

# Debriefing Techniques Utilized in Medical Simulation

## Authors

Kamal Abulebda<sup>1</sup>; Marc Auerbach; Faten Limaïem<sup>2</sup>.

## Affiliations

<sup>1</sup> Riley Hospital for Children at IU Health

<sup>2</sup> University of Tunis El Manar, Tunis Faculty of Medicine

Last Update: September 26, 2022.

## Introduction

Simulation-based education (SBE), when used under the right conditions, correlates with significant effects on knowledge, skills, and behaviors and moderate effects for patient-related outcomes. Post simulation debriefing is one of the most effective components of SBE and the cornerstone of the learning experience in the medical simulation setting.[1][2] Debriefing is the intentional discussion following the simulation experience that allows participants to gain a clear understanding of their actions and thoughts process to promote learning outcomes and enhance future clinical performance.[2][3] It allows faculty and learners to reexamine the simulated case experience, share their mental model, and foster the reasoning behind their clinical judgment. Kolb's experiential learning cycle involves a concrete experience—simulation, followed by observation and reflection on that experience through debriefing.[4][5] Experiential learning theory suggests that this leads to the formation of abstract concepts and generalizations, which are then used to test the hypothesis in future situations, resulting in subsequent new concrete experiences. The reflective process of debriefing is a cornerstone of the experiential learning theory.[1][4]

Training facilitators in debriefing techniques is critical to ensure effective debriefing among simulation faculty.[6] Historically, the provision of formal debriefing training has been through a variety of faculty development programs that include simulation instructor training courses, conference-associated workshops, textbook readings, and online modules. Recently several advanced simulation post-graduate degrees and fellowship programs have been developed.[6] Many simulation educators “learn by doing” and using adjunctive tools and debriefing methods to help guide them throughout the process. Peer teaching can be helpful in providing debriefing of the debriefer if multiple facilitators are available for simulation. There is a growing body of literature describing the characteristics of effective debriefing models and the utility of different debriefing techniques in the context of medical simulation.[7][8][9]

With the vast amount of published literature regarding debriefing, it may be challenging for simulation educators to gain an overarching understanding of various techniques and methods. This article briefly summarizes the most common debriefing methods and techniques. Additionally, it highlights the prevailing rules and essentials of effective debriefing.

## Function

### Common Rules and Essentials of Effective Debriefing

In the healthcare arena, multiple techniques and models of debriefing have been proposed and utilized, but a gold standard debriefing technique remains as yet unidentified.[10] Despite the diversity of debriefing techniques and frameworks, the majority involve similar “essential” elements described by Cheng (Table 1). These essential elements are to ensure the safety and efficacy of the debriefing environment regardless of the debriefing setting, the reason for debriefing or debriefing technique used[3]

### Table 1: Essential Elements of Debriefing and its Characteristics

## 1. Ensuring psychosocial safety

- “Behave or perform without fear of negative consequences to self-image, social standing, or career trajectory.”
- Essential to optimize learning outcomes by providing a supportive climate
- Should be conducted during the pre-simulation briefing and then during the debriefing

## 2. Having a debriefing stance or “basic assumption,”

- Predefined basic assumption statement, “We believe that everyone participating in this simulation is intelligent, capable, cares about doing their best, and wants to improve.”

## 3. Establishing debriefing rules

- A basic set of rules for debriefing among participants
- Confidential discussion
- Encourage all learners to participate actively

## 4. Establishing a shared mental model

- Review the event details with input from the facilitator

## 5. Addressing Key Learning Objectives

- Incorporate and analyze clear learning objectives during debriefing

## 6. Using open-ended questions

- Helps facilitate discussion and foster reflection
- Avoid close-ended or (yes/no) questions

## 7. Using silence

- A brief period of silence after a facilitator asks a question
- Promote an internal process within the debriefing learner’s mind
- Allows learners to formulate their thoughts and analyze their mental frames

## Issues of Concern

### Debriefing Techniques in the Simulation Literature

The science and the art of SBE debriefing have rapidly evolved with the exponential growth of SBE over the last two decades. There are descriptions of several diverse models.[10] Despite that the core of the debriefing process centers on the reflection part of the simulated exercise, there are usually phases that allow this to happen in a structured manner. Many debriefing techniques run naturally through three main phases: reaction/description, analysis/understanding, and application/summary, as listed in table 2.

### Table 2: Common Phases of the Debriefing Process

#### PHASES

##### 1. Reaction/Description

- Time for learners to diffuse and decompress "blow off steam."
- Open-ended questions about how learners feel?
- Review the facts of the event

## 2. Understanding/Analysis

- Preview topics/learning objectives
- Explore, discuss, inquire
- What happened? Why did it happen?

## 3. Application/Summary

- "Take-home messages."
- Apply learning experience to a future encounter
- Allow for learners questions

However, sometimes debriefings move out of their traditional format based on many factors, including the complexity of the scenario, learners' experience, amount of time allotted for the simulation exercise, number of facilitators, or debriefing skills of the facilitator. To date, there is no evidence supporting one debriefing technique over another, leaving space for educators in the simulation programs in healthcare to adopt their own debriefing techniques based on the factors above.

A facilitator-guided post-event debriefing involves a "debrief(er)s" facilitating a discussion after a simulation event. The role of the facilitator could also be to act as a guide before the simulation (pre-briefing) and during the simulation. The facilitator directs and/or redirects the discussion when needed, and ensures that learning objectives get discussed and that the debriefing process is flowing smoothly. The facilitator should position themselves as co-learners and not as a traditional "teacher." [1][10] The level of facilitation and the degree to which the facilitator is involved in the debriefing process depends on many factors like the complexity of the scenario, allotted time and levels, and of learners (novice vs. experienced) or learners' personality traits (difficult vs. quite vs. defensive vs. others). This article provides a list of described techniques and tools for debriefing and delineates significant differences and similarities between these techniques when conducting debriefing in the simulated setting. The detailed aspects of the role of the facilitator in the debriefing process are beyond the scope of this article

### Common Debriefing Techniques

In a recent review article, Cheng et al. emphasized that almost all debriefing methods are likely effective if used appropriately by well-trained facilitators. Additionally, a specific debriefing method or technique becomes less important than the simple act of debriefing the act itself.[10] Given the nature of this article, we did not necessarily attempt to quantify different debriefing techniques or grade the level of evidence; instead, we are providing educators and facilitators with a "toolkit" for debriefing that they can choose from depending on their skillset and preference, learning environment, and contexts. These debriefing techniques appear summarized in graph 1.

- **Plus-Delta**

One of the most straightforward models among debriefing techniques involves using two columns, where the plus column (+) refers to good behaviors or actions, while delta refers to behaviors or actions that need improvement or change in the future. This technique allows learners to participate in the discussion and easily utilizable by novice debriefers.[7][9]

- **Three-Phase Debriefing Technique**

Many "3-phase" techniques have undergone development for use in debriefing. Rudolph et al. described a model of debriefing called "Debriefing with Good Judgment," where the debriefing session is composed of reaction, analysis, and summary (RAS)[11]. The reaction phase allows exploring participants' responses and defusing following the simulation event.

A common question during this phase is "how did that feel?" which allows the facilitator to hear initial reactions, and validate emotional responses, and take notes for the next phase of debriefing. The analysis focuses on understanding what, why, and how actions evolved during the scenario. It allows both the facilitator and the learners to investigate the gaps noted during the scenario, understand the rationale behind it, and work together toward closing the gap and reflective discussion. A common theme applied during this phase is the advocacy inquiry, where the debriefer tries to unveil the learner's frames. Lastly, the summary phase focuses on lessons learned during the analysis phase and prepares "take away" points by learners. Other similar 3-phase techniques have been described by different educators, including the **3D model** (defusing, discovery and deepening), **GAS** (gather, analyze and summarize), and the **Diamond** debriefing that includes description, analysis, and application.[8][12][13]

- **Multiphase Debriefing Techniques**

There are proposals for several "multiphase" debriefing techniques have been proposed with additional phases added to allow focus on key themes of debriefing and support the debriefing conversation.

### **Promoting Excellence And Reflective Learning in Simulation (PEARL)**

A blended 4-phase debriefing framework, where three phases are based on the same framework as RAS, with an additional descriptive phase to summarize key events encountered during the scenario and ensure a shared mental model between the facilitator and learners.[7] This tool has explicit debriefing steps with possible wording choices facilitators can use, making it an easy-to-implement debriefing tool.

### **Team-Guided team self-correction, Advocacy-Inquiry, and Systemic-constructivist**

#### **(TeamGAINS)**

A 6-phases hybrid debriefing technique for team training in simulated events that integrates three major key approaches: guided team self-correction, advocacy-inquiry and systemic-constructivist techniques.[14]

### **The healthcare simulation after-action review (AAR)**

This method is a multiphase debriefing technique based on the US Army's After-Action Review (AAR). This tool has used US Army and civilian organizations for decades. This tool includes seven sequential steps and has been proposed to be used in the healthcare setting following simulation events. This structured format focuses on addressing learning objectives and performance and can provide even novice debriefers with a framework to conduct a concise and effective debriefing[9].

Graph 1: Different debriefing techniques utilized in medical simulation

### **Other Adjuncts and Tools in the Debriefing Process**

Given that the skills of the facilitator conducting debriefing are of paramount importance, a variety of faculty development activities for training in debriefing have been described (workshops, webinars, full-day courses, or longitudinal programs). To date, there is no robust evidence regarding the best structure or format of these activities, making the potential of these methods unfulfilled.[1][15] Various debriefing adjuncts have been identified in the literature to help facilitators conducting the debriefing session and promoting the learning environment. Chang et al. published three major adjuncts that facilitators and educators in the simulated setting can utilize (table 3). Additionally, different debriefing online resources have been published and made available for facilitators to foster debriefing

practices and support clinical medical educators.

### **Table 3: Debriefing Adjuncts**

Adjunct

#### **1. Codebriefing**

Benefits

- More than one facilitator involved in conducting the debriefing
- Allows for a large pool of expertise and viewpoint
- Facilitators complement each other style

Challenges

- Facilitators may have different agenda
- Facilitators interrupting each other
- One facilitator's domination of the discussion
- Open disagreement

#### **2. Debriefing Script**

Benefits

- May improve the facilitator's ability to lead the debrief effectively
- May enhance the acquisition of knowledge

#### **3. Video Review**

Benefits

- Helps to facilitate by grounding the discussion using the video as an evidence
- Highlights areas of excellent and poor performance

Challenges

- No evidence of its benefit in enhancing educational outcomes when compared to debriefing without video

### **Clinical Significance**

Debriefing serves as a powerful tool and a robust educational technique in medical education. The widespread use of debriefing in simulation programs has correlated with enhanced team performance and improved behavioral and technical skills of providers in simulated settings. The use of debriefing following clinical events has evolved in the last two decades and has improved clinical performance and patient care.<sup>[4][16]</sup> Promising research studies demonstrated the utility of post-clinical event debriefing in the acute care setting, particularly in the emergency department and the intensive care setting in the context of rare and stressful events like cardiac arrest.<sup>[17][18][19][20]</sup> More specifically, post-cardiac arrest resuscitation debriefings have correlated with improved compliance with resuscitation guidelines and patient survival and neurologic outcomes.<sup>[20]</sup> The American Heart Association (AHA) endorses debriefing as a modality to improve the quality of cardiopulmonary resuscitation.

The two common formats of debriefing following clinical events are hot (immediately, minutes, or hours after the event) and cold (days to weeks after the event). Hot debriefing usually relies on participants memories and thoughts processes to discuss the clinical event and incorporates the format of “qualitative” debriefing to assess and address urgent issues following the event, while cold debriefing incorporates the format of “quantitative” debriefing with a collection of quantitative data and follow-up patient information to enhance quality improvement opportunities and system improvement.[16][17][18]

## Conclusion

Debriefing is the cornerstone of effective simulation-based medical education. While the evidence-based gold standard debriefing technique is yet to be determined, most of these debriefing techniques are likely effective if utilized appropriately by educators and facilitators.

## Enhancing Healthcare Team Outcomes

Simulation debriefing can improve performance across many different medical disciplines, including clinicians, nursing, pharmacists, and even other allied healthcare providers. All members of the healthcare team involved in simulation and debriefing must have open communication channels to provide optimal feedback to the learners, so they can focus on areas for improvement and replicate their strengths in the future.

## Review Questions

- [Access free multiple choice questions on this topic.](#)
- [Comment on this article.](#)

## References

1. Fanning RM, Gaba DM. The role of debriefing in simulation-based learning. *Simul Healthc.* 2007 Summer;2(2):115-25. [PubMed: 19088616]
2. Dieckmann P, Molin Friis S, Lippert A, Ostergaard D. The art and science of debriefing in simulation: Ideal and practice. *Med Teach.* 2009 Jul;31(7):e287-94. [PubMed: 19811136]
3. Gardner R. Introduction to debriefing. *Semin Perinatol.* 2013 Jun;37(3):166-74. [PubMed: 23721773]
4. Sawyer T, Loren D, Halamek LP. Post-event debriefings during neonatal care: why are we not doing them, and how can we start? *J Perinatol.* 2016 Jun;36(6):415-9. [PubMed: 27031321]
5. Chmil JV, Turk M, Adamson K, Larew C. Effects of an Experiential Learning Simulation Design on Clinical Nursing Judgment Development. *Nurse Educ.* 2015 Sep-Oct;40(5):228-32. [PubMed: 25763781]
6. Cheng A, Grant V, Dieckmann P, Arora S, Robinson T, Eppich W. Faculty Development for Simulation Programs: Five Issues for the Future of Debriefing Training. *Simul Healthc.* 2015 Aug;10(4):217-22. [PubMed: 26098492]
7. Bajaj K, Meguerdichian M, Thoma B, Huang S, Eppich W, Cheng A. The PEARLS Healthcare Debriefing Tool. *Acad Med.* 2018 Feb;93(2):336. [PubMed: 29381495]
8. Jaye P, Thomas L, Reedy G. 'The Diamond': a structure for simulation debrief. *Clin Teach.* 2015 Jun;12(3):171-5. [PMC free article: PMC4497353] [PubMed: 26009951]
9. Sawyer TL, Deering S. Adaptation of the US Army's After-Action Review for simulation debriefing in healthcare. *Simul Healthc.* 2013 Dec;8(6):388-97. [PubMed: 24096913]
10. Sawyer T, Eppich W, Brett-Fleegler M, Grant V, Cheng A. More Than One Way to Debrief: A Critical Review of Healthcare Simulation Debriefing Methods. *Simul Healthc.* 2016 Jun;11(3):209-17. [PubMed: 27254527]
11. Rudolph JW, Simon R, Dufresne RL, Raemer DB. There's no such thing as "nonjudgmental" debriefing: a theory and method for debriefing with good judgment. *Simul Healthc.* 2006 Spring;1(1):49-55. [PubMed: 19088574]
12. Zigmont JJ, Kappus LJ, Sudikoff SN. The 3D model of debriefing: defusing, discovering, and deepening. *Semin Perinatol.* 2011 Apr;35(2):52-8. [PubMed: 21440811]
13. Burke H, Mancuso L. Social cognitive theory, metacognition, and simulation learning in nursing education. *J*

Nurs Educ. 2012 Oct;51(10):543-8. [PubMed: 22909039]

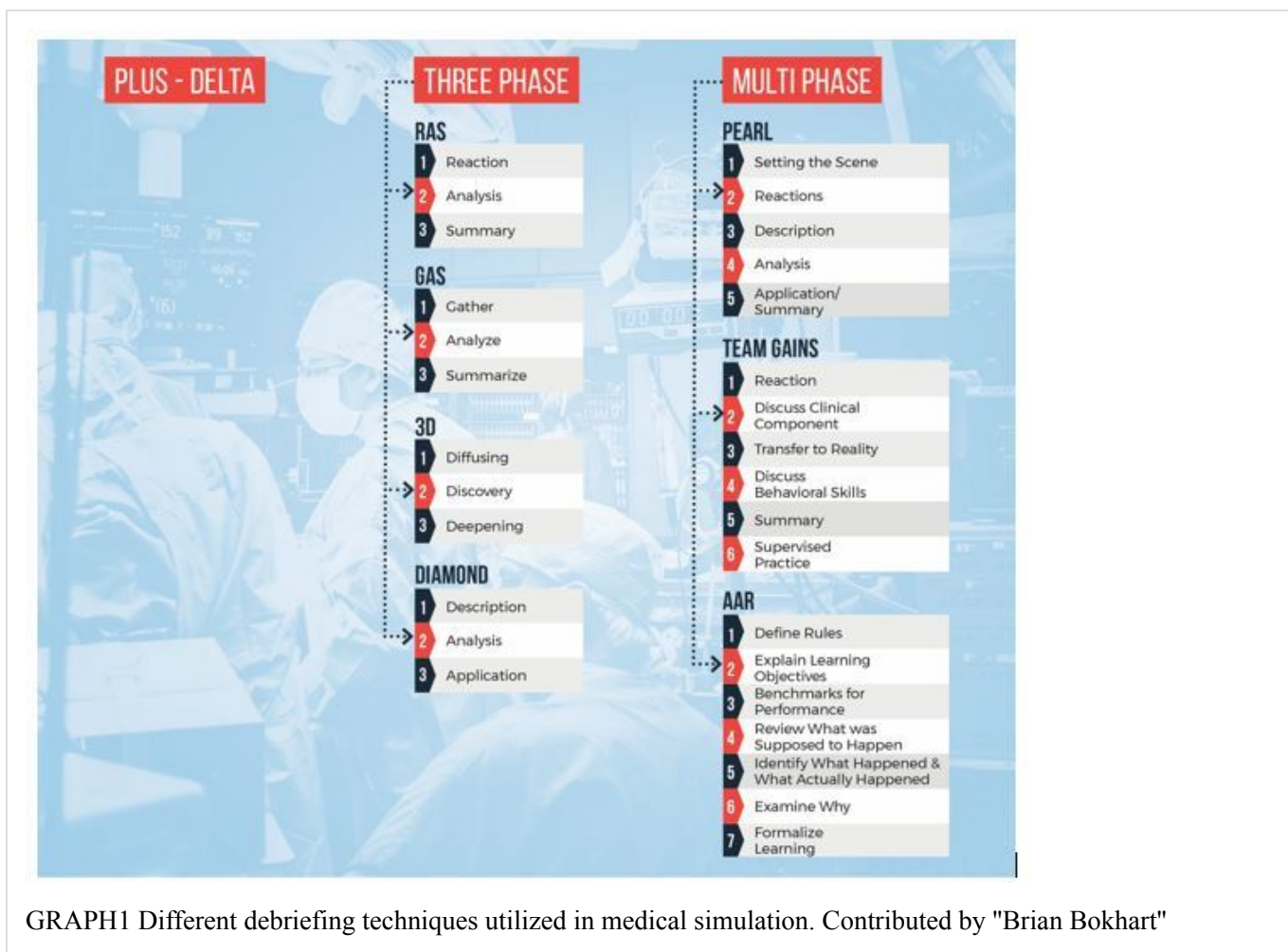
14. Järvisalo J, Saris NE. Action of propranolol on mitochondrial functions--effects on energized ion fluxes in the presence of valinomycin. *Biochem Pharmacol*. 1975 Sep 15;24(18):1701-5. [PubMed: 13]
15. Cheng A, Grant V, Huffman J, Burgess G, Szyld D, Robinson T, Eppich W. Coaching the Debrief: Peer Coaching to Improve Debriefing Quality in Simulation Programs. *Simul Healthc*. 2017 Oct;12(5):319-325. [PubMed: 28538446]
16. Kessler DO, Cheng A, Mullan PC. Debriefing in the emergency department after clinical events: a practical guide. *Ann Emerg Med*. 2015 Jun;65(6):690-8. [PubMed: 25455910]
17. Wolfe H, Zebuhr C, Topjian AA, Nishisaki A, Niles DE, Meaney PA, Boyle L, Giordano RT, Davis D, Priestley M, Apkon M, Berg RA, Nadkarni VM, Sutton RM. Interdisciplinary ICU cardiac arrest debriefing improves survival outcomes\*. *Crit Care Med*. 2014 Jul;42(7):1688-95. [PMC free article: PMC4092119] [PubMed: 24717462]
18. Mullan PC, Wuestner E, Kerr TD, Christopher DP, Patel B. Implementation of an in situ qualitative debriefing tool for resuscitations. *Resuscitation*. 2013 Jul;84(7):946-51. [PubMed: 23266394]
19. Dine CJ, Gersh RE, Leary M, Riegel BJ, Bellini LM, Abella BS. Improving cardiopulmonary resuscitation quality and resuscitation training by combining audiovisual feedback and debriefing. *Crit Care Med*. 2008 Oct;36(10):2817-22. [PubMed: 18766092]
20. Edelson DP, Litzinger B, Arora V, Walsh D, Kim S, Lauderdale DS, Vanden Hoek TL, Becker LB, Abella BS. Improving in-hospital cardiac arrest process and outcomes with performance debriefing. *Arch Intern Med*. 2008 May 26;168(10):1063-9. [PubMed: 18504334]

**Disclosure:** Kamal Abulebda declares no relevant financial relationships with ineligible companies.

**Disclosure:** Marc Auerbach declares no relevant financial relationships with ineligible companies.

**Disclosure:** Faten Limaiei declares no relevant financial relationships with ineligible companies.

## Figures



Copyright © 2023, StatPearls Publishing LLC.

This book is distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits others to distribute the work, provided that the article is not altered or used commercially. You are not required to obtain permission to distribute this article, provided that you credit the author and journal.

Bookshelf ID: NBK546660 PMID: 31536266