

# Adapting an undergraduate dental objectively structured clinical examination (OSCE) during COVID-19

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## Why was the idea necessary?

In the 5-year dentistry curriculum at the University of the Western Cape, South Africa (SA), prosthetic dentistry is presented as modules, starting in the 2nd year and culminating in the final module in the 5th year. Students are taught theory, and laboratory and clinical skills of removable (complete or partial) prostheses. Thus, acquiring psychomotor, clinical and problem-solving skills are an essential part of dental students' education and training.<sup>[1]</sup> For trainee dentists, assessments include providing treatment for 'real patients', allowing them to demonstrate how theoretical knowledge of clinical procedures may be integrated with clinical skills in the clinical setting.<sup>[1]</sup> Teaching of clinical skills was completely interrupted during SA's initial response to the COVID-19 pandemic, although theoretical teaching continued on various virtual platforms. Educators uploaded clinical cases, and narrated and scaffolded clinical procedures aligned with module outcomes to provide continued training for students, even though the impact in terms of clinical competence was limited.

Proceeding with assessments to determine competency for maintaining performance standards for graduating students, became an unprecedented challenge under pandemic conditions.<sup>[2]</sup> With the easing of the country's lockdown restrictions, the consequent return to campus of final-year dental students and expecting them to continue clinical practice training, called for innovative and novel strategies to determine and address inadequacies in their learning and clinical practice. To this end, the Department of Prosthetic Dentistry adapted the existing teaching and assessment methods, including greater collaboration with all stakeholders. The following are some of the questions educators felt needed to be addressed:

- what influence the interruption of clinical practice had on the clinical competence of students
- how to ease transitioning students back to clinical practice during the pandemic
- how to focus and modify clinical teaching when students return to clinical practice
- how to adapt an objectively structured clinical examination (OSCE) to adhere to COVID-19 protocols

## What was tried?

To assess the impact of the interruption of clinical practice, an OSCE was planned as formative assessment for final-year students on their initial return to campus for face-to-face teaching after the country's lockdown restrictions were lifted. The purpose of the intended OSCE was twofold: to evaluate students' clinical competence and to provide constructive feedback on their preparedness to continue with clinical practice after an extended absence from clinical work. Feedback of students' performance in the OSCE enabled lecturers to focus their teaching appropriately and as per individual

student's needs. To illustrate the adapted OSCE, we describe how OSCEs were conducted before and after the pandemic:

- Presentation of OSCE prior to COVID-19

It was a station-based assessment, where students moved from station to station to complete the questions. The time for questions per station was 10 - 15 minutes and the organisation was fairly easy, as no other considerations were included. To provide students with extra time and to accommodate the large number of students in class, there were also several question-free stations. OSCE sessions were conducted on one day, with 2 sessions per day and ~16 questions per OSCE. Educators would prepare 4 sets of each material/question and place these at 4 different areas, which allowed half of the class to be assessed simultaneously.

- The adapted OSCE

Because of the COVID-19 pandemic and the associated risk of infection transmission, this circuit-based test had to be modified. A single OSCE station was created, which included all questions as planned by the department. The student therefore did not have to move from station to station, thus limiting the spread of infection. For the modified OSCE, the allocated time for the entire OSCE was set at 180 minutes. Therefore, students were allowed to manage their time, which differed as applied per question.

When planning this OSCE, the department therefore considered and implemented appropriate personal protective equipment (PPE) and surface disinfection precautions necessary during the pandemic. The OSCE was in an enclosed clinic, which was prepared using the advocated COVID-19 disinfection protocols, but most importantly, all clinics were prepared with the instruments and equipment required for each OSCE question. To ensure social distancing, groups of students were scheduled individually. The OSCE was therefore conducted over 4 days, with 22 students divided into 2 separate sessions, hours apart, per day. Other COVID-19 protocols included ensuring that students were using hand sanitisers and wearing masks and gloves when inspecting, evaluating and completing each procedure set out for the OSCE. COVID-19 protocols were also adhered to when input from educators was required during invigilation of the OSCE, when marking/evaluating completed procedures and when scripts were completed.

Sound educational principles, such as reliability, transparency, blueprinting and constructive feedback, underpinned the planning of the OSCE. Questions included clinical procedures, such as taking impressions and preparing procedures on typodont teeth set up on a mannequin on the clinical chair (QR code). The nature of these questions was aligned with the clinical competencies for the final-year level. Moreover, the criteria for assessment, as well as having 2 examiners, were carefully planned. A memorandum for each question and a rubric for clinical procedures were prepared, shared with examiners and

followed. The 2 examiners discussed the students' answers, and consensus was reached for clinical procedures to ensure that appropriate, objective comprehensive feedback was shared with students. To this end, structured feedback sessions were prepared, and where students required remediation, this was also addressed. From the poor results obtained in certain procedures, e.g. the preparation of a postdam for a maxillary denture, a video illustrating this procedure was created and uploaded on the e-learning platform. Additional videos demonstrating clinical procedures were uploaded on this platform to assist students to prepare for the transition to clinical practice.

Most importantly, students received prior briefing on the change in format and the entire scope of the OSCE. Blueprinting of the OSCE was completed to ensure that appropriate outcomes and Bloom's taxonomy were included and aligned. Therefore, for all stages of this OSCE, Kane's framework of validity, which includes scoring, generalisations, extrapolation and implications, was considered, as it ensures success with such assessments.<sup>[3]</sup>

## Lesson/s learnt

Performance of students in the OSCE provided staff with feedback on clinical competence and preparedness to return to clinical practice, as well as identifying gaps in their teaching. These unprecedented consequences of COVID-19 provided a catalyst for changing teaching and assessment strategies, and challenged us to be more collaborative, reflective educators with flexible learning and teaching approaches.<sup>[4]</sup>

More importantly, this assessment, after such a long period of absence from clinical work, gave students reassurance and confidence on their return to clinical activities to manage patients, their learning and themselves during the COVID-19 pandemic. A change in the expected assessment plan was also included, as well as structured feedback sessions involving all educators in the department, where they could ask questions and share fears related to working in the pandemic.

## What will we keep in practice?

We shall definitely use the newly adapted format of the OSCE, including the collaborative practice, planning and evaluation, as it is a more objective manner of assessing students' clinical competence. Moreover, as we are still in the pandemic, and COVID-19 may become endemic, we may continue to use this format. As a consequence of the experience of planning the OSCE, the department continued to plan and conduct OSCEs collaboratively. The inclusion of specific and detailed formative feedback sessions after OSCEs, is a sound educational practice that will continue in our department.

## What will we not do?

An OSCE must not be planned and prepared without students knowing what it entails and how it impacts on their learning and assessments for the year. We will not make OSCEs high-stakes assessments, as these are good deep-learning opportunities for students and should be used as such. We will not change the inclusion of a group of examiners, and having two people assess one question, as this approach will ensure the integrity of the OSCEs. Following from this experience of arranging the adapted OSCE and observing the concerns regarding students' learning and clinical skills, we will not allow students to proceed with clinical practice after an extended period of disruption, without some form of formative assessment and structured feedback.

**Declaration.** None.

**Acknowledgements.** We acknowledge the assistance and input of the non-academic staff in the Department of Prosthetic Dentistry during the OSCE sessions.

**Author contributions.** Equal contributions.

**Funding.** None.

**Conflicts of interest.** None.

## Evidence of innovation



1. Englander R, Cameron T, Ballard AJ, Dodge J, Bull J, Aschenbrener CA. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. *Acad Med* 2013;88(8):1088-1094. <https://doi.org/10.1097/ACM.0b013e31829a3b2b>
2. Boursicot K, Kemp S, Ong T, et al. Conducting a high-stakes OSCE in a COVID-19 environment. *MedEdPublish* 2020. <https://doi.org/10.15694/mep.2020.000054.1>
3. Tavares W, Brydges R, Myre P, et al. Applying Kane's validity framework to a simulation based assessment of clinical competence. *Adv Health Sci Educ* 2018;23(2):323-338. <https://doi.org/10.1007/s10459-017-9800-3>
4. Almarzoq Z, Lopes M, Kochar A. Virtual learning during the COVID-19 pandemic: A disruptive technology in graduate medical education. *J Am Coll Cardiol* 2020;75(20):2635-2638. <https://doi.org/10.1016/j.jacc.2020.04.015>

*Accepted 15 June 2021.*

*Afr J Health Professions Educ* 2021;13(3):208-209. <https://doi.org/10.7196/AJHPE.2021.v13i3.1515>