

Comparing Pediatric Rotations at Two University of Queensland Clinical Schools

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Background: The University of Queensland (UQ), Ochsner Clinical School (OCS) is a partnership between Ochsner Health System in New Orleans, LA, and UQ in Brisbane, Australia. OCS medical students are trained on both continents, receiving their didactic education in Australia and their clinical education in the United States.

Methods: We review the OCS experience and compare the pediatric rotations at OCS and UQ.

Results: Students in the pediatric rotations in Australia and in the United States receive their clinical instruction in the real-world learning environment of hospitals and clinics. In addition, lectures, online learning modules, case-based tutorials, and rigorous assessment at the end of the rotation help prepare medical students for future contact with pediatric patients. Sixty-nine third-year OCS students and 499 fourth-year UQ students completed the pediatric rotation in 2014. In 2015, 105 third-year OCS students and approximately 400 fourth-year UQ students completed the pediatric rotation.

Conclusion: In a unique educational collaboration, OCS has used e-learning and face-to-face tutorials to produce a well-rounded curriculum that assimilates global healthcare and international medicine. This article demonstrates the feasibility of delivering a standardized curriculum across two continents using modern e-learning tools.

Keywords: *Clinical clerkship, curriculum, education–medical–undergraduate, faculty–medical, pediatrics, schools–medical*

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INTRODUCTION

The University of Queensland (UQ), Ochsner Clinical School (OCS) is a unique partnership between Ochsner Health System in New Orleans, LA, and UQ in Brisbane, Australia. OCS students are educated in both Australia and the United States and have the opportunity to obtain an integrated, global medical education. Students spend their first 2 years in Australia where the curriculum includes the study of basic medical sciences and an introduction to clinical medicine through lecture and case-based learning. Students spend their final 2 clinical years at Ochsner Health System where clinical faculty impart hands-on clinical training in medicine, pediatrics, and surgery. OCS students are expected to learn and follow the Australian curriculum. During the 2016 academic year, OCS will have the maximum class size potential of 120 students per year.

The Ochsner Clinic, established >70 years ago as a specialty clinic, has grown into the largest medical system in Louisiana and is now known as Ochsner Health System. The Ochsner medical staff has doubled in the past decade to more than 1,000 physicians. Ochsner has always had an interest in education; practically since its inception the institution has offered a number of accredited graduate

medical education programs and has trained medical students from the surrounding area for many years. Ochsner Health System chose to enhance its undergraduate medical education mission through the affiliation with UQ, a university with an international reputation in education, medical care, and research and a track record of graduating students with global international experience.

This article compares the pediatric rotation at UQ in Australia to the pediatric rotation at OCS. The pediatric rotation for students in Australia and in the United States features clinical immersion, independent e-learning with online interactive modules, didactics, and face-to-face case-based tutorials to consolidate the learning in the online modules. In preparation for the pediatric rotation, all students in years 1 and 2 have weekly problem-based learning sessions in small groups with a clinical tutor. Pediatric topics account for approximately 20 of these sessions. Pediatrics is a fourth-year rotation for the Australian cohort, while at OCS it is a third-year rotation for the Ochsner cohort to provide students with pediatric exposure prior to taking the United States Medical Licensing Examination (USMLE) Step 2.

LEARNING ENVIRONMENT

In Australia, UQ uses many facilities to conduct 5 pediatric rotations, teaching approximately 400 students per year. Approximately 70% of the students are taught at the Lady Cilento Children's Hospital in Brisbane, the surrounding 4 metropolitan hospitals (Greenslopes Private Hospital, Ipswich Hospital, Redlands Hospital, and Wesley Hospital), and outpatient clinics in Brisbane. The remaining 30% are taught at 4 near-metropolitan and 4 regional outlying (rural clinical school) hospitals (Bundaberg Base Hospital, Hervey Bay Hospital, Rockhampton Base Hospital, and Toowoomba Hospital) and clinics. Assessment is completed at the end of the rotation in Brisbane, except for the 4 regional sites where students are tested on-site.

The OCS cohort is taught predominantly at the Ochsner Medical Center and 2 Ochsner community hospitals in New Orleans, LA. The students are also engaged in clinics at the Ochsner main campus general pediatric and pediatric subspecialty clinics, as well as 4 outlying Ochsner pediatric primary care clinics within a 40-mile radius. All end-of-rotation testing occurs at Ochsner Medical Center.

LEARNING RESOURCES

Three main learning resources are available to all students on the pediatric rotation. One of the most important is the Paediatric Online Interactive Education (POLIE) modules. The learning management tool Blackboard (Blackboard, Inc.) is critical for scheduling and for providing easy access to materials used in this rotation. Standardized voice-over PowerPoint (Microsoft Corporation) (VOPP) lectures by Australian instructors provide access to lectures previously given. All 3 resources are part of the e-learning curriculum and are available online at the student's convenience.

POLIE Modules

The POLIE modules consist of 8 lessons covering important topics in pediatrics (Table). The topics cover what the assessments are based on, and most of the questions in the final examination are derived from these modules. Each module includes 3 cases that cover different clinical presentations of the weekly topic. Students are required to complete 1 module on their own every week prior to a tutorial session with the attending physician (consultant) who is the clinical teacher in that field. Each case is interactive and tests clinical knowledge, concepts of theory, problem solving, critical thinking, and clinical judgment. Students answer questions as they progress through the module, developing the ability to think broadly as they encounter different situations. The cases deal not only with the medical aspects but also with the socioeconomic and sometimes legal aspects of patient care. Links to web-based professional resources are also available. During the face-to-face tutorial sessions, the attending physician presents a fourth case. These face-to-face sessions are held at all the sites in Australia as well as at OCS. Unique to the OCS cohort, as he/she discusses the case, the attending physician covers what is done in Australia and contrasts it with American clinical practice, so students are able to compare practices. These case-based learning modules promote development in problem solving, critical thinking, interpersonal skills, and creativity.

Table. Paediatric Online Interactive Education Modules

The infant or child with fever
The child with shortness of breath
The child with vomiting
The child with an altered level of consciousness: head injury
The child with an altered level of consciousness: seizure
The crying baby and other common infant conditions
The child with abdominal pain
Common neonatal presentations

Blackboard

Blackboard is a learning management tool used by many undergraduate and graduate institutions worldwide to provide course resources including textbooks, articles, syllabi, and assessment information. The pediatric rotation syllabus outlines learning objectives, learning activities, and grading rubrics. A variety of learning materials is available on Blackboard for all students to access. Blackboard is also a portal for communication where instructors can post announcements related to the course.

Lectures

Twenty-four lectures are delivered during each pediatric rotation in Australia and transmitted to all locations within South East Queensland by video conferencing. Lecture topics include a wide variety of subspecialty-specific lectures, as well as the pediatric basics such as immunizations and developmental milestones. These lectures are available online for UQ and OCS students to review in the form of PowerPoint presentations as well as VOPPs.

VOPPs are lectures that are prerecorded in Australia, so students can access them at a convenient time. These lectures are used in conjunction with the POLIE modules, as they cover the topics overlying the specialty of pediatrics. The voice-over component allows students to follow the lecture and understand the content of the PowerPoint slides. Through these lectures, students learn the Australian approaches, management, and treatment of pediatric conditions. Lectures are available to students across all UQ clinical schools. Subspecialty staff at OCS deliver weekly lectures on most of the same topics for the OCS cohort. These lectures are provided to supplement the Australian content with a focus on American practices and guidelines and help students on the wards and the clinics as they see these practices in action.

CLINICAL EXPOSURE

The experience provided at OCS in New Orleans is designed to mirror the experience provided in Brisbane. Students spend 1 week in the emergency department working a variety of shifts to obtain a diverse experience. They spend 1 week on the pediatric surgical services, both in the operating room and in the clinic, acquiring a significant exposure to pediatric surgical care. Inpatient hospital exposure consists of 2 weeks in the hospital on the pediatric intensive care unit, in the general pediatric wards, or as part of the subspecialty team for admissions and ongoing care of the hospitalized patients. Students spend 1 week in the well-baby nursery and have a brief exposure to

the neonatal intensive care unit that allows them to experience the differences between sick and healthy newborns. Students are provided with outpatient experience, with 1 week spent in private practice offices and 1 week spent in the general pediatric and subspecialty clinics. They are encouraged to see the patients, obtain history and physicals (H&Ps), and make diagnostic and therapeutic plans.

Ochsner and UQ hold morning checkout rounds with residents and participate in rounds with the ward teams. UQ students in Australia at the Lady Cilento Children's Hospital are similarly scheduled to rotate through the general pediatrics, emergency, surgery, neonatal, and subspecialty departments. Students attend morning handovers and daily ward rounds and clinics. In addition, students are allocated in groups of 3-4 to a twice-weekly clinical bedside teaching team that includes a senior resident and attending physician (consultant). Clinical bedside teaching allows the students to learn clinical problem solving and to present H&Ps. It provides opportunities for the students to get experience for the work-based assessment—short and long case mini-clinical evaluation exercise (mini-CEX). While on rounds, pertinent history and significant physical findings needed to make appropriate diagnoses are noted and reviewed. Senior staff conduct student morning reports 3 times weekly with OCS students and review their patient presentations. The faculty fine-tune the skills students need to clearly present H&Ps. Students are also encouraged to develop differential diagnoses and management plans. They have weekly pediatric interactive sessions with a general pediatrician to review immunization, development, and practice issues. Finally, students attend grand rounds weekly and tumor boards every other week.

ASSESSMENT

During the pediatric rotation, students are assessed on different aspects of their clinical experience. The rotation grade for both UQ and OCS students is based on the Clinical Participation Assessment (CPA), 3 work-based assessments or mini-CEXs, and an end-of-rotation examination. The CPA assesses the student's conduct in the professional environment, initiative and engagement, clinical reasoning, patient management, and communication skills. The mini-CEX tests the student's ability to carry out and present neonatal and pediatric examinations. The 3 mini-CEXs consist of an observed neonatal examination, a short case (observed system-focused clinical examination), and a long case (presentation of complete H&P). Written examples of short cases and long cases are posted on Blackboard for students to review.

End-of-rotation students have testing in the form of 4 Objective Structured Clinical Examination (OSCE) stations

and a 100-question multiple choice examination. The OSCEs are graded by OCS staff. All OCS staff received instruction from UQ educators in Australia on evaluating and grading for consistency. The standardized OSCE assessment guide has 5 domains: (1) history, (2) physical examination, (3) clinical reasoning/medical knowledge, (4) management, and (5) communication, and each domain is assessed at 4 standards: unsatisfactory, borderline, satisfactory, and proficient.

Testing to graduate and apply for internships in Australia requires passing the Multi-Station Structured Clinical Assessment at the end of year 4. The test consists of 10 OSCE stations lasting 8 minutes each with 2 minutes between cases that cover 1-2 questions from all major clinical rotations including pediatrics. Australian students match into general internships for 1-2 years prior to proceeding with their specific residencies of choice.

OCS students must pass the USMLE Step 1 and Step 2 to qualify for the National Resident Matching Program in the United States. The OCS cohort moves directly from medical school to internship in their field of interest.

Sixty-nine third-year OCS students and 499 fourth-year UQ students completed the pediatric rotation in 2014. In 2015, 105 third-year OCS students and approximately 400 fourth-year UQ students in Australia completed the pediatric rotation. These students should be well prepared for future contact with pediatric patients.

CONCLUSION

In a unique educational collaboration, OCS has taken advantage of e-learning and face-to-face tutorials to produce a well-rounded curriculum that assimilates global healthcare and international medicine. Although the first 3 OCS cohorts have had satisfactory outcomes by passing the course, comparisons with the larger group of Australian students have been limited by the small size of the OCS cohorts. With upcoming OCS classes reaching more substantial numbers, looking at statistical comparisons between the American and Australian students—in particular, the variation in and possible effects of the differences in clinical experience—will be beneficial. This article demonstrates the feasibility of delivering a standardized curriculum across two continents using modern e-learning tools.

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