

Clinical simulation for teaching in health

Simulação clínica para o ensino em saúde

Suzanne Hetzel Campbell¹ 

Today's healthcare professionals face many challenges. Preparing the next generation for these challenges requires innovative and daring new ways of thinking. Globally, healthcare faculty are aging and find themselves in an increasingly complex healthcare system compared to when they were educated. The patient population includes frail elderly, physical comorbidities, and mental health issues to name a few. An explosion of information provides new research and best practice standards, including new pharmaceutical options, complex technological medical treatments, and nursing care must evolve and include a multiprofessional approach. Healthcare professionals recognize the need to collaborate interprofessionally with the multiple allied health professionals emerging, and yet they face challenges daily trying to make this practice a reality. What options exist for education of healthcare students and how can we manage professional development of healthcare faculty to accommodate these changes?

Over the past thirty years, I have been educating nurses and healthcare faculty for the future. As a practitioner myself, I recognize the value of case studies, concrete examples, and practicing skills, whether role-playing in the clinical lab⁽¹⁾ or in a clinical experience with live patients. I began my journey using simulation to teach approximately 15 years ago, and as technology has evolved, faculty have gained increasing skills and best practice standards have been created to make the use of simulation a valuable strategy for teaching healthcare professionals. Let me explain my perception of the what, why, how, and next steps....

What: Simulation is the use of virtual, high-, medium-, or low-fidelity, or simulated/standardized patients to create a fictional but credible situation (scenario) with as much

realism as possible to mimic clinical events healthcare students may encounter⁽²⁾.

Why: With expanding needs for health professionals, the increase in numbers of students results in clinical placement sites unable to keep up with the demands. Also, the increased complexity of patients, shortened hospital stays, and complex health system environments require skill sets beyond a novice healthcare students' capabilities. Thus, practicing the technical and non-technical skills in a safe environment such as a clinical lab with simulation, allows for risk free, hands on learning without patient harm. This also means that students come to the clinical practice site more prepared increasing the safety of the care provided.

How: Students take roles during a scenario, interact with the 'patient' and sometimes their family, and gather information to create a plan of care. For example, the clinical simulation lab with a high-fidelity robotic mannequin can allow for the student to assess heart rate, breathing, pulses, bowel and lung sounds, and talk with the patient about what is going on (faculty respond via microphones that project the voice responding from the mannequin's mouth). The student has access to a chart, physicians' orders, and interprofessional colleagues to manage the situation. The scenarios can range from nausea and vomiting after surgery or critical events such as an asthmatic attack in a teenager, a postpartum hemorrhage, or a cardiac event, varying according to the learning objectives.

Next steps: In order for faculty to integrate simulation into their program, faculty champions who understand the application of theory and have some education around the development, facilitation, debriefing, and evaluation of simulated learning are needed. Choose a theory, create or find a scenario, set up the lab, prepare students, run the scenario,

¹School of Nursing, Faculty of Applied Science, University of British Columbia – Vancouver (BC), Canadá. E-mail: suzanne.campbell@ubc.ca

How to cite this article: Campbell SH. Clinical simulation for teaching in health. Rev. Eletr. Enferm. [Internet]. 2019 [cited: _____];21:57520. Available from: <https://doi.org/10.5216/ree.v21.57250>.

provide feedback and cues during the scenario, debrief with students/faculty/volunteers at the end, and evaluate the scenario for effectiveness, needed changes, and modify – repeat!

Decades of nurse educators' research has identified the importance of experiential learning. Classic models of healthcare education include two key theories: Carper's Ways of Knowing⁽³⁾ and Benner's novice-to-expert⁽⁴⁾ both reflecting the importance of how healthcare practitioners learn and grow as experts over time. Many healthcare educators apply Kolb's Experiential Learning theory⁽⁵⁾, while nurse educators /simulationists have developed their own frameworks to incorporate learning with simulation for healthcare student education. Jefferies / National League for Nursing (NLN) Simulation⁽⁶⁾ and Daley & Campbell's Framework for Simulation Learning⁽⁷⁾ are examples of models that have been designed to guide the development, facilitation, and evaluation of simulation for educating the next generation. Present research is beginning to test these methods compared to more traditional models (e.g. apprentice learning in clinical) to determine the translation of knowledge to behavior change, and overall effects on patient safety⁽⁸⁾.

Recently, the International Nursing Association for Clinical and Simulation Learning (INACSL) developed best practice standards for the integration of simulation learning⁽⁹⁾. The importance of psychological safety for students in the clinical lab environment⁽¹⁰⁾ allows students to practice skills, build confidence, and gain valuable experience critically thinking, therapeutically intervening, and practicing effective communication – both with patients and teams. Positive aspects of the use of simulation are reflected by students enjoyment and learning during the experience, and faculty's growth and positive response to the opportunity to make their teaching come alive! Identifying the pre-brief learning necessary to participate, and debriefing after the simulation experience, are valuable ways that faculty use their expertise to unpack for students the how, why, when, and where of their actions, clinical decision making, and consider different ways to approach the situation in other contexts. The complexity of healthcare is the reality that changing contexts and individual patient situations do not allow for 'textbook' responses in clinical situations. Basic protocols can guide novice practitioners, but overtime, developing their own constructs for clinical decision making is key to becoming expert and reflective practitioners.

To build capacity among healthcare faculty in this key area of innovative teaching with new strategies like simulation, administrative support is of paramount importance. Intention and planning are necessary on the part of administration to integrate experiential learning into healthcare programs curriculum and to expose faculty to appropriate uses of different methods of teaching and

learning. Some examples of innovative teaching methods include: live simulation: with high-fidelity, low-fidelity, or standardized/simulated patients; virtual simulation; virtual reality; and augmented reality, and require faculty champions and education of faculty in these methods.

In addition, we need faculty research with increased rigor to demonstrate what the effect on student mastery of competencies is with these innovative teaching methods. We must go beyond examining faculty and student satisfaction and increased self-confidence with these methods of teaching and measure learning outcomes and behaviour changes. Research connecting the use of simulation to improved patient outcomes, team behavior, protocol development and management needs more rigor as well.

Future goals internationally are to share resources, enhance partnerships, and provide support for healthcare faculty to become champions both in the use of simulation for innovative teaching and learning and in the research examining student outcomes, competency development, and patient outcomes. The INACSL Best Practice StandardsSM are being translated into multiple languages (<https://www.inacsl.org/inacsl-standards-of-best-practice-simulation/translation-of-standards/>) and the use of simulation for pre-licensure healthcare professionals is just the tip of the iceberg. Clinical educators are using simulation for *in-situ* practice of critical events, to maintain practitioners' competencies, and to enhance team performance. There is much potential for the teaching and learning of present and future healthcare practitioners through the use of simulation. Let's enjoy the ride!

REFERENCES

1. Campbell SH. Role-playing: An underutilized tool for teaching students to think, act, and reflect like a nurse. *Clin Simul Nurs*. 2012;8(7):e261-2. <https://doi.org/10.1016/j.ecns.2011.05.001>
2. INACSL Standards Committee. INACSL standards of best practice: simulationSM simulation glossary. *Clin Simul Nurs*. 2016;12(S):S39-S47. <https://doi.org/10.1016/j.ecns.2016.09.012>
3. Carper BA. Fundamental patterns of knowing in nursing. *ANS Adv Nurs Sci*. 1978;1(1),13-24. <https://doi.org/10.1097/00012272-197810000-00004>
4. Benner, P. From novice to expert: Excellence and power in clinical nursing practice. Menlo Park, CA: Addison Wesley. 1984.
5. Kolb DA. *Experiential Learning: Experience as the source of learning and development*. Pearson Education Inc: New Jersey, 2015.
6. Jefferies PR. A framework for designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nurs Educ Perspect*. 2005;26(2):96-103.

7. Daley K, Campbell SH. Framework for simulation learning in nursing education. In: Campbell SH, Daley K (Eds.). *Simulation scenarios for nursing educators: Making it real*. 3rd ed. New York, N.Y.: Springer Publishing Company, Inc.; 2018. p. 13-8.
8. Hayden JK, Smiley RA, Alexander M, Kardong-Edgren S, Jeffries PR. The NCSBN national simulation study: a longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *J Nurs Regul*. 2014;5(2 Suppl):S1-S64.
9. INACSL. Standards of best practice: simulationSM. *Clin Simul Nurs*. 2016;12(S):S48-S50. <https://doi.org/10.1016/j.ecns.2016.10.001>
10. Rudolph JW, Raemer DB, Simon R. Establishing a safe container for learning in simulation: the role of presimulation briefing. *Simul Healthc*. 2014;9(6):339-49. <https://doi.org/10.1097/SIH.000000000000047>

