Virtually competent: remote delivery of clinical competency examinations

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1 | PROBLEM

At Western University of Health Sciences College of Dental Medicine (WUCDM), D3 and D4 students—after having displayed aptitude in a dental discipline—demonstrate their knowledge and practical skills in mandatory, high-stakes, capstone competency events called Independent Patient Clinical Exams (IPCEs). IPCEs are supervised by 2 clinical faculty members, assessed on live patients through 5-point rubrics, and must be passed prior to graduation.

With onsite educational activities halted due to COVID-19, WUCDM faced the task of remotely delivering equivalent, but not identical, Simulated Independent Patient Clinical Exams (SIPCEs) to replace the IPCEs for D4s.

2 | SOLUTION

Remotely delivering IPCEs required web conferencing software for faculty and D4s. WUCDM evaluated 2 conferencing platforms: Zoom and Microsoft Teams. Since protected health information (PHI) would be shared, the platform required Health Insurance Portability and Accountability Act (HIPAA) compliance. Because WUCDM had a Business Associates Agreement with Microsoft outlining that PHI could be stored, Teams was selected.\(^1\)

The next task was equalizing the remote and live experiences. SIPCE questions required correlation to IPCE rubrics, cases used had to be varied to reflect clinical reality, clinical skills needed assessment, and this updated process required documentation.

First, clinical faculty mapped in-person workflows to the IPCE rubrics. For example, WUCDM’s start check process ensures student review of patient medical and dental histories; the IPCE rubrics assess medical and dental history review, so a start check would be correlated to the medical and dental history review criteria.

Next, SIPCEs required case variability. 3D models from CAD/CAM databases were exported to create detailed media (Figure 1). Biomedical faculty generated case-based content focusing on medical knowledge and provided adjunctive literature. Group practice and specialist faculty wrote questions to target critical thinking in clinical procedures. Examiners pulled from this pool of content, cases, and questions. A script was created so examiners would supply similar experiences for exam takers (Figure 2). This pool of content, coupled by the examiners recording each session and requesting students to sweep the room with their web cameras, mitigated academic dishonesty concerns.

For IPCEs, supervising group faculty vet student clinical readiness by evaluating a portfolio of metrics including procedures completed, qualitative formative feedback over time, self-assessments, previous academic accomplishments, and didactic course performance. Faculty disqualify students needing more experience, and this exact process was used to ascertain SIPCE readiness.\(^2\)\(^,\)\(^3\) During SIPCEs, faculty derived direct patient care competence.
Patient Treatment Sample (SUI)

CASE #1

FIGURE 1 Sample media developed by faculty for SIPCE utilizing 3D models from CAD/CAM databases

| Case | Area Examined             | Faculty 1 Score | Faculty 2 Score | Student Score |
|------|---------------------------|-----------------|-----------------|---------------|
| 1    | Preparation: Outline & Extensions | 5               | 5               | 5             |
| 2    | Preparation: Outline & Extensions | 5               | 5               |               |
| 3    | Preparation: Outline & Extensions | 3               | 3               |               |
| 4    | Preparation: Internal       | 2               | 2               |               |
| 5    | Preparation: Internal       | 3               | 3               |               |
| 6    | Preparation: Retention & Resistance | 5               | 5               |               |
| 7    | Preparation: Retention & Resistance | 4               | 4               |               |
| 8    | Preparation: Retention & Resistance | 4               | 4               |               |
| 9    | Preparation: Retention & Resistance | 1               | 1               |               |

FIGURE 2 Screenshot of SIPCE briefing which is completed by faculty and distributed to students 24 hours prior to examination

OVERVIEW
Welcome to the Simulated Independent Patient Clinical Examination (SIPCE) Briefing. This document contains SIPCE protocols, case specific information, and an acknowledgement of receipt and understanding. The purpose of the SIPCE is to provide students with an opportunity to show clinical competence remotely and is equivalent to the Independent Patient Clinical Examinations (IPCEs) that occur in person. Though equivalent, the experiences are not identical and novel processes have been designed challenge clinical skills. Students are responsible for confirming that the SIPCE Meeting Details below is correct and that they meet at least the minimum requirements to perform an SIPCE. If there are any issues or questions, notify the supervising faculty immediately and they will attempt to assist with resolving them prior to the SIPCE. Depending on the issue(s) encountered, an SIPCE may be rescheduled at the faculty’s discretion.

SIPCE MEETING DETAILS
The SIPCE being challenged: Single Unit Indirect Restoration

This SIPCE is assessed using the IPCE rubric for Single Unit Indirect Restoration Clinical Exam Rubric (attached)

The faculty supervisors for this SIPCE are: Alexander Lee (allee@westernu.edu) & Hubert Chan (hchan@westernu.edu)

The scheduled date and time for the SIPCE is: 3/27/2020 at 1PM

The Microsoft Teams link to the SIPCE is: https://fakeMicrosoftTeamslink.edu/55555
FIGURE 3 Side-by-side comparison of IPCE and SIPCE experiences

from the students’ historical metrics, performance on case-based questions aligned to IPCE rubrics, and inquiries regarding treatment rendered in their patient families.

The SIPCEs were incorporated into WUCDM’s Commission on Dental Accreditation (CODA) application for program change to distance education and included as an addendum to the course syllabus (Figure 3).

3 | RESULTS

Twenty-eight D4 students participated in oral diagnostics, prosthodontics, periodontics, and restorative dentistry SIPCEs. Scores ranged from 77.43% to 95%. No comments regarding SIPCEs were found in course evaluations. Faculty observed that technical considerations—displaying content, setting up Teams, establishing remote connections—were chief concerns. For future SIPCEs, additional technical support and statistical validation of the method need to be considered.

| SIDE BY SIDE COMPARISON |   |
|------------------------|---|
| **IPCE**               | **SIPCE**               |
| Students qualify for exam by faculty evaluation on: procedures done, qualitative formative feedback over time, portfolios of their academic accomplishments and self-assessment, and performance in didactic aspects of each dental discipline | Students qualify for exam by faculty evaluation on: procedures done, qualitative formative feedback over time, portfolios of their academic accomplishments and self-assessment, and performance in didactic aspects of each dental discipline |
| Takes place in person | Takes place remotely via Microsoft Teams |
| Assessed with IPCE rubric by 2 clinical faculty members | Assessed with IPCE rubric by 2 clinical faculty members |
| Clinical competency demonstrated through direct patient care | Clinical competency demonstrated through oral examination covering dental knowledge, patient assessment, clinical outcomes assessment, and integration of information |
| Academic integrity concerns mitigated through use of axiUm, direct faculty supervision, and patient variability | Academic integrity concerns mitigated through question variability, patient case variability, and direct faculty supervision |

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