

COMMENTARY

COVID-19 Pandemic Challenges and Lessons Learned by Pharmacy Educators Around the Globe

Marina Kawaguchi-Suzuki, PharmD, PhD,^{a,b} Naomi Nagai, PhD,^c Rita Oghenekeve Akonoghre, PharmD, MPharm, MPH,^d James A Desborough, MPharm, PhD^e

^a Pacific University, Office of Global Pharmacy Education and Research, Hillsboro, Oregon

^b Editorial Board Member, *American Journal of Pharmaceutical Education*, Arlington, Virginia

^c Musashino University, Faculty of Pharmacy, Tokyo, Japan

^d Delta State University, Faculty of Pharmacy, Abraka, Nigeria

^e University of East Anglia, Norwich Research Park, Norwich, Norfolk, United Kingdom

Corresponding Author: Marina Kawaguchi-Suzuki, Pacific University, Office of Global Pharmacy Education and Research, Hillsboro, OR 97123. Tel: 503-352-2676. Email: marina.suzuki@pacificu.edu

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Severe acute respiratory syndrome coronavirus 2 and the infection, COVID-19, affected people's life worldwide. This pandemic forced both pharmacy faculty and students to adapt to a new teaching and learning environment not only in the United States but around the globe. Pharmacy educators faced common challenges and opportunities to make classroom learning and experiences, as well as student assessments, into a remote or online format. Unique approaches taken to overcome difficulties in various countries showed pharmacy faculty's resilience to continue providing education to students. The pandemic also shed light on areas needing improvement for pharmacy educators to work on in the future.

Keywords: pharmacy, education, COVID-19, SARS-CoV-2, pandemic

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the infection caused by the SARS-CoV-2, known as COVID-19, influenced people's life worldwide. The World Health Organization declared the COVID-19 outbreak a pandemic on March 11, 2020. Travel restrictions came into effect in various countries. Many cities were put under a stay-at-home order. Due to the international spread of the virus, pharmacy educators faced various challenges, not only in the United States (US) but also in many other countries.

Policies set by each country's government and/or individual universities have affected the entire spectrum of work for pharmacy educators. We showed resilience to continue providing education to students, conducting research, serving the profession, and taking care of patients. In the US, a series of webinars were conducted among deans and the faculty with pharmacy organizations to share information and seek solutions to issues raised in the pandemic. A document, "Pharmacists as Front-Line Responders for COVID-19 Patient Care" were put together by the leaders of US pharmacy organizations.¹ Regardless of our global locations, pharmacy educators made efforts by moving teaching platform to online, by formatting their exams to online assessment, and by adjusting the experiential education. Many pharmacy organizations and universities opened up registrations for online continuing education free of charge for pharmacist seeking learning opportunities at home. Schools/Colleges of Pharmacy compounded hand sanitizers to reach out to the community, and personal protective equipment was donated from university laboratories to local hospitals and clinics. Science faculty members got involved in research collaborations related to SARS-CoV-2; practice faculty members expanded their clinical services through telehealth and answered drug information questions on COVID-19. Pharmacy educators did not only teach our own students but also had a chance to educate the general public to prevent the spread of the infection. While pharmacy educators tried to navigate through the pandemic, similar challenges were experienced and overcome around the globe.

Experience in Japan

The Japanese government declared a nation-wide state of emergency in April, 2020 and asked the citizens to restrict their movement.² The government promoted the avoidance of 3-Cs (close spaces, crowded places, and close-contact setting). The National Examination of Pharmacists is annually conducted in February to license new pharmacists nationwide, and this exam was not affected. However, the declaration coincided with the start of the academic year, which

traditionally starts in April and completes in March. Most universities voluntarily closed their campuses and cancelled the graduation and/or entrance ceremonies.

Pharmacy education and research activities were affected due to the limited access to campus for the faculty and students. Pharmacy schools could not hold lectures on campus in the first half of the 2020 academic year, and pharmacy educators needed to work remotely and teach online.³ Each pharmacy school established guidelines according to the policies published by the government and the Council on Pharmaceutical Education.⁴ The policy allowed each pharmacy school to flexibly set the start date of their classes in the 2020 academic year by utilizing online and/or on-demand lectures, which were new to many pharmacy schools in Japan. Adjustments were similarly made in the training schedules and sites for the experiential education. Japanese pharmacy students are traditionally required to complete a thesis for graduation, and the location of their research activities also shifted to home, except projects requiring hands-on participation in the laboratory with cautious measures for infection control. Clinical research was also posed a challenge with restricted access to the health care facilities.

The pandemic rapidly advanced the integration of information and communication technology (ICT) in Japanese education system. Pharmacy educators were asked to take actions based on students' feedback regarding their remote learning experience on an ongoing basis. The continuing adjustments of their teaching methods to accommodate students' situations led to more intensive communication between students and the faculty during the pandemic than ever before. While the use of ICT is promising even after the pandemic period, student outcomes that require face-to-face education still needs to be defined from ones that can be achieved through online education. Additionally, it is expected that certain modifications would happen in the future pharmacy curriculum, such as the addition of computer science and data science courses to strengthen students' future competency in the ICT.

During the pandemic, the government, universities, and industries worked together and created an official framework for facilitating the use of copyrighted materials for educational purposes. They also offered: 1) tuition waiver or reduction, 2) supplemental financial loans for students, and 3) subsidies for the purchase of ICT equipment for online classes.^{2,3} To further promote the use of ICT in future education, an initiative was started to standardize the online systems/platforms and devices for remote learning. While the pandemic introduced the new ICT modality and the reform of the education formats, the infrastructure needs to be maintained and promoted with ongoing technical and financial supports from the government to provide equal learning opportunity among students.

Experience in Nigeria

African countries recorded their first case of COVID-19 in Algeria on February 25th.⁵ On February 28th, the Federal Ministry of Health announced the first confirmed case in Nigeria.⁶ On March 30th, the President of the Federal Republic of Nigeria issued the lockdown of non-essential activities. The closure of all schools and universities in Nigeria and neighboring African countries was announced at the same time with the lockdown.

With university closures, didactic classes, hospital rotations (which takes place during the final year of the academic program), and co-curricular activities were all suspended. However, students were allowed to carry out their off-campus research under faculty's remote supervision. Students' participations in their internships (a paid work after the academic program and a prerequisite before the licensure exams) were not affected by the school closure, but movement restrictions affected student's resumption at work. The Pharmacists Council of Nigeria (PCN) continued to run their online training for the Foreign Graduate Orientation Program, which is a program for foreign graduates to be licensed in Nigeria.⁷ However, in Nigeria and neighboring African countries, timely guidance from the accreditation/regulatory agencies was lacking. Hence, a focus group was created by the faculty members from different institutions to deliberate on each other's lessons.

The major challenge among the pharmacy educators was their limited capacity for e-learning. A previous study showed most tertiary schools in Nigeria had no provision for remote teaching.⁸ Many pharmacy educators had to face how under-equipped pharmacy schools were and how under-prepared the faculty members were in responding to situations that would require effective online teaching. However, faculty members became creative by utilizing open resources, social media, and phone apps for the teacher-student interface. While the Federal Ministry of Education advocates for e-learning, another challenge was the lack of stability in the telecommunication signals, resulting in inability for some students to access the internet. As e-learning cannot replace students' coursework under such circumstances, their study needed to be resumed from where it was suspended after the campus opening. Through this pandemic, the need for more incorporation of technology into teaching was recognized and embraced. The PCN sees an opportunity for an expansion of their accreditation criteria to include facilities for remote learning for students, in case of future occurrences.

Another lesson learned in the pandemic was the need for recognition of pharmacists as frontline workers in their role of mitigating the impact of global pandemics in resource limited countries in Africa. To achieve this, volunteering

opportunities need to be expanded for pharmacy students, so that students will be prepared as frontline workers for another emergency. The review of pharmacy curriculum was put under consideration to include laboratory work in virology and service work, focusing on public health, to enable students to handle another pandemic in the future.

The reflection among pharmacy educators in Nigeria and surrounding African countries was the need for standardized national policy or framework from the accreditation bodies and Ministries of Education to guide pharmacy education in emergency situations that destabilizes routine classroom learning. Pharmacy educators in Africa acknowledged the need for the educational system to become more willing and capable to change for the future.

Experience in The United Kingdom

The first significant impacts on pharmacy education in the United Kingdom (UK) started in early March as some international students requested to return home. By March 13th, many higher educational institutions ceased face-to-face teaching, with official Government notice to close schools and colleges by March 20th and the UK entering official lockdown on March 23rd.^{9,10}

The traditional model for pharmacy education is a four-year academic program, followed by a separate 52-week training period with a registered employer, known as the pre-registration year.¹¹ Pharmacy training in the UK uses one sole high-stakes summative assessment at the end of the pre-registration year as the final decision on pharmacist's licensure. The greatest challenge was faced with pre-registration students and their cancelled registration assessment. The General Pharmaceutical Council announced to develop a provisional registration option until pre-registration students can sit for the assessment.¹² For students in their academic program, they were given the opportunity to be deployed to support the pharmacy workforce on a greater scale than usual, as the pharmacy profession in all sectors was under pressure in the pandemic¹³; depending on their competency, this ranged from delivering medicines to providing advice to dispensing medicine under supervision.

The COVID-19 pandemic forced pharmacy educators to stop and think about what they are doing and how they are doing it. Pharmacy faculty and students had to learn how to use technology and adjust their delivery and interaction. Asynchronous teaching did not happen previously as standard at many UK institutions but was adopted by pharmacy educators to improve the accessibility of teaching and learning. The move towards flipped teaching was noted, and recitation classes were also delivered effectively online, using breakout rooms and the ability to share and work on documents together.¹⁴ However, an effective online solution to skill-based courses has not been extensively tested. For assessments, the decision-making principle in moving online was student welfare and fairness. The implemented strategies include to grant extensions and reassessments without penalty on students' final grades. Traditional written exams were amended to open-book assessments with extended time windows.^{14,15} While these strategies were valid and fair, their reliability needs to be confirmed.

COVID-19 has enabled pharmacy educators to reflect on their teaching and assessment like never before. It has driven innovation and change and turned the classroom back into a continuous experiment. The students' management of online education appears to facilitate self-directed learning and thus develops a set of key transferable skills. In the UK, it is hoped the pandemic will also help the whole pharmacy profession appreciate the value of their student body and create the culture where developing the future workforce is central to everyone's role. Thus, preceptors would be empowered to individually assess student competence and provide supervision and experience appropriate to each student. This pandemic may also provide the impetus to review the pre-registration training and design a sign-off process that is not so reliant on one final written assessment for registration. These potential changes can make the registration process for pharmacists more sustainable, fair, valid and reliable for any future uncertainty the world may throw at us.

CONCLUSION

As each country gradually recovers from the COVID-19 pandemic, pharmacy educators are encouraged to consider positive impacts we can continue to make to our students and to our profession. The strengthened areas by this pandemic likely include: 1) online teaching and learning, 2) research/practice collaborations for remote activities, and 3) expansion of pharmacists' and students' clinical services such as telehealth. The potential outcomes of measures taken during the pandemic are also of our interests: for example, changes to the training curriculum, students' future performance in licensure exams, and their practice performance at their employment. Moreover, this might be a good time to re-evaluate the overall impact of our contribution to patient care with students, as well as public's understanding of our pharmacy profession. Despite all travel restrictions, lockdowns, and social distancing, hopefully, this pandemic brought all pharmacy educators together to make our profession stronger around the globe.

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