

SHORT COMMUNICATION

Reshaping experiential education within Qatar University's Health Programs during the COVID-19 pandemic

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ABSTRACT

Health professions programs heavily depend on experiential learning to prepare learners for practice within the healthcare system. Learners acquire a significant proportion of patient care skills as they participate in experiential learning activities. As the coronavirus disease 2019 (COVID-19) pandemic disrupts education globally, educators have been challenged to reexamine existing teaching approaches to minimize the impact on experiential educational outcomes. This article describes how educators from the College of Pharmacy and College of Medicine at Qatar University utilized nontraditional teaching methods to ensure the continuation of experiential learning despite the disruption due to the pandemic.

Keywords: Experiential learning, clinical training, COVID-19, pharmacy, medicine, undergraduate education

INTRODUCTION

The term experiential education in a clinical practice setting is defined as supervised structured or semi-structured teaching and learning activities that involve real-life situations and interpersonal interactions with patients, caregivers, and other health professionals.¹ Experiential learning is a process by which learners develop knowledge through direct experiences within an authentic setting.¹ It involves engaging learners in actual experiences and reflections that connect knowledge learned in the classroom to real-life situations. This experience enables learners to develop skills, clarify values, and become better prepared for future work placements when learning opportunities are embedded within an active learning environment.

When describing the experiential learning of health professions students, the four stages of Kolb's

experiential learning cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation are often cited in the literature. These stages of knowledge development allow learners to immerse themselves in a practice environment while also engaging in a learning process. This learning process enables them to comprehend and conceptualize observations into meaningful experiences that are then integrated into their knowledge. From this experience, learners are afforded the opportunity to experiment independently in practice under a clinical educator's supervision.^{2,3} The theory of experiential learning positions experience at the center of the learning process. As such, experiential education is considered a core component of curricula within health professions programs.

Qatar University (QU) is the primary institution in Qatar for higher education. It consists of ten Colleges with a student body of over 20,000. In January 2017, QU Health was established and encompassed the Colleges of Dentistry, Health Sciences, Medicine, and Pharmacy as the national provider of higher education for the health field.

The College of Pharmacy at Qatar University was established in 2006. The Bachelor of Science in Pharmacy (BScPharm) and the Doctor of Pharmacy (PharmD) degree programs are accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP). Both programs depend heavily on the experiential component within their curriculum to prepare graduates for practice. The experiential component of the BScPharm curriculum is referred to as the structured practice experiences in pharmacy (SPEP). These practice-based experiences allow students the opportunity to have direct interaction with diverse patient populations in various practice settings (community pharmacies, hospitals, clinics, and the pharmaceutical industry) under the supervision of pharmacist preceptors. The SPEP program involves 24 weeks (960 hours) of experiential training delivered over six successive rotations. SPEP-1 takes place during the summer semester of the second professional pharmacy year. SPEP-2 occurs during the third professional pharmacy year during the summer semester, and SPEP-3 through SPEP-6 occurs during the fall semester of the fourth professional pharmacy year. By completing the six SPEP rotations, students will have mastered the learning outcomes specified by the National Association of Pharmacy Regulatory Authorities (NAPRA)

Professional Competencies for Canadian Pharmacists at Entry to Practice (Table 1).⁴

The Doctor of Pharmacy Program is a graduate program at the College of Pharmacy. It is offered to QU BScPharm graduates who wish to pursue a clinically advanced degree in pharmacy. It is an additional year of study after completion of the QU BScPharm degree. The program is designed to develop advanced clinical practice knowledge, skills, and attitudes to deliver direct patient-centered care while advancing pharmacy practice in Qatar. The experiential component of the PharmD program builds upon the rotations within the BScPharm curriculum. It comprises of eight, 4-week clinical rotations completed in various specialty settings with a focus on direct patient care provided to a diverse patient population. The program focuses on seven key educational outcomes derived from the Association of Faculties of Pharmacy of Canada (Table 1).⁵

The College of Medicine accepted its first students in 2016 and will graduate the first cohort of physicians in summer 2021. The Doctor of Medicine (MD) curriculum spans over six years that commences with a foundation year followed by two-and-a-half years of preclerkship education and finally two-and-a-half years of clerkship training. The MD curriculum has six curricular educational themes adopted from the Accreditation Council of Graduate Medical Education (Table 1).⁶ In addition, the MD program focuses on 13 Entrustable Professional Activities, which enable a continuum of training to extend across the undergraduate and postgraduate medical education within the international standards adopted by the State of Qatar.

In the face of the coronavirus pandemic declared on March 11, 2020, by the World Health Organization, the Ministry of Public Health in Qatar announced the physical closure of schools and universities as a precautionary measure to reduce the spread of the virus. Schools and universities within Qatar quickly transitioned to online instruction. However, the delivery of the experiential education component of the pharmacy and medicine programs within QU came to a sudden halt as clinical placement sites were overwhelmed with managing COVID cases and restructuring patient care delivery. With the absences of practical experiences, the College of Pharmacy and College of Medicine had to be innovative in strategizing ways to deliver this experience to students.

A plethora of literature exists on how the coronavirus pandemic has disrupted medical and pharmacy

Table 1. Overview of the College of Pharmacy and College of Medicine at Qatar University

Qatar University Health Programs	Bachelor of Science in Pharmacy	Doctor of Pharmacy	Doctor of Medicine
Years of Study	5	5 + 1 (additional year after BScPharm)	6
Average Class Size per Professional Year	30	15	70
Experiential Hours	960 hours	1280 hours	3500 hours
Number of Internships	6	8	10
Educational Outcomes	*NAPRA Outcomes: 1. Ethical, Legal, and Professional Responsibilities 2. Patient Care 3. Product Distribution 4. Practice Settings 5. Health Promotion 6. Knowledge and Research Application 7. Communication and Education 8. Intra- and Inter-Professional Collaboration 9. Quality and Safety	*AFPC Outcomes: 1. Care Provider 2. Communicator 3. Collaborator 4. Leader- Manager 5. Health Advocate 6. Scholar 7. Professional	*ACGME Outcomes: 1. Patient & population care 2. Knowledge for practice & life-long learning 3. Evidence-based Practice 4. Interpersonal and Communication Skills 5. Ethics & Professionalism 6. Healthcare Systems & Cost-effective practice

*NAPRA = National Association of Pharmacy Regulatory Authorities, AFPC = Association of Faculties of Pharmacy of Canada, ACGME = Accreditation Council of Graduate Medical Education

education from various perspectives.⁷⁻¹⁵ A consistent message among these reports is the need to be reflexive and adaptive to salvage and maintain as much of the existing clinical experiences as possible and be forward-thinking and innovative as healthcare will most likely look different.^{16,17} This commentary highlights how the experiential team within the College of Pharmacy and College of Medicine has restructured the clinical training component of their programs due to the coronavirus pandemic. These experiences describe the pandemic's implication on the educational outcomes through a series of short vignettes.

PROGRAMS' EXPERIENCES AND EDUCATIONAL OUTCOMES

The Bachelor of Science in Pharmacy Program Experience

As a result of the COVID-19 pandemic, all summer SPEP rotations were canceled and postponed to the Fall/Winter 2020 semester. However, students who had postponed the SPEP-6 rotation to the summer were affected by the situation. An online SPEP-6

rotation was developed for these students to avoid further delays in their graduation. The rotation consisted of a hybrid hospital/community pharmacy rotation that consisted of numerous online interactions with an array of preceptors from both settings. A series of self-directed activities and guided therapeutic discussions and presentations were designed and aligned to meet the NAPRA competencies necessary for pharmacy practice.

For the ethical, legal, and professional responsibilities competency, preceptors set up foundational expectations regarding professionalism, privacy, and confidentiality of patient health information and business-related proprietary information, site-specific policies and procedures, and related regulations through a series of self-directed and interactive forums. Preceptors maintained an online "open door" policy by holding daily check-ins and project-specific ad hoc meetings via web-based platforms, phone calls, and emails.

Scenario-based simulations,¹⁸ videos, and case-based therapeutic discussions were used to support the patient care outcome. This was mostly supported

by hospital pharmacy preceptors who provided online access to patient medical charts and medication histories. Students led case discussions and developed care plans, which were presented online. Although most patient care outcomes were addressed, developing a professional relationship with the patient was limited due to the absence of an online telehealth platform.

For the product distribution and practice settings outcome, students were provided with the hospital formulary and asked to review and compare the various medication products available and dispensed by community pharmacies through an online discussion with the community pharmacy preceptor. Dispensing an appropriate product safely and accurately for a patient was not evaluated due to the online nature of the rotation.

The health promotion outcome was addressed by assigning students a project to identify and review nonprescription items in community pharmacies for insomnia management. A pamphlet was developed for counseling patients on insomnia management and supported with a recorded seminar for the QU student and faculty community about sleep hygiene and sleep management during COVID-19.

For the knowledge and research application outcome, students used their drug information and research skills to respond to medication queries, prepare drug monographs, and update hospital therapeutic guidelines. Students also prepared presentations and journal clubs that were delivered through an online platform to hospital pharmacy staff.

For the communication and education outcome, scenario-based simulation and patient counseling videos were used to support this outcome. Providing education to individual patients was not possible for students due to the absence of a telehealth platform. Students were asked to discuss the multidisciplinary team's role within the medication management clinic at the psychiatric hospital to address the intra- and inter-professional collaboration outcome. This clinic was chosen as it continued to provide online patient care during the pandemic. Students were asked to review how this team of professionals worked together, review the literature on similar clinics, and reflect on the pharmacist's role within this team.

The quality and safety outcome was fulfilled through several discussion forums between preceptors and students. Discussion topics included implementing

safety protocols within the hospital and community pharmacy settings to tackle COVID-19 and the review of national and international COVID-19 updates on pharmacotherapy and the pharmacist's role. Medication safety and quality were also discussed with a focus on medication safety initiatives, adverse drug events, and medication error reporting.

Overall, under the guidance and continued support of the SPEP Coordinator, the preceptors collaborated, innovated, and leveraged technology and opportunity while finding new ways to maintain the integrity and expectations of traditional SPEP rotations. It was an excellent opportunity for students to practice flexibility by forgoing the traditional onsite rotation and committing to a distance-based experience. [Table 2](#) highlights the coronavirus pandemic's implications on the SPEP program educational outcomes and the strategies implemented to address them.

The Doctor of Pharmacy Program Experience

For the PharmD program, transitioning students to an online experiential experience was feasible, since the 24 weeks of direct patient care experience required by CCAPP accreditation standards were already completed by the PharmD students earlier in the semester. For the remaining two rotations, the PharmD Program Director re-assigned each PharmD student to a cross-appointed faculty within the College of Pharmacy to provide a practice experience via distance learning. The online rotations provided by the cross-appointed faculty were based on their area of expertise as many practice in patient care specialties such as internal medicine, infectious disease, cardiology, and mental health. The online delivery of these patient care rotations was practical due to the student and faculty cross-appointments continued access to the electronic health records. New online rotations such as pharmacy academia, curricular assessment, and clinical research were developed in a short timeframe by faculty preceptors to accommodate students who already completed the rotations mentioned above.

The online clinical practice experiences proceeded as usual, but without the face-to-face patient interaction. In its place, students accessed patient cases from practice via electronic medical records and worked up patients to develop care plans. Direct patient and health provider interactions were replaced with role

Table 2. Experiential Educational Outcomes within the Pharmacy and Medicine Programs

Educational outcomes similar among all programs	Implications of COVID on educational outcomes	Strategies addressing educational outcomes
Patient Care (BScPharm, PharmD, MD)	<ul style="list-style-type: none"> • Patient care rounds were put on hold • Limited face-to-face interactions to conduct physical assessments and examinations, interviewing, and counseling • Suspension of community pharmacy rotations for BScPharm program 	<ul style="list-style-type: none"> • Online multidisciplinary patient care rounds • Online specialty clinics Direct observation of work-based assessments in simulated environment (e.g., mini-clinical evaluation exercises) • Telemedicine via online platform and phone follow ups with patients • Patient case discussions using electronic health records to develop care plans • Exposure to telepharmacy services provided by outpatient dispensary pharmacists in hospital setting
Communication and Education (BScPharm) Communicator (PharmD) Interpersonal and Communication Skills (MD)	<ul style="list-style-type: none"> • Assessment of verbal and nonverbal communications skills by students and patients were challenging due to face masks and physical distancing 	<ul style="list-style-type: none"> • Role plays conducted between the preceptor and student via online platform to assess verbal and nonverbal communication skills (e.g., patient interviews, patient education)
Intra- and Inter-professional collaboration (BScPharm) Collaborator (PharmD)	<ul style="list-style-type: none"> • Limited face-to-face interactions between students and healthcare providers to build a rapport 	<ul style="list-style-type: none"> • Telephone interactions with healthcare providers • Scenario-based simulation with online briefing
Health Promotion (BScPharm) Health Advocate (PharmD) Population Care (MD)	<ul style="list-style-type: none"> • Community outreach campaigns were put on hold 	<ul style="list-style-type: none"> • Web-based outreach campaigns for the community (e.g., video conference on sleep hygiene) • Health promotion pamphlets

Legend: BScPharm = Bachelor of Science in Pharmacy, PharmD = Doctor of Pharmacy, MD = Doctor of Medicine

plays between the faculty preceptor and the PharmD student. Therapeutic discussions, journal clubs, presentations, and other rotation related assignments and projects were managed via videoconferencing software. Online presentations and journal clubs were conducted jointly among similar rotation experiences to minimize the workload among faculty preceptors and to enhance the students' learning experience. Without compromising the competency standards of the PharmD program, rotational activities were reviewed and altered by the PharmD Director and faculty preceptors to assure achievement of the program learning outcomes. Table 2 highlights the coronavirus pandemic's implications on the PharmD program educational outcomes and the

strategies implemented to address them during the outbreak.

As the new academic year commenced in Fall 2020, the College of Pharmacy's clinical placements were reinstated in hospital practice sites throughout Qatar. Clinical staff and PharmD student participation in regular patient care services were limited in the early stages of the academic semester. The learning outcomes linked to the care provider competency were affected during this time. Multidisciplinary patient care rounds were replaced with online case discussions. Patient counseling and assessments were replaced via telemedicine services. As an example, anticoagulation consultations were conducted via drive-through and telephone services.¹⁹

As communication and collaboration with other healthcare providers were minimal, many patient consultations occurred over the phone, limiting students from developing a rapport and establishing relationships with the patient and healthcare team that occurs with face-to-face contact. While role plays were conducted between the clinical preceptor and the student, the communicator and collaborator educational outcomes have been greatly impacted as students were not assessed in a naturalistic environment. With the number of COVID-19 cases in Qatar beginning to plateau (average 200 cases per day) in September 2020, restrictions were lifted to allow hospital staff and pharmacy and medical students on clinical rotations to return to daily patient care activities while wearing masks and maintaining a physical distance.²⁰ Although restrictions have eased, many face-to-face interactions continue to be limited as precautionary measures. Few clinical rotations continued to have students present case presentations, journal clubs, and topic discussions via online platforms to respect physical distancing policies. As large public gatherings are currently restricted, PharmD students were not able to participate in community outreach campaigns to fully attain the health advocate outcome. The College of Pharmacy had developed online community outreach campaigns and health promotion pamphlets to ensure achievement of this outcome.

The Doctor of Medicine Program Experience

In the College of Medicine, the clerkships were disrupted in March 2020, and students could not enter the clinical settings until July 2020. The clinical skills sessions were suspended during this time, which permitted a situational assessment to occur. Planned task-focused delivery of five clinical skills online sessions was successfully implemented in April 2020. The six-step framework of curriculum development by Kern and colleagues was adopted, and a revised delivery plan for the clinical skills program was set in place for Fall 2020.²¹

In the clerkships, we ensured that the learning outcomes, especially those linked to patient and population care and interpersonal and communication skills, were acquired by dividing time into online lecture and study session delivery and then clinical placements in the clinical environment once permitted. The clerkships' delivery was reorganized with the knowledge acquisition part (lectures, study

sessions) delivered online during the COVID-19 lockdown period and knowledge examined by an applied medical knowledge test at the end of the period. The MD program subsequently concentrated clinical placements once the restrictions of clinical attachments were lifted and ensured students attended the required minimum period for clinical placements. This time was targeted to complete in-program assessments such as case reports, case logs, case presentation, and work-based assessments.

The objective structured clinical examination has been our gold standard for assessing clinical skills acquisition.²² However, it was no longer possible to deliver with real or simulated patients during the pandemic. The MD program reworked the assessment and delivered it as a case discussion assessment. Students were asked questions on history and examination findings, clinical reasoning, diagnosis, investigation, and treatment across various clinical problems. Case discussions were conducted online, but subsequent case discussions were run in multiple mini-interview formats in house. As it was not possible to observe students performing clinical skills in practice, a range of supervised work-based assessments such as mini-clinical evaluation exercises and direct observation of clinical skills were utilized (Table 2).

DISCUSSION

The coronavirus pandemic has impacted the experiential learning of pharmacy and medical students within QU. Although this impact has lessened since the start of the pandemic, the effects linger as the country continues to battle the virus while maintaining precautionary measures in the clinical practice setting. Nevertheless, the practice sites are still capable of offering a rich learning environment for students. When compared to previous student cohorts, students have an opportunity to experience how the healthcare system tackles an outbreak, while understanding the role they will play collaboratively with other healthcare professionals.

As for the experiential teams within the College of Pharmacy and College of Medicine, the disruption in clinical training provided an opportunity to develop new rotation specialties and explore innovative teaching approaches for experiential learning. For clinical faculty, the delivery of online clinical rotations was considerably more work than delivering a traditional experiential experience. There was a great

deal of up-front preparation by clinical educators to redesign practical hands-on experiences into distance learning activities. In addition, the clinical faculty had to balance their time between clinical/academic work and online teaching. The hours of online learning varied among the pharmacy and medicine programs. For the BScPharm program, students spent an average of 60 hours of online learning per rotation while the students in the PharmD program spent an average of 25 – 30 hours per rotation. The online learning was based on rotation specialty for the MD program and ranged from 10 to 25 hours per rotation. Many of the College of Pharmacy and College of Medicine educational outcomes linked to patient care, collaboration, and communication skills have been greatly impacted by the pandemic. As programs continue to move forward with clinical placements amid COVID-19, the communicator and collaborator learning outcomes will continue to be affected due to the mask-wearing and physical distancing policies in the clinical practice setting. Assessment of these outcomes will need to be adjusted in practice for students and practitioners in the coronavirus era. Evaluations should focus on a global approach rather than the individual components of communication whereby emphasizing confidence, rapport, and adaptability.²³

The brief disruption in clinical training has provided clinical educators a chance to explore technology and alternative approaches to ensure students meet the competencies necessary to practice as healthcare professionals. These approaches helped the experi-

ential programs stay afloat to compensate for the limited patient care exposure. Although the standard delivery of patient care was altered during this time, the opportunity to provide care remained present and allowed students to continue to learn and participate within the clinical practice setting.

As the world continues to battle the pandemic, the use of online encounters become ideal. Telemedicine, whose initial purpose was to provide care when the distance was a major factor, is now emerging as the way forward in times of crisis.²⁴ With advancements in healthcare technology, the emergence of clinical rotations delivered via e-learning should not be considered an entity of the future but precedence for health professions programs in the present. Clinical rotations that feature real-time online visits between healthcare professionals and patients that eventually evolve into online discussions with multidisciplinary healthcare teams can be an example of integrating technology into current practice. As such, the integration of telemedicine should be at the forefront of many health professions programs.²⁵

In conclusion, proper planning for clinical practice, focused learning, communication, and accessibility to technology can allow for the successful completion of required clerkships in the pharmacy and medicine programs. It is essential to remain flexible and empathetic as students fulfill patient care tasks during such dynamic circumstances. The end goal is to ensure students are prepared to become effective healthcare practitioners in the future.

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