

No mask required: Virtual care ideal for CV risk management

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The emergence of the global COVID-19 coronavirus pandemic has urgently focused interest on virtual care healthcare delivery. However, because Canada has been a relative laggard in virtual care adoption (for many reasons, including those related to reimbursement, which will not be discussed here), physicians in this country can be excused for feeling a little overwhelmed when trying to implement virtual care into their practice. Whether virtual visits are conducted by video, phone, or e-communication, it is important to recognize how to optimize the virtual care portion of one's practice.

Certain clinical conditions are more ideally suited to virtual care. Mental health visits, teledermatology, and, as we have seen recently, remote assessments for highly contagious and potentially deadly infections, are examples. Cardiovascular risk factor management is also ideally suited to a virtual care delivery model because:

1. These risk factors (e.g., hypertension, diabetes, dyslipidemia, smoking, heart failure, and weight management) are primarily managed through review of patient-recorded data, lab tests, or patient-provider discussion alone. Although, an initial in-person visit is often needed to physically assess for underlying etiologies and end-organ damage, physical assessments are not typically needed for follow-up visits.
2. In some cases, notably hypertension, patient-recorded readings are, based on decades of research, more accurate than those measured in the clinic. Because blood pressure (BP) taken in the office can be spuriously high (aka "white coat" effect) or low ("masked" effect), performing-out-of-office measurements is strongly endorsed by all major global contemporary clinical practice guidelines (CPGs). These CPGs recommend that management be based on out-of-office measurements in patients with recognized white coat or masked effect. Unfortunately, this recommendation is rarely followed, leading to many missed opportunities to follow evidence-based best practice and prescribe appropriately.
3. Self-monitoring improves patient engagement and outcomes.
4. Followup visits are often brief, especially relative to the time patients may spend travelling and waiting to be seen. This makes virtual cardiovascular care more patient centred, enhances convenience for patients, and reduces the need to take time off work or school.
5. Cardiovascular disease is common and a risk factor for more severe COVID-19 infection. It is possible to group patient bookings to run an entire virtual clinic for cardiovascular risk factor management alone. If optimized, this can save physician travel time and overhead costs.



The clinical portal enables rapid, guideline-concordant calculation of BP and glucose values designed to maximize the efficiency of clinical care delivery.

What is needed to optimize care?

Once the decision is made to use virtual care for cardiovascular risk factor management, the next question that is often asked is what is needed to optimize care in a more efficient, effective, evidence-based, and guideline-concordant manner. These include:

1. An electronic medical record—hopefully one that is at least half-way functional—containing medical notes, medications, and laboratory investigations is a pre-requisite.
2. Good internet connectivity and a confidential space to conduct calls.
3. Access to patient-reported metrics prior to the appointment. This is almost mandatory in order to run an efficient clinic and underscores the need for a patient portal or telemonitoring system. Because EMR-based tools can be clunky and rudimentary, physicians may have to consider an additional system to augment their virtual care practice (ideally, these integrate with the EMR, but this is often not an available option):
 - If patient-reported metrics are not available, the clinician has to resort to having the patient read off a series of BPs, weights, or glucose levels and then needs to spend time reviewing these metrics before proceeding with the rest of the visits.
 - These metrics should be collected in a manner that is guideline-concordant and maximizes efficiency. For example, when using home BP readings for diagnosis and/or followup, taking the mean of a week of four readings per day (two in the morning and two in the evening) is recommended. Patient portals that simply allow uploading of a list of readings are not as helpful as those that enable calculation of the mean BP in a way that enables best practice.
 - Secure data transmission and storage and PIPEDA compliance is a must.
 - Providers of portals or telemonitoring systems should ensure that Canadian data stay in Canada. There is really no reasonable excuse for this to be not observed in this day and age.
 - Emphasis should be placed on cost-efficient systems with design based on input from clinicians and made by companies willing to make iterative improvements based on user feedback.
4. E-prescribing/access to patients pharmacy numbers.

Based on our academic work the University of Alberta, we have created a digital health company, mmHg Inc. (mmHg.ca), funded in-part by Alberta Innovates and the Canadian National Research Council. One of our products, Sphygmo Home, is a BP, glucose, and body weight telemonitoring system. Important features include:

1. A pledge to all Canadian providers to make it available for free during the COVID-19 pandemic.
2. A system that consists of:
 - A free patient smartphone app available on two platforms (Google Play Console or Apple App Store) and in four languages (English, French, Spanish, Chinese).
 - A clinician portal (sphygmobp.com) that enables remote patient monitoring and virtual care, as well as quick review of practice analytics and control rates. A key feature is our swipe averaging function (see image), that enables rapid, guideline-concordant calculation of BP and glucose values designed to maximize the efficiency of clinical care delivery. PDF summaries that can be uploaded to a provider's EMR and secure instant messaging are also included.
 - A cloud-based platform that is simple to use, requires only an internet login, and does not need additional equipment to set-up.
 - A PIPEDA compliant, encrypted data transmission, secure medical server in Ontario (Server Cloud Canada).

As Winston Churchill once said, "Never let a good crisis go to waste." Even after the COVID-19 threat has passed, increased adoption of virtual care will continue. It is important that physicians identify ways to optimize virtual care delivery. With respect to cardiovascular risk factor management, I am confident that proper virtual care use will result in more convenient, timely, and patient-centred care for Canadians.

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