

COMMENTARY

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Finding Focus in Crisis: Resident-Driven Graduate Medical Education at a Military Training Facility during the COVID-19 Pandemic

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Pandemics offer a multitude of challenges to healthcare providers and medical institutions, particularly within military medicine. In addition to administering world-class patient care and maintaining the overall health and safety of the hospital staff, military training facilities (MTFs) affiliated with graduate medical education (GME) face particular challenges. Preservation of adequate trainee education remains difficult when resources are limited, elective surgeries and evaluations are postponed, and social distancing requirements keep trainee-staff interactions minimized. Nevertheless, maintenance of GME at MTFs is of utmost importance in terms of medical and operational readiness. There is limited structural guidance with regards to sustaining quality GME during these unique times.¹⁻³ The presence of such difficulty offers opportunity for the discovery of innovative approaches to resident education, and limited research on GME has been performed during periods of required social distancing.⁴ As such, the authors propose a novel and structured approach to the persistence of not only adequate, but perhaps improved strategies to provide GME while mitigating exposure risks and

maintaining the health and safety of residents and attending educators.

The Accreditation Council for Graduate Medical Education (ACGME) program requirements for GME in Ophthalmology mandate a minimum of 360 hours of didactic sessions on the basic and clinical sciences during 3 years of residency. A minimum of 6 hours of conferences is also required each month, including case presentations, grand rounds, journal club, morbidity and mortality, and quality improvement. The San Antonio Uniformed Services Health Education Consortium (SAUSHEC) Ophthalmology residency program fulfills the requirements set forth by the ACGME through daily conferences with the faculty and residents.⁵ In the setting of the COVID-19 pandemic, social distancing regulations prevented the gathering of faculty and residents for conferences and didactics. During the time of SAUSHEC ACGME COVID-19 stage 2 status, the recommendation was to continue didactics as feasible.⁶ The ACGME provided guidance that the decision to graduate or extend a resident is ultimately determined by the program director even if a resident has not completed surgical minimums. This commentary highlights the lessons learned from the SAUSHEC Ophthalmology residency program during the COVID-19 pandemic in an effort to aid other residency programs at military training facilities currently struggling with similar issues, and to provide suggestions for maintaining the operational readiness of military physicians in training.

At the onset of social distancing, the residency program leadership sought ways to effectively transition all resident education to an online platform. While online meetings with video conferencing software are commonplace in many industries, this was relatively a new concept for our program. We quickly realized that this technology was critical to provide appropriate resident education, transitions of patient care, and rapid dissemination of changing COVID-19 guidance to the residency program. Video conferencing software considered included Zoom (San Jose, CA), GoToMeeting, and

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Microsoft Teams. Though all have similar functionality, the Defense Health Agency ultimately chose Microsoft Teams as the approved conferencing software for resident education activities. On this platform, residents and program leadership were able to seamlessly and securely log on, share audio/video presentations, and actively discuss topics both verbally and in a side-typed messaging format. Additionally, participants used online messaging threads to distribute daily educational surgical videos, recently published literature, and high-yield conclusions from the morning didactics sessions, as well as COVID-19-specific updates.

With these changes, the fourth post-graduate year residents (PGY-4 s), under the direction of the program director, created a new academic schedule for the residency. Each day began with a 90-minute didactic session held on an online meeting platform. Monday through Thursday of each week, the didactic session consists of two resident-led lectures concerning specific topics of interest. These lectures used a question and answer format, which easily facilitated resident education. Friday didactic sessions were dedicated to Morbidity and Mortality (M/M) conference and journal club, with a resident assigned to lead each of these discussions. In addition, organizers allocated time each week to review high-yield oral board case simulations. To augment the absence of the hands-on components of surgical education, didactic instruction and videos were utilized. The PGY-4 residents took turns twice a week administering 20-minute lectures on the specifics of ophthalmic surgery. The residents assigned to give or lead each of these lectures include all resident levels and were those not scheduled to work at the hospital that week; this group included all resident levels. Residents involved in patient care were still expected to attend academics each day, unless they were in the operating room or attending to an emergent consultation.

At SAUSHEC, M/M sessions are usually held weekly to review surgical and clinical cases, focusing on any complications that may have occurred. With the great majority of surgical cases in ophthalmology being elective cases, the number of operations performed during the initial months of the COVID-19 pandemic decreased drastically. The only surgeries performed during this time were emergent and urgent cases, with an initial transition to elective cases in accordance with the Texas Medical Board guidelines. With this in mind, the focus of the M/M conferences shifted to a more detailed review of the specific steps of each operation performed, in addition to the complication and the steps taken to mitigate the issue encountered. The virtual platform allowed for faculty and residents to attend despite their assignments at multiple locations, including even forward-deployed geographic regions.

Journal club discussions were also emphasized. Lee et al. published an article on structured journal club and the use of a checklist criteria for a structured resident learning experience.⁷ The PGY-4 s and the residency program director worked together to develop a checklist for residents to evaluate

journal articles in a structured format for group discussion (see Table I).⁸ Once a week, a PGY-4 resident selected two articles, which he/she and a PGY-2 resident would each present following the structured format.

Oral case simulations evaluate many key areas of GME education. To avoid the loss of this valuable capability, a PGY-4 resident compiled an oral board simulation curriculum consisting of a series of over 100 practice cases that covered all topics within the field of ophthalmology. Each case consisted of a short background sentence, and at least one photograph demonstrating the pathology in question. Additionally, a passing “answer” example was provided, which was to be reviewed by the resident as a self-assessment tool following an attempt at completion of the case without assistance. Each example answer followed the “DDAMP” format, which stands for Description, Differential diagnosis, Additional testing and work-up, Main diagnosis, and Plan or treatment for management. In addition to the daily didactics sessions, residents practiced a selection of case simulations in a small group format. The case simulations were chosen to further emphasize topics previously covered and were based on subjects included in the resident-directed didactics sessions. All case simulations were timed in an effort to allow trainees to practice efficiency and time management.

In order to assess the efficacy of the new didactics structure and the impact of each individual component, a short 15-question survey was distributed to trainees following implementation of the model. Eighteen trainees received the survey, and 16 responded, yielding a response rate of 89%. Regarding the overall academic structure, 100% of respondents felt the resident-led didactics benefited their education during the COVID-19 pandemic. Concerning the individual components, 100% of respondents felt the resident-led oral board case simulations and ophthalmic surgery lecture series benefited their education. While these lectures did not substitute for more in-depth reading and board-style questions, over 90% of residents preferred this new method of resident-led teaching. Rated on a satisfaction scale of 0–10, the lectures averaged a score of 8.7. Additionally, 87.5% of respondents felt the resident-led journal article reviews provided educational benefit. Additionally, several respondents requested at least some aspect of the current academic model be continued following conclusion of the pandemic, highlighting the importance of resident-driven education.

To determine the generalizability of the methodology presented, program directors of the other ophthalmology residencies affiliated with military training facilities were contacted to define their approach to graduate medical education during the COVID-19 pandemic. Each of the military training programs transitioned to a virtual-based learning initiative, and through coordination amongst the ophthalmology residency program directors, similar approaches to graduate medical education were instituted at all facilities. Specifically, the Naval Medical Center San Diego ophthalmology residency program transitioned to a distance-based

TABLE I. Journal Article Review Format: Eight-Point Checklist

1	State the purpose and type of the study
2	Summarize key points in the article
3	Discuss the statistical analysis and teach the method used
4	Briefly describe the main results of the study
5	Highlight the strengths and weaknesses: How could the article be improved? Did the authors achieve what they set out to achieve?
6	Will the results influence practice beneficially or adversely?
7	What further research might be carried out?
8	Open forum group discussion

learning initiative with resident-led virtual didactics designed after the model discussed, which effectively maintained resident graduate medical education at the facility. In order to meet ACGME requirements, the Madigan Army Medical Center ophthalmology residency likewise instituted a virtual academics approach, concentrating on written and oral board preparation, in addition to a specific focus regarding daily personal fitness, wellness, and resiliency training. The National Capital Consortium ophthalmology residency also transitioned to virtual didactics utilizing Microsoft Teams. Additionally, the traditionally in-person grand rounds with the other Washington D.C. ophthalmology programs shifted to a strictly virtual experience, led by the George Washington University program. Uniquely, an in-person wet lab was organized to practice ophthalmic suturing and wound construction techniques with appropriate social distancing, being a 1:1 resident to staff ratio with six-foot spacing requirements. This training did not result in any COVID-19 infection exposures, demonstrating an appropriately socially distanced in-person training experience can be effectively instituted. This approach to surgical training may be vital if the social distancing requirements related to the pandemic are extended, given the concern for maintenance of surgical skills in a prolonged halt regarding elective cases. Given the similarities amongst approaches adopted by the other military ophthalmology residency training programs, it is clear the methodology presented is both effective at maintaining graduate medical education and easily instituted by programs affiliated with military training facilities.

Herein, we offer an academic model that effectively mitigated infection exposure risks while continuing to provide effective GME to military ophthalmologists in training during an infectious disease pandemic. By utilizing a variety of

technologies and teaching styles, program leadership effectively preserved the education of trainees during COVID-19. The virtual academic sessions do not appear to have interfered with the ophthalmology department's ability to continue to administer excellent patient care while maintaining the overall health and safety of the hospital staff. We believe other military training and civilian residency programs can easily and successfully implement the described resident-driven model during pandemics or other catastrophes that limit direct resident-to-patient and resident-to-attending interaction.

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