

Pandemic patch-up

Using Zoom™ videoconferencing software to create a virtual teaching clinic

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With the rapid transition to virtual care owing to the coronavirus disease 2019 (COVID-19) pandemic, physicians have been challenged to adopt both a new method of providing care and a new way to teach, simultaneously. Although physicians have been managing with a mixture of telephone and video appointments, teaching in this new milieu has not been ideal because of issues such as asynchronous reviews, sub-optimal methods for evaluation, and minimal real-time supervision. Although the literature provides some useful information¹ about how to provide virtual care effectively, only a few recent publications discuss technological solutions for providing such care in a teaching setting.^{2,3}

Given that the need for virtual care delivery will be with us for the foreseeable future, we need to find a robust way to make this virtual environment work so that we can provide learners with successful educational opportunities, enable faculty to observe and evaluate encounters, and provide patients with a safe and effective platform in which to receive care in the teaching setting. Although family medicine residents moved to virtual care with their supervisors, many medical students were withdrawn from their clinical rotations. As students and new residents are reintroduced into ambulatory clinical environments, it is imperative that we have a system that can meet the needs of both learners and educators in the virtual environment.⁴

We have developed a method using the cloud-based videoconferencing apps Zoom for Healthcare or Zoom for Education that enables all of these goals to be met, whether the setting is supervision with an individual learner or with multiple learners simultaneously.

Privacy and security

Given the urgent needs of the pandemic, many authorities lessened their normally stringent privacy requirements to enable virtual care. In March 2020, the Ontario Medical Association (OMA) sent a communication to all physicians in Ontario stating that there is no specific technology for video visits required, and that non-regulated virtual care solutions, which would include Zoom™, could be used as long as patients provided consent.⁵ Legal teams from OntarioMD, the OMA's digital services subsidiary, and the OMA prepared specific wording for this consent, both a concise version and a more detailed one, which were vetted by the Canadian Medical Protective Association.

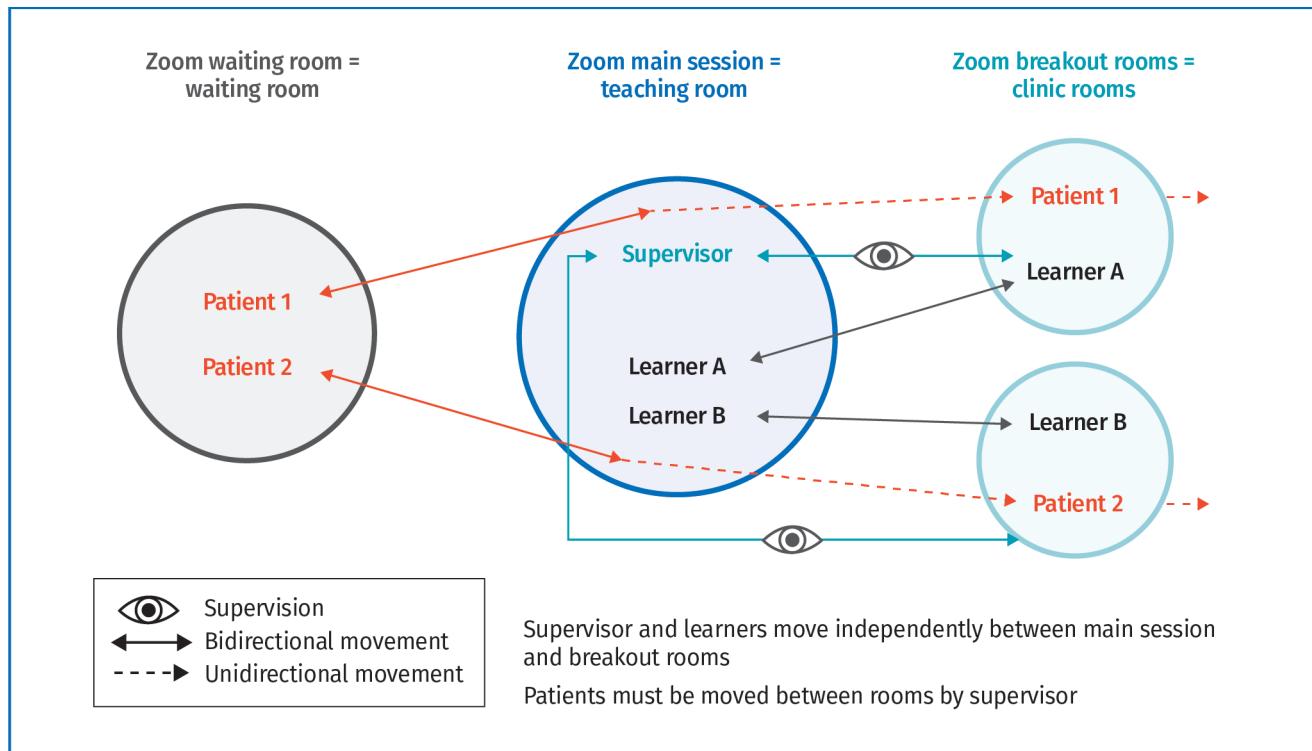
We explored the recommendations from health care authorities in Ontario—the OMA,⁵ the College of

Physicians and Surgeons of Ontario,⁶ and the Canadian Medical Protective Association⁷—and believe there is minimal risk in using this model if proper consent is obtained from patients and if specific Zoom settings are used. Zoom for Healthcare is considered the most secure Zoom option and is, therefore, preferred. This model also works with Zoom for Education, but it is important to understand Zoom for Education's limitations and the legal requirements in your jurisdiction before using any virtual care technology for patient care. Although a number of security concerns have arisen recently about Zoom, to date these have been with Zoom's basic (free) version. Furthermore, privacy is related to the host's version of Zoom and its security settings, not the version other participants are using. It is recommended that patients not use a public computer or conduct their visit in a public location.

Zoom has addressed Canadian privacy compliance regulation on its website, and states that Zoom for Healthcare is compliant.⁸ Zoom for Healthcare is available through a number of Ontario hospitals; Zoom for Healthcare has been approved by and is the preferred platform of the British Columbia Provincial Health Services Authority, which provides it to clinicians in British Columbia.⁹

Virtual teaching clinic model using Zoom for Healthcare

In the virtual teaching clinical model we developed (**Figure 1**), Zoom's existing functionality is used to create a waiting room (the clinical waiting room), a main session (the teaching room), and multiple breakout rooms (clinic rooms). The supervisor, acting as the session host, can move from one breakout room to another, observing clinical encounters between learners and patients in real time. Learners can move independently from the main session to the breakout rooms and back, enabling preclinic group huddles, review of patient cases, and postclinic group chart reviews. Patients enter the Zoom waiting room, where they cannot see other patients or any information about other patients, 5 minutes before their appointments. They are then admitted individually by the supervisor (host) into the main session for verification of their identity en route to a breakout room with the learner. Once a patient has joined the learner in a breakout room, the supervisor can join the breakout room to observe the encounter, ideally with his or her microphone muted and video camera turned off, to minimize disruption. Once the patient's appointment is concluded, the learner returns to the main session to review the case with the supervisor.

Figure 1. Virtual teaching clinic model using Zoom for Healthcare

The key to making the session work safely is setting the preferences to ensure that supervisors and learners can move where they need to, but that the movement of patients is restricted.

Introduction to learners

With the pace at which new learners rotate into teaching environments, having a system that is easy to learn is imperative. All of the required settings are managed through the Zoom for Healthcare application by the supervisor as the host of the Zoom session and do not rely on the settings of anyone else involved. Implementation is easy for new learners; they simply need to download the free (basic) Zoom application to their computers and read a 1-page “cheat sheet” that was created for the model (available at <https://dfcm.utoronto.ca/node/1022> under Educational Resources for Faculty and Residents—follow the link for Using Zoom for Virtual Clinical Supervision). At the beginning of their first Zoom virtual teaching clinic, learners need only 5 minutes to master the skill of moving between rooms to fully participate. **Box 1** presents tips on setting up and running the clinic.

Accessibility and patient experience

Zoom was chosen as the preferred virtual meeting platform because of the functionality it provides. All of our testing was conducted using the Zoom for Healthcare program, but most of the functionality required is also available through the Zoom for Education program.

From an accessibility perspective, patients can join Zoom with a computer, a mobile device, or a landline telephone. The Zoom for Healthcare program includes a function whereby a patient who might find it too complicated to dial in can be called from Zoom. The patient only needs to answer the phone and press 1 to enter the Zoom waiting room. Furthermore, family members can be easily included in Zoom appointments using any of these methods.

Ease of use and comfort with the model for the patient can also be facilitated through attention to “web-side manner.” Reviewing the basics of how to conduct virtual encounters well with learners is important: consider privacy, camera placement, using a virtual or professional background, body language, and eye contact.¹⁰ Similarly, appreciating how to best supervise virtual care is paramount.²

Logistics

Using a 2-screen set-up is highly recommended: ideally, 1 screen to display the electronic medical record and another to display the Zoom session. A second monitor might be a very worthwhile investment (at a purchase price of around \$200), given the number of hours physicians are spending in providing virtual care. If 2 screens are not available, 2 windows on 1 computer is manageable. Using headphones is also highly recommended for both privacy and sound quality. If the computer being used for Zoom does not have a built-in camera and microphone, a plug-in USB camera-microphone

combination device can be purchased inexpensively online (for around \$40).

Virtual teaching clinics can be set up for any duration of time, but a half-day session works well, providing sufficient patient volume and time for discussion. While “Zoom fatigue” can be an issue anytime people sit in front of a computer without moving for long periods of time, it is no more of an issue with this model than any other virtual care video model. Duration of individual appointments depends on the level of the learners involved; in our experience, once faculty and trainees are familiar with the model, appointments can be booked similarly to an in-person teaching clinic. It usually takes 3 or 4 clinics for faculty to feel fully comfortable with the technology, and 1 or 2 clinics for trainees to feel comfortable with it.

Tools and resources

Detailed information about this model, including an explanatory video, screenshots of required settings, and

cheat sheets for both supervisors and learners, can be found at <https://dfcm.utoronto.ca/node/1022> under Educational Resources for Faculty and Residents—follow the link for Using Zoom for Virtual Clinical Supervision.

Conclusion

As clinical educators, our role is to provide our learners with good learning opportunities, to be role models of clinical excellence, to observe patient encounters, and to provide learners with feedback and evaluation. Many of these roles require synchronous supervision of clinical encounters, which is challenging by telephone, especially if a supervisor is responsible for multiple learners simultaneously. Using Zoom to create a virtual teaching clinic environment is advantageous for supervisors, learners, and patients. It enables real-time supervision, mentorship, and teaching in an environment that closely replicates in-person teaching in both community and academic settings.



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Competing interests

None declared

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Box 1. Tips on creating a Zoom virtual teaching clinic

Before the clinic

- Confirm the privacy and security requirements in your jurisdiction (and institution, if applicable) related to provision of virtual care, and to the platform you are intending to use (Zoom for Healthcare is recommended)
- Ensure an appropriate process is in place for obtaining virtual consent from patients
- Allow 15 min to set up Zoom preferences in advance
- Consider your ideal hardware set-up, including monitors and headphones
- Download the supervisor “cheat sheet” and practise with a small group
- Onboard new learners, who will need to
 - download the Zoom app,
 - use the computer and headphones,
 - download the cheat sheet, and
 - review “webside manner”
- Ensure processes are in place to send Zoom invitations to patients and that learners know how to access the Zoom teaching clinic

During the clinic

- Follow the supervisor cheat sheet to ensure everything is set up (2 min)
- Ensure learners know how to move between main session and breakout rooms
- Use the main session to do preclinic and postclinic debriefs, and to review individual cases
- Join breakout rooms to observe patient encounters with learners (turn video and audio off to minimize disruption): supervisors are able to assess patient interactions, webside manner, communication style, logical reasoning based on symptoms, psychotherapy, and even some physical examination maneuvers that learners can request patients demonstrate through video (eg, back, joint, or skin examination; limited neurologic examination; cognitive assessment)

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Teaching tips

- With the pace at which new learners rotate into teaching environments, having a system that is easy to learn is imperative. We have developed a virtual clinic teaching method using the cloud-based videoconferencing app Zoom for Healthcare for supervision with an individual learner or with multiple learners simultaneously. All of the required settings are managed through the Zoom for Healthcare app by the supervisor as the host of the Zoom session and do not rely on the settings of anyone else involved.
- Zoom's existing functionality is used to create a waiting room (the clinical waiting room), a main session (the teaching room), and multiple breakout rooms (clinic rooms). The supervisor, acting as the session host, can move from one breakout room to another, observing clinical encounters between learners and patients in real time.
- Ease of use and comfort with the model for the patient can be facilitated through attention to "webside manner." When reviewing how to conduct virtual encounters well with learners, consider patient privacy, camera placement, using a virtual or professional background, body language, and eye contact.

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