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An innovative change from face-to-face to remote assessment of clinical cases in Bachelor of Dental Surgery (BDS) Finals exams: delivery and student perceptions

Akhila Muthukrishnan¹
akhila.muthukrishnan@bristol.ac.uk

Linda Hollen²
linda.hollen@bristol.ac.uk

James Puryer³*
James.puryer@bristol.ac.uk

Konrad Staines⁴
konrad.staines@bristol.ac.uk

1. Honorary Senior Lecturer in Restorative Dentistry
   Bristol Dental School
   Lower Maudlin Street
   Bristol
   BS1 2LY
   United Kingdom

2. Lecturer
   Teaching and Learning for Health Professionals
   5 Tyndall Avenue
   Bristol
   BS8 1UD

3. Senior Clinical Lecturer in Restorative Dentistry
   Bristol Dental School
   Lower Maudlin Street
   Bristol
   BS1 2LY
   United Kingdom

4. Honorary Associate Professor
   Bristol Dental School
   Lower Maudlin Street
   Bristol
   BS1 2LY
   United Kingdom

*Corresponding author:
   James Puryer
   Tel: +44 (0)117 342 9648
   Fax: +44 (0)117 342 4443
   E-mail: james.puryer@bristol.ac.uk
ABSTRACT

Introduction: As a response to the COVID-19 induced lockdown, an innovative change was made to a part of the University of Bristol’s Bachelor of Dental Surgery Finals (BDS-F) examination. Clinical cases, previously assessed face-to-face, were rapidly adapted to a remote assessment format and students’ perceptions of the enforced change were explored.

Method: The blueprint of Intended Learning Outcomes (ILOs) was carefully considered in making amendments. University level and External Examiner approval was obtained for transition from face-to-face to remote assessment. The connectivity and communication required for the remote format was tested prior to the assessment. A questionnaire containing statements and open questions was used to obtain feedback from students who undertook this remote assessment.

Results: The blueprinted ILOs were satisfactorily assessed remotely. The assessment was delivered successfully with broadly positive perceptions of this new remote assessment format.

Conclusions: Remote clinical case assessments can be a suitable alternative to face-to-face conventional methods. Meticulous preparation, including engagement with both staff and students as stakeholders, is critical.

Keywords: Assessment Remote Outcomes
INTRODUCTION

Assessment is a systematic procedure for measuring a student’s progress or level of achievement, against defined criteria such as learning outcomes, to make a judgement about that student. Within Health Professions Education, this judgement is around “clinical competence”. ¹

The undergraduate dental programme is a 5-year course at Bristol Dental School, UK. The BDS Finals (BDS-F) examination is sat within Terms 2 and 3 of Year-5 and is comprised of three Parts: Part 1 is knowledge-based and includes assessments using both Single Best Answer (SBA) and Multiple Short Answer (MSA) formats; Part 2 involves the presentation of two clinical cases treated by the student and oral assessment (Adult Seen Case and Child Seen case); Part 3 involves structured oral assessments on a series of clinical cases (Unseen case).

Prior to the Covid-19 Pandemic, the Part 2 assessments were scheduled to be held on a face-to-face basis, with students and examiners present on clinic for the assessment of both child and adult cases. Each student’s patient would normally also be present for the Adult Seen Case such that the quantity, range and quality of student’s clinical work could be directly assessed by examining staff. Students would also be expected to produce an A1-sized poster to detail their Adult Seen Case’s history and treatment. Examiners were tasked with discussing each case with the students, and probing knowledge, behaviours and decision-making skills centered around the presented cases and marking to clearly defined criteria. Within the UK, the first COVID-19 national lockdown was imposed one week before the first scheduled sitting of the BDS-F Part 2 exams such that they were not able to proceed in their planned format.

It was essential to continue to graduate students at the end of their final year of study. This was not just for the students’ own benefit, but also to ensure that their Dental Foundation Training posts could be filled and prevent a negative impact on the UK dental workforce. Dental Schools were therefore faced with an urgent need to find an alternative remote assessment format. Any change to the assessment format needed to balance both the need to comply with government-imposed restrictions and the need for a robust, fair and reliable assessment. This paper explores the impact on assessment delivery, and students’ perception of these changes to the BDS-F Part 2 exams, implemented due to the COVID-19 restrictions.
METHOD

Remote format delivery

Following consultation with both key staff within the School and the Year-5 External Examiners, the Part 2 BDS-F Adult Seen Case and Child Seen Case standard procedures were adapted at short notice whilst safeguarding the academic integrity of the assessment. The following changes were made:

1. Remote interaction between examiners and student: telephone communication was used for the Child Seen Case and Skype for Business (Skype) audio conferencing enabled document sharing in the Adult Seen Case.
2. Students presented their cases from prepared digital posters rather than a physical poster and these were shared with the examiner electronically.
3. The patient was no longer present in the Adult Seen Case.

In terms of quality assurance (QA) of the revised Part 2 of BDS-F, the School undertook the following additional processes:

- Careful consideration of the blueprint of General Dental Council “Preparing for Practice” Intended Learning Outcomes (ILOs) when making amendments to ensure that the appropriate ILOs were still being assessed.
- Obtained approval from the University (University ‘Gold’ level through Faculty) for amendments to these BDS-F assessments.
- Interacted with and obtained approval from External Examiners for adaptations to the assessment formats.
- Tested connectivity by telephone and Skype with each student ahead of assessment days.
- Disseminated detailed Standard Operating Procedures (SOPs) and guidance/calibration notes for examiners and students ahead of the assessment.
- An examiner’s meeting was scheduled at the start of each day of assessment to ensure that examiners were familiar with the new SOPs and to remind them of the standard expected of a ‘Safe Beginner’.
- Remote assessments were observed, also remotely, by a Senior member of the Faculty who was not examining the students. The Dental School was pioneering this format of assessment and the Faculty was keen to identify any learning from this process that could be emulated across other Faculty programmes.
All assessment results were analysed by the Faculty psychometrician.

**Student perceptions**

An online student questionnaire was developed to examine students’ perceptions of these modified assessments. The questionnaire contained a series of statements and open questions concerning both the Adult and Child Seen Cases. Students were asked to rate statements using a 4-point Likert scale (strongly disagree, disagree, agree, strongly agree). For analysis, the responses were amalgamated to “agree” and “disagree”.

The questionnaire link was sent by email via a mailing list by an administrator independent to the assessment once students had been informed of their results. Students’ participation was voluntary, and they were able to respond to the questionnaire anonymously with no records kept of individual responses.

Data were analysed using Stata v.16.1. (StataCorp. 2019. Stata Statistical Software: Release 16. College Station, TX: StataCorp LLC)

**RESULTS**

**Remote format delivery**

Conversion to the remote assessment format was possible both by telephone for the Child Seen Case and by Skype audio for the Adult Seen Case within the short time frame. The QA process of the assessment was undertaken successfully in relation to the range, depth and appropriateness of the assessment methods used as per university regulations with input from both internal and external examiners. There were no reported incidents.

**Student perceptions**

Results are displayed as number and percentage of students agreeing or disagreeing with each statement out of the total sample size (Table 1).

Of 66 students taking the assessment, a total of 36 students responded to the questionnaire (53%).

Feedback indicated that many students considered the pre-exam guidance sufficient (72-80%). Overall, 72% of students considered that they were able to present their case to their satisfaction during the
Child Seen Case and 63% in the Adult Seen Case. Communication with examiners worked well within both assessments (72-86%). Two-thirds of students indicated that the presence of the examiner was important in the Adult Seen Case (66%), whilst only half felt the same way for the Child Seen Case. The results indicate that patient presence is less important than examiner presence (41% agreed for the Adult Seen Case). Overall, positive feedback was slightly lower for the Adult Seen Case.

**DISCUSSION**

Last-minute changes to assessment delivery of BDS-F were necessary due to the COVID-19 enforced lockdown. We anticipate that as a result of pandemic-imposed changes, there will continue to be an evolution of clinical assessments towards a remote format.

The authors’ experience and student feedback indicate that the change to remote format was successful. The student feedback, albeit with a relatively average response rate (53%) provides a reasonable sample of student opinion.

It was encouraging that almost every student (97%) agreed that they could access the hardware needed to undertake the remote Adult Seen Case assessment, and that the majority (83% and 72%) found it easy to connect with the examiners during the Child Seen Case and Adult Seen Case respectively. Examiners were provided with clear instructions for how to deal with a breakdown in remote communication, which included trying to reconnect with the student at the time of loss of communication. In the rare instance that connection could not be re-established, the assessment was postponed to a later time in the session when connection could be re-attempted. It was imperative that students were given a fair and thorough assessment and that they were not disadvantaged in any way by any limitations of the new format.

The relative lower positive feedback for the Adult Seen Case may simply reflect that the adult cases tend to be multifaceted with additional layers of complexity compared with the Child Seen Case. Therefore, students may perceive that it is easier to communicate with the patient and examiners present on a face-to-face basis during the Adult Seen Case. However, less than half (41%) of students thought that it was important for the patient to be present for the assessment. Much of the information related to the quantity and range of treatment provided by the student would have been available to examiners on the student poster. Furthermore, there was an assumption that the quality of student treatment would be of an appropriate standard as all of the clinical work would have been
approved at the time of completion. The need for the patient to be present for the Adult Seen Case has been removed for future diets of this assessment. Examiners agreed that there was little additional benefit of the patient being present during the assessment, and the logistics of arranging for the patient to attend at a specified time, coupled with the worry that that may not attend, was a great source of anxiety for students that could be avoided.

Around two-thirds of students considered that they were able to present their case to their satisfaction in both parts of the assessment (63–72%). Given the expected anxiety with a new format of exam, and one for which the students were given little notice, we consider this to be a positive outcome.

A recent systematic review found that there was little published evidence on the use of remote assessments, but that there was a suggestion that remote structured clinical assessments could be used for the assessment of certain defined clinical skills. Remote assessments can be used to assess students’ competence in specific practical and procedural skills and presentation skills. Remote assessments may allow educational providers to utilise a wider pool of examiners as they allow examiners who are based a long way from the education hub to participate in assessment. This is of particular benefit to institutions that cover large rural areas. Remote assessments may also allow students who cannot attend a face-to-face assessment (for example, because they are self-isolating but otherwise well) to sit their assessment at the planned time, without the need for rescheduling or possibly deferral to a subsequent sitting and the resultant implications of this.

A limitation of this paper is that it describes the changes introduced from face-to-face to remote assessment within a single UK dental school as a result of the Covid-19 pandemic. However, there is little existing literature on this subject and we hope that the results present will provide a benchmark which could be used by other dental schools who are invariably facing a similar need to provide remote assessments. When planning such changes, it is essential to plan carefully to ensure that students are not disadvantaged and that the assessment remains robust yet fair. We hope to undertake further research on the subject and to report on two years’ data from remote BDS-F assessments.

**CONCLUSION**

Dental students perceived that the change to remote assessment ran well, with strong positive feedback being provided. Our experience indicates remote assessment to be a viable and valid alternative to face-to-face assessment of clinical case presentations.
ACKNOWLEDGEMENTS

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REFERENCES

2. General Dental Council, 2015. Preparing for Practice
### Table 1: Student responses to questionnaire

<table>
<thead>
<tr>
<th>Items</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N=36</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Child Dental Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I was given enough guidance on the process involved with the exam using a telephone</td>
<td>29</td>
<td>80.6</td>
</tr>
<tr>
<td>I found it easy to connect with the examiners using the telephone</td>
<td>30</td>
<td>83.3</td>
</tr>
<tr>
<td>I was given adequate information about the format before the assessment took place</td>
<td>23</td>
<td>63.9</td>
</tr>
<tr>
<td>I was able to present my case to my satisfaction</td>
<td>26</td>
<td>72.2</td>
</tr>
<tr>
<td>I felt the examiners understood my case well</td>
<td>31</td>
<td>86.1</td>
</tr>
<tr>
<td>I was able to communicate well to my examiners when answering questions</td>
<td>31</td>
<td>86.1</td>
</tr>
<tr>
<td>I think it is important for the examiners to be physically present during a CDH seen case exam</td>
<td>18</td>
<td>50.0</td>
</tr>
<tr>
<td>I think it is important for the patient to be physically present during a seen case exam</td>
<td>7</td>
<td>19.4</td>
</tr>
<tr>
<td><strong>Adult Dental Health</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I was able to access the hardware (gadgets) needed to undertake the Skype assessment</td>
<td>35</td>
<td>97.2</td>
</tr>
<tr>
<td>I was given enough guidance on using Skype software</td>
<td>26</td>
<td>72.2</td>
</tr>
<tr>
<td>I found it easy to connect with the examiners using Skype</td>
<td>26</td>
<td>72.2</td>
</tr>
<tr>
<td>I was given adequate information about the format before the assessment took place</td>
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<tr>
<td>I was able to present my case to my satisfaction</td>
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<tr>
<td>I felt the examiners understood my case well</td>
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<td>44.4</td>
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<td>I was able to communicate well to my examiners when answering questions</td>
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<td>72.2</td>
</tr>
<tr>
<td>I think it is important for the examiners to be physically present during an ADH seen case exam</td>
<td>24</td>
<td>66.7</td>
</tr>
<tr>
<td>I think it is important for the patient to be physically present during a seen case exam</td>
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<td>41.7</td>
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