Review Article

Practice Management During the COVID-19 Pandemic

Alexander R. Vaccaro, MD, PhD, MBA

Charles L. Getz, MD

Bruce E. Cohen, MD

Brian J. Cole, MD, MBA

Chester J. Donnally III, MD

Abstract

On March 14, 2020, the Surgeon General of the United States urged a widespread cessation of all elective surgery across the country. The suddenness of this mandate and the concomitant spread of the COVID-19 virus left many hospital systems, orthopaedic practices, and patients with notable anxiety and confusion as to the near, intermediate, and long-term future of our healthcare system. As with most businesses in the United States during this time, many orthopaedic practices have been emotionally and fiscally devastated because of this crisis. Furthermore, this pandemic is occurring at a time where small and midsized orthopaedic groups are already struggling to cover practice overhead and to maintain autonomy from larger health systems. It is anticipated that many groups will experience financial demise, leading to substantial global consolidation. Because the authors represent some of the larger musculoskeletal multispecialty groups in the country, we are uniquely positioned to provide a framework with recommendations to best weather the ensuing months. We think these recommendations will allow providers and their staff to return to an infrastructure that can adjust immediately to the pent-up healthcare demand that may occur after the COVID-19 pandemic. In this editorial, we address practice finances, staffing, telehealth, operational plans after the crisis, and ethical considerations.

From the Department of Orthopaedic Surgery, Rothman Institute, Thomas Jefferson University, Philadelphia, PA (Dr. Vaccaro, Dr. Getz, and Dr. Donnally), the OrthoCarolina, Charlotte, NC (Dr. Cohen), and the Department of Orthopaedic Surgery, Midwest Orthopaedics at Rush, Chicago, IL (Dr. Cole).

None of the following authors or any immediate family member has received anything of value from or has stock or stock options held in a commercial company or institution related directly or indirectly to the subject of this article: Dr. Vaccaro, Dr. Getz, Dr. Cohen, Dr. Cole, and Dr. Donnally.

All authors significantly contributed to the document and have reviewed the final manuscript.

J Am Acad Orthop Surg 2020;00:1-7

DOI: 10.5435/JAAOS-D-20-00379

Managing Finances, Assets, and Staffing

The initial financial goals should avoid employee layoffs or termination while at the same time maintain an infrastructure to efficiently increase operations to the pre-COVID level at a rate that mirrors the diminishing impact of the virus. However, it is essential to make acute practice changes, given the immediate and profound reduction in revenues weighed against an infrastructure that was predicated on otherwise predictable patient and procedure volumes (Figure 1). The authors will share their basic strategies in a stepwise fashion.

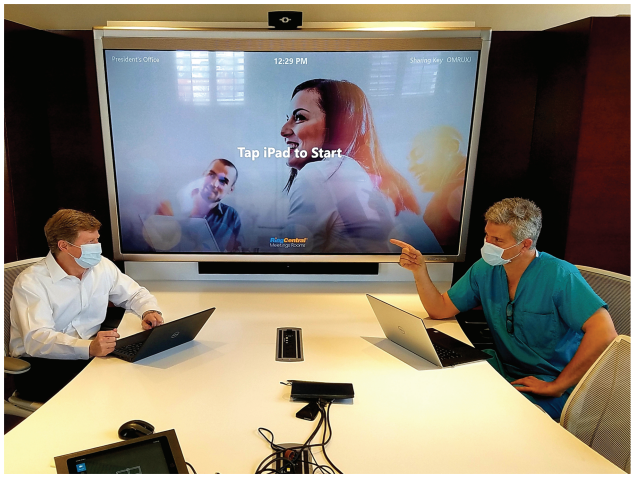
The Rothman Institute (RI) Response

At the RI, we planned for three operational "phases" based on the existing national date of continued "social distancing" and the limitations on elective surgical procedures.

Phase 1

Phase 1 changes were made to maintain practice viability by maintaining staff, reducing cost, and positioning for recovery. In phase 1, the changes were immediately implemented, affecting staffing work hours and compensation. Compensation for executive-level personnel (administrative and clinical)

Figure 1



Photograph of the Chief Executive Officer (Mike West) and President (Alexander Vaccaro) of the Rothman Institute debating various strategic options during the COVID-19 crisis.

Figure 2

1- Office Closures
2- Deferred Leases/Mortgages
3- CMS Accelerated and Advanced Payment Program
4- Delayed Vendor Payments

Four key strategies used by the Rothman Institute to promote asset conservation. CMS = Centers for Medicare & Medicaid Services

sustained larger salary reductions compared with midlevel providers or office staff. This included the following:

Full shareholders agreed to take no April salary and will receive 40% of earned bonuses from the first quarter (Q1) (January to March), and then, in May to June, full shareholders will only receive an entry-level monthly base pay. This compensation model was also applied to the executive-level management positions (CEO-President, Senior Vice Presidents, and Vice Presidents). Surgical associates will be paid the lessor of 70% of base salary or an entry-level salary (a minimum 30% drop in salary) and receive 40% of their earned quarterly bonuses for Q1. Lower-level management positions would sustain a 25% to 30% base salary reduction and receive 40% of their earned bonus for Q1.

Physician assistants and nurse practitioners (PAs/NPs) had two options based on their supervising physician's load. The first option entailed a 50% reduction in both hours and salary, with maintenance of benefits. The second option provided for continued full-time hours but paid at 70% base pay level. Either model would be funded by the shareholder with whom they primarily worked (ie, a direct physician-specific cost). In addition, the PA/NP's earned bonus for Q1 was reduced to 40% of the standard bonus. The PAs/NPs were organized in shift work with their counterparts to continue to provide full coverage of the practice.

Nonsurgical physicians had a 50% reduction in both salary and work hours but were permitted to engage in other income avenues, such as moonlighting or volunteering with COVID-related patient care. Similarly, salaried and hourly office staff had a 50% reduction in hours and salary. This reduction positioned our employees to take advantage of partial unemployment benefits of the recently passed Coronavirus Aid, Relief, and Economic Security (CARES) Act.[1]

The reduced teams facilitated work site reallocation and allowed several of the clinical offices to temporarily close. To provide adequate coverage, closures were based on market demand. The changes made in Phase 1 allowed our organization to flex staff and physicians over a broad geographic area and effectively reduce staff hours and manage the equivalent of 600 full-time equivalent (FTE) employees and an equivalent reduction of approximately 70 FTE physicians.

Another crucial element of Phase 1 is asset management to maintain adequate capital within the practice. There are four key strategies used by the Rothman Institute to promote asset conservation: office closures, deferred leases/mortgages, the Centers for Medicare & Medicaid Services (CMS) Accelerated and Advance Payment Program, and delayed vendor payments (Figure 2).

The temporary closure of offices was based on patient demand and the benefits accrued from consolidation.

The second strategy is deferred payment of leases and mortgages. As tenants of each office we occupy, we have asked our landlords and financial institutions to defer lease payments for 3 months with the agreement that these payments would be added to the end of the lease. In a similar manner, for properties that are owned or partially owned by the Rothman Institute, a 3-month grace period was extended to all office tenants to assist them through the pandemic period and sustain their lease in the long term. Many financial institutions provide the same 3-month relief for mortgage payments and add the payments to the end of the mortgage period. By taking advantage of these opportunities, the capital is conserved within the practice.

The third strategy is taking advantage of the CMS[2] Accelerated and Advance Payment Program. Through

this program, qualifying practices can receive an advanced payment up to 100% of the Medicare payment amount from the previous 3-month period. The recoupment period for almost all orthopaedic practices will start at 120 days, with expected completion at 210 days. These funds can be paid back in the form of withheld payments from services billed over this period. The groups should highly consider applying for such funds and maintain them on the balance sheet and not use them if possible. Using this money unwisely may create a future cash flow issue during the repayment period if the advanced funds are not properly managed. These funds are essentially an interest-free bridge loan for 4 months but will need to be repaid in a prompt manner.

Finally, many vendors have allowed for a lag in payment, which essentially improves the cash position. By delaying these payments, it is essentially receiving a loan from the vendors but can serve to maintain cash reserves in the near-term.

Phase 2

Phase 2 will be initiated if the federal government extends the social distancing and "shelter-in-place" recommendations beyond May 1, 2020. A continued ban on elective surgery and decreased patient office visits would further strain practice resources. Furloughs would be considered to maximize the viability of the practice and provide staff with the best ability to apply for state and federal assistance programs. In addition, all management-level positions would take an additional salary reduction and all physicians, management, and staff would evaluate if a second quarter bonus would be feasible at any level. A second phase of office closures would also occur.

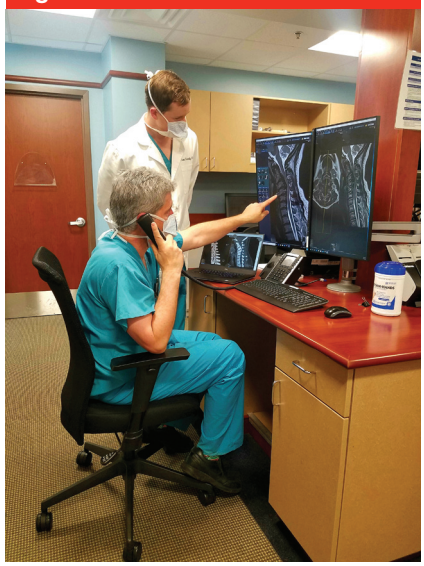
Phase 3

Phase 3 would be initiated if the current limitations are extended to June 1, 2020. This would result in additional office closures and staff reductions. As challenging as this planning can be, having a roadmap of which offices and staff members would be affected allows the practice and the employees to prepare for swift transitions once the announcements are made. The plan should also determine how the practice can quickly "flex up" staff and clinicians as the market demands increase.

The OrthoCarolina Response

At OrthoCarolina, we approached this crisis in a manner to allow the ability to ramp up productivity, which is expected once offices are fully operational and elective surgeries are back in place. In mid-March, we suspended all elective inpatient and outpatient surgeries in response to the community-based facility decisions. Shortly after, we limited our ambulatory visits to what we termed our "critical access" plan. This adjustment included seeing only postoperative patients and urgent issues in patients where a telemedicine visit was not appropriate. With these reductions in clinic volumes, we had a notable limitation in the clinical hours our staff could obtain. We granted our hourly employees a bank of 80 hours of emergency paid time off (PTO) with the hope of stretching this PTO along with their personal accrued time to approximately 4 weeks before they were either furloughed or completely off without pay. We did allow them to take time off without pay during this period and some with severely limited hours sought unemployment benefits. We also instituted for our salaried employees a reduction of their pay for April and May. For our salaried employees and executives who participate in our management incentive pool historically, they had more notable salary reductions for that period of time.

Figure 3



Photograph of telehealth in use during the COVID-19 crisis.

Regarding the providers, our physical therapists and PAs/NPs also took salary reductions, loss of supplemental income staffing, our urgent care locations (which we temporarily suspended) and they most likely sacrificed any production-based bonus potential for Q1/2. The shareholders are taking negligible draws for the next 3 months. We are planning to consider placing all shareholder compensation in our main compensation plan (90% of the practice) in some sort of parity, and we will look to segment the financial losses and expenses of the second quarter and use our financing opportunities, which will be discussed later in this study. The goal would be to return to our normal compensation formula for Q3/4 and return to as much normalcy as possible.

We have submitted for the Accelerated and Advanced Payment program and agree that the accounting during the recoupment period is complicated and problematic. We do think that it is important to obtain the funds and use

them potentially as a bridge loan during the initial 120 days. There is hope that some acknowledgment of the sacrifices of healthcare providers may result in some sort of credit or alteration of the recoupment parameters. We have increased our traditional banking credit line for immediate access at historically low interest rates. Moreover, OrthoCarolina has also begun actively lobbying the North Carolina state legislature to help protect the large independent physician practices with similar benefits as the Paycheck Protection Program (PPP) because we currently do not qualify for the less than 500 employee program.

In addition, we have carefully reviewed all discretionary spending and suspended any capital projects that are not of the utmost strategic importance. Regarding rent deferrals, we are in active discussion with our landlords but are not in favor of pure deferrals to later in this calendar year because that would negatively affect our profitability in Q3/4, which should be the time of extreme production as we recapture most the postponed and canceled procedures. We are worried that pushing all of our expenses 3 months could lead to further discontent because the effort of our providers will be notable during these times.

The Midwest Orthopaedics at Rush Response

At Midwest Orthopaedics at Rush, we are a full-distribution private practice limited liability company (with retained earnings) with academic faculty appointments at Rush University Medical Center (RUMC) in Chicago. There are approximately 30 equity partners and 20 employed physicians, some of whom are on a partnership track based on the years of service and economic metrics. In total, we have approximately 70 advanced practice providers. Similar to the other groups previously mentioned, we have approximately 450 to 475 employees and support staff, a number of independent physical therapy centers, ambulatory surgical centers (ASCs), durable medical equipment outlets, MRIs, CTs, and radiology suites representing ancillary verticals. The compensation formula is complex, but it is tier based, sensitive to individual workloads, has a socialistic component of shared revenue, and rewards leadership, research, and service. At its fundamental core, the compensation formula encourages accountability and responsibility by assigning direct costs to physician partners and proportionately shared indirect costs (marginal and fixed). For employed physicians, the basic tenants are profit/loss compensation with a contribution to reduce indirect overhead prorated to their economic metrics.

On March 5, 2020, we participated directly in the RUMC Incident Command Center calls. Although we have several offices and facilities outside of the RUMC main campus, we generally mirror Rush's policies and procedures, given our partnerships in education, research, and philanthropy. It was clear to us even before the discontinuation of elective surgical procedures on March 18, 2020, that modification of practice patterns including social distancing were leading to substantial cancellations and rescheduling of office visits and surgical procedures. By March 19, 2020, we went from three to more than 100 providers trained on telehealth including our physical and occupational therapists. We had rescheduled all elective ("nonessential") surgical cases until after April 15 (recently modified to May 1) and deferred all nonessential office and imaging procedures. We established a model of "telehealth first" for existing and new patients with proper screening (temperature checks, symptom assessment, and history) and social distancing measures (including the wearing of surgical masks as of March 30, 2020). We allow only direct provider-patient interactions for time-sensitive "essential" clinical issues.

Simultaneously, we enacted a financial "austerity" plan that was immediate and deliberate, acknowledging several assumptions. We estimated that 2020 revenues in total will be annualized to 60% in 2019. We projected a revenue stream of less than 20% per month beginning in April 2020 lasting at least until August, 2020. As we upwardly flex clinical operations and provider services, we are projecting only a 60% load beginning on July 1, 2020, with no meaningful revenues until August, 2020 given historical delays in payments.

All reductions to compensation and employment were enacted to create a sustainable period of operations (with negligible anticipated revenues) while optimizing an infrastructure that will allow all to return as we resume more normal operations. The business focus shifted to cash conservation wherever possible. We reduced monthly expenses with full transparency to our vendors through deferment, abatement, and furloughing of indirect (basic operations staff) and direct staff (those assigned to specific physicians) and pooled our remaining staff to cover groups of physicians by subspecialty. We reduced clinical service operations to roughly 30% of normal with the ability to upwardly flex on demand. Partners agreed to take no salary if the real time monthly assignment of their indirect and direct costs exceeded their revenues. We agreed on individual partner maximal capital account deficits so as to avoid transferring individual partner debt among each other. Employed physicians agreed on a negligible stipend for April to be reconsidered in May.

The biggest challenge for us was an agreed-upon strategy to manage our staff such that we could maximize morale, optimize their benefits, use the important features of the CARES Act, and minimize attrition, given

the costs of onboarding new employees. Given the relatively generous improvements in unemployment benefits, we reduced or eliminated hours, furloughed employees by providing benefits for the foreseeable future, and allowed them to use a week of PTO to aid in the transition from full employment while minimizing large capital payouts today for banked PTO. We plan to bring employees back on line to meet the increasing demand and maximize our ability to use newly legislated small business benefits. Notably, although we are optimistic about the government relief from the CMS Accelerated and Advance Payment Program and the Small Business Administration (SBA) 7A loan, we have adopted a strategy that remains agnostic to those payments. We, like the others, are taking advantage of deferring 401K contributions and payroll taxes as well as other programs made available to healthcare businesses of our size.

We would urge all practices to confer with experts related to the specific interpretation of the CARES Act because there are several nuances based on the size and scope of one's business. We focused on paying only invoices that would otherwise compromise bank covenants and insurance benefits. We emphasized remaining current for services that will continue to be provided for the foreseeable future. In addition, preserving the integrity of our banking relationships was a priority because they will be providing our credit line increases and hopefully, be administering our SBA loan and working with the practice to provide a smooth transition with ongoing debt management. We think that despite our hopes of resuming elective procedures at some point in the late summer or early fall of 2020, prospective patient demands will be substantially reduced, given unemployment, absence of healthcare benefits, a desire to work rather than convalesce, and generally, fewer injuries related to reduced activities. We will look carefully at the supply demand curve related to our services and adjust accordingly.

Coronavirus Aid, Relief, and Economic Security Act and the Paycheck Protection Program

The CARES Act passed in late March 2020 allocated $350 billion in loans for businesses through the SBA which applies to practices with under 500 employees. Specifically, the PPP is designed for practices to borrow up to 2.5x their average monthly payroll from the preceding 12 months (April 2019 to March 2020), excluding individual employee compensations over $100,000 per year. This loan is capped at $10 million per borrower, and the repayment term is 2 years for the unforgiven principal (at an interest rate approximately 1.0%). The SBA will forgive loans under the PPP if the following requirements are met:

1. Loans are used to offset no more than 8 weeks of eligible payroll expenses from the loan origin date.
2. Practices maintain employees at salary levels comparable with before the crisis (based on FTE).
3. Loans are used exclusively for payroll, benefits, commissions, mortgage interest (not principle), rent, utilities, and other interest obligations.

Essentially, the amount of forgiveness is 2 months' worth of payroll costs up to a payroll cost of $100K/employee. Of note, if a practice is awarded a PPP loan, the group is no longer eligible for the Employee Retention Credit which provides a refundable payroll tax credit for 50% of wages paid by eligible employers during this period. In addition, a group with a PPP loan would not have an option to defer payment of employer payroll taxes until 2021. Midwest Orthopaedics at Rush thinks it qualifies for the SBA benefits under the CARES Act. Unfortunately, the Rothman Institute has over 1,500 employees and OrthoCarolina has close to 1,800 employees and does not qualify for the SBA benefits under the CARES Act. However, we encourage groups over 500 to work with outside legal counsel to appeal the current requirements and ask that the employee number requirement be raised because of the pandemic, hopefully allowing larger groups to qualify for these benefits. For groups that do qualify, the CARES Act can serve an important role in managing cash reserves and maintaining a loyal employee base.

Telehealth

The ability to deliver care but maintain the "stay-at-home policy" has facilitated the explosive growth of telemedicine. Many physician groups have developed infrastructure that was not previously present. Although previous studies have shown telemedicine to be safe with favorable patient perception, barriers for telehealth have impeded its adoption and utilization. The roadblocks to acceptance include using an operating system that complies with the HIPAA guidelines while at the same time being user friendly for a broad array of patients and providers.[3–5] For instance, platforms such as FaceTime or Zoom are efficient for both providers and patients in that they require no downloads or logins, but these technologies require sharing of cell phone numbers and the use of unsecured communications. It should be noted that the HIPAA enforcement relating to telemedicine has been lessened during this national emergency and does permit outlets such as the aforementioned.[6] Other options for using secure third-party platforms remain feasible for the future but still remain cumbersome for both patients and

providers because most require additional software downloads on a phone or computer and the creation of an account. Furthermore, the physical assessment of a patient typically required for a complete evaluation remains an inherent obstacle (Figure 3). Regarding the current reimbursement, most payers have approved telemedicine services through June 1, 2020, because of the COVID-19 pandemic along with the recognition of the standard evaluation and management codes for office visits.[6] These visits are considered the same as in-person visits and will be reimbursed at the same rate as regular in-person visits. In addition, it should be noted that although the current waiver requires an established provider-patient relationship, the Health and Human Services will not conduct audits to ensure that such a previous relationship existed for claims submitted during this public health emergency.[6]

Importantly, the use of telemedicine should be continued after this crisis by groups both at the physician and midprovider level to help evaluate patients and efficiently manage office encounters. From our experience, we have noticed that although new patient telehealth visits are seemingly more cumbersome and likely longer, postoperative and follow-up visits are more efficient than direct in-person visits. The telehealth visit might present an avenue for patients burdened by long travel distances to "see" their initial provider or who may wish to interview a surgeon before making surgical decisions. The risk to providers with medical comorbidities (ie, diabetes, smoking, heart disease, and older age) of contracting COVID-19 is another critical concern that can be partially alleviated with telemedicine. Researchers are in the process of validating methods to perform an orthopaedic physical examination, which will further improve the value of this telemedicine technology. The use of this technology will allow groups to protect their most valuable asset, the providers, while at the same time administering care for patients and developing the practice.

The current adoption of telehealth should better position the groups once the pandemic period subsides because this technology is a powerful patient access tool. The current lower patient volumes provide an unusual opportunity to work through some of the growing pains of telehealth. There are additional provider inefficiencies related to full implementation of telehealth, and some might find it more useful by using an advanced practice provider for sustainable implementation. Therefore, telehealth is an important part of our future strategy and might lead to reductions in "bricks and mortar." Additional technology-based improvements will follow including remote work capabilities for our nonclinical employees who in the future will reduce occupancy costs, improve employee satisfaction, and may decrease turnover.

A Return to Normalcy

A key tenet to follow during this period of uncertainty is to position the practice to be able to rebound when the full impact of the COVID-19 virus begins to subside. To put staff reductions into perspective, at the beginning of March 2020, the the Rothman Institute had approximately 1,500 employees comprising approximately 1,400 FTE employees. After the adjustments described in phase 1, the practice now operates at approximately 700 FTE employees. In the first phase, this was accomplished without having to dismiss staff members. Although seeming altruistic, the additional goal of retaining the staff is the knowledge that the virus burden will lessen to levels that allow providers to be productive again. Having a foundation and staff in place will be essential to a healthcare practice's plan for recovery. In addition, the groups must be thoughtful regarding the office locations that are temporarily closed, being careful to not lose market share to competing practices during this period. Finally, we see a need to continue to use the ASCs for three purposes—patient care, continued staff employment, and revenue generation. Some leaders in medicine have proposed specific subspecialty guidelines,[7–9] and the ASCs allow orthopaedic practices at this time to continue to provide care for urgent and semiemergent pathologies that can be managed at stand-alone facilities (ie, locked bucket-handle meniscus, distal biceps injuries, and intra-articular displaced distal radius fractures). The ASC utilization should also be based on the regional COVID-19 burden and local resource allocation demands. As Pennsylvania may be one of the first states to peek, plateau, and subside with the COVID-19 surge, this puts the regional policies and group practices in position to model a restart plan.

We hope that in North Carolina we exit this crisis early as well. Our action plan includes using our ASC assets to provide for the volume of urgent and essential surgical cases that will continue and safely expand these facilities to take care of low-risk patients with less urgent surgical issues over time. The key to implementing this strategy will be an enhanced testing environment which will allow all of us to safely increase access to further procedures on confirmed negative patients. The expansion of our clinics to allow further access will come in time. This will allow us to regain the ability to provide full work schedules for our hourly employees and return our salaried staff to baseline as well.

At Midwest Orthopaedics at Rush, we have tried to be definitive and deliberate with our early actions. We recognize that our projections may be conservative, yet we would prefer to manage our cash considerations aggressively early to soften the impact in the fall should we be without meaningful revenues at that time. We think

there will be substantial changes because of consolidation and changing models of healthcare delivery. It is important to acknowledge that the crux of most decision-making is the status of the demands placed on the local hospital system. We all share in the responsibility to flatten the curve, socially distance, avoid nonessential activities, remain vigilant in our hygiene, and risk-based decision-making so as to improve the likelihood that the surges seen by our hospital system can best be managed. Although more essential treatments will be provided based on local considerations, it is likely that we will not see clinical activities approach "normalcy" until we have widespread initial and repeat testing, the ability to identify those who have already had the disease, improvements in medical treatment, global herd immunity, a natural resolution similar to other viral pandemics, and finally, a widely available vaccine. Suffice it to say, despite the return of the practice of orthopaedics, it will likely look different from all for many months to come.

Ethical Concerns

The main concern during this crisis is the conservation of medical resources such as ventilators, personal protective equipment (PPE), and limiting exposure of staff members, patients, and providers to the COVID-19 virus. Some of these anxieties will be addressed when rapid testing is readily available and patients can be screened for COVID-19 infection. There may also be benefit from identifying those with immunity who can provide and receive care without the fear of illness. In addition, it is incumbent on medical practices to provide PPE for their staff members when evaluating patients in the clinical setting. There is a natural desire for a provider to be focused on the patient who has seemingly urgent needs as opposed to theoretical patients at other institutions. However, in this current climate, it is critical to prioritize the needs of future patients and potential healthcare burdens knowing that equipment, staff, and supply chains could become jeopardized or scarce.

Although there is little debate regarding the need for emergent (and truly essential) surgical cases to continue, those cases that are deemed semielective or urgent should be discussed within healthcare systems and orthopaedic practices to ascertain the nuances of what is and what is not considered essential. A living document with set guidelines can help establish a precedent for surgical cases. It should be evaluated daily, based on the regional COVID-19 burden, regulations, staffing, inpatient census, patient comorbidities, and an accurate understanding of PPE supply.

Final Thoughts

This pandemic has confronted the orthopaedic community with challenges never faced by our profession outside of wartime. Fortunately, leaders continue to help formulate guidelines and policies for the betterment of our field.[7,10] We are sensitive to the fiscal ramifications of this cessation of nonessential orthopaedic procedures and the implications this decision has on our staff and patients. It is crucial that the groups have a plan in place to survive this period for the foreseeable future and also be positioned to return from this crisis in a manner that best benefits patients and their staff.

Acknowledgments

The authors specially thank Mike West, CEO, of the Rothman Institute; Randy Johnson, CFO, Nik Verma, MD, and Kern Singh, MD, from the Midwest Orthopaedics at Rush; and Peter Rose, MD, Co-Guest Editor, the JAAOS, for their editorial oversight of this article.

References

References printed in **bold type** are those published within the past 5 years.

1. S. 3548—116th Congress: CARES Act. www.GovTrack.us. https://www.govtrack.us/congress/bills/116/s3548. Accessed April 5, 2020.
2. **Fact Sheet: Expansion of the Accelerated and Advance Payments Program For Providers and Suppliers During COVID-19 Emergency. 2020. https://www.cms.gov/files/document/Accelerated-and-Advanced-Payments-Fact-Sheet.pdf. Accessed April 3, 2020.**
3. **Scott Kruse C, Karem P, Shifflett K, Vegi L, Ravi K, Brooks M: Evaluating barriers to adopting telemedicine worldwide: A systematic review. *J Telemed Telecare* 2018;24:4-12.**
4. **De La Cruz Monroy MFI, Mosahebi A: The use of smartphone Applications (Apps) for enhancing communication with surgical patients: A systematic review of the literature. *Surg Innov* 2019;26:244-259.**
5. **Buvik A, Bugge E, Knutsen G, Småbrekke A, Wilsgaard T: Patient reported outcomes with remote orthopaedic consultations by telemedicine: A randomised controlled trial. *J Telemed Telecare* 2019;25:451-459.**
6. **CARES Act: AMA COVID-19 Pandemic Telehealth Fact Sheet. 2020. https://www.ama-assn.org/delivering-care/public-health/cares-act-ama-covid-19-pandemic-telehealth-fact-sheet. Accessed April 4, 2020.**
7. **Donnally CJ 3rd, Shenoy K, Vaccaro AR, Schroeder GD, Kepler CK: Triaging Spine Surgery in the COVID-19 Era [published online ahead of print March 31, 2020] *Clin Spine Surg* doi:10.1097/BSD.0000000000000988.**
8. **Guy DK, Bosco JA, Savoie FH: *AAOS Guidelines on Elective Surgery During the COVID-19 Pandemic: March 31. COVID-19: Member Resource Center*. 2020. https://www.aaos.org/globalassets/about/covid-19/aaos-guidelines-on-elective-surgery.pdf. Accessed April 3, 2020.**
9. *COVID-19 Guidelines for Triage of Orthopaedic Patients—American College of Surgeons*. https://www.facs.org/covid-19/clinical-guidance/elective-case/orthopaedics. Accessed April 4, 2020.
10. *COVID-19: Information for Our Members—American Academy of Orthopaedic Surgeons*. https://www.aaos.org/about/covid-19-information-for-our-members/. Accessed April 8, 2020.