



The Role of Simulation-Based Event Analysis in Error Detection and Error Prevention Developed Strategies for Interdisciplinary Acute Care Research

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Every day, professionals in acute care settings are at the forefront of patient safety, ensuring that errors in these settings are either prevented or identified and managed. Errors in the clinical process can lead to serious adverse events (AEs). Adverse events are negative outcomes of healthcare that result in unintended injury or illness that may lead to prolonged hospitalization, readmission, disability, or death [1].

Root cause analysis (RCA) is a common method for examining AEs using a systematic approach by a team of healthcare expert clinicians and quality improvement leaders to retrospectively determine what happened, why it might have occurred, and how to prevent recurrence [2].

Despite the widespread use of RSA in the literature, some challenges have been presented for this method, making its use less effective for studies that aim to identify errors and provide strategies to prevent future errors in interdisciplinary acute care studies. Among other things, most ARs are performed incorrectly and often inappropriately place overemphasis on detecting a single key error [3], which, given the multifaceted

nature of acute care unit activities, cannot be the cause of adverse events due to a single key error.

Accordingly, limited studies have pointed to the role of simulation in improving the RCA process [4,5], and the gap in its application in interdisciplinary acute care studies is strongly felt. Lobos et al. presented a simulation-based event analysis (SBEA) protocol to address the limitations of the RCA process. The SBEA systematically reviews AEs by recreating them using in situ simulated patients to understand staff decision making, improve error detection, and, through guided sequential debriefing, recommend interventions for error prevention [4].

In conclusion, using simulation and debriefing in event analysis can help identify multiple underlying causes of teamwork errors, latent risks, and more specifically, system errors in acute care settings more effectively than traditional RCA.

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The statements and opinions contained in this editorial are solely those of the Editor in Chief.

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References

1. Leape LL, Brennan TA, Laird N, et al. The nature of adverse events in hospitalized patients. Results of the Harvard Medical Practice Study II. The New England Journal of Medicine. 1991;324(6):377–384.
2. Driesen BEJM, Baartmans M, Merten H, Otten R, Walker C, Nanayakkara PWB, Wagner C. Root Cause Analysis Using the Prevention and Recovery Information System for Monitoring and Analysis Method in Healthcare Facilities: A Systematic Literature Review. Journal of patient safety. 2022 Jun 1;18(4):342-350. <https://doi.org/10.1097/PTS.0000000000000925>
3. Wu AW, Lipshutz AK, Pronovost PJ. Effectiveness and efficiency of root cause analysis in medicine. JAMA. 2008 Feb 13;299(6):685-7. <https://doi.org/10.1001/jama.299.6.685>
4. Lobos AT, Ward N, Farion KJ, et al. Simulation-based event analysis improves error discovery and generates improved strategies for error prevention. Simulation in healthcare 2019;14(4):209–216. <https://doi.org/10.1097/SIH.0000000000000372>
5. Langevin M, Ward N, Fitzgibbons C, Ramsay C, Hogue M, Lobos AT. Improving Safety Recommendations Before Implementation: A Simulation-Based Event Analysis to Optimize Interventions Designed to Prevent Recurrence of Adverse Events. Simulation in healthcare. 2022 Feb 1;17(1):e51-e58. <https://doi.org/10.1097/SIH.0000000000000585>