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Review Article

COVID-19 and Virtual Rotations

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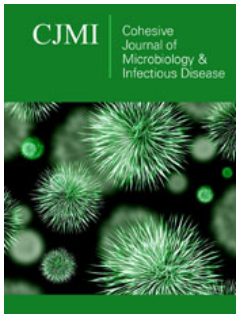

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Abstract

Due to the ongoing coronavirus pandemic, virtual rotations have become an integral paramount to ensure meaningful clinical experiences for medical students and graduates, in a timely and practical manner. The authors have witnessed the rapid scale up of virtual rotations by being enrolled in a US tele-health program. The objective of this study is to pay emphasis on the unprecedented impact of virtual rotations keeping in mind the logistical limitations and challenges. The need for the projected growth of virtual rotations must be approached to integrate a path to valuable clinical exposure.

Keywords: Covid-19; Coronavirus; Sars COV-2; Pandemic; Virtual; Rotations

Introduction

The COVID-19 pandemic has disrupted medical school graduates' involvement in clinical rotations all over the World especially in the United States of America. On March 17, 2020, the Association of American Medical Colleges on the guidelines of the Centers for Disease Control and Prevention temporarily suspended the voluntary clinical rotations for medical students in an effort to control the spread of the virus and ensure medical personnel safety [1]. These clinical rotations play an essential role in the residency applications [2] especially for International medical graduates allowing them to have a good insight of the United States clinical system, to network with faculty, conduct research, showcase their skills and most importantly obtain letters of recommendation to prepare for the residency applications. In the absence of in-person clinical rotations for residency match applications, virtual rotations have surfaced as an alternative [3,4]. These virtual rotations are comprised of online patient care experiences, teaching and didactic session, and research projects and offer medical students, especially international medical graduates, an invaluable opportunity to express their interest in a particular program and gain holistic clinical exposure and foundational knowledge about the specialty while still complying with social distancing measures. The present article evaluates the impact and limitations of virtual rotations in various subspecialties by inculcating specific methodologies to assess the difficulties that have arisen due to COVID-19 to allow continuation of clinical experience for medical school graduates and identify possible differences between in-person and virtual rotations.

Method and Materials

A comprehensive search of the medical literature in Pubmed and Google scholar was performed. The following keywords were used for the search of articles in combination: "Coronavirus/covid-19/SARS COV-2, pandemic, virtual, rotations". Total 706 articles were found through this search. Reviews, letters to editors, commentaries, expert opinion and non-relevant studies were excluded from our list of articles. After exclusion, a total of 14 articles were included in the narrative review.

Discussion

Advantages of virtual rotations

Virtual rotations in general have provided the students with a platform for obtaining clinical experience in this pandemic because away rotations have not been possible lately. One of the benefits of virtual rotations is that they provide the students with a formalized set of Didactic sessions wherein they can participate and polish their presentation skills [5]. Kahn et al. [5] and Asaad et al. [6] have pointed out that these rotations minimize the financial burden and time constraints on the students because of their flexible schedules [5,6]. One can actually participate in multiple rotations at a time because of their tremendous reachability [2]. Virtual clinical rotations are also a great way to increase access to and awareness about the less known or less sought-after fields like radiation oncology as pointed out by multiple authors [5,7,8]. Chao et al took to a unique method of teaching and explained how using a head mounted first person camera can display the operative field during open procedures in a better way than can be visualized in person [9]. One of the greatest advantages of virtual rotations is participation of students from all over the world. This exponentially increases the racial and gender diversity and eliminates geographical boundaries faced by rotators. It also increases the representation from the Under-Represented Minority (URM) students [6,7]. According to Nham et al virtual rotation was an effective way for the residents to hone their history-taking, communication, counselling, and rapport building skills [10]. Many fields including radiology saw an increase in the number of the rotators, and this was only possible because of the easy access of the virtual rotations to all [8,11]. Some authors are of the opinion that the virtual rotations actually increase the one-on-one time the students spend with their attendings which is beneficial for them [9]. Lastly, these virtual rotations are an excellent platform for distant learning and help everyone including not only students but also the physicians and nurses to be safe from Covid-19 during this pandemic [9].

Disadvantages of virtual rotations

Despite the advantages of virtual rotations, some pitfalls have been observed. Most commonly observed downside is the lack of interaction between the attending physicians and students [5]. This has resulted in an inability to holistically evaluate a candidate and gauge their personality traits in accordance with the working of the medical team [9,12]. Decreased interaction with the candidates has made the attendings less confident in writing a compelling LOR [6,12], which most candidates consider the main purpose of doing a rotation. Sandhu N et al. [7] describe that the decreased interaction has resulted in a loss of mentorship [7], which is another perceived goal of rotations. Limited in-person interaction with different attendings has decreased networking opportunities for the candidates [13], which will prove to be an obstacle for them during interviews. When compared to in-person rotations, virtual rotations offer inadequate opportunities to hone clinical skills. Physical examinations are especially affected [14], which can result in a lack of confidence of their skills by the candidate [13]. Minor procedures in specific specialties can also not be observed or assisted by the candidates, such as biopsies and cryotherapy in dermatology [14]. Attendings feel that they are unable to evaluate the clinical competence of candidates because of these limitations [6,9,12], making them less comfortable in writing an LOR [12]. Moreover, virtual rotations don't simulate the working conditions of a specialty and hence candidates are unable to judge the normal workings of their desired specialty [8]. These virtual rotations also have a lack of in-person interaction with patients [8] which is important for candidates to learn critical skills such as rapport building and empathy. This is especially true for specialties like oncology where empathizing with the patient is an important part of the management [5]. Most attendings believe that these virtual rotations should be an adjunct to in-person rotations and should not serve as replacement [12]. Attendings have also voiced concern over having to learn new technologies to participate in the virtual rotations, which has resulted in difficulty in recruiting attendings for the virtual programs [10]. Finally, owing to less interaction of the candidates with attendings and the patient population of a specific specialty results in a decreased interest and less likelihood of adopting that specialty as a career [13].

Comparison with traditional in person rotations

Virtual rotations are not replacements of true experiences in clinics and hospitals, but they did accomplish the goals of exposure and interaction with the faculty. When compared to in person rotations, students spent more time with the attending physicians. In surgery rotations, participants used live stream video recording devices and direct interaction with surgical team which isn't possible in in person rotation [9]. Another convenience of virtual rotations was the time and financial benefits. Normally for in-person rotations, students had to travel to other countries and cities which put them under financial strains and many students couldn't even come. Virtual rotations allowed many students to attend rotations while sitting in their homes, which decreases the finances [6]. The number of students as compared to in person rotation was increased [7]. The students had a more flexible schedule that gave them time to review cases and study in advance as compared to in-person rotations. It allows more IMGs to participate easily in different rotations and helped in increasing awareness about different fields among students [6,7]. The only disadvantage in this case again was the limited patient interactions [6-8,13]. It was difficult for the students to experience the working environment of each specialty [8]. It became difficult for faculty members to assess the skills of students which lead to weak LORS. The faculty felt it was more difficult to evaluate the participating students without meeting them in person [6,12]. Another concerning point was the lack of generalisability of each rotation to different institutions in virtual rotations. Each virtual rotation had different methods of teaching which was not easily applicable in other institutions [7].

Limitations associated

A couple of articles have mentioned the limitations of their work. One considerable limitation is the small sample sizes of these studies [8,12]. The distinction of required or elective rotations was also not made while collecting the data. Thus, preconceived

expectations about these rotations could have affected the responses [12]. Smith E et al [8] acknowledges that the study may be limited by the recall bias because of the subjective nature of data collection via survey forms [8].

Conclusion

Keeping in mind all the pros and cons of inculcating virtual rotations, we must take steps to create a path towards the sustainability of virtual rotations in order to guarantee the perpetuation of the clinical exposure amidst the pandemic. Introducing new teaching modalities in the form of virtual rotations will increase not only the professional growth of healthcare workers but also will pave our way toward a better learning platform. They would allow students to take part in rotations that in any other case weren't feasible for them. Students will be able to participate more in different rotations and emerge as more aware about different specialties. Virtual rotations have a great potential to act as a means for combating the racial, gender and ethnic inequalities which are seen in in-person rotations and can be used to overcome these barriers, thereby increasing diversity. They have their own limitations, especially lack of mentorship and inadequate evaluation opportunities, which must be assessed and combated to further allow betterment of these rotations. Despite these limitations, these rotations allow an alternate path for clinical exposure during the pandemic.

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