THE ORTHOPAEDIC FORUM

What's Important: Redeployment of the Orthopaedic Surgeon During the COVID-19 Pandemic

Perspectives from the Trenches

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The Current Landscape at the Epicenter

The war against the novel coronavirus disease 2019 (COVID-19) continues as we write this from a busy New York City hospital on April 5, 2020. At the time of this writing, 1,237,420 positive cases and 66,560 associated deaths have been confirmed in 183 countries[1]. For perspective, when the World Health Organization (WHO) declared COVID-19 to be a global pandemic on March 11, 2020 (just over 3 weeks ago), there were 118,000 positive cases and 4,292 associated deaths in 114 countries[2,3]. In our hospital system today, there are currently 2,200 patients who have tested positive for the virus. Of these patients, 613 (27.9%) remain in intensive care units (ICUs), with approximately 95% of the 613 requiring mechanical ventilatory support. The COVID-19 pandemic has significantly taxed the resources at our hospital.

All Hands on Deck

In this war, it may be difficult to envision what an orthopaedic surgeon may bring to the battlefield in the hospital emergency room (ER) and ICU. Our roles as orthopaedic surgeons may seem peripheral at best, in contrast to those of our colleagues who practice emergency, internal, and intensive care medicine and are considered front-line workers. However, our hospital's capacity, resources, and health-care personnel are rapidly dwindling as front-line workers are falling ill to COVID-19 or have been redeployed to de novo makeshift ICUs. The initial hospital response included the reallocation of capacity and resources, with our dedicated orthopaedic surgery operating rooms and suites being converted to ICUs shortly after the New York State order to cancel all elective surgeries[4].

Our department initially focused on the creation of a Musculoskeletal Urgent Care Center to offload the surge in the ER, along with a 100% conversion of routine orthopaedic outpatient visits to telehealth visits. However, we quickly recognized that there could be additional ways to help. While the orthopaedic surgeon's knowledge is often deeply specialized, we can also leverage broader strengths, such as intelligence, confidence, grit, and leadership. Moreover, as the need to provide subspecialty orthopaedic care has decreased, there is a growing need and opportunity to serve society and our patients. To that end, every available practitioner in our orthopaedic department—including attending surgeons, fellows, residents, nurse practitioners, nurses, physician assistants, medical assistants, and support staff—has been redeployed to another area of the hospital with unmet need, particularly the ER and ICU.

Many of us have not worked in the ER or ICU in years, or have had limited exposure during our training, and we have experienced mixed emotions in the face of this new development. Here, we share 2 perspectives on this experience, that of orthopaedic surgery residents and of an attending physician:

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Orthopaedic Resident Perspective

In our first redeployment shift in the ER, we expected the majority of patients to be coughing and dyspneic, and had prepared for a virus-driven cacophony by wearing an N95 respirator covered by a surgical mask and face shield. To our surprise, however, when we walked into the ER, it was quiet. There was no coughing because the majority of patients were intubated. The pace of the ER was as fast as ever, but the atmosphere had changed: there was both palpable fear and determination in the room. And the overall volume of patients was actually lower than normal; the only patients were those who were COVID-19-positive. There were no cases of acute myocardial infarction or acute surgical abdomen. It was eerie.

We made rounds with an ICU senior resident and our attending physician. We were to act as members of the new ER-ICU triage team, to help take care of patients who had been admitted to the ICU but had not yet been physically moved from the ER to the ICU. We took care of 12 to 15 patients throughout the day; all but 3 were intubated. Two of those patients had tested positive for COVID-19 and were deteriorating, and the ICU team was having active, remote discussions with the patients' families regarding appropriate next steps.

After rounds, we began to work through our to-do list. We started with the "lowest-hanging fruit," which included obtaining arterial blood gases (ABGs) through the femoral artery—appropriate laboratory values are essential in managing intubated and sedated patients. We reviewed the anatomy we knew very well (*NAVEL,* the mnemonic for the order of the femoral nerve, artery, vein, and lymphatics) and went for it. Over the 12-hour shift, we took turns placing nasogastric tubes, drawing femoral artery ABGs, obtaining chest radiographs and other laboratory tests, and helping to transport patients when inpatient beds became available. In the end, we realized we had also effectively completed a crash course in vasopressor medication titration and mechanical ventilator management.

As orthopaedic surgery residents, the feeling of intimidation in unfamiliar territory was inevitable, but we were prepared for the challenge. All health-care workers are practicing at the edges or beyond the scope of their training right now and yet continue to strive to learn more and provide compassionate, high-quality care to their patients. During that first redeployment shift and since then, we have been struck by the visible relief on the faces of other residents, attending physicians, nurses, and staff. Our redeployment not only allows us to act as care providers to our patients but also allows us to provide care and support to our beleaguered colleagues. During this pandemic, we must remember to not lose sight of the *3 A's* of being a successful physician: *availability, affability,* and *ability.* Although we may be acting in roles that are foreign to us, our role in redeployment as physicians is only part of the picture. We are a part of the broader medical community, and thus are inextricably linked to our colleagues on the front lines of this pandemic. It would be dishonest for us to say that redeploying has made us any less afraid for the safety of our family, friends, patients, and colleagues. However, as orthopaedic surgery residents with valuable skills to offer, we are not afraid of redeployment even in the face of daunting odds.

Orthopaedic Attending Surgeon Perspective

When we started preparing for redeployment nearly 2 weeks ago, it was unclear whether it would truly be necessary. However, as the number of patients who were COVID-19-positive and requiring admission began to double every 2 to 3 days (following the same curve as Wuhan in the People's Republic of China and Italy), it became increasingly clear that we were indeed going to be called on to redeploy. This led to an entire spectrum of emotions from our faculty, including enthusiasm to participate, anxiety, reticence due to comorbidities or relative age, and fear, including fear of transmitting the virus to loved ones. We convened a "Redeployment Committee," which reviewed the goals and needs of the hospital as well as volunteerism among the faculty, taking into consideration faculty age and comorbidities, any family health concerns, and other relevant information. The committee then delivered a working document to the chairman for his consideration of redeployment. The Orthopaedic Surgery Department was then joined by Urology, Otolaryngology, and Ophthalmology to broaden our provider pool and decrease overall virus exposure for all of those involved. The dean of our institution sent out a note to all indicating that it was expected that 100% of the faculty and staff would indeed redeploy as needed and as appropriate to areas where their expertise could be best utilized.

We have now been redeployed to the ER for 1 week and it has been an overwhelming experience. I feel pride in seeing our colleagues put their lives on the line to battle an invisible enemy, which insidiously attacks so many; gratitude to my faculty, fellows, and residents for stepping up and doing whatever necessary to help in a time of extraordinary need; and apprehension and fear, praying that nobody in my department succumbs to this potentially lethal virus.

It is our calling to help people, which many of us wrote in our personal statements for medical school, residency, and fellowship. Now, we all have the opportunity to do just that. You will be asked to perform procedures that you may not have done in decades (like when I was obtaining ABGs the other day!), but as my residents highlighted above, the visceral gratitude demonstrated by our ER nurses, respiratory therapists, ward clerks, and physicians will likely have the longest-lasting positive impact on me from this pandemic. In the face of tragedy and crisis, these colleagues were stretched so thin that simply seeing subspecialty surgeons in their personal protective equipment helping to take care of critically ill patients was profoundly appreciated.

While redeploying is no doubt a daunting experience, we are left with the indelible sense that it was the right thing to do. If called upon to do so in the future, we will again step up and ask, "When?" and "How can I help?" ■

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