

Physically distant, educationally connected: Interactive conferencing in the era of COVID-19

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1 | WHAT PROBLEMS WERE ADDRESSED?

During the coronavirus disease 2019 (COVID-19) outbreak, physical distancing restrictions led to the cancellation of live, large group events worldwide. These included weekly educational conferences required of emergency medicine (EM) residency programmes in the USA. Specifically, the Residency Review Committee in EM under the Accreditation Council for Graduate Medical Education has mandated that there be at least 4 hours per week of synchronous conference didactics.¹ Increased clinical and administrative demands during the COVID-19 pandemic have challenged programmes to transition traditional curricula to online platforms.

2 | WHAT WAS TRIED?

In an effort to mirror a traditional in-person conference experience, we at Academic Life in Emergency Medicine (ALiEM) launched ALiEM Connect (ALiEM, San Francisco, CA, USA), incorporating a livestream video of presentations with concurrent backchannel (informal, non-public, secondary conversation) discussions. Although several teleconferencing applications exist, the distribution of an interactive conference to 1080 learners on 64 United States residency programmes necessitated a novel, scalable approach, which no existing platform offered with standard plans. Six nationally known speakers taught during the 2-hour event, in which 20 minutes were allotted to each speaker. We utilised Zoom™ (Zoom Video Communications Inc., San Jose, CA, USA) to host speakers in view of its capability to stream on to YouTube Live (YouTube, San Bruno, CA, USA). Participants

watched the stream via YouTube, and synchronous backchannel discussion with learners, educators and speakers was facilitated through a closed Slack (Slack Technologies, San Francisco, CA, USA) messaging platform restricted to registered residency programmes. Learners engaged in large group channels dedicated to each speaker and in their own small group, programme-specific channels. This structure provided an organised approach to engaging in multiple simultaneous discussions. Moderators relayed questions from learners on Slack to speakers on Zoom during live question-and-answer segments.

3 | WHAT LESSONS WERE LEARNED?

The adoption of any new digital platform is often challenging for both first-time and seasoned users. Preliminary survey data suggest that most residents were unfamiliar with Slack and may have felt reserved about navigating the platform during discussion; we note that it is challenging in this context to establish the psychological safety some residents need to empower them to comment and pose questions.

From the ALiEM Connect team's perspective, the live format required in-the-moment adaptability to unanticipated obstacles, such as unpredictable initial linkages between Zoom and YouTube, the crashing of the website caused by the initial surge of traffic, and the inability of speakers to screenshare presentation slides.

Nonetheless, our event highlighted a successful, scalable and engaged way to host a live online conference. It allowed for engagement within and across multiple programmes spanning the country and real-time access to national experts, effectively creating a virtual community of practice in a 'mega-grand rounds' format. An unexpected benefit of the Slack backchannel was that trainees seemed especially engaged

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in their programme's small group channel, on which they discussed the lecture topic, told stories of their hospital experiences, shared literature and even added humour to the conversation, thereby mimicking behaviours common to in-person conferences.

Overall, resident feedback was overwhelmingly positive. In comparison with prior in-person conference experiences, 84% of residents felt that ALiEM Connect was the same or better in quality and 93% enjoyed the event overall. Thus, although learners must remain physically distant during the COVID-19 pandemic, we offer a model for massive, online, interactive conferencing that allows for social connection and academic engagement amongst residents.

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Does my personal protective equipment really work? A simulation-based approach

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1 | WHAT PROBLEMS WERE ADDRESSED?

The problem that was addressed was the need for refresher training for personal protective equipment (PPE) during the coronavirus disease (COVID-19) pandemic. Reports that many health care workers contracted COVID-19 despite wearing suggested PPE resulted in substantial concerns about the effectiveness of the PPE.^{1,2} Staff desired both refresher training with individual feedback of their abilities to don and doff effectively and assurance that if they donned and doffed correctly that their equipment was effective.

2 | WHAT WAS TRIED?

In order to detect contamination, we utilised a non-toxic fluorescent solution during the PPE training of health care personnel. To begin, a high-lighter refill was placed in a warm water bath for 15 minutes to create a fluorescent solution. This solution is only visible under ultraviolet light.

Health care personnel donned PPE, which included a cap, gown, gloves, eye protection, face shield and N95 mask. In order to conserve

PPE, supplies were wiped off and reused for multiple trainings. Once the workers donned their PPE, they went into a room to care for a simulated patient sprayed down with the invisible simulated contagion. Additionally, we added the fluorescent solution to a simulated albuterol nebuliser treatment that was given to the high-fidelity simulator during the scenario (not in a negative pressure room). After completing the simulated case, the staff remained in their PPE and were led into another room.

The room lights were then turned off prior to doffing to allow identification of widespread simulated contagion on the PPE, both on the gloves and gowns from directly touching the simulated patient and on the face shields and masks from the aerosolised solution. A blacklight flashlight was used to examine each health care worker and identify the presence of any fluorescent solution. Learners then completed the doffing procedure. The presence of fluorescent solution on the learner's skin represented an exposure to the contagion and indicated an error was made in the donning or doffing process. The most common error was contaminating the face or forearms during PPE removal. However, those who donned and doffed according to guidelines had no signs of the fluorescent contagion on their skin or face.