

THE COVID-19 PANDEMIC ACROSS THE ACADEMY

A Paradigm Shift in US Experiential Pharmacy Education Accelerated by the COVID-19 Pandemic

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The coronavirus identified in 2019 (COVID-19) has caused dramatic disruptions in pharmacy experiential education. Administrators and programs have worked to help external preceptors, faculty members, and students cope with the new realities of virtual or remote experiences and new or increased use of telemedicine. Clear and effective lines of communication as well as well-reasoned and resourced alternative plans are necessary to help manage the current issues and prepare for future challenges. Doctor of Pharmacy programs should enhance their focus not just on the physical health and well-being of students, faculty members, and external preceptors, but also on their mental and emotional health. The full scope of the impact of the pandemic on experiential education in pharmacy is still unclear, but this situation should serve as a stimulus for innovation and rethinking the paradigm of how pharmacy programs educate and prepare students for pharmacy practice.

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The coronavirus disease 2019 (COVID-19) pandemic has resulted in seismic shifts in all aspects of pharmacy and pharmacy education, including experiential education.¹ However, it would be difficult to equate the magnitude of this change with previous alterations or modifications to practice and education that were seen as significant in their own times. A few short years ago (or maybe even months), the principal long-term concerns of experiential education faculty and administrators may have revolved around continued and expanded assessment of the Pharmacist's Patient Care Process, incorporation and evaluation of entrustable professional activities, and/or ensuring a sufficient variety and depth of experiences to adequately prepare graduates to enter residency and practice. Certainly, these would have been and continue to be appropriate and important concerns, but they somehow seem less immediately pertinent when something as fundamentally world-altering as the COVID-19 pandemic occurs. The pandemic and its reverberating consequences have forced faculty members and administrators

of experiential education to reexamine the fundamental nature and purpose of preparing students for practice through experiences.

The word *paradigm* is often used to refer to any normal way of completing a task or performing some type of operation. The roots of the term stretch back to the ancient Greek word *paradeigma*, meaning a pattern or model to follow. In this former usage, a paradigm was meant to describe something physical rather than something philosophical or primarily cognitive in nature. Only in modern usage has the word expanded to include the description of logical constructs and how thoughts or approaches to concepts are summarized for others.² Several paradigm shifts throughout the history of science and medicine have been noted, including the adoption of germ theory that overtook miasma theory for communicable diseases, as well as the more recent adoption of evidence-based practice that overtook the classic idea of clinical judgment.^{3,4} These previous changes, however, happened over many years with concerted thought and effort on the part of a variety of individuals, institutions, and systems. The COVID-19 pandemic and its impact have created an immediate and serious threat to the lives and livelihoods of all citizens of the world, a threat that led

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to a nearly immediate shutdown of almost every aspect of society. In the aftermath of the immediate crisis of continuing with our experiential education curricula and graduating our current cohorts, we are now forced to examine the current paradigm for experiential education as a whole and evaluate if it is sustainable moving forward.

As the pandemic began to unfold in early 2020 and communities across the United States became affected, the demands by health care systems for health-system services, personal protective equipment (PPE), and human resources increased quickly. Many health systems, particularly ones in which large numbers of health professions students were placed, began to prohibit student learners of all types on site to reduce the risk of transmission and preserve resources. Pharmacist staffing quickly changed in response to altered census, closed or modified service lines, decreased face-to-face pharmacy services (eg, medication histories and counseling), and, in some localities, a reduced workforce resulting from furloughs and layoffs. As many introductory and advanced pharmacy practice experiences (IPPEs and APPEs) were ongoing when the pandemic began, experiential education leaders and administrators scrambled to assist preceptors in converting the experiences to remote or virtual ones if possible, identifying and vetting potential supplemental virtual learning opportunities, reclassifying experiences as appropriate, and rearranging student schedules. The planned activities for assessing up patients, presenting recommendations, and collaborating as an interprofessional team seemed difficult or even impossible as many students lost electronic medical record access by not being able to be physically present at the sites. Pharmacy programs struggled to maintain the quality and integrity of these direct patient care experiences. The safety of students also had to be considered at sites that still allowed student learners, such as many community pharmacies. Delays in securing PPE and appropriate physical barriers concerned many students, including those who were at higher risk for developing complications from the virus or who were personal caregivers to someone who was at increased risk, eg, a grandparent, a spouse undergoing cancer treatment.

Among the many challenges encountered during the pandemic was maintaining clear, effective communication. In some situations, crucial information about cancelled or rescheduled experiences was lost because of administrative delays, email overload, miscommunication, and misinterpretation of messages. This resulted in confusion and frustration for faculty members, administrators, and external preceptors, as well as students. Video conferencing was quickly instituted in place of in-person meetings; however, participants experienced learning

curves with the technology as well as access challenges and privacy concerns. Because students had begun their final APPEs several weeks prior to when the virus became prevalent in the United States (mid-March through May), most students were able to complete their experience remotely using telemedicine or virtual communication, often precepted by available faculty members. While some students were able to continue with required clinical APPEs using telemedicine, other students completed a variety of academia, drug information, board examination preparation, and research experiences to fulfill their institution's requirements. Many commencement ceremonies were postponed or held virtually, and physical distancing mandates changed the availability of testing centers as graduating students began to take licensure exams.

With projections that the pandemic could have a resurgence in fall 2019, student schedules will likely continue to be modified, rearranged, and delayed. Pharmacy educators need to consider whether any modifications deemed appropriate for the end of the APPE year could also be used at the beginning (or even entirety) of the APPE year. As educators face the challenge of transitioning from an acute to chronic delivery of remote/virtual experiential education, it must be acknowledged that gaps will exist. There is significant subjective value in the spontaneous *ad hoc* learning (ie, "teachable moments") that are only possible when learners can be part of the health care team on site. Replicating these types of unplanned activities in a remote or virtual setting can be challenging. Assessing interprofessional communication can also be difficult when only electronic means are available. Innovation and communication are key for both preceptors and students to remain as engaged as possible in experiential learning remotely.

Another important facet that has been illuminated by the need for remote virtual experiences are potential challenges with access to needed resources, including reliable high-speed home internet connections. Our syllabi and student/faculty/preceptor handbooks do not often systematically require reliable high-speed connections, and some participants may live away from large metro or urban areas where access to the internet may be either very slow or sometimes unreliable. Under normal circumstances, those lacking reliable internet may have been able to visit a local public library or other public space such as a restaurant or coffee shop to access the internet. However, the COVID-19 pandemic led to the closure of many such places because physical distancing between patrons was either difficult or impossible. Certainly, most students, faculty members, and external preceptors are likely to have reliable high-speed internet; however, if

any issues or barriers arise, current policies from an institutional standpoint may be inadequate to meet their needs.

The COVID-19 pandemic has also shined an important light on the overall health of our students, faculty members, and external preceptors. Beyond physical health and well-being, however, the pandemic has also further illuminated how physical health is intrinsically linked to and as equally critical as mental and emotional health. Well-being and resilience were already and continue to be significant issues to address across health care and health professional education, and the consequences of the COVID-19 pandemic have created an entirely new source of anxiety and worry.^{5,6} Emerging data from areas of the world severely affected by the pandemic show high levels of anxiety, depression, and sleep disorders in both frontline health care workers and those not directly affected by the virus.⁷⁻⁹ It is likely that as disruptions to our daily lives continue these mental health issues will only become more significant and widespread. Further, what is more troubling is that unlike other time-limited or temporary sources of anxiety and stress, this crisis has no definitive end in sight. Any return to normal (or even a “new normal”) is unlikely to occur in the short term, and complete recovery could be years or maybe even decades away, if it is at all possible.

In addition, many students, faculty members, and external preceptors who are parents have had to assume daytime childcare responsibilities because of the closure of daycare and schools.¹⁰ Under usual circumstances, backup caregivers such as family members, babysitters, or others could have been called on. However, in the midst of the pandemic, family members who were not living with them (eg, a parent or grandparent) may have been put at risk by helping with childcare because of their advanced age or preexisting health conditions. In many states and localities, reopening of childcare facilities has been delayed because of the difficulties in maintaining physical distance between younger children and the increased risk of exposing a child and the child’s family to COVID-19. These challenges all present significant roadblocks to the nation restarting normal operations and returning to normal levels of activity.

Despite the many negative impacts and consequences of the pandemic, there are also reasons to find hope and triumph amid the devastation. Increased use of synchronous virtual communication through applications such as Zoom (Zoom Video Communications, San Jose, CA) or Microsoft Teams (Microsoft Corporation, Redmond, WA) has connected individuals and groups who may not have spoken in years.¹¹ Previously strong national as well as regional political and socioeconomic

divides have been replaced in many jurisdictions with a newfound sense of community and collegiality.¹² Pivoting to the potential for positive outcomes can help serve to balance the individual and collective loss and grief experienced by individuals across the United States and around the world.¹³ Our challenge in experiential education (and across education and practice settings) will be to counter the increased mental and cognitive demands on students, faculty members, and external preceptors with equally increased empathy, patience, and understanding. We will also have to continue to ensure that our support systems and structures, including mental and physical health services, are sufficient to the extended scope and duration of the tasks ahead.

Lessons We Have Learned

When we begin to regroup, recover, and plan for the next challenges, there are both short- and long-term lessons that the experiential education community can and should learn from this crisis and its aftermath. In the short term, many schools have been focusing on experiential recovery programs aimed at salvaging APPE hours to ensure students can graduate on time. These recovery plans vary based on practice setting and geographical location, but some involve curriculum modification, improved communication, and conversion of excess IPPE hours earned into APPE hours. Many inpatient and ambulatory care pharmacy clinicians are being asked to see their patients or verify orders from home and the student learners involved in virtual patient visits have been forced to adapt. Though the implications are unknown, we cannot ignore the potential negative downstream effects that disruption in hands-on in-person skills practicing and reinforcement could have on students’ clinical and professional development and identity formation.¹⁴

In the long term, the ability to create purposeful remote experiential education courses to supplement missed in-person opportunities for ethical and professional decision-making may significantly decrease any negative downstream effects. As educators, it is our responsibility to determine a way for professional learning to not be disrupted and to think creatively to ensure our students are training in environments that accurately reflect clinical practice. The beginning phases of innovation in clinical education have started to occur within many practice settings. Students are starting to participate in drive-through anticoagulation and vaccination clinics. Faculty members and preceptors are engaging students in virtual rounds, telemedicine pharmacy services, medication counseling via phone, and even remote electronic medication record documentation. While pharmacy students across the United States continue to be involved at

some level in experiences, many students struggle with the increased need for self-directed learning that accompanies remote experiences. Readiness for APPEs as defined by pharmacy program accreditation standards requires that students have the necessary skills, knowledge, and behaviors.¹⁵ However, if the historical definition of what constitutes an APPE begins to change, so will the plans to ensure readiness. As students struggle with self-directed learning during COVID-19 remote experiences, APPE-readiness assessments will need to focus more on building student pharmacist independence and self-directed learning skills.

When learners begin the transition back to face-to-face clinical settings, there are many factors that will need to be considered in determining where and when a student is placed for an experience. Students with pre-existing health conditions, pregnancy, or other special considerations who may be at an increased risk of complications if infected with COVID-19 may require alternative arrangements through individualized learning plans. Additionally, in many programs, these students may be allowed to apply for a short-term leave of absence to ensure their course of study is not adversely affected. Some students without preexisting conditions may elect to sign waivers (if available) to return to training in a practice setting as soon as possible even if schools may not feel this is in the student's best interest.

Although the plans of many programs involve returning students to physical sites as soon as safely possible, the idea is not without controversy across health professions. Most significantly, the Liaison Committee on Medical Education (LCME), which accredits programs leading to the Doctor of Medicine (MD) degree in the United States, issued interim guidance in March 2020 when it recommended an immediate two-week suspension of all medical student activities that involved direct patient care.¹⁶ The LCME issued more comprehensive guidance in April 2020 that focused on ensuring that medical students' presence in health care settings did not unnecessarily take resources like personal protective equipment (PPE) or COVID-19 testing away from patients and frontline health care workers who needed them.¹⁷ This April 2020 guidance strongly suggested that unless there was a critical shortage of health care workers in a particular community served by a medical education program, students should not be performing direct patient care activities. This sentiment was echoed in an April 2020 commentary authored by a group of fourth-year medical students, which asserted that students were nonessential team members because their work, no matter how thorough, had to be repeated by licensed practitioners resulting in task duplication and increased risk of

exposure.¹⁸ Additionally, these students asserted that allowing students back into a potentially risky clinical environment not only put students at risk, but put patients at risk as well. As potentially asymptomatic carriers, they argued that students could contribute to the spread of the virus.¹⁸ Given the stance and actions taken by medical programs and their accrediting body, pharmacy programs will have to decide if and how this perspective extends to pharmacy students and focus on finding the balance between ensuring the safety of students and ensuring they receive a quality education and graduate on time. We strongly encourage the Accreditation Council for Pharmacy Education (ACPE) to be flexible and allow pharmacy programs (as well as preceptors and students) to use their judgment at the local level to ensure that students are prepared to practice while ensuring that no unnecessary risks are taken. The COVID-19 pandemic is an unprecedented situation in modern society, and flexibility and understanding are critically important to minimize the impact on and disruptions to pharmacy education.

Historically, simulated patients and simulation technology experiences have been considered an appropriate supplement to experiential learning and may be used under pharmacy accreditation standards to mimic actual pharmacist-delivered patient care in a small percentage of required hours.¹⁵ A pivotal study in nursing education found that simulation experiences can be an acceptable alternative to clinical hands-on experience for up to 50% of clinical hours.¹⁹ There is significant potential in pharmacy's ability to create and use simulation activities as a way to respond to future crises in a timely manner. The development and growth of high-fidelity human patient simulation in the last decade in combination with the roadblocks to traditional clinical education created by COVID-19 might facilitate advancement in the quality and widespread adoption of patient simulation in pharmacy education.

Necessity has traditionally been viewed as the pathway to invention (as well as to innovation), and the and the COVID-19 pandemic has certainly transformed many long-term goals into immediate necessities. However, a larger, more existential question raised by the adaptations and alterations that have taken place because of the pandemic is whether those changes have resulted in better ways of doing things. We are left to wonder why, for example, we were not allowed or not able to organize a virtual APPE in the past for students with health issues or for those who needed special remediation or had other extenuating circumstances. If we believe that our modified or restructured experiences are appropriate and fit the criteria set out by our accreditation bodies and by our programs, we have to reflect on whether some or perhaps

most of the changes brought about because of the pandemic can become permanent options for students and preceptors. Just as the terrorist attacks of September 11, 2001 created an entirely new process for boarding an airline flight in the United States, the COVID-19 pandemic may be the defining moment of a paradigm shift in experiential education. It is strange to watch airport scenes in movies from before 2001 and not see long lines at security or passengers removing shoes before walking through metal detectors. In the same way, we may look at pharmacy education prior to 2020 and wonder how we stayed static for so long without the acceleration for improvement that COVID-19 has required of us.

The future is uncertain, likely more uncertain than it has been in many decades. Though there is an urgency to schedule students for available practice sites, experiential education leaders should reflect on all components of the experiential education paradigm that will be transformed, not just for the immediate upcoming group of IPPE and APPE students, but for future cohorts as well. Experiential education cannot flip back and forth between in-person and virtual learning indefinitely; thus, a review of alternative plans, better preparation in the didactic and laboratory settings, and leveraging of the innovations developed in recent months may better prepare pharmacy education programs to weather future crises.

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