Telemedicine after COVID: An unanticipated benefit to a pandemic

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Healthcare providers have been featured prominently throughout the global response to COVID-19. Images of first responders, nurses, and ICU doctors became the symbols of courage for the rest of us to follow. The roles and expectations of those on the front line are clear and their job is well defined. For others, like orthopaedic surgeons, finding our place in all of this has been more confusing.

Trauma, infection, and cancer: these conditions do not stop because of a virus, but they account merely for a small subset of the whole of orthopaedic surgery. Orthopaedics by nature is a field designed to restore the health, temporarily lost, of the inherently well. Appropriately so, our patients were some of the first to have their procedures delayed, and our elective practices the least defendable to continue as the outbreak worsened.

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Lacking the opportunity to assist with hands or knowledge, our greatest contribution to the effort became removing ourselves from the forefront. We focused on using as few resources as possible and limiting nonessential physical proximity to our patients and co-workers. A solution many of us found to continue working in some capacity, seemingly designed perfectly for such a scenario, was telemedicine.

Telemedicine in healthcare has existed for years, its most apparent purpose has been to increase access to underserved and rural populations. The ability to conduct a clinical visit over phone or video allows for adequate monitoring of active and chronic medical conditions, but circumvents common barriers to in-person evaluation, namely distance, cost, and transportation.

The use of telemedicine by healthcare providers does require a revision of the traditional doctor-patient relationship. There are sacrifices that are required by both parties. Patients must accept that it may not be possible to address all of their concerns, and limitations exist for conditions that require a detailed physical exam. Providers must also be willing to forego the historical importance of an in-person patient evaluation, and perhaps some of the trust and bonding that accompanies a traditional clinic visit.

Although there are limitations and concerns regarding telemedicine, there are also benefits to both patient and providers that are clear and undeniable. For the patients, the most tangible improvement is the reduction in the time commitment required to be evaluated in person. My orthopaedic oncology practice serves a mostly rural population of 3 million spread out over an area of 145,000 sq km. It is not uncommon that patients must travel 3-4 hours to simply arrive at the hospital campus. Next, they must park (a constant cause of complaints), wait in an initial waiting room, then a sub-waiting room, then the examination room – where they wait some more. For patients being evaluated for simple conditions, such as incidental findings or routine cancer surveillance, often my direct interaction with them is 5 minutes or less. It is hard to justify that amount of effort for such a limited "traditional" evaluation, and methods to limit this commitment are generally viewed favorably. Providers also may find that converting a portion of outpatient clinics to telemedicine visits allows for greater adherence to scheduled appointment times, increased appointment availability for potential operative candidates, and more flexibility with complex patients.

Telemedicine was not initially focused on orthopaedics, but has subtly emerged as a valid option for orthopaedic evaluation as our common imaging modalities have become less expensive and more accessible. Comparative investigations have reported that telemedicine is cost effective and safe for orthopaedic patients.[1-3] When viewed with an open mind, there is no inherent reason telemedicine

could not be incorporated to a greater degree in our clinical practices. A mental barrier we all must overcome is the dissonance between our nature as physicians and the thought of eliminating face-to-face patient contact. There are some patients who will prefer an in-person evaluation, and some patients we also prefer to present for medical or social reasons. Telemedicine should always remain a choice rather than a mandate for patients. But realistically, a physical examination is not required when imaging characteristics clearly favor an enchondroma or non-ossifying fibroma. In an asymptomatic patient 1 year after a knee arthroplasty, nothing more than a plain X-ray is needed to ensure stability of the component. A similar argument can be made with fractures in those who have healed radiographically and no longer need casting. Perhaps the only conditions which absolutely need to be evaluated in person are active issues requiring intervention.

In theory, it is not difficult to make an argument in favor of telemedicine. In actuality, there are impediments that will make widespread adoption and implementation difficult. Some general challenges will be predictable and similar regardless of health system or location. Many barriers, however, are specific to region, government, and culture, and will require much thought, consideration, and collaboration to identify practical solutions.

For example, in the United States, one of the more significant barriers to pre-pandemic acceptance was the inability of medical institutions to charge patients for telemedicine services (or, from a different perspective, the reluctance of payers to reimburse for such encounters). Although the rules rapidly changed during the COVID outbreak, so as to motivate institutions to move patient encounters away from the clinics, the reimbursement to the institution remains much less than an in-person evaluation. This creates a financial disincentive for telemedicine and will compromise diffuse adoption by healthcare systems. It is not clear what future telemedicine will have in the US, but the increasing utilization of these services and the positive responses from patients and providers has proven this as a reasonable alternative to in-person evaluations.

A common barrier in much of the world is access to technology, a particular concern for low- and middle-income countries (LMIC). Telemedicine is a simple concept, but patients do need basic access to a phone, reliable telecommunication or internet service, and the ability to obtain and send images and other information securely to the evaluating provider. Early investigations have demonstrated telemedicine is practical and beneficial in concept, even in LMIC.[4,5] Most of the world has a mobile phone (5.2 billion unique numbers, 67% penetrance) and access to the internet (4.5 billion users, 59% penetrance).[6] Areas in Asia and Africa lag behind the Americas and Europe, but access is constantly increasing in all areas of the world. Kruse identified the most common barriers to telemedicine in developing countries to be infrastructure, lack of equipment, and a technology gap.[7]They recommended that telemedicine initiatives involve governmental and nongovernmental organizations to acquire the necessary resources and leadership.

Pakistan is an ideal setting for increasing use of telemedicine, and would demonstrate substantial benefits in caring for a majority rural population living at significant distance from an already limited specialized healthcare force. Ahmed and Ahmed cited the lack of federal and provincial regulations, guidance, and support as an explanation for Pakistan's relatively limited use of telemedicine to date.[8] They also recognized telemedicine as a potential arena for innovation, ideally with stakeholders representing technology, industry, healthcare, and government. Medical practitioners skeptical of telemedicine as an alternative to traditional patient care pose an additional challenge. A survey of doctors in Karachi revealed that 80% were aware of telemedicine, but over 40% believed it disrupted the doctor-patient relationship and causes a breach in privacy.[9] Patients also have varying opinions regarding the adoption of telemedicine, and indicates a need for greater education and efforts to familiarize patients and practitioners with its possibilities and limitations. [10]

Governments and insurers will have to signal acceptance of telemedicine by compensating providers and healthcare systems adequately relative to traditional in-person evaluations. The cost of a telemedicine visit should be less than an in-person evaluation because it takes less time and uses fewer resources, but it cannot be so much less that it dissuades participation by the institution. Ultimately, hospitals are businesses and the ability to make a profit or avoid a loss will drive much of the decision-making of adoption and usage. National medical organizations can play an important role in telemedicine acceptance, and the strongest societies can use their reputation and visibility to advocate, both on behalf of their members and patients, to ensure that telemedicine becomes and remains an

accepted, secure, and equitable method of clinical care.

Despite the recent surge in awareness and use, telemedicine remains in its earliest stages in most of the world. Many issues, such as privacy, data transfer, reimbursement, and liability, are difficult, nuanced, and ultimately regional. To implement telemedicine effectively, all parties (patients, providers, healthcare systems, and governments) must be aligned and motivated to work through these difficult and contentious issues. Healthcare providers, including orthopaedic surgeons, can lead by incorporating telemedicine into routine clinical practice when possible and advocating for its adoption and acceptance.

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