

## Strategies Proposed by Students and Pharmacists for Virtual Experiential Patient Care Practicums

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### Abstract

**Background:** The University of British Columbia (UBC) Pharmacists Clinic (the Clinic) is a pharmacist-led patient care clinic serving as a practice site for experiential education in a team-based primary care practice. Given the unprecedented circumstances surrounding COVID-19, some pharmacy practice sites have permanently transitioned select experiential education activities to a virtual format. Currently, there is limited literature on teaching practices that are conducive to students' success in a virtual environment.

**Objective:** To determine the factors that enable successful development of a virtual patient care practicum experience at a university clinic from the perspectives of student pharmacists and practice educators.

**Methods:** A qualitative research methodology was used to gain the perspectives of student pharmacists, who did not have experience with virtual practicums, and practice educators, who had some experience with virtual practicums at the time of the study. Separate focus group interviews were conducted using a semi-structured approach and consisted of questions aimed at gathering insight into participant perspectives on virtual practicums. The focus group sessions were audio recorded with participant consent and transcribed. A thematic analysis was conducted to analyze the data.

**Results:** Three pharmacist practice educators and three student pharmacists participated in their respective focus groups. Six major themes were developed based on the data: (1) technology optimization, (2) patient care related activities, (3) student-practice educator relationship, (4) student skill development, (5) student support, and (6) in-person vs virtual practicum preferences. Proposed strategies to mitigate the limitations of virtual practicums included setting communication guidelines, arranging enriching learning opportunities, and having reliable internet connection.

**Conclusion:** The participants in this study provided insight on factors to support successful development and delivery of a virtual patient care practicum. The results from this study can be applied to other health disciplines and their approach to virtual practicums during and following the COVID-19 pandemic.

**Keywords:** pharmacy, pharmacy student, education, practicum, preceptor

### BACKGROUND

In March 2020, the World Health Organization declared the spread of COVID-19 as a global pandemic.<sup>1</sup> This caused shifts in the delivery of both healthcare and education. Prior to the pandemic, there was limited research on virtual experiential education or precepting, with some literature describing virtual site visits or telehealth training among pharmacy learners or student nurse practitioners.<sup>2,3,4</sup> Shifts in pharmacy experiential education were documented over the course of the pandemic as pharmacy learners and practice educators learned to navigate virtual experiential education.<sup>5,6,7</sup> Currently, there is limited literature on developing best teaching practices that are conducive to students' success in a virtual environment.

The University of British Columbia (UBC) Pharmacists Clinic (the Clinic) is a pharmacist-led patient care clinic serving as a practice site for experiential education in team-based primary

care practice. Fourth year Entry-to-Practice PharmD students complete direct patient care experiential education practicums lasting four to eight weeks in duration at the Clinic. Practice educators are composed of licensed pharmacists who practice at the Clinic. The Clinic offers appointment-based comprehensive medication management services, which includes chronic disease management, patient education and pharmaceutical care plans communicated with the patient's primary care provider.

Learning activities during a practicum at the Clinic include leading patient care appointments under the supervision of a practice educator, facilitating journal clubs, responding to drug information requests, and conducting case presentations. Prior to the pandemic, most patient consultations were conducted in-person; however, patients were also able to schedule phone or video appointments based on patient or provider preference. In March 2020, with the onset of the COVID-19 global pandemic, all patient care and experiential education activities at the Clinic immediately transitioned to a virtual format.

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**OBJECTIVE**

To determine the factors that enable successful development of a virtual patient care practicum experience at a university clinic from the perspectives of student pharmacists and practice educators.

**METHODS**

Using a convenience sampling approach, the Clinic's receptionist sent study invitations via email to the Clinic's part-time, university subsidized, student pharmacist work learn employees and pharmacist practice educators in July and August 2020, respectively. Both groups had prior experiences with traditional, in-person patient care activities at the Clinic. Of those who consented to participate, separate focus group interviews were arranged and conducted over Zoom. Interview guides were developed based on existing experiential education literature and Clinic practices (Table 1) to aid in understanding the perceptions of pharmacy learners and practice educators who were undergoing the transition to a virtual patient care practice. At the time of the study, RL did not have a prior relationship with the study participants. RL conducted the student and practice educator focus group interviews. The focus group sessions were audio recorded and transcribed. All data was kept anonymous and stored on a secure server. This study was approved by the UBC Behavioural Research Ethics Board (H20-01813).

Investigators utilized content analysis as the methodological framework for this study. Both student and practice educator transcripts were thematically analyzed together, irrespective of the interview questions. An inductive approach was used to identify themes at a semantic level. This approach was taken to minimize the effect of researcher preconceptions on analysis, thus helping to elucidate data-driven themes.<sup>8</sup> Qualitative thematic analysis was conducted using NVivo 12.6 (QSR International, Burlington, MA) to organize the data and help categorize the investigators' findings. The coding of data was initiated by one researcher and was performed systematically through line-by-line coding and constant comparison. Once the initial coding scheme was developed, two members of the research team collectively reorganized the data to help identify themes and subthemes. Recoding was performed to collapse redundancies and elucidate the final themes. The themes were again discussed and agreed upon by the research team.

**RESULTS**

Three practice educators and three pharmacy student employees from the Clinic were recruited and participated in their respective focus groups. The student focus group consisted of third year student pharmacists with at least one year of experience of working at the Clinic. The practice educator group consisted of clinical pharmacists with two to ten years of practice experience and one-half to ten years of precepting experience. During the study period, the student pharmacist participants did not have experience with virtual

patient care practicums whereas the practice educators had some experience as of March 2020. Analysis of the interview data identified six themes (Tables 2 and 3). Six major themes emerged: technology optimization, patient care related activities, student-practice educator relationship, student skill development, student support, and in-person vs virtual practicum preferences.

**Technology Optimization**

Both groups emphasized the importance of optimizing technology (e.g. optimal work setup and reliable internet connection). When asked about virtual appointments, practice educators and students agreed the structure would be similar to in-person appointments. This involved the student leading the appointment, through a video call or phone call, while having the preceptor oversee the appointment to provide feedback or support. Students noted aspects specific to the Clinic's precepting model that would be missed. One example included having the preceptor observe the student-led appointment via video from a separate room and having a private mid-appointment check-in with the student to review their plan and recommendations before presenting them to the patient. As this method was used for in-person consultations, the mid-appointment check-in was lost during virtual consultations. Finding an opportunity for a similar check-in would improve the student experience.

**Patient Care Related Activities**

Both groups agreed that building a therapeutic trusting relationship with patients would be challenging due to the limitations of communicating virtually. These limitations included the inability to fully convey empathy, the differing cultural perspectives regarding virtual care, and the lack of knowledge around virtual etiquette. Further, students and practice educators noted the inability to perform physical examination, such as measuring vital signs, as a barrier to providing comprehensive care. Practice educators commented on the convenience of virtual care as a potential enabler for students to follow up with patients more frequently and with patients' caregivers who may join the consultation.

**Student-Practice Educator Relationship**

While both groups agreed that the student-practice educator relationship would lack a personal connection component due to the absence of casual and face-to-face interactions, both groups reported that the professional working relationship between students and practice educators should remain the same. Educators did not think their assessment of students would be affected, although they acknowledged there may be challenges to assessing nonverbal skills and gauging students' response to feedback.

**Student Skill Development**

Practice educators noted that although students would be able to hone their skills in virtual care and communication, they may

lack in other areas due to having fewer opportunities to develop other skills. Lost opportunities included participating in flu clinics, health promotion events, and collaborating with other student pharmacists or health care professionals. Despite this, practice educators reported having confidence that most students would achieve the desired level of competency, but recognized it may be dependent on the individual learner. When asked about professionalism, students anticipated having no issue with conducting themselves professionally, but noted there may be factors out of their control that may impact their professional image (e.g. having a noisy household).

### Student Support

This theme encompasses the participants' thoughts on what would be conducive to students succeeding in their practicum. Students emphasized finding solutions that would limit the difficulties they may experience when they first begin their practicum. For example, one student suggested that providing clear practice site expectations would help reduce the anxiety that may come with a novel rotation. Conversely, practice educators emphasized having a good relationship with students as this would encourage open communication and help to individualize the support they could offer.

### In-Person vs Virtual Preferences

Students and practice educators reported a preference for in-person practicums over virtual. However, both groups agreed a blended model would be appropriate for when virtual precepting is necessary. The overall sentiment among students was that they did not want to continue having virtual practicums, if it was not necessary, as they could not see how working virtually aligns with their perception of the profession. Additional reasons included perceiving no additional benefit to experiential learning and feeling fatigue due to working from home. In contrast, practice educators felt students may appreciate virtual practicums as they can feel more comfortable working from home and would not worry about commuting or finding accommodations.

## DISCUSSION

This study examined the perspectives of students and practice educators on developing a virtual practicum. The results reinforce current literature regarding the importance of technology for delivering virtual clinical experiences and the impact of telemedicine on building relationships.<sup>2,4,9,10,11</sup> The novel findings of this study include the lack of diverse learning experiences and the need to provide additional support.

Inadequate technology is often noted as a significant barrier to delivering virtual clinical experiences, especially for students or patients in remote or rural settings.<sup>3</sup> However, while recognizing there are limited solutions to improving one's technological capabilities, measures can be implemented that may optimize virtual appointments and ease the transition. As suggested by researchers evaluating virtual site visits,

educators and students should ensure all necessary components (i.e. internet, camera, audio) are functional before every appointment.<sup>4</sup> Video appointments should be encouraged, and preceptors who are observing are recommended to mute themselves and turn off their video for increased pharmacy student comfort. Furthermore, it is recommended for practice sites to have a designated technical support personnel to troubleshoot any problems that may arise.<sup>2</sup>

The impact of telemedicine on patient-care provider relationships has been previously evaluated.<sup>9,10,11</sup> Our results suggest students may experience challenges performing patient-care related activities such as expressing empathy during difficult conversations. Preceptors can help improve communication with patients by encouraging students to look towards their webcam, optimize the positioning of their webcam, and spend more time orienting the patient to the overview of the appointment. This is consistent with previous recommendations made by researchers, such that performing "webside manners" may facilitate connecting with patients.<sup>9,10</sup> Furthermore, although physical examination is limited in a virtual setting, video calls can be used to perform inspection or to observe patients using their point-of-care devices, which opens an opportunity for students to counsel patients on correct use.

Student-practice educator relationships are important for the professional and educational development of a student.<sup>12,13</sup> However, our results demonstrated that the informal aspect of the relationship may be impacted by virtual practicums due to lack of opportunities for casual conversations. Previous reports have demonstrated that incorporating various forms of communication (emails, phone calls, text messages, video calls) into one's precepting model can facilitate building a closer relationship.<sup>7,14</sup> Additionally, communication is recommended to be coordinated deliberately, with daily check-ins and scheduled debriefs.<sup>6,7,14</sup>

Practice educators should ensure which specific in-person activities can be transitioned to remote and determine the optimal method to best support the student experience. In circumstances where it may not be possible, creating alternative activities should be considered to continue helping students develop their skills. Incorporating health promotion activities, such as online group appointments and health webinars, can be incorporated. Further, web-based journal clubs have been reported as a useful tool for developing presentation and evidence appraisal skills.<sup>15,16</sup> For practice sites with multiple students, online collaborative journal clubs can be used, where students work together to appraise and present journal articles. Regarding interprofessional education (IPE), practice educators noted it to be heavily lacking in a virtual setting, but recent experiences have demonstrated it to be possible.<sup>17</sup> However, implementation will require extensive

planning, therefore practice educators should evaluate the feasibility of incorporating IPE.<sup>18</sup>

Students will benefit from having additional assistance to orient themselves in virtual practicums. Guidelines (i.e. how to run a virtual appointment, how to communicate with the patient/preceptor), resources (e.g. technical support contact), and practice site expectations (e.g. professionalism expectations, learning objectives) can be incorporated into students' orientation material. It may also be beneficial to offer initial shadowing opportunities for students to observe how virtual appointments are conducted.<sup>2</sup>

This study identified opportunities for future research regarding virtual practicums. The prevailing opinion among students, with no prior experience in virtual practicums, was that virtual practicums would lack in several areas and hence be inferior to in-person practicums. However, in literature evaluating students' perceptions of virtual clinical experiences, after completion of the experience, some students reported a change in opinion, with some preferring virtual or some reporting it as non-inferior to in-person.<sup>2-3,9</sup> Moving forward beyond the COVID-19 pandemic, there are opportunities for clinical practicums and learning activities to continue via a virtual format, provided the design of the practicum is purposeful in ensuring students are able to achieve the learning objectives of the practicum and telehealth competencies.<sup>19</sup>

There were several limitations to this study. The study was conducted at a pharmacist-led, university-based, primary care clinic, possibly limiting the generalizability of our results in

other pharmacy practice sites (e.g. inpatient settings). The small sample size is also important to note as the perspectives and thoughts of our study group may not be reflective of other practice educators or students outside of our institution.

#### CONCLUSION

The participants in this study provided insight on factors to support successful development and delivery of a virtual patient care practicum in a primary care practice setting. The results from this study can be applied to other health disciplines and their approach to virtual practicums during and following the COVID-19 pandemic.

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**Table 1.** Practice educator and student interview questions

Domains	Questions
Common questions	<ol style="list-style-type: none"> <li>1. How do you envision a virtual direct patient care precepting model at the Clinic?               <ol style="list-style-type: none"> <li>a. How do you see student-led appointments running?</li> <li>b. How do you picture preceptors giving feedback to students in a virtual model? (eg. Evaluation form? Written? Verbal?)</li> <li>c. What types of appointments do you see being possible (eg. telephone, video)</li> </ol> </li> <li>2. How do you think communication between preceptor and student would change with a virtual precepting model compared to a traditional in-person model?               <ol style="list-style-type: none"> <li>a. Which communication methods do you plan to use with your student?</li> <li>b. [For practice educators only] Do you intend to plan recurring meetings or set them on an as needed basis?</li> <li>c. [For students only] Would you prefer to have recurring meetings with your preceptor or have them on an as needed basis?</li> </ol> </li> <li>3. What aspects (if any) of patient care do you think may be affected by this virtual model?               <ol style="list-style-type: none"> <li>a. How do you think we can mitigate these issues?</li> <li>b. Are there any aspects of virtual care that would be of benefit to patient care?</li> </ol> </li> <li>4. What are some barriers to virtual precepting that you can foresee?               <ol style="list-style-type: none"> <li>a. Do you foresee any patient care challenges due to the virtual nature of care?</li> <li>b. [For students only] Do you foresee any student learning challenges due to the virtual nature of the practicum?</li> </ol> </li> <li>5. What are some enablers to virtual precepting that you can foresee?               <ol style="list-style-type: none"> <li>a. [For students only] What support would you like to see from your preceptors/practice educators?</li> </ol> </li> <li>6. How do you think virtual precepting will change the preceptor-student relationship?</li> <li>7. Do you feel virtual precepting direct patient care practicums are feasible in the future to complement in-person practicums? (Level of agreement – strongly agree, agree, neutral, disagree, strongly disagree)</li> </ol>
Practice educator-specific questions	<ol style="list-style-type: none"> <li>1. Do you think students will achieve the desired level of competency we typically expect from students completing in-person direct patient care practicums?               <ol style="list-style-type: none"> <li>a) What area in a student's development do you think will be hindered from reaching the desired level of competence? (ex. Professionalism, communication skills, critical thinking skills, etc...)</li> <li>b) Do you foresee virtual precepting preventing you from noticing/assessing any student skills or attributes?</li> </ol> </li> <li>2. How do you think virtual precepting will affect the way you assess a student?</li> </ol>
Student-specific questions	<ol style="list-style-type: none"> <li>1. How do you think virtual precepting will affect the way you are assessed?               <ol style="list-style-type: none"> <li>a) Do you think there are any skills or attributes that the preceptor won't be able to properly evaluate you on?</li> </ol> </li> <li>2. How do you think virtual delivery of practicum will affect your ability to act professionally?</li> </ol>

**Table 2.** Themes, subthemes, and exemplar quotations from students

Themes	Subtheme and Exemplar quotations
Technology Optimization	<p><i>Transition to virtual:</i> [Student 1]: “For them (students) to have to get used to working from home and learn a new way of practice and learn the technology... I think it’ll be overwhelming.”</p> <hr/> <p><i>Virtual Appointment:</i> [Student 1]: “I think video calls are probably a bit better just because for a student to come in and talk to a patient that they never talked to before, I feel like it’s a lot harder to establish that kind of personal connection with the patient if it’s over the phone.”</p>
Patient care related activities	<p><i>Communication:</i> [Student 2]: “I would say the connection portion [of patient care is affected] because ... I think when it’s video call, people might not be used to talking to a patient like that so it could be hard to keep up the same habits that they do in person, like keeping eye contact with the camera instead of looking at the screen.”</p> <p>[Student 3]: “go towards over communicating so, ‘hi can you hear me okay, did you have any trouble with connecting’ and a little bit of more time spent just orienting the patient and making sure they’re comfortable because I feel you can show that with your body language in in-person appointments but you have to be really verbal about it and really clear about your communication when it’s virtual.”</p>
Student-Practice Educator Relationship	<p><i>Connection:</i> [Student 2]: “I would say [having] at least two channels [of communication]. One for more formal, so that’s like email, and one for sort of quick communication that might be just their phone number or text or something like that.”</p>
Student Skill Development	<p><i>Professionalism:</i> [Student 1]: “if you’re in a busy household and it’s noisy or people are barging into your space or things...that would affect how professional you come across.”</p>
Student Support	<p>[Student 3]: “letting the student shadow for a bit and giving them lots of tips and support and maybe some sort of guide for how to run the appointment or something.”</p> <p>[Student 1]: “if the preceptor had a plan going in and made that plan very clear to the students and made all the expectations clear as well, I think that will at least give the students an idea of what to expect and help with any anxiety that would come with this new kind of rotation.”</p>
In-Person vs Virtual Preferences	<p>[Student 1]: “I don’t think it’s any better than in-person precepting. I think it’s really good for the situation and what we have to work with but it’s definitely not the same and I think in-person is still better.”</p>



**Table 3.** Themes, subthemes, and exemplar quotations from practice educators

Themes	Subtheme and Exemplar quotations
Technology Optimization	<p><i>Transition to virtual:</i>            [Practice Educator 3]: “as long as you have the technology and there’s internet connection based off of where they are [be]cause sometimes in rural settings or if the student or patient is a bit remote then it does make it harder [be]cause the bandwidth might not be so strong and they might not have phone reception or cell reception.”</p>
Patient care related activities	<p><i>Physical assessment:</i>            [Practice Educator 3]: “sometimes patients can measure their blood pressure if they have a blood pressure machine at home or they have like a glucometer so they can do it for you and you can just watch them do it as well.”</p> <p><i>Convenience:</i>            [Practice Educator 1]: “More opportunity for follow up especially when you think about a short rotation sometimes you have scheduled follow ups where they come into the clinic once every couple of months whereas now with shorter rotations maybe they’re more willing to have a quick check in over the phone for 15 minutes in a week’s time.”</p>
Student-Practice Educator Relationship	<p><i>Communication:</i>            [Practice Educator 1]: “just sometimes not having that casual informal check in/social check in - because that’s something we all had in our in-person rotation, you know, like I said, if we’re walking in the hall or going up the elevator and it builds some of that comfort and... maybe builds that relationship between preceptor and student to often share more and be more honest...”</p> <p><i>Assessment:</i>            [Practice Educator 3]: “if you’re doing phone call check ins, you can’t really read the body language of your students so you’re unable to tell... how they’re responding to it (feedback) and that could affect their reflections and the feedback that they take to move forward.”</p>
Student Skill Development	<p><i>Student activities:</i>            [Practice Educator 1]: “not all activities can be done off site...even things like health promotion, health events, vaccinations - those types of things are unfortunately missed in this setting.”</p> <p>[Practice Educator 1]: “Most students are already very good with technology, but this is another chance for them to build that skill. It’s going to be obviously a bigger part of health care in the future that’s where everything is going so it’s a good time to build the skill.”</p> <p><i>Collaboration:</i>            [Practice Educator 2]: “they’ll (student pharmacists) sometimes shadow patients together, they might work with patients together, do presentations together... that kind of comradery, be[ing] able to share ideas, discuss cases, is not there.”            [Practice educator 2]: “normally when we have our students we’ll go offsite, we’ll go to family physicians, nurse practitioners, clinics, and students will be able to see that interprofessional collaboration being modelled, they’ll be able to have those interactions with the care team and so I would say that’s something that’s really missing with us right now with the switch to virtual.”</p> <p><i>Student Competency:</i>            [Practice Educator 2]: “I think for some students who do need more support and feel maybe more awkward or uncomfortable on the phone or on video... I mean they’ll get to the minimum, but will they excel the same way they could if they were face-to-face and in person? Maybe not.”</p>
Student Support	<p>[Practice Educator 3]: “it goes back to being transparent with one another, being able to open up to your preceptors in order to make sure we have the necessary supports available for them to thrive.”</p>

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In-Person vs Virtual Preferences [Practice Educator 2]: "...just the flexibility alone to take some of that stress off when students are going all over the province to different environments, having to maybe not do their usual commute, so all those logistical things I think for that reason alone we need to be more mindful of offering [virtual practicums]"

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