

EFFECTIVE TEACHING IS INSPIRING, MOTIVATING AND RESEARCH INFORMED

THIS EXEMPLAR IS DESIGNED BY THE GOOD PRACTICE PROJECT WITH PROFESSOR ALAN NIMMO, A PROFESSOR OF MEDICAL SCIENCE IN THE SCHOOL OF MEDICINE AND DENTISTRY

JCU's Learning, Teaching and Assessment Policy contains nine Core Principles essential to world-class tertiary education. The first and sixth core principles, respectively, demonstrate our commitment to working in partnership with our students and state that 'effective teaching is inspiring, motivating and research informed.' This exemplar is about students' high level of engagement with university learning which is inspired through clinically relevant cases that depict real-life scenarios, therein contributing to the enrichment of students' intellectual lives. The focus of this exemplar is on the third year dentistry program, particularly as it relates to enhancing students capacity for life-long learning which is central to being a good dental practitioner. Professor Alan Nimmo regards the compulsory learning activity referred to as COALS; Clinically-Orientated Active Learning Sessions as drivers for the process through which life-long learning skills develop. Evidence of student engagement with COALS in the third year dentistry program is exemplary. This is evidenced by a student feedback score of 64.9% for subject satisfaction and is further reflected in the following student comments 'COALS presentations are a great idea - a very good learning opportunity' and 'I enjoy the COALS scenarios, I think they are a good learning tool and a good assessment piece' (SFS DS3101, 2011).

The James Cook University Dentistry Program aims to promote improved oral health care delivery, particularly to people living in rural, remote and tropical regions of Australia. The Bachelor of Dental Surgery course extends over a five-year period for full-time learners, and covers all aspects of dental practice wherein basic sciences are integrated with dental clinical sciences and preventative oral health strategies. Professor Alan Nimmo is a Professor of Medical Science within the School of Medicine and Dentistry. He lectures in medical science across the first four years of the Dentistry Program and is the Subject Coordinator for two first and two second year medical science-based subjects within the program. Professor Nimmo explains that the first and second year dentistry program is about developing students' knowledge base and giving them the foundational material which they can subsequently apply in the clinical situation. In the third and fourth years of the dentistry program, students are exposed to a range of compulsory learning activities which are designed to help the students integrate previously acquired knowledge and apply this information within the context of diagnosis and treatment planning.

CLINICALLY-ORIENTATED ACTIVE LEARNING SESSIONS (COALS)

JCU'S Learning, Teaching and Assessment Policy states that 'assessment tasks will enable, motivate and challenge students in ways that demonstrate a higher order engagement with the discipline.' The COALS exemplifies this practice. COALS are holistic and realistic case-based learning activities that provide students with a clinical presentation of problems based on patient history and diagnostic data with the inclusion of psychosocial, cultural and ethical considerations. COALS activities are consistent with developing the Australian Dental Council's Professional Attributes and Competencies of the Newly Qualified Dentist, 2010. These activities integrate the six domains of professionalism, communication skills, critical thinking, health promotion, scientific and clinical knowledge, as well as planning, managing and evaluating patient care. The core objective of the COALS is to develop the critical analytical skills required for evidence-based practice that is appropriate, affordable and accessible for the individual patient. Further to this, the use of COALS has particular relevance in teaching situations where it may not be possible to use clinical materials or standardised patients.

Professor Nimmo suggests 'one reason for developing case-based learning activities is that unlike in areas such as nursing or medicine, where a group of students can be taken on a ward round that introduces them to one patient with a particular condition, and they can start to think about how to manage that particular case, clinical training in dentistry is more based on a one-on-one relationship between the student practitioner and a patient.' Also, because patients are not 'selected' for students, different students can have quite different clinical experiences. Simulated patient cases within COALS enable greater control over the clinical training, ensuring that all students have a broad case-based training that compliments their individual experiences in the clinic. These case-based learning activities enable dentistry students the necessary level of exposure to the real-life patient situation, and it allows for the building in of other layers that can affect the patient such as financial means or social determinants of oral health therein making provision for complexity in an authentic clinical experience.

A key university graduate attribute is the ability to research and synthesise new information and is strongly associated with the development of life-long learning. Professor Nimmo regards COALS

as drivers for the process through which life-long learning skills develop. Students' engagement in COALS requires them to research the clinical evidence base and apply that evidence to the clinical decision making process. In addition to developing research skills that are necessary in an evidence-based approach to dentistry, the students also have to refine their professional communication skills since their ability to present the material in a clear, concise and logical manner is assessed in the form of a case presentation.

The following case is a paediatric dentistry case prepared by Associate Professor Boyen Huang, and it provides a good illustration of how clinical and social layers can be introduced to a COALS case.

EXAMPLE OF A COALS CASE SCENARIO

COALS CASE 1

3-year-old boy presented at your dental surgery with pain. This is his first ever visit to a dentist. The parents recalled that he has fallen from a kid's tricycle at home four days earlier. The child received surgery for Tetralogy of Fallot at one year of age, but he is currently fit and healthy. He likes to eat broccoli and barramundi but not sushi and sashimi. Due to the pain, he has not eaten much since the incident. His favourite toy is Thomas the Tank Engine and he watches SpongeBob SquarePants every day. After taking the anterior periapical radiograph, he refused to open his mouth again.

1. Outline other examinations required.
2. Explain how to approach the child for the examinations suggested.
3. Address a diagnosis (or diagnoses).
4. Discuss options of management planning.

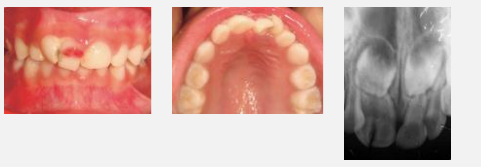


Diagram 1: The students are presented with unlabeled photographs of the oral cavity together with the results of initial diagnostic tests such as a radiograph which forms the starting point for the diagnosis for the individual patient. The images above indicate the initial information provided to the student for this sample case.

BEST PRACTICE IN TEACHING AND LEARNING

Simulated learning environments employ a diverse range of strategies and activities including COALS. These are designed to complement the knowledge and skills being developed in the clinical setting, while making provision for real-life scenarios so that students can effectively work through the process of managing a patient with a particular condition. Simulation clinical sessions enable students to be exposed to a wide variety of patient cases and dental histories that increase in levels and layers of complexity as they move through the dentistry program. For these cases, the students have access to all the information, such as oral x-ray images, that they require to make a clinical diagnosis and come up with a treatment plan. Students are also required to think how they may need to tailor treatment plans to the patient's circumstances, such as access to healthcare services, financial considerations et cetera. The use of simulated patient cases in COALS ensures that the whole cohort gets exposed to the same range of cases and information while enabling a more one-on-one experience between the student practitioner and the patient.

Teaching delivery of Learning

There are twelve cases across the semester so one case is given per week. Each week the whole class gets the same case but one group will present on that week's case. The new case is put up on a Wednesday giving the presenting group exactly one week to prepare to present their clinical observations. At the end of the semester all of the students will have been involved in preparing for and presenting on one case.

The presenting group will be required to set the case history for the rest of the cohort, as well as work through the process they used to make their diagnosis, how they came up with their treatment plan, what the treatment options might be for a particular patient, and how those options should be presented to the patient. In the manner of a clinician requesting tests that may need to be done to confirm or make a diagnosis, further diagnostic information is, on request, released by the lecturer. The diagnosis and treatment plan that the students establish for the simulated patient is then presented and assessed in the form of a clinical

presentation. The learning process requires that the students themselves divide up the workload and research into the underlying pathology and the treatment options. With this comprehensive information at hand, the group can start to confirm the diagnosis and work out the treatment plan. Depending on the case, students may also be required to indicate whether that patient needs to be referred to another clinician such as a specialist practitioner or medical practitioner.

Assessment

The COALS presentation is a group assessment exercise for the presenting group and a clinical learning activity for the other students. Whilst there are assessment activities that are measuring the acquisition of knowledge, the COALS are focused on assessing a student's ability to apply their knowledge to real-life scenarios in a reasoned and ethical manner. The case presentation should demonstrate an understanding of the process and application of principles related to the management of oral and dental conditions in the community setting. Also, the approach that students take must be ethical, one aspect of which is about providing the patient with a broad unbiased coverage in terms of what the treatment options could be. Professor Nimmo explains 'we want to establish evidence-based practice and therefore when the students come up with the diagnosis and treatment plan we want them to show that they have evidence to support the approach that they have taken - and where possible we can take that back to the research based evidence.'

Case Presentation

The twelve case presentations by the students are made to dental specialists and generalists from the University and the local community, as well as the year cohort. The presenting group is assessed on seven criteria which involves carrying out appropriate tests to confirm the diagnosis and develop the treatment plan. In addition, this group is assessed on their ability to tailor that treatment plan to specific patient needs including financial means, geographical location and access health care services. So the students need to think how they would provide options and how they would discuss these with the patient thereby enabling the patient to make an informed choice. The intention is to replicate all the elements that would be involved in the management of a real life patient. More specifically, the management of the patient should reflect current best practice as supported by the evidence base. The presenting group is also assessed on their ability to present the material in a clear, concise and logical manner therein showing professional communication skills and an aptitude commensurate of a dental practitioner.

Case Discussion

Following the formal presentation, the dental practitioners facilitate a discussion that involves the whole student cohort, answering questions and providing further feedback within this learning environment. For the presenting group, case discussions provide opportunity for reflective learning and a capacity to develop consensus. For the rest of the students, discussions open up an opportunity for inquiry and helps build a sense of professional collegiality.

REFINING THE LEARNING PROCESS

With regard to the assessment, Professor Nimmo is keen on the idea of using the cases that have been studied during the semester as clinical stems for the written paper in the end of year examination. This would potentially increase active participation by all the students in working through all of the cases that are presented during the semester and encourage students to focus on all the cases and not just the one in which they are presenting.

Student Feedback

Each semester senior program leaders meet with the whole student body to seek feedback on all the academic activities and where appropriate incorporate those suggestions into the delivery of the program. Also, the dentistry student association has an academic representative that provides ongoing feedback from the student body. Further to this, the JCU Dentistry Student Association (JCUDSA) advocates for students and provides student input into changes being made within the program. JCUDSA places notifications in its publication, *The Grind* and on their Facebook pages to encourage student feedback.

For further information about any aspect of this exemplar, please email Professor Alan Nimmo at alan.nimmo@jcu.edu.au

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