eCurriculum and Online Assessment in Clinical Pharmacology & Toxicology: Developing a Virtual OSCE for Medical Students

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BACKGROUND:

E-learning and online resources for Canadian medical students could be one of the most beneficial learning tools in this day and age. Limited expert faculty numbers and training in Clinical Pharmacology and Toxicology (CPT) and the current pandemic have driven us to develop processes and evaluation metrics for an online Observed Structured Clinical Exam (OSCE) in CPT.

SIMULATIONiQ (SimIQ) is an Education Management Solution (EMS) platform that assists with simulation-based healthcare training. It is built to mimic the presentation of an in-person OSCE, but in a virtual setting (www.simulationiQ.com). Educators enter case-based scenarios, set timing for pre-encounters, main encounters, and debriefs, as well as determine the workflow. The software is used regularly for high stakes medical exams in Canada.

In a separate report, we have documented our interim results from a scoping review of the literature on the advantages and disadvantages of a) OSCEs versus traditional written assessments in the health professions, and b) virtual OSCEs versus in-person OSCEs (available here http://hdl.handle.net/11375/27384).

OBJECTIVE:

In this brief, we report on our progress to date on developing a virtual OSCE for Canadian medical students. This OSCE, once fully developed with 6-8 stations, is intended for formative evaluation of practical knowledge and skills in CPT, especially skills that are more difficult to test with written exams.

RESULTS:

To date, the following steps have been completed or are in progress:

1. INTRODUCTION – Meetings with McMaster medical school leadership regarding experience and learnings from recent virtual OSCEs, expectations and recommendations for OSCE station development. Meetings with a SimIQ coordinator and McMaster University representative to discuss our needs, a summary of what SimIQ can offer, functionality and feasibility of our team running the stations internally.
2. TRAINING – Review SimIQ user guides, webinars, and supporting documentation on creating OSCE timelines, troubleshooting IT issues, adding assessors and simulated patients (SPs), and accessing reports. Team also completed a 2-hour training session of case and scenario creation in SimIQ. At this stage, we considered the advantages and disadvantages of the SimIQ organized meta-structure versus use of the underlying Zoom technology on its own (see Table 1 below).
3. PRODUCTION – Three novel pilot OSCE scenarios were created (medication management communications – 15 min, prescription writing – 10 min, and high-risk medication dose calculations – 5 min). These were chosen based on decades of CPT clinical supervisory experience of learners, medical student abilities on an annual final year exam of prescribing competency, as

well as high priority areas for patient safety and provider medicolegal risk. Our medical student advisory panel will be assisting with piloting the virtual OSCE stations. The cases were entered into the system individually, with scenario times entered for one student to complete each OSCE station consecutively. The production of these cases was reviewed by a SimIQ coordinator.

4. PILOTING – Our research team will complete a mock run-through of the virtual OSCE stations to ensure that the setup runs smoothly. After SimIQ completes a software update on February 24th 2022, further piloting of the virtual OSCEs will be completed with our medical student advisory panel.

Table 1. Comparison of SIMULATIONiQ versus Zoom Features for Online OSCE

SIMULATIONiQ	Zoom
• Assessment templates (Likert scale, comments, etc.) are available and edited within SimIQ	• No templated assessments or feature to create assessments within Zoom
• Automatically generates reports for assessor/learner/SP assessments	• No feature to generate reports
• Assessments are available to be completed in real-time and can be saved to re-visit post-encounter	• Assessments created can be completed real-time, but have to be saved to each individual's computer for collation later
• Automatically moves students/SPs/assessors from one room/station to another	• Students/SPs/assessors have to manually use waiting rooms and separate links to move through stations
• IT and production support from SIMULATIONiQ and McMaster U	• Limited IT support
• Set-up to mimic in-person OSCE	• Requires manual set-up to mimic in-person OSCE