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Nimble, Together: A Training Program's Response to the COVID-19 Pandemic

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The COVID-19 pandemic has rapidly spread in 2020, transitioning in several short months from a local, then regional concern, to the causative factor of utter upheaval in the daily lives of citizens of hundreds of countries across the globe. All workers in all fields have had to self-scrutinize, questioning their individual roles, values, and risk posed to others as orders for self-isolation and physical distancing have been levied by governing bodies. Healthcare workers in particular have been cast to the center of the maelstrom, necessarily balancing the often-competing interests of the call to duty in caring for the sick, with the need to stay individually well.

With progression into March, and further expansion of COVID-19, it became quickly apparent that surgical functions within our hospital, as with many across the country, would necessarily transition away from normal operations. Instead, we would focus on principles found in triage medicine and public health: caring for the sickest patients with chance for recovery, while minimizing risk to the healthcare system, our patients, and ourselves. The roles of surgical systems in the care of COVID-19 have been recently reviewed, however the response of surgical training programs required to maintain a healthy and prepared resident workforce deserves special attention(1,2). Herein, we present the principles upon which our training program has focused its response, detailing guiding themes and ways they have been deployed. These interventions have helped us navigate the early stages of this crisis and will be used as a foundation for the anticipated changes that may lie ahead (table 1).

Strategic Nimbleness. Within our program, as with many across the country, housestaff represent the “front line” of providers. With the unpredictable nature of the pandemic to come, we set dual clinical goals of caring for current patients as well as being prepared to care for a possible wave of COVID patients. We reorganized the schedules of the residents in our program to prioritize the consolidation of services with the minimum number of providers to care for current in-patients, general surgery consults, and to staff the trauma and acute care surgery services, which have seen an increase in volume. Adjustments to these schedules were made on the basis of daily service and hospital census reports, number of new consults, and operative volume. This required creating additional leadership positions within our residency program to include a chief resident dedicated to data monitoring with input from the program director.

Working closely with graduate medical education leadership, we created schedules that were in compliance with the Accreditation Council for Graduate Medical Education (ACGME) work hour requirements, adequate supervision, and adequate resources and training (3). Schedules were organized in a “week on/week off” fashion, and 24-hour shifts were eliminated. This served multiple purposes. The “week off” allows for a significant portion of the workforce to be outside the hospital and able to practice physical distancing. If residents were exposed while in the hospital, the week off would allow time for manifestation of symptoms. Finally, it would allow for a large “reserve pool”, should staffing requirements change. Subspecialty fellows who had completed a general surgery residency program and were board-certified/eligible, were incorporated within the call system and have additionally been

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credentialed, as appropriate, to serve as Clinical Associates in General Surgery if our institution requires escalation to a Stage 3 Pandemic Emergency Status in the future.

These changes were possible with a decreased inpatient census, largely due to a curtailing of the operative schedule. Surgical leadership at our institution took an early and aggressive stance to cancel elective cases, at first only proceeding with operations deemed emergencies while assessing hospital resources and community health. Later, we transitioned to performing only cases that were determined to be medically necessary and time sensitive (MeNTS) using published guidelines and a novel case triage system based on procedural factors, patient factors, and consideration for outcomes should we pursue non-operative treatment.

Our program transitioned from our traditional educational and conference schedule to one based on a videoconference platform. We created online morbidity and mortality conferences, quality improvement conferences for our resident acute care surgery service, multidisciplinary tumor boards, specialty conferences, and ABSITE/basic science conferences that highlighted emerging publications on the safety, science, and management of COVID patients. We were pleased to see a sustained, robust attendance pattern and participation at all of these conferences.

Promote Wellness. Our surgical residency is a tight knit community of almost 50 individuals, accustomed to working and living in close proximity. We are, in many cases, each other's primary support network, and in times of crisis, rely heavily on one another. With this in mind, we sought to emphasize the need for physical, but not social distancing. Our residents have found solace in regularly scheduled video conferencing and "check-ins" with each other and our faculty members, which has allowed us to maintain our usual social networks, share accomplishments large and small, and address fears and concerns. The resident "reserve force" and attending faculty (and their families) have further taken the opportunity to care for the inpatient team. The norm has become frequent check-ins, the provision of food, and a listening ear. Our program has been further supported by our GME Department with weekend meals, care packages (including thermometers, toiletries, toilet papers, etc), and complementary access to hotel rooms, use of car services, and child care.

The previously noted week-on/week-off approach to scheduling, in addition to maintaining an adaptable workforce, provides time for mental rest and recuperation after exposure to an environment with a greater-than-baseline level of associated stress. We further limited all resident shifts to twelve hours, eliminating 24-hour calls. This served multiple purposes. Residents have been able to achieve more regular sleep-wake cycle and maintain a higher level of alertness in an environment that requires attention to detail for sustained adequate personal protection and minimizing self-exposure.

Although we have seen an influx of patients with influenza like symptoms and COVID-19, general surgery residents have not yet been called upon for primary COVID patient care. Paired with a curtailed operative schedule, many individuals within our department have found themselves striving for purpose. We have been heartened to find no shortage of willing

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residents, with most longing for involvement and volunteer opportunities. As seen in many hospitals across the country, we have plans to employ a dedicated procedure team staffed with surgical residents and attendings, the enthusiasm for which has been palpable. With the assistance of our GME leadership and centralized hospital incident command center, we have made contingency redeployment plans for faculty, trainees, and advanced practice providers for possible future escalation to a ACGME Stage 3 Pandemic Emergency Status.

Finally, we have recognized the unprecedented nature of this era and the truly extraordinary nature of clinical scenarios that our colleagues are facing. Questions surrounding potential rationing of care and moral distress have been omnipresent and serve as a point of anxiety going forward. To this end, the Department of Surgery has relied upon its longstanding culture of integrating the institution's center for clinical medical ethics with a bi-weekly, open invitation ethics forum via videoconferencing. This has functioned as an outlet for individual clinicians and residents to engage with our medical ethics faculty, discuss practical issues, as well as address theoretic concerns that may arise. Discussion topics have included strategies for mitigating moral distress and future moral injury, rationing of care, an inside look at the Italian COVID experience, and muzzling of concerns from health care workers.

Communicate Openly, Honestly, and Frequently. The uniting feature of the response to this crisis has been driven by our senior leadership and has been based on a policy of open and frequent communication. From the first days when it became apparent that we would see changes in our daily routine, our department Chair instituted a regular update policy, detailing changes to anticipate. Departmental and program leaders, as well as top hospital administrators, representatives from hospital epidemiology, and psychology have made themselves available and regularly attended resident videoconferences. In doing so, a culture of information and availability has been established and is being further built upon as we progress further into the crisis. When concerns arise, as they inevitably do, all within the residency program have felt agency to have a voice and to be heard. This is a time to promote togetherness and the value of communication, uniting residents, attendings, and hospital leadership. Our residents have been empowered to participate in work on multidisciplinary teams to establish a novel COVID-specific informed consent process, management of massive transfusion protocols in trauma surgery, and stewardship of personal protective equipment.

These approaches do not require cost, only a commitment by the leaders of the program and the department. Overall, we have witnessed enormous value in the development of a structure wherein individuals can verbalize concerns without fear of reprisal, openly share achievements, and propose solutions for the best way forward. With this, we have been able to maintain a well workforce while promoting inclusion, driving us with linked arms to the challenge of our era.

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Principle	**Intervention**
Nimbleness	Rearrange scheduling to allow for out of hospital "reserve force"
	Mobilize general surgery trained sub-specialty fellows to call pool
	Free up personnel and resources by focusing on medically necessary, time sensitive operations
	Convert to videoconferencing, highlighting COVID specific topics
Wellness	Maintain social connectedness with resident video conferencing
	Frequent faculty member "check ins" with residents
	Limit to 12-hour shifts
	Establish volunteer procedural team
	Focus attention on moral and ethical dilemmas
	Solicit and tend to needs of in-house team (i.e. faculty food donations)
Communication	Connect surgical and institutional leaders with residents
	Institute policy of frequent updates
	Solicit feedback and concerns from all levels
	Empower residents workforce to help develop solutions

Table 1. Recommendations for training program navigation through the COVID-19 crisis