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Web-based software for clinical laboratory training

A suite of web-based software designed to enhance training in Medical Laboratory Sciences.

MEDICAL LABORATORY SCIENCES
UNIVERSITY OF MINNESOTA
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LSU Health NEW ORLEANS
School of Allied Health Professions
Medical Laboratory Science

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Technology Overview

Researchers at Louisiana State University Health - New Orleans and the University of Minnesota have developed a suite of web-based software to enhance laboratory training in Medical Laboratory Sciences.

Clinical Chemistry Simulator

The Clinical Chemistry Simulator is web-based software that uses images and numerical data to simulate the work required to competently review and choose appropriate remedial actions to produce clinical chemistry comprehensive metabolic profiles (CMP). These are batteries of tests of biochemical analytes in plasma which are used to screen for and manage metabolic disorders including diabetes mellitus and disorders of renal, respiratory, digestive, and other body systems which present with abnormal levels of analytes. The simulator challenges the user to identify the patient's condition and or identify clinical and preanalytical variables that would interfere with the measurement of analytes and choose the appropriate remedial action(s) necessary to produce a good patient outcome.

Quality Control Simulator

The Quality Control Simulator is a web-based software simulator for teaching, practicing, and assessing skills in the daily processing and interpretation of quality control data from multichannel instrumentation that produces biochemical profiles on patients. The simulator provides data sets, on a simulated daily basis, to mimic the instrument in daily practice. The student is challenged to properly graph data points electronically and then analyze and characterize the patterns of data according to predictive rules (Westgard rules), choose an action to take, and then finally, judge the acceptability of accompanying patient data.

Thought Challenger

The Thought Challenger is a web-based tool for assessing and remediating student performance in solving common laboratory mathematical or logical process problems. The tool presents a realistic scenario where mathematics or logic must be used. In tasks such as reagent

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or sample preparation, the student is challenged to answer specific questions regarding the mathematical or clinical outcome(s). Before solving the problem, the student is required to choose elements of skills and facts that are necessary for the solution. Feedback on performance is provided as well as links to 'flashcards' on the methods and rules used to reach the outcome. A recorded video screencast, narrated by an instructor, is also available for student review where the instructor solves the challenge and models the thought process.

Researchers

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