

# THE ORTHOPAEDIC FORUM

## A Review of State Guidelines for Elective Orthopaedic Procedures During the COVID-19 Outbreak

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**Background:** The SARS-CoV-2 (COVID-19) pandemic has resulted in widespread cancellation of elective orthopaedic procedures. The guidance coming from multiple sources frequently has been difficult to assimilate as well as dynamic, with constantly changing standards. We seek to communicate the current guidelines published by each state, to discuss the impact of these guidelines on orthopaedic surgery, and to provide the general framework used to determine which procedures have been postponed at our institution.

**Methods:** An internet search was used to identify published state guidelines regarding the cancellation of elective procedures, with a publication cutoff of March 24, 2020, 5:00 P.M. Eastern Daylight Time. Data collected included the number of states providing guidance to cancel elective procedures and which states provided specific guidance in determining which procedures should continue being performed as well as to orthopaedic-specific guidance.

**Results:** Thirty states published guidance regarding the discontinuation of elective procedures, and 16 states provided a definition of “elective” procedures or specific guidance for determining which procedures should continue to be performed. Only 5 states provided guidelines specifically mentioning orthopaedic surgery; of those, 4 states explicitly allowed for trauma-related procedures and 4 states provided guidance against performing arthroplasty. Ten states provided guidelines allowing for the continuation of oncological procedures.

**Conclusions:** Few states have published guidelines specific to orthopaedic surgery during the COVID-19 outbreak, leaving hospital systems and surgeons with the responsibility of balancing the benefits of surgery with the risks to public health.

The SARS-CoV-2 (COVID-19) pandemic has created a substantial strain on the United States health-care system. In anticipation of a surge of infected patients as well as increased demand for personal protective equipment (PPE), on March 13, 2020, the American College of Surgeons (ACS) recommen-

ded postponing or canceling elective procedures<sup>1</sup>. Two days later, the Centers for Medicare & Medicaid Services (CMS) followed that guidance with their own recommendations on approaching elective procedures, comprising a 3-tiered system taking into account both the acuity of the procedure and the

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underlying health of the patient<sup>2</sup>. However, vague language has created substantial ambiguity in the interpretation of these guidelines. Understandably, national societies, both in orthopaedic surgery and in other specialties, have yet to come up with their own specific guidelines in this rapidly changing environment. However, many state governments have provided either recommendations or mandates regarding the performance of elective procedures.

This topic is particularly relevant for orthopaedic surgeons as approximately 47% of orthopaedic expenditures come from elective procedures<sup>3</sup>. It also presents the challenge of determining which operations are truly elective and which operations should continue being performed during this crisis. Additionally, despite guidance, there have been several reports of major academic centers continuing to perform elective procedures as recently as March 21, 2020<sup>4</sup>, potentially because of the plethora of sources providing guidance in addition to the rapidly evolving nature of the outbreak. In light of guidance coming from a variety of sources, we seek to communicate the current guidelines published by each state, to provide discussion on the impact of guidelines on orthopaedic surgery, and to provide the general framework for determining which procedures have been canceled or postponed at our institution.

### Materials and Methods

An internet search engine was used to identify guidelines for providers that had been published by their respective states. The cutoff for data collection (i.e., state publications) was set for March 24, 2020, at 5:00 P.M. Eastern Daylight Time. Data were collected on which states had provided guidance regarding the continuation of

procedures as well as the form in which the guidance was given (i.e., mandate or recommendation). We also sought to determine whether or not the state had provided a specific definition for “elective” procedures or provided specific guidance in determining which procedures should continue to be performed. Finally, orthopaedic-specific recommendations were recorded.

### Results

Of the 50 U.S. states, 30 provided guidance either recommending or mandating the discontinuation of elective procedures<sup>5-34</sup>. Sixteen states provided a definition for “elective” procedures or specific guidance for determining which procedures should continue to be performed<sup>7,8,10,11,13,14,17-19,22,24-27,29,34</sup>. Only 5 states provided guidelines that specifically mentioned orthopaedic surgery<sup>10,17,18,29,34</sup>. Of those 5 states, 4 explicitly allowed for trauma-related procedures<sup>10,18,29,34</sup> and 4 provided guidance against performing arthroplasty<sup>17,18,29,34</sup>. Ten states provided guidelines suggesting that it was appropriate to continue oncological procedures<sup>7,8,10,18,19,25-27,29,34</sup>.

### Discussion

A large number of orthopaedic procedures are elective, and the COVID-19 pandemic will have a substantial impact on our patients’ well-being while also placing a financial burden on hospitals, surgeons, and everyone involved in the care of these patients. National governing bodies have recommended canceling or postponing elective procedures<sup>1,2</sup>, whereas guidance at the state level has varied substantially.

Twenty states had yet to publish guidance as of March 24, 2020. Furthermore, among the states that did provide

**TABLE I Procedures Continuing to Be Performed During the COVID-19 Outbreak at Our Institution\***

Trauma-Related	Oncological	Infection-Related	Other
<ul style="list-style-type: none"> <li>• Open fractures</li> <li>• Pathological fractures (including impending pathological fractures)</li> <li>• Select closed fractures that, if left untreated for &gt;30 days, may lead to loss of function or permanent disability</li> <li>• Irreducible dislocation of native or prosthetic joints</li> <li>• Penetrating wounds into bone or joints</li> <li>• Penetrating nervous system injury</li> <li>• Peripheral nerve injuries and compression syndromes with severe symptoms</li> <li>• Spinal column injury causing instability with or without symptoms</li> </ul>	<ul style="list-style-type: none"> <li>• Procedures performed to diagnose cancer that will lead to active treatment</li> <li>• Biopsy-proven cancer with risk of metastasis or progression of disease</li> <li>• Biopsy for nodule/mass with risk of cancer diagnosis</li> <li>• Spinal column tumor with clinical and radiographic evidence of spinal cord compression (weakness, bowel/bladder dysfunction, sensory changes, pain) or intractable pain</li> <li>• Lymph node biopsy</li> <li>• Ancillary procedures related to cancer care</li> </ul>	<ul style="list-style-type: none"> <li>• Deep-tissue infection</li> <li>• Periprosthetic infection</li> <li>• Joint infection</li> <li>• Necrotizing fasciitis</li> <li>• Wound infection</li> </ul>	<ul style="list-style-type: none"> <li>• Compartment syndrome</li> <li>• Amputations related to limb ischemia/infection/trauma</li> <li>• Wound dehiscence</li> <li>• Hematoma evacuation</li> <li>• Displaced meniscal tears associated with locked knee</li> <li>• Select acute ligament disruptions</li> <li>• Tendon lacerations and ruptures</li> <li>• Cerebrospinal fluid leak</li> <li>• Cord compression or cauda equina syndrome causing myelopathy or rapidly evolving loss of neurological function</li> </ul>
*List is accurate as of March 25, 2020.			

guidance, only approximately one-half provided specific guidance to aid in the determination of which procedures should continue and only one-third explicitly mentioned continuing oncological procedures. Even fewer explicitly mentioned that trauma-related procedures should continue or that arthroplasty should be discontinued.

With vague guidance at the state level that rarely mentions orthopaedic surgery, surgeons and hospitals have largely been on their own to determine which procedures should continue to be performed and which should be postponed. However, one source of information that states, hospitals, and surgeons can consult is the CMS tiered approach for surgical services<sup>2</sup>. Tiers 1, 2, and 3 designate low, intermediate, and high-acuity procedures, respectively, whereas the designations “a” and “b” indicate healthy and unhealthy patients. CMS recommends postponing all Tier-1 operations, to consider postponing Tier-2 operations, and to continue performing Tier-3 operations. Specific orthopaedic operations that are mentioned include carpal tunnel releases (Tier 1a), “hip, knee replacement and elective spine surgery” (Tier 2a), and “most cancers” and “highly symptomatic patients” (Tier 3a). No guidance is provided on what is considered a “highly symptomatic patient.”<sup>2</sup> Certainly, patients with carpal tunnel syndrome, osteoarthritis, and other orthopaedic conditions that in normal times necessitate “elective surgery” may have severe symptoms, creating even more ambiguity.

The case of Ohio provides an example of how one state and hospital system handled this ambiguity amidst an unprecedented pandemic. Ohio Governor Mike DeWine issued an order to cancel elective procedures in order to protect patients and providers, preserve critically short supplies of PPE, and preserve inpatient bed capacity and other equipment for critically ill patients<sup>25</sup>. Following this mandate, in an attempt to provide a consistent approach throughout the state, the Ohio Hospital Association (OHA) developed criteria intended to be used throughout the state for determining which procedures should be canceled. The OHA asked that each hospital and surgery center cancel procedures that did not meet any of the following criteria: “threat to the patient’s life if surgery or procedure is not performed, threat of permanent dysfunction of an extremity or organ system, risk of metastasis or progression of staging, risk of rapidly worsening to severe symptoms (time sensitivity).”<sup>25</sup> Our institution determined that it would apply those principles and postpone operations, specifically, those scheduled for the next 30 days, that were not time-sensitive according to this definition.

With that in mind, individual surgical and procedural division directors at our institution developed a list of procedures that should continue to be performed. This list was then approved by respective department chairs before finally being approved by the hospital chief clinical officer. It is important to keep in mind that while the list provided is current as of the time of writing, this list is also likely to change in the future as the demands placed on our hospital system change. The list of orthopaedic procedures that our institution determined should continue to be performed is shown in Table I.

It is important to consider that while the list attempts to be explicit and to create clear distinctions, it is not completely without ambiguity, considering that it includes “select closed fractures that if left untreated for >30 days may lead to loss of function or permanent disability.” The inclusion of this statement makes it necessary for surgeons to make a judgment call and to reconsider typical indications for which fractures necessitate fixation in the short term. It is very likely that in the event that resources become more scarce, surgeons may be required to postpone treatments beyond what we would consider usual. A mechanism for review of scheduled cases is in place at our institution to ensure that patients are getting care that is appropriate to our institutional capabilities. Additionally, as the pandemic evolves, a potential way to further classify procedures is by separating them into 2 categories: (1) those that need to be performed within 2 weeks and (2) those that need to be performed within 4 weeks. This distinction would be helpful as resources become scarce and more clear guidelines are needed.

Guidance regarding the continuation of orthopaedic procedures during the COVID-19 pandemic has come from a variety of organizations and frequently has been vague, putting the onus of decision-making on individual hospital systems as well as surgeons. Ultimately, surgeons must weigh the benefits of performing surgery with the potential impact on public health. While patients wait for surgery, surgeons should provide them information regarding alternative methods of managing their pain<sup>36</sup>.

#### Disclaimer

This publication is intended to provide its readers with information regarding the guidelines provided by each state as of the time of writing (March 25, 2020). Additionally, the list of procedures currently being performed at our institution is accurate of as March 25, 2020, and is subject to change. Readers should recognize the rapidly evolving nature of the COVID-19 outbreak and should personally inform themselves regarding their own state and hospital guidance. Each state and hospital system is likely to have its own unique needs. ■

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