

COVID-19: pivoting from in-person to virtual orthopedic surgical evaluation

Andrew Roberts, BSc
Geoffrey H.F. Johnston, MD,
MBA
Colin Landells, MD

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Correspondence to:
G.H.F. Johnston
c/o RebalanceMD
104-3551 Blanshard St
Victoria BC V8Z 0B9
geoffreyhfjohnston@yahoo.ca

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SUMMARY

In March 2020, the coronavirus disease 2019 (COVID-19) pandemic necessitated substantial downscaling of office-based orthopedic surgical practice. To address the ongoing need for patient assessment, surgical practices pivoted from in-person appointments to a virtual platform. Patients ($n = 1823$), contacted by telephone (82%) or by video (18%), judged this new approach as excellent or very good in 71% of telephone contacts, and in 84% of those successfully interviewed by video. For future meetings, 4 of 5 patients preferred virtual rather than in-person contact. Patients whose round-trip travel time for in-person appointments was under 2 hours were twice as likely to prefer future in-person contact as those more than 2 hours away. Patients who had far to travel or who used walking aids were more likely to travel accompanied. Acknowledging that patients value both videoconferencing and telephone contact, surgeons should offer virtual visits as an alternative to in-person assessments. Patients need to have access to reliable Internet. Finally, telemedicine is environmentally friendly.

The emergence of coronavirus disease 2019 (COVID-19) in Canada in March 2020, and the resulting restrictions in travel and contact, necessitated a pivot from predominantly in-person clinical visits to exclusive use of a virtual platform for orthopedic patient evaluation and care. This substantial shift of nonemergent orthopedic practice delivery presented an opportunity to evaluate patient perspectives of this alternative to in-person assessment.

RebalanceMD is a multidisciplinary musculoskeletal team of orthopedic surgeons (75%) and adjunct health professionals (25%) in Victoria, British Columbia. This team asked its patients, via e-mail, about their experiences with this new approach for visits from mid-March to late May 2020.

More than 1800 respondents, with a broad range of age representation (62% were age 60–79 years), provided insight into their experience. Of these, 92% reported that they had a computer, tablet or cellphone with an attached camera in their home, or at least easy access to such a device, though this frequency dropped to 73% among patients aged 80 years and older.

The patient's area of concern was most frequently the lower body ($n = 1348$), but visit experiences were similarly well rated for patients with concerns in the upper body, spine and other areas. Overall, 70% of patients rated their experience with the new approach as excellent or very good. The appointment type, including initial consultation ($n = 505$), postoperative check ($n = 398$) or follow-up ($n = 920$), did not appear to influence patient satisfaction.

Of patients contacted by telephone ($n = 1503$), 71% of patients rated their experience as excellent or very good. For patients who used videoconferencing ($n = 320$), 84% rated their experience as excellent or very good, provided there were no technical difficulties. Secure virtual video connections were established without having to use a third-party application such as Zoom or other video medium. This primary focus on security may have affected some of the patients' video experience. Of patients contacted by telephone and by video, 54%, and 59%, respectively, favoured repeat use of the same medium for future appointments at least some of the time.

Tardiness in contact of 10 minutes or more had a negative effect on the patient experience. Given this issue, surgeons and their offices should schedule virtual patient contacts to minimize delays. Difficulties in establishing a working video link, encountered in one-third of scheduled video visits, also detracted from the potential for an excellent experience. Surgeons and their offices, recognizing that video calls are highly valued by patients, could invest in a practice call or equivalent to confirm that the link works well before contact.

Round-trip travel time did not appear to influence the patients' experience of the virtual consultation. Some respondents (26%) indicated that they would have had to take time off from other commitments (e.g., work or school) had they needed to travel to their appointment. When patient travel time was less than 1 hour round trip, 24% of patients wanted future visits to be in person; this decreased to 20% among patients whose round-trip time was between 1 and 2 hours. Beyond 2 hours of travel time, only 10%–13% of patients indicated a preference for in-person visits. For a small group of patients ($n = 164$), coming to the office would have entailed a round trip of 4 hours or more. At minimum, this certainly represents an inconvenience, notwithstanding the potential risk for an accident, especially in inclement weather. With increased travel time, or with dependence on walking aids, the more likely the patient would have been accompanied, with the additional inconvenience and cost that these entail. These patient-borne costs, loss of income and increased risk are eliminated by virtual visits. Acknowledging these issues, orthopedic offices should, with rare exception, afford patients the opportunity to choose between virtual or in-person visits. Surgeons, of course, can and should exercise their discretion as to when an in-person visit is necessary.

Patients favour the delivery of medicine over a virtual platform for a variety of reasons, including less time away from work or school, a decreased requirement for caregiver assistance, less travel time, shorter travel distances, ease of platform use, less time at the doctor's office, and the fact that virtual medicine is less costly to the patient.^{1–3} Naturally, video medicine can only happen if patients have reliable Internet access.

Travel to in-person appointments is also associated with the cost of fuel and resulting greenhouse gas emissions, including carbon dioxide (CO₂). Speculating that 4 hours or more of travel implies a round trip of approximately 300 km, the 164 people with this round trip to and from the office would have collectively driven almost 50 000 (164 × 300) km. In 2017, an average vehicle in Canada consumed an average of 8.9 L of gasoline per 100 km.⁴ The average CO₂ emissions per litre is estimated at 2.3 kg.⁵ For 1 visit alone by the 164 patients travelling 4 or more hours, CO₂ emissions would have been about 10 tonnes (t). Integrating the more than 500 patients who would have driven at least an hour's round trip to and from the office (perhaps another 40 000 km), another

8 t of CO₂ would have been emitted. In the face of global warming, governing bodies and policy makers should acknowledge patient satisfaction with virtual orthopedic care and the environmental impact of CO₂ emissions caused by patients travel, and facilitate as much use of this virtual care delivery model as possible.

Only 20% of patients requested that future contact be in person. Half expressed the wish for either a telephone or video call, at least some of the time. The longer the trip to and from the office, the less the patient preferred an in-person visit. The capacity for the surgeon or physician to determine whether and when they might need to see a patient in person is critical to successful telemedicine. With this in mind, surgeons and their colleagues ought to balance their needs to see any 1 patient in person against a patient's preference for a virtual visit.

Given the ongoing constraints imposed by the COVID-19 pandemic, orthopedic surgeons should recognize the value of these virtual visits, offer them to their patients and consider adopting the practice as the norm rather than as a temporary, stopgap measure. Furthermore, such visits mitigate the personal and environmental costs of patient travel.

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Affiliations: From the Faculty of Medicine, University of British Columbia, Vancouver, BC (Roberts, Johnston, Landells).

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