Chapter 9
Administering Interactive Simulations to Supplement Traditional Clinical Placements

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ABSTRACT

This chapter aims to enhance the ability of healthcare educators to identify learner skill levels, develop and implement an appropriate simulation or scenario-based learning technique, and provide optimal feedback to refine clinical reasoning and decision-making development of the learner. The concept of problem-based learning is outlined and applied to the creation of virtual patient cases to augment clinical experiences for healthcare students amidst the COVID-19 pandemic. Through the use of appropriately targeted learning objectives, case design, and feedback strategies, students will be able to continue their professional and academic development in a post-pandemic landscape.

INTRODUCTION

The landscape of clinical education across all disciplines of healthcare is at a crossroads as the need for clinicians continues to rise while the educational opportunities for face-to-face, hands-on learning diminished in the midst of a pandemic. Despite hope that the world will return to pre-pandemic conditions, the reality is post-pandemic education has already been forever changed. Clinical sites have been forced to drastically alter the number and type of opportunities for healthcare students due to capacity and policy changes secondary to COVID-19. Throughout the pandemic educators in every discipline of healthcare have had to re-imagine ways in which students can still obtain the clinical skills necessary to

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become competent, entry level professionals who can demonstrate critical thinking, clinical reasoning, and sound clinical decision making as healthcare professionals.

The theoretical basis for this chapter stems from evidence regarding simulation and clinical development found within a variety of healthcare educational settings, including nursing, athletic training, physical therapy, and others. There is evidence within the literature of various healthcare fields to support clinical skill development using simulation and telemedicine (Silberman et al, 2016; Winkelmann & Eberman, 2020). These types of techniques also allow for improvements in the self-efficacy of students who participated in these alternative clinical learning techniques (Nicol & Macfarlane, 2006). Furthermore, the ability to move learners from novice to competent healthcare providers using online simulation techniques is well supported (Galloway, 2009). The recent pandemic has forced healthcare educators to become innovative in the delivery of the curriculum while leaning on the current body of knowledge around simulation and online methods of teaching that aim to improve clinical performance. The need for innovation, however, is limited by the financial realities of the post COVID-19 economic impact on higher education. This reality has forced educators to critically consider the financial efficiency of their pedagogical modifications to maximize learner benefits within the budgetary constraints of the institution, which forced educators to be focused on the value added in pedagogical additions. The post-pandemic literature will need to highlight the evolving pedagogical strategies and fresh perspectives on the delivery of healthcare education.

The objective of this chapter is to describe the evidence and efficacy behind simulation-based education and provide key strategies for the use of virtual scenarios in healthcare education, particularly in the development of clinical reasoning and clinical decision making. The initial objectives of this chapter are to define and apply the concepts of clinical reasoning and decision making in the context of the stages of student clinical development. Furthermore, this chapter will synthesize the current state of the evidence in clinical skill development in a virtual environment from across various healthcare fields. Following this fundamental understanding, educators will be able to implement that knowledge base moving forward in the design of clinical scenarios to meet the desired outcome based on the current clinical development level of the student.

BACKGROUND

The ultimate goal of the healthcare educator is to ensure the learner establishes the necessary skills to practice in a safe and independent manner upon completion of their educational experience. This requires sound foundational knowledge, critical thinking skills, and the ability to demonstrate appropriate clinical decision-making. Clinical decision making is described in the literature as "decisions with multiple foci, (e.g., diagnosis, intervention, interaction, and evaluation) in dynamic contexts, using a diverse knowledge base, with multiple variables and individuals involved" (Higgs et al., 2008, pp. 89-90). Clinical decision-making is increasingly valuable as the settings and complexity of the healthcare system continue to evolve, as the knowledge base of practitioners expands, and the known variables impacting patient care broaden. The ability of healthcare students to navigate this dynamic and diverse environment and make appropriate decisions is increasingly challenging and requires extensive training and exposure to clinical situations to refine the decision-making process and identify the key variables needed to make an appropriate decision that optimizes patient outcomes. It relies heavily on the skill of clinical reasoning, which has been defined as "the reflective thought process that therapists undergo to integrate client