Virtual Learning: The Development of Case Study Based Lab Simulation in the Clinical Laboratory Science Undergraduate Curriculum

STEPHANIE COCHRANE

ABSTRACT

The goal for implementing simulation into medical laboratory education is to provide students with a highly realistic learning environment to practice "real-world" situations before starting clinical internships. To encourage higher levels of thinking during simulated scenarios, the incorporation of case studies exposes the learner to problem-based learning, which facilitates the development of critical thinking skills by tapping into the cognitive learning domain of Bloom's taxonomy. This research project focused on developing case-study–based laboratory simulation for undergraduate clinical laboratory science students. By using case studies in laboratory-simulated scenarios, the learner engages in critical thinking/problem-solving skills by focusing on cognitive learning to evaluate, analyze, and interpret laboratory data from all major areas of the clinical laboratory as it correlates to a specific patient diagnosis. Each learning module was based on a disease/condition the student is most likely to encounter in the hospital/laboratory setting. Learning module #1 centered on a person with type 2 diabetes with chronic renal failure and learning module #2 involved a patient with gastrointestinal bleeding caused by colon cancer. The pedagogical framework encompassed the following phases: prebriefing, analysis and test performance, student-centered discussion, and debriefing. The results of the module evaluations concluded that 100% of students strongly agreed that they learned to think critically because of the activities in learning module #2, whereas 75% of students strongly agreed (25 % agreed) in learning module #1. Using case studies, group discussions, and simulated scenarios creates a student-centered learning environment, thus allowing students to become active learners.

Clin Lab Sci 2019;00(0):xxx

Stephanie Cochrane, *Rutgers University*

Address for Correspondence: Stephanie Cochrane, *Rutgers University, sbn26@shp.rutgers.edu*