Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Letter to the Editor Impact of the COVID-19 Pandemic on Neurosurgical Residency Training in New Orleans

Letter:

Although there is increasing evidence that coronavirus disease 2019 (COVID-19) affects the neurologic system, it is not a neurosurgical disease.[1] Yet the impact of the current pandemic on the neurosurgical community is significant. With nonurgent cases postponed indefinitely following the national state of emergency declared on 13 March, 2020 and restructured regional referral patterns to ease the burden on an already stressed health care system, resident training and education have had to quickly adapt to decreased patient encounters and surgical case volume.

The significant decrease in neurosurgical patient volume mandates fewer physicians to provide care,[2] which has led to redeployment efforts and a shift in educational priorities. With resident education and training already constrained by work-hour regulations and loss of neurosurgical patients to nonacademic centers,[3] the restructuring efforts will undoubtedly impact training residents, whose skills require consistent exposure to master surgical technique and patient care. In an effort to simultaneously assist in the COVID-19 crisis in New Orleans, which was one of the original areas of relative increased case burden,[2] we present our restructuring efforts aimed at providing a fruitful resident experience during this crisis.

RESTRUCTURED RESIDENT ROTATIONS

In accordance with state and national guidelines, nonurgent operative cases at Tulane University Hospital and Ochsner Medical Center have been delayed until current shelter-in-place orders and infectious precautions have been lifted. All nonurgent outpatient visits have been converted to a telemedicine platform, except for patients who have either suspected acute neurologic deficits or wound care issues. As a result, the number of on-service neurosurgery residents at both institutions has been halved to better use resident time and to help prevent spread of COVID-19.

Residents were split into 2 teams that alternated being in-service every 2 weeks while maintaining normal call duties. This has resulted in fewer residents in the hospital for consultation and has served the dual purposes of decreasing exposure to potential COVID-19 carriers while limiting use of valuable personal protective equipment. Furthermore, the alternating 2-week-off period serves as a functional self-quarantine and increases education/academic time.

RESTRUCTURED EDUCATION

Off-service residents and faculty have been actively engaged in near daily academic conferences and meetings, all of which take place over videoconferencing. There has been a concerted shift from clinical duties to academic and research pursuits with resident academic output being supported and closely monitored. An academic committee was formed to establish education and research goals during the "slowdown," with designated faculty at each institution mentoring and assisting all residents to move research projects toward completion.

To counter the reduction in operative experience, we have encouraged the use of simulation and artificial intelligence technologies to maintain surgical skill and take advantage of the opportunity to practice more complex operative techniques, which has been shown to reduce learning curves.[3,4] We are doing more oral board-style case presentations to maintain sharpness in clinical decision making during off-service times.

REDEPLOYMENT OF RESIDENTS AND ATTENDINGS

To help ease the burden of critical care teams, "off-service" residents have been paired with faculty to cover the COVID-19 respiratory intensive critical care unit for 2-day rotations. The team works in concert with other surgical subspecialists under the guidance of critical care intensivists and support of anesthesia airway teams. Their function is to assist in rounding, help implement ventilator protocols, provide general intensive care unit care, respond to ancillary staff queries, provide family updates, and monitor overall patient status.

To protect residents, full personal protective gear including N95 respirator masks, eyewear/face-shields, and full head/body gowns has been provided to each resident and faculty along with infrared laser thermometers for recording temperatures at the beginning and ending of shifts. Standard surgical or copper masks are worn over the N95 masks during all patient interactions and in operative procedures to help extend the longevity of the N95 mask.

As COVID-19 testing has become more available in New Orleans, all inpatients and preoperative patients regardless of operative need are now being tested via reverse transcription polymerase chain reaction testing with rapid testing available for emergency department and urgent/emergent cases. We have implemented increased levels of precaution for all endonasal cases. Although statistics favor that members within our department will contract the illness, no residents or faculty have tested positive or have had to self-quarantine to date.

CONCLUSIONS

Being an early hotspot in this crisis forced early restructuring of our program to adapt to quickly changing guidelines and a drastically reduced neurosurgical patient population. We believe our restructuring efforts have preserved resident education while keeping our residents and faculty safe during their redeployments. Although neurosurgery has been sidelined, this slowdown provides a unique opportunity to reevaluate policies, protocols, workflow patterns, and educational priorities so that each program can reinvent itself to be better positioned for the future.

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Conflict of interest statement: The authors declare that the article content was composed in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

https://doi.org/10.1016/j.wneu.2020.04.208.

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