ImageSim –
An Online Image Interpretation Learning System

Reference to abstract or paper:

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Description of the Innovation:

What problem does this innovation solve?

Visually diagnosed medical tests (e.g. radiographs, electrocardiograms) are the most commonly ordered tests in front-line medicine. As such, front-line health care professionals are faced with the task of learning the skill of interpreting these images to an expert performance level by the time they provide opinions that guide patient management decisions. However, discordant interpretations of these images between front-line physicians and expert counterparts (radiologists, cardiologists) is a common cause of medical error. In paediatrics, this problem is even greater due to the changing physiology with age leading to increased risk of interpretation errors.

ImageSim provides a comprehensive and evidence-based on-line education system that teaches health care professionals the interpretation of visually diagnosed medical tests using the concepts of deliberate practice and simulation. That is, our learning model includes sustained active practice of hundreds of cases where the learner is forced to commit to diagnosis for every case and then receives immediate specific feedback on their interpretation so that the participant instantly learns from each case. Importantly, we have presented these images as we

encounter them in practice, and included a normal to abnormal radiograph ratio (with a spectrum of pathology) reflective of our day-to-day practice.

The setting of innovation

This is web-based.

The resources required to make this happen

We needed the technical expertise to create the software platform and the skills to couple this to a database where every click became a recorded piece of data to allow for sophisticated learning analytics. We needed content expertise in cognitive psychology, medical education, and image interpretation. We needed several thousand high resolution diagnostic images that were quality checked and formatted for software presentation. Finally, we needed expertise for CME, performance-based competency, and promotion of our education platform.

What educational theories or conceptual frameworks does it utilize?

This education innovation uses cognitive simulation, deliberate practice, and performance-based competency.

What lessons have you learned in implementing your local innovation (describe your reflective critique)

High quality work takes time - many years of time - before an innovation can be derived, developed, validated, and then launched as an educationally valuable tool. It means you need a team that understands and can invest in this commitment and not give up despite the many barriers that once faces in this multi-year journey. But, at the end, if it helps us be better clinicians, it is all worth it. And, it is wonderful seeing the international community learning from ImageSim.

BOTTOM LINE:

ImageSim aims to increase health care professionals' accuracy in the interpretation of visually diagnosed tests with the goal of improved health outcomes. It offers exposure to hundreds of cases - an experience that would take years to accomplish from clinical exposure alone.

ImageSim provides courses for CME and Competency-Based Training. It is CME credited for level three credits with the Royal College of Physicians and Surgeons and College of Family Physicians of Canada. There are currently 350 active CME users and 11 emergency medicine training programs that are using this platform to improve skills in image interpretation.

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