

How Are Orthopaedic Sports Medicine Physicians Triageing Cases and Using Telehealth in Response to COVID-19?

A Survey of AOSSM Membership

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Background: The COVID-19 pandemic has changed the practice of orthopaedic sports medicine. The threat of COVID-19 persists, and future restrictions to elective procedures are possible. It is important to understand how sports surgeons are prioritizing surgical cases during elective case restrictions and how telehealth is being incorporated into practice.

Purpose: To understand how orthopaedic sports surgeons have triaged surgical sports cases and how telehealth is being utilized in response to COVID-19.

Study Design: Cross-sectional study.

Methods: A survey was presented to participants of the American Orthopaedic Society for Sports Medicine (AOSSM) webinar “Handling Sports and COVID-19” and distributed through email to all members of the AOSSM. The survey consisted of 25 questions with 3 sections: demographics, clinical practice, and telehealth. Descriptive statistics were performed.

Results: Overall, 104 respondents participated. Respondents varied with respect to their location, type of clinical practice, and years in practice. The cases with the highest priority during triage included infections, fractures, and traumatic tendon ruptures (eg, quadriceps tendon). Before COVID-19, <14.0% of surgeons used telehealth, and 76.7% had never used telehealth. Now, however, 81.4% of respondents plan to use telehealth at least once a week in their practice. Respondents indicated postoperative visits and return patients as the most appropriate for telehealth. The majority felt that telehealth was not appropriate for new shoulder (65.9%) or knee (55.6%) evaluation. The leading barriers to telehealth use that were identified included, in decreasing order, concerns about clinical appropriateness, accuracy of physical examination, billing/reimbursement, and medicolegal concerns.

Conclusion: Telehealth has seen rapid adoption during the COVID-19 pandemic, and the majority of respondents plan to continue using it. It is being used more for established patients rather than new patient visits. For surgical cases, there was a clear triage priority of sports medicine cases, including infections, fractures, and traumatic tendon ruptures. Lower extremity cases had higher priority than upper extremity.

Keywords: COVID-19; triage; telehealth; shoulder; knee; sports medicine

The current novel coronavirus 2019 (COVID-19) pandemic has drastically changed the practice of orthopaedic sports medicine. Elective procedures and clinical practices were temporarily halted and are still diminished in some regions. Yet, patients continue to have acute and chronic orthopaedic needs. All physicians and practices have had to determine how they would respond. Such concepts as what defines an elective procedure, triaging and leveling cases, and telehealth have become part of our daily conversation.^{14,15} Projecting into the future, as health care systems

attempt to normalize and sports resumption is considered, changes that we made to our practice will likely persist to some extent.

The same questions that many of us encountered at the beginning of the pandemic continue to plague us today as the pandemic worsens in some regions of the United States. As cases continue to rise and the possibility of further lockdowns or restriction on nonurgent surgery looms, it is important for members of the orthopaedic sports medicine world to learn from one another. Data are lacking on common practices for case prioritization and utilization of telehealth in outpatient sports medicine practices.

The main objective of this study was to describe the response of sports medicine surgeons to the COVID-19

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pandemic and their plans to incorporate telehealth into their practices. We hypothesized that sports medicine physicians increased their use of telehealth during the pandemic and plan to continue doing so afterward, and that triage priority was given to infectious or traumatic surgical cases affecting mobility.

METHODS

A survey was distributed on April 30, 2020, to participants of the American Orthopaedic Society for Sports Medicine (AOSSM) webinar “Handling Sports and COVID-19.” Additional distribution through an email to all members of the AOSSM was sent on May 5 and 27, 2020. Additionally, the survey was sent to all AOSSM Listserv members. There were no exclusion criteria, and members who chose to participate provided consent. Members could choose not to participate.

The survey was constructed in English, administered via online survey software (RedCap), and consisted of 26 questions (23 multiple choice and 3 ranking) in 3 sections: demographics, clinical practice, and telehealth (see the Appendix). The questions were designed for AOSSM membership, which is primarily composed of sports surgeons focused on knee and shoulder pathology. Respondents were allowed to defer response to any of the questions. They were not asked for their reason for deferring from answering a question.

The raw data were exported from RedCap to SPSS software (IBM) and analyzed. Descriptive statistics were measured and reported. The questions regarding ranking were calculated, and the mean was determined for each ranking question.

RESULTS

Demographics

There were 104 members of the AOSSM who completed the survey. Participants in the webinar included practicing surgeons, trainees (resident or fellow), or allied health professionals. Unfortunately, we did not have exact numbers of these groups. Of the respondents, the majority were younger, with 47.4% between 25 and 40 years (Table 1). Similarly, the majority (57.0%) were within the first 15 years of practice. All practice models were represented, with academic institution, private practice, and hospital-employed surgeons as the most represented. All regions of the United States were represented, with the Northeast composing

TABLE 1
Respondent Demographics (N = 104)

Variable	Respondents, No. (%)	Variable	Respondents, No. (%)
Practice model		Years in practice	
Hospital employed	23 (22.1)	0-7	34 (32.7)
Private practice	23 (22.1)	8-15	25 (24.0)
Academic institution	44 (42.3)	16-25	22 (21.2)
Private ^a	4 (3.8)	>25	20 (19.2)
Military	1 (0.96)	Defer	3 (2.8)
Other	8 (7.7)	Region of practice	
Defer	1 (0.96)	Northwest	6 (5.7)
Age range, y		West	12 (11.5)
25-40	49 (47.1)	Southwest	11 (10.6)
41-55	38 (36.5)	Midwest	18 (17.3)
56-70	15 (14.4)	Southwest	6 (5.8)
>70	1 (0.96)	Northeast	34 (32.7)
Defer	1 (0.96)	Southeast	14 (13.5)
Sex		Outside US	3 (2.9)
Male	58 (55.7)		
Female	46 (44.2)		

^aPracticing academic medicine in the setting of a private practice.

33.0% of the respondents and with the least represented region outside the United States (3.0%).

Clinical Practice

The majority of respondents performed <150 surgical cases per year (41.0%), and 46% anticipated an initial rebound in surgical volume after the lifting of restrictions on hospitals and ambulatory surgery centers. In addition, 46% to 55% of respondents felt that their hospital and ambulatory surgery center capacity could support an increase in surgical volume (Table 2). The level of urgency for cases, based on institutional triage guidelines since COVID-19, demonstrated that the leading cases were infection and fractures, followed by traumatic tendon ruptures, traumatic/flipped meniscus, and acute ligamentous tears. Joint replacements and chronic degenerative tears (eg, rotator cuff) were the lowest priority (Figure 1).

Telehealth

A combination of video visits and telephone visits was the most frequently used by respondents (41%); 6.6% of respondents reported not utilizing telehealth during the

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Ethical approval was not sought for the present study.

TABLE 2
Clinical Practice Responses^a

Variable	Respondents, No. (%)	Variable	Respondents, No. (%)
Surgical procedures, No. per year		Expect initial rebound surge ^b	
<150	32 (41.0)	Yes	48 (71.6)
150-299	18 (23.1)	No	19 (28.4)
300-500	22 (28.2)	Defer	37
>500	6 (7.7)	Hospital capacity able to increase surgical volume ^b	
Defer	26	Yes	30 (46.2)
Percentage of practice is knee		No	23 (35.4)
<10	4 (5.1)	Do not know	12 (18.4)
10-24	11 (13.9)	Defer	39
25-49	38 (48.1)	ASC capacity able to increase surgical volume ^b	
50-75	25 (31.6)	Yes	34 (54.8)
>75	1 (1.3)	No	16 (25.8)
Defer	25	Do not know	12 (19.4)
Percentage of practice is shoulder		Defer	42
<10	0 (0.0)		
10-24	14 (17.3)		
25-49	15 (18.5)		
50-75	41 (50.6)		
>75	11 (13.6)		
Defer	23		

^aASC, ambulatory surgery center.

^bAfter all restrictions in hospital/ASC capacity and elective surgery are lifted.

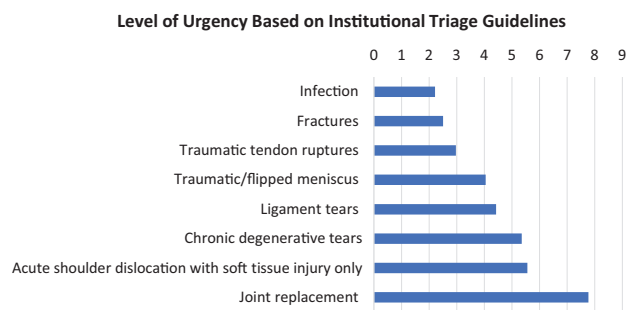


Figure 1. Mean values for level of urgency based on institutional triage guidelines. Of note, guidelines among institutions vary and may be surgeon dependent or determined by a committee. A lower number indicates higher priority. Infection had the highest priority and joint replacement the lowest.

COVID-19 pandemic. The frequency of telehealth usage for physicians and staff is listed in Table 3. Advanced practice providers or clinic assistants were considered staff. The majority of respondents performed telehealth visits at the office (77%; n = 80), but a large portion also performed telehealth evaluations at home (52%; n = 54) and in the clinic (45%; n = 47). Home, office, and clinic were considered separate locations, and respondents were asked to select all that applied. The majority of respondents did not feel that telehealth was sufficient for new shoulder evaluation even with imaging available (no, 66% [n = 69]; yes, 20% [n = 21]; not sure, 11% [n = 14]). Similarly, the majority of respondents (56%; n = 58), did not feel that telehealth was sufficient for

new knee evaluation, even with imaging available (yes, 37% [n = 39]; not sure, 7% [n = 7]).

Respondents felt that subsequent postoperative patient visits (after the first visit) were the leading indication for telehealth, followed by return patients and first postoperative visit. The least indicated for telehealth were patients with complications and new patients without prior imaging, as well as patients seeking a second opinion with available prior physician/physician extender examination and imaging (Figure 2).

Last, respondents identified concerns about clinical appropriateness/accuracy (eg, physical examination) as the leading barrier to incorporating telehealth into practice (Figure 3).

DISCUSSION

The most important finding from this study is that sports medicine surgeons within AOSSM are responding to the COVID-19 pandemic by increasing their use of telemedicine. Telehealth utilization grew exponentially during the pandemic, and 81.4% of respondents anticipated continuing to use telehealth in their practice after the pandemic. Respondents were most comfortable using telehealth for return patients or subsequent postoperative visits, as there remained concerns over accuracy of physical examination and medicolegal concerns with new patients or patients with complications. The study included respondents from a broad spectrum of practice models, including private practice, academics, and hospital employment. The

TABLE 3
Frequency of Physician and Staff Telehealth Usage Before, During, and After COVID-19^a

Respondent: COVID-19	Telehealth Usage, % of Respondents				
	Frequently (>2×/wk)	Sometimes (1-2×/wk)	Occasionally (1-2×/mo)	Never	I Don't Know
MD/DO					
Before	7	7	9	77	0
During	67	12	7	14	0
After (anticipated)	30	51	67	5	7
Staff					
Before	11	9	4	73	2
During	5	30	5	9	5
After (anticipated)	30	43	14	9	5

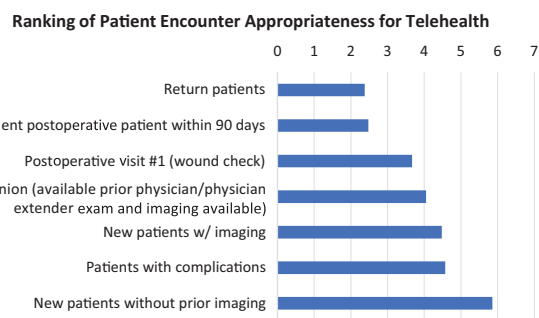


Figure 2. Mean rankings of patient encounter appropriateness for telehealth. A lower number indicates higher priority. Return patients had the highest priority, and new patients without prior imaging had the lowest.

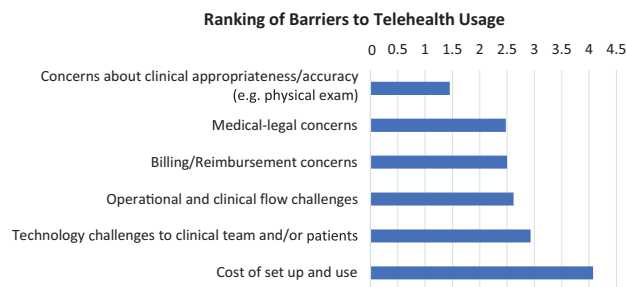


Figure 3. Mean rankings of barriers to telehealth usage. A lower number indicates greater barrier. Concern about clinical appropriateness/accuracy was the biggest barrier, and cost of setup and use was the least.

respondents tended to be younger, with 84.2% aged <55 years, but they were evenly distributed in years in practice. Respondents also represented all regions of the United States. Most surgeons (71.6%) expected a rebound surge after restrictions are lifted on hospitals and ambulatory surgery centers, and most felt that their hospital and ambulatory surgical center could accommodate a surge.

There was a clear distinction in the triaging of typical sports medicine cases. Infections, fractures, and traumatic tendon ruptures were the cases that were provided the

highest priority in the majority of respondents' practices. This may be expected, as the risk and morbidity with systemic spread of untreated infection could be devastating.¹¹ Untreated fractures can lead to nonunion or malunion, which can also greatly affect future quality of life and outcomes.⁶ Interestingly, lower extremity acute soft tissue injuries, such as flipped meniscus or ligamentous tears, had a higher priority than shoulder injuries (acute dislocation). The current study design did not allow extrapolation of rationale, but one possible explanation would be that injuries that may affect ambulation or mobility were given higher preference. This may be in part due to associated complications to delayed treatment—for example, cartilage or meniscal pathology for prolonged delays with anterior cruciate ligament reconstruction. The lowest priority was degenerative injury, such as rotator cuff or osteoarthritis (eg, joint replacement). It is important to understand these trends as we face the prospect of potential future lockdowns or additional waves of increased COVID-19 cases.

It should be noted that institutions across the country have developed unique methods to triage cases. In some locations, this may have been directed by the treating surgeon, but in others, particularly in areas with greater COVID-19 infection, a leadership team reviewed all “urgent or elective” surgical procedures. The data presented in this study did not differentiate whether the triaging was performed by surgeon or committee. However, the clear priority suggests a general consensus, whether triaged by individual surgeons or committees.

Telehealth has been rapidly adopted by orthopaedic sports medicine surgeons as a response to the pandemic. Before the COVID-19 pandemic <14% of surgeons used telehealth at least 1 or 2 times a week, with 76.7% having never used it. During COVID-19, there was a complete switch in usage, with 79.1% using it at least once a week and 67.4% using it more than twice a week. Moreover, most surgeons (81.4%) were planning to use telehealth as part of their practice moving forward. It is interesting that, despite 13.9% of surgeons not using it during the peak of COVID-19 cases, only 4.7% are choosing not to use telehealth in their sustained response to the pandemic. Those who may have been reluctant to use telehealth initially seem to believe that it will play an important role in the future of orthopaedic sports medicine. Additionally,

orthopaedic sports medicine physician staff and physician extenders are increasingly using telehealth. During the COVID-19 pandemic, 81.8% of physicians had their support staffs providing care with telehealth services.

Despite its increasing use, there remain questions regarding the greatest utility for telehealth.⁹ The majority of respondents reported that they did not feel as though telehealth was appropriate for new shoulder (65.9%) or knee (55.6%) evaluation. The most common suggested indications for telehealth included postoperative visits within the 90-day period, return patients, or the first postoperative visit. Part of the reason for these preferences may be the perception that telehealth is sufficient for history gathering and imaging review (radiographs, magnetic resonance imaging) with patients, but it is limited with regard to physical examination. This is represented by the respondents' identification of clinical appropriateness/accuracy as the leading challenge for adoption of telehealth. Return patients may also be identified as ideal candidates for telehealth visits because physical examination and a degree of rapport were already established between provider and patient during the initial in-person encounter.

In a forum piece during the early stages of the COVID-19 pandemic, Tanaka and colleagues¹³ published recommendations for performing telehealth physical examinations. Several of their key recommendations for the knee were evaluation for symmetry of limb alignment and range of motion with a web-based goniometer. For meniscal evaluation, the Thessaly test was recommended, as this can be performed by the patient alone. Strength testing is limited to evaluation against gravity. Dynamic examinations such as single-leg stance and squat could be used to measure quadriceps, hip, and core function. For the shoulder, their recommendation was to begin with assessment of cervical range of motion and direction to the patient on areas for palpation to detect tenderness, such as the acromioclavicular joint and bicipital groove.¹³ Range of motion is assessed by a virtual goniometer. Strength testing was recommended with common household items, and Tanaka et al recommended a screening test to indicate a need for further imaging to assess for a supraspinatus tear—specifically, the inability to abduct the arm while grasping a 1-lb item. There remains a lack of stringent trials or comparisons of telehealth physical examinations in the literature.

Another study on the accuracy of a physician-directed, patient-performed shoulder examination has been completed at our institution, and results demonstrated similar accuracy in detection of rotator cuff tears when compared with a traditional clinical examination. Examination maneuvers that require typical hands-on participation (eg, strength testing) showed less agreement than findings that are purely observational, yet the overall accuracy of the 2 types of assessment was strikingly similar.²

Telehealth has been utilized in other joints, including the hip. In a study by Owusu-Akyaw et al,¹⁰ patient self-examinations via telehealth were compared with physician clinical examination in the sports hip population. Seventy-five patients presenting for hip pain first performed a self-administered examination and then underwent a traditional standardized clinical examination for hip pain. The

study found that the self-administered examination actually had statistically greater mean diagnostic accuracy than the clinical examination (53.6% vs 45.5%). The authors proposed an explanation of this finding, which may be extrapolated to the knee and shoulder: clinicians may fall into verification bias during an in-person physical examination based on referral or prior imaging.

Despite some of the limitations in initial diagnoses, there have been some published reports of the advantages of telehealth. In a randomized controlled trial in Norway, 389 patients scheduled for orthopaedic consultation were randomized to a video or in-person consultation.⁴ There was no significant difference in the number of patients who subsequently underwent surgery. Moreover, patients in both groups demonstrated 99% satisfaction in their consultation, and 86% of the video consultation group preferred video for their next consultation. In a follow-up study, the same authors found that video consultation for a remote population was cost-effective from both a societal and a health sector perspective.³ In a study of postoperative patients with telemedicine, an abstract presented at the American Academy of Pediatrics demonstrated that the first postoperative visit after knee arthroscopy could be safely performed by telehealth.¹ The study found that a telehealth medicine visit within 24 hours of an in-person visit for the first postoperative visit had 100% provider agreement with incision color and effusion size and that the difference between knee range of motion assessment was only 3° and not clinically significant. No complications were found on either visit type. Importantly, the mean distance traveled for a one-way visit to the clinic was 35 miles. Patient education, including explanation of intraoperative findings and postoperative rehabilitation, was equally performed between types of visits.

Another consideration is the role of telehealth as it relates to workers' compensation. Telehealth may serve as a way to expedite evaluation and determine maximum medical improvement. If patients and providers determine that a telehealth visit and examination are sufficient, it could serve as a way to return patients to the workforce. Alternatively, as we continue to face the pandemic, if telehealth is insufficient, then there may be a societal impact if these patients cannot be evaluated as they continue to receive wages. Moreover, the utilization of telerehabilitation may help patients recover, eliminate the need to travel, and make it easier to schedule. The utilization of telehealth with workers' compensation cases could have a lasting impact beyond the current pandemic.

Concerns over billing/reimbursement and medicolegal issues with telehealth were also highly rated by respondents. The Centers for Medicare and Medicaid Services broadened access to telehealth services early during the pandemic under the 1135 waiver authority and Coronavirus Preparedness and Response Supplemental Appropriations Act. These changes signified that telehealth visits were considered the same as in-person visits and were paid at the same rate as regular, in-person visits. As states reform their reimbursement policies, telemedicine has not been treated the same as in-person services for reimbursement.⁸ Moreover, there were some restrictions

with the origination of visits; patients had to be at a health care facility. The regulations on reimbursement, however, are changing rapidly and vary from region to region, but as a whole, access and reimbursement for telehealth services are increasing nationwide. Explanation of these regional changes is beyond the scope of this article, but the Center for Connected Health Policy provides a summary of state telehealth laws and reimbursement policies.⁵

As the rules and regulations change, so does the risk of possible liability from making diagnoses, recommending surgical treatment, and following up without the ability to perform an in-person physical examination.^{7,9,12} It is important for providers to stay abreast of several considerations: licensure, informed consent, security/HIPAA (Health Insurance Portability and Accountability Act) privacy, and documentation. Many states require that the telehealth provider be licensed in the state where the patient resides and is seeking services; however, exceptions may be made for patients who had previously established care but relocated to another state. It is important for providers to document informed consent for the use of telehealth in the patient record. There are recommendations to include a signed consent, but verbal-only consent is typically acceptable as long as it is clearly documented in the patient's record. Regarding security/HIPAA privacy, the emergency changes in response to the pandemic stated that there would not be penalties for non-HIPAA rules if performed in good faith during the COVID-19 public health emergency. This permitted the use of Skype, Facetime, and Zoom, but these should be only a temporary means of providing telemedicine services until more HIPAA-compliant options are available. Most important, standard of care remains the same whether provided via telemedicine or in-person visit. This can be challenging, as the history provided by patients, rather than physical examination or direct observation, has increasing importance in telehealth. It is therefore recommended that providers ask questions and encourage dialogue so as much information can be elicited. Last, as part of any patient encounter but particularly during a telemedicine appointment, providers should carefully document their care and the thought process behind their medical decision making.

This study is not without limitations, including that it was a survey study and provided a small cross section of providers (<5%) who practice orthopaedic knee and shoulder sports medicine. However, respondents represented a broad spectrum in terms of age, years in practice, practice model, number of surgical procedures per year, and region of practice. The current study respondents included 41% who reported <150 cases per year. Although this may not represent the "average" surgeon, these respondents are most likely trying to increase their volume and clinical footprint. These respondents have the biggest incentive to try innovative methods to increase their volume. In the current climate of restrictions and limits in elective procedures, many surgeons (including high-volume surgeons) may be seeking out new ways to maintain their volume and outreach. As such, the practice patterns of these lower-volume surgeons may be advantageous to consider.

Additionally, there was a high rate of deferred responses to questions. Respondents were allowed to defer responses to

any question, and we were unable to determine the reasoning for deferment. It may be that respondents did not know how best to respond or did not want to respond. To provide the most clarity with each question, percentages were calculated for number of respondents for each question. Additionally, respondents represented a small percentage of AOSSM membership; nonetheless, we believe that the information is valuable to readers. Given the unprecedented nature of the COVID-19 pandemic, it is important to consider how others are responding, particularly as repeat waves of infection occur and the likelihood of restrictions on elective procedures returns. Moreover, as providers and practices consider whether to begin or continue to use telehealth, it is important to highlight the concerns, benefits, and pitfalls of this new approach to patient care.

We also did not ask which video visit platform that respondents used (eg, Zoom, Doxy.Me, OrthoLive). Although the general use among platforms is largely similar, each has specific advantages and disadvantages, which may have affected the respondents' preferences for when to use telehealth. For example, some platforms may be more easily integrated with the electronic medical record than others, which could affect their ease of use. A discussion regarding specific differences among platforms is beyond the scope of this study, however.

CONCLUSION

The COVID-19 pandemic has changed the practice of orthopaedic sports medicine, and there remains uncertainty whether future outbreaks will occur or further lockdowns will be necessary. Telehealth is gaining traction as a way to safely care for patients, and the majority of orthopaedic sports providers are implementing it into their practice. There remain concerns for the accuracy of telehealth physical examinations, particularly for new patients. When triaging surgical cases, sports surgeons prioritized infections, fractures, and traumatic tendon ruptures. Lower extremity soft tissue injuries may have priority over upper extremity injuries.

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APPENDIX AOSSM Survey

Section A: Demographics

- 1) What is your practice model?
 - a. Hospital employed
 - b. Private practice
 - c. Academic institution
 - d. Private-demic
 - e. Military
 - f. Other
- 2) What is your age range?
 - a. 25-40 years old
 - b. 41-55 years old
 - c. 56-70 years old
 - d. Over 70 years old
- 3) What is your gender?
 - a. Male
 - b. Female
- 4) How many years out from training are you?
 - a. 0-7 years
 - b. 7-15 years
 - c. 15-25 years
 - d. >25 years
- 5) What region do you practice in?
 - a. Northwest
 - b. West
 - c. Southwest
 - d. Midwest
 - e. South
 - f. Northeast
 - g. Southeast
 - h. Outside the United States
- 6) How many surgeries do you perform annually?
 - a. <150
 - b. 150-300
 - c. 300-500
 - d. >500

- 7) What percentage of your practice is knee?
 - a. <10
 - b. 10-25
 - c. 25-50
 - d. 50-75
 - e. >75
- 8) What percentage of your practice is shoulder?
 - a. <10
 - b. 10-25
 - c. 25-50
 - d. 50-75
 - e. >75

Section B: Clinical Practice

- 9) What type of ambulatory specialty center (ASC) do you mostly operate in and what is your relationship?
 - a. Hospital/health care system–owned center
 - b. Nonowner in physician-owned center (partial or full physician ownership)
 - c. Owner in physician-owned center (partial or full physician ownership)
- 10) Do you expect an initial rebound surge (performing a higher volume of surgeries per week compared with before the COVID-19 pandemic) in your surgical volume once your health care system is fully operational again?
 - a. Yes
 - b. No
- 11) Does your in-patient hospital system have capacity for a significant increase in surgical volume?
 - a. Yes
 - b. No
 - c. I don't know

- 13) Does your ASC have capacity for a significant increase in surgical volume?
- Yes
 - No
 - I don't know
- 14) Ranking of level of urgency
- Ligamentous tears
 - Traumatic tendon ruptures
 - Chronic degenerative tears
 - Traumatic/flipped meniscus
 - Acute shoulder dislocation with soft tissue only
 - Joint replacement
 - Fractures
 - Infection
- Section C: Telehealth**
- 15) If you used, are using, or plan to use telehealth during the COVID-19 pandemic, which format:
- Video visit
 - Telephone visits
 - Mix of both
 - N/A
- 16) Prior to COVID-19, did you as the physician utilize telehealth in your clinical practice?
- Frequently (>2 times per week)
 - Sometimes (1-2 times per week)
 - Occasionally (1-2 times per month)
 - Never
 - I don't know
- 17) During the current COVID-19 pandemic, how often did you as the physician use telehealth during the COVID-19 pandemic?
- Frequently (>2 times per week)
 - Sometimes (1-2 times per week)
 - Occasionally (1-2 times per month)
 - Never
 - I don't know
- 18) After the COVID-19 pandemic, how frequently do you as the physician plan to use telehealth in your practice?
- Frequently (>2 times per week)
 - Sometimes (1-2 times per week)
 - Occasionally (1-2 times per month)
 - Never
 - I don't know
- 19) Prior to COVID-19, how often did your support staff (ie, physician assistant, nurse practitioner, athletic trainer, assistant) utilize telehealth in your clinical practice?
- Frequently (>2 times per week)
 - Sometimes (1-2 times per week)
 - Occasionally (1-2 times per month)
 - Never
 - I don't know
- 20) During the current COVID-19 pandemic, how often did your support staff (ie, physician assistant, nurse practitioner, athletic trainer, assistant) utilize telehealth in your clinical practice?
- Frequently (>2 times per week)
 - Sometimes (1-2 times per week)
 - Occasionally (1-2 times per month)
 - Never
 - I don't know
- 21) After COVID-19, how often do you plan for your support staff (ie, physician assistant, nurse practitioner, athletic trainer, assistant) to utilize telehealth in your clinical practice?
- Frequently (>2 times per week)
 - Sometimes (1-2 times per week)
 - Occasionally (1-2 times per month)
 - Never
 - I don't know
- 22) In which location are you performing, or are you planning to perform, telehealth clinic visits? (Select all that apply)
- Home
 - Office
 - Clinic
 - Other
- 23) Is telehealth sufficient for evaluation of majority of new shoulder evaluations in patients that have imaging available?
- Yes
 - No
 - Not sure
- 24) Is telehealth sufficient for evaluation of the majority of new knee evaluations in patients that have imaging available?
- Yes
 - No
 - Not sure
- 25) In your normal clinical practice, after the COVID-19 pandemic, which patient encounters are most appropriate for telehealth encounters? Rank in order of importance.
- New patients without prior imaging
 - New patients with imaging
 - Second opinion (available prior physician/physician extender exam and imaging available)
 - Return patients
 - Postoperative visit #1 (wound check)
 - Subsequent postoperative patient visits within 90 days
 - Patients with complications
- 26) What are the biggest barriers to telehealth incorporation into your clinical practice? Rank in order of importance.
- Cost of set up and use
 - Billing/reimbursement concerns
 - Concerns about clinical appropriateness/accuracy (eg, physical exam)
 - Technology challenges to clinical team and/or patients
 - Operational and clinical flow challenges
 - Medical-legal concerns