

Evaluation of endodontic competency in the COVID-19 era: Problem, solution and results

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1 | PROBLEM

The COVID-19 pandemic has had a significant impact on the education of the graduating class of 2020. The challenge of teaching hand skills was never easy. These unprecedented times have added an additional layer to the task. How can endodontic procedures be taught and how can competency be measured remotely?

2 | SOLUTION

Once the problem was assessed, information was gathered to determine the number of students that did not complete their requirements. Modifications for graduating requirements were put in place and approved by the Tufts University School of Dental Medicine (TUSDM) curriculum and executive faculty committees. Using the learning management system platform available at TUSDM (Canvas), a module was created to facilitate the communication with the students regarding expectations, studying materials, and assessment methods (Figure 1). The format used for this competency exam was a “virtual” Objective Structured Clinical Examination (OSCE).¹ Considering best pedagogical practices, multiple ways of assessment were integrated: open-ended questions, multiple choice questions, and “fill in the blank” questions (Table 1).² The assignment was limited in time and was only available for a specific time frame to avoid sharing of information. The type of questions that were used included questions about materials, diagnosis, treatment planning, clinical procedure, emergencies, complications, and communication. This allowed for both assessment of knowledge and clinical judgment.

3 | RESULTS

3.1 | What went well

The “virtual” OSCE that was conducted was overall successful and the majority of the students were deemed competent and were able to clear from the endodontic department in a timely manner. All faculty have participated in this exercise and the evaluation process was rapid and successful. This form of evaluation had the advantage of offering faculty calibration (Table 2). A grading criteria table was formed as well as a content of the expected answers.³ Each full-time faculty member had graded an equal number of questions and a score of 70 was determined as a passing grade.

3.2 | What did not go well

The “proper” OSCE uses different means to evaluate clinical capabilities of the students and is usually given at the end of their second year and prior to them seeing patients in the clinic. The exam usually contains radiographic images, instruments, materials, casts, and more. This virtual format did not allow for any “hands-on” activities, which are essential for our profession.

3.3 | Lessons learned

This virtual exercise has opened up a new mode of assessment that can be utilized in the future.⁴ The students have a very limited exposure to the endodontic treatment in the

Endo OSCE for graduation D20/IS20

Hello all,

The assignment is intended to evaluate the student's ability to treat a patient with an Endodontic concern. This includes but not limited to diagnosis, treatment planning, clinical procedure and management of procedural errors and complications.

To successfully complete the assignment, I highly recommend reviewing the lectures that are provided on the canvas course as modules.

The assignment will be limited in time and will be available on Canvas on Tuesday May 5th between 1pm to 2:30pm eastern time.

Once a question is answered and submitted, you will be unable to go back and change it. Please make sure you are comfortable with the answer provided prior to moving on to the next slide.

Please let me know if you have any questions or concerns.

Good luck,

Dr. Alon

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|---------------------------------------|-------------|
| Quiz Type | Graded Quiz |
| Points | 101 |
| Assignment Group | Assignments |
| Shuffle Answers | No |
| Time Limit | 90 Minutes |
| Multiple Attempts | No |
| View Responses | No |
| One Question at a Time | Yes |
| Lock Questions After Answering | Yes |

FIGURE 1 Overview of the set-up in the CANVAS platform

TABLE 1 Overview of the topics covered and the type of questions pertinent to each category

| Topic/selection | Number of questions | Open-ended | MCQ | Fill in the blank |
|----------------------|---------------------|------------|-----|-------------------|
| Diagnosis | 6 | • | • | |
| Treatment plan | 2 | • | | |
| Clinical procedure | 11 | • | | • |
| Procedural errors | 3 | • | | |
| Materials | 3 | • | • | |
| Postop instructions | 2 | • | | |
| Emergency management | 3 | • | | |

DMD curriculum. Didactic teaching in the third and fourth years of dental school is mostly spent on preparation for licensure examination. This virtual platform can be used in the future for clinical exercises and better exposure to

the beauty of “real-life” endodontics. Dental educators are required to design and implement all the virtual exercises considering the standards stated by the Commission on Dental Accreditation.⁵

TABLE 2 Grading criteria for faculty calibration

| Criteria | Number of questions | Rating | Total points |
|----------------------|---------------------|--|--------------|
| Diagnosis | 6 | 4 points—full marks Student demonstrates an understanding of key issues associated with the diagnosis and provides explanations to support the diagnostic process | 24 |
| Treatment planning | 2 | 5 points—full marks Student demonstrates an understanding of all treatment options that relate to the presented clinical case and is able to recognize the most acceptable treatment option | 10 |
| Clinical procedure | 11 | 3 points—full marks Student demonstrates full understanding of the clinical procedure and specifies all the steps that relates to a specific procedure | 33 |
| Materials | 3 | 2 points—full marks Student is able to correctly identify the instrument and the correct use of it | 6 |
| Procedural Errors | 3 | 3 points—full marks Students recognizes the procedural error that occurred and is able to identify the cause and expected course of action | 9 |
| Post Op instructions | 2 | 5 points—full marks Student understands the importance of communication with the patient and is able to provide adequate information that is important for continuity of care | 10 |
| Emergency management | 3 | 3 points—full marks Student is able to identify an Endodontic emergency and treat it accordingly | 9 |
| Total points | | | 101 |

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