




Transforming the Orthopaedic Patient Experience Through Telemedicine

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In December 2019, the World Health Organization (WHO) Country Office in China received reports of pneumonia of unknown cause (1). This novel virus (ie, SARS-CoV-2) quickly spread around the world within weeks, leading the WHO to declare a global pandemic on March 11, 2020 (2).

The COVID-19 global pandemic has caused significant strain on health care systems and has taken professional and personal tolls on many dedicated medical professionals (3). There is understandably a great deal of concern and anxiety among patients and physicians regarding the ongoing health crisis. On a more positive note, it is apparent that the ongoing public health emergency has forced health care transformation, at least for the short term. One of the most fundamental change has been the integration of telemedicine into everyday clinical care.

First documented over 50 years ago, telemedicine describes the use of telecommunications technology to provide health care over a distance (4). As technology has advanced, the potential for robust telemedicine use in health care has increased. Until recently, telemedicine was not commonly used and broader implementation faced a number of barriers, including insufficient physician buy-in, legal restrictions, and reimbursement challenges (5). Due to the COVID-19 global pandemic and growing need for “social distancing,” regulators have eased many key telemedicine barriers to allow for clinical care to be delivered remotely (6). These changes have enabled many physicians, including orthopaedic surgeons, to transition to telemedicine to answer the need of patients seeking care for non-COVID-19-related concerns.

Surgeons have had differing opinions about telemedicine and its value in improving (or not improving) the patient experience (7). The virtual orthopaedic examination elements pose a number of unique challenges (eg, need for X-rays and gait, range of motion, and strength assessments) that must be addressed for the surgeon to obtain the needed information to produce a diagnosis and optimize patient care

recommendations. In this perspective, we present a patient case that demonstrates the potential value of telemedicine in orthopaedic care. Ultimately, we argue telemedicine, when used for appropriate patients, can improve the patient experience and lead to better care delivery in orthopaedic surgery.

Illustrative Case

N.D. is a previously healthy 42-year old schoolteacher who presented to the senior author (M.C.M.) when she noticed worsening balance and coordination over time. At a traditional, in-person new patient visit, she was diagnosed with cervical spondylotic myelopathy. She underwent a cervical laminoplasty, which is a nonfusion, motion-preserving method of cervical spine surgery developed in Japan. Soon after she was discharged, COVID-19 surged in the United States. Rather than asking N.D., who was recently postoperative and at higher risk for infection, to return to clinic for wound checks and further imaging, she was able to get her follow-up X-rays outside the hospital and then be seen and have her postoperative X-rays reviewed through a telemedicine encounter. Her wound was monitored virtually, and her range of motion was confirmed through a personalized video conference. By taking such an approach, N.D. was able to continue “social distancing” and avoid driving

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several hours across state lines to a health care facility, which may have potentially increased her exposure risk to COVID-19. The encounter was convenient and fulfilled her needs for questions regarding her care. Clinical care was not compromised.

Addressing Unique Telemedicine Concerns in Orthopaedic Surgery

Musculoskeletal pain and impaired function are the leading causes for patients to seek care from their primary care doctor. Orthopaedic surgeons are specifically trained to help patients improve from these symptoms using both nonoperative and operative interventions. The patient's provided history, physical examination, and supplemental imaging help orthopaedic surgeons make a diagnosis. Next, through shared clinical decision-making discussions regarding the risks and benefits of treatment options, they decide with their patients whether to embark on a journey together toward surgery, which will start a lifelong patient–surgeon relationship. Ultimately, to ensure the best quality outcome, a relationship built upon trust must be formed and maintained through active communication. Further, a surgeon must be able to thoroughly evaluate patients in terms of their subjective symptoms, objective findings, patient-reported outcome measure (PROM) scores, and imaging. All of this is imperative for optimal orthopaedic patient care, regardless of whether a patient is seen in-person or via telemedicine.

While an atypical approach to date, telemedicine can help accomplish all the care processes outlined above in most orthopaedic patient scenarios. Wounds can be examined over video and range of motion, strength, and gait can be assessed through the surgeon coaching patients through the correct movements. In addition, concerns can be shared, and PROMs can be collected and discussed, which has been shown to be associated with increased patient satisfaction (8). However, it remains crucial to ensure that only appropriate orthopaedic patients are provided care via telemedicine. In-person visits may be necessary if there are concerning symptoms that would benefit from a more detailed physical examination, or in cases where urgent or emergent attention is critical (eg, acute neurologic deficit). Overall, for the vast majority of orthopaedic patients, telemedicine offers a convenient, high quality alternative to an in-person clinic visit.

In addition, similar to in-person clinic visits, telemedicine for orthopaedic care can engage patients in their own health; however, it has a number of additional benefits and may also improve satisfaction and safety for appropriate patients. Patient engagement, which has been shown to lead to greater self-esteem and empowerment (9), can be achieved through telemedicine visits via the traditional means of motivational interviewing and shared decision-making, but it can be further supported by the fact that telemedicine offers patients greater access to orthopaedic care services at a time and place most convenient to them. This previously

unavailable flexibility may also increase patient satisfaction. Additional telemedicine advantages include avoiding unnecessary transportation time and parking fees, decreasing health care facility-related morbidity, and in the case of the COVID-19 global pandemic, reducing exposures to potentially life-threatening disease. Ultimately, if surgeons are able to feel comfortable that they are acquiring the complete evaluation needed and patients are satisfied with the process and outcome of remote care delivery, then telemedicine could be used to improve the patient experience through increased convenience, while also reducing societal costs of care.

Equally as important to consider are the intangibles of patient care that may be lacking in telemedicine. For example, the patient–surgeon relationship is built on an emotional bond and one could argue that a level of trust is developed with face-to-face interactions. Further, the powerful effect that “laying of hands” on a patient may have during the physical examination should not be disregarded. Such concerns may not have as large of an impact on established patients, as the patient–surgeon emotional bonds may have already been established. Overall, as both patients and surgeons adapt and become more comfortable with telemedicine, both parties will improve their ability to develop trust and emotional connections virtually.

Final Thoughts

The drive for physicians, including orthopaedic surgeons, is to deliver the best possible care in a setting that ensures an optimal experience for patients. For many years, telemedicine has shown much promise in this area. Despite this, a lack of physician buy-in and regulatory barriers have led to a stagnation in implementation. However, COVID-19 has forced orthopaedic surgeons, government agencies, and payers to adapt and take on these challenges head-on to ensure that patients continue to receive appropriate care during the ongoing public health crisis.

This natural experiment has demonstrated the positive potential of telemedicine that can be realized in orthopaedic surgery care. Such technology has a number of advantages (eg, convenience) can foster patient engagement, and may improve patient satisfaction, while also improving health care value—defined as outcomes achieved per dollar spent over the entire care cycle for a condition (10). While more research is warranted to determine the best patients for orthopaedic virtual care, the current global pandemic has been the catalyst for a great deal of positive change. Long-term, sustainable orthopaedic telemedicine care is now within reach.


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