resuscitation and prior to the end of team member shifts.
8	Record conclusions made and goals set during the debrief to facilitate feedback during future debriefings.[18]	Recording of content on DISCERN form. Analysis of form content to facilitate future improvements to the DISCERN form.
9	All staff should be invited.[11]	All involved staff always welcomed to voluntarily join the debriefing.
10	Debrief should ideally address both medical and psychological issues; clear pathways of referral should exist if psychological problems are discovered.[11]	Emotional processing addressed as one of the goals in the debriefing advice scripting. Psychological referral resources provided on DISCERN form.
11	Debriefing should utilize clinical governance pathways to deal with medical issues.[11]	DISCERN form content reviewed by nursing and physician quality improvement directors.
12	A senior clinician should lead the medical debrief.[11]	Debriefings were always led by attending or fellow physicians.

2.4. Description of DISCERN tool implementation

The DISCERN form was supposed to be completed after every resuscitation in the study period. Physicians were trained on using the DISCERN form at two consecutive staff meetings; all nurses were trained in a 20-min presentation at baseline and six months after implementation. At the conclusion of a resuscitation, the



DO NOT SCAN OR PUT INTO PATIENT CHART - STAPLE TO CODE SHEET

Texas Children's Hospital - Debriefing In Situ Conversation after Emergent Resuscitation Now (DISCERN) Form

This info is privileged and confidential pursuant to TX Health & Safety Sections 161.031-033, TX Occupations Code Section 160.007 &/or TRCP 192.5

ALL patients need this section completed - NURSE must decide with the doctor whether a debrief is necessary for EVERY resuscitation

Place Patient Sticker Here

1. Date (MM/DD/YY):
2. Physician Team Leader:
3. 1° Nurse filling this out:
4. If team leader & 1° nurse together decide not to do a debriefing, state reasoning: (check one box to the right) (skip #4 if doing a debrief)
   - Too many urgent patient care issues to make time
   - Did not feel it was needed.
   - Other reason: _____
5. Interventions (check ALL that apply)
   - Intubation / Intubated
   - Defibrillation
   - Code 3 Trauma Activation
   - CPR
6. Time at end of resuscitation: (Either "time of death" or "time left EC", whichever was 1st)
7. Patient Outcome:
   - Alive
   - Expired

Fill out this section only if debriefing occurs

1. Members Present ("X" box if present during debriefing)
   - Chaplain
   - Charge Nurse
   - Child Life
   - Family Advocate
   - Pediatric Emerg Medicine Fellow
   - Pharmacist
   - Physician Team Leader
   - Primary /Documenting Nurse
   - Resident
   - Respiratory Therapist
   - Secondary Nurse
   - Other:
   - Other:
2. Debriefing Physician. Team Leader Name:
3. Debriefing Documenter Name (NOT same as #2 above; can be RN or Dr.)

Fill out this section during the debriefing (Person writing not the person leading debriefing) (Write on the back of form if there is not enough space)

1. Time Debriefing Started: _____
2. What went well during our care for the patient?
3. What could have gone better during our care for the patient (ADD potential solutions if able)?
4. Was the Physician Team Leader (PTL) the only doctor calling out medication orders? YES NO
5. Was anyone confused at any time during the resuscitation about who was the PTL? YES NO
6. Time Debriefing Ended _____
7. State: "If anyone wants counseling support, see referral numbers at the bottom of this form"

DEBRIEFING FORM

ALWAYS FILL OUT LEFT SECTION BEFORE PATIENT LEAVES EMERGENCY CENTER

Advice for Running A Team Debriefing

1. Pick a quiet or isolated space if possible - start by thanking members for being present & encouraging all members to participate.
2. State: "The purpose of debriefing is for education, quality improvement, & emotional processing; it is not a blaming session. Everyone's participation is welcome & encouraged."
3. State: "These debriefings usually take several minutes and if you have urgent issues to attend to, you are welcome to leave at any time."
4. State: "I will briefly review the patient's summary. Then as an entire team, we can discuss what went well and what could have gone better. Please feel free to ask any questions."
5. Proceed as team leader with a brief summary of the patient's course and then proceed to the group discussion. Documenter (not debriefing leader) records on this form.

* If anyone needs or requests a referral for free counseling, call the appropriate institution at 832-824-3327 (TCH) or 713-500-3327 (BCM) *Updated 8/13/2012*

Fig. 1. Debriefing In Situ Conversation after Emergent Resuscitation Now (DISCERN) tool.

patient's primary nurse and the PTL were required to meet to discuss and determine whether a debriefing was warranted.

In the left column of the DISCERN form, the primary nurse was supposed to complete the clinical information including patient identifying information, date, PTL and primary nurse names, interventions performed, time resuscitation ended (defined as when patient left the room toward the next disposition area), and patient outcome in the ED (Fig. 1). If the primary nurse and PTL decided that a debriefing would not occur, the reason was recorded with check boxes or open text. A DISCERN form was considered to be complete if the left column (for resuscitations that were not debriefed) or all three columns (for resuscitations that were debriefed) were filled out (Fig. 1).

If a debriefing was determined to be necessary and initiated, all resuscitation team members were invited to participate by overhead paging. The DISCERN form included basic advice on conducting a debriefing and a standardized checklist to guide the PTL during the debriefing. The DISCERN form was completed during the debriefing by a debriefing participant (middle and right columns, Fig. 1). The plus/delta method[21] was utilized for group discussion because of its open-natured design, its ease of execution, and its structure of addressing positive and negative components (i.e., "what went well" and "what could have gone better during our care of the patient"). Debriefing leaders trained in other methodologies (e.g. AHA Gather/Analyze/Summarize,[22] Advocacy-Inquiry) were permitted to supplement these other debriefing models into the discussion. Given the limited research on desired content for clinical event debriefings, this section was kept in free text instead of tick box format. The debriefing start times, end times, and provider roles present at the debriefing were recorded.

The implementation team discussed DISCERN form usage with healthcare providers throughout the study period to provide feedback on appropriate procedures and to collect feedback for improvement of the debriefing process. Per healthcare provider request, a workshop was conducted nine months into the study period and attended by 22 ED staff. It involved viewing a video resuscitation and subsequent small group role-playing to simulate a debriefing.

2.5. Data quality and analysis

All collected DISCERN forms were mapped to a list of all ED resuscitations during the study period to assure inclusion of all eligible resuscitations and measure adherence to DISCERN form completion. Form content was entered into an Excel® database by study investigators (TK, EW, PM). Cases not meeting resuscitation definition criteria were counted and diagnoses were described.

Central tendency measures and two-sample tests of proportion were performed on all debriefing predictors. Ages were compared by the non-parametric Mann–Whitney U test. Thematic content from DISCERN form comments were categorized by a framework approach[23] into eight elements as described in the Team Emergency Assessment Measure (TEAM),[24] a validated measurement tool designed for medical resuscitations. Each comment was independently categorized into themes by two study investigators (PM, BP) and discordant themes were discussed to achieve consensus.

A data entry expert (non-study investigator) reviewed every database entry to assure that all entries met resuscitation criteria and to enter additional timing, diagnosis, and mortality metrics. To validate the ability of the primary nurse to record interventions (CPR, intubation, and defibrillation) on the DISCERN form, two study investigators (DC, TK) comprehensively reviewed every chart completed by a primary nurse and recorded all interventions in a separate database. A Cohen's kappa statistic was used to evaluate inter-rater reliability between the primary nurse and the study investigators.

This study was approved by the local institutional review board.

3. Results

A total of 241 resuscitations occurred in the study period, with 63 (26%) debriefings documented. Seven debriefings did not meet the resuscitation definition criteria and were excluded from further analysis: 4 patients intubated in the field and 1 patient each with altered mentation, septic shock, and implantable cardiac device malfunction. DISCERN forms were completed by the primary nurse and team members in 191 (79%) resuscitations.

For our primary outcome, delivery of CPR was associated with a significantly higher rate of debriefing (Table 2). Other factors which were associated with a higher rate of debriefing included resuscitated patients not surviving in the ED, resuscitations ending between midnight and noon, and resuscitations occurring in the trauma room (Table 3). The median age of all resuscitated patients was 1.3 years (IQR 0.2, 6.2; 4 patients were >21 years old). The median age of patients who were debriefed was 2.8 years (IQR 0.8, 9.4) versus those not debriefed was 1.1 years (IQR 0.2, 4.6); $p = 0.004$. Of all the PTLs during the study period ($n = 52$), 54% (95% CI, 40, 67) performed at least one debriefing. Eighty-six percent of debriefings ($n = 54$) were led by PTLs who were not study investigators.

The median delay between the end of resuscitations and the start of debriefings was 33 min (IQR 15, 67); two debriefings had unrecorded start times. The median duration of debriefings was 10 min (IQR 5, 12); four debriefings had unrecorded start and/or end times. The debriefing leader was the same person as the PTL in 57 cases (90%). The debriefing documenter was a nurse 54% ($n = 34$) of the time and a physician 46% ($n = 29$) of the time. The debriefing documenter was the debriefing leader 21% ($n = 13$) of the time. The most frequent person present at debriefings was the PTL (Table 4) and the median number of the eight recorded roles present at debriefings was 6 (IQR, 5, 7). Of the completed DISCERN forms whose resuscitations were not debriefed ($n = 128$), 121 (95%) had recorded reasons for not debriefing. These included "did not feel it was needed" (78%; 97% of which involved intubation-only cases), "too many urgent patient care issues. . ." (19%), or other reasons (3%).

There were a total of 207 plus comments and 138 delta comments, with 251 and 197 identified themes, respectively, within the plus and delta comments (Table 5). The most frequent category of comments was teamwork-related (80%) and the most frequent TEAM elements mentioned were co-operation/coordination (30%), communication (22%), and situational awareness (15%).

Sixty-one (97%) of the DISCERN forms answered the barrier questions. The PTL was not the only person giving orders 25% (95% CI, 14, 35) of the time, there was confusion identifying the team leader 15% (95% CI, 6, 24) of the time, and 33% (95% CI, 21, 45) of the debriefings had at least one of these negative PTL outcomes. Of the debriefings with at least one of these negative PTL outcomes, 29% (95% CI, 8, 51) of patients died in the ED versus 19% (95% CI, 5, 33) in those patients without negative PTL outcomes.

For the DISCERN tool validation of the primary nurse recording of interventions, the 179 DISCERN forms completed by the primary nurse had a correct intervention designation 98.8% of the time with

Table 2
Characteristics of resuscitated patients that were debriefed and not debriefed.

Characteristic (number of occurrences)	Percentage debriefed (95% CI)	Percentage not debriefed (95% CI)
Patient Interventions		
CPR delivered (31)	77%* (63, 92)	23% (8, 37)
No CPR delivered (210)	19% (13, 24)	81% (76, 87)
Defibrillation (5)	80%* (45, 100)	20% (0, 55)
No defibrillation (236)	25% (19, 31)	75% (69, 81)
Intubation (231)	23% (18, 29)	77% (71,82)
No Intubation (10)	90%* (71, 100)	10% (0, 29)
Patient Outcomes		
ED death (17)	88%* (73, 100)	12% (0, 27)
No ED death (224)	21% (16, 27)	79% (73, 84)

CPR: cardiopulmonary resuscitation, ED: emergency department.
* Significantly higher proportion of debriefings occurred in patients with this characteristic than without it, with a $p < 0.01$.

Table 3
Characteristics of resuscitations during the study period.

Characteristics (number of occurrences)	Percentage debriefed (95% CI)	Percentage not debriefed (95% CI)
PTL: PEM Fellow (85)	26 (17, 35)	74 (65, 83)
PTL: PEM Attending (156)	26 (19, 33)	74 (67, 81)
PTL: Solo attending shift coverage (13)	38 (12, 65)	62 (35, 88)
PTL: Multiple attending shift coverage (228)	25 (20, 31)	75 (69, 80)
PTL female (139)	28 (21, 35)	72 (65, 79)
PTL male (102)	24 (15, 32)	76 (68, 85)
Patient did not survive ED (17)	*88 (73, 100)	12 (0, 27)
Patient survived ED (224)	21 (16, 27)	79 (73, 84)
Resuscitation ended between 12:01 AM and 12:00 PM (85)	*35 (25, 45)	65 (55, 75)
Resuscitation ended between 12:01 PM and 12:00 AM (156)	21 (15, 28)	79 (72, 85)
Resuscitation occurred in trauma room (144)	*31 (24, 39)	69 (61, 76)
Resuscitation did not occur in trauma room (97)	19 (11, 26)	81 (74, 89)
Resuscitation occurred in first half of study period (79)	29 (19, 39)	71 (61, 81)
Resuscitation occurred in second half of study period (162)	25 (18, 31)	75 (69, 82)
Resuscitation of a male patient (142)	21 (14, 28)	79 (72, 86)
Resuscitation of a female patient (99)	33 (24, 43)	67 (57, 76)

ED: emergency department, PEM: pediatric emergency medicine, PTL: physician team leader.
* Significantly ($p < 0.05$) higher proportion of resuscitations debriefed for the given characteristic compared to the contrasting characteristic.

Table 4
Members present at debriefings ($n = 63$).

Team member	Number of debriefings (%) that member was present
Present: PTL	62 (98%)
Present: primary nurse	60 (95%)
Present: respiratory therapist[a]	52 (83%)
Present: secondary nurse[a]	51 (81%)
Present: charge nurse[a]	51 (81%)
Present: resident[a]	44 (70%)
Present: PEM fellow[a]	42 (67%)
Present: pharmacist	23 (37%)
At least 4 roles present	61 (97%)
At least 6 roles present	46 (73%)

PEM: pediatric emergency medicine, PTL: physician team leader.
[a] Denotes a role that could have had multiple people present for the designated role.

a kappa for intubations, defibrillations, and CPR of 0.85, 0.74, and 0.96, respectively.

4. Discussion

We described the design, implementation, and outcomes of a novel debriefing tool in a single high volume, high acuity pediatric ED. Debriefings were conducted after many of the resuscitations in the study period with a higher likelihood of debriefing for those patients who needed more intensive interventions (i.e., CPR), were critically ill (i.e., those who did not survive in the ED), and older children. Some possible reasons for these observations include the need to reinforce education of relatively rare clinical events in the ED, the complexity of the clinical care delivered with the subsequent identification of QI opportunities, the need for members to begin emotional processing, and the decreasing relative frequency of pediatric resuscitations in older children. Other studies report debriefing rates of 6–31%[9,25,26,10] following a patient death, which is significantly lower than the 88% seen in our sample, possibly due to the accessibility and/or utility of our structured DISCERN format.

Three-quarters of debriefings started less than an hour from the end of the resuscitation. The timing of these debriefings suggests that the team preferred to conduct a debriefing shortly after they finished patient care delivery. The advantage of starting so soon after the resuscitation could have included easier participant recall of recent events, the early addressing of teamwork or emotional issues, and the potential of having more team members participate before their shifts ended. Other ED survey-based studies reported the time lapse from resuscitation to debriefings to be within 24 h (50% of the time)[12] or "immediately"[11] (56% of the time); one pediatric ICU's average time lapse for quantitative debriefings was 21 days.[15] The fact that 64% of debriefings lasted ≤10 min speaks to the feasibility of using the DISCERN format in a busy ED setting. While the DISCERN form did not measure the team's perception of the usefulness of the debriefing process, an indirect measure of acceptability was suggested by the lack of a decrease in the proportion of debriefings between the first and second six months of the study period. Other additional indirect measures are that debriefings were voluntarily attended by multiple team member roles, that the majority of PTL's led a debriefing, and that there were seven debriefings done willingly on children who did not meet resuscitation criteria. Additionally, both non-debriefed deaths were in the first six deaths during the study period while all subsequent deaths were debriefed; this could reflect a culture change of debriefing more deaths.

Comments from the DISCERN forms were used to guide QI efforts in the ED and could be used to guide a future teamwork training program in our ED. Over half of the themes that were recorded and categorized in the plus/delta comments were related to coordination/co-operation and communication (both in the teamwork category). The need to improve performance in these non-technical areas in the ED have been well described.[2,27–30] Recent resuscitation guidelines have recommended that teamwork training should be included in advanced life support courses.[7] One component of debriefing that was not captured on the DISCERN form was the emotional processing of team members; this component is being studied in a follow-up perception survey.

This study had several limitations. Debriefings were performed on a minority of resuscitations. However, by keeping debriefings optional as a new intervention, we aimed to optimize user buy-in given the reality of time constraints in the ED. Also, we did not expect all resuscitations to be debriefed because providers were using a new practice tool. As people become more comfortable with performing debriefings, it is possible that more of the lower acuity (e.g. intubation) resuscitations will be debriefed at the high rates seen in the high acuity (e.g. CPR) resuscitations. Second, the DISCERN forms were filled out by numerous different team members, likely resulting in documentation variability. By standardizing most of the form in a checklist format and validating the primary nurse's abilities to record interventions, most of the variation is likely isolated to the plus/delta comments. It is probable that not all plus/delta comments that were discussed in the debriefing were recorded due to documenter oversight and involvement in the discussion, but is it is likely that the most prominent issues were

Table 5
Content of debriefing sessions by Team Emergency Assessment Measure (TEAM) categories and elements.

Categories and thematic elements	Plus comments, n (% of total elements)	Delta comments, n (% of total elements)	Combined comments n (% of total element)
A. Leadership			
1. Leadership control	12 (3)	7 (2)	19 (4)
B. Teamwork			
1. Communication	59 (13)	39 (9)	98 (22)
2. Co-operation or Coordination	84 (19)	50 (11)	134 (30)
3. Team climate	17 (4)	2 (0.4)	19 (4)
4. Adaptability	20 (4)	20 (4)	40 (9)
5. Situational awareness	40 (9)	26 (6)	66 (15)
C. Task management			
1. Prioritization	4 (1)	8 (2)	12 (3)
2. Clinical standards	15 (3)	22 (5)	37 (8)
D. Environment[a]			
1. Equipment or environment	0 (0)	23 (5)	23 (5)
TOTAL	251 (56)	197 (44)	448 (100)

[a] This category was not an a priori TEAM category but encompassed comments that were unique to the elements described in TEAM.

recorded. It is also probable that not all comments from team members were always shared openly due to concerns about addressing sensitive topics, taking too much time during a busy shift, provoking negative interpersonal interactions, recording issues that could have medico-legal implications (despite the confidential protections in place), or other reasons. Finally, the categorization of comments into TEAM themes was done with only two raters without external validation; however, the TEAM rating guidelines were used to assure face validity to minimize variation.

The DISCERN tool could potentially be disseminated to other EDs or clinical areas to facilitate the performance of team debriefings after resuscitations. The qualitative structure of the DISCERN format of debriefing attempted to overcome several of the aforementioned limitations of quantitative debriefings including scheduling conflicts, time burden, optimum group size, technology burden, and frequency of debriefings. Unlike the Gather-Analyze-Summarize steps of the AHA debriefing method[22] used mostly in simulation, the plus/delta method does not assume the facilitator has overall situational knowledge and thus potentially opens the team discussion to 360° feedback. A program that incorporated the immediate benefits of qualitative debriefings with the delayed benefits of a quantitative debriefing program could improve opportunities for education, QI, and the team's emotional processing.[31] With these improvements, better patient outcomes might be demonstrated.

5. Conclusions

Given that debriefings in other medical fields have been associated with higher staff satisfaction,[32] reduced stress,[33] and improved clinical performance,[16] similar effects may be found in emergency medicine. This study described the structure and processes of a debriefing program that could be an early step to designing debriefing guidelines that could ultimately be evaluated for their effect on patient outcomes.

Funding

No external funding sources.

Conflicts of interest statement

None to declare.

Acknowledgements

Sartaj Alam: statistical review. Dr. Andrea Cruz and Dr. Charles Macias: manuscript review.

References

1. Manser T. Teamwork and patient safety in dynamic domains of healthcare: a review of the literature. Acta Anaesthesiol Scand 2009;53:143–51.
2. Bergs EA, Rutten FL, Tadros T, Krijnen P, Schipper IB. Communication during trauma resuscitation: do we know what is happening? Injury 2005;36:905–11.
3. Kohn L, Corrigan J, Donaldson M. Committee on Quality of Health Care in America, Institute of Medicine. To Err is Human – Building a Safer Health System. Washington, DC: National Academy Press; 2000. Accessed at http://www.nap.edu/catalog.php?record_id=9728 on 1/4/2013
4. Abella BS, Alvarado JP, Myklebust H, et al. Quality of cardiopulmonary resuscitation during in-hospital cardiac arrest. JAMA 2005;293:305–10.
5. Wik L, Kramer-Johansen J, Myklebust H, et al. Quality of cardiopulmonary resuscitation during out-of-hospital cardiac arrest. JAMA 2005;293:299–304.
6. Soar J, Monsieurs KG, Ballance JH, et al. European Resuscitation Council Guidelines for Resuscitation 2010 Section 9, Principles of education in resuscitation. Resuscitation 2010;81:1434–44.
7. Bhanji F, Mancini ME, Sinz E, et al. Part 16: education, implementation, and teams: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation 2010;122:S920–33.
8. Fanning RM, Gaba DM. The role of debriefing in simulation-based learning. Simul Healthc 2007;2:115–25.
9. Hayes CW, Rhee A, Detsky ME, Leblanc VR, Wax RS. Residents feel unprepared and unsupervised as leaders of cardiac arrest teams in teaching hospitals: a survey of internal medicine residents. Crit Care Med 2007;35:1668–72.
10. Pittman J, Turner B, Gabbott DA. Communication between members of the cardiac arrest team – a postal survey. Resuscitation 2001;49:175–7.
11. Ireland S, Gilchrist J, Maconochie I. Debriefing after failed paediatric resuscitation: a survey of current UK practice. Emerg Med J 2008;25:328–30.
12. Theophilos T, Magyar J, Babl FE. Paediatric Research in Emergency Departments International Collaborative (PREDICT), Debriefing critical incidents in the paediatric emergency department: current practice and perceived needs in Australia and New Zealand. Emerg Med Australas 2009;21:479–83.
13. Committee on Quality of Health Care in America – Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. 2001.
14. Committee on Pediatric Emergency Medicine American Academy of Pediatrics, Krug SE, Frush K. Patient safety in the pediatric emergency care setting. Pediatrics 2007;120:1367–75.
15. Zebuhr C, Sutton RM, Morrison W, et al. Evaluation of quantitative debriefing after pediatric cardiac arrest. Resuscitation 2012;83:1124–8.
16. 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.
17. Scherer LA, Chang MC, Meredith JW, Battistella FD. Videotape review leads to rapid and sustained learning. Am J Surg 2003;185:516–20.
18. Salas E, Klein C, King H, et al. Debriefing medical teams: 12 evidence-based best practices and tips. Jt Comm J Qual Patient Saf 2008;34:518–27.
19. Texas Health and Safety Code Title 2. Health Subtitle H. Public Health Provisions, Ch.161.; 2012.
20. Texas Statutes – Section 160.007: Confidentiality Relating to Medical Peer Review Committee, 2012.
21. Kyle R, Clinical Simulation: MW. Operations, engineering, and management. Burlington, MA, USA: Academic Press; 2007.
22. American Heart Association (AHA): Structured and Supported Debriefing Course. <http://www.heart.org/HEARTORG/CPRAndECC/InstructorNetwork/InstructorResources/Structured-and-Supported-Debriefing-Course_UCM_304285_Article.jsp>; 2012 [accessed 13.09.12].
23. Pope C, Mays N. Qualitative research in health care. Malden, MA: Blackwell Pub./BMJ Books; 2006.
24. Cooper S, Cant R, Porter J, et al. Rating medical emergency teamwork performance: development of the Team Emergency Assessment Measure (TEAM). Resuscitation 2010;81:446–52.
25. Serwint JR. One method of coping: resident debriefing after the death of a patient. J Pediatr 2004;145:229–34.
26. Baverstock A, Finlay F. Specialist registrars' emotional responses to a patient's death. Arch Dis Child 2006;91:774–6.
27. Kilner E, Sheppard LA. The role of teamwork and communication in the emergency department: a systematic review. Int Emerg Nurs 2010;18:127–37.
28. Eppich WJ, Brannen M, Hunt EA. Team training: implications for emergency and critical care pediatrics. Curr Opin Pediatr 2008;20:255–60.
29. Hicks CM, Bandiera GW, Denny CJ. Building a simulation-based crisis resource management course for emergency medicine, phase 1: results from an interdisciplinary needs assessment survey. Acad Emerg Med 2008;15:1136–43.
30. Pruitt CM, Liebelt EL. Enhancing patient safety in the pediatric emergency department: teams, communication, and lessons from crew resource management. Pediatr Emerg Care 2010;26:942–8, quiz 949–51.
31. Perkins GD, Davies RP, Quinton S, et al. Quality of CPR project collaborators, the effect of real-time CPR feedback and post event debriefing on patient and processes focused outcomes: a cohort study: trial protocol. Scand J Trauma Resusc Emerg Med 2011;19:58.
32. Harris F. Immediate post-event debriefing improves multiple aspects of response to codes and increases staff satisfaction: Agency for Healthcare Research and Quality – Service Delivery Innovation Profile. <http://innovations.ahrq.gov/content.aspx?id=3053>; 2011 [accessed 13.09.12].
33. Burns C, Harm NJ. Emergency nurses' perceptions of critical incidents and stress debriefing. J Emerg Nurs 1993;19:431–6.