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Short Communication

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# Simulation: Changing the professional character of continuing medical education

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## ABSTRACT

Recognizing the limited use of simulation in continuing medical education (CME). The purpose of this account is to support implications for simulation technology in CME using evidence from studies in undergraduate and graduate medical education. After reflecting upon the factors that contributed to simulation's limited use in CME, this paper will inform providers and physicians about the potential and realized benefits of using this technology for life-long learning.

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Continuing medical education (CME) is currently facing a shift because of simulation technology that has a long history of use for education and personnel evaluation in a variety of disciplines and professions. Simulation refers to any system that replicates real-world processes, actions, or behaviors including devices, technologies, computer programs, scenarios, standardized patients, and a host of other methods imitating real-world systems. Use of simulation-based training and technology is fast becoming a vital source of experiential learning in medical education [1]. This increased use of simulation is largely due to advances in mechanical, electronic, imaging, virtual ability [2,3]. The past decade has seen a rapid increase in the number of academic medical centers, hospitals, clinics and federal funding that use simulation techniques to train clinicians in tasks ranging from informing patients of a medical error to performing procedures [4]. Research is beginning to show how widespread medical simulation has become. In 2008, investigators at the Mount Sinai School of Medicine of New York University in New York City surveyed 134 emergency medicine residency programs and found that 91% used some form of simulation in training [4]. Emerging research shows that the simulation is a valuable training tool that can improve patient outcomes. Voelker (2009) in his study reported on 92 residents who received simulation training in central venous catheter (CVC) insertion. The rate of bloodstream infections from catheters decreased during a 32-month period to 0.50/1000 catheter days compared with 3.20/1000 catheter days before the training. Baruk *et.al.* (2009) studied 41 internal medicine residents showing that those who were simulator-trained needed fewer needle passes to insert a CVC and were more confident about their procedural skills compared with the traditional training. One more study showed that residents trained on simulators were more likely to adhere to the advanced cardiac life support protocol than those who received standard training for cardiac arrest patients [5]. A study by Cook *et.al.* (2011) resulted with improved outcomes when compared with no intervention for health care professionals across a range of clinical topics and outcomes.

Despite historical evidence that simulation has been used for medical training for centuries and were a common tool for undergraduate and graduate medical education curricula, the utilization of simulation is still limited in CME [2]. The reasons for its limited use may include physician resistance; fidelity (exactness of duplication), cost, engineering technology and time constraints. Moreover, it has been argued that the gap in applying the simulation technology in CME may stem from a lack of faculty development and curriculum isolation [1].

The potential and realized benefits of using this simulation technology for life-long learning can definitely improve patient outcomes. It should, therefore, be embedded in the fabric of how we do health care. Practicing physicians trained through simulation are more confident and competent about their procedural skills as compared with those who received traditional training. Technology-driven simulation training improves health outcomes across a range of clinical topics with large effects on clinician behaviors. It has also has been successfully introduced into the surgical arena in an effort to augment procedural training. The surgeons are now aware that the old adage, "see one, do one, and teach one" is no longer acceptable for practicing procedures on patients. Moreover, time constraints, high financial cost and falling rates of reimbursement for clinical work have pushed traditional teaching methods outside of the operating room and are no longer counted on. Hence, simulation technology has somewhat captured the global CME market and is deeply committed to reforming the industry for medical professionals.

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