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A Virtual Waiting Room? Technologies That Limit Contact While Maintaining Patient Flow in Medical Practice Settings

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iStock Photo: Hospital interior

The COVID-19 pandemic has changed the way health care is delivered. Out of necessity, virtual care has taken off during the pandemic because it offers patients the opportunity to interact with their health care providers while maintaining the physical distancing that is recommended to reduce transmission rates. However, there remain health care procedures that must be carried out in person, and health care centres need solutions that balance patient throughput with robust infection control practices. One way to reduce the opportunity for virus transmission in a health care setting like a hospital or doctor's office is to limit the use of, or do away entirely with, the physical waiting room.

How it Works

A virtual waiting room is an umbrella term for a variety of technologies that manage health care visits.¹ The term can be used in relation to in-person or virtual visits; however, this article will focus on the use of virtual waiting rooms for in-person visits. In this context, the term usually refers to scheduling-and-triaging software combined with some form of two-way communication between the health care workers and the individuals seeking care.

In many iterations of the virtual waiting room, an individual is instructed to wait outside of the health care facility, usually in their own vehicle, while they wait to be seen by a clinician. The purpose is to safely manage physical health care spaces. Special technology is not needed in order to contact an individual waiting in their own vehicle. However, software can automate the communication, ensure communication is safe and private, and ensure compatibility with existing software used by the medical centre for forms and scheduling.

A literature search identified 11 commercial providers of software that can be used to facilitate a virtual waiting room.¹⁻¹¹ Table 1 provides a list of the 11 products or product suites identified in the search and a checklist that summarizes common features described on the commercial websites. Note that this might not be an exhaustive list of technologies and that CADTH does not endorse these products.

Who Might Benefit?

Data are insufficient to precisely define the amount of time it takes for a carrier of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) to transmit the virus to a non-carrier; however, the risk increases with prolonged exposure.¹² The Centers for Disease Control and Prevention (CDC) guidance states 15 minutes of close exposure (2 metres or less) can be used as an operational definition of prolonged exposure; Health Canada guidance uses a similar definition.^{12,13} While brief interactions are less likely to result in transmission of the virus, the type and degree of symptoms, as well as the nature of the interaction, are significant. For example, the risk of transmission increases in a brief interaction if an infected person sneezes or coughs directly into the face of the exposed individual.¹² In addition to the time of exposure, Health Canada also recommends limiting the number of people an individual comes into contact with during the COVID-19 pandemic in order to limit exposure and transmission risk.¹⁴

The primary purpose of the virtual waiting room model is to decrease the number of contacts and the total time that health care workers and individuals seeking care spend in an enclosed space together. This thereby decreases the risk of prolonged exposure to and transmission of the virus.^{15,16} Both health care workers and individuals seeking care could potentially benefit from virtual waiting room technologies. There will be individuals seeking care in a medical facility who cannot participate in the virtual waiting room model for a myriad of reasons, notably a lack of access to a mobile phone or vehicle. The virtual waiting room potentially indirectly benefits these individuals by reducing the traffic in a waiting room at any given time, thereby decreasing the number of contacts and the amount of time individuals are exposed to one another in an enclosed area.

Table 1: Characteristics of Identified Virtual Waiting Room Platforms

Company	EMR integration	Virtual appointments	Electronic forms	Two-way communication	COVID-19 screening	Patient reminders	Remote registration/check-in
CareCru (Vancouver, BC) https://carecru.com/			X	X	X	X	X
Chronometriq (Montreal, QC) https://chronometriq.com/en	X	X		X		X	X
Clearwave (Atlanta, GA) https://www.clearwaveinc.com/		X		X	X		X
Cliniconex (Ottawa, ON) https://cliniconex.com/	X			X		X	
Dentrix Ascend (American Fork, Utah) https://www.dentrixascend.com/	X		X	X	X	X	X
Doctible (San Diego, CA) https://www.doctible.com/			X		X	X	X
JellyFish Health (Panama City, FL) https://jellyfishhealth.com/	X		X	X			X
Lumeon (Boston, MA) https://www.lumeon.com/			X	X		X	X
OhMD (New York, NY) https://www.ohmd.com/	X	X	X	X		X	
Outcome Health (Chicago, IL) https://www.outcomehealth.com/	N/A ^a						
Relatient (Franklin, TN) https://www2.relatient.net/	X		X	X		X	X

BC = British Columbia; CA = California; EMR = electronic medical records; FL = Florida; GA = Georgia; IL = Illinois; MA = Massachusetts; NY = New York; ON = Ontario; QC = Quebec; TN = Tennessee.

^aNo information was available about this product at the time of publication

Availability in Canada

The type of software used to provide virtual waiting rooms is not a medical device that is regulated by Health Canada and therefore the availability of the various solutions in Canada is difficult to establish. However, the literature search did identify several Canadian-based companies offering these types of solutions in Canada.⁷⁻⁹

What Does It Cost?

Many of the virtual waiting room services rely on individual access to a mobile phone and a vehicle. These are both expensive consumer goods and the costs are borne by individuals rather than the health care system.

Cost information for one company's virtual waiting room software, the Chronometricq MagicSeat, is listed at US\$350 per month.⁷ According to a media source, the CEO of Jellyfish Health has stated that the pricing of the company's virtual waiting room solution would be based on a medical centre's annual visit volumes.¹⁷

Current Practice

Guidelines released during the COVID-19 pandemic by health care organizations such as NICE—National Institute for Health and Care Excellence, the CDC, and others recommend strategies for decreasing the risk of exposure and transmission of the virus in the context of in-person health care visits in hospitals, clinics, and other medical centres. Some of the suggestions include maintaining physical distancing in waiting rooms, increasing the time between patient appointments, and cohorting patients by symptom severity.¹⁸⁻²³ Some guidance documents also acknowledge that patients may choose to wait in a personal vehicle or outside the health care facility, where they can be contacted by mobile phone when it is their turn to be seen by a clinician.²⁰⁻²³

What Is the Evidence?

The literature search identified no clinical studies regarding a virtual waiting room model where an individual waits in their vehicle until contacted by the health care provider. However, the search identified some case reports of innovative triaging, scheduling, and waiting room practices health care facilities have implemented in order to decrease exposure and transmission risk during the COVID-19 pandemic.

A strategy reported by several types of clinics was telephone or virtual triage in advance of attendance at the clinics.²⁴⁻²⁸ The goal of telephone triage is to determine in advance of an appointment which individuals need to be seen in person and who can be seen by telemedicine or can safely have their visit postponed. The case studies reported that the use of telephone triage reduced the number of people who needed to be seen in-person at the health care facility and therefore decreased the exposure risk in waiting rooms. This strategy is supported by a 2017 systematic review that found that patient-centred practices, including triage, reduced wait times for primary care appointments.²⁹

Safety

No evidence on the safety of virtual waiting rooms was identified in the literature search.

Issues to Consider

Health Equity

The reliance on a patient's own resources (vehicle and/or mobile phone) makes the use of virtual waiting rooms of this design an access issue. Individuals without access to their own vehicles or mobile phones are unable to take advantage of this service. While it is possible that removing some patients from the physical waiting room does make it safer for those individuals who continue to use the physical space, more evidence is needed to support this claim. The Canadian climate varies widely by season and location. Even for those individuals who do have access to a vehicle, it may not be feasible to wait in a vehicle for an extended period during extreme weather.

Privacy

Some of the virtual waiting room solutions would be collecting and using sensitive personal health information such as a health card number or patient characteristics. The amount of information collected varies among platforms; however, platforms that incorporate additional functionality like scheduling and medical forms would likely collect more personal health information data. In Canada, it is necessary that the platforms collecting personal health information take precautions to protect data and conform to the *Privacy Act*, the *Personal Information Protection and Electronic Documents Act (PIPEDA)*, as well as meet the standards set out in jurisdictional health care privacy legislation.³⁰

Related Developments

Robot Triage

A clinical trial is underway that investigates patient perspectives on robot-assisted telemedicine triage in the emergency room.³¹ The observational study aims to measure the patient response to interacting with a clinician via a robotic console in the emergency room. The clinical trial suggests that robot-assisted triage could help to prevent disease transmission to health care workers, as well as minimize the use of personal protective equipment.³¹

Patient Navigation Technologies

The literature search identified one pilot study of patient satisfaction with a hand-held device called a Mobile Patient Communicator (MPC) used to improve patient timeliness and appointment flow.³² This study found that, in a sample of 200 patients, patient acceptance of the device was fairly high.³² The MPC device is used to help individuals navigate a large health care facility without the need for an in-person escort.

Looking Ahead

Health care organizations need solutions to facilitate physical distancing and virtual waiting rooms may be a piece of the puzzle. Additional research is needed to connect the use of virtual waiting room solutions to improved patient outcomes. The use of these systems without an option for non-technology-based options may contribute to health care inequities. However, they may still be offered at the patient's discretion.

While the use of these solutions has expanded during the COVID-19 pandemic, they may continue to have a place in practice^{15,17} – especially, like other forms of telehealth, for individuals who are immunocompromized and during times of increased risk of pathogen exposure, such as the cold and flu season.³³

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