Virtual Implementations on Traditional Away Rotation Experiences for Students Interested in Otolaryngology during the COVID-19 Pandemic

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ABSTRACT

The coronavirus pandemic suspended visiting student electives, an integral component of residency applicants and programs' determination of fit prior to the match. As a result, many institutions needed novel ways to enable remote learning, such as virtual clinical experiences. The cancellation of clinical away rotations during this cycle has further diminished opportunities for exposure to the field of otolaryngology, including forming relationships with faculty, working on research projects, and experiencing the culture of different programs firsthand. We discuss ways residency programs developed and implemented innovative learning modalities during the COVID-19 pandemic, such as virtual didactics, online interactive surgical cases, and telehealth services. These innovative approaches during the COVID-19 crisis represent a step forward in further improving medical education in the field of otolaryngology both during the current pandemic and in the future.

INTRODUCTION

- Last Summer the medical education community experienced unprecedented challenges due to the emergence of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes the infectious disease COVID-19.[1]
- Accommodations were made to protect the health and safety of both staff and students involved in clinical education. One such adjustment was the restriction of visiting student electives. On March 17, 2020, The AAMC and ACGME recommended that away rotations be suspended during the 2021 residency application cycle except under extenuating circumstances. This was done in an effort to help slow the spread of COVID-19, preserve PPE, and guarantee student safety.[2,3]
- This proposal, while essential, disrupted many students' plans, especially those planning away rotations.
- Visiting student electives, also known as away rotations, are opportunities for students to rotate at a program other than their home institution. These rotations serve as a way for students and residency programs to learn more about each other in the clinical environment. In recent match years, applicants have been more likely to match at either their home institution or at a program where they completed an away rotation.[4] Furthermore, over 90% of otolaryngology applicants participate in at least one visiting student elective each cycle.[5]
- These away rotations are particularly important for students who do not have an otolaryngology department with a residency program at their medical school, often providing much of their exposure to the specialty.
- Given otolaryngology's status as a high-exposure specialty due to its aerosolizing procedures, balancing students' safety and exposure to the specialty presented a significant challenge to programs across the nation to attract students to their site virtually.[6]
- In response to the AAMC's recommendations, residency programs developed and implemented virtual activities to engage potential applicants.
- We discuss these implementations that are designed to confer the benefits of traditional away rotations, in the absence of in-person activity, (**Figure 1**).

1. Live Stream Surgeries:	In lieu of in-person experiences, some programs turned to virtual invitations to the OR. This experience allows students to visualize procedures in real time through captured footage from intra-operative microscopes, endoscopes, and head-mounted GoPro cameras.[7]
2. Involvement in Telehealth:	Telehealth has been utilized well before the COVID-19 pandemic but has enjoyed newfound popularity due to limitations of in-person interactions.[8] Medical students have been given the opportunity to participate in telehealth patient care at residency programs regionally distant from their homes. Boston University was amongst the programs that allowed students to partake in telehealth as part of their virtual away rotation.[9,10]
3. Virtual Participation in Clinical Rounds:	Some residency programs developed systems to allow for medical student rounding. Due to the hands-on, fast-paced nature of rounds, finding reasonable means to include students proves challenging, yet some residency programs devised solutions. Students at Boston University connected with inpatients via telehealth and then presented the patients virtually to the clinical team. This allowed for active student participation on clinical rounds and inclusion of students in clinical decision making.[8]
4. Involvement of Research:	Although research is often most efficiently conducted through in-person interaction, remote research can be effective, and some residency programs involved students to their program's active research projects via research meetings and department presentations.
5. Invitations to Join Departmental Educational Activities:	Some programs invited students to virtually attend resident-oriented lectures, where they could participate in discussion and experience the educational relationship between residents and faculty. Similarly, some programs allowed students to participate in virtual journal clubs, which allowed for faculty members, residents, and students alike to critically evaluate contemporary academic literature.
6. Virtual Small Group Teaching:	Another innovative teaching modality, implemented by the University of Illinois, was student-oriented virtual group teaching sessions. During these scheduled small groups, designed as flipped classrooms, students were able to read up on assigned topics and then come together as a group to discuss under the guidance of an attending physician. The sessions included working through clinical scenarios as well as highlighting focuses of different otolaryngological subspecialties.
7. Virtual Meeting Forums:	Much like in-person residency fairs, online virtual meetings allowed applicants the opportunity to meet faculty members and residents. These sessions were advertised by email or on Otomatch, where interested students could interact with programs over Zoom.[9] Meetings varied in format but usually consisted of faculty and resident introductions, informative presentations, and question & answer sessions.

Figure 1. List of Virtual Away Rotation Options

CONCLUSION

In the future, post-pandemic virtual interactions with students will continue to complement in-person activities. Students and faculty from across the nation can interact via a virtual away rotation thus increasing familiarity and assessment of fit without the associated cost of an in-person away rotation. With increasingly competitive matches, innovative virtual away rotations serve as valuable experiences for students to learn about the specialty, enable earlier mentorship, and expand opportunities for student recruitment. Therefore, virtual away rotations are a means to improve the accessibility of the specialty to students from medical schools without academic otolaryngology departments, students who have minimal access to opportunities for research, and minority students underrepresented in the field. We are optimistic that there will be continued implementations of virtual technologies to revolutionize student participation in otolaryngology departments both near and far.

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