

# ***In Situ* Simulation: Challenges and Results**

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## **Abstract**

*In situ* simulation, simulation that is physically integrated into the clinical environment, provides a method to improve reliability and safety in high-risk areas. Deliberate practice and integration of teamwork skills in the time-pressured clinical environment provides great realism and is a rich resource to identify latent threats and system issues that can compromise patient safety. However, powerful cultural and logistic challenges impede implementation of this practice. Issues related to culture, performance anxiety, time pressures, and patient perceptions that can interfere with successful implementation of *in situ* simulation are explored. The experiences and lessons learned during implementation of three pilot *in situ* programs are reviewed. Qualitative data, including feedback from health care providers and patients on the value and concerns related to this practice, are presented. Lessons learned provide guidance that is intended to increase the future success and implementation of *in situ* simulation.

## **Introduction**

Human patient simulators are currently utilized in a number of medical settings. Although available simulators do not reproduce the critically ill patient in his/her entirety, they do represent a giant leap forward from static mannequins. In addition, standardized scenarios that exert real-time pressure are easily developed. Anesthesia, critical care, and trauma teams have employed simulation training with a positive effect on procedural and cognitive skills in the simulated setting.<sup>1-3</sup> This intervention also combines the opportunity to practice technical and teamwork/behavioral skills.

The pediatric human patient simulator creates a realistic experience for the learner and increases the likelihood that the training experience accurately reflects the clinical environment. The realism of clinical simulations with human patient simulators makes it an extremely valuable tool in a curriculum based on experiential learning. It appears that human patient simulation is effective in developing the cognitive, procedural, communication, and teamwork skills that can improve patient safety.<sup>4-5</sup> However, while performance is clearly enhanced in the simulated setting, there is little information available on the translation of these skills to the actual patient care environment.

*In situ* simulation has evolved as a particular form of simulation, distinct from simulation that is conducted in a simulation center. *In situ* simulation may be defined as, "Simulations that occur in the actual clinical environment and whose participants are on-duty clinical providers during their actual workday." An alternative definition would define *in situ* simulation as, "Simulation that

# In Situ Simulation Challenges And Results

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## **In Situ Simulation Challenges And Results:**

**Defining Excellence in Simulation Programs** Juli C Maxworthy, Janice C Palaganas, Chad A Epps, Mary Elizabeth (Beth) Mancini, 2022-02-22 Raise your simulation programs to new heights with the fully updated *Defining Excellence in Simulation Programs* 2nd edition An official publication of the Society for Simulation in Healthcare this fully illustrated guide speaks to the needs of all healthcare professionals using simulation for education assessment and research Offering best practices for a wide variety of programs it addresses all areas of program management from staffing funding and equipment to education models Whether you are new to running a simulation program developing a program or studying simulation this is your key to creating cost effective research based programs *Defining Excellence in Simulation Programs* Janice C. Palaganas, Juli C. Maxworthy, Chad A. Epps, Mary E. Mancini, 2014-10-07 An Official Publication of the Society for Simulation in Healthcare *Defining Excellence in Simulation Programs* aims to meet the needs of healthcare practitioners using simulation techniques for education assessment and research Increasingly simulation is an integral part of teaching and training programs in healthcare settings around the world Simulation models including virtual simulation scenario based simulation with actors and computerized mannequins contributes to improved performance and reduced errors in patient care This text establishes working definitions and benchmarks for the field of simulation and defines the types of simulation programs while also covering program leadership funding staffing equipment and education models It provides knowledge critical to the success of simulation program management simulation educators and simulation researchers Written to appeal to the novice to advanced beginner a special section in each chapter is directed to the competent to expert programs managers educators and researchers so that this text truly can serve as the comprehensive reference for anyone in simulation

**Quality Management in Intensive Care** Bertrand Guidet, Andreas Valentin, Hans Flaatten, 2016-02-15 This book is one of the first to comprehensively summarise the latest thinking and research in the rapidly evolving field of quality management in intensive care Quality indicators and outcome measures are discussed with a practical focus on patient centred evidence based implementation for safer and more effective clinical practice Chapters on topics such as teambuilding patient satisfaction mortality and morbidity and electronic management systems are organised into three sections covering quality management at the scale of the individual patient the intensive care unit and the national and international level Written by a team of over forty international experts in the specialty with editors who have been heavily involved for many years with the European Society of Intensive Care Medicine the book reflects commonly accepted goals and guidelines for best practice and will be valuable for practitioners worldwide The ideal one stop resource for intensive care physicians as well as ICU and hospital managers

**Comprehensive Healthcare Simulation: Pediatrics** Vincent J. Grant, Adam Cheng, 2016-06-15 This is a practical guide to the use of simulation in pediatric training and evaluation including all subspecialty areas It covers scenario building debriefing and feedback and it discusses the use of simulation for different

purposes education crisis resource management and interdisciplinary team training competency assessment patient safety and systems integration Readers are introduced to the different simulation modalities and technologies and guided on the use of simulation with a variety of learners including medical students residents practicing pediatricians and health related professionals Separate chapters on each pediatric subspecialty provide practical advice and strategies to allow readers to integrate simulation into existing curriculum Pediatric subspecialties covered include General Pediatrics Pediatric Emergency Medicine and Trauma Neonatology Pediatric Critical Care Medicine Transport Medicine Pediatric Anesthesia and Pediatric Surgery amongst many others Comprehensive Healthcare Simulation PEDIATRICS Edition is a volume in the series Comprehensive Healthcare Simulation The series is designed to complement Levine et al eds The Comprehensive Textbook of Healthcare Simulation by providing short focused volumes on the use of simulation in a single specialty or on a specific simulation topic and emphasizing practical considerations and guidance

**Hung's Management of the Difficult and Failed Airway, Fourth Edition** Orlando Hung, Michael F. Murphy, 2023-10-06 A full color case based guide to effectively managing airway difficulties updated to reflect the latest guidelines devices and techniques Written by the creators of the Difficult Airway Course Anesthesia™ and presented in full color this trusted resource covers the latest guidelines leading edge principles tools and procedures of airway assessment and management Multidisciplinary in scope the book encompasses the key areas of anesthesia hospitalists intensivists emergency medicine and paramedicine Updated and revised this fourth edition includes the most current review available of the many innovations that been introduced since publication of the previous edition This is accompanied by a thorough review of the pharmacology of airway management designed to help you understand how to achieve the desired effects on ventilation and muscle strength You ll find expert advice and strategies for treating patients in a range of settings from pre hospital care to the ER as well as proven techniques for special patient populations Hung s Management of the Difficult and Failed Airway Fourth Edition features Skill building case based approach that highlights that the right tools and techniques Comprehensive review of the difficult or failed airway Chapter ending questions that reinforce learning and allow you to assess your knowledge Dozens of airway management vignettes covering the intensive care unit operating room pediatric population emergency room and more New 15 additional chapters New Coverage on managing COVID 19 patients New Content focused on standard of care in a global crisis in critical care Full color illustrations

**Fetal and Neonatal Surgery and Medicine** Timothy M. Crombleholme, Foong-Yen Lim, Jose L. Peiro, Lynn Simpson, Natalie E. Rintoul, 2024-03-22 From prenatal diagnosis through neonatal surgery and beyond a multidisciplinary resource for an evolving specialty Fetal and Neonatal Surgery and Medicine is a comprehensive resource for all clinicians who care for fetal and neonatal patients Focusing on the continuum of care from prenatal diagnosis through the neonatal period and beyond the text guides specialists who deliver care to patients before and after delivery and offers invaluable insights to equip those counseling parents faced with a fetal anomaly Part I

focuses on prenatal diagnosis and diagnostic techniques Part II spotlights fetal intervention and surgical techniques Part III concentrates special considerations in the fetus and neonate and Part IV covers the full range of fetal and neonatal anomalies Chapters are heavily illustrated to help the reader visualize what the chapter discusses Features Ideal for general pediatric surgeons neonatologists radiologists geneticists advanced practice nurses and residents and fellows Structured for quick access with at a glance chapter highlights Divided into prenatal diagnosis and diagnostic techniques and fetal intervention and fetal surgical techniques and fetal care and neonatal care Hundreds of ultrasound images MRI images fetal echocardiograms and surgical photographs

*The Journal of Canadian Petroleum Technology* ,2009    *Special Issue on Salinity* ,2008    SciDAC 2007 ,2007    **International Integrated Reliability Workshop Final Report** ,2004

**Materials Research and Standards** ,1969    **Technical News Bulletin** ,1968    **AIAA Bulletin** ,1970

**Multi-agent and Multi-agent-based Simulation** ,2004    **Calibrated Network Measurement** Joel Edward Sommers,2007    *Technical News Bulletin* United States. National Bureau of Standards,1967    **Orebody Modelling and Strategic Mine Planning** Roussos Dimitrakopoulos,2005    Chemical Abstracts ,1994-03-07    *Ocean Challenge* ,2000

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