

Impact of COVID-19 on Resident Otolaryngology Training

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Introduction

The COVID-19 pandemic poses a serious challenge to resident medical education, particularly in the field of Otolaryngology-Head and Neck Surgery, due to the increased risk of surgical exposure to aerosolized airway secretions.

In March 2020, in response to unprecedented pandemic conditions, the American College of Surgeons (ACS) and American Academy of Otolaryngology – Head and Neck Surgery (AAO-HNS) recommended the cessation of outpatient and elective, “non-essential” procedures.^{5,6} However necessary, this response led to a partial hiatus in medical training, with potential compromise in the educational output of many otolaryngology residency programs. Furthermore, with drastically reduced outpatient and non-COVID-19 related inpatient volumes in most health systems, some resident training programs waived the minimum procedural requirement for graduation in both surgical and non-surgical specialties.⁷ This reduction in training opportunities and experience may have detrimental consequences relating to the experience and confidence of these residents as they prepare for their future careers.

The aim of this study was to assess the impact of COVID-19 on rhinology- and skull base-surgical training for otolaryngology residents in the US. We sought to ascertain if procedural training had been de-emphasized as a response to COVID-19, and to what extent other resources were utilized to address this potential educational gap. Lastly, we investigated how this reduction in clinical volume and experience affected residents’ confidence in their training.

Methods

To assess the impact of COVID-19 on Rhinology and Skull Base Surgery (RSBS) training of otolaryngology residents in the USA, a questionnaire was sent out in May 2020 to all members of the American Rhinologic Society (ARS) including 810 residents and fellows. Responses were received from 85 respondents, with 86% of respondents completing all questions of the survey. The 34-question survey assessed institutional COVID-19 policies and changes, effects on resident clinical education and safety, and residents’ subjective interpretation of the pandemic on their curriculum and training.

Results

COVID-19 Exposure: 3.53% of residents indicated that they had tested positive for COVID-19 and 22.35% of residents indicated that members of their division or department had tested positive.

PPE Availability: 32.5% of residents reported a shortage of PPE at their institution.

COVID-19 Patients: 2.35% of residents answered that they were able to operate in sinus and skull base cases with COVID-19 patients and 56.47% with COVID-19 negative patients.

Transmission Concerns: On a scale from 0-10, with 0 being not at all worried and 10 being extremely worried, residents reported an average of 4.49/10 for how worried they were about transmission of COVID-19 during overall clinical duties, and a 5.03/10 specifically for rhinology or skull base patients.

Procedural training changes: On a scale from 0-10 with 0 being no involvement at all, 5 being a moderate decrease in involvement, and 10 being no change in involvement, residents noted a “moderate decrease” of 5.86/10 in involvement with all Otolaryngology patient care, procedures, and clinic visits,

Confidence in training: On a scale from 0-10, with 0 being not at all affected and 10 being extremely affected, residents ranked the impact of COVID-19 as a 6.69/10 and a 6.15/10 on their overall resident education and on specific rhinology/skull base surgical education, respectively.

Figures: Overall course/training format modifications and rescheduling are highlighted in Figures 1 and 2. Figure 3 features preferred supplemental resources utilized by residents. Figure 4 features informational sources used by residents to learn about COVID-19.

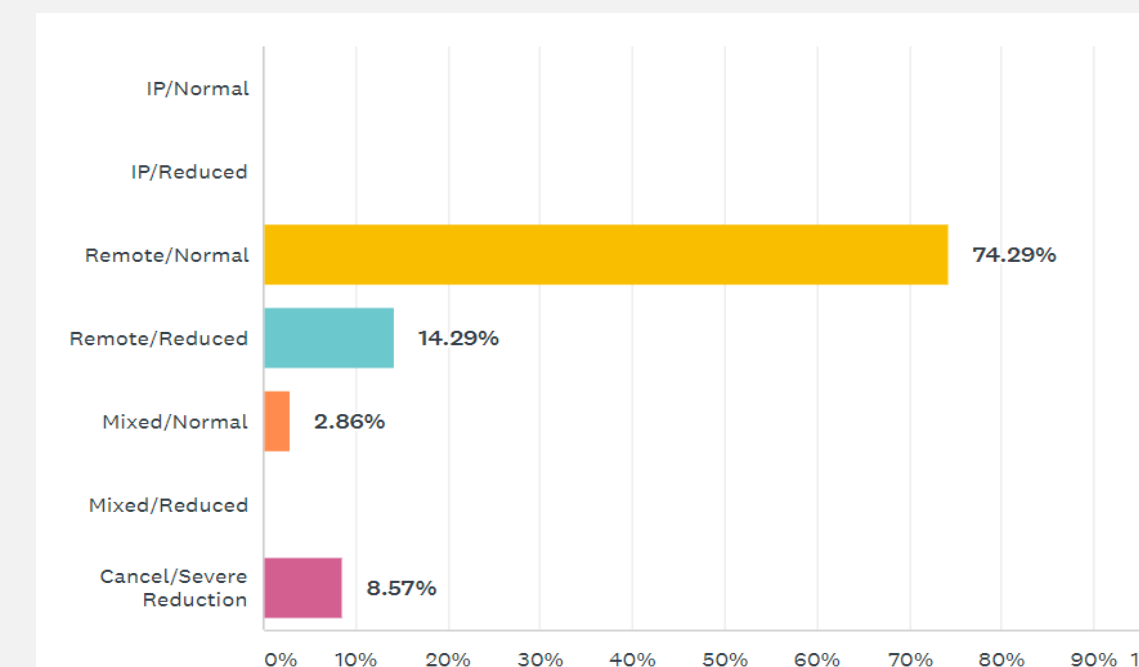


Figure 1: Changes in weekly conferences and seminars such as grand rounds, morbidity and mortality, COCLIA or others. IP = continued in-person; Normal = normal schedule; Reduced = reduced schedule; Remote = switched to remote/teleconference; Mixed = mix of in-person and

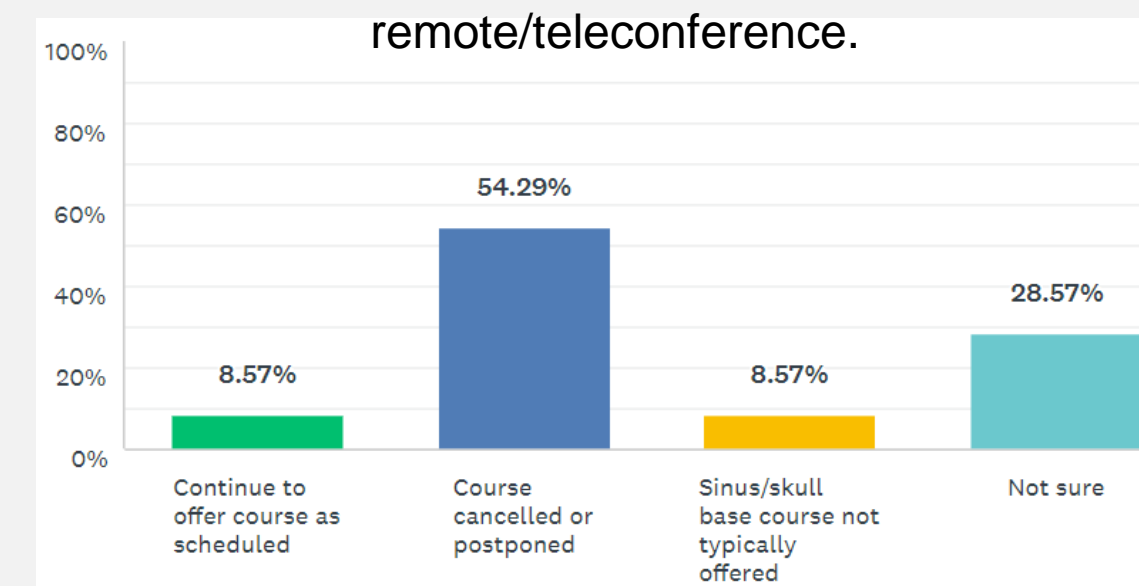


Figure 2: Sinus (rhinology) and skull base surgery course changes (including cadaver dissection).

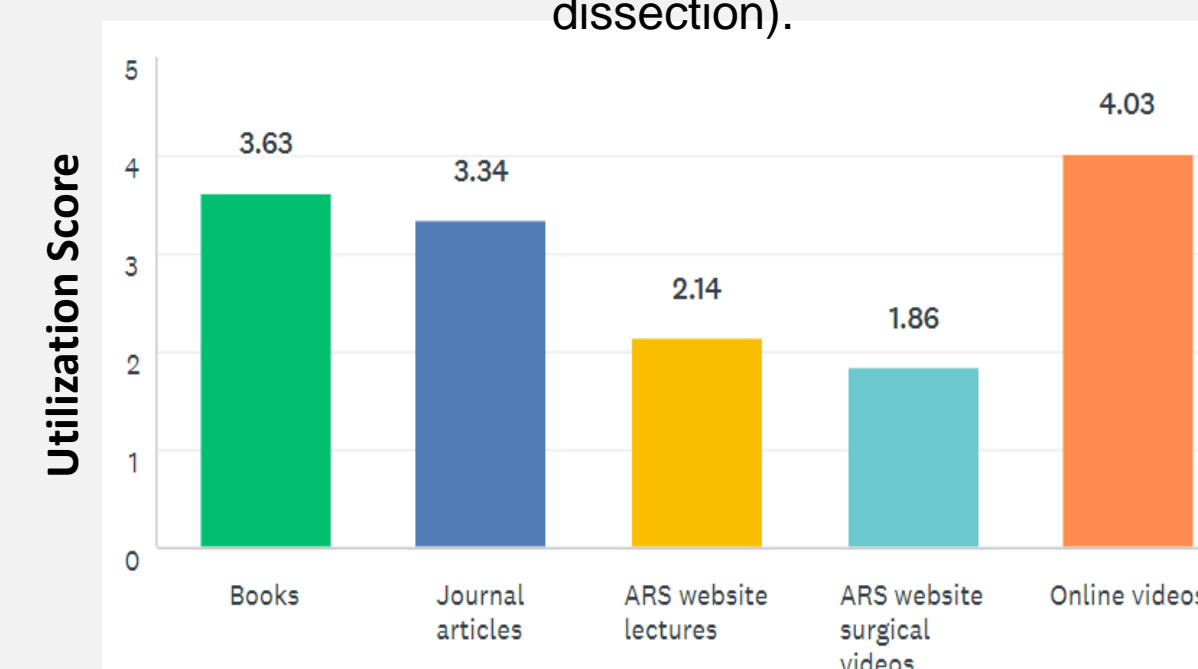


Figure 3: Ranking of educational resource usage in lieu of the reduction of clinical volume due to COVID-19 conditions. A utilization score (0 being the lowest and 5 the highest) was calculated from the ranking order in which a higher score represents higher utilization of that resource as compared to others.

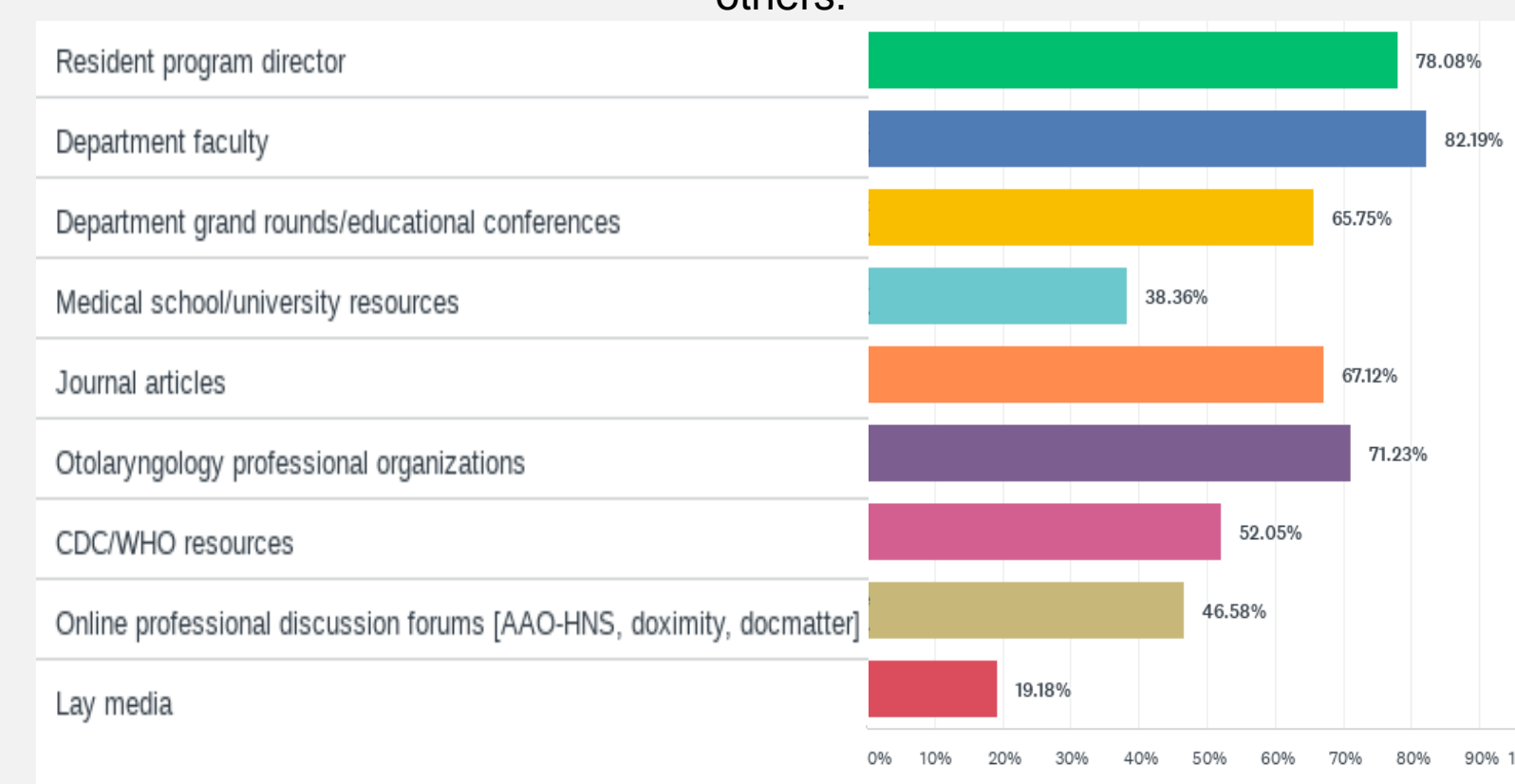


Figure 4: Sources of information residents used to learn about risks & appropriate precautions to take when performing clinical duties during the COVID-19 pandemic.

Discussion

The “moderate decrease” (5.86/10) in resident involvement reported for all otolaryngology patient care, procedures, and clinic visits represents an almost 50% qualitative reduction in clinical experience during the height of the pandemic. This indicates a significant gap in resident clinical education that warrants careful attention, with the goal of minimizing long-term knowledge deficits through targeted experiences and alternative resources. Residents themselves felt that their overall education had been meaningfully impacted by COVID-19 (6.69/10), which may translate to a lower confidence level in their own skillsets. While actual clinical experience proved difficult to compensate for, programs did attempt to reorganize other educational modalities such as conferences, seminars, grand rounds, etc. Ultimately, entire curriculums were transitioned into either a remote or mixed platform, which was maintained at either a normal or reduced schedule, with the vast majority being remote and normal (74.29%). However, 54.29% of rhinology and skull base surgery courses were altogether cancelled or postponed, demonstrating a concurrent lapse in didactic education. Residents therefore turned to supplemental resources, with online videos (4.03/5) being the most highly utilized, even more so than traditional books and journal articles (3.63 and 3.34, respectively).

The observed resource preferences may be due to the recent, rapid expansion of COVID-19-influenced virtual technology, which confers increased user availability and frequent updates while maintaining appropriate epidemiological precautions. A virtual format is especially novel for surgical education, which has traditionally focused on hands-on experience, although new technologies may hold promise for the simulation of real-life conditions and detailed visuo-spatial relationships. One potentially beneficial offshoot of this global health crisis may be a heightened focus on the development of novel means of surgical education in a socially distanced world. The pattern of resource utilization reported also highlights a potential avenue that otolaryngology programs can target to address current educational deficits, with the expansion of online and virtual resources that optimize user interaction and manipulation. This solution has the potential to not only address the gaps in education created by the COVID-19 pandemic, but also to supplement courses and training, both local and distanced, under normal, non-pandemic conditions.

It is important to note that these data regarding the impact of COVID-19 on otolaryngology resident education represent a snapshot in time taken just following the peak of the first COVID-19 surge. Since that time, health delivery and medical educational systems have made adjustments and compensated for pandemic conditions, with an eventual return to normal or near-normal resident involvement in routine, non-COVID-19 surgical cases. Despite these precautions, however, a second surge in early 2021 necessitated additional restrictions on elective clinical activities in many hospital systems, again producing potential deficits in resident education. The subsequent occurrence of a second surge in spite of worldwide efforts at virus containment highlights the importance of developing methods to address future pandemic-related educational lapses, either from COVID-19 or other novel public health threats.

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