

Simulated learning in medical education improves patient care and outcomes

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The use of simulation techniques in medical education, such as lifelike mannequins and computer systems, results in improved patient care, better outcomes and other benefits, according to a study led by a Loyola University Chicago Stritch School of Medicine researcher.

William C. McGaghie, PhD, and colleagues analyzed 23 medical education studies that measured the effects of simulation-based mastery learning (SBML). A qualitative synthesis of these studies found that SBML improved outcomes in four areas: the educational laboratory, [patient care](#) practices, patient outcomes and collateral effects such as reduced healthcare costs.

SBML "is a powerful educational model that improves clinical skills and has important downstream effects on health and society," McGaghie and colleagues report in the journal *Medical Education*.

McGaghie is director of the Ralph P. Leischner Jr., MD Institute for Medical Education at Loyola University Chicago, Health Sciences Division, and internationally renowned as a medical educator.

Simulation-based medical education involves devices, trained persons, lifelike virtual environments and contrived social situations that mimic real-life professional encounters. Simulations include task trainers, mannequins, multimedia computer systems and standardized patients who are trained to portray real patients' physical symptoms and behaviors.

McGaghie and colleagues performed a qualitative synthesis of 23 SBML studies published between 2006 and 2013. These studies examined the impact of SBML on clinical skills, including management of ICU patients on ventilators; catheter insertion; lumbar puncture (spinal tap); laparoscopic surgery; and communicating with a chronically ill patient about goals of care. Outcomes include improved procedural and communication skills in both simulated settings and the bedside; reduction in complications; reduced hospital length of stay; fewer blood transfusions; fewer ICU admissions; improved quality of surgical care; reduced catheter-associated bloodstream infections; and reduced healthcare costs.

"Simulation-based mastery learning is beginning to produce strong and lasting educational effects when it is implemented, managed and evaluated with thought and rigor," McGaghie and colleagues wrote. "We believe the mastery model, with or without simulation technology, holds great promise to help medical learners to acquire and maintain a broad array of technical, professional and interpersonal skills and competencies. Continued research is needed to endorse or refute this assertion."

In a coda, the authors wrote that implementing SBML as a new paradigm will not be easy. Educational inertia, conventional thinking, financial disincentives and adherence to time-based education schedules are barriers that must be breached before SBML can be adopted in [medical education](#). But these barriers can be overcome, the authors wrote. "We cannot continue to educate 21st century doctors using 19th century technologies."

Provided by Loyola University Health System

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