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Simulation and debriefing in neonatology 2016: Mission incomplete

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ABSTRACT

Simulation can be an effective tool to facilitate the acquisition and maintenance of the cognitive, technical and behavioral skills necessary to carry out our mission in neonatology: the delivery of safe, effective and efficient care to our patients. Prominent examples of successful implementation of simulation within neonatology include the Neonatal Resuscitation Program, the International Pediatric Simulation Society, and the International Network for Simulation-Based Pediatric Innovation, Research and Education. Despite these successes much remains to be accomplished. Expanding simulation beyond technical skill acquisition, using simulated environments to conduct research into human and system performance, incorporating simulation into high-stakes skill assessments, embracing the expertise of the more extensive modeling and simulation community and, in general, applying simulation to healthcare with the same degree of gravitas with which it is deployed in other high-risk industries are all tasks that must be completed in order to achieve our mission.

Our mission

During the past 20 years simulation has taken a place at the table of learning methodologies utilized in healthcare. Numerous "simulation centers" are now in operation around the United States and the world, some freestanding, most in association with hospitals or healthcare professions schools. Companies, large and small, develop and market tools for use by those utilizing simulation. There are even professional societies, international meetings, and journals devoted to simulation in healthcare. While much has been said and written on this topic, it is important to remember that simulation and debriefing are, in essence, practice and coaching. Practice and coaching have been utilized successfully by human beings to prepare for difficult tasks for literally thousands of years. Thus, there is no reason to debate whether practicing doing the right thing under realistic circumstances has the potential to improve human and system performance. There is also no reason to dispute the fact that healthcare (neonatology included), as a relative newcomer to simulation, lags behind other fields in the effective use of simulation and debriefing.

Our mission in neonatology is to deliver safe, effective and efficient care to our patients. Simulation and debriefing, when done well, can help us achieve this mission. So what have we done well so far? And what remains to be done in order to achieve our stated mission?

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Mission rules for effective simulation and debriefing in neonatology

There are a few indispensable "mission rules" (Table 1) that should be followed when implementing simulation.

- The key to conducting a successful full-scale, complex simulation is to engender the same response to the simulated clinical scenario by the trainees as they would exhibit in the actual hospital, clinic, or office environment when caring for real patients. This is simulation's raison d'etre. When trainees respond in this manner, they are able to both (a) identify their strengths, and thereby understand what skills lead to successful human performance and, even more importantly, (b) recognize their weaknesses and develop strategies to remediate them before they become manifest during the care of real patients.[1]
- Debriefings should be focused on the actions of the individual learner, how those actions contributed to the performance of the team, and ultimately how team performance influenced the care of the patient. By taking a professional, business-like, matter-of-fact approach the leader(s) of a technical performance debriefing exemplifies the appropriate level of gravitas that should be given to an activity that prepares professionals to save lives. It should always be remembered that technical performance debriefings (what happened and why) and critical incident stress debriefings (how did you feel about what happened) have distinctly different objectives and no attempt should be made to conduct them simultaneously.[2–7]
- Both simulated and real clinical events should be debriefed; however, the approach to debriefing simulated and real clinical events is different in several ways.[8] Real clinical events in neonatology are often characterized by intense time pressure; the same is true of the debriefings of those events. Rarely do the healthcare professionals working in the NICU have an unlimited amount of time to debrief every aspect of a real patient care event before needing to return to caring for other critically ill neonates. Therefore the need to be precise, concise and focused on the facts is critically important. Neonatal resuscitation and neonatal intensive care are characterized by high-risk to human life and are often the subjects of legal action. Because of this inherent liability, all discussions regarding actual clinical events should be conducted in a manner that not only promotes open, frank discussion of the strengths and weaknesses in human and system performance but also guarantees that the content of such discussions is not discoverable in a court of law. Consultation with a hospital's risk management team to determine how to ensure that the same degree of confidentiality is provided to debriefings as is afforded to the more traditional mortality and morbidity conferences is mandatory.

Mission successes

Neonatology has long been one of the leaders in the implementation of simulation-based training in healthcare. The first article describing comprehensive simulation-based team training and debriefing in pediatrics was published in 2000; its focus was neonatal resuscitation.[9] This work served as the basis for the evolution of the Neonatal Resuscitation Program (NRP) of the American Academy of Pediatrics (AAP) from a training program characterized by lectures and skills stations to one that embraces simulation-based team training and objective debriefings.[10,11] NRP was the first comprehensive training program in resuscitation to incorporate simulation and debriefing into its curriculum, paving the way for similar developments within the Pediatric Advanced Life Support (PALS), Advanced Cardiac Life Support (ACLS), and Advanced Pediatric Life Support (APLS) programs.[12] In order to implement simulation-based training in a manner that meets the needs of the many healthcare professionals who regularly participate in NRP, neonatal patient simulators capable of facilitating acquisition of the cognitive, technical, and behavioral skills necessary for successful neonatal resuscitation are necessary. The AAP was the first professional body to actually direct industry in its development of human patient simulators rather than simply attempting to incorporate industry's products into its training programs. By determining the anatomic and physiologic characteristics required to achieve the NRP's learning objectives and closely collaborating with industry in the development and engineering of a simulator that accurately exhibits those characteristics, the NRP has ensured that realistic full-term and pre-term human neonatal patient simulators are now available.

Many neonatologists belong to the International Pediatric Simulation Society (IPSS).[13] IPSS was founded to promote and support inter-professional pediatric simulation-based education, training, and research. In addition, many neonatologists also belong to the International Network for Simulation-Based Pediatric Innovation, Research and Education (INSPIRE),

Table 1 – Mission rules for simulation and debriefing in neonatology.

Engender the same response in trainees to the simulated clinical scenario as they would exhibit in the actual hospital, clinic or office environment when caring for real patients.
Focus debriefings on the actions of the individual learner, how those actions contributed to the performance of the team, and how team performance influenced the care of the patient.
Do not attempt to conduct technical performance debriefings (what happened and why) and critical incident stress debriefings (how did you feel about what happened) simultaneously.
When debriefing real clinical events be cognizant of the inherent time constraints that exist in the real clinical environment and ensure that the content of the debriefing is not discoverable in a court of law.

Keys to conducting effective simulation and debriefing in neonatology.