Provision of Virtual Outpatient Care during the COVID-19 Pandemic and Beyond: Enabling Factors and Experiences from the UBC Pharmacists Clinic

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Abstract

The COVID-19 pandemic has generated an unprecedented level of interest in, and uptake of, technology-enabled virtual health care delivery as clinicians seek ways to safely care for patients with physical distancing. This paper describes the UBC Pharmacists Clinic's technical systems and lessons learned using enabling technology and the provision of virtual patient care by pharmacists.

Of 2036 scheduled appointments at the clinic in 2019, only 1.5% of initial appointments were conducted virtually which increased to 64% for follow-up appointments. Survey respondents (n = 18) indicated an overall high satisfaction with the format, quality of care delivery, ease of use and benefits to their overall health. Other reports indicate that the majority of patients would like the option to book appointments electronically, email their healthcare provider, and have telehealth visits, although a small minority (8%) have access to virtual modes of care. The Clinic team is bridging the technology gap to better align virtual service provision with patient preferences. Practical advice and information gained through experience are shared here.

As the general population and health care providers become increasingly comfortable with video conferencing as a result of COVID-19, it is anticipated that requests for video appointments will increase, technological barriers will decrease and conditions will enable providers to increase their virtual care capabilities. Lessons learned at the Clinic have application to pharmacists in both out-patient and in-patient care settings.

Keywords: Virtual care, telehealth, technology, e-health

Introduction

Virtual care is defined broadly as "any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies with the aim of facilitating or maximizing the quality and effectiveness of patient care"<1>. The COVID-19 pandemic has generated an unprecedented level of interest in, and uptake of, technology-enabled healthcare delivery as clinicians seek ways to safely care for patients while heeding public health directives for physical distancing.

The Pharmacists Clinic (the Clinic) at the University of British Columbia (UBC), Vancouver Campus is a university-affiliated, licensed, pharmacist-led patient care clinic. Patients are seen by appointment for one on one comprehensive medication management consultation with a clinical pharmacist. The Clinic is funded through UBC and the Ministry of Health, and pharmacist care is provided at no cost to patients. As a prototype of future pharmacist practice and a living lab, the Clinic has almost 7 years of experience prioritizing technology to enable virtual care, streamline the patient journey and facilitate communication with other members of the healthcare team. This paper describes the Clinic's technical systems and lessons learned with a focus on provision of virtual patient care.

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Virtual Patient Appointments

The Clinic team provides care to patients in-person and virtually by telephone or video calling technology (telehealth). Patients choose the appointment type that best suits their circumstances based on geography, health factors, work schedules and convenience. In-person, telephone and telehealth service models each have advantages and disadvantages and patients may choose different modalities for their first and follow-up appointments as preferences and circumstances change (Table 1).

Telephone appointments are convenient and most people have access to a cellular or land line telephone. Telephone appointments work particularly well for focused check-ins and follow-up appointments. Some patients receive all their care via telephone, especially when an internet connection is not accessible or reliable.

For patients choosing a telehealth appointment, the Clinic Medical Office Assistant (MOA) ensures they have an internet-capable device with a working camera and microphone. Patients receive an email with pre-appointment details, an appointment link and step-by-step instructions for local set-up. Patients access the telehealth link 15 minutes in advance of their scheduled appointment time and the MOA is available for technical support if necessary. Typically, once a patient has had one telehealth visit, the set-up process runs smoothly for future appointments.

With patient permission, virtual appointments offer the added advantage of allowing family members, caregivers or other

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members of the care team to participate, regardless of physical location. Often these support people, who may be unable to attend in-person appointments, can provide invaluable contributions by acting as a second set of eyes and ears, bridging information gaps and acting as translators. If the support person is not physically with the patient, participation occurs by 3-way calling for telephone appointments and by multi-way video call for telehealth appointments.

Using a Telehealth Platform

The current telehealth platform in use at the Clinic is Skype® for Business, which meets provincial and University privacy and security requirements. It also offers functionality including ease of patient use, a virtual waiting room, chat function and option to have multiple users in a single appointment. A variety of platforms are available and we defer to the information technology experts at UBC for advice and direction on which product is best suited for our Clinic.

During a telehealth appointment at the Clinic, the consulting pharmacist admits the patient from a virtual lobby when they are ready to begin. At the outset, the pharmacist collects a patient phone number in case technical issues arise, disrupting the connection. The pharmacist also confirms and documents the patient's consent for a telehealth visit. Privacy is maximized by ensuring both pharmacist and patient are in secure and quiet locations whenever possible, and patients are instructed to use a private device with a secure account and internet connection (i.e., not public wireless internet) whenever possible. The pharmacist uses a headset with built in microphone to optimize sound quality, minimize the likelihood of a third party overhearing the conversation, and to enable hands-free documentation of care in real-time. At the end of each appointment patients choose how they will receive follow-up care based on their needs and reason for follow-up. Other practical considerations for pharmacists providing care via telehealth are provided in Table 2.

At the time of writing, clinical services provided virtually (telephone or telehealth) by pharmacists are not reimbursable by the government in British Columbia, so we create a record of care by entering our service episodes with the 'non-benefit' billing code in the provincial PharmaNet database. This record of care is visible to community pharmacists, hospital staff and practitioners in select outpatient settings, and includes the Clinic's contact information to enable collaboration and information-sharing.

Enabling Technologies

Electronic Medical Record (EMR)

The Clinic uses the open source, web-based Oscar® EMR to schedule patient appointments and securely document all patient encounters. The EMR is also vital for maintaining a current medication list, tracking and monitoring active drug therapy problems and faxing documentation to other members of the healthcare team. We chose Oscar® primarily because it is popular with family physicians in British Columbia, open source and customizable. With the support of a software developer, we have implemented numerous modifications to Oscar® so it better aligns with the pharmacists thought process and supports our documentation needs. Unique features include a drug-therapy problem tracker, pharmacist specific chart and consultation note templates and assessment tools, the ability to track healthcare providers in a patient's circle of care including their community pharmacy, and automated features to generate a best possible medication history with medications linked to disease states in patient friendly terms. Oscar® is also accessible to Clinic pharmacists working remotely via a virtual private network, thus enhancing flexibility in where and when care is provided.

Online Appointment Booking Software

We offer an online appointment booking option (powered by Veribook®) so patients can choose their pharmacist, appointment date, time and type of appointment directly. Although not commonplace in most pharmacy and medicine environments, online booking systems are well established for other healthcare providers such as massage therapists and physiotherapists.

Factors we considered in choosing our online booking system were user friendliness for patients and staff, interoperability with our EMR, built-in communication functions (text message/email confirmations), ability for patients to modify/cancel their own appointments, user support, and cost.

When a patient books an appointment via the Clinic's online system, they receive an email notification regarding confirmation and next steps. For new patients, our MOA calls them to gather additional demographic and personal information that cannot be collected through the online scheduling system due to privacy laws.

Secure Email

The Clinic also uses a secure email service (Medinet Mail®) for asynchronous correspondence between patients and the Clinic team in advance of and/or between appointments. Medinet Mail® utilizes an encrypted channel for exchange of personal information and can be used by patients or healthcare professionals to send updates on health status including, but not limited to, symptom diaries, blood pressure readings and blood glucose logs. Secure email can also be used to disclose reasons for appointments and upload documents such as consultation notes and pictures of natural health products. In turn, our MOA and pharmacists use secure email to provide notices of appointment, appointment specific instructions, intake forms, responses to questions, and copies of written documentation to patients. Secure email allows pharmacists and the administrative team to continue to deliver care and stay in contact with patients for minor questions or issues that do not necessitate a real-time interaction.

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Electronic Faxing

The Clinic uses a secure, encrypted, web-based electronic fax platform (SRFax®) for all incoming and outgoing written communication. We also maintain an analog fax for non-clinical, administrative purposes and incoming faxes are forwarded to our electronic system, where they are automatically converted to PDFs. These PDFs are then distributed by the MOA to the recipient or linked to patient profiles within the EMR. Our EMR has a direct interface with the e-fax platform for efficient sharing of written information with the patient's healthcare team.

These enabling technologies are critical to the success of a pharmacist providing efficient and effective virtual care to a patient from within the Clinic and also remote locations.

Our Virtual Care Practice Experience

An analysis of 2019 patient data (n = 2036) from the Clinic indicated that while only 1.5% of initial patient appointments were conducted virtually (by telephone or telehealth) this increased to 64% for follow-up appointments. This excludes patients presenting strictly for immunizations or participating in on-campus health education and screening events.

A 2018 online survey of new and returning patients over a 6-week period returned 68 responses of which 18 patients had received care by telephone or telehealth. Within the subset of patients receiving virtual care, all indicated overall high satisfaction with the format and quality of care delivery. Patients strongly agreed that virtual appointments were easy to implement and were beneficial for their overall health (Table 3). The average patient respondent was 58 years of age (range 20-80 years) and had a variety of chief complaints and medical problems, as is typical of Clinic patients. Qualitative feedback from this survey indicated that for patients able to utilize telephone and/or video technology, the overall experience was comparable or even enhanced from a convenience perspective as compared to in-person appointments (Table 4).

Prior to widespread implementation, the online booking process was piloted between September to mid-November 2019 with a small subset of patients (n = 4) who have frequent follow-up appointments at the Clinic. The two main patient barriers identified were: the requirement for patients to change their familiar routine with booking by phone or email and the requirement for the patient to complete a one-time account set-up online. Since privacy laws prevent patients from entering all the personal information we require online, the Clinic MOA must call new patients for additional information before the appointment is confirmed, increasing workload. This is only an issue for new patients and the MOA phone call can be used to collect additional information in preparation for the first appointment.

Implications and Significance to Pharmacy Practice:

A survey conducted by the Canada Health Infoway found that 71% of Canadians would like the option to book appointments electronically, 63% would like to be able to email their healthcare provider, and 41% would like video (telehealth) visits <2>. In contrast, a 2018 report from the Canadian Medical Association found that only 8% of respondents had access to virtual visits <3>. At the Clinic we have taken steps to bridge the technology gap to better align our services with patient preferences. Two-thirds of follow-up appointments at the Clinic are conducted by telephone or telehealth, reinforcing a strong patient willingness to receive clinical pharmacist care virtually, especially once rapport has been established with an initial face to face visit. Virtual appointments work especially well for follow-up focused on a specific assessment and/or monitoring parameter, and take less time than traditional in-person visits for both patient and provider.

Studies of virtual care in primary care practices indicate participants have favourable experiences and prefer video appointments to telephone appointments due to improved ability to read visual cues, build rapport and communicate <4,5>. Despite this, the vast majority of virtual appointments at the Clinic continue to occur via telephone, even with our robust processes and infrastructure in place to support telehealth. This may be due to real or perceived technological barriers by patients and pharmacists and/or simply due to lack of patient awareness of the telehealth appointment option.

Our findings are aligned with Canadian physician-specific literature indicating that, despite the availability of numerous platforms to support technology-enabled care and virtual patient encounters, uptake has traditionally been low<3>. A survey conducted by the Canadian Institute for Health Information on telehealth by physicians reported that in 2014 telehealth clinical sessions represented just 0.15% of the 270.3 million billable services reported in Canada <6>. Commonly cited barriers to telehealth uptake include: poor digital infrastructure, lack of remuneration by provincial funding systems, an inertia to change the terms of engagement between patients and providers, discomfort with technology, and concerns about privacy and security <3>.

As the general population becomes increasingly comfortable with video conferencing for both work and health related appointments as a result of COVID-19, it is anticipated that requests for video appointments will increase, technological barriers will decrease and conditions will enable providers to increase their virtual care capabilities. Although virtual care is not reimbursable to community-based pharmacists in British Columbia (at the time of writing), many provinces do allow billing for medication reviews and annual care plans by pharmacists that occur by phone or video call <7,8,9>. Pharmacists working in the public system of health authorities, hospitals and primary care clinics do not face the same monetary barriers and can embrace virtual care models being developed within their workplaces.

While COVID-19 remains a risk, virtual care gives pharmacists working in inpatient settings the ability to continue to provide

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direct patient care with physical distancing. The Institute for Safe Medication Practices Canada has released guidance for provision of virtual medication histories and discharge counselling to hospitalized patients and recommends this practice during a pandemic to reduce non-essential entries into patient rooms and unnecessary use of personal protective equipment<10>. The ability to offer inpatient clinical pharmacy services virtually when needed, may extend beyond the pandemic and actually enhance the ability to provide care to patients under isolation and for pharmacists servicing rural and remote hospitals. In these settings, options for virtual care according to institutional capabilities should be evaluated, including availability and security of internet access, video calling platforms and email addresses. Organizational policies will need to be created or updated to incorporate virtual care service models <10>.

Optimizing technology to enable provision of both in-person and virtual care requires planning, time, resources and financial means; however, in our experience it is well worth the investment given patient desire to engage virtually and the opportunity to realize workflow efficiencies for clinicians. As we proceed, it is important to remember that, while virtual care increases timely access to healthcare and will be increasingly the preferred means of service delivery for many patients, complex or sensitive problems or those that may require physical assessment will still necessitate face to face appointments.

Conflicts of Interest: We declare no conflicts of interest or financial interests that the authors or members of their immediate families have in any product or service discussed in the manuscript, including grants (pending or received), employment, gifts, stock holdings or options, honoraria, consultancies, expert testimony, patents and royalties.

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Table 1: Comparison of In-Person, Telephone and Telehealth Service Models

Model	Advantages	Disadvantages
In-person	• Optimal for initial appointments • Enables physical assessment, point of care testing, etc. • Able to experience verbal and non-verbal communication fully	• Travel required by at least one party • May be difficult for family members/caregivers to participate
Telephone	• Highly accessible • Useful for quick check-ins • Lack of face to face can enable candid conversation • Saves travel costs • Easier for family members/caregivers to participate	• Requires reliable telephone connection • Long-distance charges may apply • Inability to read non-verbal cues
Telehealth	• Alternative when in-person is not feasible • Can share links and comments with built in chat function • Saves travel costs • Easier for family members/caregivers to participate	• Requires basic equipment and user confidence/willingness • Requires reliable internet connection • Heightened privacy concerns

Table 2: Practical considerations for pharmacists providing care via telehealth

- Look at the camera and not the screen to simulate eye contact
- Include upper torso in frame so patients can see hand gestures
- Check in with the patient for understanding and to gauge comfort level
- Be aware that a patient's willingness to disclose information may increase or decrease during virtual care
- Be mindful the pace of a virtual appointment may differ from in-person visits
- Be prepared to connect with the patient via telephone or rebook appointment if unforeseen technical issues arise
- Use real-time video to share non-digital information such as displaying medication vials or patient symptom logs.

Table 3. Patient Feedback on Virtual Pharmacist Care

	n=18 (%)
Telehealth phone calls	16 (89)
Telehealth video conference	2 (11)
Follow-up appointment	16 (89)
Survey Questions	
"I knew what to expect from my appointment "	4.6*
"Booking an appointment was easy"	4.7*
"Time between booking and having an appointment was reasonable"	4.7*
"Phone appointment worked well for me"	4.7*

* Mean score on a 5 point Likert scale where 1 = strongly disagree, 2=disagree, 3= neither agree nor disagree, 4= agree, and 5 = strongly agree

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Table 4. Patient Comments on Virtual Pharmacist Care

"Video call was very convenient. It was easy to adjust my booking time. The pharmacist was engaged, personable, knowledgeable, compassionate and professional."
"Accurate and timely advice."
"Easy access, very flexible, not too rushed"
"I appreciated information that was emailed to me, the prompt service, everything was on time etc."
"I could talk freely with [the pharmacist] and he was very informed about the obstacles that First Nations people are facing, such as myself."
"I always feel respected… I have never been rushed off the phone; [the pharmacist] was very generous with their precious time."
"It felt good to discuss my health concerns with pharmacist and ask questions about new or different ideas to help myself."

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